Attachment A – Sample Contract Terms and Conditions

CONTRACT FOR SERVICES

This Contract ("Contract"), entered into by and between the Alabama 911 Board (the "Board") and _____ (the "Contractor"), is executed pursuant to the terms and conditions set forth herein. In consideration of those mutual undertakings and covenants, the parties agree as follows:

1. Duties of Contractor. The Contractor shall provide the following services relative to this Contract:

[Scope of services to be inserted here and as Appendices/Exhibits upon award of Contract]

2. Consideration. The Contractor shall be compensated for services performed under this Contract as follows:

[Fee information to be inserted upon award of Contract]

3. Term. This Contract shall be effective for a period of [___TBD_____]. It shall commence on [__TBD_____] and shall remain in effect through [__TBD_____].

4. Access to Records. The Contractor and its subcontractors, if any, shall maintain all books, documents, papers, accounting records, and other evidence pertaining to all costs incurred and payments made under this Contract. They shall make such materials available at their respective offices at all reasonable times during this Contract, and for three (3) years from the date of final payment under this Contract, for inspection by the Board or its authorized designees. Copies shall be furnished at no cost to the Board if requested.

5. Assignment; Successors. The Contractor binds its successors and assignees to all the terms and conditions of this Contract. The Contractor shall not assign or subcontract the whole or any part of this Contract without the Board's prior written consent. The Contractor may assign its right to receive payments to such third parties as the Contractor may desire without the prior written consent of the Board, provided that the Contractor gives written notice (including evidence of such assignment) to the Board thirty (30) days in advance of any payment so assigned. The assignment shall cover all unpaid amounts under this Contract and shall not be made to more than one party.

6. Assignment of Antitrust Claims. As part of the consideration for the award of this Contract, the Contractor assigns to the Board all right, title and interest in and to any claims the Contractor now has, or may acquire, under state or federal antitrust laws relating to the products or services which are the subject of this Contract.

7. Audits. The Contractor acknowledges that it may be required to submit to an audit of funds paid through this Contract. Any such audit shall be conducted in accordance with Chapter 2A, Title 40 Ala. Code, 1975, and audit guidelines specified by the Board.

The Board considers the Contractor to be a "vendor" for purposes of this Contract. However, if required by applicable provisions of the Office of Management and Budget Circular A-133 (Audits of States, Local Governments, and Non-Profit Organizations), following the expiration of this Contract the Contractor shall arrange for a financial and compliance audit of funds provided by the Board pursuant to this Contract. Such

audit is to be conducted by an independent public or certified public accountant and performed in accordance with industry best practice and applicable provisions of the Office of Management and Budget Circulars A-133 (Audits of States, Local Governments, and Non-Profit Organizations). The Contractor is responsible for ensuring that the audit and any management letters are completed and forwarded to the Board in accordance with the terms of this Contract. Audits conducted pursuant to this paragraph must be submitted no later than nine (9) months following the close of the Contractor's fiscal year. The Contractor agrees to provide the Board an original of all financial and compliance audits. The audit shall be an audit of the actual entity, or distinct portion thereof that is the Contractor, and not of a parent, member, or Subsidiary Corporation of the Contractor, except to the extent such an expanded audit may be determined by the Board to be in the best interests of the Board. The audit shall include a statement from the Auditor that the Auditor has reviewed this Contract and that the Contractor is not out of compliance with the financial aspects of this Contract.

8. Authority to Bind Contractor. The signatory for the Contractor represents that he/she has been duly authorized to execute this Contract on behalf of the Contractor and has obtained all necessary or applicable approvals to make this Contract fully binding upon the Contractor when his/her signature is affixed, and accepted by the Board.

9. Changes in Work. The Contractor shall not commence any additional work or change the scope of the work until authorized in writing by the Board. The Contractor shall make no claim for additional compensation in the absence of a prior written approval and amendment executed by all signatories hereto. This Contract may only be amended, supplemented or modified by a written document executed in the same manner as this Contract.

10. Compliance with Laws.

A. The Contractor shall comply with all applicable federal, state, and local laws, rules, regulations, and ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment or modification of any applicable state or federal statute or the promulgation of rules or regulations thereunder after execution of this Contract shall be reviewed by the Board and the Contractor to determine whether the provisions of this Contract require formal modification.

B. The Contractor and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the Board as set forth in The Alabama Ethics Law Sections 36-25-1 et seq. Ala. Code, 1975, as amended and the regulations promulgated thereunder. If the Contractor is not familiar with these ethical requirements, the Contractor should refer any questions to the Alabama State Ethics Commission. If the Contractor or its agents violate any applicable ethical standards, the Board may, in its sole discretion, terminate this Contract immediately upon notice to the Contractor. In addition, the Contractor may be subject to penalties under The Alabama Ethics Law at Section 36-25-27 Ala. Code, 1975, as amended and under any other applicable laws.

C. The Contractor certifies by entering into this Contract that neither it nor its principal(s) is presently in arrears in payment of taxes, permit fees or other statutory, regulatory or judicially required payments to the Board or the State of Alabama. The Contractor agrees that any payments currently due to the Board or the State of Alabama may be withheld from payments due to the Contractor. Additionally, further work or payments may be withheld, delayed, or denied and/or this Contract suspended until the Contractor is current in its payments and has submitted proof of such payment to the Board.

D. The Contractor warrants that it has no current, pending or outstanding criminal, civil, or enforcement actions initiated by the Board or the State of Alabama and agrees that it will immediately notify the Board of any such actions. During the term of such actions, the Contractor agrees that the Board may delay,

withhold, or deny work under any supplement, amendment, change order or other contractual device issued pursuant to this Contract.

E. If a valid dispute exists as to the Contractor's liability or guilt in any action initiated by the Board or the State of Alabama or any affiliated agencies, and the Board decides to delay, withhold, or deny work to the Contractor, the Contractor may request that it be allowed to continue, or receive work, without delay. The Contractor must submit, in writing, a request for review to the Board. A determination by the Board shall be binding on the parties. Any payments that the Board may delay, withhold, deny, or apply under this section shall not be subject to penalty or interest.

F. The Contractor warrants that the Contractor and its subcontractors, if any, shall obtain and maintain all required permits, licenses, registrations, and approvals, and shall comply with all health, safety, and environmental statutes, rules, or regulations in the performance of work activities for the Board. Failure to do so may be deemed a material breach of this Contract and grounds for immediate termination and denial of further work with the Board.

G. The Contractor affirms that, Contractor is properly registered and owes no outstanding reports to the Alabama Secretary of State.

Commented [FM1]: We will need to register to do business in the State of Alabama

11. Condition of Payment. All services provided by the Contractor under this Contract must be performed to the Board's reasonable satisfaction and in accordance with all applicable federal, state, local laws, ordinances, rules and regulations. The Board shall not be required to pay for work found to be unsatisfactory, inconsistent with this Contract, or performed in violation of and federal, state or local statute, ordinance, rule or regulation.

12. Confidentiality of Board Information. The Contractor understands and agrees that data, materials, and information disclosed to the Contractor may contain confidential and protected information. The Contractor covenants that data, material, and information gathered, based upon or disclosed to the Contractor for the purpose of this Contract will not be disclosed to or discussed with third parties without the prior written consent of the Board.

The parties acknowledge that the services to be performed by Contractor for the Board under this Contract may require or allow access to data, materials, and information containing Personally Identifiable Information (defined as any information that identifies or can be used to identify, contact or locate the person to whom such information pertains or from which identification or contact information on an individual can be derived). If any Social Security number(s) is/are disclosed by Contractor, Contractor agrees to pay the cost of the notice of disclosure of a breach of the security of the system in addition to any other claims and expenses for which it is liable under the terms of this contract.

13. Continuity of Services.

A. The Contractor recognizes that the service(s) to be performed under this Contract are vital to the Board and the State of Alabama and must be continued without interruption and that, upon Contract expiration or termination, Contractor shall provide all reporting data in its native form (as collected from the equipment) using an external storage device such as a USB hard disk or similar device. The Board or another contractor will be responsible for implementing an alternative Reporting and Analytics tool. The Contractor agrees to:

Deleted:

Deleted: a successor, either the Board or another contractor, may continue them

Commented [FM2]: Because ECaTS is sold as a service, it cannot be performed by another vendor or the Board. ECaTS will instead provide transition services and data extract so that the information may be imported into an alternative Reporting and Analytics platform should the Board decide to discontinue services.

1. Furnish phase-in training; and
2. Exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.

B. The Contractor shall, upon the Board's written notice:

1. Continue to provide services during the transition of services period for up to six (6) months after this Contract is terminated or expires; and
2. Negotiate in good faith a plan with the Board and any successor to determine the nature and extent of phase-in, phase-out services necessary to transition operation. The plan shall specify a training program and a date for transferring responsibilities for each of the service areas provided, and shall be subject to the Board's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this Contract are maintained at the required level of proficiency.

C. The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this Contract.

Commented [FM3]: ECaTS is sold as a service, key employees belong to the company and shall stay in the company to support all our customers.

Deleted: The Contractor shall also disclose necessary personnel records and allow the successor to conduct on-site interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.

D. The Contractor shall be reimbursed for reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations). Any costs eligible for reimbursement shall not exceed the monthly recurring cost being paid for the services provided under this contract at the time of contract expiration and as approved by the Board.

14. Debarment and Suspension.

A. The Contractor certifies by entering into this Contract that neither it nor its principals nor any of its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from entering into this Contract by any federal agency or by any department, agency or political subdivision of the State of Alabama. The term "principal" for purposes of this Contract means an officer, director, owner, partner, key employee or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor.

B. The Contractor certifies that it has verified the state and federal suspension and debarment status for all subcontractors receiving funds under this Contract and shall be solely responsible for any recoupment, penalties or costs that might arise from use of a suspended or debarred subcontractor. The Contractor shall immediately notify the Board if any subcontractor becomes debarred or suspended, and shall, at the Board's request, take all steps required by the Board to terminate its contractual relationship with the subcontractor for work to be performed under this Contract.

15. Default by Board. If the Board, ninety (90) days after receipt of written notice, fails to correct or cure any material breach of this Contract, the Contractor may cancel and terminate this Contract and institute measures to collect monies due up to and including the date of termination.

16. Disputes.

A. Should any disputes arise with respect to this Contract, the Contractor and the Board agree to act immediately to resolve such disputes. Time is of the essence in the resolution of disputes.

B. The Contractor agrees that, the existence of a dispute notwithstanding, it will continue without delay to carry out all of its responsibilities under this Contract that are not affected by the dispute. Should the Contractor fail to continue to perform its responsibilities regarding all non-disputed work, without delay, any additional costs incurred by the Board or the Contractor as a result of such failure to proceed shall be borne by the Contractor, and the Contractor shall make no claim against the Board for such costs.

C. If a party to the Contract is not satisfied with the progress toward resolving a dispute, the party must notify in writing the other party of this dissatisfaction. Upon written notice, the parties have ten (10) working days, unless the parties mutually agree to extend this period, following the notification to resolve the dispute. If the dispute is not resolved within ten (10) working days, the parties shall submit the dispute, in compliance with the recommendations to the Attorney General, when considering settlement of such disputes, to utilize appropriate forms of alternate dispute resolution, including, but not limited to, mediation by or through the Attorney General's Office of Administrative Hearing or where appropriate, private mediators. If a party if not satisfied with the results of mediation, the dissatisfied party may submit the dispute to the Circuit Court of Montgomery County, Alabama.

D. The Board may withhold payments on disputed items pending resolution of the dispute. The unintentional nonpayment by the Board to the Contractor of one or more invoices not in dispute in accordance with the terms of this Contract will not be cause for the Contractor to terminate this Contract.

E. It is agreed that the terms and commitments contained herein shall not be constituted a debt of the State of Alabama in violation of Article XI, Section 213, of the Constitution of Alabama, 1901, as amended by Amendment No. 26. It is further agreed that if any provision of this contract shall contravene any statute or constitutional provision or amendment, either now in effect or which may, during the course of this contract, be enacted, then that conflicting provision of the contract shall be null and void.

17. Drug-Free Workplace Certification. The Contractor hereby covenants and agrees to make a good faith effort to provide and maintain a drug-free workplace. The Contractor will give written notice to the Board within ten (10) days after receiving actual notice that the Contractor, or an employee of the Contractor in the State of Alabama, has been convicted of a criminal drug violation occurring in the workplace. False certification or violation of this certification may result in sanctions including, but not limited to, suspension of contract payments, termination of this Contract and/or debarment of contracting opportunities with the Board for up to three (3) years.

In addition to the provisions of the above paragraph, if the total amount set forth in this Contract is in excess of $25,000.00, the Contractor certifies and agrees that it will provide a drug-free workplace by:

A. Publishing and providing to all of its employees a statement notifying them that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;

B. Establishing a drug-free awareness program to inform its employees of (1) the dangers of drug abuse in the workplace; (2) the Contractor's policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; and (4) the penalties that may be imposed upon an employee for drug abuse violations occurring in the workplace;

C. Notifying all employees in the statement required by subparagraph (A) above that as a condition of continued employment, the employee will (1) abide by the terms of the statement; and (2) notify the Contractor of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;

D. Notifying the Board in writing within ten (10) days after receiving notice from an employee under subdivision (C)(2) above, or otherwise receiving actual notice of such conviction;

E. Within thirty (30) days after receiving notice under subdivision (C)(2) above of a conviction, imposing the following sanctions or remedial measures on any employee who is convicted of drug abuse violations occurring in the workplace: (1) taking appropriate personnel action against the employee, up to and including termination; or (2) requiring such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state or local health, law enforcement, or other appropriate agency; and

F. Making a good faith effort to maintain a drug-free workplace through the implementation of subparagraphs (A) through (E) above.

18. Employment Eligibility Verification. As required by Alabama state law, the Contractor swears or affirms under the penalties of perjury that the Contractor does not knowingly employ an unauthorized alien. The Contractor further agrees that:

A. The Contractor shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC §22-5-1.7-3. The Contractor is not required to participate should the E-Verify program cease to exist. Additionally, the Contractor is not required to participate if the Contractor is self-employed and does not employ any employees.

B. The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien.

C. The Contractor shall require his/her/its subcontractors, who perform work under this Contract, to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.

The Board may terminate for default if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified by the Board.

20. Force Majeure. In the event that either party is unable to perform any of its obligations under this Contract or to enjoy any of its benefits because of natural disaster or decrees of governmental bodies not the fault of the affected party (hereinafter referred to as a "Force Majeure Event"), the party who has been so affected shall immediately give notice to the other party and shall do everything possible to resume performance. Upon receipt of such notice, all obligations under this Contract shall be immediately suspended. If the period of nonperformance exceeds thirty (30) days from the receipt of notice of the Force Majeure Event, the party whose ability to perform has not been so affected may, by giving written notice, terminate this Contract.

21. Funding Cancellation. When the Board makes a written determination that funds are not authorized by statute or otherwise available to support continuation of performance of this Contract, this Contract shall be canceled. A determination by the Board that funds are not authorized or otherwise available to support continuation of performance shall be final and conclusive.

Deleted: 19. Employment Option. If the Board determines that it would be in the Board's best interest to hire an employee of the Contractor, the Contractor will release the selected employee from any non-competition agreements that may be in effect. This release will be at no cost to the Board or the employee.

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22. Governing Law. This Contract shall be governed, construed, and enforced in accordance with the laws of the State of Alabama, without regard to its conflict of laws rules. Suit, if any, must be brought in the Circuit Court of Montgomery County, Alabama.

23. Indemnification. The Contractor agrees to indemnify, defend, and hold harmless the Board, its agents, officials, and employees from all claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any, in the performance of this Contract. In exchange, The Board shall provide the same reciprocal indemnification to the Contractor.

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Deleted: such

24. Independent Contractor; Workers' Compensation Insurance. The Contractor is performing as an independent entity under this Contract. No part of this Contract shall be construed to represent the creation of an employment, agency, partnership or joint venture agreement between the parties. Neither party will assume liability for any injury (including death) to any persons, or damage to any property, arising out of the acts or omissions of the agents, employees or subcontractors of the other party. The Contractor shall provide all necessary unemployment and workers' compensation insurance for the Contractor's employees, and shall provide the Board with a Certificate of Insurance evidencing such coverage prior to starting work under this Contract.

25. Insurance. The Contractor shall secure and keep in force during the term of this Contract the following insurance coverage, covering the Contractor for any and all claims of any nature which may in any manner arise out of or result from Contractor's performance under this Contract:

A. The Contractor and their subcontractors (if any) shall secure and keep in force during the term of this Contract the following insurance coverages (if applicable) covering the Contractor for any and all claims of any nature which may in any manner arise out of or result from Contractor's performance under this Contract:

1. Commercial general liability, including contractual coverage, and products or completed operations coverage (if applicable), with minimum liability limits not less than $700,000 per person and $5,000,000 per occurrence unless additional coverage is required. The Board is to be named as an additional insured on a primary, non-contributory basis for any liability arising directly or indirectly under or in connection with this Contract.

2. Automobile liability for owned, non-owned and hired autos with minimum liability limits of $700,000 per person and $5,000,000 per occurrence. The Board is to be named as an additional insured on a primary, non-contributory basis.

3. Professional Liability, also known as Errors and Omissions Insurance, for those Contractors required to hold a professional license in Alabama with limits not less than $700,000 per cause of action and $5,000,000 per occurrence. This is coverage available to pay for liability arising out of the performance of professional or business related duties, with coverage tailored to the needs of the specific profession. Coverage for the benefit of the Board shall continue for a period of two (2) years after the date of service provided under this Contract.

4. Fiduciary Liability would be required if the Contractor is responsible for the management and oversight of various employee benefit plans and programs such as pensions, profit-sharing and savings, among others. These contractors face potential claims for mismanagement brought by plan members. Limits should be no less than $700,000 per cause of action and $5,000,000 per occurrence.

5. Valuable Papers coverage, available under an Inland Marine policy, is recommended when any plans, drawings, media, data, records, reports, billings and other documents are produced or used under this agreement. Insurance must have limits sufficient to pay for the re-creation and reconstruction of such records.

6. The Contractor shall secure the appropriate Surety or Fidelity Bond(s) as required by applicable statutes.

7. The Contractor shall provide proof of such insurance coverage by tendering to the Board a certificate of insurance prior to the commencement of this Contract and proof of workers' compensation coverage meeting all statutory requirements. In addition, proof of an "all states endorsement" covering claims occurring outside Alabama is required if any of the services provided under this Contract involve work outside of Alabama.

B. The Contractor's insurance coverage must meet the following additional requirements:

1. The insurer must have a certificate of authority or other appropriate authorization to operate in the state in which the policy was issued.

2. Any deductible or self-insured retention amount or other similar obligation under the insurance policies shall be the sole obligation of the Contractor.

3. The Board will be defended, indemnified and held harmless to the full extent of any coverage actually secured by the Contractor in excess of the minimum requirements set forth above. The duty to indemnify the Board under this Contract shall not be limited by the insurance required in this Contract.

4. The insurance required in this Contract, through a policy or endorsement(s), shall include a provision that the policy and endorsements may not be canceled or modified without thirty (30) days' prior written notice to the Board.

5. The Contractor waives and agrees to require their insurer to waive their rights of subrogation against the Board.

C. Failure to provide insurance as required in this Contract may be deemed a material breach of contract entitling the Board to immediately terminate this Contract. The Contractor shall furnish a certificate of insurance and all endorsements to the Board before the commencement of this Contract.

26. Key Person(s).

A. If both parties have designated that certain individual(s) are essential to the services offered, the parties agree that should such individual(s) leave their employment during the term of this Contract for whatever reason, the Board shall have the right to terminate this Contract upon thirty (30) days' prior written notice.

B. In the event that the Contractor is an individual, that individual shall be considered a key person and, as such, essential to this Contract. Substitution of another for the Contractor shall not be permitted without express written consent of the Board.

Nothing in sections A and B, above shall be construed to prevent the Contractor from using the services of others to perform tasks ancillary to those tasks which directly require the expertise of the key person.

Examples of such ancillary tasks include secretarial, clerical, and common labor duties. The Contractor shall, at all times, remain responsible for the performance of all necessary tasks, whether performed by a key person or others.

Key person(s) to this Contract is/are __None – ECaTS is a large team that supports 30% of the US 9-1-1 market. There is not one individual that is critical for the implementation of ECaTS services.

27. Minority, Women, and Veteran Business Enterprise Participation. Substantially all of the work under this Contract will be performed directly by the Contractor's employees or by its certified technicians. Prior to the time the Contractor employs any third party subcontractors, the Contractor will work with the Board to identify opportunities and select qualified participants.

28. Licensing Standards. The Contractor, its employees and subcontractors shall comply with all applicable licensing standards, certification standards, accrediting standards and any other laws, rules, or regulations governing services to be provided by the Contractor pursuant to this Contract. The Board will not pay the Contractor for any services performed when the Contractor, its employees or subcontractors are not in compliance with such applicable standards, laws, rules, or regulations. If any license, certification or accreditation expires or is revoked, or any disciplinary action is taken against an applicable license, certification, or accreditation, the Contractor shall notify the Board immediately and the Board, at its option, may immediately terminate this Contract.

29. Merger & Modification. This Contract constitutes the entire agreement between the parties. No understandings, agreements, or representations, oral or written, not specified within this Contract will be valid provisions of this Contract. This Contract may not be modified, supplemented, or amended, except by written agreement signed by all necessary parties.

30. Nondiscrimination.

Pursuant to the federal Civil Rights Act of 1964, the Age Discrimination in Employment Act, and the Americans with Disabilities Act, the Contractor covenants that it shall not discriminate against any employee or applicant for employment relating to this Contract with respect to the hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of the employee's or applicant's race, color, national origin, religion, sex, age, disability, ancestry, status as a veteran, or any other characteristic protected by federal, state, or local law ("Protected Characteristics"). Contractor certifies compliance with applicable federal laws, regulations, and executive orders prohibiting discrimination based on the Protected Characteristics in the provision of services. Breach of this paragraph may be regarded as a material breach of this Contract, but nothing in this paragraph shall be construed to imply or establish an employment relationship between the Board and any applicant or employee of the Contractor or any subcontractor.

The Board is periodically a recipient of federal funds, and therefore, where applicable, Contractor and any subcontractors shall comply with requisite affirmative action requirements, including reporting, pursuant to 41 CFR Chapter 60, as amended, and Section 202 of Executive Order 11246.

31. Notice to Parties. Whenever any notice, statement or other communication is required under this Contract, it shall be sent by first class mail or via an established courier or delivery service to the following addresses, unless otherwise specifically advised.

A. Notices to the Board shall be sent to:

Alabama 911 Board
Attn: _____
[ADDRESS]

B. Notices to the Contractor shall be sent to: **(Include contact name and/or title, name of vendor & address)**

_____
_____
_____
_____

Payments to the Contractor shall be made via electronic funds transfer in accordance with instructions filed by the Contractor with the Board.

32. Order of Precedence; Incorporation by Reference. Any inconsistency or ambiguity in this Contract shall be resolved by giving precedence in the following order: (1) this Contract, (2) attachments prepared by the Board, (3) RFP#_____, (4) Contractor's response to RFP#_____, and (5) attachments prepared by the Contractor. All attachments, and all documents referred to in this paragraph, are hereby incorporated fully by reference.

33. Ownership of Documents and Materials. All documents, records, programs, data, film, tape, articles, memoranda, and other materials not developed or licensed by the Contractor prior to execution of this Contract, but specifically developed under this Contract shall be considered "work for hire" and the Contractor transfers any ownership claim to the Board and all such materials will be the property of the Board. Use of these materials, other than related to contract performance by the Contractor, without the prior written consent of the Board, is prohibited. During the performance of this Contract, the Contractor shall be responsible for any loss of or damage to these materials developed for or supplied by the Board and used to develop or assist in the services provided while the materials are in the possession of the Contractor. Any loss or damage thereto shall be restored at the Contractor's expense. The Contractor shall provide the Board full, immediate, and unrestricted access to the work product during the term of this Contract.

34. Payments. All payments shall be made 60 days in arrears by electronic funds transfer to the financial institution designated by the Contractor in writing. No payments will be made in advance of receipt of the goods or services that are the subject of this Contract.

35. Penalties/Interest/Attorney's Fees. The Board will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest or attorney's fees, except as permitted by Alabama law.

Any liability resulting from the Board's failure to make prompt payment shall be based solely on the amount of funding originating from the Board and shall not be based on funding from federal or other sources.

36. Progress Reports. The Contractor shall submit progress reports to the Board upon request. The progress reports shall serve the purpose of assuring the Board that work is progressing in line with the schedule, and that completion can be reasonably assured on the scheduled date.

37. Public Record. The Contractor acknowledges that the Board will not treat this Contract as containing confidential information. Use by the public of the information contained in this Contract shall not be considered an act of the Board.

38. Renewal Option. This Contract may be renewed under the same terms and conditions, subject to the approval of the Board. The term of the renewed contract may not be longer than the term of the original contract.

39. Severability. The invalidity of any section, subsection, clause or provision of this Contract shall not affect the validity of the remaining sections, subsections, clauses or provisions of this Contract.

40. Substantial Performance. This Contract shall be deemed to be substantially performed only when fully performed according to its terms and conditions and any written amendments or supplements.

41. Taxes. The Board is exempt from most state and local taxes and many federal taxes. The Board will not be responsible for any taxes levied on the Contractor as a result of this Contract.

42. Termination for Convenience. This Contract may be terminated, in whole or in part, by the Board whenever, for any reason, the Board determines that such termination is in its best interest. Termination of services shall be effected by delivery to the Contractor of a Termination Notice at least thirty (30) days prior to the termination effective date, specifying the extent to which performance of services under such termination becomes effective. The Contractor shall be compensated for services properly rendered prior to the effective date of termination. The Board will not be liable for services performed after the effective date of termination. The Contractor shall be compensated for services herein provided but in no case shall total payment made to the Contractor exceed the original contract price or shall any price increase be allowed on individual line items if canceled only in part prior to the original termination date.

43. Termination for Default.

A. With the provision of thirty (30) days' notice to the Contractor, the Board may terminate this Contract in whole or in part if the Contractor fails to:

1. Correct or cure any breach of this Contract; the time to correct or cure the breach may be extended beyond thirty (30) days if the Board determines progress is being made and the extension is agreed to by the parties;
2. Deliver the supplies or perform the services within the time specified in this Contract or any extension;
3. Make progress so as to endanger performance of this Contract; or
4. Perform any of the other provisions of this Contract.

B. If the Board terminates this Contract in whole or in part, it may acquire, under the terms and in the manner the Board considers appropriate, supplies or services similar to those terminated**,** However, the Contractor shall continue the work not terminated. In no event shall Contractor's financial liability exceed those funds paid to Contractor as part of this Contract before the termination occurred.

Deleted: , and the Contractor will be liable to the Board for any excess costs for those supplies or services

Commented [FM5]: Need to limit liability not to exceed funds paid for services that have been cancelled by the Board

C. The Board shall pay the contract price for completed supplies delivered and services accepted. The Contractor and the Board shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. The Board may withhold from these amounts any sum the Board determines to be necessary to protect the Board against loss because of outstanding liens or claims of former lien holders.

D. The rights and remedies of the Board in this clause are in addition to any other rights and remedies provided by law or equity or under this Contract.

44. Travel. No expenses for travel will be reimbursed unless specifically permitted under the scope of services or consideration provisions. If approved by the Board, expenditures made by the Contractor for travel will be reimbursed at the current rate paid by the Board and in accordance with the State Travel Policies and Procedures as specified in the current Financial Management Circular. Out-of-state travel requests must be reviewed by the Board for availability of funds and for appropriateness per Circular guidelines.

45. Waiver of Rights. No right conferred on either party under this Contract shall be deemed waived, and no breach of this Contract excused, unless such waiver is in writing and signed by the party claimed to have waived such right. Neither the Board's review, approval or acceptance of, nor payment for, the services required under this Contract shall be construed to operate as a waiver of any rights under this Contract or of any cause of action arising out of the performance of this Contract, and the Contractor shall be and remain liable to the Board in accordance with applicable law for all damages to the Board caused by the Contractor's negligent performance of any of the services furnished under this Contract.

46. Work Standards. The Contractor shall execute its responsibilities by following and applying at all times the highest professional and technical guidelines and standards. If the Board becomes dissatisfied with the work product of or the working relationship with those individuals assigned to work on this Contract, the Board may request in writing the replacement of any or all such individuals, and the Contractor shall grant such request.

Non-Collusion and Acceptance

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Contract other than that which appears upon the face hereof.

In Witness Whereof, Contractor and the Board have, through their duly authorized representatives, entered into this Contract. The parties, having read and understood the foregoing terms of this Contract, do by their respective signatures dated below agree to the terms thereof.

[Contractor]	Alabama Statewide 911 Board
By: _____	By: _____
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

3009 Douglas Blvd. Suite 300
Roseville, CA 95661
916 787 2200 | 888 725 8099

February 1, 2016

Alabama 9-1-1 Board
Reference: AL-NG911-RFP-16-001
1 Commerce ST
Suite 610
Montgomery AL, 36104

Subject: AL-NG911-RFP-16-001 Letter of Transmittal

Dear Alabama 9-1-1 Board:

On behalf of Direct Technology, I am pleased to present you with the enclosed proposal in response to the Alabama 9-1-1 Board Next Generation 911 Systems and Services RFP (AL-NG911-RFP-16-001). We acknowledge the proposal deadline of March 4, 2016 and provide our acceptance of the RFP evaluation criteria, process, and instructions. Additionally, we acknowledge and understand all general information presented in Section 1 of the RFP and agree with all requirements/conditions listed.

Direct Technology would like to propose a best in class service, Emergency Call Tracking System (ECaTS), in response to the System Reporting and i3 Logging Requirements, Section 5, of the RFP. We would also like to note that our proposed solution in this response is the same solution being proposed by our partners: INdigital/RPSS, Solacom, AT&T, and CenturyLink/TCS. Our solution will work seamlessly with any carrier's proposal in this effort.

The ECaTS Division of Direct Technology is recognized as subject matter experts in reporting and Public Safety Intelligence and proposes to provide the first universal 911 Call Reporting System that leverages the ubiquitous nature of the Internet to provide secure, real-time reporting to the 911 industry.

ECaTS gives its clients the ability to transparently report all intelligence related to 911 call handling and volume across an individual PSAP, county, any given jurisdiction and/or statewide regardless of the Customer Premise Equipment (CPE) at the PSAP. ECaTS MIS and Analytics services will provide i3 Logging and Operational Reporting solutions.

We are a team of professionals with a proven track record in public safety analytics since 1997, specifically in the aggregation and reporting of 9-1-1 statistics for over fourteen hundred (1400) PSAPs across the country. ECaTS is currently installed and in production statewide throughout

the States of California, Utah, Oregon, Delaware, North Carolina, parts of Texas, Florida, Kentucky, Mississippi, Louisiana, Missouri, Colorado, Virginia, Tennessee, Oklahoma and Washington. Our two most recent statewide deployments are the State of Indiana and the State of Kansas.

The ECaTS a division of Direct Technology certifies that the information offered in its proposal will meet all general conditions including the information requested in Section 2.3 of RFP AL-NG911-RFP-16-001. Direct Technology extends its willingness to provide the requested products and/or services subject to the terms and conditions set forth in the RFP including, but not limited to, mandatory contract clauses.

The principal contact for the proposal is **Tiffany Chambers, ECaTS National Sales Director**, and can be reached at:

3009 Douglas Blvd., Suite 300

Roseville, CA. 95661

Cell: 678-925-8912

Office: 916-787-2227

Fax: 916-787-2227

Email: tchambers@ecats911.com

Please note, “Confidential” information is included in our response in a sealed packet/folder. Thank you for this opportunity to participate in the State of Alabama 9-1-1 Board Next Generation 911 Systems and Services RFP.

Sincerely,

Fred M. Michanie
ECaTS President/Founder, product of Direct Technology
Work 916.787.2201 l Cell 916.501.9036

AL-NG911-RFP-16-001 Next Gene

Attachment B - Business Proposal

Instructions

Tab Name
Business Proposal

ration 911 Systems and Services

Instructions
Please fill in the cells shaded yellow and indicate if any attachments are included in the response to each item. Some items require a yes/no answer and an explanation if the answer is no.

AL-NG911-RFP-16-001 ATTACHMENT B - BUSINESS PROPOSAL

Respondent Name:	Direct Technology - ECaTS 911 Reporting Solution
	Please Complete Yellow Shaded Regions

2.3.1 GENERAL (OPTIONAL)

	Enter your response below. Please indicate if attachments are included.
The Respondent may use this optional section of the business proposal to introduce or summarize any information the Respondent deems relevant or important to the State's successful acquisition of the products and/or services requested in this RFP.	ECaTS is very excited to provide a response to the Alabama RFP. As detailed in this response, ECaTS is the standard in Public Safety Intelligence and Reporting. With deployments in more than 1400 PSAPs nationally, ECaTS has a proven track record of providing reliable reporting service and direct access to some of the best data analysts and statisticians in the industry. Some of our clients have been using ECaTS since 1997 and have been able to utilize the tool and service to develop long term industry trends for their regions, understand the impact of evolving technologies and implement industry standards with objective reporting at the PSAP and regional levels. Unlike most MIS reporting packages that are productized, ECaTS is provided as a service to ensure that our customers are never isolated or operate on an outdated release; and they always have access to a knowledgeable support team. The ECaTS group is recognized as subject matter experts in reporting and Public Safety Intelligence, we participate in multiple industry standard bodies including NENA, APCO, CSRIC and others. We help guide the industry in the implementation of reporting and intelligent solutions in both legacy and NextGen – using data models based on 9-1-1 call statistics as the basis for recommendations. If selected by the Alabama 9-1-1 Board, the ECaTS Team will work closely with the State to implement a solution that will empower the Board and PSAP Personnel to make decisions based on actual 9-1-1 event information. The State will be able to establish standards and monitor PSAP and vendors to those standards. All along, the ECaTS team will be providing supportive services and analytics knowhow to ensure the State always has intelligence to drive their decisions. Under our model, the State will have direct access to multiple disciplines from analytics, to software development, to web-based training and unusual data requests. No matter how complex the request, the team will be able to provide the State with answers, support and a customer service model that is dedicated to excellence. We invite the State of Alabama to check our existing customer references, and learn why our customers consider us a critical component of their 9-1-1 strategy.

2.3.2 RESPONDENT'S COMPANY STRUCTURE

	Enter your response below. Please indicate if attachments are included.

The legal form of the Respondent's business organization, the state in which formed (accompanied by a certificate of authority), the types of business ventures in which the organization is involved, and a chart of the organization are to be included in this section. If the organization includes more than one product division, the division responsible for the development and marketing of the requested products and/or services in the United States must be described in more detail than other components of the organization.	ECaTS is a business division of DirectApps, Inc dba. Direct Technology (www.directtechnology.com), a Delaware company. Direct Technology was originally founded by Fred Michanie in 1996 in the State of Delaware. The company currently has offices in Roseville, California and Bellevue, Washington. With over 275 full time employees and another 250 contractors, Direct Technology provides services to customers in both the private and public sector. In the private sector, Direct Technology's customers include names like Microsoft, Boeing, Starbucks, Google, Sutter Health, and others. In the Energy Utility space, Direct Technology provides technology services to all Investor Owned Utilities in California, including: Pacific Gas and Electric (PG&E), Southern California Edison (SCE), Southern California Gas and San Diego Gas and Electric. For these customers, Direct Technology develops, maintains and manages Custom Software Workflow Automation Systems that track hundreds of millions of dollars in Energy Efficiency Transactions. Additionally, Direct Technology provides Energy Efficiency Workflow Automation Systems for multiple national Energy Utilities in Georgia, Florida, Alabama, Maine, Kentucky and Louisiana. On the public sector, Direct Technology has been servicing multiple State Agencies in California, Oregon, Washington and Florida. The technology services provided to State Agencies range from IT Staffing to Custom Business Intelligence and Analytic Solutions as well as Application and Server Hosting. Direct Technology is a Delaware S-Corp, privately held with no outside or private equity funding used to grow, instead the partners used systematic, planned and controlled organic growth to achieve impressive results. The success experienced by Direct Technology since its foundation was leveraged by the owners to start a holding company: TA Group Holdings (http://www.tagroupholdings.com). This holding group proceeded to acquire other companies to ensure market and industry diversification. Some of the acquisitions were strategically integrated into the portfolio to provide Direct Technology access to best-of-breed end user interface development and mobility solutions. Such technological diversification coupled with effective access to technological resources empower Direct Technology and therefore ECaTS with the ability to quickly and efficiently grow to meet the demands of our customer base. More importantly, it provides ECaTS with the best talent and technology available in the industry. Please reference the following attachments: Attachment F- Articles of Incorporation, Attachment G - City of Roseville, California License, Attachment H - Washington Business Licence, and Attachment I - ECaTS Org Chart and Business Unit.

2.3.3 COMPANY FINANCIAL INFORMATION	Enter your response below. Please indicate if attachments are included.
This section must include the Respondent's financial statement, including an income statement and balance sheet, for each of the two most recently completed fiscal years. The financial statements must demonstrate the Respondent's financial stability. If the financial statements being provided by the Respondent are those of a parent or holding company, additional financial information should be provided for the entity/organization directly responding to this RFP.	See Attachment A and A-1 in the sealed "Confidential" packet/folder, for copies of reviewed and approved 2013 and 2014 Financials for Direct Technology. Direct Technology is the entity providing the product/service in response to the Alabama RFP 16-001. ECaTS, Emergency Call Tracking System, is a product of Direct Technology.

2.3.4 INTEGRITY OF COMPANY STRUCTURE AND FINANCIAL REPORTING	Enter your response below. Please indicate if attachments are included.
This section must include a statement indicating that the CEO and/or CFO has taken personal responsibility for the thoroughness and correctness of any and all financial information supplied with this proposal. The particular areas of interest to the Board in considering corporate responsibility include the following items: separation of audit functions from corporate boards and board members, if any, the manner in which the firm assures board integrity, and the separation of audit functions and consulting services. The State of Alabama will consider the information offered in this section to determine the responsibility of the Respondent. The Sarbanes Oxley Act of 2002, H.R. 3763, is NOT directly applicable to this procurement; however, its goals and objectives may be used as a guide in the determination of corporate responsibility for financial reports.	Direct Technology financial processes are managed by its corporate CFO Casey Stenzel. Mr Stenzel's background follows: Casey Stenzel is directly responsible for the financial management and reporting of TA Group's investments. In addition, he manages all corporate finance, acquisitions, financial forecasting and financial/risk management analysis. Casey joined TA Group in October 2012 after spending the majority of his career with Microsoft and Arthur Andersen LLP. With his 22 years of accounting, finance, and consulting experience in several companies and industries, Casey will be responsible for analyzing the financial feasibility of the company's growth strategies and corporate acquisitions. Casey will also serve as the CFO of TA Group's portfolio companies and manage all accounting staff in located Washington and California. Casey earned his Bachelors of Business Administration with a concentration in Finance in 1990, and his CMA in 1997 while working ten years in Big 6 Accounting. Casey serves on the National Exam Review Committee for the Certified Management Accountant Exam, and is the Treasurer of the Issaquah Soccer Club. He is married with three children, and enjoys competitive soccer and softball, and coaching youth sports. Mr. Stenzel reports directly to the CEO of the company: Rick Nelson. As part of Direct Technology's financial responsibility processes, it conducts yearly audits by an independent accounting firm: Van Erp, Petersen and Babckock, LLP. Attached is a copy of the letter signed by our CFO to the independent audit firm confirming our compliance with GAAP and other accounting practices and recommendation made by the independent auditors for their latest review of the 2013 financials. - In addition, we have included the following Direct Technology Management Rep Letter for last year's financial review by an external audit firm, please reference Attachment B. Should additional documentation or information be required related to the financials, please contact Fred Michanie at fmichanie@ecats911.com or 916-501-9036.

2.3.5 CONTRACT TERMS/CLAUSES

The contract resulting from this RFP will contain both mandatory and non-mandatory clauses. Mandatory clauses are non-negotiable while non-mandatory clauses are highly desirable. **Attachment A** contains a sample contract that will be similar to the one resulting from this RFP. Please indicate your acceptance of the following mandatory/non-mandatory clauses within the sample contract. If a non-mandatory clause is not acceptable as worded, please indicate in the "Additional Contract Considerations" and suggest a specific alternative wording to address issues raised by the specific clause in the explanation space provided.
To reiterate, it's the Board's strong desire to not deviate from the contract provided in the attachment and as such the Board reserves the right to reject any and all of these requested changes. Failure to include a clear, specific, unequivocal agreement to these clauses may result in disqualification of the proposal from further evaluation.

Mandatory Clauses	Acceptance? (Yes / No)	If No, Explanation
Duties of Contractor, Rate of Pay, and Term of Contract	**Yes**	
Authority to Bind Contractor	**Yes**	
Compliance with Laws	**Yes**	
Drug-free Workplace Provision and Certification	**Yes**	
Employment Eligibility Verification	**Yes**	
Funding Cancellation	**Yes**	
Governing Laws	**Yes**	
Indemnification	**Yes**	
Information Technology	**Yes**	
Non-discrimination Clause	**Yes**	
Ownership of Documents and Materials	**Yes**	
Payments	**Yes**	
Penalties/Interest/Attorney's Fees	**Yes**	
Termination for Convenience	**Yes**	
Non-collusion and Acceptance	**Yes**	

	Enter your response below. Please indicate if attachments are included.
Additional Contract Considerations ***Please note:*** *The Board will only review or negotiate changes to contract clauses clearly identified in the transmittal letter. If there are no contract clauses identified, Respondent is considered to have accepted the clauses as they are*	**No additional contract considerations**

2.3.6 REFERENCES

The Respondent must include a list of at least three (3) clients for whom the Respondent has provided products and/or services that are the same or similar to those products and/or services requested in this RFP. Any state government for whom the Respondent has provided these products and services should be included; also to be included should be clients with locations near Alabama as site visits may be arranged. Information provided should include the name, address, and telephone number of the client facility and the name, title, and phone/fax numbers of a person who may be contacted for further information.

Reference One	**Enter your response below.**
Legal Name of Company or Governmental Entity	**Utah Communications Authority (Utah 911)**
Industry of Company	**Public Safety/9-1-1**
Mailing Address	**4501 South 2700 West, Salt Lake City, UT, 84129**
Telephone Number	**801-857-5825**
Contact Name	**Eric Parry, ENP**
Title	**State 9-1-1 Program Manager**
Telephone/Fax Number	**801-857-5825**
E-mail Address	**eparry@utah.gov, eparry@uca911.org**
Time period in which services were provided	**Ongoing since 07/20/2010 Still in Production**
Please describe the service provided to this reference	**All ECaTS services described in this response for the entire State**

Reference Two

	Enter your response below.
Legal Name of Company or Governmental Entity	**California Office of Emergency Services (CalOES)**
Industry of Company	**Public Safety/9-1-1**
Mailing Address	**601 Sequoia Pacific Blvd., MS-911, Sacramento, CA 95811**
Telephone Number	**916-657-6119**
Contact Name	**Alicia Fuller**
Title	**Program Manager**
Telephone/Fax Number	**916-657-6119/916-657-9882**
E-mail Address	**alicia.fuller@caloes.ca.gov**
Time period in which services were provided	**Ongoing since 1997! Still in production**
Please describe the service provided to this reference	**All ECaTS services described in this response for the entire State**

Reference Three

	Enter your response below.
Legal Name of Company or Governmental Entity	**North Carolina 911 Board - Office of Information Technology Services**
Industry of Company	**Public Safety/9-1-1**
Mailing Address	**PO Box 17209, Raleigh, NC 27619-7209**
Telephone Number	**(919) 754-2942**
Contact Name	**Richard Taylor**
Title	**Executive Director**
Telephone/Fax Number	**(919)754-2942 (919) 981-2548**
E-mail Address	**richard.taylor@nc.gov**
Time period in which services were provided	**Ongoing since June 2012 Still in Production**
Please describe the service provided to this reference	**All ECaTS services described in this response for the entire State**

Please identify all references for the past five (5) years for whom your company has provided the same or similar services as those requested in this RFP, but the contract was terminated for cause or for convenience.

Reference One

	Enter your response below.
Legal Name of Company or Governmental Entity	**We have never had a customer cancel our service for any reason since service begun in 1997.**
Industry of Company	
Mailing Address	
Telephone Number	
Contact Name	
Title	
Telephone/Fax Number	
E-mail Address	
Time period in which services were provided	
Please describe the service provided to this reference	
Provide reason(s) for loss or termination	

Reference Two

	Enter your response below.
Legal Name of Company or Governmental Entity	**We have never had a customer cancel our service for any reason since service begun in 1997.**
Industry of Company	
Mailing Address	
Telephone Number	
Contact Name	
Title	
Telephone/Fax Number	
E-mail Address	
Time period in which services were provided	
Please describe the service provided to this reference	
Provide reason(s) for loss or termination	

Reference Three	Enter your response below.
Legal Name of Company or Governmental Entity	**We have never had a customer cancel our service for any reason since service begun in 1997.**
Industry of Company	
Mailing Address	
Telephone Number	
Contact Name	
Title	
Telephone/Fax Number	
E-mail Address	
Time period in which services were provided	
Please describe the service provided to this reference	
Provide reason(s) for loss or termination	

Corporate Litigation	Enter your response below. Please indicate if attachments are included.
Does your company have any pending litigation regarding contract disputes?	**No.**

2.3.7 REGISTRATION TO DO BUSINESS	Registered? (Yes / No)	If No, Explanation
Respondents providing the products and/or services required by this RFP must be registered and in good standing with the Alabama Secretary of State. The requirement is applicable to all limited liability partnerships, limited partnerships, corporations, S-corporations, nonprofit corporations, and limited liability companies. Please indicate the status of registration.	**Yes**	

2.3.8 AUTHORIZING DOCUMENT	Enter your response below. Please indicate if attachments are included.
Respondent personnel signing the Transmittal Letter of the proposal must be legally authorized by the organization to commit the organization contractually. This section shall contain proof of such authority. A copy of corporate bylaws or a corporate resolution adopted by the board of directors indicating this authority will fulfill this requirement.	Please refer to the attached documents (outlined below) as required proof: 1. Attachment C - DA Bylaws Amended 1.1.13 2. Attachment D - DA Buy Sell Agreement Amendment 1 1.1.13 3. Attachment E - DA Board Resolution 1.1.13

2.3.9 SUBCONTRACTORS

	Enter your response below. Please indicate if attachments are included.
The Respondent is responsible for the performance of any obligations that may result from this RFP, and shall not be relieved by the non-performance of any subcontractor. Any Respondent's proposal must identify all subcontractors and describe the contractual relationship between the Respondent and each subcontractor. Either a copy of the executed subcontract or a letter of agreement over the official signature of the firms involved must accompany each proposal. Any subcontracts entered into by the Respondent must be in compliance with all State statutes, and will be subject to the provisions thereof. For each portion of the proposed products or services to be provided by a subcontractor, the technical proposal must include the identification of the functions to be provided by the subcontractor and the subcontractor's related qualifications and experience. The combined qualifications and experience of the Respondent and any or all subcontractors will be considered in the Board's evaluation. The Respondent must furnish information to the Board as to the amount of the subcontract, the qualifications of the subcontractor for guaranteeing performance, and any other data that may be required by the State. All subcontracts held by the Respondent must be made available upon request for inspection and examination by appropriate Board officials, and such relationships must meet with the approval of the Board. The Respondent must furnish the following information for their use of subcontractors: A. Each subcontractor's name, address, and state of incorporation that are proposed to be used in providing the required products and services B. Each subcontractor's area(s) of responsibility under the proposal C. The anticipated dollar amount for each subcontract D. Each subcontractor's form of organization E. An indication from each subcontractor of a willingness to carry out their responsibilities (this assurance in no way relieves the Respondent of any responsibilities in responding to this RFP or in completing the commitments documented in this proposal) F. The qualifications of each subcontractor for guaranteeing performance G. Identification of the functions to be provided by the subcontractor and the subcontractor's related qualifications and experience in the technical proposal for each portion of the proposed products or services to be provided by the subcontractor H. Any other data that may be required by the State	No subcontractors are used. All work is performed by Direct Technology's ECaTS Organization as described in section 2.3.2 - ECaTS Team and Management description.

2.3.10 GENERAL INFORMATION

Business Information

	Enter your response below.
Legal Name of Company	**DirectApps Inc. dba Direct Technology Inc.**
Contact Name	**Fred J. Michanie**
Contact Title	**President and Founder**
Contact E-mail Address	fmichanie@directtechnology.com
Company Mailing Address	**3009 Douglas Blvd., Suite 300**
Company City, State, Zip	**Roseville, California, 95661**
Company Telephone Number	**916-787-2201**
Company Fax Number	**916-724-1872**
Company Website Address	www.directtechnology.com www.ecats911.com
Number of Employees (company)	**150 FTEs and 125 Contractors**
Years of Experience	**18 years**
Number of U.S. Offices	**2 Roseville, CA and Bellevue, WA**
Year Alabama Office Established (if applicable)	**None**
Parent Company (if applicable)	**N/A**
Revenues ($MM, prior year)	**$38m**
Revenues ($MM, two-years prior)	**$32.5m**
% Of Revenue from Alabama customers	**0%**

	Yes / No	If No, Explanation
Does your company have a formal disaster recovery plan? If no, please provide an explanation of any alternative solution your company has to offer. If yes, please note and include as an attachment.	**Yes**	Direct Technology has a form disaster recovery strategy utilized to backup all of their hosted solutions in multiple markets including Public Safety. Currently all of Direct Technology's customers including all ECaTS Customers are stored at the Tier-4 Data Center located in Sacramento, California. ECaTS has been built using a zero data loss model by introducing remote buffer boxes called Remote Data Distribution Module (RDDM) at each PSAP or hosted data collection point. By collecting and storing the data locally, all 9-1-1 event information is immediately secured on site. Even during a major disaster, the buffer boxes will continue to collect and store the information until either a) the primary data center is brought back online or b) the secondary data center is brought up online. At either point, the buffer boxes will connect to the new data center and continue delivery of the data from the last recovery point. In essence, our disaster recovery strategy includes the duplication of data from our primary data center to our secondary data center located in Seattle, Washington. This is done both physically by duplicating the environment and logically by copying data in 24 hours interval cycles. In the event that a disaster is designated at the Direct Technology Primary Data Center in Sacramento, CA, the secondary SQL, Parsing and Web servers will be brought online in Seattle WA. This is a manual failover and will require traffic redirection from ECaTS RDDM boxes to a new set of data center collectors. This process will take approximately 6-10 hours at which point all the remote buffer boxes will be connected to the backup site and will continue to provide service. It should be noted that all buffer boxes at each PSAP will continue to collect data both during the disaster and will not delete the data until it has been delivered to a certified ECaTS data collection server either at the primary or secondary site. This ensures that NO DATA will be lost even during a disaster at the primary data center. After the Primary Site has been restored and brought back online data will be replicated back to the primary site. Direct Technology will then be redirecting the RDDM traffic back to the Primary Site. This process will be validate by our onsite date analyst to ensure data integrity, at which point the primary systems will naturally continue operations. During a disaster of this magnitude, ECaTS NOC will be providing updates to the client in one hour increment to ensure open communication and status updates are being furnished until the system is fully operational.

	Enter your response below. Please indicate if attachments are included.
What is your company's technology and process for securing any Board or private information that is maintained by your company?	Data is captured by a local buffer device that performs data compression and full encryption. The data is then delivered to our data centers using SLL encrypted tunnels on top of the compression and encryption algorithms used during storage. The data center itself is protected with fully redundant firewalls, Intrusion Detection Systems and 24x7 monitoring of all network activity.

2.3.11 EXPERIENCE SERVING STATE GOVERNMENTS

	Enter your response below. Please indicate if attachments are included.
Please provide a brief description of your company's experience in serving state governments and/or quasi-governmental accounts. Disclose each state or jurisdiction in which Respondent does business or holds contracts to provide goods or services and the nature of each such business or contract.	Direct Technology has, since its inception, done significant work with State and Local government. In addition to the 9-1-1 ECaTS business, Direct Technology provides custom software development, network architecture, IT security and IT staffing to many State agencies in California and Washington. Some of our clients include California Department of Health Services, CA. Department of Mental Health, CA. Department of Corrections, Washington Transportation Agency, California Transportation Agency (CalTrans), and many others. For additional references, please contact the ECaTS contact person references in this response.

2.3.12 EXPERIENCE SERVING SIMILAR CLIENTS

	Enter your response below. Please indicate if attachments are included.
Please describe your company's experience in serving clients of a similar size to the State that also had a similar scope. Please provide specific clients and detailed examples.	Currently ECaTS services are being provided to and used at more than 1400 PSAPs nationally in the following states: California, Oregon, Washington, Utah, Texas, Oklahoma, Kentucky, Indiana, Kansas, Mississippi, Louisana, Colorado, Delaware, Missouri, Florida, North Carolina, Tennessee and Washington DC. The service being provided to these customers is the same service described in this response. For additional references, please contact the ECaTS contact person provided in this response.

State of Alabama
ALABAMA 911 Board AL-NG911-RFP-16-001
Attachment C Cost Proposal

AL-NG911-RFP-16-001
Attachment C – Cost Proposal
Table of Contents

Note to Respondents: All pricing being sought under this RFP will be utilized to understand and evaluate your proposal.

AL-NG911-RFP-16-001
Attachment C – Cost Proposal Instructions

Overview

Each respondent must complete the cost worksheets that follow, using the format as provided. Please see the specific completion instructions included on each individual tab.

Respondents are encouraged to indicate if they are unable to provide specific products or services as the best and final offer process will define/refine the specific products and services required from the selected respondent.

Each respondent should document any and all assumptions used for arriving at cost estimates in the following sections.

The Cost Proposal categorizes unit pricing into two main groups: Implementation *(One time price)* and Recurring *(Monthly price)* . The Cost Proposal contains two sections. Section 1 is used for the functional components to implement and operate the 9-1-1 network and Sections 2-6 are specifically for hosted 9-1-1 services and operation.

The Cost Model is calculated from the Cost Proposal elements. Respondents do not need to develop a separate cost model.

Sample numbers have been placed into both the Cost Proposal spreadsheet as an illustration of how the spreadsheets work.

Respondents are expected to replace the sample numbers and modify the timeline to represent its proposal. These figures are not indicative of a possible budget.

RESPONDENTS ARE ADVISED THAT ALL ASSUMPTIONS MADE IN THE COST PROPOSAL AND ELSEWHERE IN THIS RFP REGARDING QUANTITIES (INCLUDING THE NUMBER OF PSAPS) ARE ESTIMATES ONLY,

SUCH QUANTITIES MAY INCREASE OR DECREASE. THE AGREEMENT IS FOR UNIT PRICES ONLY; AND WHERE APPLICABLE A MONTHLY RECURRING CHARGE FOR ONGOING OPERATIONS AND ADMINISTRATION.

OFFERORS, BY SUBMITTING THIS COST PROPOSAL, CERTIFY THAT THEY HAVE MADE A GOOD FAITH EFFORT TO ALLOCATE COSTS TO APPROPRIATE SERVICE CATEGORIES AND HAVE NOT ENGAGED IN UNBALANCED BIDDING OF ANY KIND.

Note to Respondents: All pricing being sought under this RFP will be utilized to understand and evaluate your proposal. All pricing included in these schedules will be on a firm, fixed monthly recurring cost basis for the transfer, implementation, and on-going operations of the system.

AL-NG911-RFP-16-001
Attachment C – Cost Proposal
Instructions - Schedule 1

COST PROPOSAL:

This RFP calls for unit pricing by Deliverable / Cost Area. Respondent will insert its unit prices into the Cost Proposal spreadsheet. The columnar structure shall not be changed.

Implementation Pricing: Includes the Non-Recurring and one time charges for purchasing the equipment and facilities designed to provide the service functionality.

Recurring (Monthly) Pricing: Includes monthly Administration and Operations of the system, and Project Management charges for the duration of the projected implementation period.

The Project Management charge shall encompass all costs associated with implementation of the system and is the only allowable charge prior to acceptance of the ESInet and first PSAP. Enter your recurring monthly charge for each of the following items:

AL-NG911-RFP ESInet Requirements

AL-NG911-RFP Specific Requirements

AL-NG911-RFP i3/NG Core Services Requirements

System Reporting and i3 Logging Requirements

Service and Support Requirements

Project Management and Planning Requirements

Electrical, Wiring and Cable Requirements

Other Required Items Charges - for items that the Vendor believes are needed but do not fit into one of the specified charge categories.
Please itemize any Other Required Items (add rows to spreadsheet if necessary)
At the bottom of the Cost Proposal spreadsheet please be sure to check and total all the monthly recurring charges.
An additional table is provided for System Hosting.
Please provide a monthly recurring cost for each of the two optional items.

Cost Proposal Column	Instructions
Deliverable / Cost Area	The Deliverable / Cost Area has been pre-populated with the anticipated components required to deliver 911 service to the Alabama PSAP's. Each of these components relates to an existing component or desired functionality. Respondents shall use the list as a guide to prepare unit costs for each functional element. The table includes a set of instructions to help guide how pricing information is entered into the table so that a detailed cost can be generated.
Estimated one time (Non- Recurring - NRC) start up costs, capitol costs etc.	The first three columns are used to enter Non-Recurring charges.
Unit of Measure	Unit of measure is a figure used to calculate a total Non-Recurring charge based upon a Unit cost. This may be a Primary PSAP ; one time implementation milestones; It is the respondents responsibility to articulate what measure they are using to calculate their costs
Estimated Cost	Estimated Cost is the cost of an individual component or system level functionality.
Extended Price (Unit of Measure x Estimated Cost)	The Extended price is a summation of the Unit of Measure multiplied by Estimated Cost.
Ongoing Monthly Recurring Charges (MRC)	Ongoing Monthly Recurring Charges are the monthly service fees billed to the AL911 Board by the system service provider.
Unit of Measure	Unit of measure is a figure used to calculate a total Non-Recurring charge based upon a Unit cost. Ongoing operational costs are expressed in terms of months, days or hours. It is the respondents responsibility to articulate what measure they are using to calculate their costs
Unit Price	Unit price is the monthly charge of a service function provided by the system service provider.
Extended Price (Unit of Measure x Unit Price)	Extended Price (Unit of Measure x Unit Price)

AL-NG911-RFP-16-001
Attachment C – Cost Proposal
Schedule 1 – Equipment and Implementation

This table indicates the pricing elements identified for requirements defined in AL-NG911 RFP ATTACHMENT D - Technical Specifications, for costs associated with the transfer, modification and implementation of the system (from date of contract execution to the end of the month statewide roll-out is completed). The successful Respondent is to group tasks/deliverables by the areas identified.

Instructions: Please fill in the cells shaded yellow. These items will be used to assign Cost components. Do not fill in the gray and blue cells. Note that the blue cells will populate automatically. Price example - ESInet configured at 8 PSAP's for a total of 80,0000. 8 is entered in the unit of measure, $10,000 entered in the estimated cost

	Estimated one time (Nonrecurring - NRC) start up costs, capitol costs etc.			Ongoing monthly recurring costs (MRC)		
Deliverable / Cost Area	**Unit of Measure**	**Estimated Cost**	**Extended Price (Unit of Measure x Estimated Cost)**	**Unit of Measure**	**Unit Price**	**Extended Price (QTY x Unit Price)**
Section 2 - ANGEN ESInet Requirements						
2.2 ANGEN ESInet Services			$ -			$ -
ESInet Deployment		$ -	$ -		$ -	$ -
PSAP IP Mesh Transport Network		$ -	$ -		$ -	$ -
IP Core Router Architecture (aggregation service routers)		$ -	$ -		$ -	$ -
Fiber to the PSAP (high availability option)		$ -	$ -		$ -	$ -
Commodity IP (tertiary service provider connections)		$ -	$ -		$ -	$ -
Regulatory and Legislative Support		$ -	$ -		$ -	$ -
2.3 ANGEN Architecture Requirements		$ -	$ -		$ -	$ -
2.4 ANGEN ESInet Features and Functions		$ -	$ -		$ -	$ -
2.5 ANGEN Network Failover		$ -	$ -		$ -	$ -
2.6 ANGEN Network Security		$ -	$ -		$ -	$ -
Sub-Total			**$ -**			**$ -**
Section 3 - ANGEN Specific Requirements						
3.1 System Service Provider Coordination Requirements			$ -			$ -
Legacy T-1 Network Transport (OSP to tandems)		$ -	$ -		$ -	$ -
Originating Service Provider Coordination (wireless carrier)		$ -	$ -		$ -	$ -
Orginating Service Provider Coordination (x-LEC)		$ -	$ -		$ -	$ -
Voice Message Services		$ -	$ -		$ -	$ -
Database Server and Software		$ -	$ -		$ -	$ -
pANI (psuedo ANI) and IP Provider ALI Records		$ -	$ -		$ -	$ -
Third Party Providers Interfaces (TCS and Intrado E2+ interfaces)		$ -	$ -		$ -	$ -
Inter-company ALI Server Connections		$ -	$ -		$ -	$ -
3.2 Interstate Interconnection Requirements		$ -	$ -		$ -	$ -
3.3 Text to 911 Requirements	118	$ 500.00	$ 59,000.00	118	$ 59.00	$ 6,962.00
Originating Service Provider coordination (wireless carrier)		$ -	$ -		$ -	$ -
Sub-Total			**$ 59,000.00**			**$ 6,962.00**
Section 4 - ANGEN i3 / NG Core Services Requirements						
4.1 NENA i3 Core Functional Requirements		$ -	$ -		$ -	$ -
SIP Gateway		$ -	$ -		$ -	$ -
SS7 Legacy Gateways		$ -	$ -		$ -	$ -
ALI Interface		$ -	$ -		$ -	$ -
IP Call Routing Platform		$ -	$ -		$ -	$ -
4.2 Border Control Function (BCF)		$ -	$ -		$ -	$ -
4.3 Emergency Call Routing Function (ECRF)		$ -	$ -		$ -	$ -
4.4 Emergency Services Routing Proxy (ESRP)		$ -	$ -		$ -	$ -
4.5 Legacy Network Gateway (LNG)		$ -	$ -		$ -	$ -
4.6 Legacy PSAP Gateway (LPG)			$ -		$ -	$ -
4.7 Legacy Selective Router Gateway (LSRG)* if included		$ -	$ -		$ -	$ -
4.8 Location Validation Function (LVF)		$ -	$ -		$ -	$ -
4.9 Legacy Database Services		$ -	$ -		$ -	$ -

4.10 Disaster Recovery / Business Continuity		$ -	$ -		$ -	$ -
Continuity of Operations (Resiliency)		$ -	$ -		$ -	$ -

Sub-Total			**$ -**			**$ -**
Section 5 - System Reporting and i3 Logging Requirements						
5.1 Reporting and Data Collection System Requirements	118	$ 4,300.00	$ 507,400.00	118	$ 379.60	$ 44,792.80
Remote Diagnostics			$ -		$ -	$ -
Performance Monitoring		$ -	$ -		$ -	$ -
Notification and Escalation		$ -	$ -		$ -	$ -
5.2 Statewide Statistical Monitoring	118	$ 1,000.00	$ 118,000.00	118	$ 100.00	$ 11,800.00
5.3 Operational Reporting and Logging	118	$ 500.00	$ 59,000.00	118	$ 43.00	$ 5,074.00
Logging Recording	4	$ 9,400.00	$ 37,600.00		$ -	$ -
System Reporting and Logging Requirements		$ -	$ -		$ -	$ -
5.4 Local Logging Recorder Interface		$ -	$ -		$ -	$ -
Sub-Total			**$ 722,000.00**			**$ 61,666.80**
Section 6 - Service / Support Requirements						
6.1 Customer Support Services		$ -	$ -		$ -	$ -
Network Operation, Administration and Management		$ -	$ -		$ -	$ -
PSAP Alerting and Remote System Status Alarming		$ -	$ -		$ -	$ -
Quality of Service (QoS) Monitoring and Reporting		$ -	$ -		$ -	$ -
Service Level Agreement (SLA) Monitoring and Reporting		$ -	$ -		$ -	$ -
Ongoing Development of New Public Safety Services		$ -	$ -		$ -	$ -
Spares		$ -	$ -		$ -	$ -
6.2 Help Desk		$ -	$ -		$ -	$ -
6.3 Trouble Handling and Ticketing Requirements		$ -	$ -		$ -	$ -
6.4 Training		$ -	$ -		$ -	$ -
6.5 Monitoring of Applications and Equipment		$ -	$ -		$ -	$ -
Intrusion Prevention and Detection		$ -	$ -		$ -	$ -
Identity and Access Management		$ -	$ -		$ -	$ -
6.6 Network Operations Center (NOC)		$ -	$ -		$ -	$ -
6.7 Alarm Categories		$ -	$ -		$ -	$ -
6.8 Scheduled Maintenance		$ -	$ -		$ -	$ -
Sub-Total			**$ -**			**$ -**
Section 7 - Project Management and Planning Requirements						
7.1 Implementation Project Plan		$ -	$ -		$ -	$ -
Implementation Oversight		$ -	$ -		$ -	$ -
Cutover Planning		$ -	$ -		$ -	$ -
Migration Plan		$ -	$ -		$ -	$ -
7.2 System Test Plan		$ -	$ -		$ -	$ -
7.3 Transition Plan		$ -	$ -		$ -	$ -
7.4 Service Management Plan		$ -	$ -		$ -	$ -
Sub-Total			**$ -**			**$ -**
Section 8 - Electrical, Wiring, and Cable Requirements						
8.1 Electrical		$ -	$ -		$ -	$ -
8.2 Electrical Interference		$ -	$ -		$ -	$ -
8.3 Wiring and Cabling		$ -	$ -		$ -	$ -
8.4 Grounding		$ -	$ -		$ -	$ -
8.5 Transient Voltage Surge Suppression		$ -	$ -		$ -	$ -
Sub-Total			**$ -**			**$ -**
Total Transfer and Implementation Cost			**$ 781,000.00**			**$ 68,628.80**

Assumptions and Comments

ECaTS is priced as a monthly service with an upfront installation and configuration fee. The monthly service provides the Alabama 9-1-1 Board with all the benefits outlined in this RFP response, including: dedicated team of data analysts, statisticians and customer communication specialists. Augmenting the powerful ECaTS Reporting Platform with these teams of data specialist will empower the State of Alabama with the ability to leverage 911 data to make intelligent, proactive decisions. From regular administrative requests, to complex analytics that provide clear understanding of the health of the 911 implementation throughout the State.

