

12/12/2019

City of Aurora Attn: Purchasing Division 44 E. Downer Place Aurora, IL 60507

Intrado is pleased to present its Request for Proposals response to the City of Aurora, IL for a Next Generation 9-1-1 shared emergency services IP based Customer Premise Equipment (CPE) telephone system.

For over 30 years, Intrado has designed and deployed public safety products and services to the state of Illinois. Intrado provides the core of the nation's ANI/ALI infrastructure for E9-1-1 and has continued to develop the technology and standards necessary to move forward into an IP-Based emergency communications infrastructure.

Intrado is proposing the key requirements that the City of Aurora requires in order to accommodate current and future NG9-1-1 standards. Features of the proposed solution include and provide:

- A NG9-1-1 system that provides robust redundancy and eliminates single points of failure
- A system, built for growth, that will accommodate any future expansion of additional PSAPs and the evolution of PFN's ESInet
- Installation and migration over to Intrado without interruption, deviation or degradation of existing service
- Like the system you have in place today, our newest product platform has continuously met or exceeded expectations. With our VIPER® solution and the A9C® solid state workstation, the only purpose built workstation in the 9-1-1 CPE industry, we have a far superior product to those of our competitors.

### **VIPER Advantages**

- **A9C** The A9C is the only workstation in industry that is purpose built for 9-1-1 with solid state components and has a life cycle of 7 years minimum.
- **Call Control Interface** With the A9C comes the ability to deploy with the Power 911 GUI or with some of the industry's leading CAD companies. There is no loss of investment or equipment for this transition to a single desktop interface.
- Integrated Text Intrado has been delivering integrated text since 2009.
- **Reliability** Intrado provides redundancy levels for every function of the system back room and in the front room down to the workstation, which has dual NIC cards and power supplies not offered on commercial PCs.
- **i3 & Next Gen Ready** Intrado is the largest provider of Next Gen 9-1-1 in the USA. Because ofthat we routinely test our CPE compliance levels as each new NENAstandard feature comes online. The VIPER system is 100% i3-compliant and was built



that way from its beginning. We currently have over 400 VIPER PSAPs on next generation ESInets. Please demand that the system you purchase is 100% current and Next Gen-ready.

• **CPE Maintenance** - From providing onsite maintenance technicians to training you and letting you self-maintain CPE with your own IT staff, we offer multiple service options. Many manufacturers will void your warranty if you self-maintain.

Intrado understands the reality of budgetary constraints and is willing to review the final proposal to make sure that the solution proposed herein meets all of the City of Aurora, IL expectations. Intrado is committed to partnering with City of Aurora, IL and we are excited for the opportunity.

Thank you for your consideration and we look forward to hearing back from you regarding our response.

Kind Regards,

Brin Eliza

Brian Elvington Sr. Account Executive

# **Overview – VIPER and Power 911**

Intrado's Emergency Response Systems are designed to natively support emergency call handling to meet the specific needs of emergency service providers and are engineered for high performance computing (HPC) and public safety grade environments. The system's modular design supports an array of design options that can be customized to provide enhanced fault tolerance and geographic diversity to meet the operational needs of each customer. Based on the non-proprietary Session Initiation Protocol (SIP) the system's IP based architecture accommodates next generation NENA i3 and Text Messaging capabilities while maintaining support for legacy 9-1-1 call delivery infrastructures. Information is presented and processed through our highly intuitive and customizable Graphical User Interface that can be tailored to accommodate every agent role and preference.

## System Fault Tolerance and Redundancy

The VIPER and Power 911 systems have been designed so that a failure of one component does not result in total system failure. The systems support the ability to deploy solutions in a highly fault tolerant configuration, to prevent system downtime in the event of a critical component failure and ensure the survivability of at least 50% of all emergency lines. Fault tolerance is achieved via:

- Distributed 9-1-1 trunks across a minimum of two 911 gateways
- Redundant Application servers
- Redundant Soft Switch servers
- Redundant Ethernet LANs across two switches
- Redundant power on gateway shelves
- Dual workstation NIC cards configured in Teaming mode
- Redundant Virtual Object Server Software

System reliability is enhanced by the VIPER's distributed microprocessor architecture allowing each module to operate under its own control. This independent operation prevents any single point of failure. Built-in redundant, hot stand-by modules and hot swappable modules make the solution ideally suited for critical 9-1-1 applications.



Figure 1 -Sample VIPER Configuration

The system component functionality and failure modes are described below. The specific components incorporated into a solution would be dependent on the customer requirements.

- VIPER Gateway Shelf: The VIPER Gateway Shelves house the VIPER CIM and AIM modules. Each of these 1U shelves can house up to three CAMA Interface Modules (CIMs) or up to three Admin Interface Modules (note CIM and AIM modules cannot be combined within the same shelf). Each CIM supports up to four CAMA trunks, for a per shelf capacity of up to 12 Trunks. It is standard practice to provision at least two shelves for CAMA trunks. Each AIM supports up to four FXO administrative lines for a per shelf capacity of up to 12 administrative circuits. Each shelf connects to redundant 48 Vdc power supplies.
- CAMA Interface Module (CIM): This is an Intrado engineered and manufactured system. It is rack mountable in a standard 19" rack and is 1U form factor. Each VIPER Gateway Shelf

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accepts up to three cards each capable of accepting up to four CAMA trunks. It provides the CAMA trunk interface at the demarcation point from the serving tandem and provides the necessary controls and information to the other VoIP solution components. Multiple CAMA Gateways can be deployed to service any number of CAMA trunks in any configuration with each system operating independently of each other. Failure of a CIM only affects those CAMA trunks connected to it. CIMs are hot-swappable, minimizing the impact on a live system in the event of repair or maintenance.

- Administrative Interface Module (AIM): This is an Intrado engineered and manufactured system. It is rack mountable in a standard 19" rack and is 1U form factor. Each VIPER Gateway Shelf accepts up to three cards each capable of accepting up to four administrative circuits. The AIM accepts voice via FXO lines and converts them to VoIP channels. These devices can be connected to administrative phone lines from the central office or local PBX. Failure of an AIM Gateway only affects those administrative lines connected to it. AIMs are hot-swappable, minimizing the impact on a live system in the event of repair or maintenance.
- ISDN/PRI Gateway: The ISDN/PRI Gateway is a 1U 19" rack mounted unit. The ISDN/PRI Gateway supports administrative lines from a telco-delivered ISDN/PRI circuit or from a third-party PBX that has an ISDN/PRI port. The ISDN/PRI Gateway also supports T1 CAS 9-1-1 lines from a telco-delivered T1 circuit. ISDN/PRI Gateways are redundantly connected to the VIPER Ethernet Switches. Each ISDN/PRI Gateway shelf can support up to 4 ISDN/PRI cards. ISDN/PRI cards are available in 1, 2 or 4 circuit capacities. Typically single circuit cards are deployed with no more than 2 cards per shelf to provide fault tolerance. When configured for CAS 9-1-1 lines, redundant cards are deployed over a minimum of two shelves to provide enhanced fault tolerance. . Failure of an ISDN/PRI Gateway only affects those lines connected to it. Each ISDN/PRI Gateway is independently powered by redundant power supplies. Consequently each shelf can be replaced without powering down the system, minimizing the impact on a live system in the event of repair or maintenance.
- Ethernet Switch: This device provides Ethernet LAN connectivity to all components of the VIPER system. The Ethernet switch ensures proper prioritization of VoIP packets over less time critical data packets on the Ethernet LAN. Redundant LAN switches have been provided, each serving one of the two parallel LANs (LAN 1 and LAN 2) within the VIPER system. The LAN switches are bridged together via a Giga-Ethernet backbone. Loss of a LAN switch only affects the line gateways (CIM and AIM Gateways) connected to it. All other VIPER components, (Soft Switches, Application Servers, ISDN/PRI Gateways) and the Power 911 IWS workstations have dual LAN links and remain connected should a LAN switch fail. Each Ethernet Switch includes an independent power supply. Consequently switches can be replaced without powering down the system, minimizing the impact on a live system in the event of repair or maintenance.
- VoIP Soft Switch: This is an Intrado software-engineered application installed on a 1U 19" rack mounted computer. It provides all VoIP telephony controls and is based on the open SIP protocol and also supports SIP compliant devices. Redundant Soft Switches have been provided: One operates in active mode, the other in standby mode. The Standby (secondary) Soft Switch monitors the health of the active unit (including call activity), and automatically assumes call control when required. There is no impact on the system in the event of a Secondary VoIP Soft Switch failure. In the event of a

