



Recommended 911 Service Standards

Intrado Communications Inc.
Longmont, Colorado USA

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Document Description

This document represents Intrado's core beliefs relative to minimum recommended 9-1-1 serviced standards that any Enhanced 9-1-1 Service Provider should be capable of meeting.

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Recommended 9-1-1 Service Standards

Proposed By

Intrado Communications Inc.

Introduction

Intrado Communications Inc. ("Intrado Comm"), a wholly-owned subsidiary of Intrado Inc. ("Intrado"), shares its parent company's quarter-century legacy as the nation's premier provider of integrated data and emergency communications network solutions. Intrado has played a key role in defining, building and maintaining core emergency communications infrastructure and 9-1-1 technology throughout the United States. Intrado's services and systems support an estimated 200 million 9-1-1 calls each year including calls from wireline, wireless, Voice over Internet Protocol (VoIP) and other alternative communication technologies. Currently Intrado is deploying the Intrado® Intelligent Emergency Network™, its next generation 9-1-1 system that enables the public safety community to transcend the limitations of the nation's legacy 9-1-1 infrastructure. Intrado Comm plays a critical role for Intrado in owning and operating the regulated telecommunications infrastructure and related offerings used to support the roll out of the Intrado Intelligent Emergency Network.

Intrado is committed to maintaining the *public safety class* integrity of the nation's 9-1-1 network as demonstrated by its self-imposed operational requirements and 99.99999 percent uptime track record in support of its customers' emergency calling needs. It is further reinforced by Intrado's commitment to industry standards and compliance with regulatory requirements, several of which Intrado has championed.

Intrado and its subsidiaries maintain an in-depth knowledge of public safety, emergency communications management, and telecommunications implementation and policy. This intellectual capital provides the unique technical, financial and managerial qualifications needed for Intrado Comm to present a well-reasoned recommendation for 9-1-1 Service Standards.

As defined below, Intrado Comm believes the following recommended 9-1-1 Service Standards are the foundation for delivering reliable and redundant emergency communications services.

Professional Commitments

Regulatory: E9-1-1 Service Providers ("E9-1-1SPs") should obtain appropriate approvals from state and federal regulators to operate as telecommunications carriers or as a "certificated equivalent" of telecommunications carriers in this mission-critical field and should demonstrate managerial, technical and financial capabilities as may be required in the particular jurisdictions where such providers deliver 9-1-1 services.

Financial: E9-1-1SPs should maintain financial records in accordance with Generally Accepted Accounting Principles (GAAP) and, where required, maintain records in accordance with the Uniform System of Accounts (USOA).

E9-1-1SPs should have the requisite financial resources and capacity to ensure E9-1-1 services are reliable, secure, perpetually-sustainable, uninterrupted and capable of embracing changing technology, new calling devices and an evolving emergency communications industry.

Industry Standards: E9-1-1SPs should adhere to industry standards and industry-accepted practices related to administrative, data management and managerial processes.

System designs, interfaces and provider processes should incorporate and embrace those principles and operational recommendations defined in the NRIC (Network Reliability and Interoperability Council) Best Practices, NENA (National Emergency Number Association) Recommended Standards and ATIS/ESIF (Association of Telecommunications Industry Solutions/Emergency Services Interconnection Forum) protocols and interface standards.

System solutions should be compatible and demonstrate forward looking architectures to integrate with call relay center technology, TDD (telephone device for the deaf) and other ADA (Americans With Disabilities Act)-type applications.

Systems designs and operation should support industry standard signaling and data protocols and methods.

Call completion standards and voice quality standards should meet or exceed industry standards.

Solutions should possess compatible and operational capabilities to accommodate CALEA (Communications Assistance for Law Enforcement Act) requirements.

In connection with the utilization of any technology coupled with the use of any device from which the digits 9-1-1 can be dialed (which creates in the mind of an end user a reasonable expectation that the call will natively terminate at the professional work station of a trained public safety call taker), the ALI associated with the call, if placed from an indoor location (wireline, "fixed wireless", etc.), should include at a minimum the caller's street address; and if placed from an outdoor location, should include the latitude and longitude, with dynamic ALI updates, of the caller's location.

Performance Monitoring: Systems should be capable of generating timed and on-demand call performance metrics.

Diversity and Resiliency Commitments

E9-1-1 system platforms should be deployed to separate geographic locations to ensure E9-1-1 service is not interrupted in the event of system failure at any one location. Transport facilities should also employ diversity principles by being connected to the E9-1-1 network over separate geographically located facility paths to minimize the potential for E9-1-1 call failure as a result of any one facility path having connectivity disrupted. Carrier diversity ensures no single point of network failure can interrupt overall 9-1-1 call processing.

Diverse routing should be provided to the extent made possible as determined by the availability of existing facility routes and estimated costs to be incurred by the respective facilities provider.