As included in the spreadsheet – Schedule 1, ECaTS contains a Non-Recurring Charge which includes all hardware installation, training, customization (as defined in the RFP Response), configuration, quality assurance and implementation validation services for all PSAPs in the State of Alabama. There are separate fees noted for: PSAP level reporting, Logging and Recording services (ESINet level), Text-to-911 Reporting and statewide statistical monitoring via the ECaTS Dashbaord. Similarly, ECaTS provides a monthly cost for these services and functionalities on a per PSAP basis. In schedule two, we are extending the same monthly cost over the life of the contract and extension options. ECaTS will not increase the monthly cost for the life of the original agreement and all associated extensions discussed in this RFP.

AL-NG911-RFP-16-001
Attachment C – Cost Proposal
Instructions - Schedule 2-6 System Operation

Schedules 2 and 6 – System Hosting	Instructions
Schedule 2 On-going System Hosting Post Implementation from completion of statewide rollout Year 1	The Respondent(s) shall enter an annual price for the hosted services in the yellow shaded area. The sheet will calculate the extended price.
On-going System Hosting Post Implementation: Year 2	Same instructions as above
On-going System Hosting Post Implementation: Year 3	Same instructions as above
On-going System Hosting Post Implementation: Year 4	Same instructions as above
On-going System Hosting Post Implementation: Year 5	Same instructions as above
On-going System Hosting Post Implementation: Year 6 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 7 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 8 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 9 (Optional Extension)	Same instructions as above
On-going System Hosting Post Implementation: Year 10 (Optional Extension)	Same instructions as above

AL-NG911-RFP-16-001
Attachment C – Cost Proposal
Schedules 2 - 6 – Service Operation

These schedules indicate the pricing for Respondents proposed services as defined in Attachment D for the ongoing hosting of the system starting the first full month after statewide roll-out is complete to the period ending five (5) years from contract execution and then for each of the five (5) annual renewal options.

Instructions: Please fill in the cells shaded yellow. These items will be used to assign Cost points. Do not fill in the gray and blue cells. Note that the blue cells will populate automatically. Example - Annual price of hosting service is $120,000 multiplied by 12 months - $1,440,000 total

Cost element	Annual price	Months	Total
Schedule 2 On-going System Hosting Post Implementation from completion of statewide rollout to the period ending Year 1	$ 68,628.80	4	$ 274,515.20
On-going System Hosting Post Implementation: Year 2	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 3	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 4	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 5	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 6 (Optional Extension)	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 7 (Optional Extension)	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 8 (Optional Extension)	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 9 (Optional Extension)	$ 68,628.80	12	$ 823,545.60
On-going System Hosting Post Implementation: Year 10 (Optional Extension)	$ 68,628.80	12	$ 823,545.60

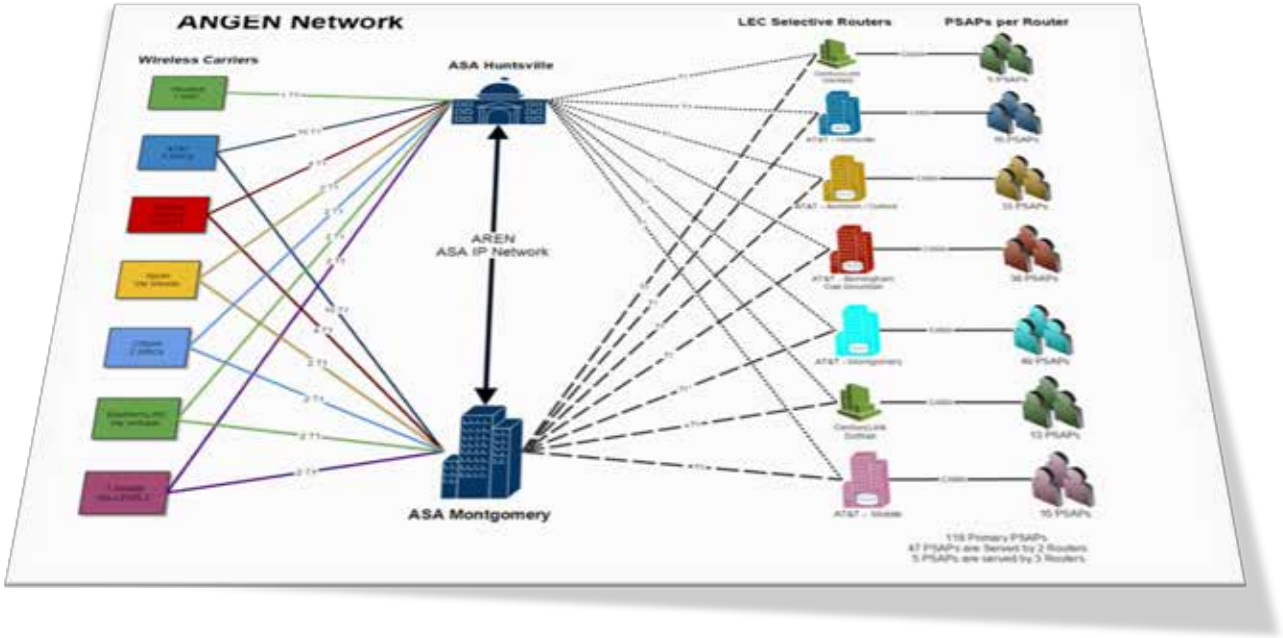
Assumptions and Comments

Cost Assumptions
It is our assumption that there was an error in column D of Schedule 2-6 of the Pricing Spreadsheet. We are assuming that cost meant to be “Monthly Cost” and not “Annual price” as depicted in the Spreadsheet. We are assuming that since column E uses the word "Months" as a multiplier which results in a total per row. Based on our commitment to provide the same monthly cost for the duration of the contract and any extension associated with this RFP, we simply took the monthly service fee and applied it to each row in the Schedule.

As an option to the RFP, ECaTS provides the following reporting capabilities:
• **Enhanced Reporting Package**
• Enhanced Reporting Package Per PSAP provides the customer with access to additional premium reporting, for example: Agent Module, Audit Module, Called Back Summary Report, COS ALI Change Report, Daily Invalid ALI Report, Dynamic COS Report, Friendly Line Manager Report, Top 20 Busiest Hours Graphing, and Snap Shot Report)
• *Cost Per PSAP: $4,560.00*

• **Customization Bundles**
• Customization Bundles provides the ability to procure bundles of customization hours at wholesale costs. The "Monthly Custom Development Bundles" include 40 hours per month at a cost of $180.00/per hour. The unused hours per month roll over into the following month for a period of up to one year. Any additional hours beyond the 40 hours per month will incur the normal cost per hour for Custom Development at a rate of $200.00 per hour. Customization bundles can be utilized to create additional/future reports and analytical functionality not currently planned for in this RFP.
• *Cost per bundle: $7,200.00*

AL-NG9-1-1-RFP-16-001 - ATTACHMENT D TECHNICAL SPECIFICATIONS



Alabama NG911 RFP 16-001

Direct Technology

Best in Class Solution Proposal

Emergency Call Tracking System (ECaTS)

Table of Contents

ATTACHMENT D TECHNICAL SPECIFICATIONS

AL-NG9-1-1-RFP-16-001

SECTION 1 RESPONSE INSTRUCTIONS

1.1 GENERAL RESPONSE INSTRUCTIONS

Respondents must respond with either COMPLY, NON COMPLY or EXCEPTION to all of the sections and requirements in this RFP.

It is recommended that all detailed responses are located under the section heading and section verbiage to aid in evaluation. Enter your response(s) in line with the sections and requirements at the end of each section. If no clear order is followed; the response may be disqualified.

Respondents that take an EXCEPTION to a particular requirement must provide an alternative to the required feature or function specified. The alternative must describe in detail how it meets the original requirement and must include any other pertinent information that may be necessary to properly consider the alternative being offered (i.e. diagrams, enhanced capability, design efficiency, cost savings, etc.).

The Board recognizes that in some cases Respondents may be able to provide a service or function that is superior to the requirements listed. If the Respondent wishes to present such an alternative, an EXCEPTION should be used to clearly articulate the functionality that Respondents would like to propose as an alternative for evaluation.

The requirements specified in this RFP are identified as MUST haves, SHALL haves, REQUIRED, REQUIRES, or REQUIREMENT(S).

Each proposal will be evaluated according to how well the requirements have been addressed.

Features and functions listed as DESIRABLE are not required. Desirable features and functions add value to a requirement. Respondents are encouraged to provide desirable features and functions where they have an opportunity to maximize the value to the Board while also satisfying the underlying requirement.

Desirable features, functions or elements are described in the RFP as SHOULD, MAY, COULD or DESIRED.

1.2 SCOPE OF PROCUREMENT

1.2.1 PURPOSE

The Alabama 9-1-1 Board (AL9-1-1, the Board) seeks competitive bids from qualified vendors to provide integrated network services for the operation of the ANGEN Network currently serving the PSAPs of Alabama. Alabama is currently served by a wireless 9-1-1 call delivery network known as ANGEN.

The purpose of this procurement is to ensure that at a minimum, the current services provided by the existing ANGEN Network are continued and improved upon as technology, standards, and societal demands evolve.

The AL9-1-1 Board invites qualified vendors with documented expertise and experience to submit proposals to provide wireless and wireline E9-1-1 call delivery, i3 ESInet Network Services, reporting, monitoring, service and support for the operation of the ANGEN Network.

COMPLY

Direct Technology acknowledges the purpose of this procurement for the Alabama NG911 RFP 16-001.

1.2.2 PROJECT OVERVIEW

This procurement will result in the selection of a service provider or a combination of service providers whose proposed solution(s) and services as sought by this RFP will at a minimum, provide the existing level of service as provided by the current ANGEN network to include all existing capabilities, functions, components and ancillary services to all Alabama PSAPs either directly or in collaboration with other systems, services and providers both in Alabama and in adjoining states (MS, TN, FL and GA).

> ***This RFP does not include PSAP CPE, PSAP call taking equipment, furniture, computers or other operational systems required by PSAPs. It is focused only on the services required for the operation of the ANGEN Network and the services it provides to Alabama PSAPs.***

The solution(s) and services sought through this RFP may be proposed as an integrated, comprehensive solution, or as a stand-alone component representing a best in class service offering capable of being integrated with other components that will comprise the ANGEN ecosystem.

The Board may, at its discretion, integrate proposed solutions or components of proposed solutions in order to achieve an enterprise-wide, statewide, best in class system that benefits all Alabama PSAPs and best serves the Board in fulfilling its duties under the law.

The Board would prefer an integrated solution with a designated primary vendor contractually responsible for providing the services as specified in this RFP.

The Board may, at its discretion, designate a contractual prime vendor and require contractual relationships, cooperative agreements, interconnection to and interaction with other system service providers or third parties as required or necessary for the operation of ANGEN.

Through this procurement the Board seeks to procure a solution or combination of solutions that:

- Are designed to industry standard including the NENA i3 standard (Section 1.6)
- Provides or supports a foundation for NG9-1-1 and is designed to support or interoperate with core i3 functionality (Section 4)
- Are secure and resilient to cyber-attack, penetration, abuse or misuse (Section 2)
- Provide the ability to alarm, report, monitor, manage and support on a 24/7/365 basis (Section 6)
- Be able to support or integrate with Interim SMS Text-to-9-1-1 solutions that are currently in-place or planned via delivery methods as prescribed by the Board, as per FCC order or by Carrier consent decree (Section 3)
    - Both inbound and outbound via a TCC and/or through the use of direct SIP based MSRP messaging as prescribed in NENA i3
- Provides or Supports Wireless and Wireline E9-1-1 Call Routing and Data Delivery (Section 3)
    - Is capable of the primary receipt, routing and delivery of Wireless 9-1-1 calls from wireless carriers via an ESInet to any PSAP throughout Alabama and neighboring states (MS, TN, GA, FL) or
    - A solution capable of supporting, integrating with and assisting in the delivery of Wireline E9-1-1 Calls to any Alabama PSAP and neighboring states.
    - A solution capable of supporting, integrating with and assisting in the delivery of Wireless E9-1-1 Calls to any Alabama PSAP and neighboring states.
- Provides or supports Increased fault tolerance, reliability, resiliency and disaster recovery across Alabama (Section 2)
- Provides for or supports Enterprise wide call accounting and data collection (Section 5)

COMPLY

Direct Technology is proposing a best in class service offering, ECaTS, and acknowledges the requirements outlined in the Project Overview for the Alabama NG911 RFP-16-001.

ECaTS, Emergency Call Tracking System, will give the Alabama 911 Board the ability to access a true Enterprise Internet-based MIS, Management Information System, solution rendering the following key business drivers as outlined in the project proposal:

- Ability to manage, monitor and report on all 911 Call Statistics and Trunk Statistics across all PSAPs statewide, countywide, and/or individuals PSAPs regardless of the CPE, Customer Premise Equipment, at the PSAP
- CPE agnostic reporting solution providing enterprise wide call accounting and data collection
- Ability to generate universal reports from anywhere with an Internet connection.
- Eliminates the complexity of supporting different types of CPE equipment and manually collating through countless MIS reports to obtain 911 call statistics.
- Analyze State's overall 911 answer time performance to determine if PSAPs are performing at acceptable levels.

- Ability to obtain 911 call statistics information at all levels – from the call itself, to the PSAP, to the County or the entire State in a matter of seconds.
- Pin point and analyze misdirected wireless calls across the state per cell sector and minimize the total misdirected wireless percentage
- True understanding of call routing and call handling challenges being faced by all the PSAPs in a State/County.
- Quickly retrieve call statistics for a particular type of call such as VoIP or Pre-paid Wireless Card and within seconds understand the type of impact it's having on the PSAPs within their jurisdictions.
- Ability to render text-911-reporting from one common interface to analyze data, such as:
  - SMS Transcript
  - Messages per Hour by Carrier
  - Operator Average Speed of Response
  - Total Number of text-to-911 Complete Sessions
  - Top 20 Busiest Hours
  - Operator SMS Single Session Average Response
  - Top 10 text-to-911 by MDN and Session
- Ability to monitor near real-time 9-1-1 call statistics Statewide, Countywide and at the individual PSAP.
- Visual representation of actual 911 call activity, answer time, hold time, and other factors representing the near-time condition of 9-1-1 in the State of Alabama
- Ability to plot call statistics visual in a map as they occur
- Integrate ESInet (network) data and CPE data with one common interface for a true picture from connect to disconnect on all 911 calls

1.2.3 SCOPE OF SERVICES

The Board is seeking to procure services from qualified vendors that include the highest degree of resiliency, reliability and redundancy to ensure service availability in keeping with industry standard and best practices.

The services sought by this RFP include:

1. ESInet network design, management, and operation services
2. NG, i3 core functions and capabilities
3. Wireless and Wireline E9-1-1 call routing and reporting services
4. Text to 9-1-1 services
5. Enterprise/State-wide data collection and reporting services on all ANGEN facilitated transactions
6. System and component level monitoring, alarming, diagnostics and reporting services
7. Disaster recovery and system restoration services
8. 24/7/365 Help desk, trouble ticketing and customer facing support services
9. 24/7/365 Network operations center (NOC) monitoring services
10. Installation, testing, maintenance and on-site support services

11. Project management services for the planning, design, testing, installation and operation of the system or systems

COMPLY

Direct Technology is proposing the ECaTS solution with the highest degree of resiliency, reliability and redundancy to ensure service availability in keeping with industry standards and best practices. Included below is an outline of the services presented in this proposal.

- v Enterprise Statewide Data Collection and Reporting Services
  - Internet-based Accessibility
  - User Defined Role-Based Logins
  - Intuitive Reporting Module
    - Pre-Configured Reports
    - Management Reports
    - Text-to-911 (SMS) Reports
    - Ad-Hoc Reports (Custom Reports)
    - Scheduled Reports
- v Electronic Capture and Buffering of all Raw Call Records at Each Individual PSAP Statewide
- v Utilization of Tier-4 Data Center for hosting and report generation with backup Data Center in secondary geography
- v Implementation of high availability server architecture to minimize downtime and eliminate possibility of data loss
- v In-person Regional Training and unlimited Webinar Trainings
- v Help desk, Trouble Ticket Management System and Full Customer Facing Support Services
- v Project Management Services for the Planning, Design, Testing, Installation and Operation of the ECaTS System
- v Text to and from 911 Reporting Services
- v Near Real-Time Dashboard of 911 Call activity and efficiency statewide/countywide with optional licensing for the Communications Infrastructure Monitoring System, which was used active for the terrorism in San Bernardino and during Super Bowl 50 more information about this additional system is available upon request.

The Board does not favor one technology or platform. This RFP is designed to allow providers to package, represent and demonstrate their services. The Board will evaluate each service on its own merit to determine the best solution(s) for the State of Alabama.

This overview of the Scope of the effort is meant to provide a high level understanding of the objectives. This technical specification provides greater detail of the requirements in the following sections.

COMPLY

Direct Technology acknowledges the scope of services for the Alabama NG911 RFP 16-001.

1.3 STANDARDS

Respondents shall demonstrate their industry knowledge and describe their commitment to providing standards based solutions and services.

The Board may disqualify or reject non-standard or proprietary systems that may hinder NG9-1-1 implementation, limit interoperability, or that might restrict the State from interconnecting to a regional or national 9-1-1 system in the future.

Throughout the duration of the project, Respondents shall maintain compliance with all standards and ensure that the products, solutions and services provided for ANGEN evolve and adapt as the standards evolve.

In addition to all other standards set forth herein and in addition to all other NENA i3 standards, the system shall comply with the following standards:

- NENA 08-003 v1 Detailed Functional and Interface Specification for the NENA i3 Solution, Stage 3 Version 1
- NENA 08-002 NENA Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3)
- NENA 08-751 NENA i3 Technical Requirements Document
- NENA 04-001 v2 PSAP E9-1-1 PSAP Equipment
- NENA 58-001 NENA IP-Capable PSAP Minimum Operational Requirements Standards
- NENA 58-501 IP PSAP 9-1-1 System Features and Capabilities
- NENA 75-001 Security for Next Generation 9-1-1 Standard (NG-SEC), NENA 75-001 v1, and NENA 04-503 v1
- NENA 75-502, NENA 04-502 v1, NENA 04-503 v1, NENA 08-506 v1, NENA 08-752 v1, NENA 71-502 v1, NENA STA-003
- Applicable Internet Engineering Task Force Standards (IETF), such as IP protocols, IP routing protocols, SIP, RTP, LoST, and the PIDF-LO
- NENA 08-506 Emergency Services IP Network Design for NG9-1-1

While specific standards and documents are referenced in the list above, the Board acknowledges that work on these standards is underway and that many of these standards are in the process of being updated and at the time of RFP distribution may now be referenced by a different number or nomenclature. If there are any discrepancies between the items listed above and a current standard or informational document, the most current version will apply.

Respondents shall describe in detail in the response how they shall meet such standards in their design.

COMPLY

The proposed ECaTS MIS solution is compliant with the appropriate National Emergency Number Association (NENA) i3 NG9-1-1 specifications, as well as other national standards for the features and functions described in this RFP.

As an industry leading MIS system in 911 and an active participant in multiple NENA subcommittees, ECaTS has been designed to support all ongoing and future standards. To that end, ECaTS is compliant to the following requirements as outlined by this RFP and specific for the MIS response being provided by ECaTS:

- NENA 08-003 v1 Detailed Functional and Interface Specification for the NENA i3 Solution, Stage 3 Version 1
- NENA 08-002 NENA Functional and Interface Standards for Next Generation 9-1-1 Version 1.0 (i3)
- NENA 08-751 NENA i3 Technical Requirements Document
- NENA 75-001 Security for Next Generation 9-1-1 Standard (NG-SEC), NENA 75-001 v1, and NENA 04-503 v1
- Applicable Internet Engineering Task Force Standards (IETF), such as IP protocols, IP routing protocols, SIP, RTP, LoST, and the PIDF-LO

Federal Communications Commission Rules

All equipment must conform to Federal Communications Commission (FCC) Rules Part 15, Class A (commercial, non-residential radiation and conduction limits) for electromagnetic interference (EMI).

Other Industry Standards

Where applicable, all equipment proposed to support or operate ANGEN must comply with applicable industry standards, such as:

- Underwriters Laboratories (UL)
- International Organization of Standards (ISO)
- Open System Interconnection (OSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- American National Standards Institute (ANSI)
- Electronic Industries Alliance (EIA)
- Telecommunications Industry Association (TIA), (including ANSI/EIA/TIA-568 Commercial Building Telecommunications Wiring Standards), etc.

COMPLY

As the NG9-1-1 standards evolve, ECaTS will adapt the system to incorporate whatever necessary changes are required to maintain i3 compatibility.

Per FCC guidelines, the data collecting hardware needed by ECaTS consists of off the shelf hardware components and are compliant to the following standards:

- Underwriters Laboratories (UL)
- International Organization of Standards (ISO)
- Open System Interconnection (OSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- American National Standards Institute (ANSI)
- Electronic Industries Alliance (EIA)

- Telecommunications Industry Association (TIA), (including ANSI/EIA/TIA-568 Commercial Building Telecommunications Wiring Standards), etc.

1.3.1 OPEN STANDARDS

Respondents shall propose a system that utilizes an Open Standards methodology.

The proposed system shall be subject to standards that enhance open standards and increase interoperability such as ITU, IEEE 802 at ISO Layer-2, and IP and TCP, as defined by the IETF in the applicable RFCs, at ISO Layer-3 and above.

If proprietary standards or protocols are used within a proposed solution; Respondents shall disclose the proprietary nature and discuss any limitations that may result.

COMPLY

The ECaTS platform is built on a combination of the Linux and Microsoft operating system platforms. All systems that are implemented by ECaTS utilize known technology stacks either common to Microsoft, Linux or the worldwide web as whole and no proprietary technologies are used in the operation of the ECaTS MIS service. In the spirit of disclosure, the following are the most commonly used open standard protocols in effect within the ECaTS service platform:

1. HTTPS
2. Debian Linux
3. RDDM data transmission using SSL over SSH (aka SFTP)
4. SOAP and REST API's

1.4 ANGEN BACKGROUND

The state of Alabama has a long history of leadership in 9-1-1 services, claiming the nation's first 9-1-1 call in 1968 over a local system in the town of Haleyville soon after AT&T announced the designation of 9-1-1 as a national emergency number.

More than 40 years later, the state's circuit-switched copper-wire system was struggling to keep up with telecom advances that included wireless mobile phones and Voice over IP.

Work on the present day ANGEN system began in June 2012. Wireless traffic is the current primary focus of the ANGEN system because it accounts for the majority of emergency calls in Alabama, as much as 70 percent in some places.

The ultimate goal of ANGEN is to provide NG9-1-1 services that combine voice, video, text and data on a single emergency communications platform, to let callers use the services they are accustomed to on their smart phones and other devices when making emergency calls, as well as provide additional information to first responders.

ANGEN relies upon and uses the Alabama Supercomputer Authority backbone network (ASA) for interconnection between two aggregation points located in Huntsville AL and Montgomery AL.

All wireless carriers providing service in AL interconnect and aggregate all circuits used for wireless 9-1-1 traffic redundantly to these two aggregation points. This forms the basis for the current level of service for ANGEN.

Current ANGEN Partners include:

Local 9-1-1 Districts – All counties and some cities have 9-1-1 Districts to set policy and manage the local PSAP or PSAPs. County Commissions or City Councils appoint the District Boards, or the elected officials sometimes serve as the 9-1-1 Board.

Alabama 9-1-1 Board – The board is charged with administering the $1.75 collected monthly from each phone account for 9-1-1 expenses. The Alabama 9-1-1 Board administered the grant awarded to the Alabama Department of Homeland Security, which partially funded the implementation of ANGEN.

Bandwidth Inc – current system service provider provides the hardware, software, and support services to route wireless 9-1-1 calls to the proper PSAP using the legacy Selective Routers. There are two core facilities in different parts of the state, either of which can handle the entire State if needed.

Alabama Supercomputer Authority (ASA) – Provisions and manages the physical IP network and the redundant and diverse back-bone network that connects the two core facilities in Huntsville and Montgomery.

Current ANGEN Network Diagram

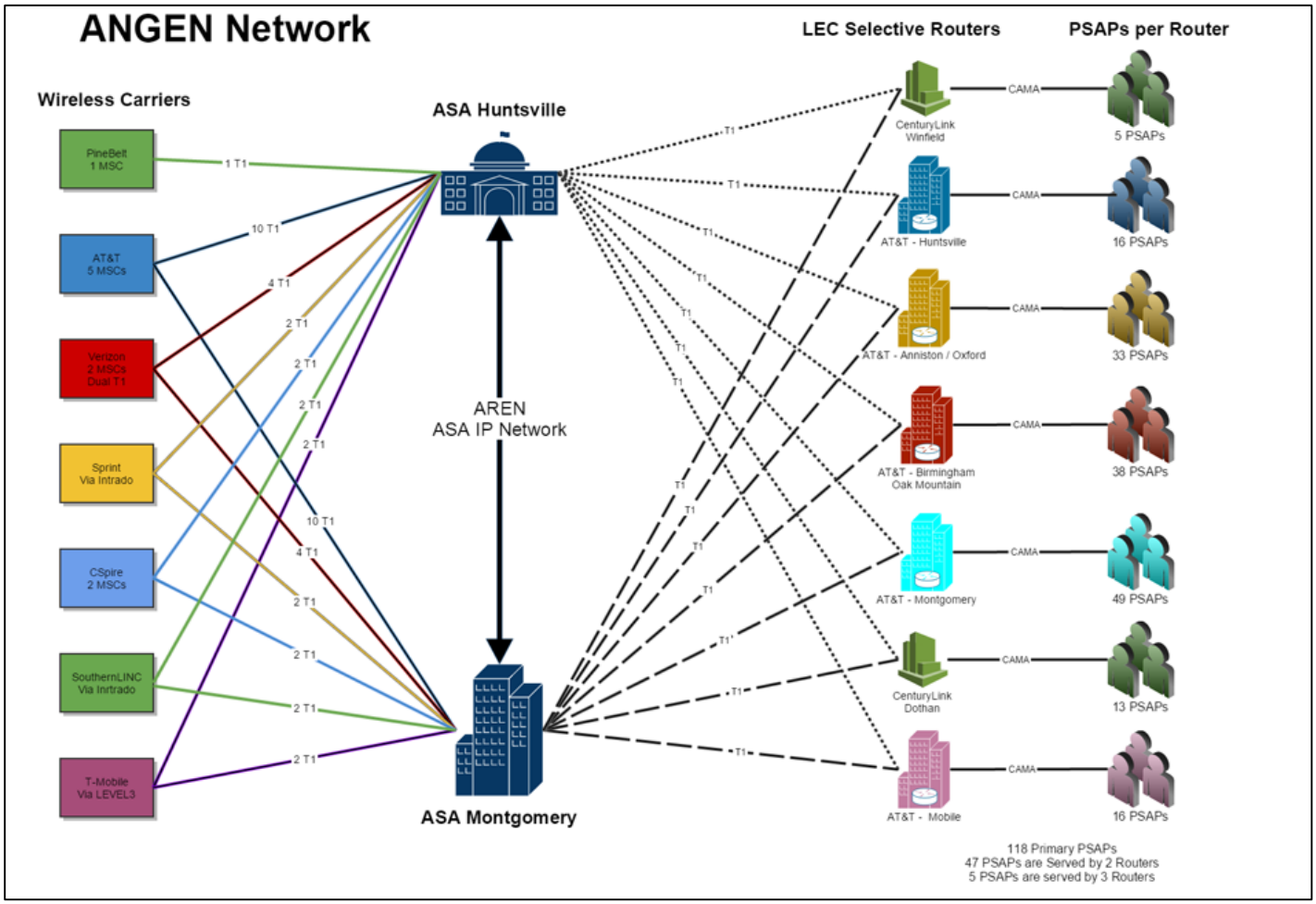


Figure 1 - Current ANGEN Connectivity Diagram

The diagram above represents the logical network connectivity currently employed by the ANGEN system. This diagram is current as of the distribution of this RFP. This diagram will be used and referenced here for the purposes of defining certain requirements and design considerations for any proposed solutions offered by Respondents.

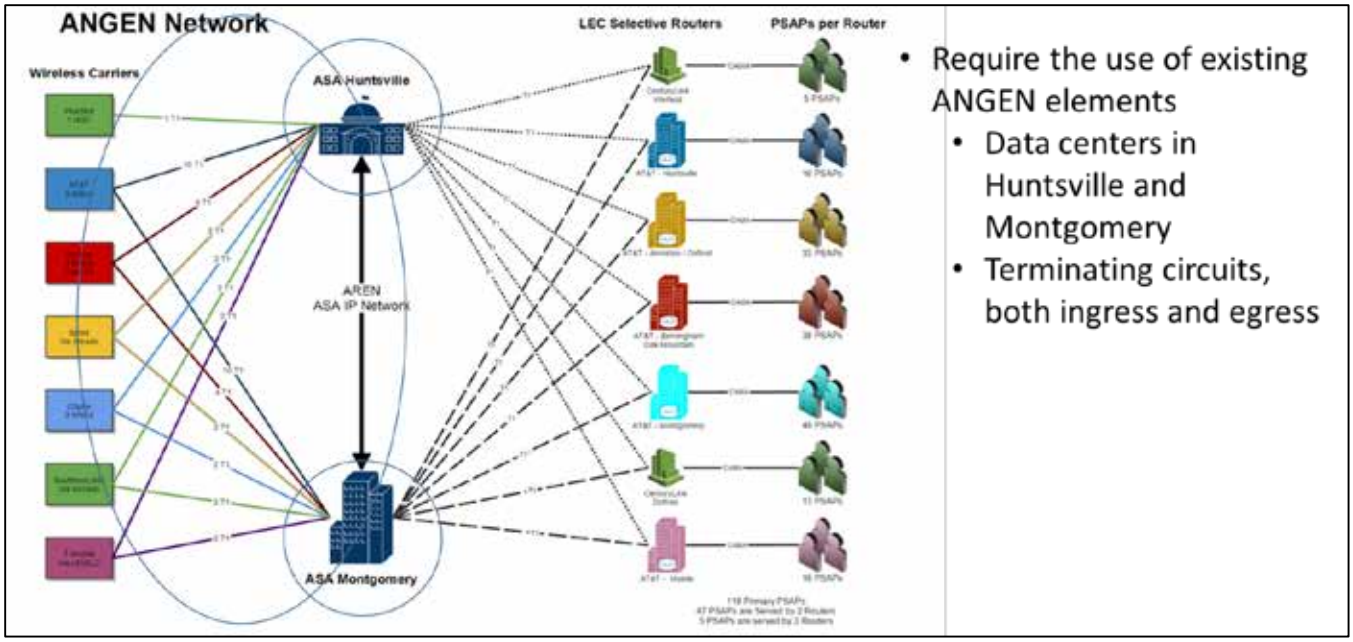


Figure 2 – Current ANGEN Component Re-Use Diagram

The Board's preference is to reuse and repurpose the existing elements of ANGEN represented in the diagram above. Respondents must take this into consideration in any solution proposed and designed in response to this RFP.

> ***Due to the critical nature of operational specifics regarding the capabilities and operation of ANGEN, additional details and information related to the current ANGEN design, configuration, capabilities, connections and operations will be shared with Respondents deemed qualified after the initial receipt of proposals to this RFP.***

ANGEN 2015 Operating Metrics

2015 ANGEN Call Volumes By County			
County	**2015 Total**	**Average Month**	**% State**
Jefferson	571,830	47,653	20.9077%
Mobile	284,576	23,715	10.4049%
Montgomery	210,670	17,556	7.7027%
Madison	152,949	12,746	5.5922%
Tuscaloosa	138,640	11,553	5.0691%
Baldwin	77,515	6,460	2.8342%
Lee	70,111	5,843	2.5634%
Shelby	61,533	5,128	2.2498%
Houston	56,803	4,734	2.0769%
Etowah	55,720	4,643	2.0373%
Calhoun	51,523	4,294	1.8838%
Russell	48,684	4,057	1.7800%

2015 ANGEN Call Volumes By County			
Morgan	46,305	3,859	1.6930%
Talladega	45,321	3,777	1.6571%
Lauderdale	41,298	3,442	1.5100%
Dallas	41,044	3,420	1.5007%
Cullman	34,702	2,892	1.2688%
Marshall	33,925	2,827	1.2404%
St Clair	33,867	2,822	1.2383%
Elmore	32,522	2,710	1.1891%
Walker	31,516	2,626	1.1523%
Limestone	25,180	2,098	0.9206%
Colbert	24,895	2,075	0.9102%
Escambia	24,571	2,048	0.8984%
Chilton	23,117	1,926	0.8452%
Blount	22,896	1,908	0.8371%
Autauga	21,362	1,780	0.7811%
Coffee	21,178	1,765	0.7743%
Dale	20,105	1,675	0.7351%
Butler	19,534	1,628	0.7142%
DeKalb	19,174	1,598	0.7011%
Chambers	18,931	1,578	0.6922%
Marion	17,552	1,463	0.6417%
Covington	16,703	1,392	0.6107%
Marengo	16,251	1,354	0.5942%
Pike	15,907	1,326	0.5816%
Tallapoosa	15,805	1,317	0.5779%
Franklin	15,769	1,314	0.5766%
Macon	15,523	1,294	0.5676%
Sumter	15,033	1,253	0.5496%
Pickens	14,943	1,245	0.5464%
Jackson	14,942	1,245	0.5463%
Monroe	13,168	1,097	0.4815%
Lawrence	12,819	1,068	0.4687%
Greene	12,689	1,057	0.4639%
Clarke	12,583	1,049	0.4601%
Hale	11,516	960	0.4211%
Barbour	11,360	947	0.4154%
Geneva	10,746	896	0.3929%
Cherokee	10,580	882	0.3868%
Lowndes	10,263	855	0.3752%
Perry	10,199	850	0.3729%

2015 ANGEN Call Volumes By County			
Winston	10,084	840	0.3687%
Conecuh	9,252	771	0.3383%
Bibb	8,457	705	0.3092%
Cleburne	7,841	653	0.2867%
Wilcox	7,615	635	0.2784%
Washington	7,603	634	0.2780%
Lamar	6,787	566	0.2482%
Crenshaw	6,629	552	0.2424%
Randolph	6,609	551	0.2416%
Choctaw	6,242	520	0.2282%
Fayette	5,648	471	0.2065%
Henry	4,910	409	0.1795%
Bullock	4,475	373	0.1636%
Clay	3,353	279	0.1226%
Coosa	3,174	265	0.1161%
Grand Total	**2,735,027**	**227,919**	**100.0000%**

Table 1 - 2015 ANGEN Call Volumes by County

The table above represents the ANGEN operational call volumes by AL county for 2015. These figures represent all Wireless E9-1-1 calls processed in Alabama in 2015 and processed by the ANGEN system. This table can be used for reference in design considerations of any proposed solutions provided in response to this RFP.

Current ANGEN Call Volumes by Month 2015

The chart below depicts actual wireless E9-1-1 call volumes by month of the ANGEN system. The information represented below can be used for estimating system capacities and call volumes and can be used as a basis for developing initial cost estimates.

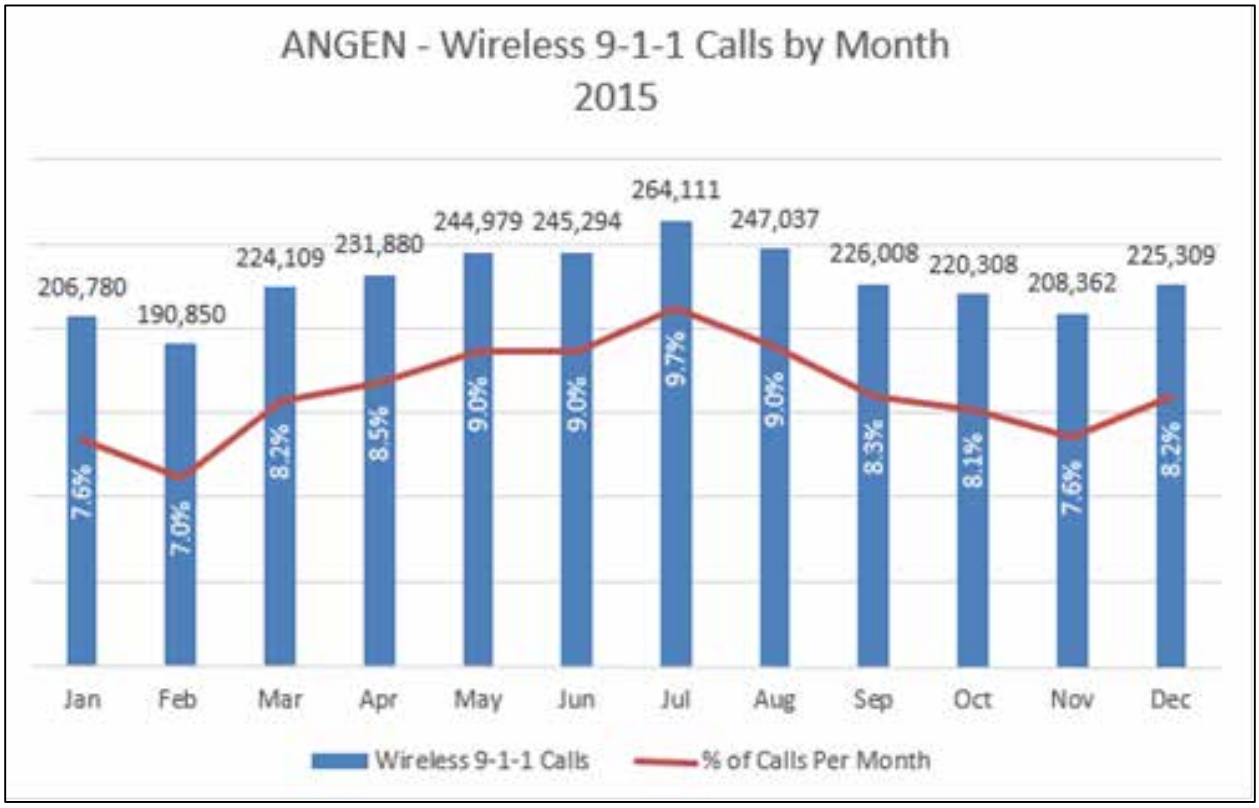


Figure 3 - Chart of ANGEN Call Volumes by Month 2015

Current ANGEN Call Routing Diagram

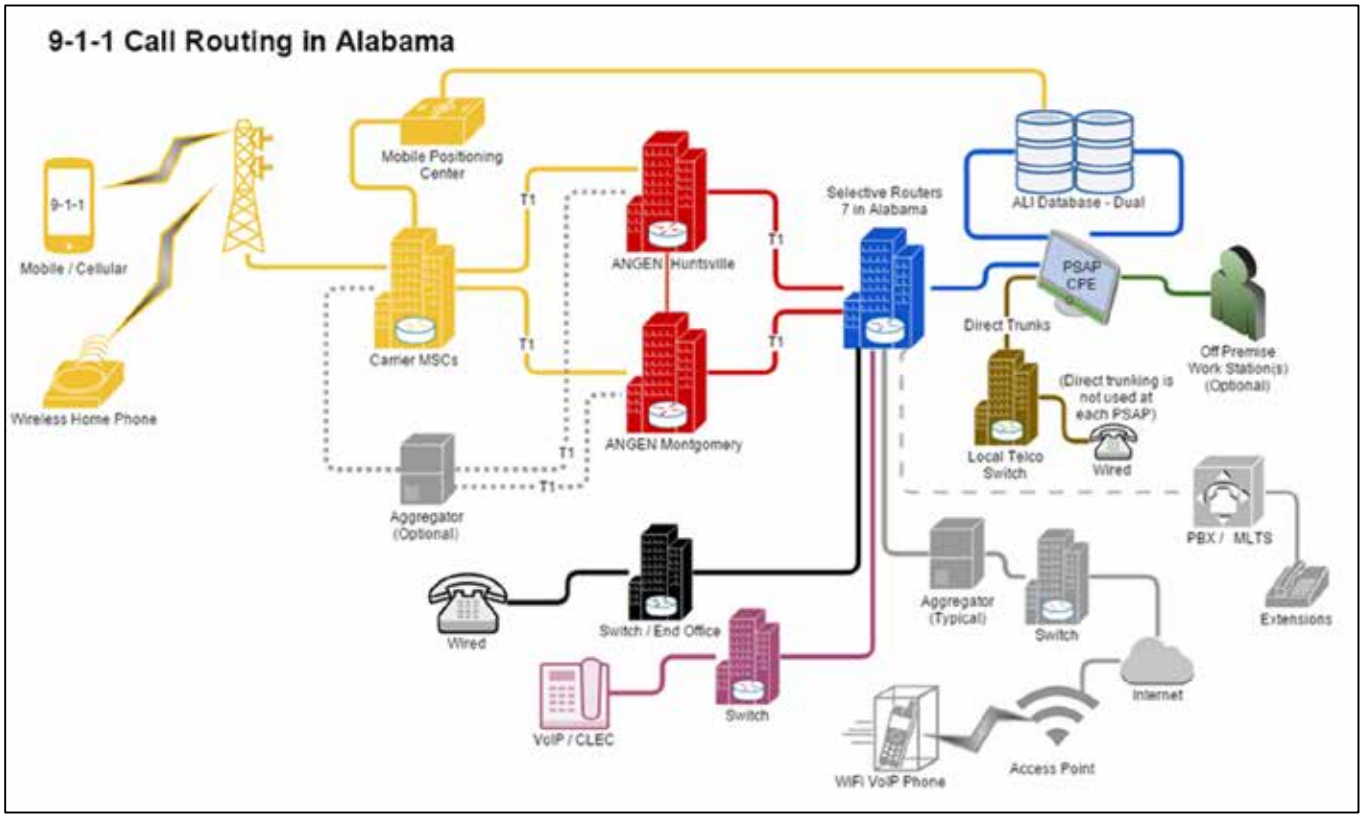


Figure 4 – Current ANGEN Call Routing Diagram

The diagram above provides the logical call flow and routing of the current ANGEN system. Additional details include:

1. Each carrier purchases the network to the core facilities and the State's vendor purchases the circuits to the selective routers.
2. Emergency Communications Districts (ECDs) purchase the circuits from the selective routers to the PSAP.

SECTION 2 ANGEN ESINET REQUIREMENTS

This section provides the ANGEN ESInet requirements and design considerations for Respondent's to this RFP.

2.1 ANGEN ESINET DESIGN GOALS AND OBJECTIVES

ANGEN Conceptual Design Diagrams for Reference

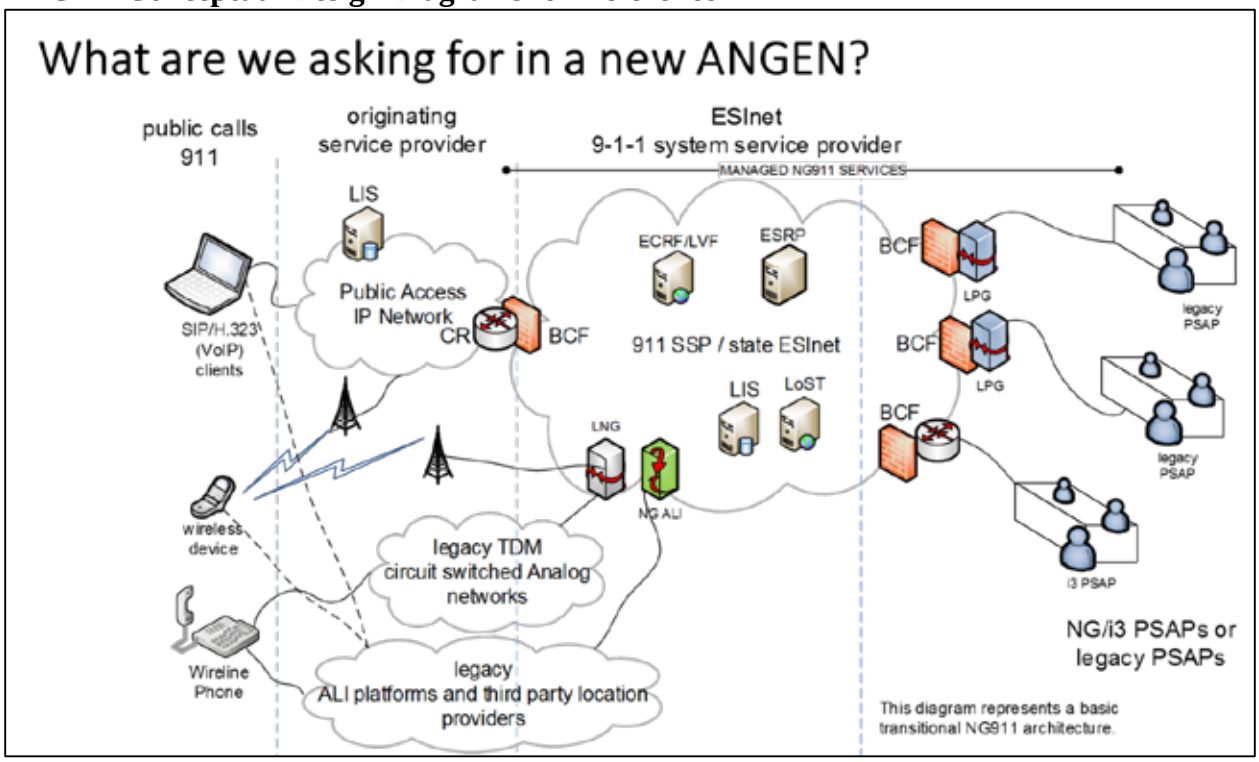


Figure 5 - ANGEN Conceptual Design Diagram

The diagram above represents the conceptual end state of the Future ANGEN system and services as desired by the Board and sought by this RFP. The ESInet will be designed to support and facilitate the operational services provided by the ANGEN system functional elements represented in the diagram above.

COMPLY

Direct Technology acknowledges the ANGEN ESInet design goals and objectives as outlined in Section 2.1 of the Alabama NG911 RFP 16-001.

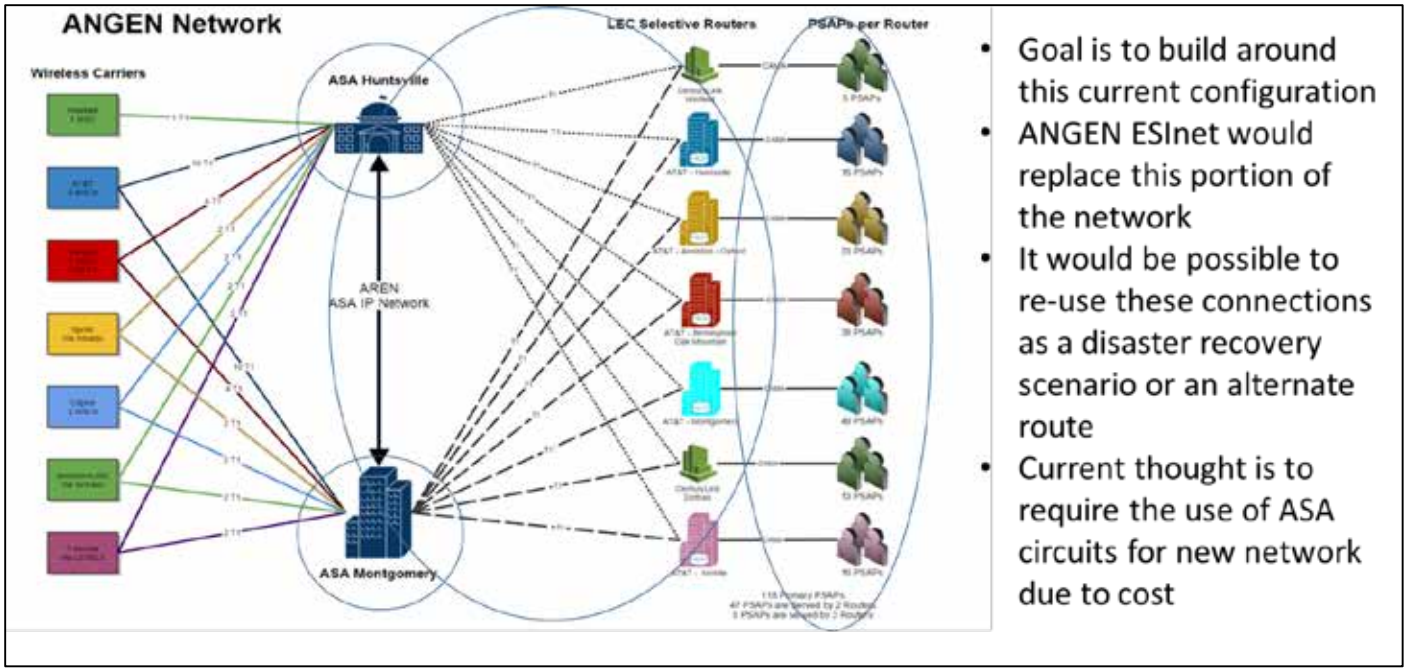


Figure 6 - ANGEN ESInet Goals and Design Considerations

PSAP Information

Alabama is made up of 67 counties with a population of 4,850,000. This population is served by 88 Emergency Communications Districts representing 118 Primary PSAPs. For the purposes of this procurement, the following number of PSAPs are within the scope of this project and anticipated services.

2. There are 118 Primary PSAP's in the state.
3. There are 88 ECDs in the state

For the purposes of this procurement, any solutions or services that require provisioning to a PSAP, the number of PSAPs to be considered will be 118 as explained and derived above.

All of the 118 PSAPs are currently operational and fully deployed E9-1-1, Wireless Phase 1 and Phase 2.

Specific address information for each of the 118 Alabama PSAPs covered by this RFP will be made available to qualified respondents as appropriate and necessary for the refinement of costs and designs of proposed solution(s).

COMPLY

Direct Technology acknowledges the PSAP information outlined in Section 2.1 of the Alabama NG911 RFP 16-001.

2.2 ANGEN ESINET SERVICES

The Board seeks network and operations services from a provider or a combination of providers to implement an Emergency Services IP-network (ESInet) to deliver or support the delivery of

voice, text, or other emergency communications related data to the PSAP's throughout Alabama and in the adjoining states of MS, TN, GA and FL or as may be designated by the Board.

The ESInet(s) will be the foundational technology for keeping Alabama on the forefront of the transition to Next Generation 9-1-1 features, functions and capabilities during the term of the contract and will form the core technology of the ANGEN ecosystem.

Respondents interested in providing ESInet services must design and provide an IP based network solution with the ability to connect and interconnect to other regional, state and potentially national emergency services networks (i.e. FirstNet).

The proposed solution must ***at a minimum*** deliver the same functionality of the current ANGEN system as detailed in Section 1 of this specification.

Successful respondents will provide all services necessary for the development, implementation operation, monitoring and maintenance of their proposed ESInet including:

- Design, installation, testing, interconnection and operation of ESInet components required to operate or support the operation of ANGEN
- Maintenance and repair of those elements of the ESInet and interconnections owned, operated, installed or controlled by Respondents as part of their solution
- Completion of as built drawings, sketches and/or schematic materials related to the ESInet
- A data collection and reporting system for all ESInet elements so operational metrics of the ESInet can be monitored, reported and analyzed

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.3 ANGEN ESINET ARCHITECTURE REQUIREMENTS

Any ESInet proposed in response to this RFP must conform to NENA 08-506, Emergency Services IP Network Design for NG9-1-1 (ESIND) and other industry standards as referenced in Section 1 of this specification.

ESInet design requirements include but are not limited to:

- The ESInet shall be designed with as few single points of failure as practical. Diverse network elements and paths, redundant equipment, and other technical and physical means will be used to reduce the potential for total loss of service where a single point of failure is not reasonably avoidable.
- The ESInet shall be designed with a minimum level of bandwidth to support delivery of calls and associated data from originating service providers or other integrated ESInets to the PSAPs.
- The ESInet shall be designed and deployed using a highly reliable and redundant architecture.
- Availability, diversity, redundancy and resiliency shall be the guiding ESInet design principals

- The ESInet design shall support the ability to automatically reroute traffic to alternate routes or systems in order to bypass network outages and system failures.
- The ESInet design shall offer the ability to prioritize critical traffic at multiple levels by importance of applications or users
- The ESInet design shall be scalable and have the ability to scale without adverse effects on performance or costs
- The ESInet shall be designed to support a guaranteed Quality of Service (QoS) level
- The ESInet shall be designed to support the automatic adjustment of traffic priorities in order to meet established QoS levels as defined in NENA 08-003
- The ESInet design shall support the ability to ensure performance through the use of traffic shaping and traffic policing.
- The ESInet shall be designed to operate on a 24x7x365 basis.
- An ESInet design that utilizes the most cost effective and feasible combination of transport technologies available to deliver the bandwidth required.
- The ESInet design shall support the ability to handle legacy 9-1-1 calls and ensure the capability of handling future call types.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.3.1 ESINET NETWORK DIAGRAM(S)

Respondents shall provide Network Diagrams to support their narrative that accurately displays how their proposed ESInet will be configured and deployed.

The Network Diagrams shall display information about the core ESInet design, the configuration, the interconnections and the access network links so that the diagram can be used as a basis for evaluation and understanding.

ESInet diagrams submitted shall depict, where appropriate, the following aspects of the proposed ESInet solution:

- Network map(s)/Diagram(s)
  - Logical topologies
  - Physical topologies
- Physical and logical path diversity
- Network ingress and egress points
- Connection types
- Capacities/estimated bandwidth
- Interconnection locations:
  - Node locations
  - Data Centers
  - Aggregation points (both carrier and local access)
- Additional technologies and interfaces as necessary

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4 ANGEN ESINET FEATURES AND FUNCTIONS

Respondents shall provide a narrative of their proposed ESInet with enough detail to ensure proper evaluation, using diagrams to provide an appropriate level of detail and common language that explains how their proposed ESInet solution is capable of supporting legacy 9-1-1 network options, NG9-1-1, current and evolving standards, and how it will accommodate the integration of other networks operated by other providers that comprise the ANGEN ecosystem.

The narrative will address each of the features or functions listed below (in no particular order):

1. Operations
2. Security (both physical and logical)
3. Availability
4. Monitoring
5. Alarming
6. Maintenance
7. Disaster Recovery
8. Service restoration
9. Outage mitigation
10. Core routing
11. Interface to Hosted solutions
12. Fault zone design methodology

Respondents shall provide a list and a description of all protocols or routing functions that are used in the ESInet infrastructure and ensure that they conform to NENA Detailed Functional and Interface Standards for the NENA i3 Solution NENA STA-010 standards. The proposed ESInet solution must be aligned with NENA 08-003 to ensure that the proposed network does not conflict with open standards specifications.

Respondents shall provide the system narrative immediately following this Section 2.4. Additional requirements and specific technical specifications are detailed in Sections 2.4.1 – 2.4.13

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.1 VOLUME AND PERFORMANCE

The ESInet shall be designed to handle, at a minimum, **4,000,000 calls annually**, and an estimated 1,000,000 emergency text messages (inbound and outbound) initially.

The wireless traffic high month was 6,617 hours of talk-time.

The ESInet shall be capable of increasing capacity by 10 percent annually over the initial term of the contract.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.2 NETWORK AVAILABILITY & RELIABILITY

The proposed system, including all subsystems, shall be available a minimum of 99.999% of the time when measured on a 24x7x365 basis during a calendar year. Respondents must provide a description of how the availability and reliability will be measured and include a Service Level Agreement (SLA) that is consistent with the recommendations of ESIND and NENA08-003.

Respondents shall explain how the system will achieve this level of availability.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.3 INTERCONNECTION OF OTHER NETWORKS AND SYSTEMS

The proposed solution must be designed to allow for interconnection to other ESInet implementations, PSAP systems (CAD, logging recorders, etc.), criminal justice networks, other 9-1-1 networks or other secure public safety technologies as may be designated by the Board. The proposed solution must ensure "open standards" and describe provisions to collaborate with potential interconnected solutions.

Respondents shall describe the ability for their ESInet solution to interconnect and interoperate with other ESInet implementations, PSAP systems (CAD, logging recorders, etc.), criminal justice networks, other 9-1-1 networks or other secure public safety technologies as may be designated by the Board.

Any IP network approved by the Board to connect to the ESInet shall be required to comply with appropriate ESInet, NENA, and National and Open Standards described in this proposal or as may be current at the time of proposed interconnection.

The ESInet shall be configured in a manner that Board approved edge site Local Area Networks (LANs), such as computer aided dispatch (CAD) systems and/or other Public Safety systems may be connected to utilize the functionality created by the ESInet.

Respondents shall be accountable for ensuring that additional networks meet the minimum qualifications for interconnection presented in this specification and that security of ANGEN is maintained through collaboration with each potential network provider.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.4 QUALITY OF SERVICE FEATURES

Any proposed ESInet shall have quality of service (QoS) features suitable for the real-time transport of VoIP traffic requesting emergency services (as defined in NENA 08-003).

Respondents shall describe their method of managing the QoS features defined below and offer an explanation of how their proposed ESInet will perform to these capabilities

The following ESInet performance requirements are taken directly from NENA 08-506 ESIND:

1. **Packet Latency (50 ms)**
   - Packet Latency shall average a round trip time of fifty (50) milliseconds.
2. **Packet Loss (5%)**
   - Respondents shall design the ESInet without oversubscription and keep the packet loss budget under 5%.
3. **Jitter (20 ms)**
   - Jitter shall not exceed twenty (20) milliseconds.

Respondents shall provide an explanation of the proposed solutions QoS capability that minimizes congestion, mitigates errors and ensures the delivery of Real-Time Transport Protocol (RTP) packets across the ESInet.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.5 TRAFFIC PRIORITIZATION NARRATIVE

Respondents shall describe how their proposed solution manages the prioritization of traffic across the ESInet, how QoS is implemented and describe the interoperability of the IP routing mechanisms.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.6 SCALABILITY

The Board seeks a solution that will accommodate bandwidth changes, additional sites to be added or sites removed, and to interconnect to other regional or statewide ESInets without downtime or substantial increase in operating costs.

Respondents shall describe how their proposed ESInet design permits scalability.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.7 REDUNDANCY AND SURVIVABILITY

The ESInet shall be configured to survive natural or man-made disasters at every core site (Central Office, Point of Presence, Data Center or other central switching location) and shall provide a description of survivable capabilities at all edge sites including PSAPs

Additional requirements for the reliability design of the ESInet shall be guided by the FCC Report and Order **FCC 13-158 – Improving 911 Reliability and Reliability and Continuity of Communications Networks, Including Broadband Technologies.**

Where available, the ESInet network core solution and redundantly connected sites shall include physically diverse routes and physically diverse building entrances.

Respondents shall provide a detailed description of all single points of failure or specific locations that lack diversity and/or redundancy present within their proposed solution. This includes locations within the proposed ESInet where redundant components, network resources and physical connections **DO NOT** exist.

Respondents shall explain in detail the redundancy and survivability measures proposed for the ESInet and the core network components.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.8 BANDWIDTH

Respondents shall identify the minimum bandwidth required to handle all anticipated voice and data traffic of the system for the next five (5) years.

At a minimum Respondents shall base their bandwidth estimates on the delivery of all calls and associated data to the PSAP.

In addition, the bandwidth should include requirements for a fully functioning network with all redundant connections in service.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.8.1 PSAP BANDWIDTH

Respondents shall provide a solution that can deliver adequate bandwidth to each PSAP for 9-1-1 voice calls, text to 9-1-1, data communications, and a sufficient surge factor. The growth factor used must conform to the current ANGEN model.

The minimum access portion of the network from the ESInet to the PSAP shall be **10 Megabits** per second (Mbps).

Respondents shall continually monitor the bandwidth for the duration of the contract and dynamically increase the bandwidth when appropriate. The selected vendor will be required to supply a SLA consistent with the existing ANGEN solution. A description or sample of the SLA must be included in the response.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.8.2 BANDWIDTH EXPANSION

The ESInet must be capable of expanding as needed throughout the duration of the contract period.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.8.3 BANDWIDTH SHARING

Respondents shall describe how their QoS scheme ensures that separate RTP sessions are not sharing bandwidth.