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Primary VoIP Soft Switch failure all calls presented through the VIPER CIM and AIM gateways, including those in progress (those in a Talk or Hold state) will be re-presented from the secondary Soft Switch. Callers on lines in a Talk or Hold state will hear a hold tone during the switchover. Each Soft Switch connects to redundant Ethernet switches. Each Soft Switch includes an independent power supply. Consequently VIPER Soft Switches can be replaced without powering down the system, minimizing the impact on a live system in the event of repair or maintenance.

• Application Server: This 1U computer provides application layer functionality. It runs various software components such as a Telephony Server, Alarm Server, ALI Database, and the CAD Router. These programs collectively provide ALI database lookup, NENA-compliant CAD output, and CDR outputs. Each Application Server connects to redundant Ethernet switches. Redundant Application Servers have been provided, both operating simultaneously. There is no impact on the system in the event of a Secondary Application Server failure. Should the Primary Application Servers fail, ALI will continue to be processed on the Secondary Application Server buffers call records until the Primary Application Server is returned to service. At that point, buffered call records are printed. Real-time ACDR output resumes when the backlog has been printed. Loss of an Application Server has no impact on calls in progress. Each Application Server includes an independent power supply. Consequently Application Servers can be replaced without powering down the system, minimizing the impact on a live system in the event of repair or maintenance.

Power 911 intelligent workstations (IWS) are equipped with the SONIC interface and the Power 911 call handling application. Power 911 workstations or Intrado's purpose-built Power Stations are also equipped with dual NIC cards for redundancy. These are configured in Teaming mode (same IP address on both interfaces), and connected to both LAN 1 and LAN 2. Loss of a LAN connection has no effect on calls in progress. Failure of a workstation has no effect on other positions or on the Power 911 network. In addition, should a workstation fail while the call taker is speaking with a caller, voice contact with that caller is maintained.

The VIPER and Power 911 systems use a server/client architecture. Information processed by the VIPER system and/or entered in on the Power 911 clients is shared between workstations via redundant virtual object servers then stored in the Power 911 SQL database. In the event of a database server failure, all positions continue to operate, and information is still shared between workstations via the redundant virtual object server application. When the network resumes normal operations, call data cached in the redundant virtual object server is transferred to the Power 911 Database Server for permanent storage.

### Multi-Agency/Multi-Jurisdictional Support

The VIPER and Power 911 platform is designed to support Multi-Agency/Multi-Jurisdictional operations allowing for logically segregated databases and system resources, on a single physical database server, and call handling rules on a per agency basis. Lines and Trunks, within the VIPER Soft Switch can be segregated by agency/jurisdiction to define what lines each agency/jurisdiction has access to. Data can be segregated by agency/jurisdiction to restrict access to authorized personnel only.

### Legacy and Next Generation Gateway Support



The VIPER system's IP based architecture and modular design accommodates next generation capabilities while maintaining support for traditional 911 call delivery mechanisms. Various gateway modules provide the interfaces to decode ANI (or Caller ID) and convert the voice signal to SIP. As an IP platform VIPER inherently supports Voice over IP formats. Presently the system supports the following Gateway Interfaces:

- CAMA analog
- CAMA T1 / T1 CAS
- ISDN PRI
- FXO
- SIP (NENA i3, Cisco, third party PBX)
- Ringdown (activated by off hook signaling)

As PSAP transition to Next Generation delivery mechanisms traditional gateway interfaces can be replaced or augmented to support Next Generation Gateways. As an end to end IP platform, VIPER is ideally suited to support the migration of PSAPs to these Next Generation systems.

### System Scalability

The VIPER system is highly scalable and can be expanded to support addition lines and positions by adding addition gateway interface modules, gateway shelves and Ethernet switches. With additional hardware the system can be expanded to support up to 192 CAMA trunks and 192 analog administrative circuits, 8 ISDN/PRI circuits and 300 Power 911 positions.

#### Remote and Geographical Diverse Architectures

Intrado's VIPER and Power 911 systems provide an end to end IP solution with no signal conversion between the controller and the local or remote call taker positions. Based on an architecture that relies solely on IP connectivity, the VIPER is ideally suited to support remote solutions and geographically-distributed architectures. Connectivity between sites is simplified and can be supported with a single data connection without any loss in functionality. The system's IP-based architecture and modular design support an array of design options that can accommodate:

- Standalone Solutions
- Host with Remote Solutions
- Remote Site Survivability (via locally deployed survivable gateways)
- Geographically Diverse Configurations (with VIPER Multi-Node solutions)
- Locally processed call handling (with Satellite VIPER Nodes) to minimized WAN bandwidth and provide enhanced remote functionality when isolated from the host

### PBX Functionality

VIPER also supports common PBX features including:

- Uniform Call Distribution Schemes (Shared Line Environment)
- Automatic Call Distribution (optional)
- Interactive Voice Response Auto Attendant functionality
- Skills Based Call Routing
- Voice Mail (optional)
- IP Phone Support (optional)

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### Graphical User Interface

Power 911 is an integrated Intelligent Workstation or Power Station appliance that provides call takers with on-screen control of landlines, wireless calls and text messages through a Windows based Graphical User Interface (GUI). Information is presented and processed through our highly intuitive and customizable GUI that can be tailored to accommodate each and every agent role and preference. Call taker proficiency and emergency call handling efficiency is enhanced through an intelligent approach to information display and management.

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Figure 2 - Power 911 Graphical User Interface

## **Configurability**

The Power 911 Interface consists of various modules that make up the Power 911 GUI. The following modules are available:

- Telephony Module.
- Location Module
- The Toolbar Module.

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- Lists Module
- Message Board Module
- Transfer Module
- System Information Module
- Standard Operating Procedures Module

Each module can be enabled or disabled and are moveable, resizable, and can be placed in any location on the screen, including multi-monitor setups. The goal is to provide the most comfortable layout to the end-user while minimizing the number of screens required. Different layouts can be configured to accommodate different agent roles and preferences. Pre-defined security provisions ensure that only authorized personnel can modify layouts.

Power 911 comes with default layouts which can be used as a starting point to build individual user or agency layout(s). A layout editor tool is provided with Power 911 to create new layouts. While in layout configuration mode, the authorized user can position and re-size primary and secondary panels through simple drag and drop operations. Display rules can be assigned to each panel like "Always visible" (set as primary panel) and "Always On Top" attributes to adapt to the Windows environment. When the GUI design is completed, the user simply locks all panels and saves the resulting layout. Using Power 911 profiles, newly created layouts can be assigned to any workstation, agent and/or role, or be defined as the common layout for use by all (PSAP Profile).