Diversity concepts should also be applied to switch port assignments, Digital Access Cross-connect Systems (DACS) devices and other points of interconnection within a switching office.

In addition, Hardware Redundancy should be a priority as the E9-1-1 system should be designed as "fault tolerant", with no single point of failure able to completely disable the overall service provided to the served communities.

System architecture should be designed with resiliency such that an individual component failure encountered during call processing does not result in a lost call or such that the loss of a major system/network element does not impair call completion capabilities. The solution should be built on a nationwide voice network that enables advanced disaster recovery options specifically designed for the public safety community. Calls should be capable of being immediately rerouted through direct connectivity, secure IP (Internet Protocol) connectivity or the PSTN (Public Switched Telephone Network) anywhere in the nation.

Call Routing and Data Accuracy

All 9-1-1 calls should be transported and routed via native public safety grade networks, terminating at the professional work station of a trained public safety call taker located at the PSAP designated by local public safety officials. Further, system and facility provisioning should be designed such that no more than one percent (1%) of 9-1-1 calls to a specific PSAP will encounter a busy condition during the highest average busy hour.

Data accuracy shall be provisioned such that the number of unresolved data errors shall not exceed .2 % of the total number of TNs in the ALI database over any given 30 day period. Further, at least 99 % of all requests for ALI received from a PSAP over any given 30 day period shall result in a retrieval of the respective caller's telephone number and accurate location information.

To ensure a PSAPs readiness to implement E9-1-1 service, the E9-1-1 service provider shall not place an E9-1-1 system into service unless the MSAG validation success rate meets or exceeds 95 % of the total number of ALI records to be processed to the affected ALI system.

9-1-1 Infrastructure Reliability and Security

An E9-1-1SP should design its system architecture such that the mean time between failures is no greater than ten (10) minutes over ten (10) years and should establish defined and reasonable restoration plans, inclusive of complex disaster and Public Safety Answering Point (PSAP) evacuation contingencies.

Systems should be designed to be protected from viruses and cyber exploits utilizing system security solutions such as firewalls, IPS etc.; employ password and protection controls to mitigate external threats and be designed to function even during a public network (internet)-based "Denial Of Service" attacks.

Environmental Safeguards

Computer rooms should be highly secured, with access limited to authorized personnel only. Environmental protections should be backed by Uninterruptible Power Supply (UPS) restoration schemes, such that the loss of commercial power will not result in the loss of emergency call processing. Back up power schemes should also ensure HVAC and lighting systems are included in all contingency and power planning.

Reporting and Alarming

System designs should enable automatic detection and reporting of any system and/or subsystem component failure.

The system should possess the ability to optionally interface call logging equipment with the call routing system to enable the retrieval of the ANI Automatic Number Identification (ANI) received from a 9-1-1 call, the identity of the call taking position answering the call and the date and time the call was answered, transferred and/or disconnected.

The system should support the ability to document the occurrence of any call including the routing logic, call processing events, and the relative timing of each call related event.

Expandability

Systems should be designed to accommodate reasonable growth requirements through future module increments. System solutions should be upgradeable without interrupting processing of established or new 9-1-1 calls.

System Compatibility

System design and operation should be capable of interoperating seamlessly with legacy TDM (time division multiple)-based networks and with legacy CPE (customer premise equipment) hardware, or at a minimum include integration/replacement of older technology.

Solutions should be extensible to accept and process emergency assistance requests from next generation voice and/or text (Instant Messaging) devices within the same architecture and prioritization rules.

Basic Core Features

Automatic Number Identification (ANI): A feature by which the calling party's telephone number is forwarded to the 9-1-1 system for call routing determination and PSAP display.

Automatic Location Identification (ALI): A feature by which the location is associated with the calling party's telephone number is forwarded to the 9-1-1 system for call routing determination and/or PSAP display. Additional telephones with the same number as the calling party's (secondary locations, off premises, etc.) will be identified with the address of the telephone number at the main location.

Selective Routing: A feature that enables routing of a 9-1-1 call to the proper PSAP based on the geographical location of the caller.

E9-1-1 Database Management: A computer-based data management system/process used to create, store and update the call processing and display data (e.g. Emergency Service Numbers, addresses, end user names, etc. required to provide Selective Routing and ALI Display features).

Managerial Services

Help Desk Services: An E9-1-1SP should provide 24 x 7 support for service problem reporting/tracking and emergency call trace support.

Configuration / Engineering Support: An E9-1-1SP should provide engineering and configuration support to enable efficient network and data provisioning and ongoing support.

Project Management: An E9-1-1SP should offer optional project management of pre and post deployment activities.

Traffic Management Control: An E9-1-1SP should routinely monitor call traffic overflow and utilization metrics; & adjusting network capacities when warranted.

Surveillance Support: An E9-1-1SP should provide 24 x 7 support for alarm surveillance and detection, service restoration and tier 1 and tier 2 escalation management.