Since the ESInet may be used for additional services, respondents must provide a description of how bandwidth is prioritized and separated from normal IP traffic.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.8.4 LOSS OF BANDWIDTH

Respondents shall configure the dynamic routing protocol to prevent serious loss of bandwidth, denial of service due to routing table updates or other behavior while providing automatic rerouting as quickly as is reasonably possible.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9 IP ROUTING

The Board requests that Respondents propose the most efficient and effective IP routing solution that meets the intent of this RFP.

As the transition from IP version 4 (IPv4) and IP version 6 (IPv6) is on-going, the proposed IP network infrastructure shall be configured to support and route both IPv4 and transition into IPv6.

Respondents shall describe how their ESInet configuration meets an ability to associate IPv4 and IPv6 in a seamless routing configuration.

Respondents must also describe how a combined IPv4 and IPv6 platform will be managed and monitored to avoid potential errors.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.1 INTERNET PROTOCOL PACKET DELIVERY

Respondents shall ensure that the IP routing protocol used in the ESInet provides delivery of IP packets from end to end. All IP information from one IP device to another IP device within the network must be guaranteed.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.2 IP ROUTING PROBLEM RESOLUTION

Respondents shall describe how their proposed solution will interoperate with other operators of interconnected networks and will cooperate with those providers to resolve IP routing problems.

The selected vendor will be responsible for ensuring that discrepancies or deviations from standards within the respondent's network are documented and corrective action taken to overcome conflicts with other operators.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.3 AUTOMATIC INTERNET PROTOCOL REROUTING

Respondents shall describe how their proposed solution minimizes the impact of routing errors within the network by automatically rerouting past failures or interruptions.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.4 BACK TO BACK USER AGENT USAGE

Respondents must provide the ability to cross ESInet boundaries to ensure no limitations or dropping of packets. If SIP or RTP traffic needs to cross boundaries the traffic shall be handled by a back to back user agent (B2BUA); a type of session Boarder controller (SBC).

Respondents shall describe where B2BUAs are located within their solution and document the use of B2BUAs in their ESInet. Respondents must include an explanation of how the seamless delivery of traffic can be maintained using SIP and RTP between IPv6 and IPv4 networks.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.5 SUBNET NUMBER ASSIGNMENTS

The Board may allow the integration of other networks with the ESInet. To avoid potential conflicts for address space, Respondents shall document and provide a report of all subnet address assignments to the Board prior to implementation of the ESInet.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.6 NETWORK STATIC ADDRESSING

Respondents shall ensure that static IP address routing is configured at all core network interfaces to avoid IP configuration errors.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.9.7 "LOOPBACK" INTERFACE

Respondents shall define an interface to allow for loopback testing within the ESInet. The loopback interface shall be installed at each network element to provide administration functions.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.10 DIVERSE NETWORK ENTRIES

The Board requires an ESInet design that incorporates diverse network entries to connection points and PSAPs. The Board recognizes that in several cases there may not be physically diverse entrances into PSAPs.

Where diverse entries are not possible; Respondents shall describe their methodology to implement the most diverse solution possible.

Respondents shall describe their methodology for providing redundancy through the use of diverse network entries where possible.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.11 NETWORK DEMARCATION POINT

Since the ESInet may be interconnected to other ESInets or facilities, Respondents shall establish demarcation points and the physical connection requirements for other operators to connect to the designated demarcation point.

In addition, demarcation between the Access Network facilities that connect an edge site, such as a PSAP site, to the Core Network, meet the Core Network at a point of interconnection (POI).

Respondents shall explain their preferred methodology for establishing network demarcation points.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.12 ACCESS NETWORK - EDGE SITE INTERFACE

The edge or PSAP sites should interface via 100 Megabit per second (Mbps) or faster port speed connection.

This interface to the local LAN is not considered a part of the NG9-1-1 network but should be considered as an element of the ESInet infrastructure.

Respondents shall describe the local area network (LAN) interface at each of the edge sites.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.4.13 TIME SERVERS

A time server to synchronize all proposed network resources must be included in the proposed solution.

The time server must be connected to redundant time sources located within the ESInet capable of providing accuracy to 20.0 milliseconds (ms) of true time.

Respondents shall include a system for establishing network time protocol for the network in their proposal.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.5 ANGEN NETWORK FAILOVER

The proposed solution must contain a network failover function that is capable of recognizing faults and automatically taking measures to avoid the fault. At a minimum the network shall provide for instant switch from failed or degraded components, systems, and networks.

The failover system shall conform to industry standards and shall comply with the other recommended standards presented in this RFP and must embrace open standards to maximize the fail over ability of all components.

Respondents shall describe in detail their methodology both operationally and technically for implementing automated network failover as a component of their proposed ESInet.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.6 ANGEN NETWORK SECURITY

Respondents shall propose a solution that meets a minimum level of security as defined by the national standards.

The Board requires that proposed solutions comply with the Federal Bureau of Investigation (FBI) Criminal Justice Information Services (CJIS) Security policies and practices.

They may be found at http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/view.

Respondents shall propose how their solution meets these security measures and how they comply with future changes to security measures to ensure that:

- Network operations are not disrupted due to a security breach
- Unauthorized individuals cannot access the network
- Least access policy is applied
- Data theft does not occur
- Monthly assessments of vulnerabilities and frequent scans for malicious activity occur
- Security incidents are documented, risks identified, responded to and mitigated
- Management of security changes are documented
- Security documentation is maintained to aid in forensic audits as necessary
- Security data is maintained as recovered and not modified or deleted

- Intrusion protection and Intrusion detection is implemented throughout the network to eliminate breach of security
- Protection from identify theft occurs

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

Respondents shall include physical and logical security precautions in their proposed solution that meet the minimum criteria outlined above. This includes providing a description of any security based appliances necessary to meet the objectives including:

- Firewalls
- Access Control Lists
- Switches
- Routers
- Intrusion Protection devices
- Intrusion Detection devices
- Specialized Cabling

Respondents shall describe in detail how the proposed network is configured to withstand these attacks and protect the integrity of the entire 9-1-1 system.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.6.1 INTRUSION PREVENTION AND DETECTION

Respondents shall describe how their proposed intrusion prevention and detection capabilities provide alerting, logging and reporting of security threats by intruders to the network. In addition, the ability to document and log intrusions must be discussed within the response.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.6.2 ENCRYPTION

Respondents must include the advanced encryption standard (AES) on their proposed solution where appropriate.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.6.3 NETWORK SECURITY STANDARDS

Respondents shall describe how their network security solution complies with the following Standards:

- NENA Security for Next-Generation 9-1-1 Standard (NG-SEC, document 75-001 dated February 6, 2010)
- Next Generation 9-1-1 Security (NG-SEC)Audit Checklist NENA 75-502 V1
- NENA i3 Technical Requirements Document 08-751
- NENA Detailed Functional and Interface Standards for NENA (i3) Solution Stage 3 08-003
- FBI Criminal Justice Information Services (CJIS) Security Policies
- http://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/view

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

2.6.4 REMOTE ACCESS AND NETWORK SECURITY AND FIREWALLS

Respondents shall specify a firewall solution within its network that provides security and protection to the system. All such interfaces connected shall be in accordance with mandated security requirements.

a. Secure remote access shall be strictly controlled. Control will be enforced via remote access authentication using security tokens that provide one-time password authentication or public/private keys with strong pass-phrases.
b. Remote Access control will be enforced via network and system level auditing.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP 16-001.

SECTION 3 ANGEN SPECIFIC REQUIREMENTS

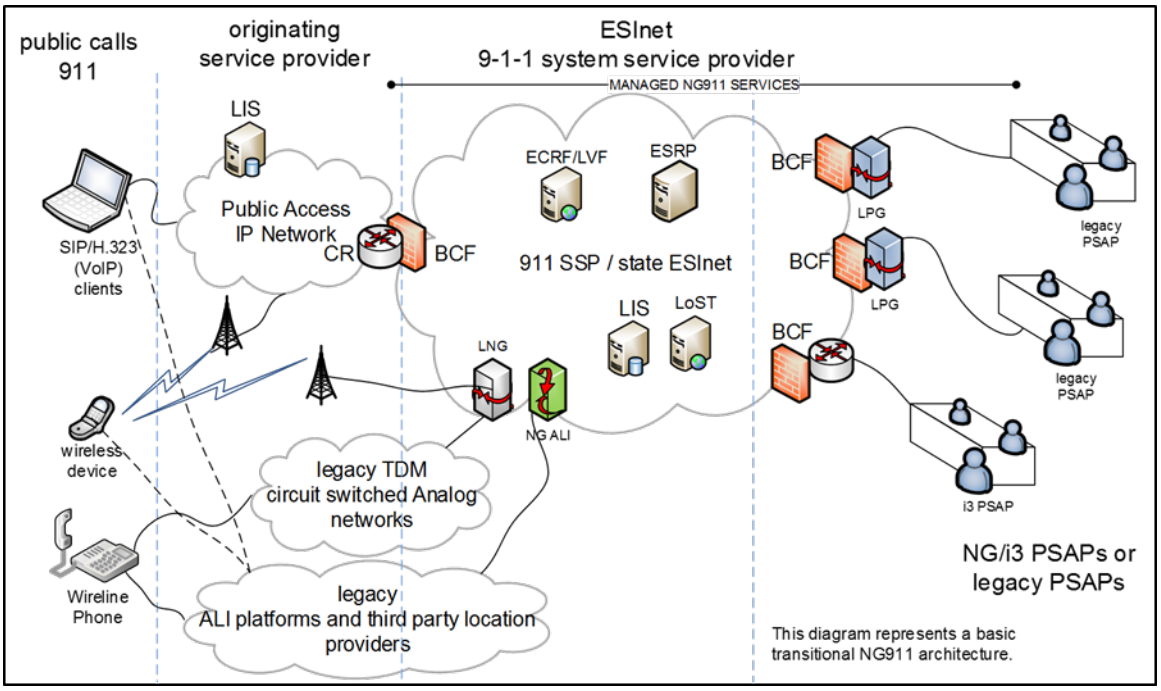


Figure 7 - ANGEN Conceptual Design Diagram

3.1 SYSTEM SERVICE PROVIDER COORDINATION REQUIREMENTS

Successful Respondents will be required to coordinate with other service providers as necessary to operate a seamless solution in support of the operation of ANGEN.

Respondents will need to enter into Interconnection agreements which legally allow the connectivity and interconnection with other networks as well as other service providers throughout Alabama.

This includes but is not limited to LECs, CLECs, ILEC and all Wireless Carriers providing service in Alabama.

Respondents shall provide the Board with example agreements, relationships, licenses or other documents demonstrating Respondents legal ability to enter into such agreements.

Examples of interconnection and cooperative agreements with third parties include but are not limited to:

- pANI (psuedo ANI) and IP provider ALI records integration
- third party providers (TCS and Intrado) E2+ interfaces
- Inter-company ALI server connections (to AT&T, CBT)

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

ECaTS does however have the following reseller and partnering agreements with the following groups:

CPE Providers/Call Delivery:
West Corporation (formerly Intrado)
Airbus
TCS
Solacom
Zetron
TriTech

Carriers:
AT&T
Verizon
Century Link
Frontier

Integrators:
AK and Associates
Venture Technologies
General Dynamics
Unify Corp
Ryan Public Safety Solutions
Verint
Agent 511

CAD Systems:
Tyler Technology
Intergraph
TriTech

3.2 INTERSTATE INTERCONNECTION REQUIREMENTS

Respondents must be capable of interconnecting with other SSPs in states other than Alabama. States that will need to be interconnected to ANGEN include:

- Florida
- Georgia
- Mississippi
- Tennessee

Respondents shall provide the Board with example agreements, relationships, licenses or other documents demonstrating Respondents legal ability to enter into such agreements in other states.

Respondents must provide an explanation of how these interstate and intrastate capabilities will be achieved.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

3.3 TEXT TO 9-1-1 REQUIREMENTS

The intent of this section is to specify a Text solution that is in compliance with the Alliance for Telecommunications Industry Solutions (ATIS) / Telecommunication Industry Association (TIA) J-STD-110, *Joint ATIS/TIA Native SMS to 9-1-1 Requirements & Architecture Specification* A J-STD-110 Standard.

The Board is looking for Respondents to provide a hosted solution for the processing of text-to-9-1-1 messages on Respondent's proposed ESInet.

The Board is seeking a text to 9-1-1 emergency telecommunications system that shall possess the highest degree of resiliency, reliability, redundancy, and service availability and conforms to current and evolving industry standard.

The system shall support the delivery of 9-1-1 text calls to all participating PSAPs located throughout Alabama.

Functionally the Board's desire is to have emergency text messages (text-to-9-1-1) from all wireless carriers aggregated from Respondents' proposed solution and forwarded to the appropriate PSAP. A TCC function for all of Alabama.

Conceptually the solution will allow a subscriber to a wireless service in the U.S. to send an emergency text to 9-1-1 while in the confines of the State of Alabama and that emergency text will be sent to the appropriate PSAP for answering and processing.

Respondents proposed solution(s) shall aggregate incoming Short Message Service (SMS) text messages from the public through one interface to all Text Control Centers (TCCs) provided by wireless carriers/vendors and distribute the text message to the appropriate Public Safety Answering Point (PSAP) in the format required by that PSAP (web browser, TTY, Direct IP interface).

Respondents proposed solution(s) shall minimize interconnection points between Respondents proposed solution and the PSAP by providing a single content distribution node from the aggregator solution to the PSAP interface.

Such an interface node shall be compatible with all NENA i3 CPE, TTY, and Web-based text displays.

Respondents proposed solution(s) shall only require that a person requiring emergency assistance enter the short code '9 1 1' in their wireless device in order to have an emergency text message sent to the PSAP.

The use of any other short code to send emergency text messages is not required nor shall there be any need for a public person to register their device in order to text 9-1-1 within the defined jurisdiction.

Respondents proposed solution(s), through a distribution method, shall allow messages to be transferred between PSAPs (primary and secondary) that use a web-based browser or NENA i3 CPE interfaces.

Respondents proposed solution(s) shall provide through the distribution method the ability to provide TTY transfer of SMS texts between TTY PSAPs on the same selective router.

Respondents proposed solution(s) should provide an Aggregator function that:

- Will aggregate text-to-9-1-1 messages from multiple TCCs into a single message stream for distribution to the PSAPs
- Supports any ATIS compliant text-enabled CPE interface
- Supports transfer of text sessions between different interfaces

Respondents proposed solution(s) should provide a Distributor function that:

- Receives text-to-9-1-1 messages from the Aggregator and uses the ESRP/ECRF to route the message to the destination PSAP for the PSAPs served by the Distribution server.
- The Distributor includes:
  - TTY Interface – to handle conversion of a text message to a TTY stream for interfacing to a selective router through an Emergency Services Gateway (ESGW)
  - Web Portal – contains a portal for the web-based Respondents solution for use by the call taker
  - SIP/MSRP Interface – interface between the Aggregator and the NENA i3 ESInets or MSRP CPE at the PSAP.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

3.3.1 DATA COLLECTION AND REPORTING

The proposed solution shall supply call detail record (CDR) or an equivalent for all text messages. The solution shall provide QoS information, per NENA i3 standards, for each text 'call' to ensure that SLAs are being met.

Quality of service information should be accessible through Respondents' maintenance function.

Respondents shall provide diagrams for their proposed solution showing:

- System connectivity
- System NG9-1-1 functionality including connectivity to network
- Intelligent workstation equipment

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

However it should be noted that ECaTS currently has agreements with all major Telecommunication Providers, all major CPE and network providers and all major Text-to-911 providers. In addition, ECaTS is proposing a fully integrated Text-to-911 Reporting and Analytics module as described in Section 5.

3.3.2 PSAP GRAPHICAL USER INTERFACE AND TEXT STATUS WINDOWS (BROWSER METHOD)

Respondents shall include a user interface provided for a web browser that allows a supervisor the ability to modify the system sounds and button icons.

The User interface proposed by Respondents solution must utilize Windows Graphical User Interface (GUI) interfaces using drop-down boxes, check boxes, text boxes, radio buttons. Etc. to facilitate user friendly data entry and editing.

The Intelligent Workstation shall present the text-call-taker, at a minimum, with the status of the following categories:

- Number of Active Text-to-9-1-1 Calls
- Number of Text-to-9-1-1 Calls on Hold
- Number of Text-to-9-1-1 Calls 'Ringing'
- Number of Active Text-to-9-1-1 Call takers.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

SECTION 4 ANGEN i3/NG CORE SERVICES REQUIREMENTS

4.1 NENA I3 NG CORE FUNCTIONAL REQUIREMENTS

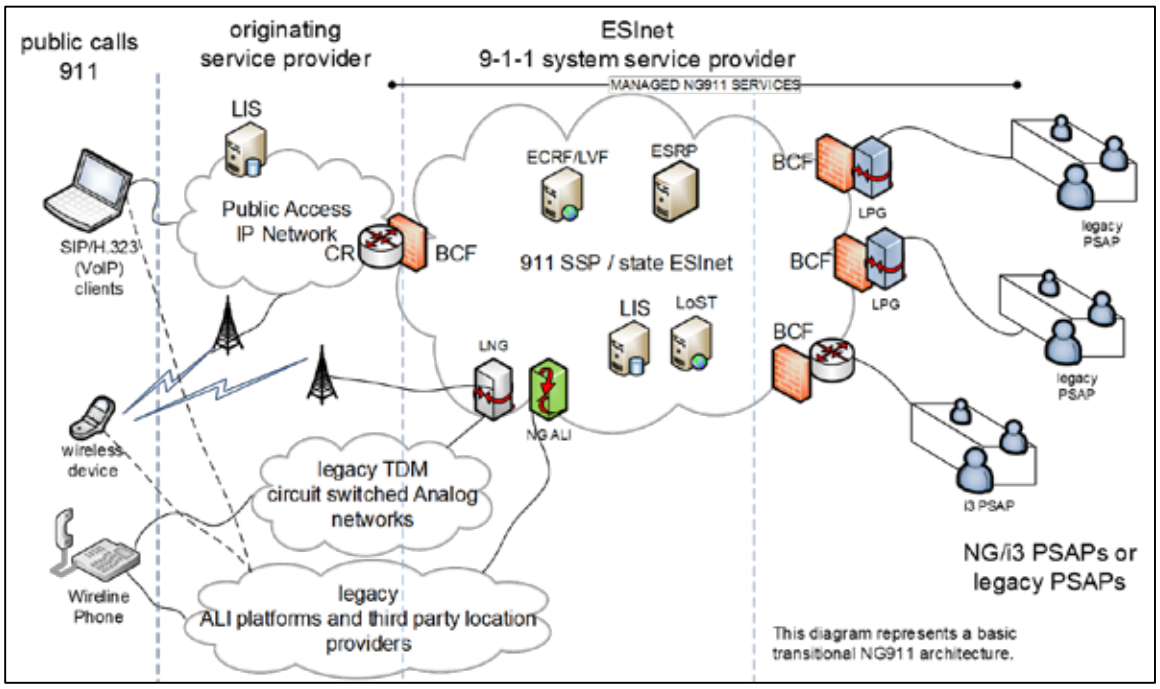


Figure 8 - ANGEN Conceptual Design Diagram

The proposed system shall be designed to meet and expand the current capabilities of the ANGEN system and be scalable and adaptable to accept new payloads (such as Text, Pictures and Video) that may be directed by the Board for deployment during the term of the contract.

ANGEN is currently configured as a wireless carrier aggregation point, which is interconnected to every S/R in Alabama, which then serve and deliver wireless 9-1-1 calls to the PSAPs in AL.

The proposed system is required to provide or accommodate NG9-1-1 core functional elements as well as legacy transitional elements for the continued and future operation of ANGEN.

Those NG9-1-1 core functional and legacy transitional elements include:

- Border control function (BCF)
- Emergency call routing function (ECRF)
- Emergency services routing proxy (ESRP)
- Legacy network gateway (LNG)
- Legacy PSAP gateway (LPG)
- Legacy Selective Router Gateway (LSRG)
- Location Validation Function (LVF)
- Policy routing function (PRF)

Respondents shall explain where these functional components are physically located in their proposed solution and describe how they will operate.

It is recognized that all of the functions may not be required at this time and that some may only be added after transition or at some future point as technologies or standards evolve.

Suggested components that are not used or are not needed in the Respondents proposed solution must be clearly noted as an exception; and an explanation must be given for eliminating the particular component to perform the ANGEN capability.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.2 BORDER CONTROL FUNCTION (BCF)

Per the NENA i3 NG9-1-1 specification, the network must be configured with a Border Control Function (BCF) at all ingress and egress points.

The BCF shall support a variety of direct IP interconnection arrangements between the ESInet and external IP networks depending on the level of mutual trust that exists between the respective networks.

It is strongly recommended that BCF's are located at a minimum of two geographically diverse points of interconnection (POI), and support 99.999% availability interconnections to external networks.

Respondents shall explain the features and capabilities of their proposed BCF, along with a brief explanation of how high availability will be achieved.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.3 EMERGENCY CALL ROUTING FUNCTION (ECRF)

Respondents shall include an emergency call routing function (ECRF) in their proposed solution that utilizes geographic location information to route emergency calls to the appropriate PSAP.

The ECRF shall be designed according to NENA08-003 standards and be implemented using diverse, reliable and secure IP connections.

Respondents shall supply an ECRF function that meets a minimum of 99.999% availability

Respondents providing an ECRF must ensure that it is accessible from outside the ESInet and that the ECRF permits querying by an IP client/endpoint, a Legacy Network Gateway (LNG), an

Emergency Services Routing Proxy (ESRP) in a next generation Emergency Services network, or by some combination of these functions.

An ECRF accessible inside an ESInet must permit querying from any entity inside the ESInet. ECRFs provided by other entities may have their own policies on who may query them.

An origination network may use an ECRF, or a similar function within its own network, to determine an appropriate route, equivalent to what would be determined by the authoritative ECRF, to the correct ESInet for the emergency call. Respondents shall describe the functionality of such an ECRF equivalent and document where this functional element resides within their proposed solution.

The ECRF shall support a routing query interface that can be used by an endpoint, ESRP, or PSAP to request location-based routing information from the ECRF. Additionally, it must support both iterative and recursive queries to external ECRF sources.

The ECRF must interface with the Location to Service Translation (LoST) protocol (RFC5222) and support LoST queries via the ESRP, PSAP customer premise equipment (CPE), or any other permitted IP host.

The proposed ECRF must allow for rate limiting queries from sources other than the proposed ESRP(s), and provide logging of all connections, connection attempts, and LoST transactions.

The ECRF must be designed and implemented to support the ability for GIS data management functions to ensure accurate location data is maintained.

The ECRF must support:

- Location error correction.
- Routing of calls based on geographical coordinates and civic addresses.
- Utilize common GIS boundaries (to include but not limited to Municipal, Police, Fire, EMS).
- Permit LoST association with each layer.
- Comply with NENA 02-010 and NENA 02-014.
- Must support dynamic updates to GIS without disruption of the ECRF.
- Validation of GIS updates before they are applied.

GIS is handled locally throughout the State of Alabama. Respondents shall define their method for collecting local PSAP related GIS information and establishing the ECRF.

Respondents shall explain where the ECRF will be located and how it will operate within their proposed solution.

Respondents shall describe how the proposed ECRF and its capabilities, features, functions and protocols provides high reliability routing for all 9-1-1 call types.

Respondents shall describe the interface to the system that provides the ability to upload location information once the Extensible Markup Language (XML) is published and approved for general use, as determined by the Board.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.4 EMERGENCY SERVICES ROUTING PROXY (ESRP)

The proposed solution must include an emergency service routing proxy for call delivery to the appropriate PSAP based upon location and routing rules.

Respondents shall explain where the ESRP will be located and how it will operate within their proposed solution.

This includes Carrier to ESRP, ESRP to ERSP and ESRP to call-taker routing.

Respondents shall configure the ESRP according to NENA 08-003 specifications and describe the ability of the ESRP to route SIP messages to a call taker.

Respondents shall explain how the ESRP interfaces to the ECRF and to the PRF to ensure that routing instructions, routing policies and possible event notifications that alter call routing scenarios are acknowledged.

Per NENA 08-003 for typical 9-1-1 calls received by an ESRP it;

1. Evaluates a policy “rule set” for the queue the call arrives on
2. Queries the location-based routing function (ECRF) with the location included with the call to determine the "normal" next hop (smaller political or network subdivision, PSAP or call taker group) URI.
3. Evaluate a policy rule set for that URI using other inputs available to it such as headers in the SIP message, time of day, PSAP state, etc.

The result of the policy rule evaluation is a Uniform Resource Identifier (URI). The ESRP forwards the call to the URI.

The ESRP shall support SIP SUBSCRIBE/NOTIFY in order to understand the status of both upstream and downstream elements.

Respondents shall describe their proposed ESRP solution.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.4.1 POLICY ROUTING FUNCTION (PRF)

The Policy Routing Function (PRF) is the primary routing component of the ESRP. The ESRP uses defined routing policies within the ESInet and the NENA i3 network to deliver calls to the call-takers.

The PRF function requires the ability of the ESRP to assist in dynamically routing and re-routing calls based upon other rules beyond normal operation.

Respondents shall describe how they will operate the PRF functionality and explain how they will implement a proxy that is customizable based upon rules set by threshold or by manual intervention.

Additionally, Respondents shall describe what user interface will be used to modify policy rules and what i3 functions can affect policy changes for call routing.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.5 LEGACY NETWORK GATEWAY (LNG)

The LNG logically resides between the originating network and the ESInet and allows i3 enabled PSAPs to receive emergency calls from legacy originating networks.

Calls originating in legacy wireline or wireless networks must undergo signaling interworking to convert the incoming Multi-Frequency (MF) or Signaling System Number 7 (SS7) signaling to the IP-based signaling supported by the ESInet.

Thus, the LNG supports a physical SS7 or MF interface on the side of the originating network, and an IP interface which produces SIP signaling towards the ESInet, and must provide the protocol interworking functionality from the SS7 or MF signaling that it receives from the legacy originating network to the SIP signaling used in the ESInet.

The LNG shall be implemented for routing emergency calls to the appropriate ESRP in the ESInet.

To support this routing, the LNG must apply specific interwork functionality to legacy emergency calls that will allow the information provided in the call setup signaling by the wireline switch or MSC (e.g., calling number/ANI, ESRK, cell site/sector represented by an ESRD) to be used as input to the retrieval of location information from an associated location server/database.

The LNG shall use this location information to query an ECRF and obtain routing information in the form of a URI.

The LNG must then forward the call/session request to an ESRP in the ESInet, using the URI provided by the ECRF, and include callback and location information in the outgoing signaling.

While in operation LNG shall be capable of appending supplemental and supportive call information such as location and callback number to the call prior to the ESInet.

The LNG shall also be capable of supporting SIP SUBSCRIBE/NOTIFY in order to understand any downstream elements status and then implement policy routing should a nominal route for a call not be available.

Respondents shall describe how their proposed solution permits a legacy network gateway (LNG) function to integrate the legacy network with the ANGEN core.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.6 LEGACY PSAP GATEWAY (LPG)

A legacy PSAP gateway (LPG) is used to provide seamless connection to PSAP's that have not upgraded to NG9-1-1 PSAP operations.

The Legacy PSAP Gateway is a signaling and media interconnection point between an ESInet and a legacy PSAP.

It plays a role in the delivery of emergency calls that traverse an i3 ESInet to get to a legacy PSAP, as well as in the transfer and alternate routing of emergency calls between legacy PSAPs and i3 PSAPs. The LPG shall support the LoST protocol in order to provide selective transfer information (minimally police, fire and EMS) to a legacy PSAP based on the routing polygons provided by the local ECRF.

The Legacy PSAP Gateway supports an IP (i.e., SIP) interface towards the ESInet on one side, and a traditional MF or Enhanced MF interface (comparable to the interface between a traditional Selective Router and a legacy PSAP) on the other.

The Legacy PSAP Gateway also includes an ALI interface (as defined in NENA 04-001 or NENA 04-005) which can accept an ALI query from the legacy PSAP.

The LPG must then respond with location information for a call that is formatted according to the ALI interface supported by the PSAP. Respondents shall describe their solution for the LPG to support the legacy PSAP environment.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.7 LEGACY SELECTIVE ROUTER GATEWAY (LSRG)

The primary function of an LSRG is to allow traffic from legacy Selective Router based networks to ESInets.

A Legacy Selective Router Gateway (LSRG) shall serve as the interface for legacy selective routers to terminate ISUP SS7 trunks utilizing an inter-tandem trunk group method of termination.

The LSRG shall convert the call signaling to SIP/RTP, query the existing ALI data management system to retrieve location information for the call and then route the call to the next nominal HOP based on a LoST query to an ECRF.

Additionally, the LSRG shall be able to facilitate bi-directional communications with the legacy selective routers for both voice and data (star codes) transactions.

Respondents shall include a description of the LSRG *if utilized* in their proposed solution to integrate the ESInet and legacy selective routing configuration. If an LSRG is not utilized, the respondent shall describe how the function of an LSRG is performed within their proposed solution.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.8 LOCATION VALIDATION FUNCTION (LVF)

Respondents shall propose a solution that includes an NG9-1-1 Location Validation Function (LVF) as defined in the NENA 08-003.

The LVF is generally only used for civic location validation. Geo coordinate validation has some limited use, in extreme cases, including national boundary routing scenarios, over coastal waters, etc. The primary validation is accomplished as locations are placed in a LIS.

The LVF shall be designed to respond to LVF clients within five (5) seconds. The LVF shall be capable of supporting multiple simultaneous queries of a significant amount, respondents shall describe how this is supported.

The LVF data and interfaces are similar to those used by an ECRF representing the same geographic area(s). Additionally, it must support both iterative and recursive queries to external LVF sources.

Respondents shall describe their proposed LVF implementation, with particular attention to the arrangement of the proposed components, user interface and features and the security aspects of the LVF.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.8.1 LOCATION SERVICES

Location is fundamental to the operation of the 9-1-1 system. Location is provided external to the ESInet, and the functional entity which provides location is a Location Information Server (LIS).

Respondents shall propose a solution that supplies a network interface to the LIS.

Respondents must include the necessary security provisions and define all communication paths between the LIS and the LVF, LSRG and LNG.

Respondents shall include a description that covers the transition from the existing routing into the LIS.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.9 LEGACY DATABASE SERVICES

The Board recognizes that ALI database and other legacy database services (LDB) will be required for the foreseeable future.

Respondents shall include in their proposal details about their approach to ALI database connections and ALI maintenance functions as well as other any other LDB functions necessary to support the ANGEN system.

Respondents shall define how their proposed LDB service will be operated, managed and maintained for the duration of the contract.

Respondents shall also describe the PS/ALI capabilities of their solution within their proposal.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

4.10 DISASTER RECOVERY / BUSINESS CONTINUITY

Respondents must include a disaster recovery capability within the proposed solution to offer continuity of operations in the event of a malfunction of the network, system or i3 components used to provide the primary ANGEN services.

This service must be separate and distinct in design and operation from the core ANGEN system components proposed by the Respondent.

Alternatives presented here may include the use of commercially available services and or commodity IP connections that can operate for temporary periods of time (to be determined via SLA) until normal system operations are restored to individual PSAPs or regions served by the ANGEN system.

Basic functionality must include the following at all PSAPs or locations as may be designated by the Board:

- Receive and answer 9-1-1 voice calls via alternate hand set/desk set or other proposed device
- Ability to Transfer via traditional landline or other means to other AL PSAPs, mirroring current PSAP transfer capabilities and practices
- Provide for the temporary system level logging and recording of calls being processed by the disaster recovery system

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

SECTION 5 SYSTEM REPORTING and i3 LOGGING REQUIREMENTS

5.1 REPORTING AND DATA COLLECTION SYSTEM REQUIREMENTS

The Board requires enterprise wide reporting and data collection capabilities on all aspects of the ANGEN ecosystem.

This capability must be agnostic to provider, system or technology and must be able to collect reportable data on the operation, configuration, and maintenance of the ANGEN system regardless of function, domain, service area or provider.

Given that there may be multiple providers of components and systems that will comprise the ANGEN ecosystem, the Board will entertain stand-alone proposals from vendors who can offer an enterprise wide, multi-vendor, fully integrated solution to satisfy this requirement.

Respondents may offer enterprise wide reporting as a component of their solution as well.

The Board will not entertain proprietary, disparate or system specific reporting systems.

Respondents must be prepared to provide or support the collection and integration of an enterprise wide reporting and data collection capability.

COMPLY

For the purposes of this RFP, Direct Technology is proposing the implementation of a highly customizable, enterprise wide reporting platform called ECaTS, Emergency Call Tracking System.

Direct Technology Assumptions:
The ECaTS reporting platform can provide all call handling and network reporting requirements as described by the Alabama 9-1-1 Board and contained within this RFP. ECaTS makes the following assumptions with answers to all required sections:

An i3 based ESINet is in place, statewide, and can send logging messages to the ECaTS i3 Meta logger.
ECaTS (its data collectors) will reside on the same network as the CPE and ESINet functional elements to ensure the ability to collect data from all systems.

All call handling equipment is able to provide either an i3 based call handling log or a CDR output
CDR output is assumed to contain operator/agent data in addition to all call handling fields (ex: seizure time, ring time, answer time, etc.)

The systems on the ESInet that provide i3 logging output are conforming their log output to the Detailed Functional and Interface Specification for the NENA i3 Solution, Stage 3 Version 1.

PRODUCT OVERVIEW

ECaTS is an acronym for Emergency Call Tracking System. ECaTS is the first enterprise wide 911 Call Reporting and Data Collection System that leverages the ubiquitous nature of the Internet to provide secure, real-time reporting to the 911 industry. ECaTS is currently installed and in production throughout the States of California, Utah, Oregon, North Carolina, Indiana, Kansas, Delaware parts of Texas, Florida, Kentucky, Oklahoma, Colorado, Virginia, Louisiana, Mississippi, Tennessee and Washington. Currently ECaTS provides full analysis and reporting of all 911 call/events, call taker and trunk activity throughout these States. Pending available data feeds from the CPE, the ECaTS system has the capability to support Next Generation 911 activity and statistics that can listen, record and translate NG9-1-1 events.

The Alabama 9-1-1 Board and PSAP personnel should expect to enjoy the benefits of a flexible and intuitive web based user interface, easy to use pre-configured reports, and the advanced offerings of the ad-hoc reporting tools. ECaTS provides users with the ability to report on 911 call statistics and trunk statistics across an individual PSAP, county, any given jurisdiction and/or statewide with unified reporting and managed services. ECaTS has the ability to report on all calls captured by the raw Call Detail Records (CDR) from the Customer Premise Equipment (CPE). ECaTS can be accessed by any authorized user from a web browser. Clients access their reports directly from a PC, Laptop or any mobile device such as iOS, Android or Windows based systems.

ECaTS FEATURES

This section of the document provides the Alabama 9-1-1 Board with a high-level description of the product's key features. In essence, ECaTS provides the first universal 911 call statistics product that can transparently report all intelligence related to 911 call/event handling and volume across an individual PSAP, county, any given jurisdiction and/or statewide regardless of the Customer Premise Equipment (CPE) at the PSAP.

Intuitive Reporting Module

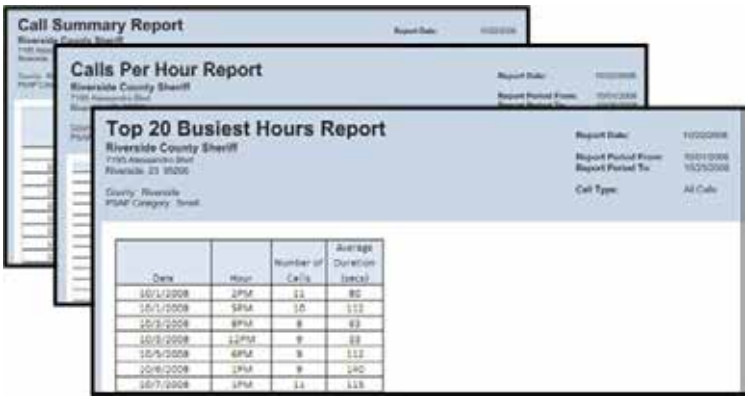
ECaTS was built on the concept of simplicity. Its reporting module, the heart of the application, provides the user with simple, intuitive click reporting options. Authorized users are able to generate near real-time statistics by simply selecting the report, the timeframe and a PSAP (or collection of PSAPs) to be used in the report. The system then accesses the back end servers to render the report directly to an Internet browser.

The beauty of the application is that authorized users may pull information from one PSAP, County or any given jurisdiction with the same level of simplicity. The drastic complexity of pulling information from different types of CPE manufacturers, installations or software versions located at each PSAP is completely eliminated by ECaTS.

The diagram on the following page represents the ECaTS Interface.

Figure 1 – ECaTS Interface

Generating a report is as simple as selecting the report on the left, select one, multiple or a PSAP group, selecting a date range and clicking on the Generate Report button. The Group selector is completely user created and maintain so that County Administrators may define commonly used group of PSAPs against which they normally generate reports. The user may also decide what type of graphical representation they wish to include in the report and if they want the output to be web based, PDF or directly into an Excel file for further analysis.



Pre-Configured Reports

Many of the reports usually generated by PSAP Managers tend to seek the same level of statistical data. Information such as Call Summary Reports, Number of Calls per Hour, Top 20 Busiest Hours, Call Duration and other popular reports are easily available to the users upon logging

into the system. If the report contains data for multiple PSAPs, the information can all be aggregated into one individual report. Historical trending takes a whole new meaning when a user can generate 911 Call Statistics for their jurisdiction during an entire year with just a few clicks of a mouse.

ECaTS includes the following preconfigured reports:

STANDARD REPORTS

Call Summary Report
A listing of all of the calls answered and abandoned by call type (e.g. "9-1-1" or "10 digit emergency") for each day of the selected time frame.

Calls Per Hour Report
A listing of the number of calls delivered to the CPE controller each hour of each day for the selected time frame.

Top Busiest Hours Report
A listing of the top 20 busiest hours for any selected timeframe which includes the call count and average call duration for the selected period.

Average Call Duration Report
A listing of the number of calls each hour during the selected time frame with the queue time (average duration from trunk seizure at the PSAP to ring start, also known as Set-up Time), ring time (average duration from ring start to answer time, if equipment provides the required Ring Event), hold time (average duration calls are on hold during that hour), and talk time (average duration from answer time to disconnect time minus any hold time that occurred during the call, this is a pure talk time metric).

Calls by Circuit Report
A listing of the number of calls received on each circuit each day during the selected timeframe.

Circuit Utilization Report
A statement of the percentage of time that a given number of incoming trunks were engaged at the same time within each trunk group (trunk groups are defined by each PSAP). This report provides statistics on trunk groups allowing management to identify trunk groups that are over or under trunked.

PSAP Answer Time Report
A statement of the number of calls that were answered in 10 seconds or less, 20 seconds or less and other answer times for each hour of the selected timeframe. The summary information includes the number of calls in each answer time category and the percentage for each category. Answer time is computed between Call Seizure and call Taker Answer times.

PSAP Call Taker Ring Time Report
CPE Equipment that provides a ring time event will be able to measure call taker ring time by measuring the time between the ring event and the answer event. For the equipment that does not have this event, a false ring time factor can be introduced to simulate a single ring (usually 2 seconds) or if this is not used this report would match the PSAP answer time and measure from seizure to answer.

Last 12 Months Answer Time Report
Provides summary information for each month within a 12 month period including the number (and corresponding percentage) of calls answered in 10 seconds or less.

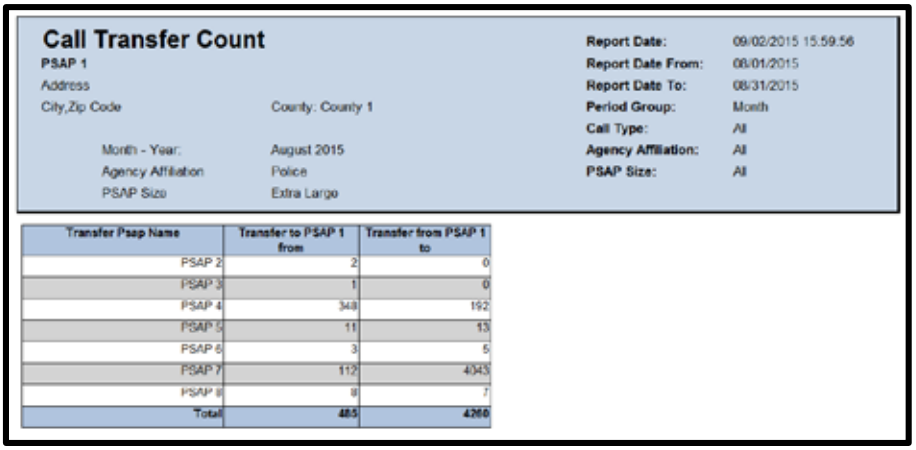
Last 12 Months Call Taker Ring Time Report
The Last 12 Months Call Taker Ring Time Report gives the total number of inbound, parsed calls for the last 12 full months from when the report was generated. This report, similar to the PSAP Call Taker Ring Time Report, utilizes ring times, calculated from when the call is presented to the call taker to when the call is answered (meaning that there is no set up time included in the calculations). This report provides the percentage of calls with ring seconds between 0 and 10 as well as the total number of calls answered within 10 ring seconds, per month.

Class of Service Report
A listing of the number of calls for the selected timeframe broken down by a selected subset of classes of service from the ALI data string such as business (BUSN), residential (RESD), Centrex (CNTX), PBX, pay phone, VoIP, or wireless phase 1 WPH1/W911) or phase 2 (WPH2).

Call Initial Station Total Calls Report
A listing of the number of calls received each hour at each answering position during the selected timeframe. Requires the source data to include the station identifier for each answered call.

Call Transfer Report
Provides details regarding every call that was transferred to or from the PSAP during the selected timeframe. Details include ANI information, trunk seizure time of call(s) at each PSAP and other relevant call information. All PSAPs must be participating in the ECaTS program to show up on the Transfer report, any secondary that is not in the ECaTS system would not appear in this report. In order to maximize call transfer report accuracy, all participating PSAPs must synchronize their system clocks with an industry standard network clock service or device. In addition, this report provides PSAP-to-PSAP transfers and does not include internal station-to-station transfers.

Call Transfer (Summary) Count Report
The Call Transfer Count report provides the user with counts for every transfer to and from the selected PSAP for the date range chosen. The report uses the same rules to determine transfers as the current transfer report.



Call Transfer Count

PSAP 1
Address
City,Zip Code

County: County 1

Month - Year: August 2015
Agency Affiliation: Police
PSAP Size: Extra Large

Report Date: 09/02/2015 15:59:56
Report Date From: 08/01/2015
Report Date To: 08/31/2015
Period Group: Month
Call Type: All
Agency Affiliation: All
PSAP Size: All

Transfer Psap Name	Transfer to PSAP 1 from	Transfer from PSAP 1 to
PSAP 2	2	0
PSAP 3	1	0
PSAP 4	348	192
PSAP 5	11	13
PSAP 6	3	5
PSAP 7	112	4043
PSAP 8	8	7
Total	485	4260

Figure 2 Call Transfer Count Report

Calls by Operator

The Calls by Operator report allows a user to identify how many calls have been answered by particular users logged into the system. This report is generated by CDR output to the RDDM. If user information is not available for a particular call, information will be directed to an "Unknown Operator" row. This category is used in any situation in which an operator name is not provided with the call, this often occurs when CDR data considers a call abandoned. This report divides the calls received in a given time frame by operator name and hour of day in military time.

Operator Speed of Answer

The Operator Speed of Answer report allows a user to identify the speed with which individual operators are answering calls. This report is generated by the CDR output. If the operator name information is not available for a particular call, calls will be directed to the "Unknown Operator" row. This report is divided into separate answer time frames. The report also will identify the total calls answered as well as the average duration of the calls in seconds.

Calls per Hour by Day of Week

The Calls per Hour by Day of Week report lists the number of calls for each hour of the day, by day of week (increments also apply). Depending on the call type selected, the Calls per Hour by Day of Week report will conform to the available data. The report also features a row with the average number of calls per day of the week.

Top ESN Report

The Top ESN report will provide frequency information on the Top ESNs for the date range selected. If multiple ESNs have the same number of calls, they will all be listed on the report. A total number of records and the average duration of those calls are also included on the report. This report will only support 911 Call Types because the ESN information will be pulled from the ALI of each call.

Top ANI Report

The Top ANIs report will provide frequency information on the Top ANIs for the date range selected. If multiple ANIs have the same number of calls, they will all be listed on the report. A total number of records included in the report, and an average duration of those calls is also included.

GRAPHICAL CAPABILITIES

The product supports a wide range of graphical representations of the data being showcased in each report. Although the system will dynamically select the most appropriate graph type based on the data being reported, each user has the ability to change the graph type before the report is generated. Currently ECaTS supports line bars, pie charts, life graphs and stackable bars. Additional graphical support is currently being added to the application for the next version of the product.

MANAGEMENT REPORTS

In addition to the Call Statistics Report usually found in 911 MIS packages, ECaTS brings a wide range of Management Reports. These types of reports specifically address the analytical requirements of PSAP Managers across the industry. Management reports are available to selected authorization levels that provide tools necessary to identify areas and issues that require management attention.
ECaTS includes the following management reports:

Trunk Group Utilization Report
This report provides an in-depth analysis of call volume per trunk and trunk group. PSAP managers or coordinators can review and determine if PSAP trunks are being used at appropriate rates (e.g., are they hunting correctly, are they reaching capacity resulting in possible busy signals, etc.).

Answer time Exception Report
This report provides a clear scorecard of PSAP answering performance while clearly isolating those PSAPs that meet the National Emergency Number Association (NENA) 90/10 rule – 90 percent of the calls should be answered by each PSAP in 10 seconds or less. This report lists the PSAP(s) that answered less than 90% of calls within 10 seconds during selected time period.

Call Taker Ring Time Exception Report
This report lists the PSAPs where 90% of calls have a ring time of 10 seconds or less during selected time periods. If the selected PSAP(s) are answering 90% of calls within 10 seconds for the selected date range, the report will show 'no data available for specified date range'.

Outage Report
This report provides the ticket number for each data monitoring alert provided by the ECaTS system. This includes call records without ALI alerts, low call volume alerts, and heartbeat alerts. A high level user will have access to the ECaTS monitoring system, allowing the user to query based on ticket number. This offers an unparalleled level of transparency into the ECaTS ticketing system, providing to the user the ability to escalate and track tickets as desired. However, it should be noted that ECaTS tracks all outages to resolution, with notification to necessary parties as determined by the customer, regardless of customer use of this report.

10-Digit Emergency Call
A listing of the 10-digit emergency circuits that exceed a predetermined level of utilization as a percentage of total 9-1-1 and 10-digit emergency calls.

Unparsed Data
A listing of the raw data for each call that failed to meet predetermined business rules for a specific CPE manufacturer (i.e., raw data reflects disconnecting the call multiple times even though it is only answered once) or had a problem with the raw data which prevented it from being parsed (e.g., call record cut-off or interference in the data stream, causing corruption).

WIRELESS ROUTING REPORTS

Wireless Call Sector
The Wireless Call Sector report provides transfer information based on cell sectors for the specified date range. If a PSAP transfers 50% or more of their calls from a specific cell sector to the same destination PSAP, it will show up on this report.

Note: This report will include 9-1-1 calls, Administrative and any 10 Digit Emergency calls with ALI that meet the above requirements.

Wireless Call Sector
PSAP 1
Month - Year: April 2014

Report Date: 02/25/2015 14:49:37
Report Date From: 02/01/2014
Report Date To: 01/31/2015
Period Group: Month
Calls in Sector (>=): 1
% Transferred (>=): 20

Originating PSAP	"Transferred to" PSAP	Cell Sector	Telco	Total 9-1-1Calls	Total 9-1-1 Calls Transferred	Percentage of Calls Transferred
PSAP 1	PSAP 2	2345 CELL SECTOR AVE	TMOB	12	6	50.00%
PSAP 1	PSAP 2	123 EAST BL TOWER 0629 D1 S	SPPCS	10	5	50.00%
PSAP 1	PSAP 2	123 EAST BL TOWER 0629 D1 S	SPPCS	6	3	50.00%

Figure 3 Wireless Call Sector Report

CUSTOMIZATION

The ECaTS portal along with all pre-configured reports and functionality are fully customizable. ECaTS was built on the concept of simplicity. The ECaTS system is fully configurable to adjusting reports based on the specific standards and efficiencies required by the Alabama 9-1-1 Board. Included in the ECaTS service are five (5) pre-configured reports in addition to the standard reports or forty (40) hours of development work, which ever come first. This provides our customers with initial customization at no additional cost. Please reference the Cost Proposal, for the development cost outside of the forty free hours of customization. As an option to the RFP, bundles of customization hours are provided to the Alabama 9-1-1 Board to give the ability to procure customization hours at wholesale costs as described in Attachment C, Cost Proposal.

OPEN ARCHITECTURE

It should be noted that ECaTS is built using industry standard open architecture which ensures its ability to interoperate with other technologies including CPE vendors, Network Providers, Telecommunication

Providers, Data and Voice recorders and others. Currently ECaTS provides multiple methodologies for interoperability from direct physical interfaces to more complex logical interfaces that leverage the i3 standards for collection, recording and storage of i3 events.

5.2 STATEWIDE STATISTICAL MONITORING

5.2.1 SYSTEM SPECIFIC REQUIREMENTS:

The proposed reporting and data collection system must provide for secure user ID login and password with the ability to enforce minimal password requirements and require password changes on a predetermined interval.

The proposed reporting and data collection system must support role based access:

- Allowing statewide users to have access to reports for the entire State.
- Allowing some users to have access to PSAP(s) report information only.
- Allowing other users to have both PSAP and ECD Manager level access to report information.
- Allowing functionality/data to show only to certain users and not to everyone.

The proposed reporting and data collection system must allow for the scheduling of automatic report generation and delivery by email as attachments to one or more recipients in a format selected by the recipient.

COMPLY

[redacted]

ECaTS provides a secure user ID login and password based on each user's specific role. The system has the ability to enforce minimal password length and complexity as well as password changes.

The Alabama 9-11 Board will be requested to provide the assigned roles and responsibility per user in the ECaTS portal. ECaTS has the ability to add functionality and take functionality away based on a specific role. For example, a County Director's login will have access to all PSAPs within their county while a PSAP Manager's login will only have access to their specific PSAP within the County. ECaTS is only accessible via assigned usernames and passwords. Below is a picture of the ECaTS login screen:

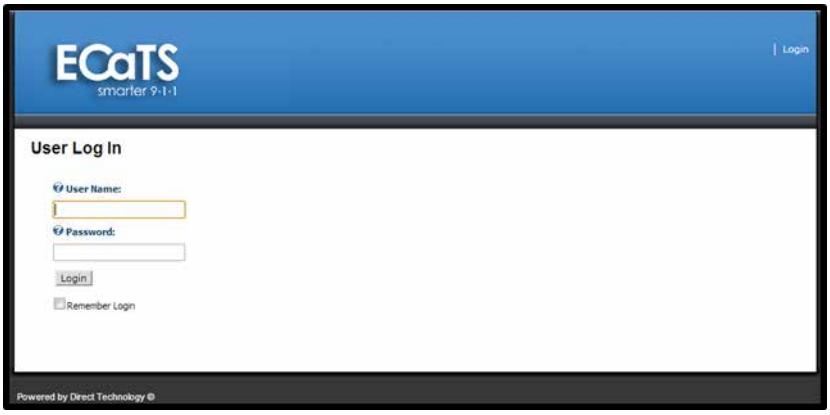


Figure 4 – ECaTS User Login Screen

ECaTS reporting functionality is governed by 'roles' and 'PSAP groups' that determine which section(s), subsection, data and PSAPs each user may view/report on. The ECaTS system uses a custom Access Control List (ACL) used to associate individual users with particular functions and PSAP(s) that they can report against. Authentication is provided through a username/password combination required at the web site. Users have the ability to update their passwords and changes are required on a configurable rotation setting. Once authenticated, the user authorization occurs through a use of roles and user groups to assign the user to a particular reporting group and control what types of reporting the user is able to access (for example hiding management reports from a non-management users). Each action done in ECaTS can be logged by the platforms optional Audit Module (available for an additional license cost) which records all standard, ad-hoc and raw data views done by a user.

[redacted]

ECaTS provides secure user ID logins and passwords with the ability to enforce minimal password requirements. ECaTS can be configured to require password expiration at any interval. Figure 5 below, shows the password management system and a note that the password is set to expire after 12 months. The Alabama 9-1-1 Board can choose any interval required of their security doctrines.

Figure 5 -- Password Management System

Requirements:

- ***Allowing functionality to show only to certain users and not to everyone.***
- ***Allowing some users to have access to PSAP(s) report information only.***

ECaTS has the ability to show specific functionality to certain users and not to everyone based on their role. The ECaTS solution has a comprehensive role system that controls individual user access to various sections of the system. By adding/removing roles from users access to various parts of the system can be controlled. Figure 5 below, shows the role system and a sample user with six reporting roles and a displayed drop down menu with more roles that provide additional system access and functionality. Finally, Figure 6 shows the individual report access administrative interface which provides additional control over individual reports and the users/roles that can access the reports. Combined; the role system and report management system provides administrative control to the report and function level as required by the State of Alabama.

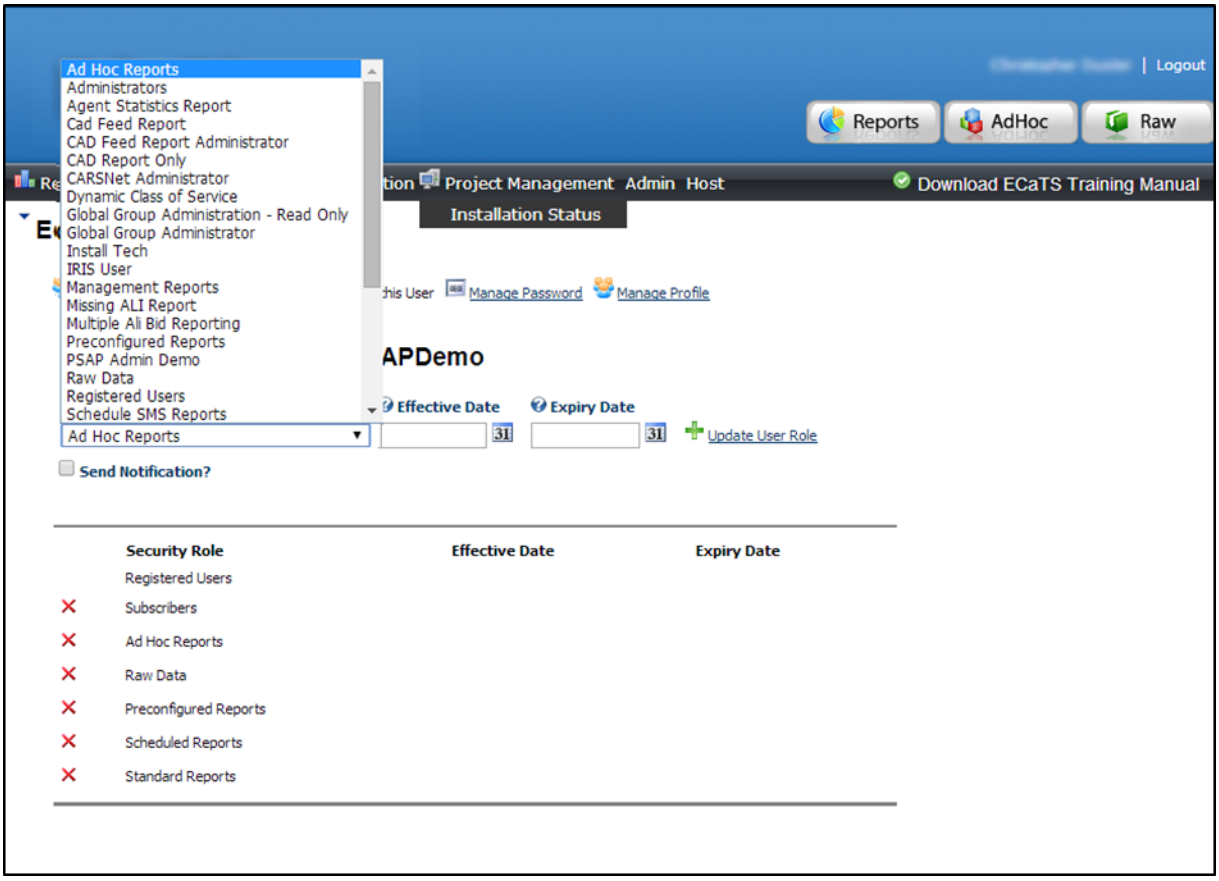


Figure 6 -- User Role Management Administration

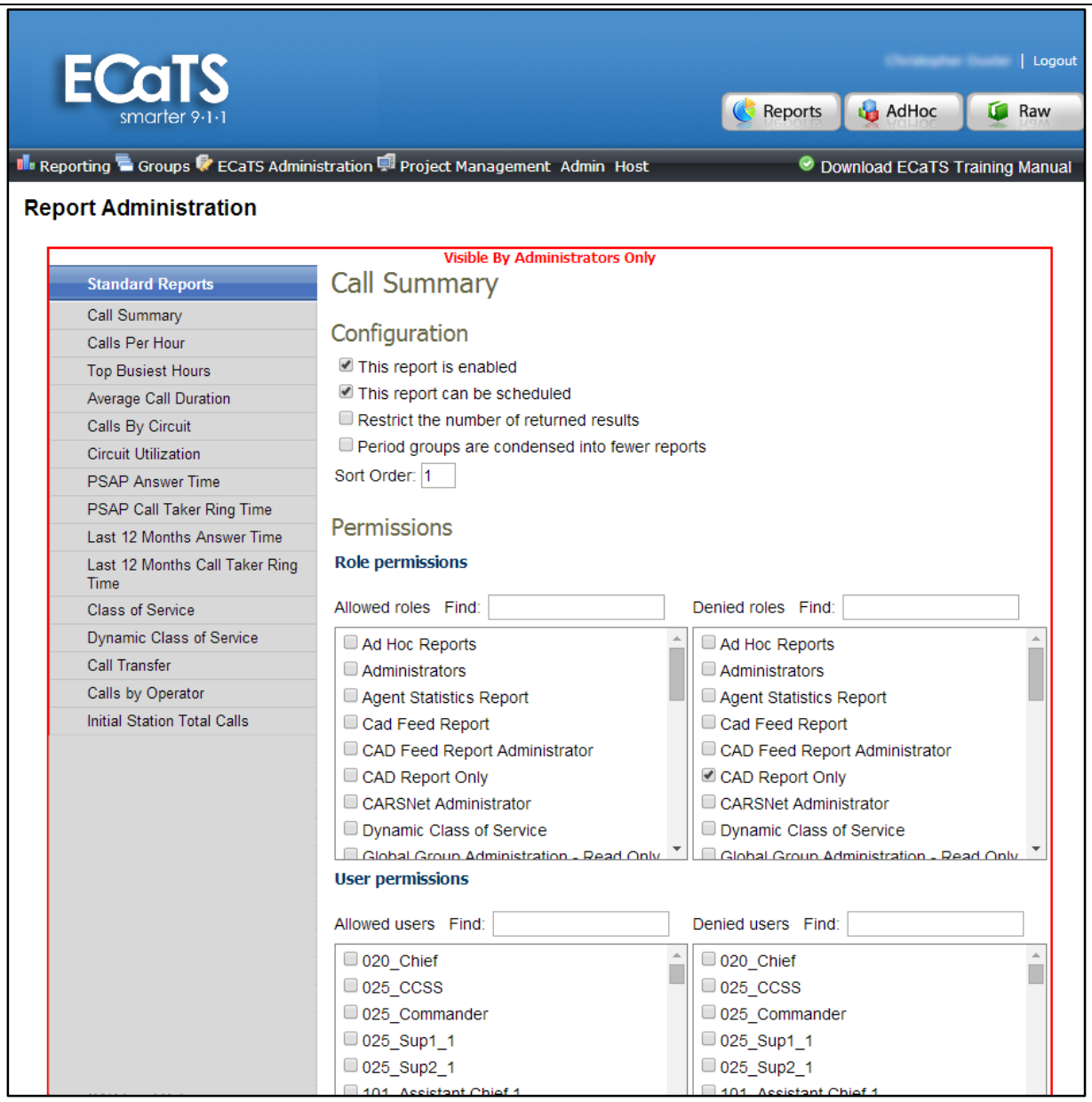


Figure 7 -- Report Access Control System

Requirements: ***Allowing statewide users to have access to reports for the entire State.***
Allowing other users to have both PSAP and ECD Manager level access to report information.

ECaTS provides the ability for statewide users to have access to reports for the entire State while other users have both PSAP and County level access to report information. Figure 8 on the following page, shows the ECaTS PSAP Access Group Management System. This administrative interface associates individual users with single or groups of PSAPs to generate reports on. Users can be assigned to either individual PSAPs or in a PSAP group that has more than one PSAP. Control of which PSAPs the user can access are defined by the Alabama 9-1-1 Board and only those PSAPs the user has been approved for access will be available for reporting.