### Ease of Use

Power 911 offers a highly intuitive, Windows based GUI in order to enable rapid assimilation of the system features by new users, including those with limited (or no) previous PC experience. Most features are accessible through point and click operations. The list of features available through the GUI include:

- Automatic number identification (ANI)
- Automatic location identification (ALI)
- Standard telephone features, including call transfer, conferencing, accessing, and the ability to make outgoing calls
- Voice recording
- TTY capabilities (for communicating with hearing- or speech-impaired callers)
- Database queries (to retrieve historical information)
- Manual ALI searches
- A message board for sending and receiving internal text messages
- A panel used to respond to incoming 9-1-1 texts.
- A panel used to record custom greetings
- Volume control for audio devices
- Access to premises information and standard operating procedures (SOPs)
- Address validation using MOSAG or Intrado Location Manager (ILM)
- Display of system messages
- Pop-up hints that appear when the cursor is positioned over a button
- Multiple-language support for GUI text
- A panel used to monitor ACD queues (Route Manager Panel)
- Dynamic Agent ACD queue assignment (Route Manager Panel)



In addition, Power 911 IWS also has a comprehensive list of keyboard shortcuts to perform virtually all functions via the keyboard. As call-takers become familiar with Power 911, they can take advantage of this convenience feature. GUI text can also be displayed in multiple languages.

Touchscreen technology is also embraced by Power 911. Intrado's usability testing has led to the development of a GUI mode specifically optimized for touchscreen use, in which the various interface elements have been enlarged to facilitate use and repositioned to minimize movement.

### Power Station G3 Call-Handling Appliance

Intrado's Power Station G3 is a Public Safety purpose-built device dedicated to providing exceptional call handling functionality with convergence of voice and data in the Next Gen 9-1-1 world. The Power Station platform delivers the Intrado VIPER experience with all the position interfaces a PSAP needs and is designed to be greener, smaller, and faster than traditional workstations. Power Station is also designed for a 7-year service life.



Figure 3 – Power Station Front Panel



Figure 4 – Power Station Back Panel

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The Power Station has the following advantages over a traditional PC:

- Saves time, money and effort easier to install and easier to maintain, the appliance provides freedom from reliance on off-the-shelf PCs, freedom from bolted-on additions, and freedom from the support and life cycle overhead they bring to the table
- Power Station Gen3's all-in-one platform has no moving parts and provides public safety grade reliability
- Power Station Gen3 is modular in design to grow with the evolving needs of public safety
- Provides standard interfaces for LCD display, keyboard, mouse, headset, headset sharing with radio, and analog recording
- Dual power supply redundancy
- No Off switch
- Independent built-in diagnostic module with status display
- Generates less heat than a PC-based position
- Silent (no cooling fans or mechanical drives)
- Small footprint (8.5" width x 7.5" depth x 3.5" height) allows for deployment in a wide range of environments: on or under a desk, even in a vehicle as Power Station is unaffected by vibration
- Supplies support for dual LAN connection (teaming) to separate switches
- Optional second video port for dual screen (available at additional cost)

### System Integration

Frequently used functions are integrated into Power 911 to provide a single point of focus and a consistent look and feel to enhance call taking operations.

TDD and Text capabilities are integrated into Power 911 and are provided with all NENA recommended pre-programmed messages, as well as any others the PSAP chooses to integrate. All TDD and text conversations are automatically stored with the call information and are available to other calltakers.

The Integrated Call Recorder (ICR) allows easy access to call recordings as recordings are indexed to the corresponding call event shown in the call list. Call events with ICR recordings are automatically displayed in the Recorded Calls and/or the All (PSAP) Recorded Calls lists to enable quick access to available recordings.

In addition, Intrado offers several other public safety software applications that can be seamlessly integrated with the IWS platform. These include Intrado's MapFlex 911 Mapping System, Power Ops Wallboard, and Power Metrics Management Information Service. These applications all benefit from the same operating style and a level of interactivity that cannot be achieved by products sourced from various different manufacturers.

## **Functions**

When a call is received via legacy gateway interfaces, VIPER CIM, AIM and ISDN PRI gateways decode ANI (or Caller ID) and convert the analog and digital voice signal to SIP. The

## Intrado Life & Safety Solutions Corp. Response to City of Aurora RFP

SIP voice packets (received through legacy or NENA i3 SIP gateways) are processed by the VIPER Softswitch and routed based on the algorithms (ring all or ACD) configured by the system administrator. Concurrently ANI (or Caller ID) is processed by the VIPER Application Server and sent through redundant ALI links to the ALI database to retrieve location information. Information processed by the VIPER system and/or entered in on the Power 911 clients is shared between workstations via redundant virtual object servers and permanently stored in the Power 911 SQL database.

When calls are processed automated queries of historical information stored within the Power 911 database are triggered by the system. Records such as historical calls are presented to the Power 911 client as well as Premises Information and Standard Operating Procedures (if enabled).

Calls are presented and processed through the Power 911 Graphical User Interface via the various modules that make up the Power 911 GUI. The following modules are available:

- Telephony Module
- Location Module
- The Toolbar Module
- Lists Module
- Message Board Module
- Transfer Module
- System Information Module
- Standard Operating Procedures Module

Each module and their associated functions are described below.

# **Telephony Module**

Power 911 offers full on-screen telephony; all call handling can be performed via the workstation computer. Power 911's Telephony Module is the central component for on-screen telephony.



Figure 5 - Telephony Module

## Answer/Offhook

Depending on the system setup, calls can be answered in a variety of methods including using the queue or line group buttons, the Active Calls List or keyboard shortcuts. Power 911 can manage incoming calls into queues or line groups. Each line group is designed to handle specific trunk or line types, such as 9-1-1 trunks or administrative lines. The line group can also be bypassed and calls selectively answered via the Line Panel or Lists Module.

Note when the VIPER ACD algorithms are employed (round robin, longest idle, fewest calls, etc), the VIPER softswitch decides who the next call handling agent is (in this mode the call takers are not allowed to select any call as the system decides based on the distribution rules selected by PSAP management

### Hold

A call can be placed on hold by clicking the HOLD button or by answering a second call without releasing the current call. The Hold indicator area on the queue button flashes yellow. The call can be retrieved by clicking the queue or ACD button that has the call on hold. The Hold indicator on the queue button disappears.

A call can also be retrieved from hold using the Line panel. Right-clicking on the queue button causes the Line panel to appear. Clicking on the line that was placed on hold (a call placed on hold by the particular call-taker is indicated by a flashing yellow indicators; calls placed on hold by other operators are indicated by a steady yellow) releases the hold.

### Redial

Two redial methods are provided. A Last Number Redial capability is provided via the Redial button. Pressing Redial displays the last number dialed from that position. Pressing Redial again dials the number.

When you redial a telephone number, you call back a caller that either you previously spoke to or a caller that has called the emergency response center. This feature is also used to contact abandoned callers.

A telephone number can also be redialed via the Power 911 Lists module. In the appropriate Calls List (i.e. Agent Calls, Abandoned Calls, etc.) in the Lists module, double-clicking the telephone number of the call record causes it redial the number.

### Release

A call can be released by simply clicking on the red Release button. The call-taker has full control of the trunk connection status, enabling the trunk to be forcibly cleared in the event that a caller deliberately attempts to tie up the line (forced disconnect).