9-1-1 Call Management Features

The following E9-1-1 features and capabilities (defined herein) are currently technologically feasible and are representative of minimum industry standards today. These features and capabilities, or their functional equivalents, should serve as a minimal benchmark against which future improvements should be made (e.g., 9-1-1 caller location precision). All 9-1-1 systems should possess the flexibility to accommodate all of the features listed below.

Alternate Routing: Systems should be designed in a manner such that 9-1-1 calls are routed to a designated alternate location if all lines to the primary PSAP are busy, or the primary PSAP is closed for a period of time. This feature should enable the ability for callers to be terminated either to a previously designated alternate call center, a prerecorded message or to a busy tone when all PSAP trunks are busy.

Default Routing: Systems should be designed such that when an incoming 9-1-1 call cannot be selectively routed due to an ANI failure, unintelligible digits or other rare causes, the call should be routed from the selective routing system to a default PSAP previously designated by the public safety customer and based on the incoming trunk group over which the ANI failure occurred.

<i>Time Scheduled Automatic Call Transfer:</i>	System designs should include the ability for a PSAP to redirect 9-1-1 call traffic to an alternate PSAP, based on previously defined day and/or time of day criteria. (Such a feature is commonly used for night transfer functionality in smaller PSAPs.)
<i>Last Resort / Overflow Call Disposition:</i>	Each PRI (Primary Rate Interface) group should support having pre-defined call treatment for a busy condition. Call treatment alternatives should include forwarding the caller to another PRI, forwarding the caller to a PSTN number, playing a pre-recorded announcement, or returning a busy signal (120 ipm tone).
<i>Call Treatment / Forward Busy:</i>	System designs should support having pre-defined call treatment for a busy condition. Call treatment alternatives should include forwarding the caller to another PRI, forwarding the caller to a PSTN number, playing a pre-recorded announcement, or returning a busy signal (120 ipm tone).
<i>Fixed Transfer:</i>	System designs should be arranged such that the call taker may use a single button on the call taker's display and transfer unit to complete either a transfer or three-way conference.
<i>Selective Call Transfer:</i>	System designs should support the ability for a PSAP attendant to transfer an incoming 9-1-1 call to another agency by depressing a button labeled with the type of agency; e.g., "Fire," on the customer premises equipment.
<i>Star Code Transfer:</i>	The call taker should have the ability to initiate a three-way call using the flash key and a star code followed by a 10-digit telephone number. At any point the call taker may release the call to perform a transfer. The jurisdiction will be able to create speed dials for the most commonly transferred numbers.
<i>Conferencing and Local Transfer:</i>	Systems should be deployed such that the call taker may use a flash key, star code and two-digit speed dial code to complete either a transfer or three-way conference.
<i>TDD Capable:</i>	System operations should include support for the appropriate disposition and handling of TDD-type 9-1-1 calls.
<i>Evacuation Related Call Redirection:</i>	System design should allow for a quick redirection of calls using a make busy feature. The circuits should be placed into a busy status, forcing calls to the pre-defined call forward busy treatment destination.
<i>Wireless Call Processing:</i>	Systems should be designed such that Wireless Connectivity allows for the delivery of a wireless 9-1-1 call through the 9-1-1 network to a PSAP. Carriers having the capability to provide wireless handset ANI, cell site and sector and/or longitudinal and latitudinal (x/y) coordinates in the appropriate format, may connect directly to 9-1-1 system. The 9-1-1 system will forward information to the PSAP as well as provide Selective Routing functions.
<i>Private Switch ALI (PSALI) Support:</i>	Systems should support PSALI operation. PSALI is a service offering which allows a PBX switch to send ANI information to the 9-1-1 selective Routing system from

individual PBX stations for the purpose of providing site or station location information upon calling 9-1-1, or for selectively routing such calls to the appropriate PSAP. PSALI should also be available to Centrex customers who wish to provide the 9-1-1 system provider with more specific location and routing information. (A PSALI customer may be, for example, a municipality or other state or local governmental unit, or an authorized agent of one or more municipalities or other state or local governmental units, or a PBX owner/operator, or a Centrex customer.)

*Nomadic Voice
over Internet
Protocol (VoIP)
Support:*

Systems should be designed such that nomadic VoIP connectivity allows for the delivery of a VoIP 9-1-1 call through the 9-1-1 network to a PSAP. VoIP Service Providers having the capability to provide nomadic user handset ANI, service address and/or longitudinal and latitudinal (x/y) coordinates in the appropriate format, should be able to connect directly to the 9-1-1 system whereupon the 9-1-1 system should forward information to the PSAP as well as provide Selective Routing functions.

Manual Transfer:

The 9-1-1 system should be designed such that the PSAP attendant may transfer an incoming 9-1-1 call by manually obtaining dial tone through use of the telephone switch hook or the appropriate button on the customer premises equipment and dialing the appropriate telephone number or speed calling code.

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