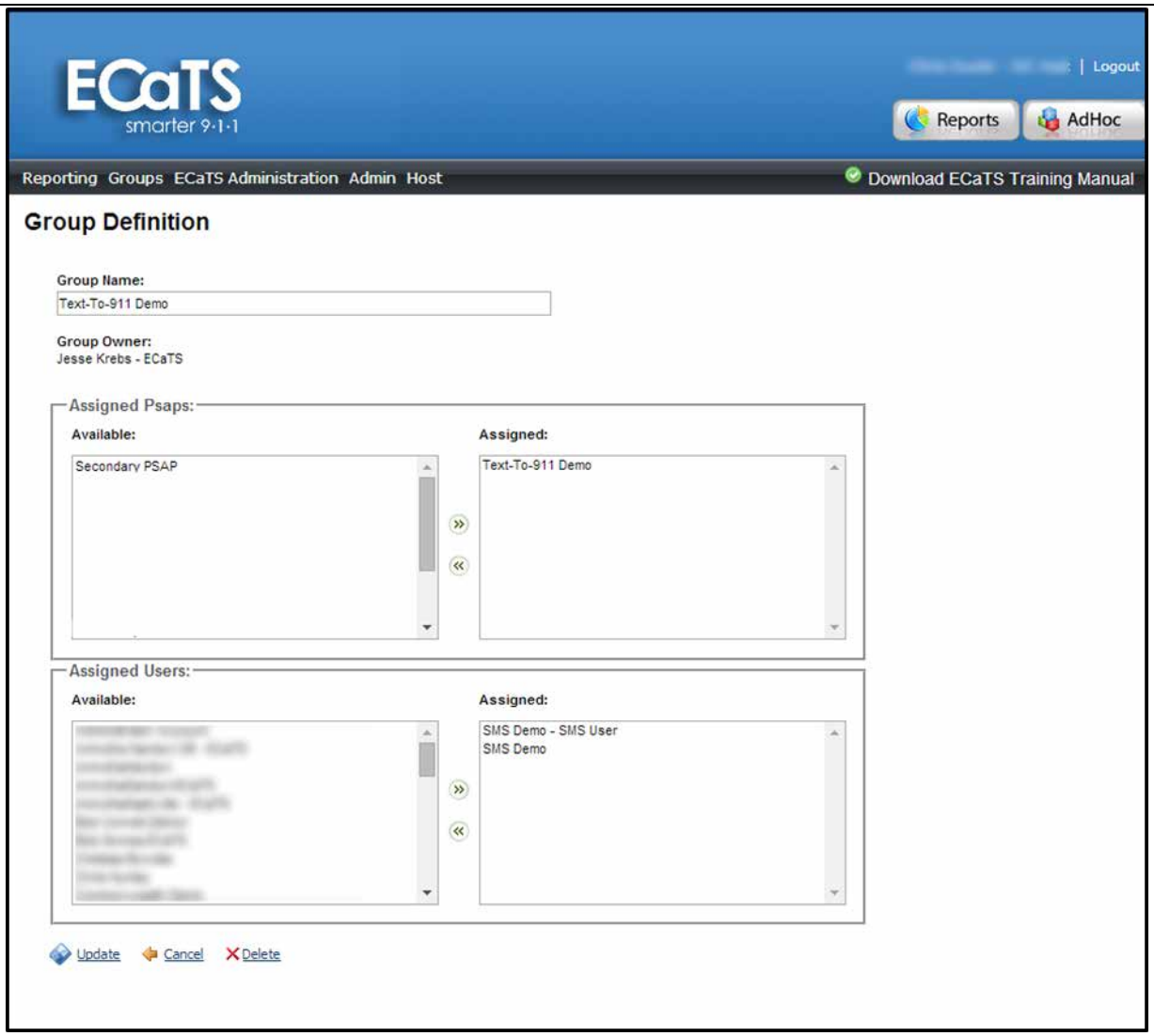


Figure 8 -- PSAP Group Access Management

Requirement: ***The proposed reporting and data collection system must allow scheduling of automatic report generation and delivery by email as attachments to one or more recipients in a format selected by the recipient.***

SCHEDULED REPORTS

ECaTS users have the ability to schedule reports to be automatically rendered and sent directly to their email. Management level reports are available to specific authorization levels on a regular or scheduled basis. Authorized users are advised via e-mail notification that monthly reports are available one or two days following the end of each month.

One scheduled report that has become quite popular with PSAP managers (and can be made available to standard users) is the "Day in Review" report. This report provides a snapshot of PSAP activity and is

delivered to users via e-mail at the end of each day. The Day in Review report includes the following information for the day:

- Total Number of 911 Calls Received
- Total Number of 911 Calls Answered
- Total Number of 911 Abandoned Calls
- Total Abandoned 911 Call %
- Total Abandoned 911 Call % at Workstation
- Average Call Duration of the 911 Calls
- Statistics on PSAP Answer Time Performance
- Listing of the five busiest hours of the day and the number of calls each of those hours (911 Call Only)
- Listing of the five busiest hours of the day and the number of calls each of those hours (All Call Types)

Along with the Day-In-Review email, users can sign up through the ECaTS portal to have all or selected Management Reports scheduled to email as well. ECaTS has the capability to have both pre-configured and management reports scheduled and sent to the user, therefore eliminating the need to render reports daily unless needed.

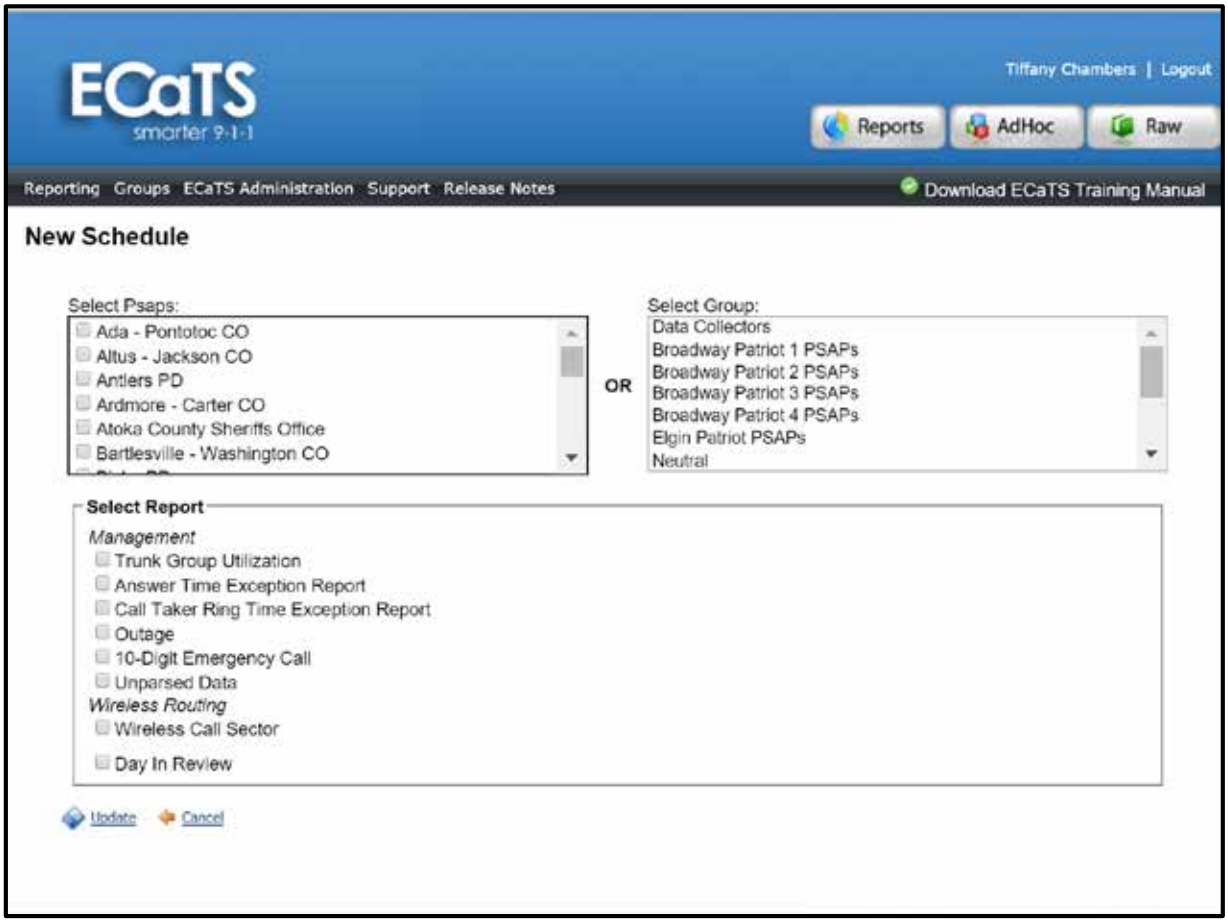


Figure 9 – Schedule Report Interface

Reports can be generated in the web-browser, in a PDF format, or Excel format. These reports can be saved, emailed, and printed in the user's format of choice and accessible by any ECaTS user based on their role anytime anywhere.

5.2.2 DATA CAPTURING REQUIREMENTS:

The proposed reporting and data collection system must provide the following:

- Ability to electronically capture and buffer Call Detail Records (CDR) for each individual PSAP.
- Ability to securely capture call, text and operational data using a reliable capture method
- Ability of a buffering device to batch CDR payload, time stamp it, encrypt it and deliver the CDR data using a secure and encrypted methodology.
- Ability to provide multi-level reporting including: PSAP, ECD/County or Statewide level.
- Ability to seamlessly report PSAP, ECD/County and State's 9-1-1 call statistics from one web-based location regardless of the CPE installed at PSAPs or other hosted locations.
- Ability to export reports in PDF, HTML, CVS and Excel formats
- Ability to generate universal reports from anywhere with an Internet connection and accessible on any devices with an internet browser, i.e. iPad, iPhones, iOS, Android or Windows based systems, laptops and desktops.
- Ability to analyze ANGEN's overall 9-1-1 system performance
- Ability to provide a color coded map view of the State's System Health for all PSAPs in the State.

COMPLY

***Requirement:* Ability to electronically capture and buffer Call Detail Records (CDR) for each individual PSAP.**

RAW DATA COLLECTION AND ACCESS

Through the ECaTS Raw Data Viewer the user has access to all raw CDR records at their PSAP/PSAPs from the time of inception in electronic format. The CDR and ALI data is archived and stored at our datacenter for storing and reporting purposes, providing PSAP Managers with access to all archived data remotely online using the ECaTS web portal. By using the Raw Data Viewer portion of the interface, ECaTS allows the users to pull Raw Data from any day and from any PSAP that the user has access into.

Here is an example of the of the Raw Data Viewer interface:

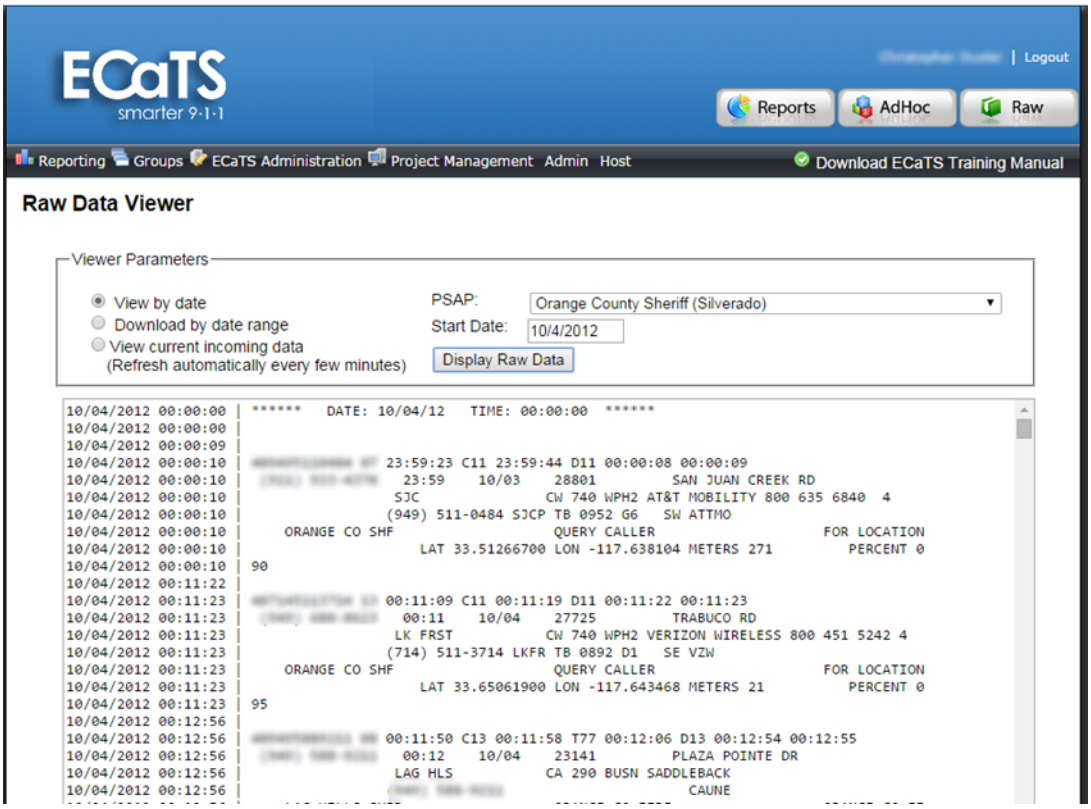


Figure 10 – Raw CDR Viewer Interface

The reader should note, that all the CDR output is stored in its original format for auditing purposes. All the information, cradle to grave regarding calls, ALI and ANI results, etc. is stored as is and provided back to the user in the same chronological order as received by the buffering equipment.

Additionally, ECaTS allows the user to preview all generated reports on-screen before saving, printing or emailing. Once report parameters have been identified the user can select web, excel or PDF output types.

Requirement: ***Ability to securely capture call, text and operational data using a reliable capture method***

[redacted]

The RDDM has been custom built by ECaTS to satisfy the rigorous data collection needs of the 911 call center. Each device is running a special custom software stack created by ECaTS which can run either on Linux or Windows based RDDM's. The software provides the capture, compression and storage of all the data and also transmits the data over a secure SFTP connection to the ECaTS cloud. Finally, the RDDM software has been specifically designed to maintain the captured data in its raw form and to only "store and forward" the data, not do any analysis or manipulation. In addition to capturing CDR, the RDDMs have the ability to connect to other devices such as ALI controllers, CAD systems, Network Devices, PBXs, etc. This flexibility allows ECaTS to collect and report on other data points should the State of Alabama require this at a later date.

ECATS TEXT 9-1-1 REPORTING

ECaTS provides text-to-911 reporting functionality and module. The ECaTS Text-To-9-1-1 reporting system is a CPE-SMS agnostic reporting system and provides reporting across all PSAPs in the ECaTS system. ECaTS offers twelve standard SMS reports which provide visibility into the number of total messages sent a received, the average time to respond between caller and call taker, tracking of the top MDN's to isolate SMS abusers and full Text-to-9-1-1 transcription, just to name a few. Similar to other ECaTS systems, the twelve standard SMS reports can be augmented with customizations that improve the overall SMS reporting value to individual PSAPs if the standard set do not meet all reporting needs. ECATS has partnered with major Text-To-911 providers to actively collect data from their TCC's which eliminates any need for additional hardware at a PSAP (except where reporting Text as TTY is required) with the ability to activate Text-To-9-1-1 reporting on a per PSAP basis without the need to make any site visit.

Provided below are a few examples of the text-to-911 reports provided by ECaTS:
Transcript - The SMS transcript report provides a complete transcript for each SMS 911.

Top Busiest Hours - The Top Busiest Hours by Sessions provides a report of all sessions for each of the busiest hours, sorted by the busiest hour to the least busy hour. With each hour, a graph is included that displays how the sessions were spread out over the hour by minute.

Total Messages Sent and Received by Hour - The total messages sent and received by hour report provides a metric of the total number of messages (MT/MO) that happened across each individual hour. The report displays the hours in 24 hour format and provides a unique sent/received count as well as a total for each hour.

Messages Per Hour By Carrier - The total messages sent/received by carrier report provides a metric by Carrier of the total number of sessions as well as sent/received messages. When combined with a stacked bar graph, visualization of the popular carriers is very clear. The report breaks data out per hour with a final summary report at the end.

Operator Average Speed of Response - The operator average speed of response report measures the overall average for all messages sent within a particular Text-to-911 session. This report represents an overall average of all responses within the session for all operators that participated in the session.

Average Session Duration - The total number of text-to-911 complete sessions report provides a report by hour of complete sessions and the average duration each session lasted as well as averages for response time of the 911 operator and Text-to-911 originator.

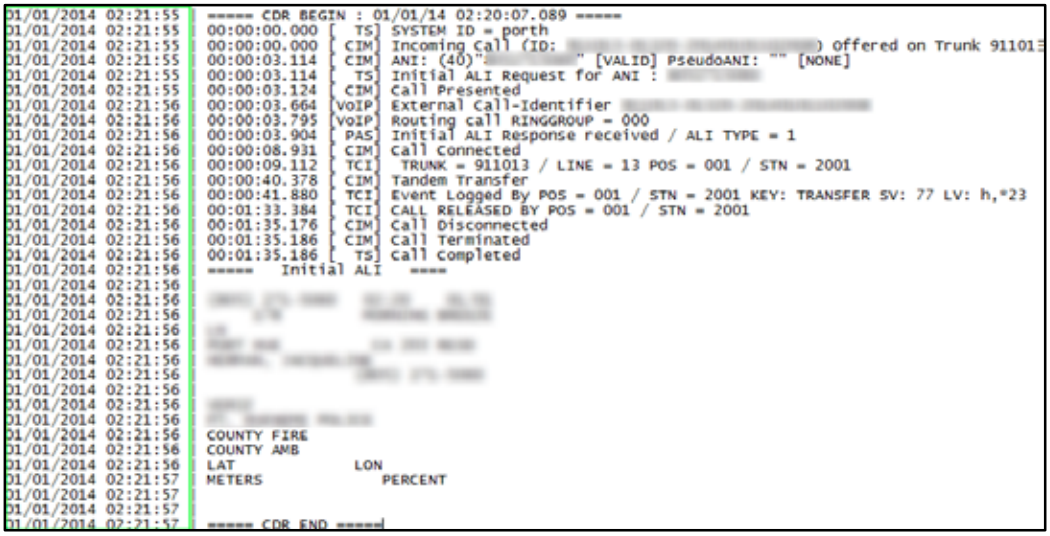
Figure 11 – ECaTS Interface with Text-to-911 Reporting

Requirement: [redacted]

The RDDM automatically places a time stamp on any collected CDR record, regardless as to the method of collection (RS-232 or IP). The data itself is compressed and stored in a zip file and when transmitted is done over a secure SFTP connection via an SSH tunnel using strong encryption. This can be further

encrypted by utilizing an encrypted point-to-point VPN tunnel between the RDDM location and the ECaTS cloud. Below is a sample of CDR data collected by an ECaTS RDDM which also illustrates the time stamp that is provided on each collected record. If you examine the samples below closely (Viper and Vesta 4.x presented – personal information has been blurred) you will notice there is a time stamp followed by the "|" (pipe) character. The timestamp to the left of the "|" (pipe, outlined in green) represents collection time and is provided by the RDDM, while the data to the right of the "|" (pipe) is the RAW CDR as collected and unchanged.

Viper



Sentinel/ Vesta 4.x

Requirement: ***Ability to provide multi-level reporting including: PSAP, ECD/County or Statewide level.***

The ECaTS platform was designed for multi-level reporting across multiple different CPE platforms. The ability to render reports across PSAPs, counties, or statewide is a fundamental feature of the product. In addition, comparative reporting at multiple levels is also possible in the ECaTS system which provides additional comparative analysis opportunities within each reporting level (ex: compare PSAPs, or Counties).

Requirement: ***Ability to seamlessly report PSAP, ECD/County and State's 9-1-1 call statistics from one web-based location regardless of the CPE, Customer Premise Equipment, at the PSAPs.***

The ECaTS system was designed as an agnostic reporting solution which can support all CPE vendors in the 911 industry. The system has been designed from the ground up to support any data stream and to normalize this stream into a common set of reportable parameters. ECaTS has a library that is constantly growing of ALI and CPE data parsing patterns that support all CPE currently present in the industry and can be easily expanded to those data formats that have yet to be encountered. ECaTS can provide demonstrations of reporting across multiple CPE's at the request of the State of Alabama.

Requirement: ***Ability to export reports in PDF, HTML, CVS and Excel formats***

ECaTS provides exporting in all formats required: PDF, HTML, CSV, and Excel. In addition, the Excel export is configured to support older Excel 97' based system (with a 65,538 row limit) and current version of excel where the row limit exceeds one million rows. All reports in the ECaTS platform (Ad-hoc and standard) can be exported in the supported formats required by the State of Alabama. Figure 12 and 13 below shows the export options available in the ECATS systems standard and ad-hoc systems.

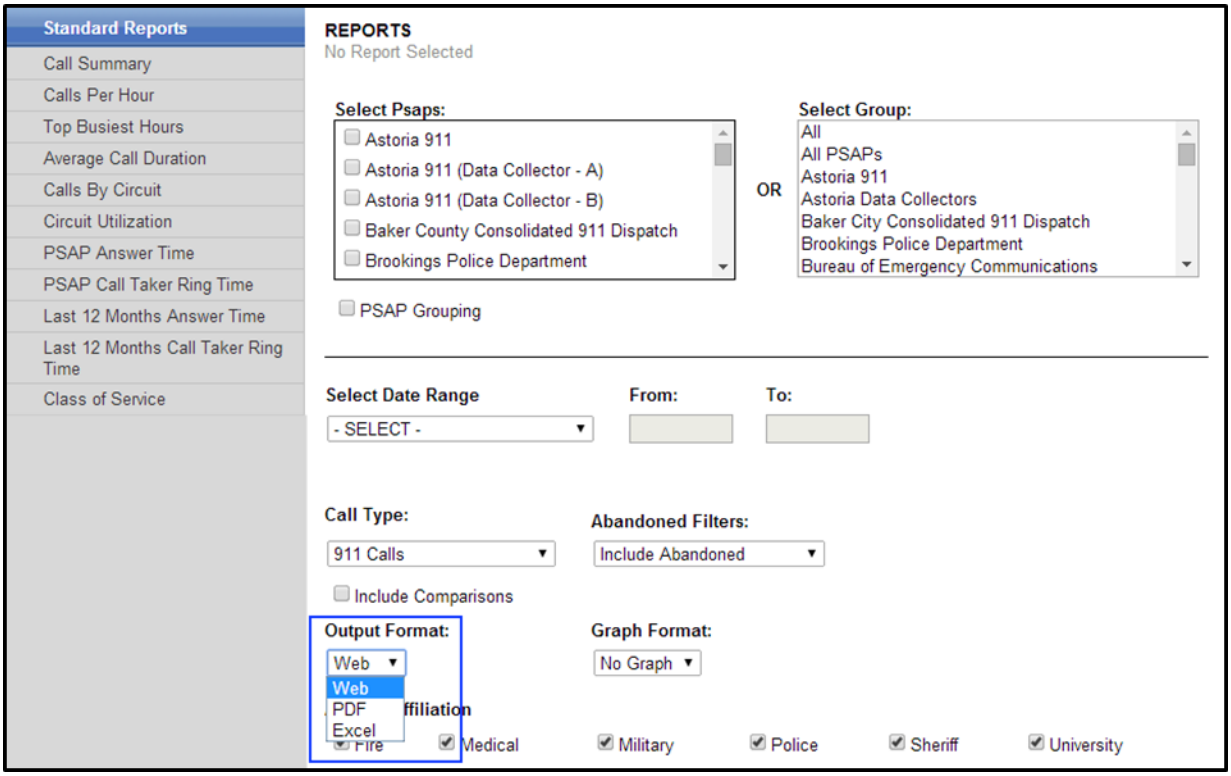


Figure 12 – Standard Reporting Output Options

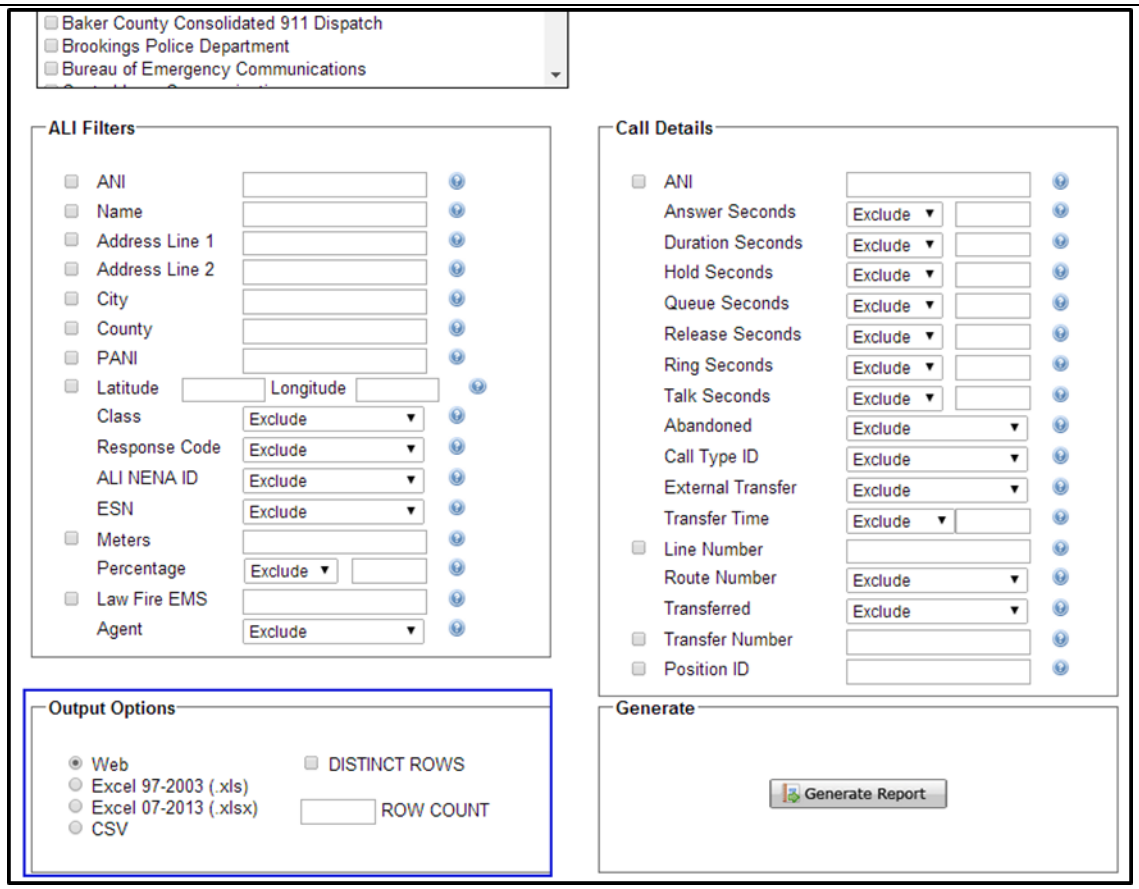


Figure 13 – Ad-Hoc Reporting Export Options

Requirement: ***Ability to generate universal reports from anywhere with an Internet connection and accessible on any devices with an internet browser, i.e. iPad, iPhones, iOS, Android or Windows based systems, laptops and desktops.***

The ECaTS platform is a web based standards compliant MIS system. ECaTS only runs from a system that can load a browser either on a mobile (iOS, Android, Windows Phone) platform or a desktop platform (Windows, OS X, Linux) that can run a standards compliant browser (ex: Chrome, Firefox, Safari, IE). The MIS service itself is hosted at the ECaTS data center and if the State of Alabama allows, the access can be opened such that users can generate reports from any location with internet access vs. needing to be on a closed VPN connection from a State of Alabama network. The choice of open access vs. VPN is dependent on the security requirements and needs of the State of Alabama and ECaTS can accommodate any necessary model.

Requirement: ***Ability to analyze ANGEN's overall 911 system performance***

As a system designed to provide multi-level reporting across multiple PSAPs the ability to analyze an entire statewide 911 deployment is as easy as reporting on all PSAPs in a single report. The ECaTS platform provides this level of reporting by combining data from the ESInet logger and the local PSAP CDR data. This enables a full end-to-end analysis of each call and of the 911 system itself. In addition to aggregating multiple data sources for a complete end-to end picture, ECaTS provides multiple means of grouping and

sorting the data to ensure that the needed statewide information views are available and can generate the metrics required of the State of Alabama.

Requirement: ***Ability to provide a color coded map view of the State's System Health for all PSAPs in the State.***

SYSTEM HEALTH

The ECaTS system provides a statewide view of all the PSAPs in Alabama using a map interface. Providing the Alabama 9-1-1 Board with a near real-time health monitoring system for all PSAPs that are covered by the ECaTS system. Each location is dynamically colored Green, Yellow or Red. This system health system monitors both the health and status of the RDDM collecting data at a particular PSAP and also performs real-time analytics and rendering of call volume and ALI bid activity. In the event call volume drops below historical moving averages a Low Call Volume alert (yellow) will occur bringing attention to the PSAP for call volume analysis. In addition to the call volume alerting, the system health also monitors for failed ALI bids and when concurrent failures for a single PSAP occur an alert (red) is created brining attention to the PSAP of a potential ALI bid issues. Figure 14 below illustrates system health for a statewide deployment.

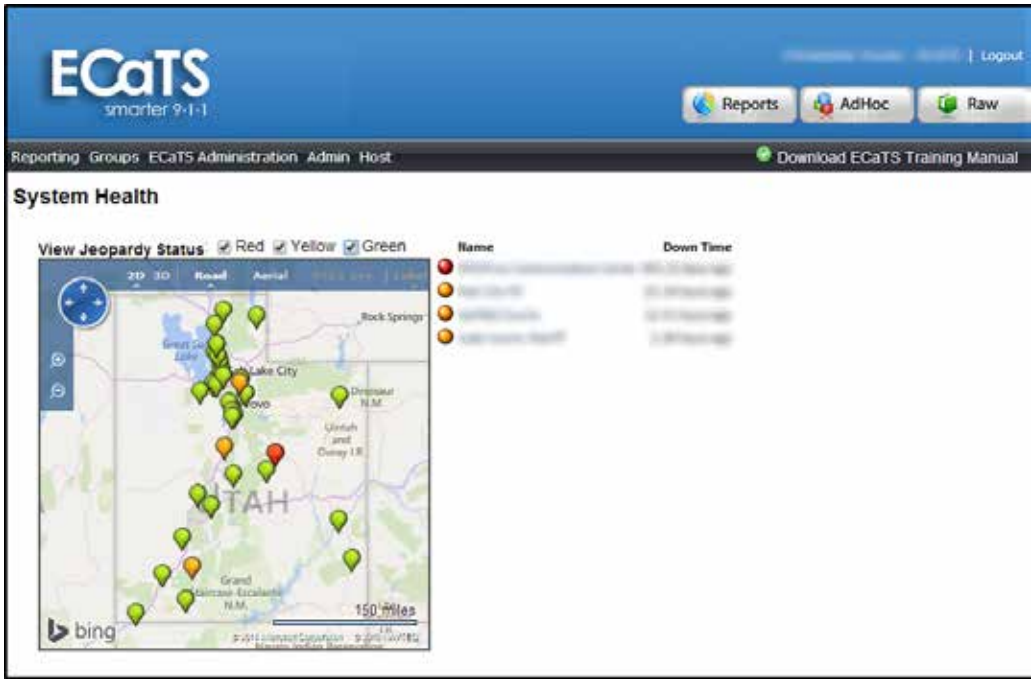


Figure 14 -- System Health Interface

5.2.3 AD-HOC REPORTING SYSTEM

The system must provide the ability for ad-hoc reporting functionality:

The interface must provide drop-down list boxes, check boxes and other easy to use interface options for the selection and generation of ad-hoc reports.

The interface must provide users with access to all major fields in the system with help functions that clearly explain the value stored in each field.

The user must have the ability to save and share ad-hoc reports with other users in the system.

COMPLY

AD-HOC REPORTS

Ad-Hoc reporting is one of the most powerful features of ECaTS and accessible through a user friendly interface. The Ad-Hoc functionality empowers authorized users with the ability to generate custom reports against any data element stored in the system, on the fly, with minimal computer skills.

Ad-Hoc Reports are aimed towards advanced users of ECaTS who demand flexibility from their reporting services. Users are able to enter three report screen formats: Standard, Advanced, and Shared. The Standard editor gives the user an easy method for choosing and applying filters by implementing intuitive drop down lists and checkboxes for each data element. The dropdown boxes dynamically change their content based on previously selected criteria to keep the interface simple. The Advanced editor enables the user to take Ad-Hoc reporting one step further by giving the user ability to integrate SQL style Boolean expressions.

This reporting tool enables the end user to comb through large amounts of data and give the user the ability to create a report that is specific to the user's needs. Our Ad-Hoc tool enables the end user to filter on specific fields from the ALI and CDR to build a customized output. Not only can Ad-Hoc reports be saved once they are defined, but they can also be shared with other ECaTS users.

To access the Ad-Hoc reporting tool select the 'Ad-Hoc' button from the top right hand side of the ECaTS portal screen.

Ad-Hoc Homepage

By clicking on the Ad-Hoc button, ECaTS users will arrive at the Ad-Hoc home page. The homepage is a collection of the user's saved Ad-Hoc reports. Please note, there are three different types of Ad-Hoc reports: Standard Reports, Advanced Reports and Shared Reports. Standard and Advanced reports that are saved will be listed in the table on the following page.

The Ad-hoc Reporting system through the ECaTS portal allows each user to query the data based on user permissions and desired output. ECaTS features two Ad-hoc interfaces, Standard and Advanced.

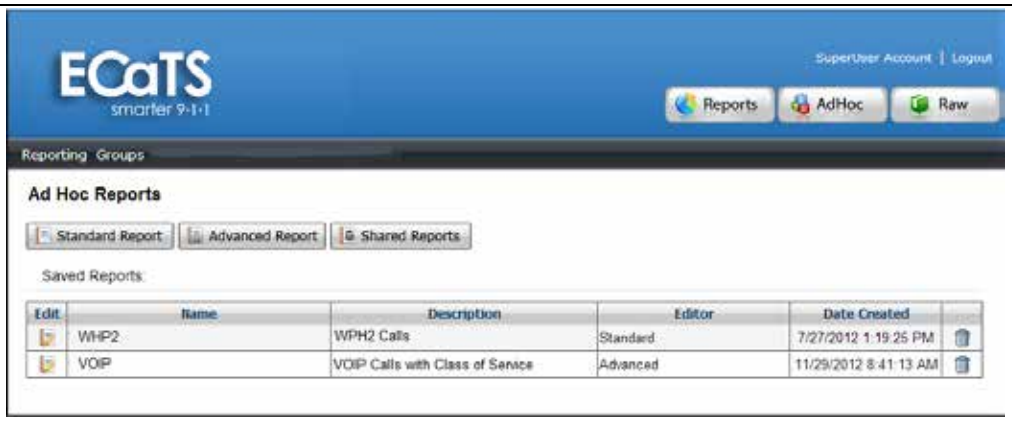


Figure 15 – Ad-Hoc Homepage

Standard Ad-Hoc

Standard Ad-Hoc reporting is the most commonly used report generator. The search filters on the Standard viewer offer Boolean (true or false) expressions as well as distinct searches to find calls based on CDR and ALI information. As shown in the figure below, there are two types of call data that a user can search on: ALI filters, Call Details and i3 Filters.

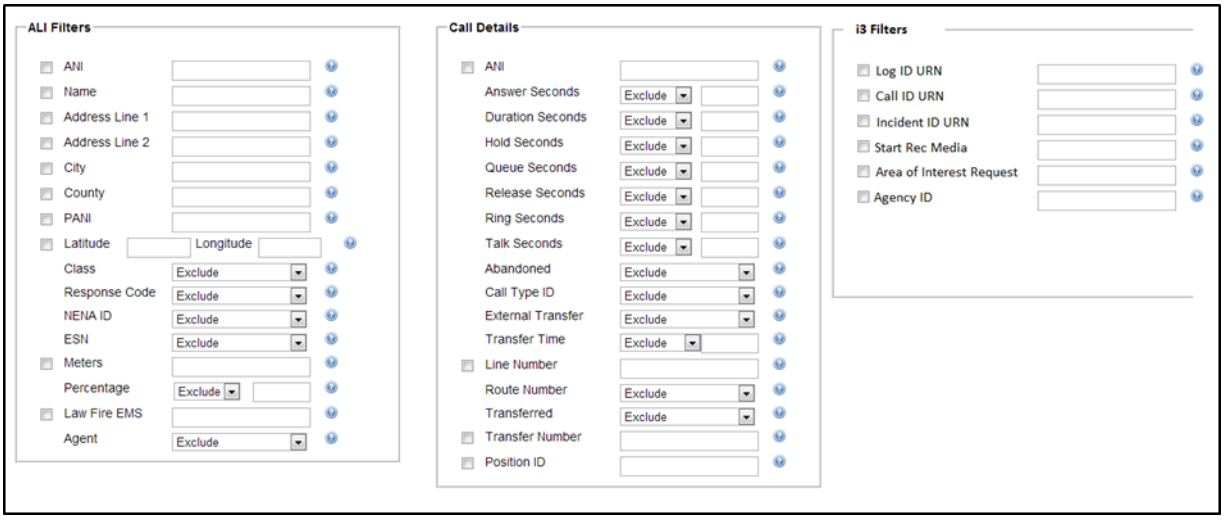


Figure 16 - Standard Ad-Hoc Filters

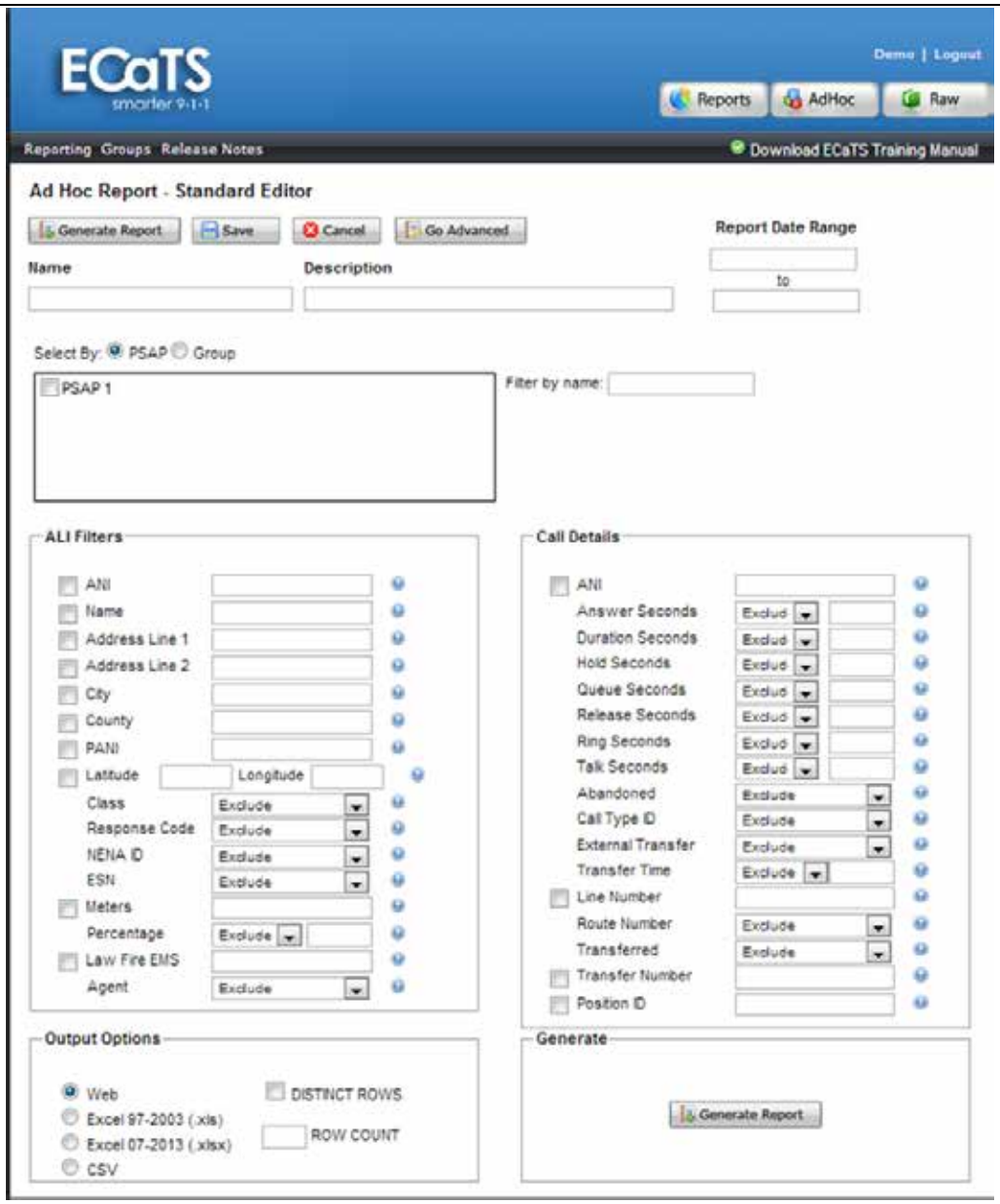
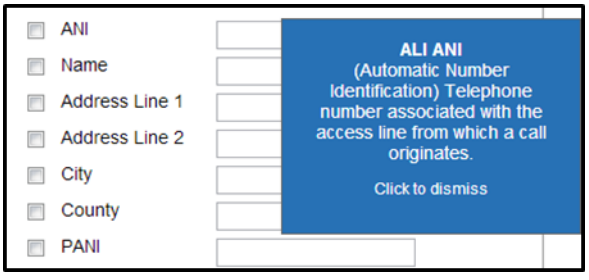
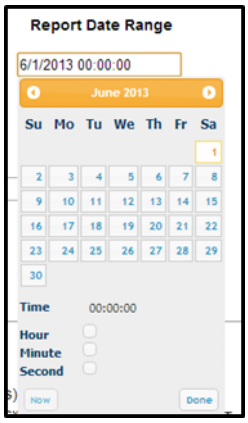


Figure 17 - Standard Ad-Hoc Interface

Next to each of the fields' filters you will notice a blue '?' button that indicates what the field is used for. To better understand each field, click the '?' button for a description of the field, as shown below for "ANI".



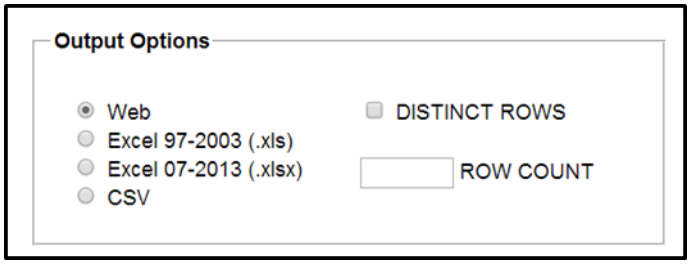


To search for partial or exact matches on a field, simply add what you are searching for in the text box and the search engine will do the rest. To include that search as an output column in the report, simply select the checkbox to the left of the field.

Ad-hoc also allows the user to narrow down reporting windows by hour, minute and second, offering the option to report by a specific shift or time/date range.

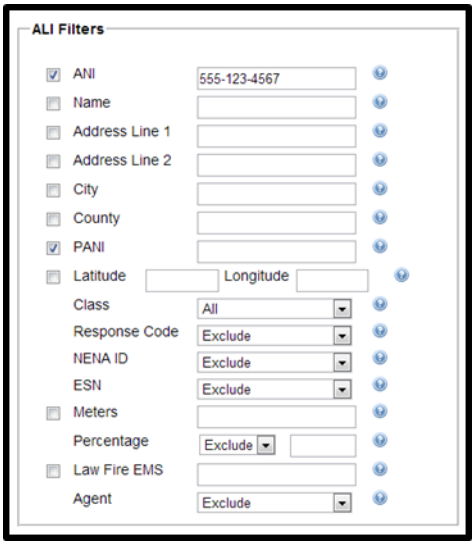
Ad-hoc reporting provides multiple output format options. These options include:

1. Web
2. Excel 97-2003
3. Excel 2007-2013
4. CSV



Standard Ad-hoc Report Example:

Filters:



Report Result (Excel Format):

Ad Hoc Report:				
Name:	ANI Search			
Date:	12/15/2013			
Description:				
PSAP 1				
Seizure Date	**Seizure Time**	**ALI ANI**	**ALI PANI**	**ALI Class**
1/1/2013	13:45:34	555-123-4567	555-511-2345	WPH2
1/1/2013	13:56:29	555-123-4567	555-511-2345	WPH2

Advanced Ad-Hoc

Advanced Ad-Hoc reporting is more often used by advanced or frequent ECaTS users. The search filters on the Advanced Ad-Hoc Viewer offer Boolean (true or false) expressions as well as distinct searches to find calls based on the source and fields selected.

The Advanced Ad-hoc interface provides additional functionality for report building also using both CDR and ESInet meta data.

1. The user can choose the field to sort data by (in a descending or ascending order)
2. The user can choose the order of columns in the report
3. Totals may be selected per field, these totals include:

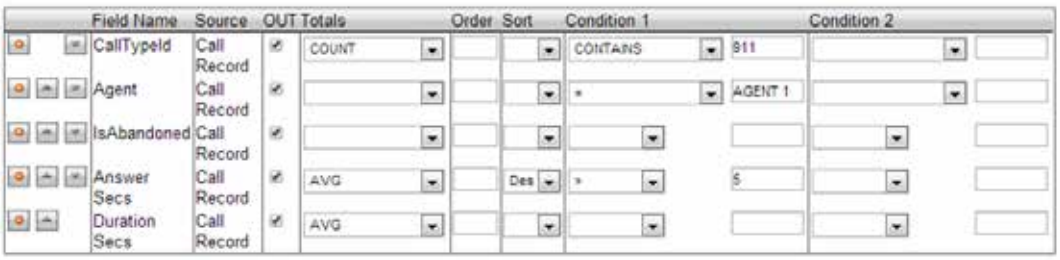
- Count
- Average
- Min
- Max
- Sum

4. Multiple conditions per field may be entered

Advanced Ad-hoc Reporting Interface:

Figure 18 - Advanced Ad-Hoc Interface

Advanced Ad-hoc Examples:
Report Filters:



Report Results:

Ad Hoc Report:						
Name:	Report 1					
Date:	12/15/2013					
Description:						
PSAP 1						
Seizure Date	Seizure Time	CallTypeId	OperatorName	IsAbandoned	Answer Secs	Duration Secs
6/5/2013	20:57:29	911 Calls	AGENT 1	FALSE	120	330
6/29/2013	14:12:37	911 Calls	AGENT 1	TRUE	20	70
6/11/2013	23:04:37	911 Calls	AGENT 1	FALSE	19	677
6/3/2013	15:38:16	911 Calls	AGENT 1	FALSE	18	37
6/2/2013	21:56:06	911 Calls	AGENT 1	TRUE	3	127
6/11/2013	23:04:38	911 Calls	AGENT 1	FALSE	3	676
6/26/2013	15:51:58	911 Calls	AGENT 1	FALSE	3	67
6/2/2013	18:53:37	911 Calls	AGENT 1	FALSE	3	64
6/2/2013	21:56:08	911 Calls	AGENT 1	FALSE	3	125
6/3/2013	17:15:06	911 Calls	AGENT 1	FALSE	3	26
6/3/2013	17:23:15	911 Calls	AGENT 1	FALSE	2	19
Totals and Averages			11		18	202

SHARING REPORTS

ECaTS also allows authorized users to share reports generated in the ad-hoc reporting tool with other users of the application. For instance, a user may develop an ad-hoc report that yields specific or interesting analytics regarding 911 call volumes in their county or jurisdiction. They can then share the report with other authorized users so they may discuss the contents of the report or to provide additional insight into discussion topics for upcoming meetings.

5.2.4 SYSTEM DASHBOARD

The system shall provide a web based "Dashboard" that is based on User Role. Summary data on the Dashboard will provide "drill down" capabilities.

COMPLY

ECATS REAL-TIME DASHBOARD

ECaTS, Emergency Call Tracking System, Real-Time Dashboard is the first of its kind in the Public Safety Industry. The dashboard gives PSAP/County/State Management Personnel the ability to monitor 9-1-1 call activity in a visual real-time display.

The ECaTS Dashboard provides a visual representation of actual 911 call activity, answer time, hold time, and other factors, and clearly represents the real-or near-time condition of 9-1-1 within the specified jurisdiction. Additional analytics segment the data by wireless carrier providing a clear identification of wireless 9-1-1 calls or other communication data traffic through the PSAP/PSAPs in the State and/or County. Each data factor such as call volume will be compared against normative vales (averages) to identify anomalies in call traffic, call volume and call handling statistics. An area of the dashboard will be dedicated to mapping incoming calls to clearly illustrate possible areas of high traffic or anomalous call volume (either higher or lower than normal). Wireless carrier activity will also be compared against normative values and significant deviations between normal and abnormal call activity will be highlighted as an "alert" by the dashboard.

If additional functionality is desired of the real-time display, customizations can be done on a fixed bid basis after a joint application design session has been completed to determine the desired enhanced functionality.

STATEWIDE/COUNTYWIDE/INDIVIDUAL PSAP DASHBOARD DISPLAY

ECaTS gives its users the ability to monitor real-time 9-1-1 call statistics Statewide, Countywide and at the individual PSAP. The Alabama 9-1-1 Board will have access to a live dashboard to assist in the following:

- Gathering of real-time intelligence and actionable information to enhance emergency response and public safety anywhere in the State.
- Combining big data/analytics technologies with real-time data feeds (i3 logging/ESInet) for improved interagency coordination and development of 'the right' resources.
- Ensures real-time situational awareness at both Local and State levels
- Enables enhanced early warning threat identification
- Supports faster inter-agency resource deployment at drastically reduced response times
- Offers, in some cases, the potential to proactively prevent loss of life, infrastructure or property.

Figure 19 - Hanging State Dashboard Mockup

Figure 20 – State Dashboard Overview

The image below shows a sample of the type of KPI's that can be monitored using the ECaTS Dashboard:

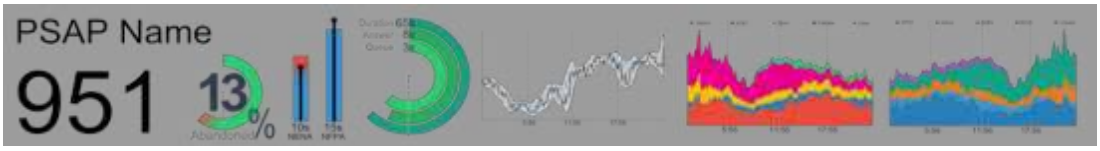
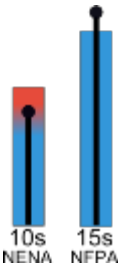


Figure 21 Dashboard Widgets

Field	Description
	Represents the name of the PSAP and its FCC ID
	Represents the Abandoned call visualization for the PSAP as Changes: The abandoned percentage at the PSAP level is calculated over the past 60 minutes and updated every minute.
	Represents the current answer time thresholds being met for both NENA and NFPA standards Changes: The percentage of calls answered in less than 10 or 15 seconds at the PSAP level is calculated over the past 60 minutes and updated every minute.

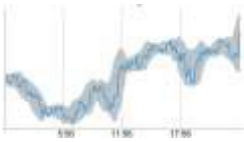
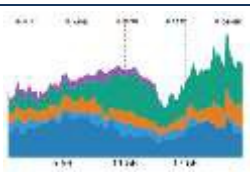
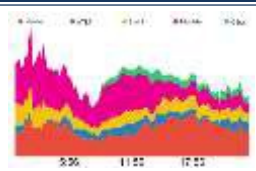
	Represents the current state of Duration, Answer Times and Queue times and any alerts for those timings Changes: The current averages at the PSAP level are calculated over the past 60 minutes and updated every minute.
	Represents the PSAP call volume Changes: Each data point at the PSAP level represents the number of calls in the past 60 minutes (calls per hour), updated every minute. The viewing window is the past hour with time labels at 15, 30, and 45 minutes in the past, precise to the minute.
	Represents the PSAP current class of service call volume Changes: Call volume at the PSAP level is measured as the number of calls in the past 60 minutes, updated every minute. The viewing window is the past hour with time labels at 15, 30, and 45 minutes in the past, precise to the minute.
	Represents the PSAP current wireless carrier call volume Changes: Call volume at the PSAP level is measured as the number of calls in the past 60 minutes, updated every minute. The viewing window is the past hour with time labels at 15, 30, and 45 minutes in the past, precise to the minute.

Figure 22 – Dashboard Widgets Description

5.3 OPERATIONAL REPORTING AND LOGGING

The system shall provide access via Crystal Reports or a similar reporting tool to all data elements via a reporting server. Queries must be restricted to the reporting server which shall be as current or near real time as is practicable.

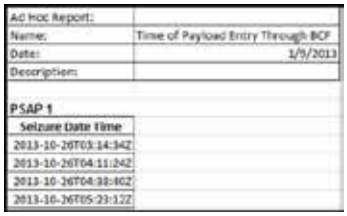
At a minimum, the following data elements shall be logged and readily available for reporting purposes at the system level and at the ECD/PSAP level:

- Payload processing times
- Answer time
- Disconnect time
- Incoming IP address
- Pre-Defined Reports – restricted to PSAP(s) based on user role
- Total count of Payloads by Type
- Average Event Waiting Report
- Average Event duration
- Total Abandoned Events
- Events by incoming IP address
- Events by hour of day
- Events answered by user ID
- Events by day of the week
- Events transferred
- Event transferred to PSAP

- Position answered
- Events answered by position
- Events answered by all positions
- Agent availability report
- Call volumes
- Individual Call detail Information
- Summary of Call Loads

Respondents shall provide examples of operational reports and describe the ability of the system to capture, store and report on these data elements.

COMPLY



Ad Hoc Report:	
Name:	Time of Payload Entry Through BCF
Date:	1/9/2013
Description:	

PSAP 1

Seizure Date Time
2013-10-26T03:14:34Z
2013-10-26T04:11:24Z
2013-10-26T04:38:40Z
2013-10-26T05:23:12Z

Payload Processing Times: The payload processing time is calculated from the time the payload enters through the BCF until the call is routed to the PSAP via the ECRF.

Position answered: The position that answers each event will be recorded and reported on through the Initial Station Total Calls report. This report provides hourly counts for each answered event by position/station. In addition, the position that answered each event is a field in the ad-hoc system. A user has the ability to filter by position, or to simply include position number as a field in a report.

Initial Station Total Calls Report Example:

Hour	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
Station Not Available	1	0	1	3	2	1	0	3	2	3	3	8	1	1	7	2	2	2	5	5	3	5	3	3	66
Station 2201	0	0	3	0	0	0	0	1	0	4	10	19	21	27	20	36	32	20	16	6	0	0	0	0	215
Station 2202	23	11	5	4	15	15	23	19	28	28	33	19	36	45	34	33	36	25	7	12	16	24	42	20	553
Station 2203	4	9	7	1	1	0	0	0	0	1	5	1	5	4	0	10	16	19	23	20	29	39	7	9	210
Station 2204	2	9	16	20	12	4	1	16	40	30	64	58	52	31	37	34	30	20	19	21	38	17	7	3	581
Station 2205	13	25	13	2	7	4	20	40	45	41	33	27	36	12	49	29	41	26	35	29	10	15	24	28	604
Total	43	54	45	30	37	24	44	79	115	107	148	132	151	120	147	144	157	112	105	93	96	100	83	63	2229

Ad-Hoc Report Example:

Name:	Positions				
Date:					1/1/2014
Description:					

PSAP 1

Seizure Date	Seizure Time	CallTypeId	Position ID	IsAbandoned	Duration Secs
12/8/2013	00:15:00	911 Calls	7	FALSE	10
12/8/2013	00:15:37	911 Calls	11	FALSE	100
12/8/2013	00:29:32	911 Calls	11	FALSE	42
12/8/2013	00:46:56	911 Calls	7	FALSE	277
12/8/2013	00:54:04	911 Calls	8	FALSE	64
12/8/2013	00:56:32	911 Calls	8	FALSE	110
12/8/2013	01:01:57	911 Calls	8	FALSE	107
12/8/2013	01:02:31	911 Calls	7	FALSE	3519
12/8/2013	01:31:41	911 Calls	7	TRUE	27
12/8/2013	01:36:41	911 Calls	7	FALSE	214

Answer time: Answer time is calculated from seizure to event answer using the Call Handling supplied meta data. This is a field included on the Average Duration report, and is also used to create the PSAP Answer Time report.

Answer Time Report Example:

Hour	Answer Times in Seconds					Totals
	0 – 10	11-20	21 – 60	61 – 120	120+	
00:00	114	5	1	0	0	124
01:00	110	6	3	0	0	119
02:00	86	6	0	0	0	92
03:00	74	3	4	1	2	84
04:00	68	7	1	0	0	76
05:00	76	5	5	0	0	86
06:00	85	8	11	1	0	105
07:00	146	20	11	1	0	178
08:00	251	36	14	2	0	303
09:00	322	55	14	2	0	393
10:00	306	48	15	2	0	371
11:00	298	65	44	4	0	411
12:00	301	86	27	4	2	420
13:00	340	63	19	1	0	423
14:00	386	81	27	0	0	494
15:00	423	89	33	0	0	545
16:00	415	102	28	3	0	548
17:00	373	78	25	3	0	479
18:00	352	62	10	0	0	424
19:00	314	29	3	0	0	346
20:00	252	30	12	0	0	294
21:00	229	19	4	0	0	252
22:00	163	14	3	0	0	180
23:00	135	11	1	0	0	147
Total	5,619	932	315	24	4	6,894
Overall Percentage:	81.51%	13.52%	4.57%	0.35%	0.06%	100.00%
% answered ≤ 10 seconds	81.51%					

In addition, answer seconds are a field available in ad-hoc. Users can include answer seconds, search by a specific range of answer seconds (such as <15 seconds), look at answer seconds for a specific position or operator, or build averages.

Ad Hoc Report:						
Name:	Answer Seconds					
Date:						1/1/2014
Description:						
PSAP 1						
Seizure Date	Seizure Time	CallTypeId	Position ID	IsAbandoned	Answer Secs	Duration Secs
12/8/2013	00:15:00	911 Calls	7	FALSE	6	10
12/8/2013	00:15:37	911 Calls	11	FALSE	8	100
12/8/2013	00:29:32	911 Calls	11	FALSE	8	42
12/8/2013	00:46:56	911 Calls	7	FALSE	7	277
12/8/2013	00:54:04	911 Calls	8	FALSE	6	64
12/8/2013	00:56:32	911 Calls	8	FALSE	7	110
12/8/2013	01:01:57	911 Calls	8	FALSE	8	107

Disconnect time: The disconnect time of a call is the total time of the call, which is also the duration value. ECaTS uses the duration as the disconnect time (or computed time value Time of call + Total duration of seconds) and these values can be found both in the Average Event Duration report or accessed as an ad hoc value as illustrated below:

Ad Hoc Report:						
Name:	Duration Seconds					
Date:						1/1/2014
Description:						
PSAP 1						
Seizure Date	Seizure Time	CallTypeId	Position ID	IsAbandoned	Answer Secs	Duration Secs
12/8/2013	00:15:00	911 Calls	7	FALSE	6	10
12/8/2013	00:15:37	911 Calls	11	FALSE	8	100
12/8/2013	00:29:32	911 Calls	11	FALSE	8	42
12/8/2013	00:46:56	911 Calls	7	FALSE	7	277
12/8/2013	00:54:04	911 Calls	8	FALSE	6	64
12/8/2013	00:56:32	911 Calls	8	FALSE	7	110
12/8/2013	01:01:57	911 Calls	8	FALSE	8	107

Incoming IP Address: The incoming IP address of each event will be stored as the field 'Incoming IP Address' and will be reportable through ad-hoc. This will allow the user to filter or search by a full or partial IP address. Users can build customized reports, including desired associated information.

In addition, the 'Events by Incoming IP Address' report will provide totals by incoming IP address for the date range selected (see Events by Incoming IP Address).

Ad-hoc Report Example:

Ad Hoc Report:			
Name:	IP Address		
Date:			1/1/2014
Description:			
PSAP 1			
Seizure Date	**Seizure Time**	**CallTypeId**	**IP Address**
12/8/2013	00:15:00	911 Calls	123.456.789.12
12/8/2013	00:15:37	Administrative	134.567.891.23
12/8/2013	00:29:32	911 Calls	145.678.910.12
12/8/2013	00:46:56	911 Calls	123.678.891.01
12/8/2013	00:54:04	911 Calls	124.565.789.12
12/8/2013	00:56:32	911 Calls	111.123.456.78

Total Count of Payloads by Type: Each event will include an indicator of payload 'type'. The 'Total Count of Payloads by Type' report will provide total counts by payload type, and the overall number of payloads for the date range selected. The report may be customized to contain additional relevant/desired information.

Payload types are as follows:

1. Audio
2. Video
3. Real-Time Text
4. TTY (Baudout Tones)
5. Instant Messaging
6. NHI Events (Non-Human Initiated)

Payload Type	Total Count
Audio	10
Video	13
Real-Time Text	18
TTY	16
Instant Messaging	1
NHI	13
	71

Average Event Waiting Report: The average event waiting time can be obtained through the Average Duration report (as well as through ad-hoc).

		Averages				
Hour	Number of Events	Queue Time	Ring Time	Hold Time	Talk Time	Duration
00:00	124	3.1	4.3	1.7	110.7	119.8
01:00	119	2.9	4.8	20.2	123.7	151.6
02:00	92	3.1	4.1	3.2	101.3	111.7
03:00	84	2.9	12.6	3.2	118.7	137.5
04:00	76	3.1	4.7	3.7	103.1	114.7
05:00	86	3.0	5.3	1.8	106.8	116.8
06:00	105	2.8	7.2	1.7	92.3	104.0
07:00	178	3.0	6.2	2.5	66.9	78.6
08:00	303	3.2	5.9	3.4	76.2	88.7
09:00	393	3.2	5.7	4.9	74.8	88.6
10:00	371	3.1	6.1	2.3	79.6	91.1
11:00	411	3.1	8.0	4.1	81.5	96.7
12:00	420	3.0	7.9	9.6	77.4	97.8
13:00	423	3.0	5.8	2.4	78.9	90.1
14:00	494	2.9	6.1	5.5	87.1	101.7
15:00	545	3.0	6.1	6.5	83.6	99.3
16:00	548	3.0	6.3	4.3	86.5	100.3
17:00	479	3.0	6.3	4.1	92.1	105.6
18:00	424	3.0	5.1	1.9	95.2	105.2
19:00	346	3.0	4.2	2.9	99.3	109.5
20:00	294	3.0	5.1	4.5	100.3	112.9
21:00	252	3.0	4.7	1.3	100.6	109.6
22:00	180	3.0	4.5	2.8	139.4	149.7
23:00	147	2.9	4.3	1.2	119.0	127.5
Totals:	6894					
Averages:		3.03	5.97	4.27	89.95	103.22

Average Event Duration: The average duration will be located on the Average Duration report (see Average Event Waiting Time). In addition, duration seconds is a reportable field in ad-hoc and can be averaged and queried against based on parameters set by the user.

Ad-Hoc Report Example:

Ad Hoc Report:						
Name:	Duration Seconds					
Date:						1/1/2014
Description:						
PSAP 1						
Seizure Date	Seizure Time	CallTypeId	Position ID	IsAbandoned	Answer Secs	Duration Secs
12/8/2013	00:15:00	911 Calls	7	FALSE	6	10
12/8/2013	00:15:37	911 Calls	11	FALSE	8	100
12/8/2013	00:29:32	911 Calls	11	FALSE	8	42
12/8/2013	00:46:56	911 Calls	7	FALSE	7	277
12/8/2013	00:54:04	911 Calls	8	FALSE	6	64
12/8/2013	00:56:32	911 Calls	8	FALSE	7	110
12/8/2013	01:01:57	911 Calls	8	FALSE	8	107

Total Abandoned Events: The Event Summary report will provide summary information regarding events, such as the number of events answered, the number of events abandoned, and the percentage of abandoned events. The Event Summary can be ran on each type of event individually, or all event types.