### Transfer

Power 911 supports two types of transfers:

- Blind: the call is transferred without speaking to the person to whom the call is being transferred.
- Announced or With Consultation: The call-taker speaks to the person to whom the call is being transferred before connecting them with the caller.

Clicking on the Transfer button immediately places the caller on hold. The call-taker then can dial the desired number though the dial entry panel or Contact List. For a Blind transfer, the Transfer button should be clicked as soon as the line ringing is heard. For an Announced transfer, the call-taker simply waits for the third party to answer, and then clicks Transfer.

### Conference

While on a call, a conference call can be set up by dialing the number (internal or external) of the party or selecting the party from the Power 911 Contact List.

Two forms of conference are available on the system:

- Announced Conference: The party being transferred is put on hold during the process.
- No Hold Conference: The party being transferred remains on the line during the process.

Calls placed on hold by a call taker can also be patched to a call in progress to create a conference (add on conference).

The proposed configuration supports conferencing of up to six (6) parties.

Call conferencing and transferring is also supported through the Power 911 Transfer Module.



Single button/mouse click operation is supported, and even enhanced by added intelligence to deal with a range of dialing scenarios.

### **Outgoing Calls**

Power 911 offers four standard methods for dialing a call:

- Manually entering the telephone number of the destination and clicking on the Redial button
- The Line panel (using a line button associated with a ringdown line)
- Selecting an Agency button (on the Transfer Module)
- Via the Contact List.

Power 911 allows a call to be placed on a default outgoing line or on a line selected by the calltaker. The desired line can be selected by right-click on the appropriate queue button to display the Line panel, then clicking the desired line button.

### Mute Transmit

Power 911 offers the capability for a call-taker to mute themselves from a caller in order to speak privately with a third party such as a supervisor. Muting prevents the caller from hearing the conversation between the call-taker and the third party. However, it does not prevent the call-taker from hearing the caller, which is not recommended in an E9-1-1 (emergency call) environment

Muting is accomplished by simply clicking on the MUTE button. A green indicator on the MUTE button illuminates to indicate that the call is muted. Normal conversation with the caller can be restored by a second click of the MUTE button.

### Selective Mute

When on a conference call the Power 911 Conference Manager displays all lines/parties that are participating in the conference call. Parties participating in the conference can be released individually (in any order) or all at once through the Conference Manager. The Conference Manager allows call takers to silence any participant in a conference from being heard by any

other party in the conference and similarly is able to exclude any participant from hearing all other parties in a conference.





### Line Status Indication

Power 911 provides line status indication simultaneously in 3 ways:

- Visually (and audibly for incoming calls) via the queue buttons, by displaying incoming, talk and hold through visual indicators
- Via the line buttons, by presenting the lamping of the line
- Via the Call Lists Module which presents the status of all active lines in text format.

### Hook Flash or Equivalent

Hook Flash is accomplished by simply clicking on the Hook Flash button within the feature panel, or on the Dial Entry Keypad. It can also be performed within a dial string by entering an "H".

### Direct Trunk/Line Access

A particular trunk or line can be accessed by right-clicking the appropriate queue button to display the Line panel, then clicking the desired line button.

### Queuing

The Power 911 queue buttons provide audible and visual indications of incoming and outgoing calls. A trunk or line group label on each queue button identifies the trunk or line that is ringing. Each trunk or line may also have its own distinctive ringing sound, enabling quick queue button identification.

Right-clicking on a queue button opens the Line Panel, which displays the lines that belong to the group. This allows the calltaker to bypass the queue process to answer a particular line; the calltaker may determine that it is necessary to do this based on the ALI-Before-Answer information in the Call Lists Module (Active Calls List) or the line itself. Call can also be selectively

## answered through the Lists Module.



ltem	Description
1.	Call Counter: ■ Displays number of calls in queue.
2.	<ul> <li>Call Timer:</li> <li>Displays how long the first call in queue has gone unanswered; or</li> <li>Displays length of the current call.</li> </ul>
3.	<ul> <li>Button Label:</li> <li>Displays custom text or the queue button's function: (the name of the line, line pool, line group, route or route pool, as defined in the Configurator.)</li> </ul>
4.	<ul> <li>Voice Call Source / Text call Source:</li> <li>The trunk, line, route or DNIS. The system displays this information on the queue button based on availability and predefined order of precedence.</li> </ul>

Figure 7 -Queue Button

**Text Conversation Panel** 

The Text Conversation Panel opens when a user clicks the Text queue button or double-clicks a Text call record in the Lists module. The Text Conversation Panel is used to communicate with callers who have contacted the PSAP using a text messaging application through Intrado's TXT29-1-1 services.



Both keyboard interaction and pre-programmed messages (configurable) are supported. The standard NENA recommended messages are pre-programmed when shipped from the factory in multiple languages.



### Supervisory Features

Supervisors and trainers can use the following features to monitor and participate in calls.

### Barge In

This feature is available in shared line environments enable supervisors to participate in an on- going conversation. The maximum number of participants depends on the telephone system. The barge in feature is available for calls that have a BUSY status in the All (PSAP) Calls list.

### Listen and Join

The Agent Status list is used to establish which line or call-taker to listen in on. After the line has been established, the Listen and Join feature buttons can be used to alternate between monitoring the call and participating in it.

# **Location Module**

The Location module consists of the following panels:

- Automatic Location Identification (ALI)
- Calling Party Information (CPI)
- Premises Information
- ALI Lookup
- TTY

The layout of these panels is configurable by the system administrator.

### ALI Panel

ANI/ALI for the call is stored within Power 911's internal SQL database exactly as received from the ALI Database. The ALI panel displays this information but will not allow the calltaker to change it. The ALI Panel also allows the calltaker to tag an ALI as incorrect. A report of incorrect ALIs can be generated via Power MIS and sent to the database provider for investigation.

Should the ALI be incomplete or corrupted, the calltaker can request a retransmission from the ALI database using the RTX button.

The DBR button opens the Database Request panel. This allows the calltaker to perform an ALI Database lookup for a manually entered number.

The Print button will send selected information from the ALI to a network printer. Configurable. Rich-Text-Format (RTF) based templates allows PSAP personnel to configure what information gets printed.



Figure 9 - Location Module ALI Panel

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#### Wireless ALI Formatting

Power 911 enhances ease of use by providing wireline/wireless transparency by handling the differences between wireline and wireless E9-1-1 calls. Specifically, the Wireless ALI Formatter (a configurable function of Power 911) extracts the CBN from the ALI stream and uses it in the ANI window instead of pANI. It also replaces pANI with CBN in the call lists. The end result is that redialing a caller is handled the same way whether the call is wireline or wireless.

### ALI Rebid Features

Power 911 provides a configurable ALI Rebid function which can be automatic or manually invoked. This function can be set (i.e., in advance) or changed by the call taker at any time while handling a wireless call. The following settings are available:

- No Auto RTX: Disables automatic ALI retransmission.
- Single Automatic RTX: Performs single retransmission after preconfigured time elapses.
- Continuous Automatic RTX: Retransmissions occur continuously. The frequency of transmissions is pre-configured.

When a wireless call is received (detected by Class of Service in the ALI stream), the initial ALI appears in the Location Module, and a counter displays the time elapsed since the last ALI update (this counter restarts each time there is a new update). When the counter times out, the Rebid occurs.