Event Summary Report:

Date	Wireless 911	Wireline 911	911	911 Abdn	Unparsed 911	Total 911	911 Abdn Percentage	Average Call Duration
12/1/2013	10	40	50	6	0	56	10.71%	118.6
12/2/2013	13	60	73	6	0	79	7.59%	69.0
12/3/2013	18	50	68	11	0	79	13.92%	75.7
12/4/2013	16	40	56	9	1	66	13.64%	64.2
12/5/2013	1	50	51	14	0	65	21.54%	59.0
12/6/2013	13	60	73	6	1	80	7.50%	85.6
12/7/2013	8	60	68	14	0	82	17.07%	84.9
PSAP Totals	**79**	**360**	**439**	**66**	**2**	**507**	**13.02%**	**78.8**

Abandoned Events Per Hour:

Date	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
12/1/2013	9	9	10	1	4	3	5	8	10	8	12	17	16	10	23	26	10	15	7	10	11	6	10	3	243
12/2/2013	4	5	3	0	8	6	7	10	18	25	22	24	27	18	28	17	23	19	14	17	8	8	8	8	327
12/3/2013	4	6	5	3	6	3	4	12	18	19	29	22	25	14	24	28	31	15	18	14	13	4	16	5	338
12/4/2013	4	6	8	3	5	7	9	13	19	18	23	10	24	23	16	16	28	12	13	9	20	6	11	9	312
12/5/2013	7	8	7	14	2	4	7	14	19	13	28	23	23	17	15	22	18	16	16	24	18	30	17	17	379
12/6/2013	5	12	6	7	2	1	8	13	22	9	15	18	21	18	21	15	27	20	15	10	8	15	15	13	316
12/7/2013	10	8	6	2	10	0	4	9	9	15	19	18	15	20	20	20	20	15	22	9	18	31	6	8	314
Total	**43**	**54**	**45**	**30**	**37**	**24**	**44**	**79**	**115**	**107**	**148**	**132**	**151**	**120**	**147**	**144**	**157**	**112**	**105**	**93**	**96**	**100**	**83**	**63**	**2229**
Abandoned Events	1	0	1	3	2	1	0	3	2	3	3	8	1	1	7	2	2	2	5	5	3	5	3	3	66

Events by incoming IP address: The 'Events by Incoming IP Address' report will provide total counts by IP address for the date range selected. Once selecting the 'Events by IP Address' report in the parameters screen, the user will be presented with checkboxes used to select the event(s) included in the report. The report may be customized to include additional relevant or desired information.

Incoming IP Address	Total Count
123.456.789.12	10
134.567.891.23	13
145.678.910.12	18
123.678.891.01	16
124.565.789.12	1
111.123.456.78	13
	71

Events by Hour of Day: The Events per Hour report will provide event counts by hour of day. The hour the event is placed in will be determined by the seizure time of the event. Once selecting the 'Events per Hour' report in the parameters screen, the user will be presented with checkboxes used to select the event(s) included in the report. Some examples of available events are:

1. Audio
2. Video
3. Real-Time Text Messaging
4. Instant Messaging
5. TTY

Events Per Hour Report Example:

Date	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
12/1/2013	9	9	10	1	4	3	5	8	10	8	12	17	16	10	23	26	10	15	7	10	11	6	10	3	243
12/2/2013	4	5	3	0	8	6	7	10	18	25	22	24	27	18	28	17	23	19	14	17	8	8	8	8	327
12/3/2013	4	6	5	3	6	3	4	12	18	19	29	22	25	14	24	28	31	15	18	14	13	4	16	5	338
12/4/2013	4	6	8	3	5	7	9	13	19	18	23	10	24	23	16	16	28	12	13	9	20	6	11	9	312
12/5/2013	7	8	7	14	2	4	7	14	19	13	28	23	23	17	15	22	18	16	16	24	18	30	17	17	379
12/6/2013	5	12	6	7	2	1	8	13	22	9	15	18	21	18	21	15	27	20	15	10	8	15	15	13	316
12/7/2013	10	8	6	2	10	0	4	9	9	15	19	18	15	20	20	20	20	15	22	9	18	31	6	8	314
Total	43	54	45	30	37	24	44	79	115	107	148	132	151	120	147	144	157	112	105	93	96	100	83	63	2229
Abandoned Events	1	0	1	3	2	1	0	3	2	3	3	8	1	1	7	2	2	2	5	5	3	5	3	3	66

Events Answered by Position: The position that answers each event will be recorded and reported on through the Initial Station Total Events report. This report provides hourly counts for each answered event by position/station.

Initial Station Total Events Report Example:

Hour	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
Station Not Available	1	0	1	3	2	1	0	3	2	3	3	8	1	1	7	2	2	2	5	5	3	5	3	3	66
Station 2201	0	0	3	0	0	0	0	1	0	4	10	19	21	27	20	36	32	20	16	6	0	0	0	0	215
Station 2202	23	11	5	4	15	15	23	19	28	28	33	19	36	45	34	33	36	25	7	12	16	24	42	20	553
Station 2203	4	9	7	1	1	0	0	0	0	1	5	1	5	4	0	10	16	19	23	20	29	39	7	9	210
Station 2204	2	9	16	20	12	4	1	16	40	30	64	58	52	31	37	34	30	20	19	21	38	17	7	3	581
Station 2205	13	25	13	2	7	4	20	40	45	41	33	27	36	12	49	29	41	28	35	29	10	15	24	28	604
Total	43	54	45	30	37	24	44	79	115	107	148	132	151	120	147	144	157	112	105	93	96	100	83	63	2229

Ad-Hoc Report Example:

Name:	Positions				
Date:					1/1/2014
Description:					
PSAP 1					
Seizure Date	**Seizure Time**	**CallTypeId**	**Position ID**	**IsAbandoned**	**Duration Secs**
12/8/2013	00:15:00	911 Calls	7	FALSE	10
12/8/2013	00:15:37	911 Calls	11	FALSE	100
12/8/2013	00:29:32	911 Calls	11	FALSE	42
12/8/2013	00:46:56	911 Calls	7	FALSE	277
12/8/2013	00:54:04	911 Calls	8	FALSE	64
12/8/2013	00:56:32	911 Calls	8	FALSE	110
12/8/2013	01:01:57	911 Calls	8	FALSE	107
12/8/2013	01:02:31	911 Calls	7	FALSE	3519
12/8/2013	01:31:41	911 Calls	7	TRUE	27
12/8/2013	01:36:41	911 Calls	7	FALSE	214

Events Answered by All Positions: The events answered by all positions requirement will be fulfilled by use of the Event Summary report. This report will provide overall information regarding the number of events answered (regardless of position). If a user desires to look at all events answered across all stations, the Initial Station Total Events report will fulfill this need (see above).

Events Answered by User ID: If each operator uses a unique user ID, the user ID will be stored as 'Agent' and can be reported against in multiple ways. 'Agent' is an available ad-hoc field, the user can query against answer time by operator, by a specific shift, etc. In addition, operator reports are available such as 'Events by Operator' and 'Operator Speed of Answer'. These reports provide the number of events answered by each initial operator.

Events by Operator Report Example:

Operator	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
OPERATOR 1	28	27	26	16	21	17	23	33	71	66	71	50	74	85	78	47	68	55	42	31	28	40	28	38	1063
OPERATOR 2	6	6	1	0	0	0	0	0	0	25	17	13	12	5	4	17	27	41	26	26	15	16	6	6	269
OPERATOR 3	17	21	16	8	12	7	6	43	44	39	41	47	54	49	53	88	74	54	52	37	48	37	27	25	899
OPERATOR 4	13	5	3	7	6	1	6	7	9	19	24	26	13	55	58	74	70	37	55	35	22	26	14	7	592
OPERATOR 5	10	8	9	5	1	4	7	14	23	30	21	28	19	19	16	29	16	14	13	19	5	5	5	5	325
OPERATOR 6	5	10	8	17	4	25	24	37	59	67	61	39	71	42	56	43	46	38	36	28	32	18	15	16	797
UNKNOWN OPERATOR	45	42	29	31	32	32	39	44	97	147	136	208	177	168	229	247	247	240	200	170	144	110	85	50	2949
Total	**124**	**119**	**92**	**84**	**76**	**86**	**105**	**178**	**303**	**393**	**371**	**411**	**420**	**423**	**494**	**545**	**548**	**479**	**424**	**346**	**294**	**252**	**180**	**147**	**6894**

Operator Speed of Answer Report Example:

	Answer Times In Seconds					Total Events	Average
Operator	0 - 10	11 - 20	21 - 60	61 - 120	120+	Answered	Duration
UNKNOWN OPERATOR	82.40%	11.70%	5.43%	0.41%	0.07%	2949	83.8
OPERATOR 1	77.70%	17.31%	4.52%	0.38%	0.09%	1063	117.5
OPERATOR 2	87.36%	9.29%	3.35%	0.00%	0.00%	269	115.9
OPERATOR 3	80.65%	14.35%	4.67%	0.33%	0.00%	899	123.9
OPERATOR 4	83.28%	13.51%	2.53%	0.68%	0.00%	592	122.8
OPERATOR 5	80.92%	15.69%	3.08%	0.31%	0.00%	325	117.7
OPERATOR 6	81.18%	14.81%	3.89%	0.00%	0.13%	797	107.8
Overall Percentage:	**81.51%**	**13.52%**	**4.57%**	**0.35%**	**0.06%**	**6894**	**103.2**

Ad-Hoc Report Example:

Ad Hoc Report:				
Name:	Agent Answer Seconds			
Date:	1/1/2014			
Description:				
PSAP 1				
Seizure Date	**Seizure Time**	**CallTypeId**	**Agent**	**Answer Secs**
12/8/2013	00:15:00	911 Calls	OPERATOR 1	1
12/8/2013	00:15:37	Administrative	OPERATOR 2	3
12/8/2013	00:29:32	911 Calls	OPERATOR 1	2
12/8/2013	00:46:56	911 Calls	OPERATOR 1	1
12/8/2013	00:54:04	911 Calls	OPERATOR 3	5
12/8/2013	00:56:32	911 Calls	OPERATOR 2	1

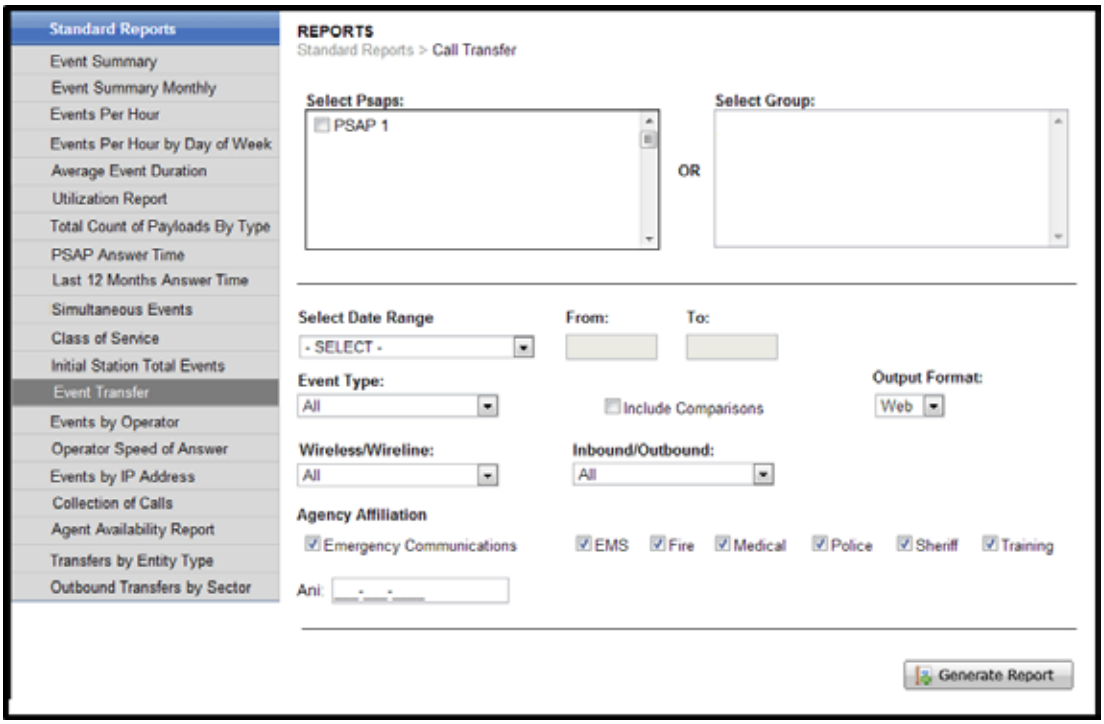
Events by Day of the Week: Event reporting by day of week is available through the Events per Hour by Day of Week report. This report provides event counts by day of week as well as by hour of day.

Events per Hour by Day of Week Report Example:

Mar-13									
CallHour	Summary	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
0	Total	76	35	46	34	35	41	58	325
	Events\Day	15.2	8.75	11.5	8.5	8.75	8.2	11.6	10.4
1	Total	58	30	27	19	12	36	62	244
	Events\Day	11.6	7.5	6.75	4.75	3	7.2	12.4	7.6
2	Total	40	14	14	13	18	36	44	179
	Events\Day	8	3.5	3.5	3.25	4.5	7.2	8.8	5.54
3	Total	28	18	14	13	26	24	38	161
	Events\Day	5.6	4.5	3.5	3.25	6.5	4.8	7.6	5.11
4	Total	14	15	23	23	28	29	33	165
	Events\Day	2.8	3.75	5.75	5.75	7	5.8	6.6	5.35
5	Total	29	16	12	19	21	19	28	144
	Calls\Day	5.8	4	3	4.75	5.25	3.8	5.6	4.6
6	Total	36	24	31	38	31	32	36	228
	Events\Day	7.2	6	7.75	9.5	7.75	6.4	7.2	7.4
7	Total	37	63	55	80	65	82	48	430
	Events\Day	7.4	15.8	13.8	20	16.3	16.4	9.6	14.2
8	Total	42	71	87	58	79	109	95	541
	Events\Day	8.4	17.8	21.8	14.5	19.8	21.8	19	17.6
9	Total	56	152	94	101	97	132	118	750
	Events\Day	11.2	38	23.5	25.3	24.3	26.4	23.6	24.6
10	Total	90	112	109	116	123	196	116	862
	Events\Day	18	28	27.3	29	30.8	39.2	23.2	27.9
11	Total	114	104	144	128	158	148	140	936
	Events\Day	22.8	26	36	32	39.5	29.6	28	30.6
12	Total	88	115	119	119	147	142	152	882
	Events\Day	17.6	28.8	29.8	29.8	36.8	28.4	30.4	28.8
13	Total	133	131	116	112	136	177	152	957
	Events\Day	26.6	32.8	29	28	34	35.4	30.4	30.9
14	Total	113	112	152	110	120	161	140	908
	Events\Day	22.6	28	38	27.5	30	32.2	28	29.5
15	Total	122	137	150	145	131	174	105	964
	Events\Day	24.4	34.3	37.5	36.3	32.8	34.8	21	31.6
16	Total	110	133	127	170	155	177	137	1009
	Events\Day	22	33.3	31.8	42.5	38.8	35.4	27.4	33
17	Total	125	148	102	151	122	140	126	914
	Events\Day	25	37	25.5	37.8	30.5	28	25.2	29.9
18	Total	128	110	120	130	118	126	129	861
	Events\Day	25.6	27.5	30	32.5	29.5	25.2	25.8	28
19	Total	122	93	108	86	96	148	128	781
	Events\Day	24.4	23.3	27	21.5	24	29.6	25.6	25.1
20	Total	116	72	72	126	95	130	91	702
	Calls\Day	23.2	18	18	31.5	23.8	26	18.2	22.7
21	Total	123	71	71	83	52	124	86	610
	Events\Day	24.6	17.8	17.8	20.8	13	24.8	17.2	19.4
22	Total	84	66	39	57	48	77	89	460
	Events\Day	16.8	16.5	9.75	14.3	12	15.4	17.8	14.6
23	Total	56	40	37	52	53	86	70	394
	Events\Day	11.2	10	9.25	13	13.3	17.2	14	12.6
Total	Total	1940	1882	1869	1983	1966	2546	2221	2223
	Events\Day	16.2	19.6	19.5	20.7	20.5	21.2	18.5	19.4

Events Transferred: Transferred events can be reported against in a variety of ways. The first is the Event Transfer report. The parameters interface for the 'Events Transferred' report will also feature a filtering option for 'Wireless' and 'Wireline' transfers.

The report interface will also feature a drop-down menu with three transfer options, 'All', 'Inbound' and 'Outbound'.



Necessary associated information such as location or class of service will be included, as well as seizure time at each PSAP and the duration at each PSAP. The Event Transfer report can be filtered by ANI to easily locate a specific event.

If an event is transferred multiple times, the chaining will be apparent in the report. As displayed below, a call with multiple transfers will appear as a chain with each row representing an appearance of that event at each PSAP.

Total Events Transferred: 3

		Location Information							Event Record Information				
	Event Type	ANI	Address Line 1	City	Class	ESN	Call Sector	Name	Call Type	PSAP	Seizure Date Time	Talk Secs	Duration Secs
Source	Voice Call	123-567-8910	ADDRESS 1	CITY 1	WPH2	123	CELL SECTOR 1	AT&T MOBILITY 800 123 5678	911 Calls	PSAP 1	12/12/2013 2:41:29 AM	74	80
Transfer To	Voice Call	123-567-8910	ADDRESS 1	CITY 1	WPH2	123	CELL SECTOR 1	AT&T MOBILITY 800123 5678	911 Calls	PSAP 2	12/12/2013 2:43:42 AM	217	225
											TOTAL:	291	305
Source	Text Call	555-555-1234	ADDRESS 2	CITY 2	WPH2	456	CELL SECTOR 2	AT&T MOBILITY 800 678 9876	911 Calls	PSAP 1	12/12/2013 8:05:57 AM	147	193
Transfer To	Text Call	555-555-1234	ADDRESS 2	CITY 2	WPH2	456	CELL SECTOR 2	AT&T MOBILITY 800 678 9876	911 Calls	PSAP 2	12/12/2013 8:07:58 AM	251	261
											TOTAL:	398	454
Source	Voice Call	123-789-1111	ADDRESS 3	CITY 3	VOIP	789	N/A	JOHN DOE	911 Calls	PSAP 1	12/12/2013 9:56:12 AM	83	94
Transfer To	Voice Call	123-789-1111	ADDRESS 3	CITY 3	VOIP	789	N/A	JOHN DOE	911 Calls	PSAP 2	12/12/2013 9:58:18 AM	146	154
Transfer To	Voice Call	123-789-1111	ADDRESS 4	CITY 3	VOIP	789	N/A	JOHN DOE	911 Calls	PSAP 1	12/12/2013 10:02:35 AM	38	43
Transfer To	Voice Call	123-789-1111	ADDRESS 4	CITY 3	VOIP	789	N/A	JOHN DOE	911 Calls	PSAP 3	12/12/2013 10:04:30 AM	28	35
											TOTAL:	295	326

In addition, transfer counts can be obtained through ad-hoc with the 'Transferred' field. Dialed transfer numbers will be stored for reporting purposes; this will allow any user to determine transfer counts to any outside entity through ad-hoc.

Ad Hoc Report:	
Name:	Transfers
Date:	12/15/2013
Description:	

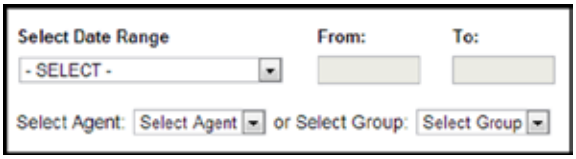
PSAP 1

Seizure Date	Seizure Time	ALI ANI	CallTypeID	Transferred	Transfer Number
12/8/2013	01:48:41	555-123-5678	911 Calls	TRUE	555-567-2637
12/8/2013	06:49:47	555-234-5678	911 Calls	TRUE	555-345-8674
12/8/2013	06:58:50	555-456-7819	911 Calls	TRUE	555-231-4657
12/8/2013	09:53:17	555-678-2221	911 Calls	TRUE	555-237-1239
12/8/2013	10:49:55	555-112-3321	911 Calls	TRUE	555-238-1298

Agent Availability Report: The Agent Availability Report provides information on each operator. Once selecting the 'Agent Availability Report' in the parameters screen, the user can select one or more operators (agents) to be included in the report.

Users will have the ability to build Agent Groups. These groups may contain one or more operators of the user's choice. An unlimited number of groups can be built (for example, to address each shift). The report includes for the entire specified date range:

1. The number of total hours worked
2. Average Not Ready time per hour (mm:ss format)
3. Average Wrap Up time per hour (mm:ss)
4. Average Ready (Idle) Time per hour (mm:ss)
5. Average Number of Calls per hour



(Report Parameters Example)

Agent Availability Report Example:

Operator Name	Total Number of Hours Worked	Average Not Ready Time Per Hour (mm:ss)	Average Wrap Up Time Per Hour (mm:ss)	Average Ready Time Per Hour (mm:ss)	Average Number of Calls Per Hour
OPERATOR 1	8	13:15	05:06	43:12	12
OPERATOR 2	40	16:15	07:34	34:28	10
OPERATOR 3	30	20:23	10:13	30:45	2
Totals	**78**	**16:38**	**07:38**	**36:08**	**24**

Call Volumes: 911, 10-Digit Emergency and Administrative call volume can be obtained in a single report, the Event Summary Report. The user will select the report, select 'call' as the Event Type, and then will be presented with call type options for the report. The Event Summary report contains wireless 911 and wireline 911 call counts, abandoned call counts, outbound call counts, overall totals and average call duration.

The event type (and all other parameters selected) will be listed in the report header, as depicted below:

Date	Wireless 911	Wireline 911	911	911 Abdn	Unparsed 911	Total 911	911 Abdn Percentage	Average Call Duration
12/1/2013	10	40	50	6	0	56	10.71%	118.6
12/2/2013	13	60	73	6	0	79	7.59%	69.0
12/3/2013	18	50	68	11	0	79	13.92%	75.7
12/4/2013	16	40	56	9	1	66	13.64%	64.2
12/5/2013	1	50	51	14	0	65	21.54%	59.0
12/6/2013	13	60	73	6	1	80	7.50%	85.6
12/7/2013	8	60	68	14	0	82	17.07%	84.9
PSAP Totals	**79**	**360**	**439**	**66**	**2**	**507**	**13.02%**	**78.8**

Individual Call Information: Each call and its associated information can be obtained through the ad-hoc system. The user can query by using specific filters, or by including all information in the report. In this way, the user can obtain thorough information on each individual call.

In addition, after generating the 'Drill-Down' report, a user may click a call on the report. Upon clicking the desired call, an 'Individual Call Information' report will open in a new window.


Individual Call Detail
Generated: mm/dd/yyyy hh:mm:ss

Seizure Date Time: mm/dd/yyyy hh:mm:ss
Call Type: 911
Inbound/Outbound: Inbound
Abandoned: No
Answer seconds: 3
Duration seconds: 123
Position answered: 6
Operator answered: Operator 1
Transferred: No
Transfer records: N/A
ANI: 555-123-5678
Location information: Address 1, City, State, Zip Code, XY Coordinates
Class of Service: WPH2
Carrier: Carrier1

Raw Data:

<xmlexample>

Collection of Calls: This report will provide call detail on all calls for the date range selected. The report detail will include:

1. Seizure Time
2. Call Type
3. Inbound/Outbound
4. ANI

Seizure Date Time	Call Type	Inbound/Outbound	ANI	Individual Call Detail
01/01/2013 00:06:34	911	Inbound	555-111-2222	Click
01/01/2013 06:08:24	Admin	Outbound	555-111-3333	Click
01/01/2013 13:01:04	911	Inbound	555-222-4444	Click
01/01/2013 15:45:23	911	Inbound	555-222-1111	Click
01/01/2013 16:17:34	911	Inbound	555-333-2222	Click
01/01/2013 21:09:12	911	Inbound	555-333-4444	Click
01/01/2013 23:12:45	Admin	Inbound	555-333-4444	Click

Once the report is generated, and calls have populated in the report, the user then has the ability to click on each report in the list. Clicking into a particular call will open a new report with individual call detail. This 'Individual Call Detail' report will provide all information associated with the call, including the raw XML data.

Individual Call Detail Report Example:

Individual Call Detail
Generated: mm/dd/yyyy hh:mm:ss

Seizure Date Time: mm/dd/yyyy hh:mm:ss
Call Type: 911
Inbound/Outbound: Inbound
Abandoned: No
Answer seconds: 3
Duration seconds: 123
Position answered: 6
Operator answered: Operator 1
Transferred: No
Transfer records: N/A
ANI: 555-123-5678
Location information: Address 1, City, State, Zip Code, XY Coordinates
Class of Service: WPH2
Carrier: Carrier1

Raw Data:

<xmlexample>

Summary of Call Loads: Summary of Call Loads can be addressed in multiple ways. The first is call volume. Call volume can be addressed through the Event Summary report as detailed above. In addition, call loads can be reported on in terms of the PSAP's ability handle a certain number of incoming or active calls at any given time. The 'Utilization Report' provides data on the percentage of time in a given data range that multiple SIP trunks are in simultaneous use. This provides information as to whether the PSAP continually has ability to handle incoming calls (particularly in a high volume situation), or if the PSAP encounters times where no incoming calls will be accepted.

Utilization Report Example:

Group Name	Trunks Busy	Busy
911 GROUP	1	0.538233 %
	2	0.000270 %
	Total SIP Trunks: 2	

5.3.1 EVENT REPORTS

Event reporting shall record the timing of transit for each payload for purposes of diagnostics.

All event reports shall, at a minimum, include the functional element being reported and the system time of such event.

The system shall provide, at a minimum, the following event reports:

- Time of payload entry through BCF;
- Time for each functional element to perform routing and PSAP assignment;
- Time of answer at PSAP; and
- Time of disconnect at PSAP.
- A cumulative total elapsed time for payloads to traverse the system.

Times shall be stored as Coordinated Universal Time (UTC) and converted to local time based on the User Profile.

Times shall be stored in 24 hour format including thousands of a second.
2015-07-31 20:51:20.537 UTC – for example

The system shall provide a Time Server on the ESInet using the Network Time Protocol (NTP). PSAPs will be offered use of this Time Server to synchronize the clocks on their 9-1-1 CPE, workstations, etc.

Respondents shall describe their proposed solution for event reporting functionality.

COMPLY

ECaTS will provide an i3 compliant logging service interface which aggregates logs from the Network (ex: an ESINet) and the Call Handing System to support end to end transaction logging and retrieval. ECaTS is optimized as a "transaction logger", capturing meta data for all payloads to provide end to end reports. ECaTS is compliant to the i3 specification for recording of the transaction meta data. All times captured and computed use the NG-911 international UTC standard and ECaTS will synchronize with the network clock usd by all NG Functional Elements to ensure synchronized time.

ECaTS supports an i3 compliant web services interface in addition to the standard web interface for retrieval of reporting and data. All significant steps in processing a call are logged by the Network devices/services and call handling systems and submitted to the ECaTS logger. Each log contains a transaction ID to support log aggregation for end to end reporting. The ECaTS logger web services conforms to NENA 8-003 v1 Detailed Functional and Interface Specification for the NENA i3 Solution, Stage 3 Version 1.

ECaTS supports two options for State and PSAP users to access and retrieve i3 transactions and events. The primary method is via the web interface which allows PSAPs to review and retrieve MIS and i3 Log Replication through the current NG SOAP interfaces.

Access to the log replication web services are an add-on as all reporting features are provided through the ECaTS MIS portal. Should the log replication services be licensed, the following web services are implemented as defined by the NG-911 V1/V2 specifications.

5.12.1.2 RetreiveLogEvent
5.12.1.3 ListEventsByCallId
5.12.1.4 ListEventsByIncidentId
5.12.1.5 ListCallsByIncidentId
5.12.1.6 ListIncidentsByDateRange
5.12.1.7 ListIncidentsByLocation
5.12.1.8 ListIncidentsByDateAndLocation
5.12.1.9 ListCallsByDateRange
5.12.1.10 ListAgenciesByCallId
5.12.1.11 ListAgenciesByIncidentId

As described on the previous page, The ECaTS platform provides general reporting against the collected network data. Additional customized reporting can be created depending on the needs of the Alabama 9-1-1 Board, but included are the following reports:

Time of payload entry through BCF: Time of Payload Entry through BCF report is shown below. Users can search by a specific time, include or filter by additional desired information, or receive all BCF entry times for a desired time/date range.

Ad Hoc Report:	
Name:	Time of Payload Entry Through BCF
Date:	1/9/2013
Description:	

PSAP 1

Seizure Date Time
2013-10-26T03:14:34Z
2013-10-26T04:11:24Z
2013-10-26T04:38:40Z
2013-10-26T05:23:12Z

Time for each functional element to perform routing and PSAP assignment: End to end Routing Report provides information regarding routing performance and PSAP assignment as shown below. This data is also available for ad hoc reporting. Users can search by a specific event, include or filter by desired information, or receive all ECRF routing assignment times for a desired time/date.

Network Request - Response Times			
Date	Responding Device	Requesting Device	Average Duration
2014-01-01	LIS #1	LNG #1	09:22
		LNG #2	03:22
		ESRP Orig.	04:11
Average Response	ECRF	LNG #1	05:38
		ESRP Orig.	09:22
		ESRP Term	03:22
Average Response			05:38

Time of answer at PSAP: Answer time is calculated from seizure to event answer. This is a field included on the Average Duration report, and is also used to create the PSAP Answer Time report using data supplied by the Call Handling system. In addition, time of answer at PSAP is a value available for reporting in the ad-hoc system.

Answer Time Report Example:

Summary Call Flow							
Answering Call Center	Call Count	LIS Lookup Duration	Routing Duration	Queue Duration	Answer Duration	Total Time Prior to Talk	Total Call Duration
Boston	3,543	0:02	0:04	0:21	0:02	0:29	1:31
Marlboro	3,543	0:02	0:04	0:11	0:02	0:19	1:32
Totals	**7,086**						
Averages		**0:02**	**0:04**	**0:16**	**0:02**	**0:24**	**1:31**

Marlboro							
ANI	Call Type	LIS Lookup Duration	Routing Duration	Queue Duration	Answer Duration	Total Time Prior to Talk	Total Call Duration
508-323-3232	WRLS	0:02	0:04	0:21	0:02	0:29	1:31
508-876-6666	Abandoned - WP2	0:02	0:04	0:21	0:00	0:11	0:00
508-876-6666	SMS	0:02	0:04	0:11	0:02	0:19	1:43
Averages		**0:02**	**0:04**	**0:17**	**0:01**	**0:19**	**1:04**

Time of disconnect at PSAP: The Disconnect time, or total call duration, can be found in the above report. In addition, PSAP specific reports also include this information in numerous other reports and via ad hoc reporting.

5.3.2 MAINTENANCE / CONFIGURATION REPORTS

- Lists events by date / time range
- Provides drill down to specific events

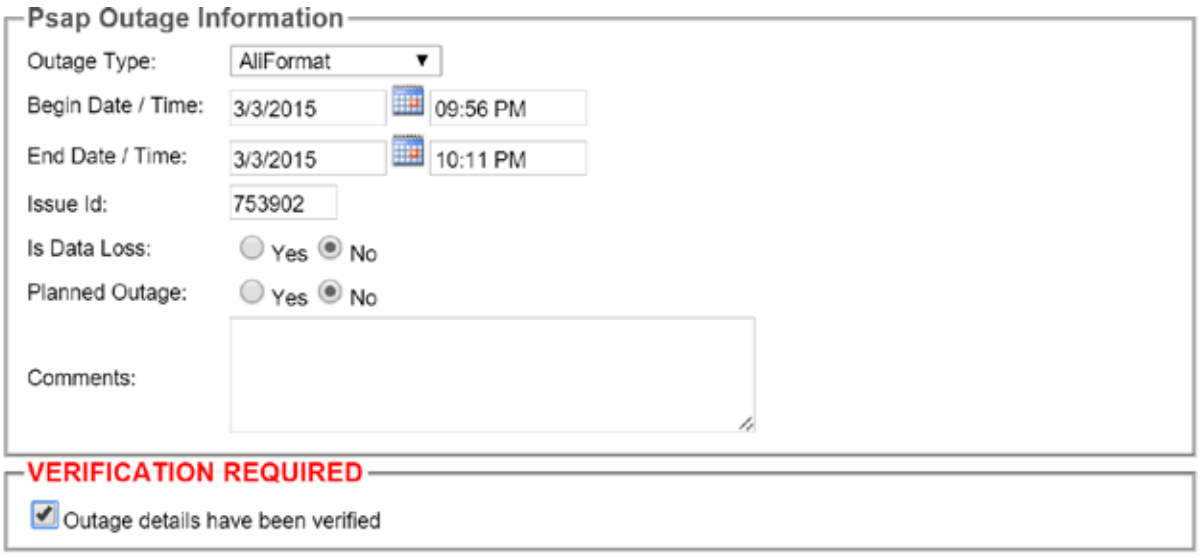
COMPLY

ECaTS provides all detailed maintenance and configuration updates based on system health reporting of issues causing data gathering challenges. ECaTS provides a summary screen of all issues effecting a specific PSAP or a data collector and the ability to drill down into the details of each issue and follow the resolution path and overall results of the maintenance/configuration issue.

Below is a sample of the maintenance/configuration events list with date/time ranges:

	Outage Type	Begin Date/Time	End Date/Time	Duration	Data Loss?	Issue Id
	Heartbeat	10/1/2015 5:44 AM	10/1/2015 6:17 AM	33 minute(s)	No	828144
	Heartbeat	9/30/2015 10:31 PM	9/30/2015 11:17 PM	46 minute(s)	No	827595
	Heartbeat	5/1/2015 4:46 PM	5/1/2015 7:17 PM	2 hours and 30 minute(s)	No	774844
	CallVolume	4/17/2015 5:55 AM	4/20/2015 2:51 PM	3 days and 8 hours and 56 minute(s)	Yes	767734
	AliFormat	3/3/2015 9:56 PM	3/3/2015 10:11 PM	15 minute(s)	No	753902
	CallVolume	2/24/2015 2:58 PM	2/26/2015 2:27 PM	1 day and 23 hours and 29 minute(s)	Yes	752170
	Heartbeat	2/1/2015 4:06 AM	2/1/2015 4:43 AM	37 minute(s)	No	745275
	Heartbeat	11/5/2014 5:34 AM	11/5/2014 6:09 AM	34 minute(s)	No	719540
	CallVolume	9/28/2014 1:10 AM	9/30/2014 11:59 PM	2 days and 22 hours and 49 minute(s)	Yes	708131
	CallVolume	10/1/2014 12:01 AM	10/6/2014 12:44 PM	5 days and 12 hours and 43 minute(s)	No	706605
	Heartbeat	9/3/2014 5:58 PM	9/3/2014 6:55 PM	56 minute(s)	No	699064

For each maintenance/configuration event that is present on the output, clicking the “pencil” icon provides a drill down into a particular issue, below is a sample of the AliFormat issue details:



SECTION 6 SERVICE/SUPPORT REQUIREMENTS

6.1 CUSTOMER SUPPORT SERVICES

The ongoing operation of the ANGEN system will require customer support services be provided as a component of any proposed solutions.

Respondents must agree to meet the current Service Level Agreements (SLA) being used in the ANGEN network operation and negotiate "in good faith" new SLA's that meet the expectations of the functionality described in this RFP and the Board.

Customer support services will be required at various levels including the Board, PSAPs, and other system service providers as necessary or designated by the Board.

Anticipated customer support services would include:

- Event management
- Incident management
- Diagnostics and reporting
- Problem resolution/trouble handling
- Network fault monitoring
- Request fulfillment
- Access management
- Remote diagnostics
- Environmental requirements
- Capacity management
- Change management
- Configuration management
- Transition management

Respondents shall provide a description of their proposed customer service support services.

COMPLY

Direct Technology is responding to Section 6.1 as it applies to the solution proposed for Section 5 – System Reporting and i3 Logging Requirements.

ECATS CUSTOMER SUPPORT SERVICES

The ongoing operation of ECaTS, Emergency Call Tracking System, being proposed for Section 5 – System Reporting and i3 Logging Requirements, will provide full customer support services for all aspects of the solution, specifically: MIS reporting and data collection. Direct Technology agrees to meet the current Service Level Agreements (SLA) being used in the ANGEN network operation and negotiate "in good faith" new SLA's that meet the expectations of the functionality described in this RFP and the Board.

In terms of reporting, Alabama Statewide 911 Board and PSAP Personnel will be assigned dedicated Client Communication Specialists, CCS, that are accessible for reporting support via the support email and/or phone. This support service can be used to manage reporting access. New account requests, password resets, account changes, etc. will be fulfilled by client support. ECaTS will provide customer support

services at various levels including the Board, PSAPs, and other system service providers as necessary or designated by the Board. The Client Communication Specialist Team is also available to help generate complex reports, by tapping directly into ECaTS Software Engineering, Statisticians and Data Analytics Groups. Should the Board or a PSAP have a specific data requirement not available in the system, the CCS can leverage ECaTS internal resources to either generate such report or train on how to use the ad-hoc features of the product to satisfy the reporting request. This type of unique customer service ensures that our clients can always leverage their 911 information to perform both standard and complex analytics, make decisions based on actual information, intelligence, trending and forecasting models.

In terms of system monitoring, any configuration or equipment upgrades may be addressed through the system monitoring support team. The system monitoring team is accessible for the purposes of network monitoring and data collection services. The system monitoring team also has the ability to perform remote diagnostics on our deployed on premise equipment. The monitoring group utilizes customized technology to ensure the health of all data collection devices and dispatches Field Engineering to replace data collection devices when they are malfunctioning. Intelligent software within the ECaTS cloud is in constant communication with our monitoring systems which generate alerts of different levels from warnings to error conditions. Depending on the error level, the monitoring engineers may dispatch Field Engineering to replace the data collection boxes, may perform remote diagnostics or may perform a remote software upgrade to address the error condition.

6.2 HELP DESK

Respondents shall provide help desk services as a component of their proposed solution.

The help desk(s) shall operate on a 24x7x365 basis and be adequately staffed by resources who are trained and qualified in help desk and customer support services.

The help desk shall serve as a single point of contact for all matters, including without limitation, the system, all components of the system, and any additional system service providers delivering services or components for the network ecosystem.

The help desk must not use an automated attendant or other automated means to answer calls for service or trouble.

The help desk must be accessible via various methods including voice, text, email, and other means as deemed appropriate by the Board.

The help desk shall have the ability to communicate directly and immediately with maintenance and support services for the proposed system and all components of the proposed system, including without limitation, network troubles.

Respondents shall describe and explain their proposed help desk services.

COMPLY WITH EXCEPTION

ECaTS HELP DESK

The single point of contact for any help desk related issues will be the ECaTS support desk. This can be reached via email, voice, and other means as deemed appropriate by the Alabama Statewide 911 Board. All help desk operators serve as a single point of contact for all components of the system. The help desk will be staffed by resources who are trained and qualified in help desk and customer support services during regular ECaTS business hours which are 6:00am – 5:00pm pacific time and automated help desk services available 24x7x365. Upon reaching the help desk, the caller will be directed to the proper team depending on the question, either Client Communication for reporting and access questions, or System Monitoring for network and data collection questions.

If fully manned and no automated support is desired by the Alabama Board, ECaTS can provide additional help desk services for an additional monthly service fee which would enable a fully maned 24x7 help desk and would eliminate the afterhours automated system.

6.3 TROUBLE HANDLING AND TICKETING REQUIREMENTS

Trouble handling and trouble ticket tracking services will be required.

To ensure that all trouble tickets are resolved in a timely manner, respondents shall propose an escalation guideline document that describes the escalation procedure.

The current ANGEN system utilizes the following procedures. Respondents may use this as a guide for their proposed system.

1. **Critical – Network outage**

- 1st Level Support – Within 15 minutes
- *Continuous problem resolution/workaround effort*
- 2nd Level Support – within 2 Hours
- 3rd Level Support – within 4 Hours or upon Customer request.

2. **Major – Service effecting**

- 1st Level Support – Within 15 minutes
- 2nd Level Support – Within 4 Hours
- 3rd Level Support – Within 24 Hours or upon Customer request.

3. **Minor – Non-service effecting**

- 1st Level Support – Within 30 minutes
- 2nd Level Support – Within 1 business day
- 3rd Level Support - Within 1 week or upon Customer request.

4. **Planned Maintenance/Informational** – Software update, configuration.

- 1st Level Support – Within 2 Hours
- 2nd Level Support – Within 5 Business days
- 3rd Level Support – Only upon Customer or Management request.

Following any critical event or major outage, the Board must receive a root cause analysis within five (5) business days.

Respondents shall provide a description of their root cause analysis process and what documentation is provided upon the conclusion of the analysis.

Respondents shall describe their trouble management and ticketing process.

Respondents shall provide details of how trouble tickets are generated, documented, resolved and reported.

COMPLY

TROUBLE TICKET MANAGEMENT DATABASE

The ECaTS system includes a fully functional trouble ticket management database for the Alabama 9-1-1 Board to track any outstanding issues with any PSAP. Tickets are automatically generated by ECaTS, providing detection and awareness of the issue. For example, ECaTS opens trouble tickets directly or indirectly with the CPE, Customer Premise Equipment, vendors immediately after finding an outage related to the CDR port of the CPE provided network. Included below is the ECaTS escalation guideline for the purpose of handling trouble tickets in a timely manner.

1. Critical – Network Outage
- ECaTS responds to all customer calls and concerns within 15 minutes of initial contact. ECaTS has internal processes in place to track work on continuous problems in a timely manner.
- ECaTS answers all 2nd level support questions and concerns within 2 hours of initial contact.
- ECaTS answers all 3rd level support questions and concerns within 4 hours of initial contact, or sooner, per a customer's request.

2. Major – Service effecting
- ECaTS responds to all customer calls and concerns within 15 minutes of initial contact.
- ECaTS responds to all 2nd level support calls within 4 hours of initial contact.
- ECaTS responds to all 3rd level support calls within 24 hours of initial contact, or sooner, per customer's request.

3. Minor – Non-service effecting
- ECaTS responds to 1st level support calls within 30 minutes of the initial contact.
- ECaTS responds to 2nd level support calls within 1 business day of initial contact.
- ECaTS responds to 3rd level support calls within 1 week of initial contact, or sooner, per customer request.

4. Planned Maintenance/Informational
- ECaTS responds to 1st level support calls within 2 hours of initial contact.
- ECaTS responds to 2nd level support calls within 5 business days of the initial contact.
- ECaTS responds to 3rd level support calls when customer or management requests them to do so.

ECaTS will supply a root cause analysis within 5 days of a major outage or event that occurs. This analysis will include documentation and data loss analysis to provide a conclusion of the analysis. ECaTS maintains their own ticketing management system in which the system monitor makes notes regarding outages and other major events. The Trouble Ticket Management System is built into the ECaTS portal and has the ability to store/track all trouble tickets associated to each of the one hundred and eighteen (118) PSAPs across the State of Alabama.

6.4 TRAINING

Respondents shall work cooperatively with the Board to ensure training programs are conducted for the proposed solution. Respondents shall provide training for the network operations and support functions including:

At the PSAP:

- Network Status Reports
- Help Desk
- Text to 9-1-1 operation
- Trouble Ticketing

At the AL9-1-1 Board

- Network Status Reports
- Help Desk
- Trouble Ticketing
- Root Cause Analysis and review

Respondents shall provide a proposed training plan and sample documentation and materials for the training detailed above.

COMPLY

TRAINING ONSITE

Direct Technology will provide one live in-person training session for the Alabama Statewide 911 Board. Live training for the PSAPs will be provided at a frequency of eight (8) regional full day sessions. The Alabama 911 Board will have the option of scheduling two (2) separate sessions per day at a minimum of four (4) hours per session, if needed. The final training schedule will be established in collaboration with the Alabama 911 Board's Project Manager during the project planning phase. Since a set of materials will also be posted on the ECaTS portal's main home page (as described below, ECaTS Training Manual), users will have the flexibility to view online materials first or in place of attending face-to-face training events. Additional face-to-face training will be provided at the rates detailed in the pricing.

ECATS WEBINAR TRAINING

ECaTS webinar training is always available at no additional cost and requires scheduling a training session with an ECaTS Client Communication Specialist. The webinar trainings provide our customers with ability to access training for the purposes of refresher training and employee turnover. ECaTS gives its users the ability to speak directly with a Client Communication Specialist to ensure they are receiving a full understanding of all functionality and report value. ECaTS provides general training covering all aspects

of the ECaTS portal. If a user would like to only focus on one feature of ECaTS, i.e. Ad-Hoc Tool, the webinar trainings are agile to fit the user's specific need.

ECATS TRAINING MANUAL

The training manual serves as a living document that describes how to use ECaTS from a PSAPs perspective. As ECaTS grows and customizations are developed, this document will encompass all attributes to creating, executing, analyzing, and saving reports. Users will have the ability to download a soft copy of this document directly from the ECaTS portal. Provided below is a breakdown of all areas and functionality covered through the on-site training and webinar trainings as well as in the training manual.

- v What is ECaTS?
- v How does it work?
- v Logging in
  - · Web-based Browser Capabilities
  - · Manage User Credentials
  - · Manage Password
- v Report Rendering
  - · Step 1: Select a report to run
  - · Step 2: Select a PSAP
  - · Step 3: Select a Date Range
  - · Step 4: Generate Report
- v Report Generation Interface
  - · User Interface Controls
    - Time Block (shift reporting)
    - Time Group (15, 30 and 60 minute intervals)
    - Period Group (day, week, month, quarter and annual reporting)
    - Abandoned filters
    - Call Type filters
    - Output Formats
    - Comparison filters
    - PSAP Size filters
    - Agency Affiliation filters
    - Inbound/Outbound filters
- v Standard Report Features
  - · Report Header Information
    - Demographic Information
    - Report Filters
- v Graphical Representation of Data
  - · Line Chart
  - · Bar Chart

- Pie Chart

v Reports

- Standard Reports Overview
  - Call Summary Report
  - Calls Per Hour Report
  - Top Busiest Hours Report
  - Average Call Duration Report
  - Calls by Circuit Report
  - Circuit Utilization Report
  - PSAP Answer Time Report
  - PSAP Call Taker Ring Time Report
  - Last 12 Months Answer Time Report
  - Last 12 Months Call Taker Ring Time Report
  - Class of Service Report
  - Call Transfer Report
  - Initial Station Total Calls
  - Calls per Hour by Day of Week
  - Top ESN Report
  - Top ANI Report
- Management Reports Overview
  - Trunk Group Utilization Report
  - Answer Time Exception Report
  - Call Taker Ring Time Exception Report
  - Outage Report
  - 10-Digit Emergency Call Report
  - Unparsed Call Data Report
- Wireless Routing Reports Overview
  - Wireless Call Sector Report
- Text-to-911 Reports Overview
  - Messages Per Hour (Received and Sent)
  - Messages Per Hour by Carrier
  - Messages by First SMS Responder
  - First SMS Responder Average Speed of Answer
  - Messages Per Session Profile
  - Operator Average Speed of Response
  - Operator Single Session Average Response
  - Average Session Duration
  - SMS Transcript
  - Top 20 Busiest Hours
  - Sessions from Same MDN

- Top 10 Text-to-911 by MDN and Session

v Day in Review

- Step1 - Select the “New Schedule” button
- Step 2 - Select a PSAP you would like to run the reports on
- Step 3 - Select the Day in Review report
- Step 4 – Click update to save your report

v Ad-Hoc Reports

- Ad-Hoc Home Page
- Standard Ad-Hoc Report Viewer
- How to run a Standard Ad-Hoc Report
  - Step 1: Select a name for your report
  - Step 2: Select a description for your report
  - Step 3: Select a date range
  - Step 4: Select a PSAP
  - Step 5: Choose your report filters
  - Step 6: Select output options
  - Step 7: Save report
  - Step 8: Generate report
  - Step 9: Optional - Share report
- Other operations:
- Delete a saved Ad-Hoc report
- Cancel changes to an Ad-Hoc report
- Standard Ad-Hoc functional specification – input level
- Advanced Report Viewer
  - How to run an Advanced Ad-Hoc Report
    - Step 1: Select a name for your report
    - Step 2: Select a description for your report
    - Step 3: Select a date range
    - Step 4: Select a PSAP
    - Step 5: Choose your Data Source and Available Fields
    - Step 6: Select output options
    - Step 7: Select report criteria
    - Step 8: Generate report
    - Step 9: Save report
    - Step 10: Optional - Share report
- Raw Data Viewer
- Downloaded or view in browser
- How to read raw data
- Locate call from Ad-hoc in raw data

- Help Desk/Email Support
- System Health
- How to read map and status
- Trouble Ticket Management System
- Scheduled Reports
- Day in Review email
- Management reports

6.5 MONITORING OF APPLICATIONS AND EQUIPMENT

Proposed solutions will require proactive monitoring of all system components for operation, performance and fault conditions.

The proposed solution shall ensure that all alarms including environmental status alarms are received and monitored in a Network Operations Center (NOC).

Respondents shall describe the tools, methods and procedures that will be used for monitoring.

Respondents shall include a matrix of components that will be proactively monitored, managed and administered.

COMPLY

Direct Technology is responding to Section 6.5 as it applies to the solution proposed for Section 5, System Reporting and i3 Logging Requirements.

Equipment/Subsystem	Monitoring Tool
ECaTS Servers	Microsoft System Center
ECaTS Network	Microsoft System Center
ECaTS Services	Microsoft System Center
ECaTS RDDM	System Health
ECaTS Call volume	System Health
ECaTS ALI Monitor	System Health
ECaTS CPE Connection	System Health
ECaTS Baud Rate	System Health

6.6 NETWORK OPERATIONS CENTER

The proposed solution requires the services of a Network Operations Center (NOC).

The NOC must operate on a 24x7x365 basis for the duration of the contract.

In addition, the NOC shall include the capability to perform remote maintenance and restoration of alarms as necessary.

The NOC shall be the single point that performs continuous monitoring, maintenance and network support services.

The NOC shall interface with the help desk.

The NOC shall be staffed with appropriate technical resources to aid trouble shooting, diagnosis and recovery from issues.

The NOC shall perform monitoring of the entire network, all connections and functional components used to provide ANGEN services.

The NOC shall be equipped with a Network Management System (NMS) that monitors the performance of the network and infrastructure.

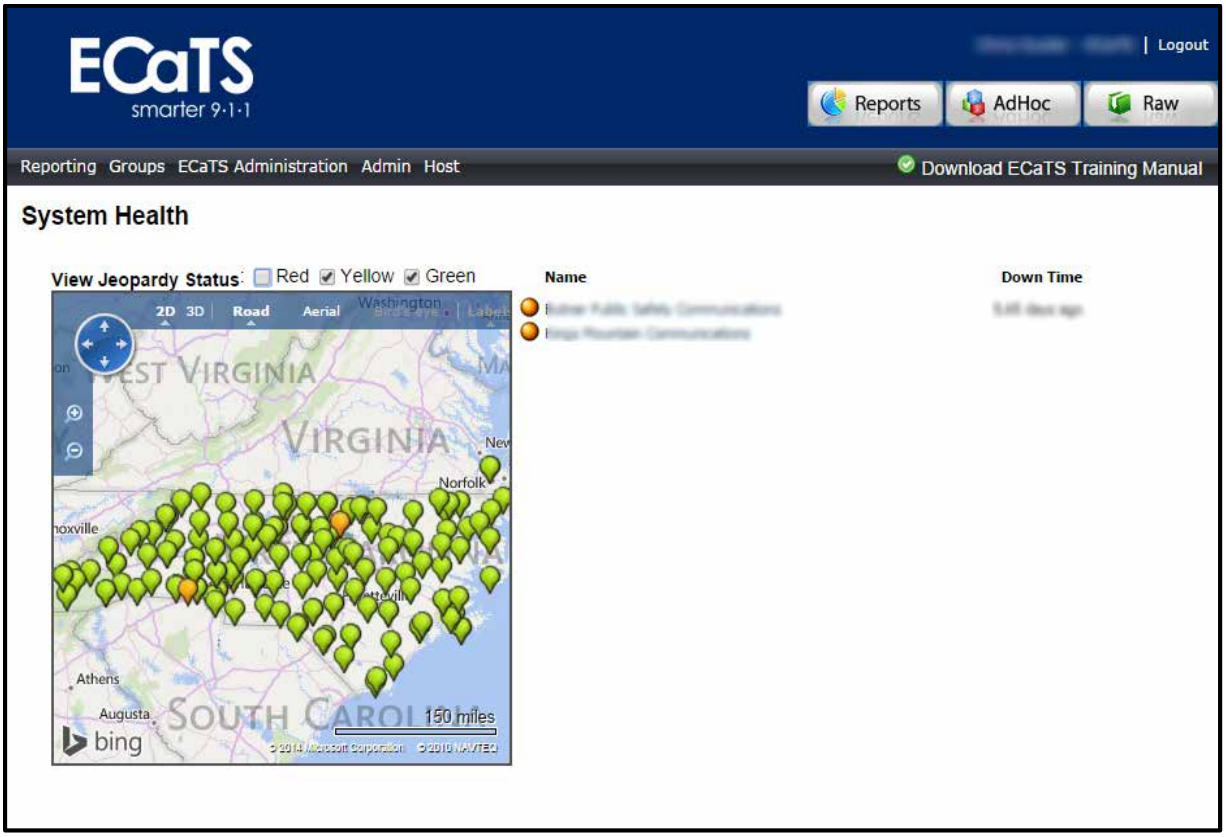
- The NMS shall continuously monitor the performance and availability of all devices
- The NMS shall monitor network performance, including throughput, latency, jitter, packet loss, and other parameters deemed necessary by the Board
- The NMS shall monitor the network for network intrusion attempts security breaches and be capable of issuing security alerts when an event is recognized
- The NMS shall create alarms based on thresholds and parameters and distribute alarm notifications appropriately
- The NMS shall monitor the environment at all data centers or points of presence where critical network components are housed to ensure functionality
- The NMS shall monitor ancillary network components such as power utilization and backup power systems

Respondents shall describe the capabilities of their proposed NOC, including the proposed NMS system and provide details regarding its operation and the ability of the NOC to interface with other providers and systems.

COMPLY

ECaTS uses Microsoft System Center as the NMS platform for the ECaTS system monitoring. System Center provides monitoring and notification of all critical ECaTS services, including but not limited to all software services, hardware subsystems, virtual machine health and status and drive array/storage health and status. System Center is the primary monitoring tool for the infrastructure and logical software layers. This monitoring is combined with the ECaTS System Health monitoring system which is another level of monitoring offered by ECaTS that is specifically targeted at the experience customers are receiving and the status of the data collection system. The ECaTS system health used a combination of manual and automated monitoring for each PSAP that the platform is reporting call statistics for. This system health provides an enterprise overview of the call activity of each PSAP indicating if there is a sudden drop in calls to the PSAP (Low Call Volume) , problems with the ALI (ALI Alert) or a change in the trunk profiles through the alerting of a Missing Line Profile (MLP) alert.

The screen below shows an example of the System Health monitoring for a statewide deployment:



6.7 ALARM CATEGORIES

The proposed solution shall provide categories of alarms by event types depending on the criticality of the event (i.e. critical, major, etc.).

The proposed system shall allow for the dynamic configuration of notification thresholds as well as the ability to define new alarm categories as necessary.

The system shall provide for the automatic notification of the NOC when alarm conditions are detected.

Different notification and escalation procedures may apply depending on alarm category.

Respondents shall describe how alarms are received and specify what types of alarms are available for viewing/receiving and how and when they are generated.

COMPLY

ECaTS alarms are received for both the System Center and the System Health monitoring systems. While system center is concerned with service and hardware monitoring with alarms related to disk space, CPU utilization, system temperature handled by System Center and those dealing with reporting and service

accuracy handled by System Health. What follows are the critical alarm categories in the System Health monitoring system (as these alarms will likely require coordination with the PSAP to resolve).

CRITICAL SYSTEM HEALTH ALARMS

1. Heartbeat Outage

Description: This category indicates we are not getting the hourly heart beat from the RDDM. This could be due to failure of the RDDM, network connectivity, or something unrelated to our equipment and beyond our control (i.e. power outage at site, local network issues, etc.)

Note: This outage starts yellow and turns red after a few hours.

Action: The PSAP is contacted to determine if there is a special circumstance that may be causing the issue, once that has been eliminated the work is escalated to ECaTS field engineers who may engage PSAP IT staff for additional triage. If needed, an ECaTS field engineer will be dispatched to resolve the issue.

2. Low Call Volume

Description: This outage alert is triggered when there is a lower than usual amount of 911 calls (note that admin calls are not considered for this outage) at the PSAP and configurable alert parameters have been exceeded. This alarm could be due to many things: a legitimate decline in 911 calls over the monitoring period, no data is coming from the CDR port of the CPE, there was a format change and the calls are no longer parsing, or our parsers were modified and it created issues with calls being parsed.

Action: During this alarm category, before a field engineer is dispatched to the site the following activities will take place:

1. An analysis of the parsers to ensure all data is being properly parsed
2. A call to the PSAP to determine if they are in a maintenance mode (alt answer) which could cause a reduction in call volume
3. Determine if the PSAP is associated with areas of lower volume due to time of year (ex: PSAPs for university during summer)
4. Remote management of the RDDM to ensure its operational and able to transmit payloads
5. Check of the network and VPN to ensure transmission.

IN the event the general triage is not successful resolving the low call volume alarm, an ECaTS field engineer will be dispatched to resolve the issue.

3. ALI Bid Failure

Description: The alert indicates an issue with the ALI (Automatic Location Identification). It could be that the calls are coming in without ALI; in which case the raw data may contain alerts such as: "DATABASE LINKS DOWN," "ALI LINKS DOWN," "NO ADDRESS DUE TO ANI FAILURE BTWN CNTL OFFICE AND PSAP," or something of that nature. Or if the calls do have ALI, it is not parsing for some reason.

Action: The PSAP is contacted to determine if there is a special circumstance that may be causing the issue, once that has been eliminated the work is escalated to ECaTS field engineers who may engage PSAP IT staff for additional triage. If needed, an ECaTS field engineer will be dispatched to resolve the issue.

The ALI Alarm is configurable by failed bid and can be set to X number of failures before the alarm is triggered, where X is a number of failed bids defined by the PSAP/State.

4. CPE Disconnect

Description: This outage alert is designed to occur when the RDDM becomes disconnected from the CPE (cable disconnect). It monitors the control leads for both the RDDM and CPE. This alarm category is usually an indication that data loss is occurring due to a disconnected cable.

Action: The PSAP is contacted to determine if the serial cable has been removed from either the CPE or the RDDM. If the cable has been removed a request to re-attach is made, in the event this cannot be done by the staff at the PSAP, ECaTS will dispatch a field engineer to reconnect the cable. During this alarm data is being lost unless the CPE is buffering it.

5. Invalid Baud Rate

Description: This alert occurs when the baud rate of the RDDM's serial port and that of the CPE don't match. If nothing has happened to the RDDM, the issue is likely coming from the CPE equipment (perhaps due to an auto negotiation). These alerts have been known to precede the CDR port stopping.

Action: The RDDM will be remotely logged into and baud rate will be adjusted to match the new rate of the CPE. In the event this is not able to be done remotely, ECaTS will dispatch a field engineer to work onsite to resolve the serial baud rate mismatch.

6.8 SCHEDULED MAINTENANCE

The proposed system requires a scheduled maintenance process.

The process must include a methodology for coordinating and scheduling preventative maintenance activities and how those events are executed.

During scheduled maintenance activities the network and system shall not experience a degradation or disruption.

However, individual components may be taken down for maintenance if an alternate route or redundant system is used to minimize the effect.

Respondents shall describe how their schedule maintenance process will work.

COMPLY

As a cloud based service, ECaTS maintenance happens seamlessly and behind the scenes. ECaTS uses a high availability architecture and is able to perform maintenance on one set of systems while the other set runs the service. Once one set of systems are updated, the secondary systems are then updated and this whole solution is considered maintenance complete.

In the event the maintenance requires a freeze of all data (ex: Database upgrade) then a maintenance window is requested of the customer and the ECaTS platform will display a maintenance message to the user base indicating to them the service is offline. Once maintenance is complete, the system is returned

to normal operation and any buffered data that was delayed will be loaded into the system and ready for reporting during the next hourly roll-up.

SECTION 7 ELECTRICAL, WIRING, AND CABLE REQUIREMENTS

7.1 ELECTRICAL

Successful respondents shall provide and maintain all electrical, wiring, and cable services necessary for their proposed system.

Successful respondents shall provide electrical services as follows:

- Supply and install where needed and otherwise maintain existing complete electrical power distribution system for all equipment supplied.
- Provide adequate surge protection, grounding and lightning suppression devices to protect equipment from unnecessary interruption.
- Provide and maintain a minimum level of thirty (30) minute uninterruptible power supply for all equipment supplied.

Respondents shall provide all necessary cabinets, tables, stands, or other required mounting facilities for their proposed system.

Respondents shall adhere to FCC and all local codes and ordinances in all matters pertaining to the work.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

7.2 ELECTRICAL INTERFERENCE

All devices proposed for the system shall be provided with any and all necessary connecting cords and cables conforming to National Electrical Manufacturers Association (NEMA) codes.

The system shall not cause interference to the existing radio, security, or closed circuit television communications systems, installed communications console equipment, or other data processing equipment present in the operational environment, and, in addition, shall comply with all applicable FCC standards as applied to data processing equipment.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

7.3 WIRING AND CABLING

All interface connections and visible cables shall use standard EIA connectors secured by wall plates where exposed.

All cables shall be clearly marked and/or numbered in a manner that reflects a unique identifier of the cable at both ends.

Any cables used shall be plenum rated where required by local building or fire codes.

Respondents shall ensure that all equipment is connected to emergency AC power and is configured to be supported by a UPS.

Cabling, communications outlets, power wiring, system grounding, conduit facilities, and equipment rooms shall be installed in accordance with national standards and applicable local codes.

Minimum standards used in the installations shall include, but are not limited to, the following:

- ANSI/TIA/EIA-568 - Commercial Building Telecommunications Wiring Standard
- ANSI/TIA/EIA-569 - Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA/EIA-606 - Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
- ANSI/TIA/EIA-607 - Commercial Building Grounding and Bonding Requirements for Telecommunications
- Building Industry Consulting Service International, Telecommunications Distribution Methods Manual
- National Electrical Code (NFPA-70)
- FCC Rules and Regulations, Parts 68 and 15

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

7.4 GROUNDING

The proposed system shall provide surge and lightning protection for all connections to AC power.

All hardware and peripheral devices shall be mechanically and electrically grounded to prevent both user hazard and loss of data or hardware integrity due to external electrical impulse.

Respondents shall ground all equipment in compliance with manufacturer recommendations and applicable standards.

Respondents shall furnish and install the required grounding and bonding conductors where necessary and complete the connections to the grounding system at all sites.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

7.5 TRANSIENT VOLTAGE SURGE SUPPRESSION

In addition to primary protection, secondary Transient Voltage Surge Suppression (TVSS) shall be installed with the proposed system where appropriate.

Respondents shall implement TVSS that meets the following criteria

- TVSS devices shall be installed on all equipped ports that are connected to; or may be connected to wireline or wireless facilities.
- The secondary TVSS devices shall be listed with a maximum clamping voltage of 250 volts (.5kV) or less and operate in less than 10 nanoseconds.
- All TVSS devices shall meet UL497A requirements and shall have an operational indicator to alert maintenance personnel that the device has been utilized, failed or that the circuit is unprotected.
- The secondary TVSS shall not degrade the audio signaling.

NON COMPLY

Not applicable (N/A). Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

SECTION 8 PROJECT MANAGEMENT AND PLANNING REQUIREMENTS

8.1 IMPLEMENTATION PROJECT PLAN

Respondents shall provide a project management plan that identifies the methodology for implementing their proposed solution. The implementation project management plan shall be consistent with Project Management Institute (PMI) best practices.