	RAW ALI 00:08	💊 🗹 RTX		
TEL # 302	342-7077 NAM	E JOHN DICKINSON PLANATAT	ION	
340, KITTS HUMMOCK F ADDRESS DOVER, DE	D,		CLASS WPH2 MAIN #	
EXACT BEAUTIFUL BUILDING				
χ -75.44900	Υ 39.1029;	2	ESN 223	
PROVIDER	CONF		UNCERT	
PSAP= Police=DOVER AGENCIES				
📀 Address Details				
	Q			

Figure 10 - Power 911 Location Module Showing Rebid Timer

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### ALI Lookup Panel

This panel is used to send queries to the ALI database, based on telephone numbers entered in the Search For box. This panel has the same fields as the ALI panel.

	Op Perform DBR	en DBR Reason Pre dialog box	vious / Next buttons 
ALI Lookup			۵
Search: 514-345-9999	٩	Reason 🔶 🔶	
Tel. #	Ext.	Class	
Caller		Main #	
Address			
Exact L		ESN	
Tell Tale			
Address Details			
ADR 🔫	Copy to	OILI Copy to ALI	
Return to Clear pa previous panel Open Address Details panel	nel Co te	py query results o other panels	A Print panel

Figure 11 - Typical ALI Lookup Panel

#### **Address Details Panel**

Clicking the right arrow button in the ALI or CPI panel opens the Address Details panel. It displays additional location information associated with the call.

Information can be displayed in parsed or raw ALI format. Raw ALI is displayed in the same way as it would be on an electroluminescent display – in a maximum of 16 lines, with a maximum of 32 characters on each line.

House #		Ext.		CompanyID		
Street					Dir.	
Community			County			
State			Zip Code		Ext.	
Near of						
Position						
Cell ID			X Co	ordinate		
Sector ID			Y Co	ordinate		
Comments						
	<b>a</b>	🔨 Va				

Figure 12 - Address Details Panel - Parsed

**Premises Information Panel** 

Power 911 offers the capability to display premises information maintained by the site. When a call is answered, a query based on the phone number is automatically sent to the Premises Information database, to retrieve site information. Premises information can be organized into pages connected by hyperlinks.



Figure 13 - Premises Information Panel



# System Toolbar

The Power 911 Intelligent Workstation or Power Station provides the ability to program buttons to allow for "point & click" access to frequently used features and commands such as print on demand. This is provided by the Power 911 System Toolbar. In addition to the above, these buttons can also be configured to launch other Intrado software applications or Power911 functions such as Volume controls. Each button's Icon can be customized with standard bitmaps.



Figure 14 - Power 911 System Toolbar

# Lists Module

The Power 911 Lists module organizes call information into up to 3 pages of lists with 6 tabs per page. Lists are available for both Agent Activity and Call Activity. The lists are configurable on a per agent basis. Therefore, the number and the order in which they appear for each view may differ for each agent or group of agents.

The Lists module manages information so that users are made aware of new information concerning a call, and are alerted to any changes in the status of a call that is being handled. When information concerning a particular emergency becomes available, Power 911 places this information into the appropriate list so you can access and view it. Users are alerted to new information when the indicator, located above the list name, turns yellow (red for Abandoned Calls). For example, as soon as a new call is detected by the system, a call record is added to the Active Calls list and the Active Calls indicator turns yellow.





The lists available in the Lists module are defined as follows:

Agent Activity Lists:

• Agent Status: Lists users logged on to Power 911, and shows their state (e.g., Idle or Busy).

Call Activity Lists:

- Abandoned Calls: Lists the records of calls that have been abandoned before being answered by an operator. Operators use this list to keep track of abandoned calls. The operator can select an abandoned call from this list, and use the redial button to contact that caller.
- Active Calls: Lists the user's active calls from the moment that they are detected as incoming or outgoing until they are released by the operator. The operator uses this list to keep track of these calls and monitor their current status.

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- All (PSAP) Calls: Displays a list of all active calls (9-1-1, administrative, and internal) at the PSAP.
- All (PSAP) Recorded Calls: Displays a list of all 9-1-1 calls recorded at the each workstation in the PSAP.
- All (PSAP) Released Calls: Displays a list of all calls (9-1-1, administrative, and internal) released at the PSAP.
- History Calls: Lists the records of calls with the same ANI or caller ID as the current call. The operator uses this list to verify the presence of previous calls made by the current caller.
- Duplicate Calls: Lists call records (current and historical) that occurred within a configurable proximity to the current call based on x,y coordinates (if available) and/or ESN
- Recorded Calls: Lists calls recorded on a workstation (by all operators).
- Released Calls: Lists calls handled and released on a workstation (by all operators)
- Call Query: Displays call records returned from a database query.

Text Activity Lists (currently available only with Intrado's TXT29-1-1 Service)

- Active Text: Lists the user's active text message conversation
- All (PSAP) Released Text: Lists all Text calls that have been released by all users.
- All (PSAP) Text: Lists all Text calls that have been released by all users.
- Released Text: Lists all Text calls that have been released on the workstation.

### Performing Call Queries

Call queries are performed by clicking the Call Query tab, specifying the filtering criteria in the Record Query module, and then clicking the Search button. The results of call queries, which are displayed in the Lists module, can be printed.

Searches can be based on one or a combination of the following filtering criteria:

- Date/time
- Caller name
- Address
- Telephone number (ANI or caller ID)
- Agent
- Trunk Group and Trunk
- Line Group and Line

Record Query	0
From	То
2015/04/16 12:00:00 AM -	2015/04/16 11:59:59 PM
ANI/Caller ID	Agent Any
Caller	Trunk Group - Trunk Any
Address	Line Group - Line
	Any Any
Q. 7	

Figure 16 - Query Module

The wildcard for Power 911 queries is an asterisk (\*). It can be used in the ANI/Caller ID field of the Record Query module.

Query progress and invalid entries for queries are indicated on the Status bar located at the bottom of the Power 911 screen.



## Message Board Module

The Message Board Module allows messages to be sent to all operators, a selected group of operators, or a specific operator currently logged on to the system. The operator is alerted to the presence of incoming messages non-intrusively so that they can be made aware of important information without interfering with any calls currently being handled.

Both visual and audible indication is provided. Messages will be displayed visually, labeled as either "Normal" or "Urgent". Normal messages are also indicated by an audible beep every 5 seconds, Urgent messages by two beeps every 5 seconds.

Upon reception of a message, the following will be indicated:

- Time the message was sent.
- Name of the sender and the number of their workstation.
- Number of unread messages.
- Priority of the first message received (normal or urgent).

Any recipient of a message can acknowledge having read the message simply by pressing the "Ack" button. This can be used not only for messages sent by a supervisor, but from other operators as well.



Figure 17 - Message Board Module

Sending a Message

Messages are created using the Compose Message panel.

There are three ways of generating a message:

- Type a message in the message entry area
- Click one of the six pre-configured Quick Message buttons
- Select a predefined message from the Message Template List.

The sender can also specify who the message will be sent to, and mark it urgent.

Each Quick Message button can be pre-configured with a message, a priority (normal or urgent), and the name of the recipient or group of recipients. These buttons can also be configured to send the message either immediately, or after also clicking the SEND button (this second approach allows the pre-programmed message to be edited before sending).

The message Template list offers additional pre-programmed messages that can also be edited before sending.



Figure 18 - Compose Message Panel



# Transfer Module

Power 911 IWS provides extensive call transfer functionality, including tandem transfers. Single button/mouse click operation is supported, and even enhanced by added intelligence to deal with a range of dialing scenarios. The following describes the functionality provided by the Power 911 Transfer Module.

The Power 911 Transfer Module is used to transfer calls and data to specified agencies

- Conference calls to specified agencies
- Speed dial agencies using the Agency List or Extended Agency Panel
- Speed dial individuals using the Contact List
- Enter personal contact settings using the Contact Details panel
- Monitor data transfers using the Data Transfer Status panel



Figure 19 - Transfer Module

Right-clicking any of these buttons provides access to the Agency list which contains all agencies that are configured for voice and/or data transfers.

Agency Li	ist			8
All Agencies		Search	Type:Fire	Clear Filters
Name	🔻 Type	Info1	Info2	
Fire200	Fire	Ste-Rose	Laval	
Fire300	Fire	Westmou	nt Montreal-Cer	Itre
Fire400	Fire	Ste-Doroth	nee Laval	
Fire500	Fire	Laval-sur-	le-Lac Laval	
Fire600	Fire	Ahuntsic	Montreal-Cer	tre
Fire700	Fire	Lasalle	Montreal-Cer	tre
Fire800	Fire	St-Michel	Montreal-Est	

Figure 20 - Agency List

If the agency button is configured to open the Secondary Agency panel, users can right-click an agency button to display the associated Secondary Agency panel. In the Secondary Agency panel, the user would click the agency button to perform the speed dial.

### Intelligent Handling of Contact/Transfer/Conference Destinations

Power 911 IWS intelligently handles how the contact buttons initiate calls and transfers. For example, if a particular button is configured for "County Fire", what happens when it is clickedon will depend on the context. If a call taker is talking to a 9-1-1 caller, pressing the contact button will establish a voice transfer via the 9-1-1 network. If on the other hand the call taker is not on a call at all, clicking the contact button will cause the system to automatically select an available outgoing line, and dial the full PSTN number to reach "County Fire".

The system also allows multiple phone numbers to be programmed for a given destination. Each of these numbers can even be restricted to particular times of day, so that one number would automatically be used during the day and another at night. Many numbers and corresponding time ranges can be assigned per agency, and their time ranges can overlap.

# **System Information Module**

This module provides information and alarms pertaining to the system and the workstation. It displays information about the user currently logged onto the workstation (User Name, Role, Workstation ID). The date and time are displayed along with error and alarm messages. It also provides a log of system messages and information on the health of the workstation.

![](_page_32_Picture_4.jpeg)

Figure 21 - System Information Module displaying alarm message

# **Standard Operating Procedure Module**

The SOP Module within Power 911 allows for the viewing of a Standard Operating Procedures (SOP) database created by the system administrator. The system uses the Microsoft Internet Explorer engine to display HTML-based operating procedures. They are displayed in hypertext format, allowing call-takers to move quickly through procedures.

SOP information is easily entered and maintained using off-the shelf standard applications ranging from simple text editors (such as WordPad, built into Windows) to what-you-see-is-what-you-get HTML editors such as Microsoft FrontPage.

![](_page_33_Picture_5.jpeg)

Figure 22 - Standard Operating Procedures Module

# System Features

### Contact List

The Contact List is the user's telephone book. Users can view, add, delete and change records based upon privileges set by the system administrator. Records are categorized into the following lists:

- Global Contacts: Contains records accessible to all users.
- Role Contacts: Contains records specific to a role.
- Personal Contacts: Contains records specific to a user.
- All Contacts: Contains Global, Role, and Personal contact records.

Contact Lis	t		0
			<b>*</b>
All Contacts	Search		Clear Filters
Name 🔻	Agencies	Default des	tination
Brad Frommer			

Figure 23 - Contact List.

By default, records are listed in alphabetical order, based on the Name column. Users can sort the list based on other columns, and filter the list to show only records that meet specific search criteria. Multiple phone numbers can be entered and displayed for a single entry.

Filtering a list is accomplished by entering the characters to search for in the filter box at the top of a column. Each time a letter or number is entered, the list refreshes to show only those records that contain the same characters. More precise search results can be obtained by entering characters in other filter boxes.

To speed dial a contact the user can double-click a contact record or right-click a contact record and select Call.

Feature Configurability Based On Agent Log-In

Power 911 IWS provides extensive configurability based on agent log-in. To simplify management of several Agents' configurations, Agent Profiles can be used to allow agents to be assigned to one of possibly several different common combinations of features.

The following can be configured differently for each agent based on log-in, regardless of the position the user is logged into:

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- Message Board Broadcast Buttons and Broadcast Messages.
- Call Lists (i.e. which lists appear).
- Telephony Feature Buttons.
- Line Button Assignment.
- Toolbar Buttons.
- Queue Buttons.
- Primary and Secondary Transfer Buttons.
- Agencies handled.

### Call Recording

Power 911 IWS offers two software Integrated Call Recorders, a basic telephony-only model, referred to as the Integrated Call Recorder (ICR), accessed via the Calls Lists in the ListsModule, or, optionally, a more flexible dual-channel model, the Integrated Telephone and Radio Recorder (ITRR) which provides simultaneous recording of telephony and radio conversations.

### Integrated Call Recorder (ICR)

The Power 911 ICR (Instant Call Recorder) can be set to record either automatically, or on demand via manual on-screen controls and will continue to record a conversation for as long as it lasts. Each call is recorded as a distinct standard Windows WAV file.

Call takers can access and playback previous ICR recordings (if still available) of calls they have handled through the Recorded Calls tab of the Power 911 Lists Module. Authorized users can access and playback all available ICR recordings (if still available) through the All (PSAP) Released Calls tab. Recordings are accessed by double clicking the Rec column value.

The length of time call recordings are kept (and therefore available for playback) after termination of the call is configurable. Recordings are purged from the system over time to conserve disk space, with the exception of recordings tagged by the calltaker as "saved". Once that time has elapsed, the system automatically purges the recording to conserve disk space. A calltaker can prevent a call recording from being purged by pressing the SAVE/UNSAVE button which is configured as a feature button. When the recording is no longer needed, pressing SAVE/UNSAVE a second time will allow the recording to eventually be purged. There is no limit to how long a recording can be "saved", although how many calls (and of what length) can remain "saved" is limited by the hard drive space available.

![](_page_36_Figure_2.jpeg)

Figure 24 - ICR Player

Power 911 ICR recordings can be controlled through the ICR Player which includes DVR-like controls. The ICR Player has Play/Pause, Forward and Rewind. The Player also has a scroll

capability that lets users move to any position on the recording. Control buttons are also provided on the Feature Panel. The Panel includes Record, Play, Stop, Save/Unsave buttons.

Integrated Telephone and Radio Recorder (ITRR)

Intrado's Intelligent Telephone and Radio Recorder (optional) provides for continuous recording and simultaneous playback of both telephone and radio conversations at a workstation. ITRR is a standalone application that runs on the same workstation as Power 911, and provides continuous recording and simultaneous playback of both telephone and radio conversations at a workstation. Up to 48 hours of recording can be stored provided sufficient hard disk space is available on the workstation (approximately 3 GB is required for 48 hours of audio, 500MB for 8 hours, 30MB for 30 minutes).

A selection of the continuous recording can be manually saved to a separate WAV file. A simple but versatile user interface allows for quick and easy playback. Both telephone and radio conversations can be played back either separately or together. Variable speed on playback is also supported.

Power 911 provides ITRR with notification of call start and end times, allowing the ITRR Player to synchronize to the current call (the call in focus in the Power 911 GUI). This provides for single-mouse-click playback of the latest (or even in progress) conversation.