At a minimum the implementation project plan must include:

- Schedule.
- Change management plan.
- Configuration management plan.
- Communications plan.
- Quality Assurance and Quality Control plan.
- Risk management plan.
- Status report and dashboard tools.
- Proposed Site by site implementation/work plan

The Project Plan will be referred to on a regular basis during the implementation phase of the project to ensure that implementation is completed in a timely fashion.

Any changes to the schedule and work plan must be communicated to the Board through the proposed Change Management process.

The project plan shall clearly define the milestones and clearly identify when the transition from implementation into service management occurs.

COMPLY

Direct Technology is responding to Section 8.1 as it applies to the solution proposed for Section 5, System Reporting and i3 Logging Requirements.

SCHEDULE.

ECaTS has developed an aggressive deployment schedule that gets the system operational throughout the state within a 6-7 month period. In order to deliver at such a rapid pace, the following assumptions were made when creating the project plan:

1. Project kickoff occurs July 1st 2016
2. Project parameters, install sheets, orders etc. completed by October 9th
3. Installation begins October 10th
4. All PSAPs have resources on hand to assist with pre-deployment, system configuration, networking and actual deployment (ex: IT, CPE, Telco).
5. All installation worksheets for each PSAP are completed and turned in within the 7 day period, per schedule.
6. All data feeds from the CPE at each PSAP are active (i3, CDR, other).
7. Connectivity at each PSAP is available, either dedicated network or a shared connected (ex: ECaTS shares the connectivity with the PSAP)

The project plan below describes a deployment:

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Alabama Install Project**	**157 days**	**Mon 8/1/16**	**Thu 3/9/17**	
2		**Install Prep**	**50 days**	**Mon 8/1/16**	**Mon 10/10/16**	
3		IT Network Coordination	15 days	Mon 8/1/16	Fri 8/19/16	
4		Order RDDMs	30 days	Mon 8/1/16	Mon 9/12/16	
5		Installation Worksheets	30 days	Mon 8/1/16	Mon 9/12/16	
6		Schedule Coordination	5 days	Tue 9/13/16	Mon 9/19/16	5
7		Configure RDDMS and Ship	15 days	Tue 9/20/16	Mon 10/10/16	5,6,4
8		**RDDM Installation**	**90 days**	**Tue 10/11/16**	**Tue 2/14/17**	
9		PSAP 1, 2,3,4	3 days	Tue 10/11/16	Thu 10/13/16	2
10		PSAP 5,6,7,8	3 days	Fri 10/14/16	Tue 10/18/16	9
11		PSAP 9,10,11,12	3 days	Wed 10/19/1	Fri 10/21/16	10
12		PSAP 13, 14, 15, 16	3 days	Mon 10/24/1	Wed 10/26/16	11
13		PSAP 17, 18,19,20	3 days	Thu 10/27/16	Mon 10/31/16	12
14		PSAP 21,22,23,24	3 days	Tue 11/1/16	Thu 11/3/16	13
15		PSAP 25, 26,27,28	3 days	Fri 11/4/16	Tue 11/8/16	14
16		PSAP 29,30,31,32	3 days	Wed 11/9/16	Fri 11/11/16	15
17		PSAP 33,34,35,36	3 days	Mon 11/14/1	Wed 11/16/16	16
18		PSAP 37, 38,39,40	3 days	Thu 11/17/16	Mon 11/21/16	17
19		PSAP 41,42,43,44	3 days	Tue 11/22/16	Fri 11/25/16	18
20		PSAP 45,46,47,48	3 days	Mon 11/28/1	Wed 11/30/16	19
21		PSAP 49,50,51,52	3 days	Thu 12/1/16	Mon 12/5/16	20
22		PSAP 53,54,55,56	3 days	Tue 12/6/16	Thu 12/8/16	21
23		PSAP 57,58,59,60	3 days	Fri 12/9/16	Tue 12/13/16	22
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
24		PSAP 60,61,62,63	3 days	Wed 12/14/1	Fri 12/16/16	23
25		PSAP 64,65,66,67	3 days	Mon 12/19/1	Wed 12/21/16	24
26		PSAP 68,69,70,71	3 days	Thu 12/22/16	Mon 12/26/16	25
27		PSAP 72,73,74,75	3 days	Tue 12/27/16	Thu 12/29/16	26
28		PSAP 76,77,78,79	3 days	Fri 12/30/16	Tue 1/3/17	27
29		PSAP 80,81,82,83	3 days	Wed 1/4/17	Fri 1/6/17	28
30		PSAP 84,85,86,87	3 days	Mon 1/9/17	Wed 1/11/17	29
31		PSAP 88, 89,90, 91	3 days	Thu 1/12/17	Mon 1/16/17	30
32		PSAP 92,93,94,95	3 days	Tue 1/17/17	Thu 1/19/17	31
33		PSAP 96,97,98,99	3 days	Fri 1/20/17	Tue 1/24/17	32
34		PSAP 100,101,102,103	3 days	Wed 1/25/17	Fri 1/27/17	33
35		PSAP 104,105,106,107	3 days	Mon 1/30/17	Wed 2/1/17	34
36		PSAP 108,109,110,111	3 days	Thu 2/2/17	Mon 2/6/17	35
37		PSAP 112,113,114,115	3 days	Tue 2/7/17	Thu 2/9/17	36
38		PSAP 116,117,118	3 days	Fri 2/10/17	Tue 2/14/17	37
39		**System Acceptance**	**89 days**	**Fri 10/14/16**	**Thu 2/16/17**	
40		PSAP 1, 2,3,4	2 days	Fri 10/14/16	Mon 10/17/16	9
41		PSAP 5,6,7,8	2 days	Wed 10/19/1	Thu 10/20/16	10
42		PSAP 9,10,11,12	2 days	Mon 10/24/1	Tue 10/25/16	11
43		PSAP 13, 14, 15, 16	2 days	Thu 10/27/16	Fri 10/28/16	12
44		PSAP 17, 18,19,20	2 days	Tue 11/1/16	Wed 11/2/16	13
45		PSAP 21,22,23,24	2 days	Fri 11/4/16	Mon 11/7/16	14
46		PSAP 25, 26,27,28	2 days	Wed 11/9/16	Thu 11/10/16	15

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
47		PSAP 29,30,31,32	2 days	Mon 11/14/1	Tue 11/15/16	16
48		PSAP 33,34,35,36	2 days	Thu 11/17/16	Fri 11/18/16	17
49		PSAP 37, 38,39,40	2 days	Tue 11/22/16	Wed 11/23/16	18
50		PSAP 41,42,43,44	2 days	Mon 11/28/1	Tue 11/29/16	19
51		PSAP 45,46,47,48	2 days	Thu 12/1/16	Fri 12/2/16	20
52		PSAP 49,50,51,52	2 days	Tue 12/6/16	Wed 12/7/16	21
53		PSAP 53,54,55,56	2 days	Fri 12/9/16	Mon 12/12/16	22
54		PSAP 57,58,59,60	2 days	Wed 12/14/1	Thu 12/15/16	23
55		PSAP 60,61,62,63	2 days	Mon 12/19/1	Tue 12/20/16	24
56		PSAP 64,65,66,67	2 days	Thu 12/22/16	Fri 12/23/16	25
57		PSAP 68,69,70,71	2 days	Tue 12/27/16	Wed 12/28/16	26
58		PSAP 72,73,74,75	2 days	Fri 12/30/16	Mon 1/2/17	27
59		PSAP 76,77,78,79	2 days	Wed 1/4/17	Thu 1/5/17	28
60		PSAP 80,81,82,83	2 days	Mon 1/9/17	Tue 1/10/17	29
61		PSAP 84,85,86,87	2 days	Thu 1/12/17	Fri 1/13/17	30
62		PSAP 88, 89,90, 91	2 days	Tue 1/17/17	Wed 1/18/17	31
63		PSAP 92,93,94,95	2 days	Fri 1/20/17	Mon 1/23/17	32
64		PSAP 96,97,98,99	2 days	Wed 1/25/17	Thu 1/26/17	33
65		PSAP 100,101,102,103	2 days	Mon 1/30/17	Tue 1/31/17	34
66		PSAP 104,105,106,107	2 days	Thu 2/2/17	Fri 2/3/17	35
67		PSAP 108,109,110,111	2 days	Tue 2/7/17	Wed 2/8/17	36
68		PSAP 112,113,114,115	2 days	Fri 2/10/17	Mon 2/13/17	37
69		PSAP 116,117,118	2 days	Wed 2/15/17	Thu 2/16/17	38
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
70		**Training**	**15 days**	**Fri 2/17/17**	**Thu 3/9/17**	
71		PSAP 1, 2,3,4,5,6,7,8	1 day	Fri 2/17/17	Fri 2/17/17	39
72		PSAP 9,10,11,12,13,14,15,16	1 day	Mon 2/20/17	Mon 2/20/17	71
73		PSAP 17,18,19,20,21,22,23,24	1 day	Tue 2/21/17	Tue 2/21/17	72
74		PSAP 25,26,27,28,29,30,31,32	1 day	Wed 2/22/17	Wed 2/22/17	73
75		PSAP 33,34,35,36,37,38,39,40	1 day	Thu 2/23/17	Thu 2/23/17	74
76		PSAP 41,42,43,44,45,46,47,48	1 day	Fri 2/24/17	Fri 2/24/17	75
77		PSAP 49,50,51,52,53,54,55,56	1 day	Mon 2/27/17	Mon 2/27/17	76
78		PSAP 57,58,59,60,61,62,63,64	1 day	Tue 2/28/17	Tue 2/28/17	77
79		PSAP 65,66,67,68,69,70,71,72	1 day	Wed 3/1/17	Wed 3/1/17	78
80		PSAP 73,74,75,76,77,78,79,80	1 day	Thu 3/2/17	Thu 3/2/17	79
81		PSAP 81,82,83,84,85,86,87,88	1 day	Fri 3/3/17	Fri 3/3/17	80
82		PSAP 89,90,91,92,93,94,95,96	1 day	Mon 3/6/17	Mon 3/6/17	81
83		PSAP 97,98,99,100,101,102,103,104	1 day	Tue 3/7/17	Tue 3/7/17	82
84		PSAP 105,106,107,108,109,110,111,1	1 day	Wed 3/8/17	Wed 3/8/17	83
85		PSAP 113,114,115,116,117,118	1 day	Thu 3/9/17	Thu 3/9/17	84

CHANGE MANAGEMENT PLAN.

Deployment and Installation Change Management Process:

The Remote Data Distribution Modules (RDDM's) are customized for the particular PSAP equipment the device will connect to. In addition, ECaTS pre-configures portals and CDR/ALI parsers for the equipment that should be at the PSAP and where needed creates parser updates in anticipation of the install. The preparation work that is done for install is to ensure a fast and smooth deployment with systems configured before any work is done to ensure the process is efficient. This initial configuration of parsers and the RDDM is part of the deployment process and requires no special action.

In the event that the equipment at the PSAP changes either during the deployment process (once engineers are schedule to install) or after the RDDM has been installed a change order will be required to update the RDDM configuration and the CDR/ALI parsing software to support the new equipment. All change requests of this nature are fixed cost (or no cost) and include all necessary activities to ensure proper ECaTS operation in the event of the change. What follows are the types of change requests that would be encounter during the deployment phase of the project and the process necessary to implement the change.

Equipment Change <u>During</u> Installation
In the event the PSAP equipment changes (ex: from Viper to Sentinel) and ECaTS has not yet deployed the RDDM the change process occurs as follows:

1. Submit a Before Installation Equipment Change request form
2. Sign the Change request form and send to the ECaTS Project Manager
3. ECaTS will process the change request and return a change request number which can be used for tracking.
4. Once the change has been made and passed ECaTS QA a counter signature for acceptance will be done to close out the change request as delivered.

Equipment Change <u>After</u> Installation
In the event the PSAP equipment changes (ex: from Viper to Sentinel) and ECaTS has deployed the RDDM the change process occurs as follows:

1. Submit an After Installation Equipment Change request form
2. Sign the Change request form and send to the ECaTS Project Manager
3. ECaTS will process the change request and return a change request number which can be used for tracking.
4. Once the change has been made and passed ECaTS QA a counter signature for acceptance will be done to close out the change request as delivered.

Architecture Change <u>Before</u> Installation
In the event the PSAP architecture changes (ex: standalone to remote or geo-diverse) and ECaTS has not yet deployed the RDDM the change process occurs as follows:

1. Submit a Before Installation Architectural Change request form
2. Sign the Change request form and send to the ECaTS Project Manager
3. ECaTS will process the change request and return a change request number which can be used for tracking.
4. Once the change has been made and passed ECaTS QA a counter signature for acceptance will be done to close out the change request as delivered.

Architecture Change <u>After</u> Installation
In the event the PSAP equipment changes (ex: standalone to remote or geo-diverse) and ECaTS has deployed the RDDM the change process occurs as follows:

1. Submit an After Installation Architecture Change request form
2. Sign the Change request form and send to the ECaTS Project Manager
3. ECaTS will process the change request and return a change request number which can be used for tracking.
4. Once the change has been made and passed ECaTS QA a counter signature for acceptance will be done to close out the change request as delivered.

POST CLOSEOUT CHANGE REQUEST FORM

When a PSAP replaces equipment or migrates to a hosted environment after all systems have been installed a change order is required as this is outside the ECaTS maintenance agreement, and the current agreement does not cover these activities. Please note that only when new equipment is installed or new hosted sites are brought up costs will be incurred, software maintenance and upgrades of the existing equipment is covered under the standard ECaTS maintenance agreement and does not incur any additional charges. The costs are fixed depending on the activity that is taking place, and the cost of the hardware is included in the fixed amount.

New Equipment Upgrade

When new hardware is installed at a PSAP that already has an ECaTS RDDM present the same activities that occurred during initial deployment are repeated for the new equipment. This includes the following:

1. Ensuring the CDR port on the new CPE is active
2. Connecting the RDDM to the new CPE's CDR feed
3. Creating new Line Profiles for the new equipment
4. System Acceptance of the new profiles through manual report validation (compare the RAW data to the report)
5. Delivery of the updated data and merging with the data from the previous equipment

Existing Site to a New Hosted Deployment

As vendors continue to release more and more capable equipment, more and more PSAPs are consolidating in to a hosted and/or remote configurations (sometimes both). When a PSAP moves from standard to a hosted environment, such that one or two primary locations will host all call activity for multiple PSAPs, the ECaTS RDDM required for this must also be upgraded and put into a fault tolerant hot-hot failover configuration to ensure uninterrupted collection and delivery of the call data. In addition to the new/additional hardware required to support a hosted deployment the same activities that occurred for a hardware upgrade also occur for a new hosted deployment with the following additions:

1. If dial-up connectivity is used, another dial-up line needs to be added to the site
2. Profile and Validation activity must occur for EACH PSAP in the host
3. ECaTS configuration needs to be updated to support the dual RDDM's at the PSAP
4. Multiple PSAP instances must be created for each host, and separate entries in the ECaTS system need to be made to support those hosted PSAPs.

Adding New Hosts to an Existing Hosted Deployment

In the event a new PSAP is added to a host that is already configured with the ECaTS system, the activities associated with this are the same as those required for a hardware upgrade (though no additional hardware is needed), specifically these actives include:

1. Establishing a new instance of the PSAP and combining the old data with the instance
2. Creating new Line Profiles for the PSAP based on the host data
3. System Acceptance of the new profiles through manual report validation (compare the RAW data to the report)
4. Delivery of the updated data and merging with the data from the previous equipment

Brand New PSAP Deployment (Single Site)

When a new PSAP is added, the deployment is similar to the process for adding a new host to an existing hosted deployment. A new RDDM will be procured and this will be installed at the site, the steps for the deployment are as follows:

1. Establish connectivity at the site with one Measured-rate Business phone line (1MB)
2. Order new RDDM and configure for new site
3. Create new line profiles for the PSAP based on the data collected by new RDDM
4. System Acceptance for the new profile through manual report validation
5. Delivery of new PSAP reports to the PSAP
6. Training the PSAP to use ECaTS

Brand New PSAP Deployment (Hosted Site)

When creating a new hosted PSAP each site where the hosted data resides must utilize redundant RDDM's that are certified for hosted sites. The process for installing these systems are similar to the upgrade to a hosted site process with the addition of the connectivity provisioning to enable the RDDM to transmit data to the ECaTS data center.

1. If dial-up connectivity is used, another dial-up line needs to be added to the site
2. Order new RDDM's and configure for each host site (2 RDDM's per site)
3. Establish new portal instance for each hosted site in the new hosted deployment
4. Profile lines for each PSAP in the host
5. System Acceptance for each PSAP in the host
6. Delivery of new reports to each hosted PSAP
7. Train each PSAP in the host how to use the ECaTS system

Implementation and Deployment Change Request Form:

ECaTS provides two Change Request Forms, one for changes during deployment and rollout and one for after deployment and rollout. Those forms are provided below:

Implementation and Deployment Change Request Form

Name of Person Making Request	

Date of Request	
PSAP Name	
PSAP Address	
PSAP Contact	
Description of the Change (include additional information on the back if necessary)	

Change Request Type/Cost (It is be possible to have both equipment and architecture changes in the same request)	**Before Install**
	☐ Equipment Change
	☐ Architecture Change
	After Install
	☐ Equipment Change
	☐ Architecture Change

For ECaTS Use Only

Date Request Received	
Date Request Processed	
Date Request Passed QA	
Date Request Implemented	

Change Order Acceptance

Accepted by ECaTS	Accepted by Alabama 911 Board

Change Management Form for General Changes
The following form is used for changes after closeout.
PROJECT CHANGE REQUEST FORM

Project Name:	AL-NG911
Prepared by:	
Date:	
Control No:	

1. Requestor Information				
Area of Change:				
Scope	**[ ]**		Schedule	**[ ]**

1. Requestor Information				
Budget	[ ]		Quality	[ ]

Is this Change the result of a Risk Management Action?				
No	[ ]	**Yes**	[ ]	

Proposed Change Description and References:	
Description:	**Current Use Case:** **Enhancement Use Case**
Justification:	

2. Initial Review Results of the Change Request			
Initial Review Date:		**Assigned to:**	
Action		Comments	
Approve for Impact Analysis	[ ]		
Reject	[ ]		
Defer Until	[ ]		
Express Approval	[ ]		

3. Initial Impact Analysis			
Configuration Items Affected (e.g. product specifications):			
Impact on Cost:			
Impact on Schedule:			
Impact on Resources:			
Impact on System:			
Risk associated with implementing the change:			
Risk associated with not implementing the change:			
Final Review Results:			
Review Date:			
Priority:	**High [ ]**	**Medium [ ]**	**Low [ ]**

4. Impact Analysis Results			
Specific Requirements Definition:			
Additional Resource Requirements:	*Work Hours*	*Rate*	*Cost*
Dev		$180.00	
QA		$160.00	
System Analyst		$140.00	
PM, BA and IT Support (to promote)		$180.00	
Totals			

Impact of Not Implementing the Change:	
Alternatives to the Proposed Change:	

5. Final Recommendation
This section contains a final write up with recommendations

6. Project Change Request Form / Signatures	
Project Name:	AL-NG911
Project Manager:	

I have reviewed the information contained in this Project Change Request Form *and agree:*

Name	*Title*	*Signature*	*Date*

The signatures above indicate an understanding of the purpose and content of this document by those signing it. By signing this document, they agree to this as the formal Project Change Request Form.

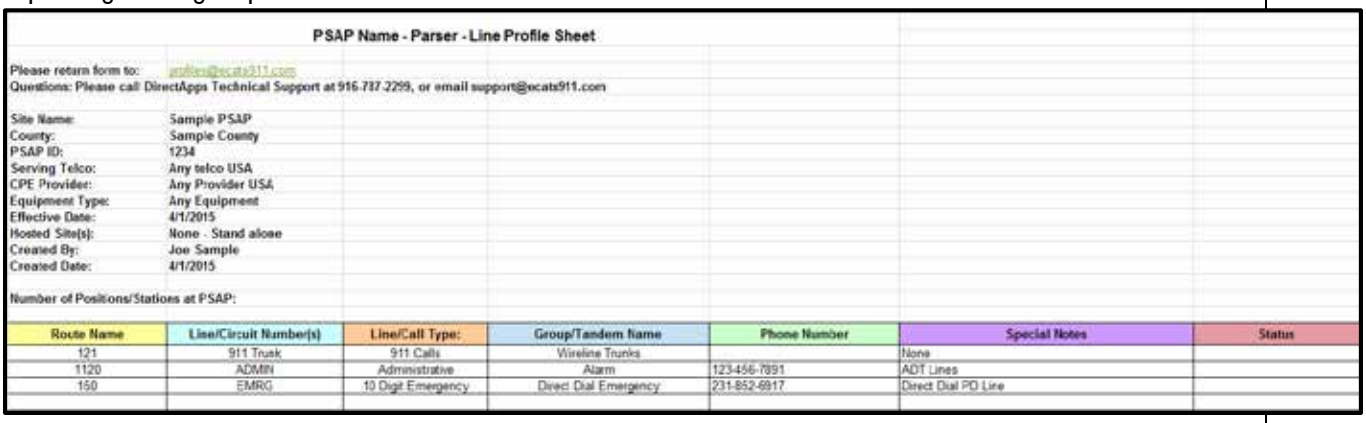
CONFIGURATION MANAGEMENT PLAN

Configuration management for every ECaTS deployment is managed by the Client Communication Specialist (CCS) assigned to the PSAP and involves coordinating configuration of the platform for reporting. Configuration in ECaTS consists of assigning users to the portal and the PSAPs they have assigned for reporting. Identifying any functional restrictions for any users and working with the PSAP and service provider to complete the Line Profile Worksheet for reporting all call types. Configuration management is tightly linked with the risk management as any change in configuration after implementation could present a risk. To accommodate configuration changes and mitigate any risk ECaTS requires various documents to be filled out and sent to the assigned CCS where they will coordinate the configuration

changes needed in the system to ensure they are made with risk mitigation on the forefront to prevent any unnecessary delays in project roll-out or ongoing reporting.

Line Profile Worksheet:

The worksheet below is used to classify each incoming line to a PSAP and to assign its call type and reporting trunk group.



PSAP Name - Parser - Line Profile Sheet

Please return form to: profiles@ecats911.com
Questions: Please call DirectApps Technical Support at 916.787.2299, or email support@ecats911.com

Site Name:	Sample PSAP
County:	Sample County
PSAP ID:	1234
Serving Telco:	Any telco USA
CPE Provider:	Any Provider USA
Equipment Type:	Any Equipment
Effective Date:	4/1/2015
Hosted Site(s):	None - Stand alone
Created By:	Joe Sample
Created Date:	4/1/2015

Number of Positions/Stations at PSAP:

Route Name	Line/Circuit Number(s)	Line/Call Type:	Group/Tandem Name	Phone Number	Special Notes	Status
121	911 Trunk	911 Calls	Wireline Trunks		None	
1120	ADMIN	Administrative	Alarm	123-456-7891	ADT Lines	
150	EMRG	10 Digit Emergency	Direct Dial Emergency	231-852-6917	Direct Dial PD Line	

User Request Form:

The user request form is used to assign PSAP reporting access as well as system functionality to a user. The CCS will assign the user and roles after confirming with the project sponsor that the requested access is valid.

	User Account List	Alabama Statewide						
PSAP FCC ID	PSAP	Name	Email	Phone Number	Roll	Date Created	Notes	Created By
12345	Big Police Department	Joe User	juser@example.com	123-456-7890	PSAP Manager	4/1/2016		Jordan Elliston

COMMUNICATIONS PLAN.

ECaTS has developed a Communication Matrix outlining the various communication paths guiding successful product implementation. This matrix is represented in the following table:

Type	Objective	Medium	Frequency	Audience	Chairperson	Deliverable
Kickoff	Introductions, review objectives, establish com. Plan	Face to face	Once	AE and ECaTS delivery team	Project Manager	Agenda, Minutes
PSAP Deployment	Determine network connectivity, CDR activity and schedule install of RDDM	Conference calls	As needed	PSAP IT and CPE team	Project Coordinator	PSAP Inventory Worksheet, VPN (if used), Install Date
System Acceptance	Validate reports match RAW data	Conference Call	As needed	System Analysts and PSAP Telco	Analyst Manager	Line profile sheet, completed reports.

Type	Objective	Medium	Frequency	Audience	Chairperson	Deliverable
Project Team	Review status with project team	ECaTS Face to face	Bi-Weekly	Project Team	Project Manager	Plan updates
Project Status	Report status, milestones and progress	Face to face or conference call	Weekly	Client, Project Team	Project Manager	Project Status report

Meetings requiring staff in both California and Alabama will utilize Lync Meetings or Join.me which allows people in both sites to view a common computer display and share voice communication.

QUALITY ASSURANCE AND QUALITY CONTROL PLAN.

Quality Assurance/Control is provided through the use to multiple testing types and cycles both during and after the deployment of the ECATS system. What follow sis a description of the types of testing and processes that are used to ensure quality in both delivery and reporting (system acceptance).

SCOPE

Module	**Notes**
Data flow to dedicated Database	Raw data
Call Data perfection (CDR, ALI)	Data format is readable for our parsers
Data Base Tables population	Data flows to correct fields in the data base
Roll ups	Data presented for reports correctly
Reports	Reports are accurate
Services (email generation, etc.)	Services are running
Security/ Roles	User permissions
Profiles	911, Admin call types identified
System performance	Acceptable
User volume	Expected number of users can use system simultaneously

TEST TYPES

1. Unit testing (done by developers)
2. Functional testing
3. Stress testing
4. Load testing
5. System testing
6. Security testing
7. Regression testing
8. User acceptance testing

Brief Description:

1. Unit Testing

The developers test their module to check if individual units of source code are fit for use. A unit is the smallest testable part of an application. In procedural programming a unit may be an individual function or procedure. Unit tests are typically written and run by software developers to ensure that code meets

its design and behaves as intended. Its implementation can vary from being very manual (pencil and paper) to being formalized as part of build automation.

2. Functional Testing

This test will confirm that all the functionalities mentioned in the requirement document are working correctly as designed. From the tester's perspective, this test will be carried out from Unit Testing all the way to production.

3. Stress Testing

This test demonstrates stability of the system. It is conducted to evaluate a system beyond the limits of its specified requirements to determine the load under which it fails and how. Often this is performance testing using a very high level of simulated load. Also acceptable data parameters for example invalid date ranges, etc.

4. Load Testing

Load testing will be carried out by putting a server, computer, network or application to work level approaching the limits of its specifications.

5. System Testing

Whole functionality of the system will be tested based on Test cases written based on System Requirements.

6. Security Testing

Secure access, password and session security.

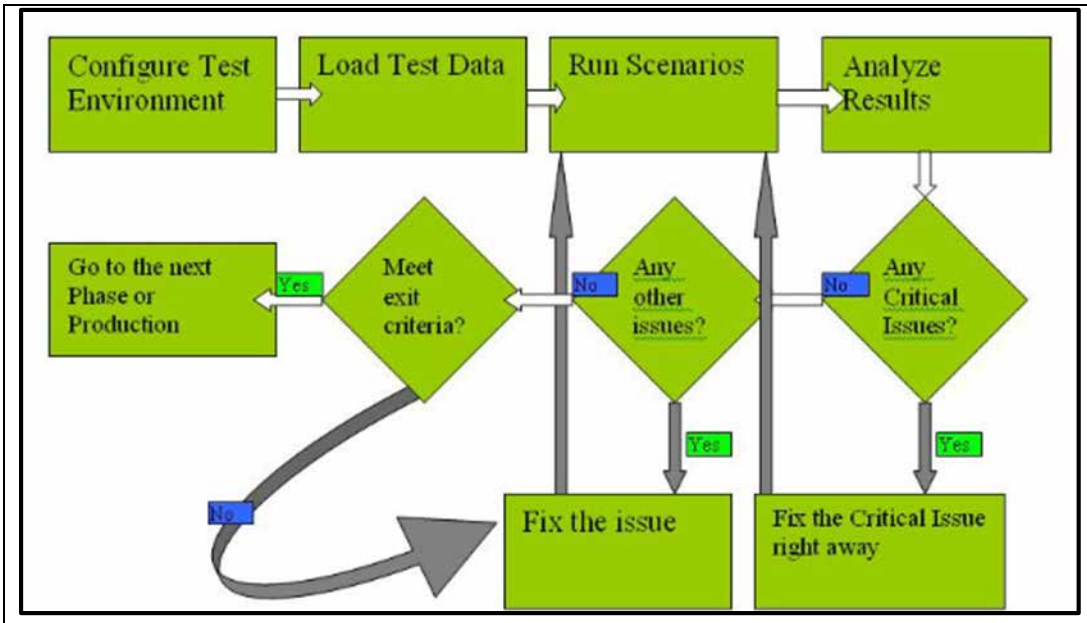
7. Regression Testing

Regression is executed throughout system testing period and before each production release. This test makes sure bug fixes didn't cause unexpected issues.

8. User Acceptance Testing

After in house system, functional, regression, stress, etc. testing passed and no showstoppers found, software can be promoted to UAT environment for User Acceptance testing. The UAT site will be on production hardware and will have all the security features of standard production environment. Performance will be identical to production. It will also contain copy of production data. Note, current incoming data is not available at this environment.

TEST PROCESS FLOW



COMPLETION CRITERIA FOR TESTING

A critical aspect of monitoring the progress and acceptance of the end result of Testing will be a clear understanding and agreement on completion criteria. One key aspect of this is the successful identification and resolution of issues/bugs. Issues/bugs are categorized as follows:

- Critical - Causes system to crash or does not support critical function requirements. There is no acceptable work- around. Unable to execute common use case. Data incorrectly presented to the end user.
- High - Causes significant system degradation. Use case can be completed with difficulty.
- Medium - Causes moderate system degradation or work around to support functional requirement. Use case can be completed with moderate to minor impact to expected process.
- Low - Causes minor system degradation or minor work around. Use case can be completed with minor to no impact to business process.

COMPLETION CRITERIA FOR SYSTEM TESTING

- Each test case executed successfully
- Automation tests passed
- Load tests passed
- Regression tests passed
- No critical, high or medium issues left.
- Security and Roles established and tested.

Test tools

Test complete - automation framework
General Manual Testing – over 300 pages of ECaTS test plans are executed before deployment.
Load UI Web – load testing
TFS – bug tracking system

SYSTEM ACCEPTANCE

The system acceptance plan and process is used to ensure 100% accurate reporting once data collection and parsing has been validated using the process descried above.

ECaTS System Acceptance Procedure

Overview

The purpose of the ECaTS PSAP system acceptance (SA) process is to validate that the PSAP profile that has been loaded into ECaTS is accurate and that the ECaTS business rules are correct in providing the various ECaTS reports.

The PSAP profile is a listing of all the trunks and station IDs that have been identified for each PSAP. It includes a listing of each of the names of 9-1-1 trunks and of the 10-digit administrative lines that ECaTS will report on for each PSAP.

Call Detail Records (CDR) for calls on 9-1-1 trunks usually include ANI (Automatic Number Identifier – a.k.a. the telephone number) and ALI (Automatic Location Identifier) data. Examples of 9-1-1 call records are provided on Exhibit A.

9-1-1 CDR elements tracked by ECaTS:

ANI	Callers telephone number. Sometimes this number will be the pseudo ANI ("pANI") assigned to a wireless call.
Trunk Seizure Time	the time stamp that describes the specific time that a call arrives at a PSAP
Trunk Name	The name of the trunk that the call is received on
Ring Start Time	The time that the call starts to ring (audibly or visually) at the PSAP.
Answer Position	The station that answers the call at the PSAP
Answer Time	The time that the call is answered
Various Call Events	Information such as on-hold, off-hold, and transfer
Hang Up Time	The time the PSAP call taker hangs up
Trunk Release Time	The time that the trunk is disconnected
ALI String: ANI	The callers telephone number. In the case of wireless calls where a pANI was provided in the ANI string, the actual callers callback number is provide.
Class of Service	A four-character name that describes the type of telephone that the call was placed on (i.e. RESD, PBXb, BUSN, WPH1, WPH2, VOIP)
All other information is inconsequential for ECaTS purposes	

10-digit administrative lines ("10-Digit Admin") include a number of different titles: EMERG POTS, PBX, POTS, SHRD PBX, SHRD PRIV, and other custom names. Typically, 10-digit lines are broken into two categories: "10-Digit Emergency" and "10-Digit Admin" as defined by the PSAP Manager. CDR strings for 10-digit calls include significantly less information than 9-1-1 call records. Examples of 10-digit admin call records are provided on Exhibit B.

SYSTEM ACCEPTANCE PROCESS

[The System Acceptance (SA) process is tracked on Team Foundation Server (TFS).]

The SA process is a tedious and monotonous exercise at first, but efficiencies can be developed over time. It involves printing specific reports for a specific day and then analyzing the raw data to be sure that each report reflects the information provided in the raw data file.

Step 1:

- Print the PSAP Call Summary report for the past or current month.
- Select a day that is not the first or last day of the month and has some abandoned calls. Pick a day with at least fifty 9-1-1 calls so there is a good sampling of data. If there are no days with at least 50 9-1-1 calls, pick the day with the highest number of 9-1-1 calls during the current or past month.

Step 2:

- Print the following reports for the selected day:

o Calls By Circuit
o Calls Per Hour
o Class of Service
o Initial Station Total Calls (Not for Utah)
o PSAP Answer Times

Step 3:

- Retrieve the Raw Data from ECaTS system for the selected day and paste into a word document and save the document with the PSAP name and date of the raw data (example: Fresno PD 091411). The reason it is pasted into a MS Word document is so that various counts can be made using the "Advanced Find" functionality.

O Using the "Advance Find" function (far left of the "Home" tab bar under "Find") and the "Find In" tab, "Main Document", search for the word "Outbound" and highlight the results with a bright color
o Using the same process, highlight any types of page breaks, page header or page footer information that reoccurs throughout the document with the same color.
o Search the entire document and delete all of the outbound records, page breaks, headers and footers so you have one continuous list of all the incoming calls and user log-on/log off information if available.
o Save this document with the PSAP name, date of the raw data and the word "Modified" in the title. Example: "Fresno PD 091411 Modified".

Step 4: Calls by Circuit Report Validation

The next step is to compare each of the reports listed above with to the raw data for the selected day. Effectively, this process is an attempt to manually validate that all of the elements on each report are accurate. Information that cannot be confirmed as correct must be reported to the development staff to

resolve. Hint: Most differences are a result of the manual verification process rather than the ECaTS reports so all differences need to be double and triple checked.

The following is what is verified for each report:

Calls By Circuit Report – This report lists each circuit (9-1-1 trunks and 10-digit lines) many calls were delivered to each circuit. [Note: The terms "circuit", "trunk" and "line" are interchangeable, but for the purpose of this discussion, "trunk" is used to describe 9-1-1 circuits and "line" is used to describe 10-digit circuits. "Circuits" refers to all trunks and lines.]

This report is verified by counting the number of calls for each circuit in the raw data. It is also a way to identify any circuits that may be in the raw data but haven't been counted by ECaTS – which happens when the ECaTS trunk profile doesn't include all the trunks.

Validation steps:

1. Highlight (with a bright color – red works well) the names of all the circuits in the raw data.
2. Next do a search for each circuit name with circuit number included (like "TRUNK #151", "PBX #1", or " 02 "). The Advanced Find function will provide a count of each search that should match the count provided on the ECaTS report. Highlight all findings with a different color than what was used to find all the circuit types (green works good). Keep track of those that match the ECaTS count and those that don't.
3. After counting all 9-1-1 calls scan for red highlighted items left over and troubleshoot. Check if the date matches with the date you have chosen. If you are missing 911 calls look thru the raw data from the previous day and the following day. We have found calls reported two days after the fact.
4. Make sure the calls you leave on this document are only calls that count.
5. Date and Initial the hard copy of the ECaTS Report and save.

Calls Per Hour Report – This report lists the 9-1-1 calls that were received each hour. It provides information about all the calls that came in as well as the number of abandoned calls. An abandoned call is defined as a call where the caller hangs up before the call is answered by the PSAP call taker.

This is verified by identifying the trunk seizure time stamp on each call and counting the number of calls in the raw data for each hour.

Validation Steps:

1. Search, highlight and count the trunk seizure time stamps for each hourly period and compare the results with the Calls per Hour Report.
2. Abandoned calls are verified by searching (highlighting the "ABAN" or "Abandoned" or "A01" for Positron Std) and verifying that the quantity matches the hour that is on the report. Typically, this is a manual count (1, 2, 3 …) for each hour.
3. Keep track of any discrepancies identified to include in your report to the development team.

TIP: If you find extra ones make sure they don't belong to the previous day by looking and the date the call happened.

Class of Service Report - This report lists the number of calls received for each class of service. This is verified by counting the number of 9-1-1 calls for each class of service in the raw data.

Validation Steps:

1. Search, highlight and count each class type on the Class of Service Report - dark gray works well for this. Example of class of services: BUSN, RESD, VOIP, WPH1, WPH2. "NONE" indicates records that contain no class of service indicator, including "No ALI Information Available" and "NO RECORD FOUND".
2. Each record should only be counted once. Quite often the count will be higher than the count on the ECaTS report. This is due to the fact that the four-character code for each class may appear more than once in the call record. In order to validate the count, you will review each record to identify where the class code appears more than once in a record. Highlight the additional class of service codes found on the same record with light gray and keep track of the extras so you can adjust the count for comparison purposes.
3. Compare the count of each class of service found on your document with the count on the report and report discrepancies to the development team.

Initial Station Total Calls Report – This report lists the number of calls received each hour by each answering position. (Utah does not utilize this report.) The reason it is called "Initial Station" is that a call may be transferred from one station to another during the call. The report is intended to reflect the first station that answers the call.

The initial station is verified by searching the raw data for the answering position that first answers the call. The initial station is indicated differently for each system – see examples in Exhibits A and B.

Validation Steps:

1. Search, highlight and count each work station number that answers each call.
2. Compare the count of each initial station per hour and report discrepancies to the development team.

PSAP Answer Time Report – This report shows the number of calls that were answered within various time categories (0-10 seconds, 11-20 seconds, 21-60 seconds, 61-120 seconds and 120+ seconds). This is verified by looking at each 9-1-1 call and calculating the difference between the ring time and the answer time. Since the logic for this measurement is the same for all PSAPs, this verification needs to be done only once for each type of CPE for each state.

Validation Steps:

1. This validation process is different from the others in that the answer time for each record must be done manually. You need to calculate the time duration (in seconds) between the trunk seizure time and the answer time. Note: for California, ECaTS deducts 2 seconds from each calculation so that a call that is answered in 12 seconds is recorded as being answered in 10 seconds.

2. Since we are only doing this validation once for each CPE system in each state, all calls for the day chosen should be verified.
3. It has been found to be helpful to enter the number of seconds for the answer time duration at the far right of the first row of each call record and then highlighting each number based on the time category. That way you can count the colors for each hour to compare with the report.
4. Report any identified discrepancies to the development team.

RISK MANAGEMENT PLAN.

RISK MATRIX SUMMARY

The table below is represents the overall risk matrix summary for all risks identified in the project, detailed mitigation for each risk can be found in the corresponding section in the remainder of this document.

Section	Risk(s)
Business Analysis and Project Planning	1. Project does not start on 4/1/2015 2. PSAP deployment schedule is not accepted by 4/1/2015
Network Analysis and Design Phase	1. Not all PSAPs provide their revised inventory worksheet 2. PSAPs are not able to provide networking information 3. ECaTS is not able to procure the hardware in time for installation 4. ECaTS is not able to get an appropriate count of modems (if needed) in time for installation.
Provisioning Phase	1. PSAP does not have internet access via a Wide Area Network connection 2. PSAP wants a Virtual Private Network (VPN) for shared network deployment 3. PSAP wants to establish connectivity via MPLS integration 4. PSAP distance to a circuit results in very slow DSL speeds 5. PSAP does not have an available port on their network switch for the RDDM
Network Preparation Phase	1. RDDM's are not configured in time for shipment 2. RDDM unit arrives DOA from manufacturer and cannot be configured.
RDDM Shipment	1. RDDM is damaged during shipping 2. RDDMs do not arrive at the correct location.
Portal Configuration	1. Critical information is missing to configure the Portal 2. Trunk information was not 3. No FCC ID can be found for a particular PSAP 4. PSAP does not know ALI format/provider priori to installation
Network Deployment	1. Arrive at site to discover no connectivity. 2. PSAP cannot get a technician to work with ECaTS on the date of installation. 3. Problems with the Customer Premise Equipment (CPE) 4. Problems with network connectivity to the PSAP 5. Appointment takes longer than expected at a PSAP

	6. Confusion over appointment time, CPE tech has urgent matter to take care of, etc.
PSAP Acceptance	1. Existing Call Detail Record (CDR) parsers are not able to parse out the data 2. Existing ALI parsers are not able to parse the ALI data 3. PSAPs do not like the way the lines are profiled and grouped 4. CPE does not output certain data needed for a report (ex: no operator data for operator reporting) 5. Acceptance process is taking too long. 6. PSAPS will not accept even though reports and data are matching 1 to 1.
Training Preparation	1. Syllabus is not ready in time for training 2. Conflicts with the PSAP training schedule
Training	1. No projector is available for the training 2. No on-site internet connectivity for the training. 3. Not all participants show up
Portal Customizations	1. Customer chooses not to pursue the customizations at this time. 2. Customer is unable to provide customization input due to not having the ECaTS system 3. Customization requests exceed the included 40 hours 4. Customization request requires additional data elements 5. Business Requirement Document (BRD) needs change
Software Configuration Phase	1. Software engineer turn over 2. Requirement for data to create enhancement 3. Long Quality Assurance (QA) cycle

PLANNING AND DESIGN RISKS

Description:

The planning and design portion of the project involves the upfront activities necessary to successfully deploy the ECaTS system

Business Analysis and Project Planning

This section of the project plan involves the creation of the project schedules. There are two schedules that will be created, the project deployment schedule which includes all aspects of the deployment and the PSAP deployment schedule which covers the planning for installation of the data collection devices at each PSAP.

Risk(s):

1. Project Schedule does not get completed by 4/1/2015

   · **To mitigate:** Necessary weekend work and additional overtime will need to be done by all requisite ECaTS team members in order to ensure prompt delivery of the final project schedule.

2. PSAP deployment schedule does not get completed by 4/1/2015

- **To mitigate:** Similar to the project schedule, appropriate ECaTS staff will be required to work weekends and overtime in order to complete a PSAP deployment schedule that enables complete deployment of all RDDM's within a 30 business day period.

Execution and Build

Description:

The execution and build phase of the project involves the establishment of network connectivity at each PSAP for the RDDM to utilize, the build out of the RDDM units at ECaTS headquarters, and the shipping of the units to the field.

Network Analysis and Design Risks

Description:

The network analysis and design phase of the project is concerned with the PSAP inventory and hardware procurement.

Risk(s)

1. Not all PSAPs provide their revised inventory worksheet

- **To mitigate:** ECaTS will follow up with the PSAPs that are not providing the input and will work with them to obtain the information necessary to successfully profile their PSAP.
- **To mitigate:** Alabama 9-1-1 Board can compel the PSAPs to provide this information by setting a hard due date and holding the PSAPs accountable to that date for providing the information to ECaTS.
- **To mitigate:** ECaTS can do an onsite assessment during install, and provide the revisions during the installation at the PSAP.

2. PSAPs are not able to provide networking information

- **To mitigate:** ECaTS will have our network engineering group work directly with the PSAP to assist in the identification of worksheet information (ex: switch to connect to, type of external access, etc.)

3. ECaTS is not able to procure the hardware in time for installation

- **To mitigate:** ECaTS will procure hardware in batches and will schedule each batch to arrive at the time the batch is set to be configured and shipped. By staggering out the shipments, proper time is provided to the vendors to overcome inventory shortfalls.
- **To mitigate:** ECaTS has multiple vendors that hardware can be sourced from, and will utilize the additional vendor(s) to ensure equipment is ready and available when needed.
- **To mitigate:** ECaTS can have its vendors drop ship the hardware to the staging destination, ensuring the hardware is present for install when the field engineer arrives.
- **To mitigate:** ECaTS utilizes common components for the RDDM units, if needed, these components can be procured from regional computer stores (ex: Fry's electronics, Best Buy, etc.) and hardware assembled in-house at ECaTS HQ.

4. ECaTS is not able to get an appropriate count of modems (if needed) in time for installation.

- **To mitigate:** ECaTS uses standard US Robotics 56k v92 external modems that can be procured from an electronics outlet store, if needed these modems will be procured during installation from local retail outlets.
- **To mitigate:** ECaTS can order the modem devices from an online vendor (ex: Amazon, New Egg, etc.) and next day drop ship the modem to the appropriate PSAP in time for installation.

Provisioning Risks
Description:
The network provisioning phase of the project is to establish connectivity at each PSAP using either a shared network (LAN-WAN), dedicated high speed secondary circuit (ex: DSL) or establishing a plain old telephone system (POTS) connection for using a modem for data up linking. The goal of this phase is to isolate connectivity at each PSAP so during installation there is a method for the RDDM unit to transmit its data to the ECaTS data center.

Risk(s):

1. PSAP does not have internet access via a Wide Area Network connection
   - **To mitigate:** ECaTS will require the use of a POTS connection using a modem to transmit data to the ECaTS data center.
2. PSAP wants a Virtual Private Network (VPN) for shared network deployment
   - **To mitigate:** ECaTS is able to offer multiple methods of VPN connectivity and will work with the PSAP IT personnel to establish the type that works for the PSAP.
   - **To mitigate:** If the PSAP requires a custom VPN client, ECaTS will need the VPN software from the PSAP, and will configure and install it to ensure connectivity.
3. PSAP wants to establish connectivity via MPLS integration
   - **To mitigate:** The PSAP will be provided with a rate fee for the use of an MPLS circuit to the ECaTS data center. As provisioning is the responsibility of the PSAP, ECaTS can facilitate an MPLS circuit, but any costs will be incurred by the PSAP.
   - **To mitigate:** Sometimes the idea of an MPLS integration is better than the actual need, ECaTS will work with the PSAP networking group to be sure the MPLS integration is really what is desired, making sure to help the PSAP understand the additional costs they could incur from this.
4. PSAP distance to a circuit results in very slow DSL speeds
   - **To mitigate:** The ECaTS RDDM is a low bandwidth device, provided the DSL line is active with a static IP, a minimum of at least 5.6k would be needed to ensure proper data transmission and remote maintenance of the RDDM, provided this minimum bandwidth is available, the DSL circuit will be satisfactory.
   - **To mitigate:** In the event the DSL line is shared, the PSAP may need to procure an additional line to ensure non interruption of existing system on an already degraded DSL connection
5. PSAP does not have an available port on their network switch for the RDDM

- **To mitigate:** The PSAP will need to expand the switch if its modular to ensure there is an available network port when installation occurs.
- **To mitigate:** The PSAP may need to purchase an upgraded switch with more ports to accommodate the additional connectivity required of the RDDM (minimum is one Ethernet connection)
- **To mitigate:** ECaTS can provide an unmanaged 8 port gigabit switch which can be used to extend the availed number of switch plugs by 6 (one will be used to uplink to the switch and the other will be used to reconnect the device that was disconnected from the primary switch in order to uplink the switch to it).

Network Preparation Risks
Description:
The network preparation phase involves the configuration of the RDDM's which will be installed at each PSAP. Depending on the type of provision established at the PSAP, the RDDM will be configured to utilize the appropriate uplink and will be configured for data collection for the PSAP the RDDM is to be installed in.

Risks(s)
1. RDDM's are not configured in time for shipment

- **To mitigate:** RDDM's can be configured in the field based on what is present at the PSAP.
- **To mitigate:** Change the shipping type for the RDDM group from ground shipping to next day air. Current ground shipping is 5-7 business days, and by using a next day shipping method, additional time can be used for RDDM configuration.
- **To mitigate:** Delay the shipment of the RDDM group until all the machines are configured, thereby potentially pushing out the schedule, though current scheduling of RDDM delivery is at least 14 days before any scheduled install.

2. RDDM unit arrives DOA from manufacturer and cannot be configured.

- **To mitigate:** ECaTS will procure additional RDDM units for the install which can be used to replace any DOA unit.
- **To mitigate:** ECaTS engineers will identify the failed component in the RDDM and either order to pick up from a local vendor the required equipment which as failed.

RDDM Shipment Risks
Description:
The RDDM shipment phase is just that, the shipment of the RDDM's to a staging PSAP where the ECaTS field engineer will be able to replenish install inventory and continue on with the install. The idea with the shipping phase is to have equipment on site and ready for pickup as the ECaTS installation engineer makes their way along the install route planned for them.

Risk(s)
1. RDDM is damaged during shipping

- **To mitigate:** With each staging shipment, additional RDDM units will be included to avoid a potential delay from a unit that is damaged during shipment.
- **To mitigate:** The field engineer can diagnose the failed component and will procure the replacement part from a local vendor.

2. RDDM's do not arrive at the correct location

- **To mitigate:** When ECaTS is informed that the RDDM group has been delivered, ECaTS will follow-up with the PSAP to ensure the delivery occurred at the correct location, and will work with the shipping company to re-route in the event the confirmation results in no units being present at the site.
- **To mitigate:** The RDDM units are shipped at least 14 days before they are needed for installation, in the event of a misrouted shipment there will be sufficient time for ECaTS to coordinate with the delivery vendor to pick up and redeliver the units to the correct address.
- **To mitigate:** ECaTS can arrange for delivery signature with a specific individual, if the shipment is misrouted, this individual would not be present to receive the equipment and ECaTS would work with the shipping company to resolve the delivery issue.

Implementation

Description:

The implementation phase of the project involves the actual deployment of the ECaTS remote data distribution module (RDDM) into each PSAP, the connecting of the device to the customer premise equipment (CPE) to gather CDR data, the uplink of the RDDM to the network in order to transmit its data back to the ECaTS data center, and finally the parsing and storage of the data in order to create reports.

Portal Configuration Risks

Description:

Portal configuration involves the establishment of an instance for the PSAP in the portal, configuration of the equipment profile, establishing contacts and addresses and setting the correct ALI and Data parsers for the data that will be received from the PSAP the RDDM is to be installed in.

Risk(s)

1. Critical information is missing to configure the Portal

- **To mitigate:** ECaTS will enter 'place holder' data in the system to accommodate the missing data, thereby allowing for the creation of the PSAP instance in the portal.

2. Trunk information was not obtained

- **To mitigate:** Create a blank profile of the correct equipment type in the ECaTS system and allow the auto-profiler to complete the profiling process as the system begins parsing data received from the field.
- **To mitigate:** Attempt to gather the trunk information during the installation process and have the ECaTS field engineer relay this information to the analyst team before connecting the RDDM to the network uplink (for sending data to ECaTS datacenter). This is known as 'on-site profiling'.

3.	No FCC ID can be found for a particular PSAP
	· **To mitigate:** ECaTS will create a pseudo FCC ID to uniquely identify the PSAP, the ID number will be entered into the PSAP profile and will be used only to represent the PSAP until/when the actual FCC ID can be located
4.	PSAP does not know ALI format/provider priori to installation
	· **To mitigate:** ECaTS analysts will review a sample of the data as sent by a Field Engineer during install and will establish at that time the appropriate ALI parser to use for the data

Network Deployment Risks

Description:

The network deployment phase is the actual physical installation of the RDDM at the respective PSAP and establishment of the data feeds from the equipment and transmission of the collected data to the ECaTS data center where the data can be extracted and loaded into the appropriate PSAP portal instance.

Risk(s)

1.	Arrive at site to discover no connectivity.
	· **To mitigate:** Connectivity will be established to the site before installation, in the case where a modem is going to be used, the telephone line and phone number should already be established before install. · **To mitigate:** ECaTS can connect the RDDM to the CPE to begin the data collection process, the device is able to buffer at least a year of data, thus the data can start being collected and a follow up discussion between the PSAP network technician and the ECaTS network technician can be had to resolve the connectivity problems at a later date.
2.	PSAP cannot get a technician to work with ECaTS on the date of installation
	· **To mitigate:** the install schedule will be published ahead of time to allow for rescheduling at PSAPs where a CPE tech will not be available to be present for the initial install date. · **To mitigate:** ECaTS can still attempt the installation, based on the assumption that the equipment was configured during the provisioning phase of the project. · **To mitigate:** The installation time can be rescheduled to occur after the initial team has completed their install. A sweeper team will be following the primary group and can be scheduled to revisit this PSAP when a technician is available. · **To mitigate:** Project sponsor can use its centralized influence to compel the PSAPs to ensure there are technicians available during installation.
3.	Problems with the Customer Premise Equipment (CPE)
	· **To mitigate:** All installations must include the appropriate technician for the CPE on site. This technician will be the main point of contact to resolve issues with the equipment. ECaTS needs to be made aware of the technician and their contact information for the installation in order to coordinate installation times.

- **To mitigate:** A support ticket may need to be opened with the vendor in order to resolve the issue, if this is necessary and a delay occurs, the PSAP will need to be rescheduled for install after the equipment issue has been resolved.
- **To mitigate:** ECaTS will still deploy the RDDM, establish connectivity with the data center, and leave all cables connected to the RDDM which need to be connected to the CPE. When the issue is resolved, the onsite PSAP technician will only need to connect the cables to the CDR port and the installation will be complete. ECaTS can work remotely with the technician to ensure data is flowing.

4. Problems with network connectivity to the PSAP

- **To mitigate:** In addition to an equipment technician the PSAP should have a network technician available, ideally the same person involved in the provisioning phase, to work directly with ECaTS network engineers to resolve the problem when found.
- **To mitigate:** ECaTS can connect the RDDM to the CPE to begin the data collection process, the device is able to buffer at least a year of data, thus the data can start being collected and a follow up discussion between the PSAP network technician and the ECaTS network technician can be had to resolve the connectivity problems at a later date.

5. Appointment takes longer than expected at a PSAP

- **To mitigate:** ECaTS Project Coordinator and/or ECaTS Field Engineer will reach out to contacts at next site to ensure they are still available, if it is found the contacts are not present the PSAP will be skipped and a new installation time will be set.
- **To mitigate:** Ensure that all CPE is outputting the correct data from the port and have all technicians (equipment and network) present at the PSAP for the install to prevent any unexpected delay.
- **To mitigate:** Reschedule the installs remaining for that day, to prevent full schedule slippage and have the sweeper team follow up with the missed PSAP.

6. Confusion over appointment time, CPE tech has urgent matter to take care of, etc.

- **To mitigate:** ECaTS Field Engineer will call contacts an hour ahead of time to ensure meeting time still works for everyone. Field Engineer will be flexible to accommodate the CPE tech when necessary.
- **To mitigate:** If the ECaTS engineer is able to access the PSAP, proceed with the installation, even in the absence of any tech, ,a sweeper team can be scheduled to visit that site at a later date if there is an issue discovered.
- **To mitigate:** If the schedule allows, the field engineer could wait if asked and once the urgent matter/confusion is alleviated proceed with the install.

PSAP Acceptance Risks

Description:

The PSAP acceptance phase of is the portion of the installation where the ECaTS analysts perform system acceptance, and then hand off to the Client Communication Specialist team to work with the PSAP contacts to review the accuracy of the reporting. Once the PSAP has been shown how the reports align

with the RAW data, and agree with the accuracy of the reporting against the data obtained, the PSAP acceptance phase is done. This process repeats for all PSAPs in the scope of the project.

Risk(s):

1. Existing Call Detail Record (CDR) parsers are not able to parse out the data
   - **To mitigate:** The ECaTS engineering team will need to update or create a new CDR parser to accommodate the data that is not able to be parsed.
2. Existing ALI parsers are not able to parse the ALI data
   - **To mitigate:** The ECaTS engineering team will need to update or create a new ALI parser to accommodate the ALI data that cannot be parsed.
3. PSAPs do not like the way the lines are profiled and grouped
   - **To mitigate:** The ECaTS Client Communication Specialist team will work with the PSAP to establish different grouping and naming for the line profile of their PSAP. While some data cannot be changed (ROUTE/LINE NUMBERS are fixed), the goal is to create more logical groupings for the PSAP.
   - **To mitigate:** If PSAPs have specific line types they want to report against (ex: wireless vs. wireline), the profile can be updated to establish discrete call types to ensure a more granular reporting.
4. CPE does not output certain data needed for a report (ex: no operator data for operator reporting)
   - **To mitigate:** If the option is available, recommend a change order for additional integration within the PSAP (ex: ECaTS+ license from Intrado for Viper sites) and schedule the installation.
   - **To mitigate:** The report which will not populate properly can be hidden from the view of that PSAP to prevent any kind of confusion on the part of the PSAP users (ex: seeing a report that always returns no results)
5. Acceptance process is taking too long.
   - **To mitigate:** ECaTS will add additional analysts and Client Communication Specialist resources to ensure the schedule does not slip due to a longer than anticipated acceptance phase.
6. PSAPS will not accept even though reports and data are matching 1:1
   - **To mitigate:** Alabama 9-1-1 Board, Project Sponsor, will need to facilitate the acceptance if the data and reports are matching. If ECaTS numbers do not match a legacy MIS system this could be due to many factors, and acceptance must be based on the accuracy for the ECaTS reporting against the data ECaTS has available.

Closeout

Description:

The closeout phase of the project involves the scheduling and training of the user base to properly use the ECaTS system in order to report against the activity in their PSAP. The closeout phase of the project involves the creation of the testing materials as well as the scheduling of the testing for the PSAP.

Training Preparation Risks

The training preparation phase involves the creation of the final syllabus and the scheduling of the training events for all PSAPs.

Risk(s)

1. Syllabus is not ready in time for training
   - **To mitigate:** The training materials will be prepared at least a month before the training is scheduled to begin
2. Conflicts with the PSAP training schedule
   - **To mitigate:** Schedule the training for that PSAP to occur during another PSAP's training time.
   - **To mitigate:** Schedule a web based training for the PSAP that cannot attend.
   - **To mitigate:** Customer can schedule one of their trainers to train the PSAP, as ECaTS is providing 'train-the-trainer' type training to enable the customer to onboard users to the system.

Training Risks

The training phase is the actual on-site training of the PSAP personnel who will be using the ECaTS system. The purpose of this phase is to introduce the final end user group to the application, train them on how to use the reporting system and provide them with contacts to the Client Communication Specialist team. This is the final phase of closeout and when complete, the user base will be ECaTS ready.

Risk(s):

1. No projector is available for the training
   - **To mitigate:** The ECaTS training will have their own projector to use in the event there is none on site for the training.
2. No on-site internet connectivity for the training.
   - **To mitigate:** ECaTS trainers will come equipped with mobile Internet connectivity enabling them to provide training without depending on site connectivity.
3. Not all participants show up
   - **To mitigate:** ECaTS will take a role call at each training and for those individuals that did not make the training a follow up Webinar will be provided to them.
   - **To mitigate:** The individuals that miss the training can join a different training session if available.

Customizations

Description:

The customization phase of the project occurs after closeout and does not have a direct impact on overall project schedule. This phase involves the implementation of customized features and reporting into the ECaTS platform. This phase of the project is inclusive of the contract term and includes up to 40 hours of complimentary enhancement work. This phase of the project is best done up to two months after closeout as it provides the best opportunity to gather requirements for customization and helps offset the risk of phase scope creep.

Portal Customization Risks

This section of the project involves the planning and preparation for ECaTS portal customizations. In order to complete portal customizations a Joint application design (JAD) session will be held with key stakeholders to understand the desired customizations and a subsequent Business Resource Document (BRD) will be created outlining the customizations desired.

Risk(s):

1. Client chooses not to pursue the customizations at this time.
   - **To mitigate:** While this is not a risk per-se as skipping this option does not put the project plan at risk; however, if this step is skipped it must remain off the schedule till final project closeout before being taken up again, this ensures the schedule would be met that does not include this task at this time.
2. Client is unable to provide customization input due to not having the ECaTS system
   - **To mitigate:** ECaTS recognizes the challenge in trying to customize a system that has not yet been used. To overcome this, a series of webinars and demo presentations can be scheduled before the customization JAD session to ensure everyone knows the standard system features before engaging in a customization discussion.
3. Customization requests exceed the included 40 hours
   - **To mitigate:** Any customizations that are chosen which exceed the forty (40) hours of included customizations will be priced based on the level of effort and the contractually agreed upon development rate. The customizations will then be priced and the Alabama 9-1-1 Board will be able to purchase the additional customizations.
4. Customization request requires additional data elements
   - **To mitigate:** In the event a customization request requires additional data from a PSAP, (ex: integrating with a CS-1000 or other PBX) ECaTS will work with the PSAP and the equipment provider to determine an integration path in order to obtain the data.
     - In the event the data cannot be obtained, the risk cannot be mitigated and the required customization may not be available
5. Business Requirement Document (BRD) needs changes
   - **To mitigate:** Part of any design process is the back and forth that occurs during the refinement of the requirements. ECaTS will version control the BRD to ensure all changes made over time are documented and known, thereby showing the path that was taken to get from one aspect of the BRD to another.

Software Configuration Risks

The software configuration phase of planning and design involves the actual coding and development of the functionality described in the BRD. During this phase of the project ECaTS software engineers will be implementing the customizations outlined by the BRD.

Risk(s):

1. Software engineer turn over

- **To mitigate:** In the event an assigned engineer to the enhancements departs ECaTS, appropriate knowledge transfer will be done to another engineer to ensure limited if any impact to the schedule.
- **To mitigate:** ECaTS will be doubling up engineering resources on this project to ensure appropriate cross training between engineering staff in the event of staff turnover.

2. Requirement for data to create enhancement

- **To mitigate:** Postpone delivery of the enhancement till after Close Out, thereby enabling ECaTS to utilize the RDDM fields units to obtain the data needed to create the enhancement.
- **To mitigate:** Alabama 9-1-1 Board, Project Sponsor, may need to obtain sample data from appropriate systems and send to ECaTS in order to create the enhancement, many systems enable a data extraction and this may be needed to overcome a development challenge which requires the use of that data.

3. Long Quality Assurance (QA) cycle

- **To mitigate:** Assign additional QA and Engineering resources to the enhancement that is causing the long cycle.
- **To mitigate:** Break the enhancement up into even more silo's and enabled expert resources to work against their silo vs. having one or two engineers work the entire enhancement.

Software Acceptance Risks

The software acceptance phase is that part of customization deliver where the stakeholders will have the opportunity to experience and test the enhancement. This is also known as Beta testing and it is expected that software issues may be identified and changes may be requested based on how the users experience the enhancement.

Risk(s):

1. UAT system has substandard performance

- **To mitigate:** ECaTS uses a cloud based architecture and can scale up the UAT system to an acceptable level of performance in the event of an architectural slow down.
- **To mitigate:** The ECaTS code base will be examined to ensure there is no unusual issue with the migration between QA and UAT environments. If an issue is identified appropriate resolution will be made.