		4	(19) TRR Player - Live	1 17 PRecording	8 20		3	<b>2</b>	<u>     (2)</u>
	Full		48hrs	24hrs	8hrs	thr	30mins	Call	<u> </u>
6-		15:58	15:59	16:00	16:01	16:02	16:03		
(8)				16:00:14	6:00:22				
9 10		D	0				<b>E</b>	List	
15	- 17 C			l	¤@				
	ANI/Caller ID	Dir	Date	Start	End	Duration			12
	0		1/28/2015	16:04:29	16:04:34	00.00.05			(12)
	0		1/28/2015	16:04:16	16:04:21	00:00:05			(15)
	0		1/28/2015	16:04:10	16:04:15	00:00:05			
	Ŷ		1/28/2015	16:03:34	16:03:39	00:00:05			14
	Ŷ		1/28/2015	16:03:09	16.03.14	00.00.05			
$\bigcirc$	Q		1/28/2015	16:02:58	16:03:03	00:00:05			
(16)	8	INC	1/28/2015	16:00:55	16:00:59	00:00:04			
	1	INC	1/28/2015	16.00.32	16.00.36	00:00:04			
	3	INC	1/28/2015	16:00:14	16:00:22	00:00:08			
	1		1/28/2015	16.00.00	16:00:06	00:00:06			
	0		1/28/2015	15:31:30	15:31:37	00:00:07			
	0		1/28/2015	15:27:52	15:27:57	00:00:05			
	0		4000045	45.07.00	45-07-05	00.00.05			

#### Figure 25 - ITRR Player

- 1. Title Bar
- 2. Close Button
- 3. Time Interval
- 4. Main Timeframe
- 5. Call Button
- 6. Telephony/Radio Buttons
- 7. Navigation Buttons
- 8. Volume controls
- 9. Play/Pause Button
- 10. Forward/Rewind Buttons

- 11. List Button
- 12. Save
- 13. Open
- 14. Live Recording Button
- 15. Radio/Telephony Checkboxes
- 16. Conversations List
- 17. Time Slider
- 18. Slider Time Stamp
- 19. Start Time Stamp
- 20. End Time Stamp

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The ITRR Conversation List displays all the calls for the current buffer, along with the related information (phone number, direction, channel type, etc.). Call and radio recordings presented in the Conversation List can be filtered to show: calls recordings only, radio recordings only, or both. Double clicking on a call in the list will jump to the appropriate call in the continuous live recording. The Conversation List automatically refreshes continuous live recordings as new calls are added and old calls expire.

## **TTY Functions**

Power 911's Integrated on-screen TTY allows call takers to communicate with hearing and/or speech-impaired callers. This functionality handles Baudot Communication protocols, automatically identifying TTY calls when the caller chooses to signal. Silent calls can be automatically queried by simply clicking the TTY button on the GUI.

When an incoming TDD call using the Baudot communication protocol is received and signaled, the Baudot tones automatically activate the TDD panel. Upon detection of the Baudot tone, automatic muting is activated. The mute is full on the transmit (mouthpiece) side and partial on the (attenuation of 20dB) on the receive side.

Both keyboard interaction and pre-programmed messages (configurable) are supported. The pre-programmed messages are provided as a basic set of messages which are always available, and secondly an additional dynamic set of messages which change. Also, the standard NENA recommended messages are pre-programmed when shipped from the factory (in multiple languages).

Examples of predefined messages are:

- 911 what is your emergency q ga
- Where is the building q ga
- Anyone inside q ga
- Do not enter the building ga
- Help will be on the way as soon as possible ga

![](_page_39_Figure_2.jpeg)

Figure 26 - TTY Panel

A "Buffered" mode is also available. When turned off, keystrokes (and pre-programmed messages) are sent as they occur. When turned on, the messages are buffered so that they are only sent when the call taker hits the <ENTER> key. The key benefit of this is that callers will only be delivered a complete message all at once reducing the chance that they'll anticipate the question and start responding (often off-topic) before the entire meaning of the question or message is understood.

HCO/VCO capabilities are incorporated into system's Integrated TTY software in full compliance with ADA guidelines.

TTY conversations are stored within the system database and available for review and reporting purposes.

## **Power Metrics Advanced Reporting**

Power Metrics Advanced Reporting uses a software as a service (SaaS) model, where hardware and software applications necessary to provide the reports and capabilities needed are the property of ECaTS and the "Service" is the customer's ability to generate required reports, and to access to an assigned Customer Client Specialist (CCS) for reporting and training needs.

All Power Metrics Advanced functions are provided to the user base via web browsers, so users have access to their data anywhere, anytime, from any device with a web browser (i.e., iOS, Android, Windows mobile, laptops, desktops, etc.). If information is to be printed, it can be printed directly from the web browser.

The customer should expect the benefits of a flexible and intuitive web-based user interface, easy-to-use Preconfigured Reports, and the advanced offerings of the system's Ad Hoc reporting tools. Power Metrics Advanced provides Customers with the ability to report on 9-1-1 call and trunk statistics across an individual public safety answering point (PSAP), county, and/or any given jurisdiction with unified reporting and managed services. Power Metrics Advanced not only reports on all incoming 9-1-1 calls, but also on different call types profiled for the PSAP (e.g., 3-1-1, administrative, seven-digit, 10-digit non-emergency, ringdown, alarm).

Power Metrics has multiple user interface controls to aid users in setting parameters that will define the results returned by each of the Standard Reports. These controls include call type, the ability to run a report only on abandoned calls, output format, graph format, agency affiliation, and group summary options. Other controls such as period grouping, time group and time block are available for applicable reports.

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![](_page_41_Picture_1.jpeg)

							Jordan	n Elliston Na	astiville   Lo
west we connect. we d	eliver.				6	Reports		Ad Hoc	G Raw
eporting Groups Support Rele	ase Notes						• 0	Nownload T	raining Ma
Standard Reports	REPORTS	an a							
Custom Reports	Standard Reports >Call S Select PSAPs:	ummary			Selec	t Groups:			
PowerMetrics	Metro Nashville Eme	rgency Corr	municat	ons	E M	etro Nashv	ville Emerg	ency Comm	unications
Agent Audit Log	Center				Cente	H.			
Broadcast Message				1	OR				
	PSAP Grouping		2000				1204-00	20000	
	Select Date Range		From:		To:	_	Period	Group:	
	- SELECT -	•	1		8		Month	•	
	Call Type:	Abandon	ed Filter	rs:					
	911 Calls •	Include	Abandon	ed •	•				
	Graph Format:								
	No Graph •								
	Agency Affiliation								
	Emergency Communications	€ EMS	⊗ Fire	⊛ Medical	⊗ Miltary	R Police	i≷ Sheriff	i2 Training	⊘ University
	Run this report Now	•			Output F	ormat: W	/eb +	a Gen	erate Report

Figure 27 – Power Metrics User Interface

The following is a list of pre-configured reports included:

- Call Summary
- Calls Per Hour
- Top Busiest Hours
- Average Call Duration
- Calls by Circuit
- Circuit Utilization
- PSAP Answer Time
- Agent Ring Time
- Class of Service
- Calls by Agent
- Agent Speed of Answer
- Initial Station Total Calls
- Top ESN
- Top ANI
- Trunk Group Utilization
- PSAP Answer Time Exception (10 Sec)
- PSAP Answer Time Exception (15 Sec)

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![](_page_42_Picture_1.jpeg)

- PSAP Ring Time Exception (10 Sec)
- PSAP Ring Time Exception (15 Sec)
- Call-taker Ring Time Exception
- 10-Digit Emergency
- Call Transfer
- Outage
- Wireless Call Sector
- Unparsed Call Data
- Agent Audit Log
- Call List/Detail Summary
- TTY Call Detail

In addition to the aforementioned reports, Power Metrics Advanced also includes standard SMS/Text Reports, and Ad-hoc Reporting.

- SMS Reports:
- Session Transcript
- SMS Messages per Hour
- SMS Summary

## Ad-hoc and Advanced Ad-hoc features

Ad-Hoc reporting is one of the most powerful features of Power Metrics reporting, and it is accessible through an intuitive user friendly interface. It allows the users to generate reports against any data element stored in the system, providing a broad range of ad hoc reporting capability.

Two distinct interfaces are provided: standard (simple) ad-hoc and advanced ad-hoc. The standard interface captures the majority of the fields that are typically used by PSAP and Customer Administrators to generate ad-hoc reports and to analyze the data from a high level all the way down to the actual call.

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

### **Client Communications Specialist**

As a SaaS provider of MIS, ECaTS thrives on customer service. The ECaTS goal is to service customers and not only provide reporting, but assist with it. With each Power Metrics deployment, the User will gain access to a personal Client Communication Specialist. ECaTS Client Communication Specialists are available for one-on-one reporting support providing the ability to do custom query and reporting for the customer. The CCS will also provide ongoing training requested and scheduled by the Customer, and can assist with or create ad-hoc templates. This personal contact will be available via phone, email and Chat. Online training is free for the duration of your Power Metrics contract.

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![](_page_43_Picture_1.jpeg)

Figure 18 - Requesting Assistance

### **Report Formats**

Power Metrics collects, stores, and forwards all CDR and call event data using a data collector, at the host site or PSAP location, depending on the configuration. Once the information is stored, it is then forwarded and stored in the ECaTS data center. The Customer will have access to the Raw Data using the Raw Data Viewer interface. In addition, Power Metrics provides several output options, including HTML, CSV, PDF, and Excel.

### **Graph Format**

![](_page_43_Figure_6.jpeg)

Figure 29 - Sample Graphic Formats

To add a graphical component to a report, an administrator can select the type of graph desired from the selection drop down. The graph output dropdown selector allows the users to define what type of graph should output with the selected report. All reports that consist of tabular data will present a graph if selected. For those reports that do not provide tabular data (ex: Transfer Report), selecting a graph type will not cause a graph to be created.

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Drop down selection:

- No Graph Default, No graph will be displayed
- Pie Pie Chart
- Line Line Graph
- Bar Bar Graph

## Architecture

Power Metrics is hosted in a Tier 4, state-of-the-art ECaTS data center located in California. The hosting facility is currently used by clients such as Microsoft, Google, the State of California, banking institutions, and major Fortune 500 clients.

Power Metrics collects CDR information at each site by connecting the VIPER to a custom-built data collector (or RDDMs). This data collector has specifically been built for the collection, compression, and security of CDR data.

As 9-1-1 calls are completed, the VIPER generates CDR and event records and outputs this information using a serial or parallel port, or direct IP delivery for capable systems. The customized DATA COLLECTOR box connects to this output and dynamically stores every CDR entry. The data is delivered over a secure connection to the ECaTS cloud for processing on a predetermined time frequency (anywhere from five to 30 minutes).

The data collector, which collects an image of that data for reporting, uses a 128GB solid state hard drive. The result is increased local storage capacity and higher performance at the file system level for capturing and retaining CDR data. Once the data collector has secured the data in its internal storage module, it delivers the data to the ECaTS data center as follows:

- Directly via private network (if available at the PSAP)
- Directly to the internet (if available at the PSAP)

Once the data reaches the ECaTS data center, it is secured within the custom cloud and infrastructure. This infrastructure was designed as a "five nines" (99.999 percent) uptime system. It uses the latest in HA virtualization and clustering techniques in addition to the HA SAN, which serves as the enterprise storage subsystem running in a RAID 0+1 configuration with multiple logical unit numbers (LUNs) and spindles.

![](_page_45_Figure_2.jpeg)

Figure 30 - ECaTS Data Flow

ECaTS provides the first universal 9-1-1 call-reporting system that leverages the ubiquitous nature of the internet to provide secure, real-time reporting to the 9-1-1 industry. ECaTS is currently installed and in production statewide in California, Utah, Oregon, North Carolina, and Washington DC. ECaTS is also reporting and providing services to a high number of COGS, Districts, and Counties in Texas, as well as a number of counties in Florida and Oklahoma, PSAPs in Louisiana, Iowa, Mississippi, Ohio, Tennessee, Washington and Kentucky. Currently ECaTS provides full analysis and reporting on all 9-1-1 call, call-taker, and trunk activity throughout these locations. Pending available data feeds from customer premises equipment (CPE), the ECaTS system has the capability of supporting Next Generation 9-1-1 (NG9-1-1) activity. ECaTS has the ability to listen, record, and translate NG9-1-1 data such as photos, videos, short message service (SMS) text messages, and others, which will position the Customer for the future, when new standards demand it.

# TXT29-1-1 Text Messaging

West's TXT29-1-1 solution is supported through West's Power 911 system and is aligned with the NENA i3 Reference Architecture and ATIS/TIA Joint Standard (J-STD-110) that was developed to support text messaging to 9-1-1. The Standard defines the architecture, methods, and protocols for SMS messaging to PSAPs

![](_page_46_Figure_4.jpeg)

![](_page_46_Figure_5.jpeg)

Though ECC's will need to request text messaging from each wireless carrier serving their jurisdiction, West's TXT29-1-1 consolidates text messages from all carriers, streamlining the workflow. The use of a single display interface eliminates the need for carrier-specific user interfaces for each wireless carrier and provides a consistent means of communicating with each individual texter.

The Text Conversation Panel (described previously) is used to communicate with callers who have contacted the PSAP using a text messaging application through Intrado's TXT29-1-1 services.

# VIPER Multi-Node

Fully redundant geographically diverse solutions are supported via West's VIPER Multi-Node solution (proposed). In a VIPER Multi-Node solution, geographically distributed VIPER Servers (Nodes) operate simultaneously and independently. Each node consists of redundant VIPER Soft Switches and Applications Servers which provide telephony and application layer functionality, respectively. Incoming traffic is distributed across two separate instances of the traditional VIPER Soft Switch and Application Server pairs. In this design, four (4) VIPER Soft Switches and four (4) Application Servers are deployed (i.e. 2 groups/clusters of 2 Soft Switches and 2 Application Servers).

![](_page_47_Figure_4.jpeg)

Figure 32 - Sample Multi-node Architecture

As with the traditional design, within each group/cluster of VIPER Soft Switch pairs, one acts as an Active soft switch, and the other is in Standby state (in Standby, it is actually monitoring the Active soft switch and call states, and is prepared to take control automatically if required). Power 911 call handling positions receive calls from both VIPER Soft Switch groups ("clusters") simultaneously. The processing of calls from two separate nodes is transparent to the call-taker.

VIPER Gateways managing incoming traffic (CIM, AIM and Mediant - T1/ISDN/PRI) support the ability to redirect their traffic to an alternative node should communication be lost with the primary node. In other words, the system automatically recovers to full 100% capacity without any user intervention. Consequently multi-node configurations provide host backup capabilities and enhanced fault tolerance (with two VIPER Soft Switch and Application Server pairs) in scenarios where system availability at one of the nodes is compromised.