2. Required data is not available

- **To mitigate:** Where possible, simulated data will be loaded in place of the actual system data. While this still poses a risk to the final system, functionality can still be tested and passed. During subsequent iterations of the software (after deployment), live data can be used to further validate and test.
- **To mitigate:** If the required data is scheduled to be available (RDDM install), expedite that installation to overcome the risk of using simulated data. Appropriate rescheduling of the PSAP may be required and the UAT schedule adjusted accordingly. Functional testing and acceptance is still possible using the simulated data identified in a.

- **To mitigate:** Postpone the deployment of the enhancement to those PSAPs where data is required but not yet obtained. This will enable deployment to those PSAPs which can utilize the enhancement having passed simulated data usage and functional testing.

3. User(s) are unable to do testing when scheduled

- **To mitigate:** Those users that are unable to test during the testing period will be contacted by ECaTS to determine an appropriate time to review the enhancement via a Webinar. During the webinar the user(s) will be presented with all functional aspects of the enhancement and walked through and abridged test which covers functional aspects of the enhancement. This will provide the user with the ability to provide input while maintaining the deployment schedule through a chaperoned testing phase.
- **To mitigate**: If the user is unable to participate in the webinar for the acceptance phase, ECaTS will escalate to the project sponsor for permission to extend the testing schedule.

4. User(s) find functional issues

- **To mitigate:** When a user discovers a deviation from the BRD the user should contact the Client Communication Specialist (CCS) either via email of phone to report the issue. ECaTS will triage the issue, and where appropriate, issue a support ticket to resolve any problem with the software.
- **To mitigate:** The user has access to the standard ECaTS support phone (888-725-8099) or support email (support@ecats911.com) and can also report any issue through those channels.

5. User(s) want to change or update functionality

- **To mitigate:** The acceptance schedule is based on the functionality agreed upon during the acceptance of the Business Resource Document. In the event a functional deviation is desired, a change request will be created to accommodate the additional enhanced functionality and schedule adjustment. Unless the change request requires a gross overhaul of the enhancement, the current version and testing should proceed through acceptance until the change request has been fulfilled.

STATUS REPORT AND DASHBOARD TOOLS.

ECaTS utilizes Microsoft Project for the management of projects. Status reports and stoplight charts will be generated from this tool on a reoccurring basis to communicate project status and current progress. Standard stoplight indicators of Red/Yellow/Green will be used to indicate milestone health and progress and when needed, appropriate action will be taken to move status areas in yellow/red into green. A sample install stoplight chart for 10 PSAPs is displayed below:

PSAP Name	Network Setup	CDR Port Status	Install Date Set	SA Status	Training Status	PSAP Acceptance
PSAP 1						
PSAP 2						
PSAP 3						
PSAP 4						
PSAP 5						

PSAP 6						
PSAP 7						
PSAP 8						
PSAP 9						
PSAP 10						

KEY

Completed
Not started or Minor Issue
Problem needing attention

PROPOSED SITE BY SITE IMPLEMENTATION/WORK PLAN.

Each PSAP to be deployed must complete the install worksheet (below) and the install process follows the procedures outlined in the installation section (also below).

INSTALL WORKSHEET:

PSAP Inventory Sheet

Please fill out all the fields in this worksheet, if you do not understand what is being requested, please contact ECaTS and ask for Lisa Williams at 916-367-5318.

PSAP General Information:

This section of the worksheet is for the general information of the PSAP, it should include the contacts, managers, as well as address and other contact information.

PSAP General Information	Answer
PSAP Name*	
PSAP ID Number (if applicable)*	
Is PSAP a host site? If yes, please list the remote site(s).*	
Full Physical Address*	
Mailing Address (if different from physical)	
County*	
Primary Contact Name*	
Primary Contact Phone*	
Primary Contact Email Address*	
Secondary Contact Name	
Secondary Contact Phone	
Secondary Contact Email Address	
Dispatch Phone (Non-Emergency)*	
Technical Contact Name*	
Technical Contact Phone*	
Technical Contact Email Address*	
Fax Number	

PSAP Equipment Inventory:
This section of the inventory sheet provides visibility into the PSAP and all equipment/software systems that are running at that facility. Please provide as much information as you can in the answer column.

	Equipment/System Question	Answer
1	Local Exchange Carrier (LEC)*	
2	Customer Premise Equipment (CPE) Vendor*	
3	Contact that Maintains the CPE if NOT Vendor*	
4	Customer Premise Equipment (CPE) Make*	
5	Customer Premise Equipment (CPE) Model*	
6	Customer Premise Equipment (CPE) Version*	
7	Customer Premise Equipment (CPE) Install Date	
8	Customer Premise Equipment (CPE) Last Upgrade Date	
9	Computer Aided Dispatch System (CAD)	
10	Management Information System (MIS)	
11	Total Workstations*	
12	Does the CPE have and A side and B side?*	
12a	If answer to 12 is yes, is CPE geo-diverse or geo-ready?*	
12b	Please provide physical address of B side if not the same as the A side.*	
12c	If B side CPE is collocated with another PSAP, does CPE at A side and B side get calls for both PSAPs?*	
12d	Please describe configuration of A and B side (i.e. Do they both get calls simultaneously? Do they alternate when there is a fail over? Does one only handle overflow from the other? Etc.)*	
13	**Active CDR port to connect to***	
14	Can we split the ALI controller CAD feed to collect Raw ALI data? (Highly recommended to capture rebids)	

PSAP Network Information:
Please complete as much of the network configuration section as you can. For a site that is not providing internet connectivity, please skip those sections.

	Network Configuration Question	Answer
1	ECaTS can use Local Network for LAN/WAN connectivity* (if no is the answer to this question skip to question 7)	
2	IP Address for Buffer Box (RDDM)*	
3	Subnet for RDDM*	
4	Gateway for RDDM*	
5	Switch to Connect RDDM To	
6	Switch Port Number to Uplink RDDM	
7	CPE Equipment Connection* (ex: RS232-to-DB9, USB, Ethernet-to-serial)	

INSTALL PROCESS:
Terms and Definitions

Term	Definition
RDDM	Remote Data Distribution Module
"Y" Cable	Splitter cable enabling single source data to be sent to multiple locations
DB 9/25	Term for a type of serial connection (9-pin or 25-pin)
POTS	Plain Old Telephone Service
1 MB	A term used to indicate the presence of a POTS dial up line
MPOE	Minimum(or Main) Point of Entry
DSL	Digital Subscriber Line
DSL Router/Modem	The device connected to the DSL line that provide network connectivity
VPN	Virtual Private Network
SFTP	Secure File Transfer Protocol
CPE	Customer Premise Equipment (generic term to indicate all equipment)
PSAP	Public Safety Answering Point
CDR	Call Data Record
CDR Port	The physical port on the CPE equipment that outputs the CDR data.
Switch	A network device that provides connectivity to a network
Switch Port	The physical location on the switch that a device should be connected to

Requirements

1. One (1) RDDM (Remote Data Distribution Module)
2. An active and available CDR port on the CPE equipment which will provide the call data
3. One (1) "Y" cable if data feed needs to be split.
4. If required, an escort for the ECaTS Field Engineer to install and configure the RDDM
5. Rack space for a 1U 19 inch device
6. If a modem is used, will need a shelf in the rack for the modem.

Preparation

1. Data
   a. CDR Port should be actively sending data, this can be tested with a serial printer
   b. Control Leads on the CDR port should be active and the pin-out configuration should be provided either before the tech arrives or on site.
2. Connectivity
   a. For DSL:
      i. Modem and router have been put in place
      ii. Port forwarding for inbound requests has been configured
         1. Port 22 (TCP)
         2. If an enhanced RDDM* is in place port 3389 and 933 as well (TCP/UDP)
      iii. LAN side IP has been set as static IP which will be assigned to the RDDM
   b. For LAN sharing (ECaTS shares the existing network)
      i. Identify the switch the RDDM will connect to
      ii. Identify the switch port the RDDM will plug into
      iii. Ensure network routes between the switch and gateway are in place

iv. See the security section for ports and IP's to allow.

Network Configuration

This section is only required for an ECaTS deployment that does not use a dial-up connection. In those instances, either a DSL line will be used, or the PSAP/ILEC will enable ECaTS to share the existing network. The information contained below describes a DSL deployment, however, the same configuration requirements exist for share LAN deployments as well the only difference is there is no DSL connect rather the PSAP uses their existing routers to move traffic.

How ECaTS Works

ECaTS connects to the CPE (Customer Premise Equipment) via a RS232 port. This port supplies our RDDM or "buffer box" with all of the CDR (Call Detail Records). Once the RDDM receives a call it is then encrypted and compressed and sent to our data center in Sacramento, CA via sFTP.

The Figures below represent the three types of connectivity configuration available for the RDDM to uplink to the internet in order to deliver the data payloads**.**

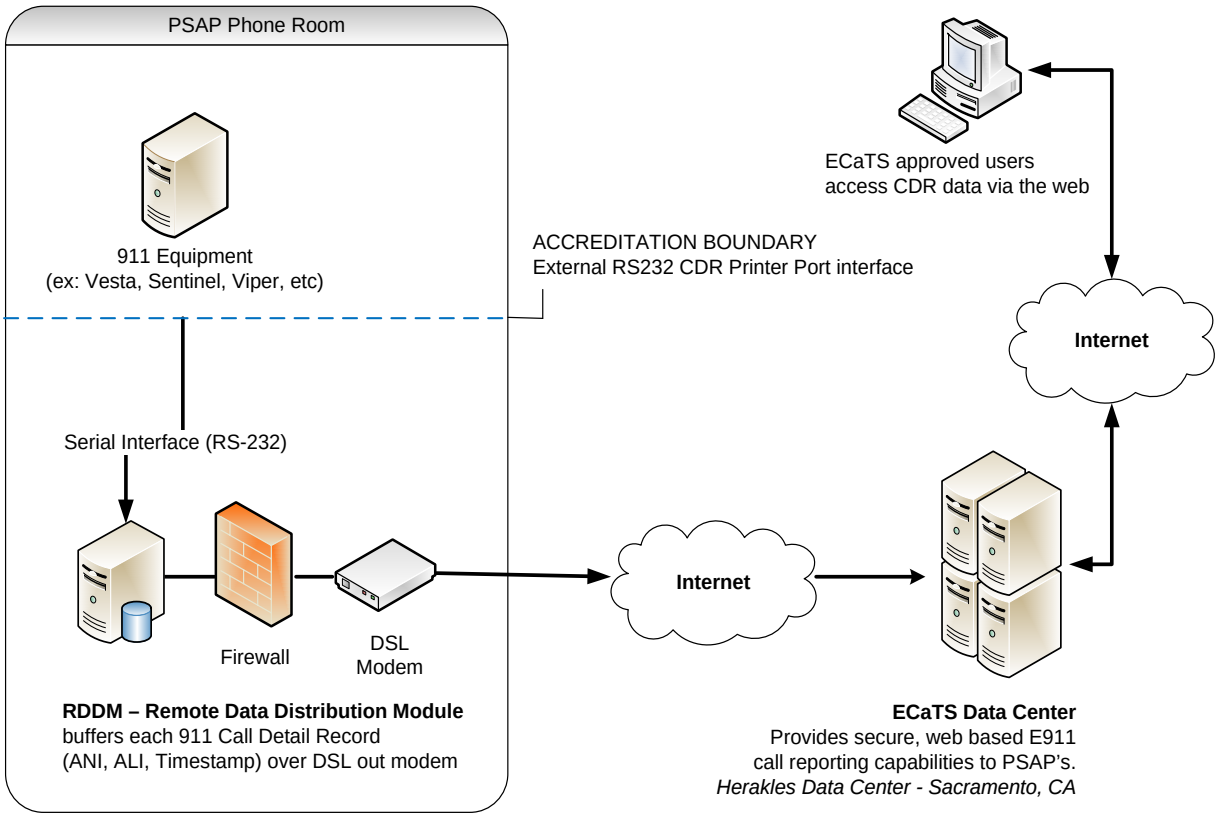
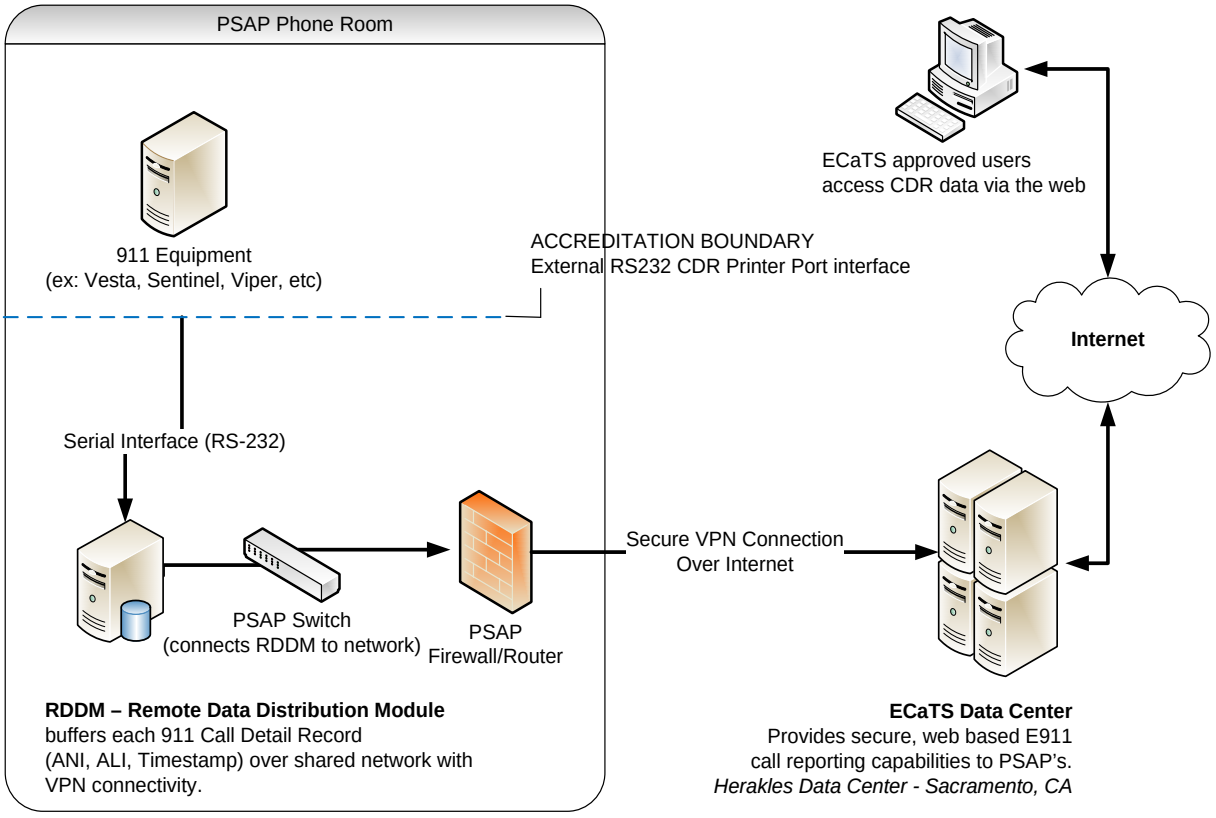


Figure 1 -- RDDM DSL NETWORK TOPOGRAPHY



**Each PSAP will be configured a little differently depending on local environmental constraints.*

Figure 2 -- RDDM Shared Network/VPN topography

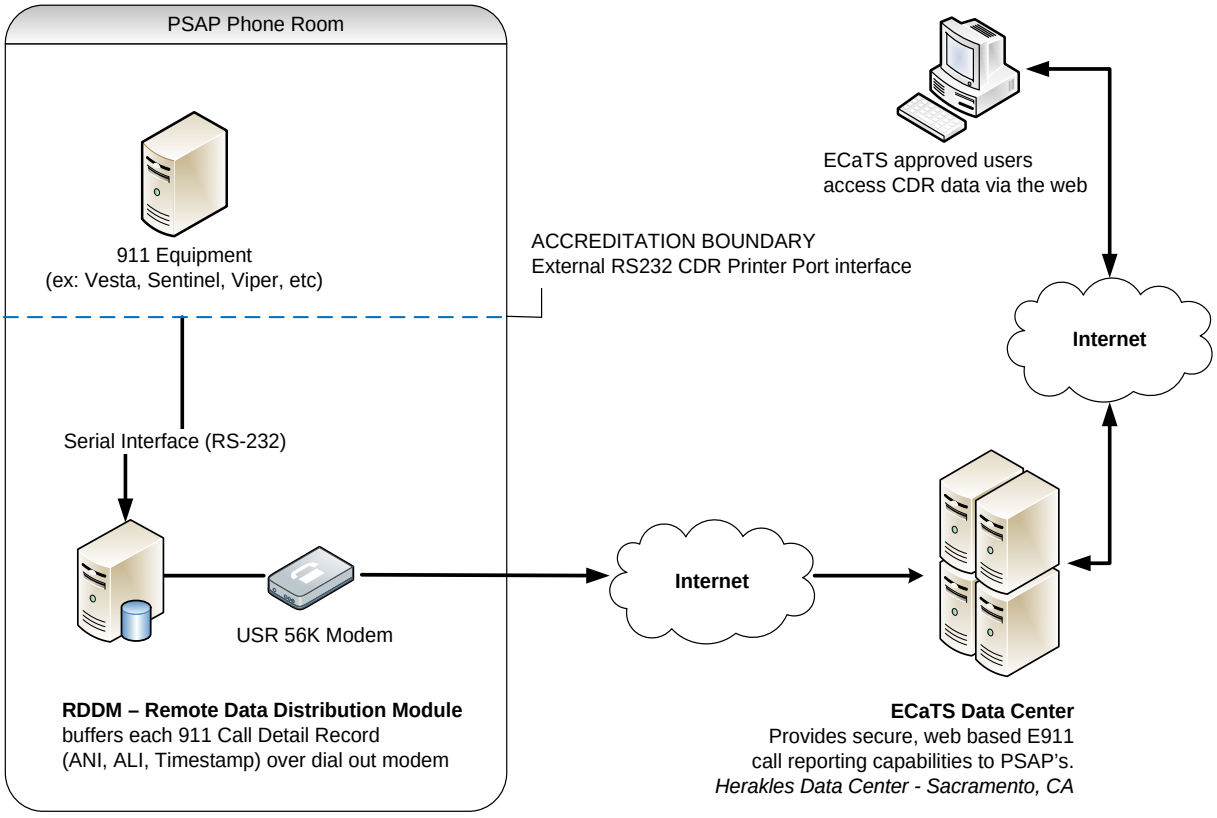


Figure 3 -- RDDM Dial up modem TOPOGRAPHY

Connection Information

Requirements to set up ECaTS for a DSL or a Shared Network connection:

1. The IP address must be made public

- ECaTS manages the RDDM (Remote Data Distribution Module) or "buffer box" remotely.
- There may be an internal and external IP address depending on your network configuration, please send both.
- Supply Subnet, Gateway & DNS information
- Please send this IP address to support@ecats911.com

2. Allow bidirectional traffic between the RDDM and our Data center for the addresses below:

- 65.74.135.38
- 65.74.135.164
- 65.74.135.126
- 65.74.135.250
- 64.55.108.10
- 64.55.108.11

Security Considerations

Security considerations vary depending on the type of connectivity that is used for the RDDM.

1. Security Considerations for Dial Up

- Modems are directly connected to the RDDM and do not present a new network, there are no real considerations with this configuration as the RDDM is completely isolated

	from the CPE equipment with exception of the serial feed from the CDR port, which itself is one way.
2.	Security Considerations for DSL
	• DSL router/modem will need to connect to RDDM device • Firewall/router configurations for DSL line must have the proper ports open, see section 4 below. • If DSL router/modem is plugged into a switch, ideally a VLAN should be established between the RDDM and DSL router/modem to isolate the traffic within the switch.
3.	Security Considerations for LAN
	• RDDM is likely sharing a segment with current PSAP traffic • If needed, create VLAN's to segment ECaTS traffic from the rest of the network • Firewall/router configurations need to have the proper ports open, see section 4 below.
4.	Port forwarding for DSL/Shared LAN installation:
	• Port 22 – (SSH / sFTP) • Port 123 – (NTP) • Port 53 – (DNS) • Port 443 – (HTTPS) • Port 3389 – (RDP) • Port 8333 – (VMWare Management) • Port 933 – (VMWare Console)

Installation

RDDM Installation is straight forward and consists of the following steps:

1. Mount the RDDM in desired location.
2. Route power cord to RDDM.
3. Install and connect power cords.
4. Test power.
5. Install "Y" cable (if needed) to current CDR monitoring system.
6. Connect laptop to the buffer box and validate configuration, update where needed.
7. Start and test each service on the RDDM unit.

8.2 SYSTEM TEST PLAN

System testing of any new implementations will be required prior to the Board authorizing any cutover to full operational status and the commencement of payment for services.

Respondents must anticipate and plan for all necessary system testing for each service, component, function, application or piece of equipment comprising the proposed solution.

The proposed test plan shall include, but not be limited to testing for:

- i3 functional element testing
- ESInet throughput and capacity testing
- ESInet end to end connectivity testing
- Fault tolerance testing

- ESInet failover and alternate route testing
- ESInet monitoring systems
- Fault notification
- Firewalls, intrusion detection systems, intrusion protection systems

Respondents shall provide an example system test plan that tests each element of their proposed system.

NON COMPLY

Not applicable (N/A). The requirements listed in 8.2 are ESInet specific requirements. Direct Technology is proposing a solution specific to Section 5, System Reporting and i3 Logging Requirements, for the Alabama NG911 RFP.

8.3 TRANSITION PLAN

The results of this procurement may require a transition from current ANGEN systems, services and providers to new or different systems, services and providers.

Respondents must anticipate and articulate a plan for the implementation, testing and transition of their proposed systems or services to the point of full operational readiness and cutover to full operation.

This plan may need to anticipate the integration with other systems, services and providers that will comprise the ANGEN system depending on what solutions or services a respondent proposes to provide.

Respondents must provide a proposed transition plan for their systems or services in their response that address the following areas at a minimum:

1. Transition schedule including milestone dates for design, development, testing and implementation phases necessary to achieve full operational readiness and cutover to full operation
2. System testing approach
3. Site cutover approach
4. Contingency or roll back plans should implementation or integration failures occur during the transition or cutover of the proposed systems or services
5. Identification of risks, dependencies or interdependencies that may impact the transition to full operational status and cutover
6. Identification and definition of the ability to support a phased migration and parallel operation with current ANGEN operations

Throughout this anticipated transition period, current ANGEN wireless 9-1-1 call delivery, existing features, functions, capabilities and operations must not be limited or impacted in any fashion by the Respondents.

Respondents are required to work closely with other providers and to cooperate to the fullest extent possible in order to accomplish successful transition to the new ANGEN systems and services created by this RFP.

COMPLY

Direct Technology is responding to Section 8.3 as it applies to the solution proposed for Section 5, System Reporting and i3 Logging Requirements.

The ECaTS platform foundation is designed to seamlessly transition between CPE platforms as PSAP equipment changes over time. The flexible interface offered through the RDDM, ECaTS is able to easily adapt to the changes brought on by equipment upgrades and new systems/standards. The ability to collect from both multiple physical interfaces as well as IP interfaces ensures the ongoing ability of the ECaTS MIS solution to offer seamless uninterrupted reporting with both current and next generation technologies.

1. Transition schedule including milestone dates for design, development, testing and implementation phases necessary to achieve full operational readiness and cutover to full operation

The high level schedule presented here describes a 6 month transition and cutover plan for the movement out of ANGEN to the next generation system. It is expected this schedule will be significantly adjusted to align with the actual cutover dates required of the call handling equipment provides due to the dependency ECaTS has on those system for source data.

For the purposes of a start date for transition a date of October 10th used and assumes that all upfront logistical activity has been acted up as described in Section 8.1 Implementation Project Plan and carried out through a six-seven month transition plan.

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Nam
		AL Cutover Project	**126 days**	**Tue 10/11/16**	**Wed 4/5/17**		
		Portal Preparation	**118 days**	**Tue 10/11/16**	**Fri 3/24/17**		
		PSAP 1	1 day	Tue 10/11/16	Tue 10/11/16		
		PSAP 2	1 day	Wed 10/12/16	Wed 10/12/16	3	
		PSAP 3	1 day	Thu 10/13/16	Thu 10/13/16	4	
		PSAP 4	1 day	Fri 10/14/16	Fri 10/14/16	5	
		PSAP 5	1 day	Mon 10/17/16	Mon 10/17/16	6	
		PSAP 6	1 day	Tue 10/18/16	Tue 10/18/16	7	
		PSAP 7	1 day	Wed 10/19/16	Wed 10/19/16	8	
		PSAP 8	1 day	Thu 10/20/16	Thu 10/20/16	9	
		PSAP 9	1 day	Fri 10/21/16	Fri 10/21/16	10	
		PSAP 10	1 day	Mon 10/24/16	Mon 10/24/16	11	
		PSAP 11	1 day	Tue 10/25/16	Tue 10/25/16	12	
		PSAP 12	1 day	Wed 10/26/16	Wed 10/26/16	13	
		PSAP 13	1 day	Thu 10/27/16	Thu 10/27/16	14	
		PSAP 14	1 day	Fri 10/28/16	Fri 10/28/16	15	
		PSAP 15	1 day	Mon 10/31/16	Mon 10/31/16	16	
		PSAP 16	1 day	Tue 11/1/16	Tue 11/1/16	17	
		PSAP 17	1 day	Wed 11/2/16	Wed 11/2/16	18	
		PSAP 18	1 day	Thu 11/3/16	Thu 11/3/16	19	
		PSAP 19	1 day	Fri 11/4/16	Fri 11/4/16	20	
		PSAP 20	1 day	Mon 11/7/16	Mon 11/7/16	21	
		PSAP 21	1 day	Tue 11/8/16	Tue 11/8/16	22	

PSAP 22	1 day	Wed 11/9/16	Wed 11/9/16	23	
PSAP 23	1 day	Thu 11/10/16	Thu 11/10/16	24	
PSAP 24	1 day	Fri 11/11/16	Fri 11/11/16	25	
PSAP 25	1 day	Mon 11/14/16	Mon 11/14/16	26	
PSAP 26	1 day	Tue 11/15/16	Tue 11/15/16	27	
PSAP 27	1 day	Wed 11/16/16	Wed 11/16/16	28	
PSAP 28	1 day	Thu 11/17/16	Thu 11/17/16	29	
PSAP 29	1 day	Fri 11/18/16	Fri 11/18/16	30	
PSAP 30	1 day	Mon 11/21/16	Mon 11/21/16	31	
PSAP 31	1 day	Tue 11/22/16	Tue 11/22/16	32	
PSAP 32	1 day	Wed 11/23/16	Wed 11/23/16	33	
PSAP 33	1 day	Fri 11/25/16	Fri 11/25/16	34	
PSAP 34	1 day	Mon 11/28/16	Mon 11/28/16	35	
PSAP 35	1 day	Tue 11/29/16	Tue 11/29/16	36	
PSAP 36	1 day	Wed 11/30/16	Wed 11/30/16	37	
PSAP 37	1 day	Thu 12/1/16	Thu 12/1/16	38	
PSAP 38	1 day	Fri 12/2/16	Fri 12/2/16	39	
PSAP 39	1 day	Mon 12/5/16	Mon 12/5/16	40	
PSAP 40	1 day	Tue 12/6/16	Tue 12/6/16	41	
PSAP 41	1 day	Wed 12/7/16	Wed 12/7/16	42	
PSAP 42	1 day	Thu 12/8/16	Thu 12/8/16	43	
PSAP 43	1 day	Fri 12/9/16	Fri 12/9/16	44	
PSAP 44	1 day	Mon 12/12/16	Mon 12/12/16	45	
PSAP 45	1 day	Tue 12/13/16	Tue 12/13/16	46	
PSAP 46	1 day	Wed 12/14/16	Wed 12/14/16	47	
PSAP 47	1 day	Thu 12/15/16	Thu 12/15/16	48	
PSAP 48	1 day	Fri 12/16/16	Fri 12/16/16	49	
PSAP 49	1 day	Mon 12/19/16	Mon 12/19/16	50	
PSAP 50	1 day	Tue 12/20/16	Tue 12/20/16	51	
PSAP 51	1 day	Wed 12/21/16	Wed 12/21/16	52	
PSAP 52	1 day	Thu 12/22/16	Thu 12/22/16	53	
PSAP 53	1 day	Fri 12/23/16	Fri 12/23/16	54	
PSAP 54	1 day	Mon 12/26/16	Mon 12/26/16	55	
PSAP 55	1 day	Tue 12/27/16	Tue 12/27/16	56	
PSAP 56	1 day	Wed 12/28/16	Wed 12/28/16	57	
PSAP 57	1 day	Thu 12/29/16	Thu 12/29/16	58	
PSAP 58	1 day	Fri 12/30/16	Fri 12/30/16	59	
PSAP 59	1 day	Mon 1/2/17	Mon 1/2/17	60	
PSAP 60	1 day	Tue 1/3/17	Tue 1/3/17	61	
PSAP 61	1 day	Wed 1/4/17	Wed 1/4/17	62	
PSAP 62	1 day	Thu 1/5/17	Thu 1/5/17	63	
PSAP 63	1 day	Fri 1/6/17	Fri 1/6/17	64	
PSAP 64	1 day	Mon 1/9/17	Mon 1/9/17	65	
PSAP 65	1 day	Tue 1/10/17	Tue 1/10/17	66	
PSAP 66	1 day	Wed 1/11/17	Wed 1/11/17	67	
PSAP 67	1 day	Thu 1/12/17	Thu 1/12/17	68	

	PSAP 68	1 day	Fri 1/13/17	Fri 1/13/17	69
	PSAP 69	1 day	Mon 1/16/17	Mon 1/16/17	70
	PSAP 70	1 day	Tue 1/17/17	Tue 1/17/17	71
	PSAP 71	1 day	Wed 1/18/17	Wed 1/18/17	72
	PSAP 72	1 day	Thu 1/19/17	Thu 1/19/17	73
	PSAP 73	1 day	Fri 1/20/17	Fri 1/20/17	74
	PSAP 74	1 day	Mon 1/23/17	Mon 1/23/17	75
	PSAP 75	1 day	Tue 1/24/17	Tue 1/24/17	76
	PSAP 76	1 day	Wed 1/25/17	Wed 1/25/17	77
	PSAP 77	1 day	Thu 1/26/17	Thu 1/26/17	78
	PSAP 78	1 day	Fri 1/27/17	Fri 1/27/17	79
	PSAP 79	1 day	Mon 1/30/17	Mon 1/30/17	80
	PSAP 80	1 day	Tue 1/31/17	Tue 1/31/17	81
	PSAP 81	1 day	Wed 2/1/17	Wed 2/1/17	82
	PSAP 82	1 day	Thu 2/2/17	Thu 2/2/17	83
	PSAP 83	1 day	Fri 2/3/17	Fri 2/3/17	84
	PSAP 84	1 day	Mon 2/6/17	Mon 2/6/17	85
	PSAP 85	1 day	Tue 2/7/17	Tue 2/7/17	86
	PSAP 86	1 day	Wed 2/8/17	Wed 2/8/17	87
	PSAP 87	1 day	Thu 2/9/17	Thu 2/9/17	88
	PSAP 88	1 day	Fri 2/10/17	Fri 2/10/17	89
	PSAP 89	1 day	Mon 2/13/17	Mon 2/13/17	90
	PSAP 90	1 day	Tue 2/14/17	Tue 2/14/17	91
	PSAP 91	1 day	Wed 2/15/17	Wed 2/15/17	92
	PSAP 92	1 day	Thu 2/16/17	Thu 2/16/17	93
	PSAP 93	1 day	Fri 2/17/17	Fri 2/17/17	94
	PSAP 94	1 day	Mon 2/20/17	Mon 2/20/17	95
	PSAP 95	1 day	Tue 2/21/17	Tue 2/21/17	96
	PSAP 96	1 day	Wed 2/22/17	Wed 2/22/17	97
	PSAP 97	1 day	Thu 2/23/17	Thu 2/23/17	98
	PSAP 98	1 day	Fri 2/24/17	Fri 2/24/17	99
	PSAP 99	1 day	Mon 2/27/17	Mon 2/27/17	100
	PSAP 100	1 day	Tue 2/28/17	Tue 2/28/17	101
	PSAP 101	1 day	Wed 3/1/17	Wed 3/1/17	102
	PSAP 102	1 day	Thu 3/2/17	Thu 3/2/17	103
	PSAP 103	1 day	Fri 3/3/17	Fri 3/3/17	104
	PSAP 104	1 day	Mon 3/6/17	Mon 3/6/17	105
	PSAP 105	1 day	Tue 3/7/17	Tue 3/7/17	106
	PSAP 106	1 day	Wed 3/8/17	Wed 3/8/17	107
	PSAP 107	1 day	Thu 3/9/17	Thu 3/9/17	108
	PSAP 108	1 day	Fri 3/10/17	Fri 3/10/17	109
	PSAP 109	1 day	Mon 3/13/17	Mon 3/13/17	110
	PSAP 110	1 day	Tue 3/14/17	Tue 3/14/17	111
	PSAP 111	1 day	Wed 3/15/17	Wed 3/15/17	112
	PSAP 112	1 day	Thu 3/16/17	Thu 3/16/17	113
	PSAP 113	1 day	Fri 3/17/17	Fri 3/17/17	114

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Nam
	PSAP 114	1 day	Mon 3/20/17	Mon 3/20/17	115	
	PSAP 115	1 day	Tue 3/21/17	Tue 3/21/17	116	
	PSAP 116	1 day	Wed 3/22/17	Wed 3/22/17	117	
	PSAP 117	1 day	Thu 3/23/17	Thu 3/23/17	118	
	PSAP 118	1 day	Fri 3/24/17	Fri 3/24/17	119	
	RDDM Cutover	**122 days**	**Wed 10/12/16**	**Fri 3/31/17**		
	PSAP 1	5 days	Wed 10/12/16	Tue 10/18/16	3	
	PSAP 2	5 days	Thu 10/13/16	Wed 10/19/16	4	
	PSAP 3	5 days	Fri 10/14/16	Thu 10/20/16	5	
	PSAP 4	5 days	Mon 10/17/16	Fri 10/21/16	6	
	PSAP 5	5 days	Tue 10/18/16	Mon 10/24/16	7	
	PSAP 6	5 days	Wed 10/19/16	Tue 10/25/16	8	
	PSAP 7	5 days	Thu 10/20/16	Wed 10/26/16	9	
	PSAP 8	5 days	Fri 10/21/16	Thu 10/27/16	10	
	PSAP 9	5 days	Mon 10/24/16	Fri 10/28/16	11	
	PSAP 10	5 days	Tue 10/25/16	Mon 10/31/16	12	
	PSAP 11	5 days	Wed 10/26/16	Tue 11/1/16	13	
	PSAP 12	5 days	Thu 10/27/16	Wed 11/2/16	14	
	PSAP 13	5 days	Fri 10/28/16	Thu 11/3/16	15	
	PSAP 14	5 days	Mon 10/31/16	Fri 11/4/16	16	
	PSAP 15	5 days	Tue 11/1/16	Mon 11/7/16	17	
	PSAP 16	5 days	Wed 11/2/16	Tue 11/8/16	18	
	PSAP 17	5 days	Thu 11/3/16	Wed 11/9/16	19	
	PSAP 18	5 days	Fri 11/4/16	Thu 11/10/16	20	
	PSAP 19	5 days	Mon 11/7/16	Fri 11/11/16	21	
	PSAP 20	5 days	Tue 11/8/16	Mon 11/14/16	22	
	PSAP 21	5 days	Wed 11/9/16	Tue 11/15/16	23	
	PSAP 22	5 days	Thu 11/10/16	Wed 11/16/16	24	
	PSAP 23	5 days	Fri 11/11/16	Thu 11/17/16	25	
	PSAP 24	5 days	Mon 11/14/16	Fri 11/18/16	26	
	PSAP 25	5 days	Tue 11/15/16	Mon 11/21/16	27	
	PSAP 26	5 days	Wed 11/16/16	Tue 11/22/16	28	
	PSAP 27	5 days	Thu 11/17/16	Wed 11/23/16	29	
	PSAP 28	5 days	Fri 11/18/16	Fri 11/25/16	30	
	PSAP 29	5 days	Mon 11/21/16	Mon 11/28/16	31	
	PSAP 30	5 days	Tue 11/22/16	Tue 11/29/16	32	
	PSAP 31	5 days	Wed 11/23/16	Wed 11/30/16	33	
	PSAP 32	5 days	Fri 11/25/16	Thu 12/1/16	34	
	PSAP 33	5 days	Mon 11/28/16	Fri 12/2/16	35	
	PSAP 34	5 days	Tue 11/29/16	Mon 12/5/16	36	
	PSAP 35	5 days	Wed 11/30/16	Tue 12/6/16	37	
	PSAP 36	5 days	Thu 12/1/16	Wed 12/7/16	38	
	PSAP 37	5 days	Fri 12/2/16	Thu 12/8/16	39	
	PSAP 38	5 days	Mon 12/5/16	Fri 12/9/16	40	
	PSAP 39	5 days	Tue 12/6/16	Mon 12/12/16	41	
	PSAP 40	5 days	Wed 12/7/16	Tue 12/13/16	42	

	PSAP 41	5 days	Thu 12/8/16	Wed 12/14/16	43
	PSAP 42	5 days	Fri 12/9/16	Thu 12/15/16	44
	PSAP 43	5 days	Mon 12/12/16	Fri 12/16/16	45
	PSAP 44	5 days	Tue 12/13/16	Mon 12/19/16	46
	PSAP 45	5 days	Wed 12/14/16	Tue 12/20/16	47
	PSAP 46	5 days	Thu 12/15/16	Wed 12/21/16	48
	PSAP 47	5 days	Fri 12/16/16	Thu 12/22/16	49
	PSAP 48	5 days	Mon 12/19/16	Fri 12/23/16	50
	PSAP 49	5 days	Tue 12/20/16	Mon 12/26/16	51
	PSAP 50	5 days	Wed 12/21/16	Tue 12/27/16	52
	PSAP 51	5 days	Thu 12/22/16	Wed 12/28/16	53
	PSAP 52	5 days	Fri 12/23/16	Thu 12/29/16	54
	PSAP 53	5 days	Mon 12/26/16	Fri 12/30/16	55
	PSAP 54	5 days	Tue 12/27/16	Mon 1/2/17	56
	PSAP 55	5 days	Wed 12/28/16	Tue 1/3/17	57
	PSAP 56	5 days	Thu 12/29/16	Wed 1/4/17	58
	PSAP 57	5 days	Fri 12/30/16	Thu 1/5/17	59
	PSAP 58	5 days	Mon 1/2/17	Fri 1/6/17	60
	PSAP 59	5 days	Tue 1/3/17	Mon 1/9/17	61
	PSAP 60	5 days	Wed 1/4/17	Tue 1/10/17	62
	PSAP 61	5 days	Thu 1/5/17	Wed 1/11/17	63
	PSAP 62	5 days	Fri 1/6/17	Thu 1/12/17	64
	PSAP 63	5 days	Mon 1/9/17	Fri 1/13/17	65
	PSAP 64	5 days	Tue 1/10/17	Mon 1/16/17	66
	PSAP 65	5 days	Wed 1/11/17	Tue 1/17/17	67
	PSAP 66	5 days	Thu 1/12/17	Wed 1/18/17	68
	PSAP 67	5 days	Fri 1/13/17	Thu 1/19/17	69
	PSAP 68	5 days	Mon 1/16/17	Fri 1/20/17	70
	PSAP 69	5 days	Tue 1/17/17	Mon 1/23/17	71
	PSAP 70	5 days	Wed 1/18/17	Tue 1/24/17	72
	PSAP 71	5 days	Thu 1/19/17	Wed 1/25/17	73
	PSAP 72	5 days	Fri 1/20/17	Thu 1/26/17	74
	PSAP 73	5 days	Mon 1/23/17	Fri 1/27/17	75
	PSAP 74	5 days	Tue 1/24/17	Mon 1/30/17	76
	PSAP 75	5 days	Wed 1/25/17	Tue 1/31/17	77
	PSAP 76	5 days	Thu 1/26/17	Wed 2/1/17	78
	PSAP 77	5 days	Fri 1/27/17	Thu 2/2/17	79
	PSAP 78	5 days	Mon 1/30/17	Fri 2/3/17	80
	PSAP 79	5 days	Tue 1/31/17	Mon 2/6/17	81
	PSAP 80	5 days	Wed 2/1/17	Tue 2/7/17	82
	PSAP 81	5 days	Thu 2/2/17	Wed 2/8/17	83
	PSAP 82	5 days	Fri 2/3/17	Thu 2/9/17	84
	PSAP 83	5 days	Mon 2/6/17	Fri 2/10/17	85
	PSAP 84	5 days	Tue 2/7/17	Mon 2/13/17	86
	PSAP 85	5 days	Wed 2/8/17	Tue 2/14/17	87
	PSAP 86	5 days	Thu 2/9/17	Wed 2/15/17	88

PSAP 87	5 days	Fri 2/10/17	Thu 2/16/17	89	
PSAP 88	5 days	Mon 2/13/17	Fri 2/17/17	90	
PSAP 89	5 days	Tue 2/14/17	Mon 2/20/17	91	
PSAP 90	5 days	Wed 2/15/17	Tue 2/21/17	92	
PSAP 91	5 days	Thu 2/16/17	Wed 2/22/17	93	
PSAP 92	5 days	Fri 2/17/17	Thu 2/23/17	94	
PSAP 93	5 days	Mon 2/20/17	Fri 2/24/17	95	
PSAP 94	5 days	Tue 2/21/17	Mon 2/27/17	96	
PSAP 95	5 days	Wed 2/22/17	Tue 2/28/17	97	
PSAP 96	5 days	Thu 2/23/17	Wed 3/1/17	98	
PSAP 97	5 days	Fri 2/24/17	Thu 3/2/17	99	
PSAP 98	5 days	Mon 2/27/17	Fri 3/3/17	100	
PSAP 99	5 days	Tue 2/28/17	Mon 3/6/17	101	
PSAP 100	5 days	Wed 3/1/17	Tue 3/7/17	102	
PSAP 101	5 days	Thu 3/2/17	Wed 3/8/17	103	
PSAP 102	5 days	Fri 3/3/17	Thu 3/9/17	104	
PSAP 103	5 days	Mon 3/6/17	Fri 3/10/17	105	
PSAP 104	5 days	Tue 3/7/17	Mon 3/13/17	106	
PSAP 105	5 days	Wed 3/8/17	Tue 3/14/17	107	
PSAP 106	5 days	Thu 3/9/17	Wed 3/15/17	108	
PSAP 107	5 days	Fri 3/10/17	Thu 3/16/17	109	
PSAP 108	5 days	Mon 3/13/17	Fri 3/17/17	110	
PSAP 109	5 days	Tue 3/14/17	Mon 3/20/17	111	
PSAP 110	5 days	Wed 3/15/17	Tue 3/21/17	112	
PSAP 111	5 days	Thu 3/16/17	Wed 3/22/17	113	
PSAP 112	5 days	Fri 3/17/17	Thu 3/23/17	114	
PSAP 113	5 days	Mon 3/20/17	Fri 3/24/17	115	
PSAP 114	5 days	Tue 3/21/17	Mon 3/27/17	116	
PSAP 115	5 days	Wed 3/22/17	Tue 3/28/17	117	
PSAP 116	5 days	Thu 3/23/17	Wed 3/29/17	118	
PSAP 117	5 days	Fri 3/24/17	Thu 3/30/17	119	
PSAP 118	5 days	Mon 3/27/17	Fri 3/31/17	120	
System Acceptance	**120 days**	**Wed 10/19/16**	**Wed 4/5/17**		
PSAP 1	3 days	Wed 10/19/16	Fri 10/21/16	122	
PSAP 2	3 days	Thu 10/20/16	Mon 10/24/16	123	
PSAP 3	3 days	Fri 10/21/16	Tue 10/25/16	124	
PSAP 4	3 days	Mon 10/24/16	Wed 10/26/16	125	
PSAP 5	3 days	Tue 10/25/16	Thu 10/27/16	126	
PSAP 6	3 days	Wed 10/26/16	Fri 10/28/16	127	
PSAP 7	3 days	Thu 10/27/16	Mon 10/31/16	128	
PSAP 8	3 days	Fri 10/28/16	Tue 11/1/16	129	
PSAP 9	3 days	Mon 10/31/16	Wed 11/2/16	130	
PSAP 10	3 days	Tue 11/1/16	Thu 11/3/16	131	
PSAP 11	3 days	Wed 11/2/16	Fri 11/4/16	132	
PSAP 12	3 days	Thu 11/3/16	Mon 11/7/16	133	
PSAP 13	3 days	Fri 11/4/16	Tue 11/8/16	134	

PSAP 14	3 days	Mon 11/7/16	Wed 11/9/16	135	
PSAP 15	3 days	Tue 11/8/16	Thu 11/10/16	136	
PSAP 16	3 days	Wed 11/9/16	Fri 11/11/16	137	
PSAP 17	3 days	Thu 11/10/16	Mon 11/14/16	138	
PSAP 18	3 days	Fri 11/11/16	Tue 11/15/16	139	
PSAP 19	3 days	Mon 11/14/16	Wed 11/16/16	140	
PSAP 20	3 days	Tue 11/15/16	Thu 11/17/16	141	
PSAP 21	3 days	Wed 11/16/16	Fri 11/18/16	142	
PSAP 22	3 days	Thu 11/17/16	Mon 11/21/16	143	
PSAP 23	3 days	Fri 11/18/16	Tue 11/22/16	144	
PSAP 24	3 days	Mon 11/21/16	Wed 11/23/16	145	
PSAP 25	3 days	Tue 11/22/16	Fri 11/25/16	146	
PSAP 26	3 days	Wed 11/23/16	Mon 11/28/16	147	
PSAP 27	3 days	Fri 11/25/16	Tue 11/29/16	148	
PSAP 28	3 days	Mon 11/28/16	Wed 11/30/16	149	
PSAP 29	3 days	Tue 11/29/16	Thu 12/1/16	150	
PSAP 30	3 days	Wed 11/30/16	Fri 12/2/16	151	
PSAP 31	3 days	Thu 12/1/16	Mon 12/5/16	152	
PSAP 32	3 days	Fri 12/2/16	Tue 12/6/16	153	
PSAP 33	3 days	Mon 12/5/16	Wed 12/7/16	154	
PSAP 34	3 days	Tue 12/6/16	Thu 12/8/16	155	
PSAP 35	3 days	Wed 12/7/16	Fri 12/9/16	156	
PSAP 36	3 days	Thu 12/8/16	Mon 12/12/16	157	
PSAP 37	3 days	Fri 12/9/16	Tue 12/13/16	158	
PSAP 38	3 days	Mon 12/12/16	Wed 12/14/16	159	
PSAP 39	3 days	Tue 12/13/16	Thu 12/15/16	160	
PSAP 40	3 days	Wed 12/14/16	Fri 12/16/16	161	
PSAP 41	3 days	Thu 12/15/16	Mon 12/19/16	162	
PSAP 42	3 days	Fri 12/16/16	Tue 12/20/16	163	
PSAP 43	3 days	Mon 12/19/16	Wed 12/21/16	164	
PSAP 44	3 days	Tue 12/20/16	Thu 12/22/16	165	
PSAP 45	3 days	Wed 12/21/16	Fri 12/23/16	166	
PSAP 46	3 days	Thu 12/22/16	Mon 12/26/16	167	
PSAP 47	3 days	Fri 12/23/16	Tue 12/27/16	168	
PSAP 48	3 days	Mon 12/26/16	Wed 12/28/16	169	
PSAP 49	3 days	Tue 12/27/16	Thu 12/29/16	170	
PSAP 50	3 days	Wed 12/28/16	Fri 12/30/16	171	
PSAP 51	3 days	Thu 12/29/16	Mon 1/2/17	172	
PSAP 52	3 days	Fri 12/30/16	Tue 1/3/17	173	
PSAP 53	3 days	Mon 1/2/17	Wed 1/4/17	174	
PSAP 54	3 days	Tue 1/3/17	Thu 1/5/17	175	
PSAP 55	3 days	Wed 1/4/17	Fri 1/6/17	176	
PSAP 56	3 days	Thu 1/5/17	Mon 1/9/17	177	
PSAP 57	3 days	Fri 1/6/17	Tue 1/10/17	178	
PSAP 58	3 days	Mon 1/9/17	Wed 1/11/17	179	
PSAP 59	3 days	Tue 1/10/17	Thu 1/12/17	180	

PSAP 60	3 days	Wed 1/11/17	Fri 1/13/17	181	
PSAP 61	3 days	Thu 1/12/17	Mon 1/16/17	182	
PSAP 62	3 days	Fri 1/13/17	Tue 1/17/17	183	
PSAP 63	3 days	Mon 1/16/17	Wed 1/18/17	184	
PSAP 64	3 days	Tue 1/17/17	Thu 1/19/17	185	
PSAP 65	3 days	Wed 1/18/17	Fri 1/20/17	186	
PSAP 66	3 days	Thu 1/19/17	Mon 1/23/17	187	
PSAP 67	3 days	Fri 1/20/17	Tue 1/24/17	188	
PSAP 68	3 days	Mon 1/23/17	Wed 1/25/17	189	
PSAP 69	3 days	Tue 1/24/17	Thu 1/26/17	190	
PSAP 70	3 days	Wed 1/25/17	Fri 1/27/17	191	
PSAP 71	3 days	Thu 1/26/17	Mon 1/30/17	192	
PSAP 72	3 days	Fri 1/27/17	Tue 1/31/17	193	
PSAP 73	3 days	Mon 1/30/17	Wed 2/1/17	194	
PSAP 74	3 days	Tue 1/31/17	Thu 2/2/17	195	
PSAP 75	3 days	Wed 2/1/17	Fri 2/3/17	196	
PSAP 76	3 days	Thu 2/2/17	Mon 2/6/17	197	
PSAP 77	3 days	Fri 2/3/17	Tue 2/7/17	198	
PSAP 78	3 days	Mon 2/6/17	Wed 2/8/17	199	
PSAP 79	3 days	Tue 2/7/17	Thu 2/9/17	200	
PSAP 80	3 days	Wed 2/8/17	Fri 2/10/17	201	
PSAP 81	3 days	Thu 2/9/17	Mon 2/13/17	202	
PSAP 82	3 days	Fri 2/10/17	Tue 2/14/17	203	
PSAP 83	3 days	Mon 2/13/17	Wed 2/15/17	204	
PSAP 84	3 days	Tue 2/14/17	Thu 2/16/17	205	
PSAP 85	3 days	Wed 2/15/17	Fri 2/17/17	206	
PSAP 86	3 days	Thu 2/16/17	Mon 2/20/17	207	
PSAP 87	3 days	Fri 2/17/17	Tue 2/21/17	208	
PSAP 88	3 days	Mon 2/20/17	Wed 2/22/17	209	
PSAP 89	3 days	Tue 2/21/17	Thu 2/23/17	210	
PSAP 90	3 days	Wed 2/22/17	Fri 2/24/17	211	
PSAP 91	3 days	Thu 2/23/17	Mon 2/27/17	212	
PSAP 92	3 days	Fri 2/24/17	Tue 2/28/17	213	
PSAP 93	3 days	Mon 2/27/17	Wed 3/1/17	214	
PSAP 94	3 days	Tue 2/28/17	Thu 3/2/17	215	
PSAP 95	3 days	Wed 3/1/17	Fri 3/3/17	216	
PSAP 96	3 days	Thu 3/2/17	Mon 3/6/17	217	
PSAP 97	3 days	Fri 3/3/17	Tue 3/7/17	218	
PSAP 98	3 days	Mon 3/6/17	Wed 3/8/17	219	
PSAP 99	3 days	Tue 3/7/17	Thu 3/9/17	220	
PSAP 100	3 days	Wed 3/8/17	Fri 3/10/17	221	
PSAP 101	3 days	Thu 3/9/17	Mon 3/13/17	222	
PSAP 102	3 days	Fri 3/10/17	Tue 3/14/17	223	
PSAP 103	3 days	Mon 3/13/17	Wed 3/15/17	224	
PSAP 104	3 days	Tue 3/14/17	Thu 3/16/17	225	
PSAP 105	3 days	Wed 3/15/17	Fri 3/17/17	226	

PSAP 106	3 days	Thu 3/16/17	Mon 3/20/17	227	
PSAP 107	3 days	Fri 3/17/17	Tue 3/21/17	228	
PSAP 108	3 days	Mon 3/20/17	Wed 3/22/17	229	
PSAP 109	3 days	Tue 3/21/17	Thu 3/23/17	230	
PSAP 110	3 days	Wed 3/22/17	Fri 3/24/17	231	
PSAP 111	3 days	Thu 3/23/17	Mon 3/27/17	232	
PSAP 112	3 days	Fri 3/24/17	Tue 3/28/17	233	
PSAP 113	3 days	Mon 3/27/17	Wed 3/29/17	234	
PSAP 114	3 days	Tue 3/28/17	Thu 3/30/17	235	
PSAP 115	3 days	Wed 3/29/17	Fri 3/31/17	236	
PSAP 116	3 days	Thu 3/30/17	Mon 4/3/17	237	
PSAP 117	3 days	Fri 3/31/17	Tue 4/4/17	238	
PSAP 118	3 days	Mon 4/3/17	Wed 4/5/17	239	
Webinar Refresher Training	**115 days**	**Mon 10/24/16**	**Mon 4/3/17**		
PSAP 1	1 day	Mon 10/24/16	Mon 10/24/16	241	
PSAP 2	1 day	Tue 10/25/16	Tue 10/25/16	242	
PSAP 3	1 day	Wed 10/26/16	Wed 10/26/16	243	
PSAP 4	1 day	Thu 10/27/16	Thu 10/27/16	244	
PSAP 5	1 day	Fri 10/28/16	Fri 10/28/16	245	
PSAP 6	1 day	Mon 10/31/16	Mon 10/31/16	246	
PSAP 7	1 day	Tue 11/1/16	Tue 11/1/16	247	
PSAP 8	1 day	Wed 11/2/16	Wed 11/2/16	248	
PSAP 9	1 day	Thu 11/3/16	Thu 11/3/16	249	
PSAP 10	1 day	Fri 11/4/16	Fri 11/4/16	250	
PSAP 11	1 day	Mon 11/7/16	Mon 11/7/16	251	
PSAP 12	1 day	Tue 11/8/16	Tue 11/8/16	252	
PSAP 13	1 day	Wed 11/9/16	Wed 11/9/16	253	
PSAP 14	1 day	Thu 11/10/16	Thu 11/10/16	254	
PSAP 15	1 day	Fri 11/11/16	Fri 11/11/16	255	
PSAP 16	1 day	Mon 11/14/16	Mon 11/14/16	256	
PSAP 17	1 day	Tue 11/15/16	Tue 11/15/16	257	
PSAP 18	1 day	Wed 11/16/16	Wed 11/16/16	258	
PSAP 19	1 day	Thu 11/17/16	Thu 11/17/16	259	
PSAP 20	1 day	Fri 11/18/16	Fri 11/18/16	260	
PSAP 21	1 day	Mon 11/21/16	Mon 11/21/16	261	
PSAP 22	1 day	Tue 11/22/16	Tue 11/22/16	262	
PSAP 23	1 day	Wed 11/23/16	Wed 11/23/16	263	
PSAP 24	1 day	Fri 11/25/16	Fri 11/25/16	264	
PSAP 25	1 day	Mon 11/28/16	Mon 11/28/16	265	
PSAP 26	1 day	Tue 11/29/16	Tue 11/29/16	266	
PSAP 27	1 day	Wed 11/30/16	Wed 11/30/16	267	
PSAP 28	1 day	Thu 12/1/16	Thu 12/1/16	268	
PSAP 29	1 day	Fri 12/2/16	Fri 12/2/16	269	
PSAP 30	1 day	Mon 12/5/16	Mon 12/5/16	270	
PSAP 31	1 day	Tue 12/6/16	Tue 12/6/16	271	

PSAP 32	1 day	Wed 12/7/16	Wed 12/7/16	272	
PSAP 33	1 day	Thu 12/8/16	Thu 12/8/16	273	
PSAP 34	1 day	Fri 12/9/16	Fri 12/9/16	274	
PSAP 35	1 day	Mon 12/12/16	Mon 12/12/16	275	
PSAP 36	1 day	Tue 12/13/16	Tue 12/13/16	276	
PSAP 37	1 day	Wed 12/14/16	Wed 12/14/16	277	
PSAP 38	1 day	Thu 12/15/16	Thu 12/15/16	278	
PSAP 39	1 day	Fri 12/16/16	Fri 12/16/16	279	
PSAP 40	1 day	Mon 12/19/16	Mon 12/19/16	280	
PSAP 41	1 day	Tue 12/20/16	Tue 12/20/16	281	
PSAP 42	1 day	Wed 12/21/16	Wed 12/21/16	282	
PSAP 43	1 day	Thu 12/22/16	Thu 12/22/16	283	
PSAP 44	1 day	Fri 12/23/16	Fri 12/23/16	284	
PSAP 45	1 day	Mon 12/26/16	Mon 12/26/16	285	
PSAP 46	1 day	Tue 12/27/16	Tue 12/27/16	286	
PSAP 47	1 day	Wed 12/28/16	Wed 12/28/16	287	
PSAP 48	1 day	Thu 12/29/16	Thu 12/29/16	288	
PSAP 49	1 day	Fri 12/30/16	Fri 12/30/16	289	
PSAP 50	1 day	Mon 1/2/17	Mon 1/2/17	290	
PSAP 51	1 day	Tue 1/3/17	Tue 1/3/17	291	
PSAP 52	1 day	Wed 1/4/17	Wed 1/4/17	292	
PSAP 53	1 day	Thu 1/5/17	Thu 1/5/17	293	
PSAP 54	1 day	Fri 1/6/17	Fri 1/6/17	294	
PSAP 55	1 day	Mon 1/9/17	Mon 1/9/17	295	
PSAP 56	1 day	Tue 1/10/17	Tue 1/10/17	296	
PSAP 57	1 day	Wed 1/11/17	Wed 1/11/17	297	
PSAP 58	1 day	Thu 1/12/17	Thu 1/12/17	298	
PSAP 59	1 day	Fri 1/13/17	Fri 1/13/17	299	
PSAP 60	1 day	Mon 1/16/17	Mon 1/16/17	300	
PSAP 61	1 day	Tue 1/17/17	Tue 1/17/17	301	
PSAP 62	1 day	Wed 1/18/17	Wed 1/18/17	302	
PSAP 63	1 day	Thu 1/19/17	Thu 1/19/17	303	
PSAP 64	1 day	Fri 1/20/17	Fri 1/20/17	304	
PSAP 65	1 day	Mon 1/23/17	Mon 1/23/17	305	
PSAP 66	1 day	Tue 1/24/17	Tue 1/24/17	306	
PSAP 67	1 day	Wed 1/25/17	Wed 1/25/17	307	
PSAP 68	1 day	Thu 1/26/17	Thu 1/26/17	308	
PSAP 69	1 day	Fri 1/27/17	Fri 1/27/17	309	
PSAP 70	1 day	Mon 1/30/17	Mon 1/30/17	310	
PSAP 71	1 day	Tue 1/31/17	Tue 1/31/17	311	
PSAP 72	1 day	Wed 2/1/17	Wed 2/1/17	312	
PSAP 73	1 day	Thu 2/2/17	Thu 2/2/17	313	
PSAP 74	1 day	Fri 2/3/17	Fri 2/3/17	314	
PSAP 75	1 day	Mon 2/6/17	Mon 2/6/17	315	
PSAP 76	1 day	Tue 2/7/17	Tue 2/7/17	316	
PSAP 77	1 day	Wed 2/8/17	Wed 2/8/17	317	

PSAP 78	1 day	Thu 2/9/17	Thu 2/9/17	318	
PSAP 79	1 day	Fri 2/10/17	Fri 2/10/17	319	
PSAP 80	1 day	Mon 2/13/17	Mon 2/13/17	320	
PSAP 81	1 day	Tue 2/14/17	Tue 2/14/17	321	
PSAP 82	1 day	Wed 2/15/17	Wed 2/15/17	322	
PSAP 83	1 day	Thu 2/16/17	Thu 2/16/17	323	
PSAP 84	1 day	Fri 2/17/17	Fri 2/17/17	324	
PSAP 85	1 day	Mon 2/20/17	Mon 2/20/17	325	
PSAP 86	1 day	Tue 2/21/17	Tue 2/21/17	326	
PSAP 87	1 day	Wed 2/22/17	Wed 2/22/17	327	
PSAP 88	1 day	Thu 2/23/17	Thu 2/23/17	328	
PSAP 89	1 day	Fri 2/24/17	Fri 2/24/17	329	
PSAP 90	1 day	Mon 2/27/17	Mon 2/27/17	330	
PSAP 91	1 day	Tue 2/28/17	Tue 2/28/17	331	
PSAP 92	1 day	Fri 2/24/17	Fri 2/24/17	213	
PSAP 93	1 day	Mon 2/27/17	Mon 2/27/17	214	
PSAP 94	1 day	Tue 2/28/17	Tue 2/28/17	215	
PSAP 95	1 day	Wed 3/1/17	Wed 3/1/17	216	
PSAP 96	1 day	Thu 3/2/17	Thu 3/2/17	217	
PSAP 97	1 day	Fri 3/3/17	Fri 3/3/17	218	
PSAP 98	1 day	Mon 3/6/17	Mon 3/6/17	219	
PSAP 99	1 day	Tue 3/7/17	Tue 3/7/17	220	
PSAP 100	1 day	Wed 3/8/17	Wed 3/8/17	221	
PSAP 101	1 day	Thu 3/9/17	Thu 3/9/17	222	
PSAP 102	1 day	Fri 3/10/17	Fri 3/10/17	223	
PSAP 103	1 day	Mon 3/13/17	Mon 3/13/17	224	
PSAP 104	1 day	Tue 3/14/17	Tue 3/14/17	225	
PSAP 105	1 day	Wed 3/15/17	Wed 3/15/17	226	
PSAP 106	1 day	Thu 3/16/17	Thu 3/16/17	227	
PSAP 107	1 day	Fri 3/17/17	Fri 3/17/17	228	
PSAP 108	1 day	Mon 3/20/17	Mon 3/20/17	229	
PSAP 109	1 day	Tue 3/21/17	Tue 3/21/17	230	
PSAP 110	1 day	Wed 3/22/17	Wed 3/22/17	231	
PSAP 111	1 day	Thu 3/23/17	Thu 3/23/17	232	
PSAP 112	1 day	Fri 3/24/17	Fri 3/24/17	233	
PSAP 113	1 day	Mon 3/27/17	Mon 3/27/17	234	
PSAP 114	1 day	Tue 3/28/17	Tue 3/28/17	235	
PSAP 115	1 day	Wed 3/29/17	Wed 3/29/17	236	
PSAP 116	1 day	Thu 3/30/17	Thu 3/30/17	237	
PSAP 117	1 day	Fri 3/31/17	Fri 3/31/17	238	
PSAP 118	1 day	Mon 4/3/17	Mon 4/3/17	239	

SYSTEM TESTING APPROACH

The ECaTS system uses a data normalization approach to reporting. When the source data changes, new parsers are used to normalize the data and system testing is done against the new data and compared to the new source data to ensure accuracy. System Acceptance is the process ECaTS uses to ensure the system is accurately reporting against the new source data.

A detailed description of the System acceptance process can be found in Section 10: System Acceptance

SITE CUTOVER APPROACH

Site transitions from the ANGEN system to next generation systems all share a common set of activities. ECaTS uses a hands on approach to site cutovers and treats each activity as though the system is being installed for the first time. ECaTS will coordinate with all participants the activities needed to successfully transition the MIS data collection and reporting to the new system. What follows is a discussion of the four most common cutover scenarios that may be encountered and the approach ECaTS uses to deliver MIS reporting to the new system.

STANDALONE-TO-STANDALONE (NEW STANDALONE)

In this scenario a PSAP is acquiring new call handling equipment unique to the PSAP. The equipment is not shared with any other PSAP and provides all call handling services within the PSAP datacenter. Under this scenario, on the date of cutover the ECaTS team will perform the following actives:

1. Be onsite to participate in the cut over
2. Transition the existing RDDM connections (both physical and IP) to the new equipment
3. Ensure data collection is occurring as described in section 10: Installation
4. Coordinate with CPE provider for line profiles and groups
5. Coordinate with ECaTS System Analysts to begin the System Acceptance of the new data as described in section 10: System Acceptance.
6. Schedule webinar training with the PSAP

STANDALONE-TO-HOST (NEW HOST PSAP)

A Host configuration will include data for multiple PSAPs and requires the conversion to a server class configuration. This will introduce a redundant RDDM configuration at the Host site and includes all activities in the transition from a standalone PSAP to a Hosted PSAP. The additional RDDM provides a high availability configuration at the PSAP for data collection and the following activities will occur during the transition:

1. Coordination with PSAP IT staff for provisioning of additional rack and IP space
2. On the day of the cut-over install the first redundant RDDM and connect to new equipment
3. Perform all activities listed in the standalone-to-standalone conversion for the new equipment installed in step 2 and the existing RDDM at the PSAP

STANDALONE-TO-REMOTE (NEW REMOTE)

A PSAP that is converting to a remote will no longer be hosting premise equipment responsible for call handling, instead all call handling will occur at a host site where ECaTS will be collecting call data. When a PSAP converts to a remote, a decommissioning of the RDDM is required at the PSAP and the addition of

the PSAP's data feed at the host needs to be configured. These activities can occur in parallel or at any time and only require the coordination of a PSAP visit the decommissioning of the RDDM. Finally, when the new remote is brought online the same activities as those required of a standalone PSAP will be performed using the new source data from the Host. The following steps outline the standalone-to-remote transition:

3. Coordinate with PSAP for RDDM site visit for decommissioning of RDDM
4. On the date the remote goes online in the host, perform activities as described in Section 10: System Acceptance
5. Schedule webinar training with the PSAP

DECOMMISSIONED PSAP (CLOSED PSAP)

A closing or decommissioned PSAP requires the removal of the ECaTS RDDM from the physical location. ECaTS will coordinate with the PSAP to select an appropriate date to remove the equipment from the premise and will dispatch a field engineer to remove the equipment.

4. Contingency or roll back plans should implementation or integration failures occur during the transition or cutover of the proposed systems or services

As an MIS platform, ECaTS is a directly dependent on the equipment that handles the calls at the PSAP, as such ECaTS will conform to any rollback plans described by the call handling equipment to ensure continued data flow. Depending on the type of cutover that is occurring this could include reconnecting to the existing equipment, adding connections to equipment or in the event of a new data format (contingency) the data would be buffered in the ECaTS service cloud while upgrades to the data analysis engine are done to support the new format.

1. Identification of risks, dependencies or interdependencies that may impact the transition to full operational status and cutover

The transition of ECaTS from ANGEN to next generation 911 offers the same risks and mitigation plans as those described in section 8.1: Risk Management Plan with some additional risks and mitigation for cutover scenarios are described below.

Cutover Risks

Schedule for cutover changes

To mitigate: ECaTS will adjust our schedule to meet the changes of the cutover schedule.

Cutover incurs problems preventing activation.

To mitigate: If disconnected, ECaTS will reconnect to existing equipment and reschedule cutover when the block that prevented cutover has been removed.

Network connectivity at cutover location not available day of cut

To mitigate: ECaTS will connect to new equipment to ensure no data loss and will late RDDM buffer. At a later date ECaTS will coordinate a site visit to establish the network in order for the RDDM to spill buffered and new data.

Cutover data format needs adjustments to parsers.

To mitigate: ECaTS engineers will develop software updates for the data being captured and will apply the updates retroactively to the cut over date to report on the data store during development and to be used against new data coming in.

2. Identification and definition of the ability to support a phased migration and parallel operation with current ANGEN operations

ECaTS ability to report is predicated on its ability to collect data from premise equipment. As a result of this dependency, ECaTS install and cutover procedures are designed around flexibility and coordination with downstream dependencies such as the CPE provider. As a result, ECaTS is able to support any format of migration be it a phased or parallel approach. The schedule provided in answer one of section 8 describes a high level cutover schedule which can be easily adapted to a phased or parallel approach depending on the needs of Alabama.

8.4 SERVICE MANAGEMENT PLAN

Oversight of the ESInet and network functions after implementation is required. The preferred best practice is to utilize Information Technology Infrastructure Library (ITIL) as a guideline for how services are designed, implemented, managed, maintained and improved within a lifecycle.

ITIL integrates five stages of service delivery into a comprehensive methodology for managing the lifecycle of services.

- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement

Within these stages, are specific areas relating to Information Technology Service Management.

At a high level, these areas reference how a service maintains availability, capability, capacity, security, manageability, and operability.

Respondents shall describe their approach to service management for the operation of the system. The service management approach shall incorporate components of ITIL or follow industry best practices for IT service management.

Respondents shall provide a narrative of how their proposed service management approach is integrated into their project management activities. Respondents shall discuss their ability to maintain consistent performance and the service levels of the network

ECaTS uses service management methodology based around the concepts of ASP/SaaS services. This model is different from all traditional models in that a SaaS business operates in a constant development and service model due to the benefits of the system being hosted and maintained by ECaTS and not deployed in the field. What follows is a discussion of how the current ECaTS service operations aligns with Alabama ITIL methodology.

Service Strategy

ECaTS has a multipronged approach to service strategy that encompasses: Data collection and storage, data accuracy and analytics, customer service and ongoing training, planned 10-12 releases per year, multiple small releases (AGILE sprints) in response to changes/customer enhancements. These aspects of the service strategy provide for 100% operational performance that is customer centric and accuracy driven. ECaTS service strategy is to maintain system operations in the face of constantly changing environments and provide a strong customer service liaison for every customer to be attentive to customer needs and to communicate platform updates/changes where required. Openness and transparency is the hallmark of ECaTS service strategy and is carried through to the platform by providing full visibility to all customers of various *trouble tickets* that are being processed to ensure continued, accurate operations of the ECaTS service.

Service Design

The ECaTS service is designed as a modular licensed software as a service and is able to be managed and run by ECaTS on behalf of the users. The service design provides for multiple modules that can b activated/deactivated depending on the license that have been subscribed to. At its core, ECaTS provides the following general licenses as individual and bundled services (this is part of the service design, modular systems):

1. ECaTS Analytics and MIS

Provides analytics for understanding PSAP operations and overall city, county, regional, state performance of PSAP's under the jurisdiction of the Alabama 911 board.

2. ECaTS Text-to-9-1-1

Provides analytics for all Text-to-9-1-1 services included full transcript reporting and detailed analysis of text session traffic.

3. ECaTS Real-Time Monitoring and Alerting

A base platform for monitoring real-time data coming into the ECATS system. Can provide alerts against any data segment, currently licenses are available for PSAP performance and Communication Infrastructure Monitoring System (CIMS)

4. ECaTS ESInet logging and analytics

Platform for the collection and storage of NG 911 Functional Element telemetry and is used to combine ESINet data with PSAP operation data to provide end-to-end analytics. Optional licenses for activate log replication services are also available.

Service Transition

ECaTS is a low impact system that does not impact existing operations. The ECaTS data collection and dissemination technologies are passive technologies that cohabitate with existing systems but provide no signaling that could be responded to. As such, transitioning from the current analytics platform to ECaTS is as easy as opening a web browsers and pointing to the ECaTS service. ECaTS can also co-exists with other analytics suites and will not interfere with those platform operation. One thing to note about service transition is if comparisons are made of output keep in mind business rules are always different

and you need to understand those rules, which ECaTS shares, before making a comparison to ensue apples-to-apples comparison of analytics results.

ECaTS recognizes that updates to statewide systems always undergo a slow transition from current services to the new service. ECATS is designed to ease this transition and operationally is structured to support this from support of Field Intelligence through to Client Communication which act as the liaison to ease the transition to the new service.

Service Operation

ECaTS service operations are dominated by Field Intelligence Operational service, which maintain the data collection devices and the Client Communications Specialist team which is the customer liaison for all topics ECaTS related.

Field Intelligence (FI):

The FI team is responsible for maintaining the activity of the data collection devices and for coordinating premise equipment upgrades, changes, and consolidation to ensure the service is not interrupted or the interruptions are coordinated with the activities on the ground. In the event a problem is detected with a data collection device, the FI team will reach out to the location with the affected device and coordinate a maintenance call or site visit to rectify the problem with the data collector. In the event a dispatch is needed the FI team will coordinate activities with ECaTS field engineers and the location to be serviced to ensure everyone is coordinated for the activity and service restoration can proceed.

Client Communication Specialist (CCS):

The CCS team is the face of ECaTS and is who all customers interact with on aregular basis. tHe CCS team is assigned as critical service liaisons to all PSAP's that are part of the deployment The CCS is responsible for ongoing training, user account maintenance and password resetting, servicing of data requests and capturing customization requirements to enhance the platform for the needs of the customer. CCS provides that personal touch that makes a service work, ECaTS prefers this one-on-one relationship as it provides a method of communication that is not just email based but personal and relies on transparency and honest communication between ECaTS and the end user.

Continual Service Improvement:

As a SaaS based service ECaTS follows an aggressive 10-12 releases a year update plan with multiple small releases to the platform made when needed. ECaTS plans a new software update/release for every 4-6 week period (sometimes shorter) which results in full platform updates with new features and functionality on a monthly basis. Availability of new features are provided to the customer base either as new licensed service modules or, where appropriate, enhancements are made platform wide without any additional license costs.

As a living software platform, ECaTS is also constantly undergoing modifications to match changes made by vendor systems ECaTS reads from. These updates occur as hotfixes to the platform and ensure the service I able to deliver even in the face of changes from source systems/data that have not been coordinated with ECaTS (though coordination allows for a faster turn around time)

- Nothing Follows -

Attachment A: 2014 Financial Statement

Please Reference the Sealed Envelope marked “Confidential”

Attachment A-1: 2013 Financial Statement

Please Reference the Sealed Envelope marked “Confidential”

Direct Technology
3009 Douglas Blvd., Suite 300
Roseville, CA 95661
(916)-787-2200

April 30, 2015

Van Erp, Petersen & Babcock, LLP
2260 Douglas Blvd., Suite 290
Roseville, CA 95661

We are providing this letter in connection with your review of the combined balance sheet and related statement of income and retained earnings and members' equity and cash flows as of December 31, 2014 and for the year then ended, for the purpose of obtaining limited assurance that there are no material modifications that should be made to the financial statements in order for the statements to be in conformity with accounting principles generally accepted in the United States of America. We confirm that we are responsible for the preparation and fair presentation of the financial statements of financial position, results of operations, and cash flow in accordance with accounting principles generally accepted in the United States of America and the selection and application of the accounting policies.

Certain representations in this letter are described as being limited to matters that are material. Items are considered material, regardless of size, if they involve an omission or misstatement of accounting information that, in light of surrounding circumstances, makes it probable that the judgment of a reasonable person using the information would be changed or influenced by the omission or misstatement.

We confirm, to the best of our knowledge and belief, as of April 30, 2015, the following representations made to you during your review.

1. The financial statements referred to above are fairly presented in accordance with accounting principles generally accepted in the United States of America.

2. We have made available to you all-

a) Financial records and related data.

b) Minutes of the meetings of stockholders, directors, and committees of directors, or summaries of actions of recent meetings for which minutes have not yet been prepared.

3. No material transactions exist that have not been properly recorded in the accounting records underlying the financial statements.

4. We acknowledge our responsibility for designing, implementing, and maintaining internal control relevant to the preparation and fair presentation of the financial statements.

5. We acknowledge our responsibility to prevent and detect fraud.

6. We have no knowledge of any fraud or suspected fraud affecting the entity involving management or others where the fraud could have a material effect on the financial statements, including any communications from employees, former employees, or others.

7. We have no plans or intentions that may materially affect the carrying value or classification of assets and liabilities.

8. No material losses exist (such as from obsolete inventory or purchase or sales commitments) that have not been properly accrued or disclosed in the financial statements.

9. There are no:

a) Violations or possible violations of laws or regulations whose effects should be considered for disclosure in the financial statements or as a basis for recording a loss contingency.

b) Unasserted claims or assessments that our lawyer has advised us are probable of assertion that must be disclosed in accordance with FASB ASC 450, *Contingencies.*

c) Other material liabilities or gain or loss contingencies that are required to be accrued or disclosed by FASB ASC 450, *Contingencies*.

10. The Company has satisfactory title of all owned assets, and there are no liens or encumbrances on such assets nor has any asset been pledged as collateral except as made known to you and disclosed in the notes to the financial statements.

11. We have complied with all aspects of contractual agreements that would have a material effect on the financial statements in the event of noncompliance.

12. The following have been properly recorded or disclosed in the financial statements:

a) Related party transactions and related accounts receivable or payable, including sales, purchases, loans, transfers, leasing arrangements, and guarantees.

b) Guarantees, whether written or oral, under which the company is contingently liable.

c) Significant estimates and material concentrations known to management that are required to be disclosed in accordance with FASB ASC 275, Risks and Uncertainties.

13. We are in agreement with the adjusting journal entries, if any, you have recommended, and they have been or will be posted to the Company's accounts.

14. To the best of our knowledge and belief, no events have occurred subsequent to the balance sheet date and through the date of this letter that would require adjustment to, or disclosure in, the financial statements.

15. We have responded fully and truthfully to all inquiries made to us by you during your review.

Very truly yours,

John Sercu, Chairman of the Board

Casey Stenzel, CFO

FIRST AMENDED AND RESTATED BYLAWS
OF
DIRECTAPPS, INC.

ARTICLE I
VETERAN OWNED SMALL BUSINESS

The Corporation intends to operate at all times as a verified veteran-owned small business pursuant to the ownership, control, good character and other requirements of the Veterans Small Business Regulations, 38 CFR Part 74 (the "VSBR Verification Requirements"). The Corporation shall be unconditionally owned and controlled at all times by one or more eligible veterans of good character and otherwise meet the VSBR Verification Requirements.

ARTICLE II
REGISTERED OFFICE AND REGISTERED AGENT

The registered office of the Corporation shall be located in the State of California at such place as may be fixed from time to time by the Board of Directors upon filing of such notices as may be required by law, and the registered agent shall have a business office identical with such registered office. A registered agent so appointed shall consent to appointment in writing and such consent shall be filed with the Secretary of State of the State of California. If a registered agent changes the street address of the agent's business office, the registered agent may change the street address of the registered office of the Corporation by notifying the Corporation in writing of the change and signing, either manually or in facsimile, and delivering to the Secretary of State for filing a statement of such change, as required by law. The Corporation may change its registered agent at any time upon the filing of an appropriate notice with the Secretary of State, with the written consent of the new registered agent either included in or attached to such notice.

ARTICLE III
SHAREHOLDERS' MEETINGS

1. Meeting Place. All meetings of the shareholders shall be held, pursuant to proper notice as set forth in Article III Section 5 of these Bylaws (the "Bylaws"), at the principal executive office of the Corporation, or at such other place as shall be determined from time to time by the Board of Directors.

2. Annual Meeting Time. The annual meeting of the shareholders for the election of directors and for the transaction of such other business as may properly come before the meeting shall be held each year on such date and at such hour as may be determined by resolution of the Board of Directors from time to time. In the absence of such determination, the annual meeting shall be held each year on the third Thursday of June, at the hour of 10:00 a.m., if not a legal holiday, and if a legal holiday, then on the next business day following, at the same hour.

3. Annual Meeting - Order of Business. At the annual meeting of shareholders, the order of business shall be as follows: (a) call to order; (b) proof of notice of meeting (or filing of waiver); (c) reading of minutes of last annual meeting; (d) election of directors; (e) reports of officers; (f) reports of committees; and (g) other business.

4. Special Meetings. Special meetings of the shareholders for any purpose may be called at any time by the Chairman of the Board, the President, the Board of Directors or upon direct request to the President by the holders of at least twenty-five percent (25%) of all the votes entitled to be cast on any issue proposed to be considered at such special meeting. Special shareholders' meetings shall be held at the Corporation's principal executive office or at such other place as shall be identified in the notice of such meeting. If the President refuses, or fails, to promptly call a special meeting duly requested by shareholders pursuant to this Section 4, such shareholders may call such meeting directly.

5. Notice.

(a) Except as provided in subsection (c) hereunder, notice of the date, time and place of the annual meeting of shareholders shall be given by delivering personally or by mailing a written or printed notice of the same, not less than ten (10) days, and not more than sixty (60) days, prior to the meeting to each shareholder of record entitled to vote at such meeting.

(b) Except as provided in subsection (c) hereunder, written or printed notice of each special meeting of shareholders shall be given not less than ten (10) days and not more than sixty (60) days prior to the meeting. Such notice shall state the date, time and place of such meeting, and the purpose or purposes for which the meeting is called, and shall be delivered personally, or mailed to each shareholder of record entitled to vote at such meeting.

(c) Notice of a shareholders' meeting at which the shareholders will be called to act on the election of one or more directors, an amendment to the articles of incorporation, a plan of merger or share exchange, a proposed sale of assets other than in the regular course of business or the dissolution of the Corporation shall be given not less than twenty (20) days and not more than sixty (60) days before the meeting date.

6. Record Date. For the purpose of determining shareholders entitled to notice of or to vote at any meeting of shareholders, or at any adjournment thereof, or entitled to receive dividends or distributions, the Board of Directors shall fix in advance a record date for any such determination of shareholders, such date to be not more than seventy (70) days and, in case of a meeting of shareholders, not less than ten (10) days prior to the date on which the particular action requiring such determination of shareholders is to be taken, except as otherwise provided in subsection 5(c) of this Article III herein.

7. Shareholders' List. After fixing a record date for a shareholders' meeting, the Corporation shall prepare an alphabetical list of the names of all its shareholders on the record date who are entitled to notice of a shareholders' meeting. Such list shall be arranged by voting group, and within each voting group by class or series of shares, and show the address of and number of shares held by each shareholder. The shareholders' list shall be kept on file at the registered office of the Corporation for a period beginning ten (10) days prior to such meeting and shall be kept open at the time and place of such meeting for the inspection by any shareholder, or any shareholder's agent or attorney.

8. Quorum. Except as otherwise required by law, a quorum at any annual or special meeting of shareholders shall consist of shareholders representing, either in person or by proxy, a majority of the votes entitled to be cast on the matter by each voting group.

9. Voting.

(a) Except as otherwise provided in the articles of incorporation, as they may be amended or restated from time to time (as so amended or restated, the "Articles of Incorporation") and subject to the provisions of the laws of the State of California, each outstanding share, regardless of class, is entitled to one vote on each matter voted on at a shareholders' meeting.

(b) If a quorum exists, action on a matter, other than the election of directors, is approved by a voting group if the votes cast within the voting group favoring the action exceed the votes cast within the voting group opposing the action, unless the question is one which by express provision of law, of the Articles of Incorporation or of these Bylaws a greater number of affirmative votes is required.

(c) Unless otherwise provided in the Articles of Incorporation, in any election of directors the candidates elected are those receiving the largest numbers of votes cast by the shares entitled to vote in the election, up to the number of directors to be elected by such shares.

(d) Notwithstanding anything herein to the contrary, all meetings and shareholder votes shall be in strict compliance with the ownership and control provisions of the VSBR Verification Requirements.

10. Proxies. A shareholder may vote either in person or by appointing a proxy by signing an appointment form, either personally or by the shareholder's attorney-in-fact or agent. An appointment of a proxy is effective when received by the person authorized to tabulate votes for the Corporation. An appointment of a proxy is valid for eleven months unless a longer period is expressly provided in the appointment form.

11. Waiver of Notice. A written waiver of any notice required to be given to any shareholder, signed by the person or persons entitled to such notice, whether before or after the time stated therein for the meeting, shall be deemed by the Corporation as the giving of such notice, provided that such waiver has been delivered to the Corporation for inclusion in the minutes or filing with the Corporation's records. A shareholder's attendance at a meeting waives any notice required, unless the shareholder at the beginning of the meeting objects to holding the meeting or transacting business at the meeting.

12. Action of Shareholders by Communications Equipment. Shareholders may participate in any meeting of shareholders by any means of communication by which all persons participating in the meeting can hear each other during the meeting. A shareholder participating in a meeting by this means is deemed to be present in person at the meeting.

ARTICLE IV
SHARES OF STOCK

1. Issuance of Shares. No shares of the Corporation shall be issued unless authorized by the Board of Directors. Such authorization shall include the number of shares to be issued and the consideration to be received. Shares may, but need not, be represented by certificates. Unless otherwise provided by law, the rights and obligations of shareholders are identical whether or not their shares are represented by certificates.

2. Certificated Shares. If shares are represented by certificates, certificates of stock shall be issued in numerical order, and each shareholder shall be entitled to a certificate signed, either manually or in facsimile, by at least two of the Chief Executive Officer, the President, a Vice President, and the Secretary, and such certificate may bear the seal of the Corporation or a facsimile thereof. If an officer who has signed or whose facsimile signature has been placed upon such certificate ceases to be such officer before the certificate is issued, it may be issued by the Corporation with the same effect as if the person were an officer on the date of issue. At a minimum each certificate of stock shall state: (a) the name of the Corporation; (b) that the Corporation is organized under the laws of the State of California; (c) the name of the person to whom the certificate is issued; (d) the number and class of shares and the designation of the series, if any, the certificate represents; and (e) if the Corporation is authorized to issue different classes of shares or different series within a class, the designations, relative rights, preferences and limitations applicable to each class and the variations in rights, preferences and limitations determined for each series, and the authority of the Board of Directors to determine variations for future series, must be summarized either on the front or back of the certificate. Alternatively, the certificate may state conspicuously on its front or back that the Corporation will furnish the shareholder this information without charge upon request in writing. In case of any mutilation, loss or destruction of any certificate of stock, another certificate may be issued in its place on proof of such mutilation, loss or destruction. The Board of Directors may impose conditions on such issuance and may require the giving of a satisfactory bond or indemnity to the Corporation in such sum as it might determine or establish such other procedures as it deems necessary or appropriate.

3. Uncertificated Shares.

(a) Unless the Articles of Incorporation provide otherwise, the Board of Directors may authorize the issue of any of the Corporation's classes or series of shares without certificates.

(b) Within a reasonable time after the issuance of shares without certificates, the Corporation shall send the shareholder a complete written statement of the information required on certificates as provided in Article IV, Section 2 of these Bylaws.

4. Transfers.

(a) Transfers of stock shall be made only upon the stock transfer records of the Corporation, which records shall be kept at the registered office of the Corporation, its principal place of business, or at the office of its transfer agent or registrar. The Board of Directors may, by resolution, open a share register in any state of the United States, and may employ an agent or agents to keep such register and to record transfers of shares therein.

(b) Shares of certificated stock shall be transferred by delivery of the certificates therefor, accompanied either by an assignment in writing on the back of the certificate or an assignment separate from certificate, or by a written power of attorney to sell, assign and transfer the same, signed by the holder of said certificate. Except as otherwise specifically approved by the Board of Directors, no shares of certificated stock shall be transferred on the records of the Corporation until the outstanding certificates therefor have been surrendered to the Corporation or to its transfer agent or registrar.

(c) Shares of uncertificated stock shall be transferred upon receipt by the Corporation of a written request for transfer signed by the shareholder. Within a reasonable time after the transfer of shares without certificates, the Corporation shall provide the new shareholder a complete written statement of the information required on certificates as provided in Article IV, Section 2 of these Bylaws.

5. Fractional Shares or Scrip. The Corporation may: (a) issue fractions of a share; (b) arrange for the disposition of fractional interests by the shareholders; (c) pay in money the value of fractions of a share; and (d) issue scrip in registered or bearer form which shall entitle the holder to receive a certificate for a full share upon the surrender of enough scrip to equal a full share.

6. Shares of Another Corporation. Shares owned by the Corporation in another corporation, domestic or foreign, may be voted by such officer, agent or proxy as the Board of Directors may determine or, in the absence of such determination, by the act of the Board of Directors.

ARTICLE V
BOARD OF DIRECTORS

1. Powers. The management of all the affairs, property and interests of the Corporation shall be vested in a Board of Directors. In addition to the powers and authorities expressly conferred upon it by these Bylaws and by the Articles of Incorporation, the Board of Directors may exercise all such powers of the Corporation and do all such lawful acts as are not prohibited by statute (including the VSBR Verification Regulations), the Articles of Incorporation or by these Bylaws or as directed or required to be exercised or done by the shareholders.

2. Chairman of the Board. The Chairman of the Board shall be a director and shall be a veteran or other qualified person meeting the requirements of the VSBR Verification Regulations. The Chairman shall preside at all meetings of the shareholders and at all meetings of the Board of Directors at which he or she is present and shall have such other powers as the Board may determine.

3. General Standards for Directors.

(a) A director shall discharge the duties of a director, including duties as a member of a committee: (i) in good faith; (ii) with the care an ordinary prudent person in a like position would exercise under similar circumstances; and (iii) in a manner the director reasonably believes to be in the best interests of the Corporation.

(b) A director may not appoint a proxy to discharge the duties of such director.

4. Number and Term. The Board of Directors shall consist of not more than five (5) persons as may from time to time be designated by the then-existing Board of Directors. A majority of all directors serving on the Board of Directors at any time must be veterans or an otherwise qualified person meeting the requirements of the VSBR Verification Regulations. Directors need not be shareholders of the Corporation or residents of the State of California. The directors shall serve for a term ending on the date of the annual meeting of shareholders following

the annual meeting at which the director was elected; provided, however, that each director shall serve until his or her successor is duly elected and qualified or until his or her death, resignation or removal.

5. Change of Number. Except as otherwise provided pursuant to a separate agreement among the shareholders, the number of directors may at any time be increased or decreased by resolution of either the shareholders or directors at any annual, special or regular meeting; provided, that no decrease in the number of directors shall have the effect of shortening the term of any incumbent director, except as provided in Sections 6 and 7 of this Article V.

6. Vacancies. Except as otherwise provided in the Articles of Incorporation or by separate agreement among the shareholders, all vacancies in the Board of Directors, whether caused by resignation, death, removal or otherwise, may be filled by the affirmative vote of a majority of the remaining directors in office though less than a quorum of the Board of Directors. A director elected to fill a vacancy shall, if necessary to meet the requirements of the VSBR Verification Regulations, shall be a veteran or other qualified person under the VSBR Verification Regulations, and shall hold office until the next shareholders' meeting at which directors are elected and until his or her successor is elected and qualified.

7. Resignation. A director may resign at any time by delivering written notice to the Board of Directors, the President or the Secretary. A resignation is effective when the notice is delivered unless the notice specifies a later effective date. Notwithstanding the foregoing, the resignation of any director shall not be accepted if such resignation would result in the Corporation's failure to meet the requirements of the VSBR Verification Regulations, unless and until a replacement director can be duly appointed and qualified to meet the Corporation's ongoing requirements under the VSBR Verification Regulations.

8. Removal of Directors. Except as otherwise provided pursuant to a separate agreement among the shareholders, at a special meeting of shareholders called expressly for that purpose, the entire Board of Directors, or any member thereof, may be removed, with or without cause, by a vote of the holders of a majority of shares then entitled to vote at an election of such directors. If a director is elected by holders of one or more authorized classes or series of shares, only the holders of those classes or series of shares may participate in the vote to remove the director. A director or directors may be removed only if the number of votes cast to remove the director exceeds the number of votes cast not to remove the director. The notice of such special meeting must state that the purpose, or one of the purposes, of the meeting is removal of the director or directors, as the case may be. Notwithstanding the foregoing, no director may be removed if such removal would result in the Corporation's failure to meet the requirements of the VSBR Verification Regulations, unless and until a replacement director can be duly appointed and qualified to meet the Corporation's ongoing requirements under the VSBR Verification Regulations.

9. Regular Meetings. Regular meetings of the Board of Directors or any committee may be held without notice at the principal place of business of the Corporation or at such other place or places, either within or without the State of California, as the Board of Directors or such committee, as the case may be, may from time to time designate. The annual meeting of the Board of Directors shall be held without notice immediately after adjournment of the annual meeting of shareholders.

10. Special Meetings.

(a) Special meetings of the Board of Directors may be called at any time by the Chairman of the Board, the President or by any director, to be held at the principal place of business of the Corporation or at such other place or places as the Board of Directors may from time to time designate. Notice of all special meetings of the Board of Directors, stating the date, time and place thereof, shall be given at least three (3) days prior to the date of the meeting, in accordance with the provisions set forth in Article VII of these Bylaws. Such notice need not specify the business to be transacted at, or the purpose of, the meeting.

(b) Special meetings of any committee of the Board of Directors may be called at any time by such person or persons and with such notice as shall be specified for such committee by the Board of Directors, or, in the absence of such specification, in the manner and with the notice required for special meetings of the Board of Directors.

11. Waiver of Notice. A director may waive any notice required by law, by the Articles of Incorporation or by these Bylaws before or after the time stated for the meeting, and such waiver shall be equivalent to the giving of such notice. Such waiver must be in writing, signed by the director entitled to such notice and delivered to the Corporation for inclusion in the minutes or filing with the corporate records. A director's attendance at or participation in a meeting shall constitute a waiver of any required notice to the director of the meeting unless the director at the beginning of the meeting, or promptly upon the director's arrival, objects for lack of notice to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting.

12. Quorum. A majority of the full Board of Directors shall be necessary at all meetings to constitute a quorum for the transaction of business. If a quorum is present when a vote is taken, the affirmative vote of a majority of directors present is the act of the Board of Directors.

13. Registering Dissent. A director who is present at a meeting of the Board of Directors at which action on a corporate matter is taken is deemed to have assented to such action unless: (a) the director objects at the beginning of the meeting, or promptly upon the director's arrival, to the holding of, or transaction of business at, the meeting; (b) the director's dissent or abstention from the action is entered in the minutes of the meeting; or (c) the director delivers written notice of the director's dissent or abstention to the presiding officer of the meeting before its adjournment or to the Corporation within a reasonable time after adjournment of the meeting. The right to dissent or abstain is not available to a director who voted in favor of the action taken.

14. Action by Directors Without a Meeting.

(a) Any action required or permitted to be taken at a meeting of the Board of Directors, or of a committee thereof, may be taken without a meeting if the action is taken by all members of the Board of Directors. The action must be evidenced by one or more written consents setting forth the action taken, signed by each of the directors, or by each of the members of the committee, as the case may be, either before or after the action taken, and delivered to the Corporation for inclusion in the minutes or filing with the Corporation's records.

(b) Action taken under this section is effective when the last director signs the consent, unless the consent specifies a later effective date.

15. Participation by Means of Communications Equipment. Any or all directors may participate in a regular or special meeting of the Board of Directors (or of a committee thereof) by, or may conduct the meeting through the use of, any means of communication by which all directors participating can hear each other during the meeting. A director participating in a meeting by this means is deemed to be present in person at the meeting.

16. Committees.

(a) The Board of Directors, by resolution adopted by a majority of the full Board of Directors, may create one or more committees of directors. Each committee must have two or more members who serve at the pleasure of the Board of Directors. To the extent specified by the Board of Directors, each committee may exercise the authority of the Board of Directors, except that no committee shall have the authority to: (i) authorize or approve a distribution except according to a general formula or method prescribed by the Board of Directors; (ii) approve or propose to shareholders action that by law is required to be approved by shareholders; (iii) fill vacancies on the Board of Directors or any of its committees; (iv) amend the Articles of Incorporation; (v) adopt, amend or repeal these Bylaws; (vi) approve a plan of merger not requiring shareholder approval; (vii) authorize or approve the issuance or sale or contract for sale of shares, or determine the designation and relative rights, preferences and limitations of a class or series of shares, except that the Board of Directors may authorize a committee (or a senior executive officer of the Corporation) to do so within limits specifically prescribed by the Board of Directors; or (viii) take any action which may result in the disqualification of the Corporation as a veteran owned small business under the VSBR Verification Regulations.

(b) The creation of, delegation of authority to or action by a committee does not alone constitute compliance by a director with the standards of conduct required by California state law or these Bylaws.

17. Remuneration. By resolution of the Board of Directors, directors may be remunerated in cash, equity, and/or by the grant of options, warrants or other rights to purchase shares of the Corporation's stock, and a fixed sum and expenses of attendance, if any, may be allowed for attendance at each regular or special meeting of the Board of Directors or of a committee thereof; nothing herein contained shall be construed to preclude any director from serving the Corporation in any other capacity and receiving compensation therefor.

18. Notice of Nomination.

(a) Nominations for the election of directors may be made by the Board of Directors. Notice of nominations which are proposed by the Board of Directors shall be given by the Chairman of the Board on behalf of the Board.

(b) Nominations for the election of directors may be made by any shareholder entitled to vote for the election of directors. Notwithstanding the provisions of Article VIII, such nominations shall be made by notice in writing, delivered or mailed by first class United States mail, postage pre-paid, to the Secretary of the Corporation not less than 14 days nor more than 50 days prior to any meeting of the shareholders called for the election of directors; provided, however, that if less than 21 days' notice of the meeting is given to the shareholders, such written notice shall be delivered or mailed, as prescribed above, to the Secretary of the Corporation not later than 5:00 p.m. on the seventh day following the day on which notice of the meeting was mailed to the shareholders. Each notice under this subsection (b) shall set forth (i) the name, age, business address and, if known, residence address of each nominee proposed in such notice, (ii) the principal occupation or employment of each such nominee, (iii) the number of shares of stock of the Corporation beneficially owned by each such nominee, (iv) the name and address of the shareholder giving notice and any other shareholders known by such shareholder to be supporting such nominees, and (v) the number of shares of stock of the Corporation beneficially owned by the shareholder giving notice and any other shareholders known by such shareholder to be supporting such nominee.

(c) The chair of the meeting may, if the facts warrant, determine and declare to the meeting that a nomination was not made in accordance with the foregoing procedure, and should he or she so determine, he or she shall so declare to the meeting and the defective nomination shall be disregarded.

ARTICLE VI
OFFICERS

1. Designations. The officers of the Corporation shall be a Chief Executive Officer, a President, a Secretary and, at the discretion of the Board of Directors, one or more Vice-Presidents and a Treasurer. The Board of Directors shall appoint all officers. Any two or more offices may be held by the same individual. The Board of Directors, or a duly appointed officer to whom such authority has been delegated by Board resolution, may appoint such other officers and agents as it shall deem necessary or expedient, who shall hold their offices for such terms and shall exercise such powers and perform such duties as shall be determined from time to time by the Board of Directors.

2. Appointment and Term of Office. The officers of the Corporation shall be appointed annually by the Board of Directors at the first meeting of the Board of Directors held before each annual meeting of the shareholders. Each officer shall hold office until a successor shall have been appointed and qualified, or until such officer's earlier death, resignation or removal.

3. Powers and Duties. If the Board appoints persons to fill the following positions, such officers shall have the power and duties set forth below:

(a) The Chief Executive Officer. The Chief Executive Officer of the Corporation shall have, subject to the direction and control of the Board of Directors, general control and management of the business affairs and policies of the Corporation, and shall be a veteran or other person meeting the ownership, control and character requirements of the VSBR Verification Regulations. The Chief Executive Officer shall act as liaison from and as spokesperson for the Board of Directors. The Chief Executive Officer shall participate in long-range planning for the Corporation and shall be available to the other officers of the Corporation for consultation. The Chief Executive Officer shall possess power to sign all certificates, contracts and other instruments of the Corporation. If the

Chairman of the Board of Directors is not present, the Chief Executive Officer (if a director) shall preside at all meetings of the shareholders and of the Board of Directors. The Chief Executive Officer shall perform all such other duties as are incident to the office of Chief Executive Officer or are properly required by the Board of Directors.

(b) The President. The President of the Corporation shall be the Chief Operating Officer of the Corporation and shall have such powers and discharge such duties as may be assigned from time to time by the Chief Executive Officer, or, in the absence of a Chief Executive Officer, the Board of Directors. If no Chief Executive Officer is separately appointed, the President shall be the Chief Executive Officer, having such responsibilities and performing such duties of the Chief Executive Officer. During the absence or disability of the CEO, the President shall exercise all the functions of the Chief Executive Officer.

(c) Vice-Presidents. During the absence or disability of the President, the Executive or Senior Vice-Presidents, if any, and the Vice-Presidents, if any, in the order designated by the Board of Directors, shall exercise all the functions of the President. Each Vice-President shall have such powers and discharge such duties as may be assigned from time to time by the Board of Directors.

(d) The Secretary. The Secretary shall issue notices for all meetings, shall keep minutes of all meetings, shall have charge of the seal and the Corporation's books, and shall make such reports and perform such other duties as are incident to the office of Secretary, or are properly required of him or her by the Board of Directors.

(e) The Treasurer. The Treasurer shall have the custody of all moneys and securities of the Corporation and shall keep regular books of account. The Treasurer shall disburse the funds of the Corporation in payment of the just demands against the Corporation or as may be ordered by the Board of Directors, taking proper vouchers or receipts for such disbursements, and shall render to the Board of Directors from time to time as may be required an account of all transactions as Treasurer and of the financial condition of the Corporation. The Treasurer shall perform such other duties incident to his or her office or that are properly required of him or her by the Board of Directors.

4. Standards of Conduct for Officers. An officer with discretionary authority shall discharge such officer's duties under that authority: (a) in good faith; (b) with the care an ordinary prudent person in a like position would exercise under similar circumstances; and (c) in a manner the officer reasonably believes to be in the best interests of the Corporation.

5. Delegation. In the case of absence or inability to act of any officer of the Corporation and of any person herein authorized to act in such officer's place, the Board of Directors may from time to time delegate the powers or duties of such officer to any other officer or any director or other person whom it may in its sole discretion select.

6. Vacancies. Vacancies in any office arising from any cause may be filled by the Board of Directors at any regular or special meeting of the Board.

7. Resignation. An officer may resign at any time by delivering notice to the Corporation. Such notice shall be effective when delivered unless the notice specifies a later effective date. Any such resignation shall not affect the Corporation's contract rights, if any, with the officer.

8. Removal. Any officer elected or appointed by the Board of Directors may be removed at any time, with or without cause, by the affirmative vote of a majority of the whole Board of Directors, but such removal shall be without prejudice to the contract rights, if any, of the person so removed.

9. Salaries and Contract Rights. The salaries, if any, of the officers shall be fixed from time to time by the Board of Directors. The appointment of an officer shall not of itself create contract rights.

10. Bonds. The Board of Directors may, by resolution, require any and all of the officers to give bonds to the Corporation, with sufficient surety or sureties, conditioned for the faithful performance of the duties of

their respective offices, and to comply with such other conditions as may from time to time be required by the Board of Directors.

ARTICLE VII
DISTRIBUTIONS AND FINANCE

1. Distributions. The Board of Directors may authorize and the Corporation may make distributions to its shareholders; provided that no distribution may be made if, after giving it effect, either: (a) the Corporation would not be able to pay its debts as they become due in the usual course of business; or (b) the Corporation's total assets would be less than the sum of its total liabilities plus the amount which would be needed, if the Corporation were to be dissolved at the time of the distribution, to satisfy the preferential rights upon dissolution of shareholders whose preferential rights are superior to those receiving the distribution. The Board of Directors may authorize distributions to holders of record at the close of business on any business day prior to the date on which the distribution is made. If the Board of Directors does not fix a record date for determining shareholders entitled to a distribution, the record date shall be the date on which the Board of Directors authorizes the distribution.

2. Measure of Effect of a Distribution. For purposes of determining whether a distribution may be authorized by the Board of Directors and paid by the Corporation under Article VII, Section 1, of these Bylaws, the effect of the distribution is measured: (a) in the case of a distribution of indebtedness, the terms of which provide that payment of principal and interest are made only if and to the extent that payment of a distribution to shareholders could then be made under this section, each payment of principal or interest is treated as a distribution, the effect of which is measured on the date the payment is actually made; or (b) in the case of any other distribution: (i) if the distribution is by purchase, redemption, or other acquisition of the Corporation's shares, the effect of the distribution is measured as of the earlier of the date any money or other property is transferred or debt incurred by the Corporation, or the date the shareholder ceases to be a shareholder with respect to the acquired shares; (ii) if the distribution is of an indebtedness other than described in subsection 2(a) and (b)(i) of this section, the effect of the distribution is measured as of the date the indebtedness is distributed; and (iii) in all other cases, the effect of the distribution is measured as of the date the distribution is authorized if payment occurs within 120 days after the date of authorization, or the date the payment is made if it occurs more than 120 days after the date of authorization.

3. Depositories. The moneys of the Corporation shall be deposited in the name of the Corporation in such bank or banks or trust company or trust companies as the Board of Directors shall designate, and shall be drawn out only by check or other order for payment of money signed by such persons and in such manner as may be determined by resolution of the Board of Directors.

ARTICLE VIII
NOTICES

Except as may otherwise be required by law or the Articles of Incorporation, any notice to any shareholder or director must be in writing and may be transmitted by: mail, private carrier or personal delivery; telegraph or teletype; or telephone, electronic mail, wire or wireless equipment which transmits a facsimile of the notice. Written notice by the Corporation to its shareholders shall be deemed effective when mailed, if mailed with first-class postage prepaid and correctly addressed to the shareholder's address shown in the Corporation's current record of shareholders. Except as set forth in the previous sentence, written notice shall be deemed effective at the earliest of the following: (i) when received; (ii) five days after its deposit in the United States mail, as evidenced by the postmark, if mailed with first-class postage, prepaid and correctly addressed; (iii) on the date shown on the return receipt, if sent by registered or certified mail, return receipt requested, and receipt is signed by or on behalf of the addressee; or (iv) if sent to a shareholder's address, telephone number, or other number appearing on the records of the Corporation, when dispatched by telegraph, teletype, electronic mail or facsimile equipment.

ARTICLE IX
SEAL

The Corporation may adopt a corporate seal which seal shall be in such form and bear such inscription as may be adopted by resolution of the Board of Directors.

ARTICLE X
BOOKS AND RECORDS

The Corporation shall maintain appropriate accounting records and shall keep as permanent records minutes of all meetings of its shareholders and Board of Directors, a record of all actions taken by the shareholders or the Board of Directors without a meeting and a record of all actions taken by a committee of the Board of Directors. In addition, the Corporation shall keep at its registered office or principal place of business, or at the office of its transfer agent or registrar, a record of its shareholders, giving the names and addresses of all shareholders in alphabetical order by class of shares showing the number and class of the shares held by each. Any books, records and minutes may be in written form or any other form capable of being converted into written form within a reasonable time. The Corporation shall keep a copy of the following records at its principal office: (1) Articles of Incorporation and all amendments thereto currently in effect; (2) Bylaws and all amendments thereto currently in effect; (3) minutes of all shareholders' meetings, and records of all actions taken by shareholders without a meeting, for the past three years; (4) financial statements for the past three years, including balance sheets showing in reasonable detail the financial condition of the Corporation as of the close of each fiscal year, and an income statement showing the results of its operations during each fiscal year prepared on the basis of generally accepted accounting principles or, if not, prepared on a basis explained therein; (5) all written communications to shareholders generally within the past three years; (6) list of the names and business addresses of its current directors and officers; and (7) its most recent annual report delivered to the Secretary of State of the State of California.

ARTICLE XI
AMENDMENTS

1. By Shareholders. These Bylaws may be amended or repealed by the shareholders in the manner set forth in Article III Section 9 of these Bylaws at any regular or special meeting of the shareholders.

2. By Directors. The Board of Directors shall have power to amend or repeal the Bylaws of, or adopt new bylaws for, the Corporation. However, any such Bylaws, or any alteration, amendment or repeal of the Bylaws, may be subsequently changed or repealed by the holders of a majority of the stock entitled to vote at any shareholders' meeting.

3. Emergency Bylaws. The Board of Directors may adopt emergency Bylaws, subject to repeal or change by action of the shareholders, which shall be operative during any emergency in the conduct of the business of the Corporation resulting from an attack on the United States, any state of emergency declared by the federal government or any subdivision thereof, or any other catastrophic event.

4. Compliance with VSBR Verification Requirements. No amendment or repeal of these Bylaws shall be effective and shall be void *ab initio* if the effect of such amendment or repeal would be to disqualify the Corporation as a verified veteran owned small business under VSBR Verification Regulations.

These First Amended and Restated Bylaws of DirectApps, Inc. were duly adopted by resolution of the Board of Directors effective as of January 1, 2013.

John C. Sercu, Chairman of the Board of Directors — January 1, 2013

Richard A. Nelson, Secretary — January 1, 2013

AMENDMENT NO. 1
TO THE
DIRECTAPPS, INC. STOCKHOLDER BUY-SELL AGREEMENT

Dated Effective as of January 1, 2013

This Amendment No. 1 (the "Amendment") to the DirectApps, Inc. Stockholder Buy-Sell Agreement (the "Agreement") is entered into effective as of January 1, 2013 (the "Effective Date") by and between DirectApps, Inc. (the "Company") and the stockholders of the Company whose names and signatures are affixed to the end of this Amendment (the "Stockholders").

PURPOSE OF AMENDMENT

A. The Company intends to operate at all times as a verified veteran-owned small business pursuant to the ownership, control, good character and other requirements of the Veterans Small Business Regulations, 38 CFR Part 74 (the "VSBR Verification Requirements").

B. Pursuant to the VSBR Verification Requirements the Company must be unconditionally owned and controlled at all times by one or more eligible veterans (or other qualified individuals) of good character and who otherwise meet the VSBR Verification Requirements.

C. The Company and the Stockholders desire to amend the Agreement to reflect the current ownership of shares of the Company's common stock and to provide for additional restrictions on any future transfers of such shares to ensure that the Company continues to comply with the VSBR Verification Requirements on an ongoing basis.

D. All capitalized terms not otherwise defined in this Amendment shall have the meanings ascribed to them in the Agreement.

AMENDMENT

The Agreement is hereby amended as follows:

1. Section 1 of the Agreement is hereby amended and replaced in its entirety by the following:

*"**Section 1. Current Ownership of Shares.** On the Effective Date, 1,000,000 shares of the Company's common stock, $0.001 par value, were issued and outstanding and owned as follows:*

Name of Stockholder	*Number of Common Shares*
Federico J. Michanie	*333,333*
Richard Allan Nelson	*333,334*
John C. Sercu	*333,333*

The Stockholders together own all outstanding shares of the Company's common stock. Each Stockholder further agrees to and shall execute and deliver this Agreement and be bound by its terms as to the Stockholder's shares."

2. Section 2 (a) of the Agreement is hereby amended by the following:

(a) Except as provided in Section 3 of this Agreement, a Stockholder shall not sell, transfer, convey, assign, or in any way dispose of any of the Stockholder's shares, or any right or interest in the shares, without obtaining the prior written consent of the Company and the other Stockholders, unless the Stockholder or the Stockholder's legal representative (the "Offering Stockholder") has first given written notice to the Company in accordance with this Section of the Offering Stockholder's intention to transfer the shares, and the Company and the other Stockholders have reviewed and approved the transfer as complying with the VSBR Verification Requirements. The notice must name the proposed transferee, the number of shares to be transferred, the price per share, and the terms of payment. Promptly upon receipt of the notice, the Secretary of the Company shall forward a copy of the notice to the other Stockholders, and the Company and the other Stockholders shall have the following options to purchase all or part of the shares specified in the notice:

. . ."

Sections 2(a)(i) through 2(a)(iv) of the Agreement continue in full force and effect.

3. Section 2 (b) of the Agreement is hereby amended and replaced in its entirety by the following:

(b) *"Any purported transfer, encumbrance or alienation other than according to the terms of this Agreement and in compliance with the VSBR Verification Requirements is void and transfers no rights, title or interest in or to the shares."*

4. The first clause of Section 3 (a) of the Agreement is hereby amended as follows:

(a) "So long as the VSBR Verification Requirements are met and despite any provision in this Agreement to the contrary, . . ."

5. The first clause of Section 3 (b) of the Agreement is hereby amended as follows:

(b) "So long as the VSBR Verification Requirements are met and notwithstanding anything to the contrary herein, . . ."

6. The following sentence is appended to the end of Section 4 (a) of the Agreement:

"To the extent that any buy-out event would have the effect of disqualifying the Company as a veteran-owned business under the VSBR Verification Requirements, the Company and the remaining Stockholders shall work in good faith to accomplish the objectives of the buy-out event in a manner that complies with the VSBR Verification Requirements."

7. Section 8(b) is hereby deleted in its entirety.

[SIGNATURE PAGE FOLLOWS}

IN WITNESS WHEREOF, and as of the date first set forth above, the parties hereto have set their hand and the Company has caused this Agreement to be executed and delivered pursuant to a resolution duly adopted by the Board of Directors.

DIRECTAPPS, INC., a Delaware corporation

By _____
Richard A. Nelson, CEO

STOCKHOLDERS

_____
Federico J. Michanie

_____
Richard Allan Nelson

_____
John C. Sercu

CONSENT OF THE BOARD OF DIRECTORs
IN LIEU OF A SPECIAL MEETING
OF DIRECTAPPS, INC.

The undersigned, being all of the directors DIRECTAPPS, INC., a Delaware corporation (the "Company"), acting without a meeting, DO HEREBY ADOPT the following resolutions and DO HEREBY CONSENT to the taking of the action therein set forth:

Verification as a Veteran-Owned Business

The Board of Directors of the Company has determined that it is in the best interests of the Company to apply for and seek verification as a veteran-owned small business pursuant to the ownership, control, good character and other requirements of the Veterans Small Business Regulations, 38 CFR Part 74 (the "VSBR Verification Requirements"). The VSBR Verification Requirements require that the Company be unconditionally owned and controlled at all times by one or more eligible veterans of good character and who otherwise meet the VSBR Verification Requirements.

TO meet the VSBR Verification Requirements, the Company must take certain actions, including the appointment of officers, the amendment of its bylaws and the Company's Stockholder Buy-Sell Agreement.

RESOLVED, that the following individuals are hereby elected to serve as officers of the Company, in the capacity set forth opposite their respective names, and to serve in such capacity until their successors are duly elected and qualified:

Name:	Title(s)
John Sercu	Chairman of the Board and Treasurer
Richard Nelson	Chief Executive Officer and Secretary
Federico J.Michanie	Chief Operating Officer
Casey Stenzel	Chief Financial Officer

RESOLVED FURTHER, that the Board of Directors hereby adopts amended and restated bylaws of the Corporation, in the form attached hereto as Exhibit A.

RESOLVED FURTHER, that the Board of Directors hereby approves the amendment to the Company's Stockholder Buy-Sell Agreement in the form of the Amendment No.1 to the DirectApps, Inc. Stockholder Buy-Sell Agreement attached hereto as Exhibit B.

RESOLVED FURTHER, that the Board of Directors authorizes the Company's officers to take any and all action necessary and advisable to cause the Company to become verified veteran-owned small business pursuant to the VSBR Verification Requirements, and any and all other actions taken by the Company and its officers in connection with the Company's application for verification as a veteran-owned small business are hereby ratified and approved.

The execution of this consent shall constitute a written waiver of any notice required by Delaware law or the Corporation's Bylaws. The actions set forth herein shall be effective as of January 1, 2013.

John C. Sercu, Chairman of the Board

Richard Allan Nelson, Director

Federico J. Michanie, Director

State of Delaware

Office of the Secretary of State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "DIRECTAPPS, INC.", FILED IN THIS OFFICE ON THE NINETEENTH DAY OF JUNE, A.D. 2001, AT 3:30 O'CLOCK P.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

2562450 8100

010295271

AUTHENTICATION: 1201097

DATE: 06-20-01

Attachment F

[redacted]

IN WITNESS WHEREOF, the Corporation has caused this Restated Certificate of Incorporation to be signed by its President this day of June 12, 2001.

CITY OF ROSEVILLE CALIFORNIA
311 Vernon Street
Roseville, CA 95678

ROA1220A AUTO 5-DIGIT 95747
7000000524 00.0003.0023 524/1

DIRECT TECHNOLOGY
1430 BLUE OAKS BLVD STE 270
ROSEVILLE CA 95747-5177

BUSINESS LICENSE CERTIFICATE

"For Services Provided in the City of Roseville, California Only"

CITY OF ROSEVILLE CALIFORNIA

311 Vernon Street
Roseville, California 95678
License Division - (916) 774-5310

BUSINESS NAME: Direct Technology

BUSINESS LOCATION: 1430 Blue Oaks Blvd Ste 270
Roseville, CA 95747

BUSINESS OWNER: Rick Nelson
Federico Michanie

DESCRIPTION: Computer Consulting

Special Conditions: COMPUTER CONSULTANT

Business License Number: 021588

DIRECT TECHNOLOGY
1430 BLUE OAKS BLVD STE 270
ROSEVILLE CA 95747-5177

Effective Date: December 11, 2013

Expiration Date: December 31, 2014

TO BE POSTED IN A CONSPICUOUS PLACE

NOT TRANSFERABLE

STATE OF WASHINGTON

BUSINESS LICENSE

Unified Business ID #: 602 217 222
Business ID #: 1
Location: 1

Foreign Profit Corporation

DIRECTAPPS, INC.
275 118TH AVE SE STE 200
BELLEVUE WA 98005 3538

TAX REGISTRATION
INDUSTRIAL INSURANCE
UNEMPLOYMENT INSURANCE

CITY LICENSES/REGISTRATIONS:
BELLEVUE GENERAL BUSINESS #085735

LICENSING RESTRICTIONS:
Not licensed to hire minors without a Minor Work Permit.

REGISTERED TRADE NAMES:
DIRECT TECHNOLOGY
DIRECT TECHNOLOGY SOLUTIONS
DIRECTAPPS, INC.
LAUNCH CONSULTING
LAUNCH CONSULTING GROUP
RADIUS HEALTHCARE STAFFING

This document lists the registrations, endorsements, and licenses authorized for the business named above. By accepting this document, the licensee certifies the information on the application was complete, true, and accurate to the best of his or her knowledge, and that business will be conducted in compliance with all applicable Washington state, county, and city regulations.

Director, Department of Revenue

FOLD HERE

FOLD HERE

TATE OF WASHINGTON EXPIRATION DATE

22 1 1

INC.
VE SE STE 200
98005 3538

ATION
INSURANCE
T INSURANCE
NERAL BUSINESS #085735

:tor, Department of Revenue

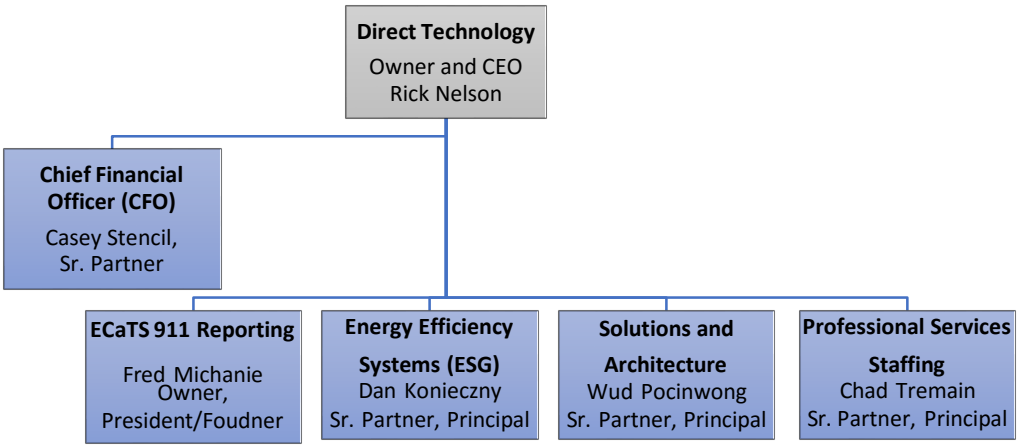
THIS SECTION FOR YOUR WALLET

3009 Douglas Blvd. Suite 300
Roseville, CA 95661
916 787 2200 | 888 725 8099

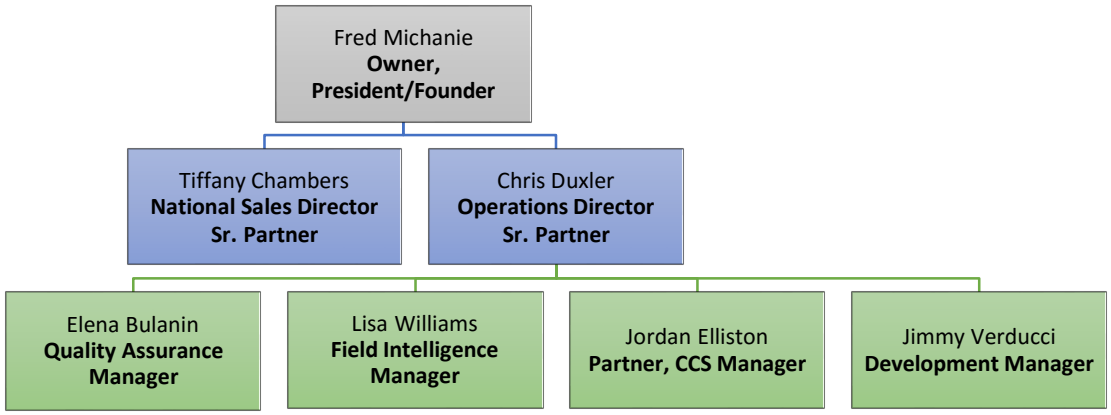
Attachment I - RFP Section 2.3.2 Company Structure

Direct Technology and ECaTS

Direct Technology is comprised of multiple business units, each with its own Principal responsible for the daily operations and strategic goals for that division. ECaTS is one of the four business units within Direct Technology. Provided below is the high-level Organizational Chart for Direct Technology:



ECaTS, the business unit responsible for providing Business Intelligence services to the 911 industry has its own internal organization structure, specifically built to serve the needs of our Public Safety Customers. Provided below is the high-level Organizational Chart for the ECaTS Management Team:



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ECaTS has been providing Public Safety Intelligence and Analytics for the 911 Industry since 1997 and is currently in production at more than 1400 PSAPs distributed throughout the country. ECaTS currently supports jurisdictions that range from small counties of two PSAPs to large statewide implementations of more than 460 PSAPs. ECaTS unique ability to stay CPE and Telco agnostic allows it to be deployed in a myriad of environments while providing seamless and consistent reporting to our clients in both legacy and NextGen environments.

The core of ECaTS success is a deep understanding of data collection, transformation and analytics knowledge held by the team's management and individual contributors. For the purpose of this RFP, ECaTS will be highlighting the key management personnel that will be allocated to the State of Alabama ECaTS implementation.

Fred J. Michanie – CEO of ECaTS. Fred is the original founder of Direct Technology Inc., a Delaware based company with headquarters in Roseville, California. Currently Fred is a board member and owner of TA Group Holdings, with multiple technology, staffing and retail companies, all privately held by the Holding Group. Fred started his career as a technologist for banks such as CalFed, First Nationwide and Coral Gables Federal, becoming a key contributor to companies such as Intel Corporation in Folsom before founding Direct Technology. Fred has been involved with Public Safety since 1997 when he personally architected ECaTS after realizing that Public Safety lacked the reporting and analytics capabilities found in other sectors such as technology, financial and biotech. Since then, Fred has contributed to multiple standard setting bodies and is currently a CalNENA Board Member. In the last couple of years, Fred has made it his mission to share his vision for the value of Big Data in the Public Safety Industry. Fred will be providing executive leadership and industry expertize as part of the State of Alabama project both internally and to the State as needed.

Tiffany Chambers – National Sales Director. Tiffany is a passionate and tenacious sales leader who brought ECaTS national recognition to the Public Sector market. Tiffany is directly responsible for the management of all aspects of business development, channel management, and increased market share. By working diligently with various geographies, national partners and resellers, Tiffany and her team have successfully evangelized the value of Intelligence and Analytics for large States and Counties throughout the country. She was a driving force in not only expanding the ECaTS footprint across the nation but the overall development of ECaTS as a recognized product in the Public Safety Industry.

Christopher Duxler – Operations Director. Chris is a highly technical software and systems architect with strong delivery background and experience. The combination of technical knowledge in both Business Intelligence and the 911 industry is key to the success of ECaTS. Chris will be coordinating all the resources necessary to analyze, plan, implement and maintain the ECaTS implementation in Alabama. Chris is recognized as an industry expert, often engaged in speaking engagements and multi-vendor interoperability discussions to support the value of

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open architecture, industry best practices and the power of Big Data Analytics in the 911 environment. All of the operation divisions within the ECaTS group report to Chris including Software Engineering, Quality Assurance, Business and Data Analysis, Field Intelligence, Field Supervision and Installation and Client Communication Services.

Jimmy Verducci – Software Development Manager. Jimmy has more than 15 years in Software Development and Software Implementation Methodology experience. Having worked on highly complex financial and energy utility customers, he transitioned to the Public Safety industry approximately six years ago. He quickly became deeply entrenched in Public Safety Data transformation processes, working closely with NENA and other organizations to ensure maximum flexibility and data availability when designing and leading his group through the implementation cycles. Jimmy's team which include Database and Software Services is broken up into two groups: Maintenance and Operations and New Product Development. This team will work with the Alabama implementation to support customization requests, implementation of new functionality and integration of new feature sets over time.

Elena Bulanin - QA Manager. Elena manages the Quality Assurance group within the ECaTS Organization. Elena has more than 12 years of experience managing Quality Assurance teams ranging from insurance, to financial and biotech. Elena has been working with the ECaTS group since the beginning and has a deep functional and business understanding of our customer's needs for data analytics and reliable reporting. Her team will ensure the identification and resolution of technical issues that may occur as part of the Software Development Lifecycle.

Lisa Williams – Field Intelligence Manager. Lisa manages the team responsible for coordinating the installation and deployment of ECaTS intelligent data collection modules across our client base. Lisa coordinates with the customer's project managers, PSAP managers, vendors and the Field Deployment Team to ensure a smooth project implementation. In addition, Lisa also coordinates the replacement of those data collection modules in situations where they need to be repaired or replaced.

Jordan Elliston – Client Communication Specialist. Jordan and her team work directly with ECaTS clients, both at a State, County and PSAP level. Her job is to ensure that our customers have direct access to the ECaTS team at all times. She is in charge of conducting and coordinating user training events, online training refreshes, implementation of special request, walking customers on how to obtain specific reports, how to use the system, etc. Jordan and her team provide a unique level of customer service and relationship not usually associated with the Public Safety Industry. For the State of Alabama, Jordan will be the key contact to coordinate the training, and ensure ongoing communication between the State personnel, PSAP personnel and the ECaTS team.