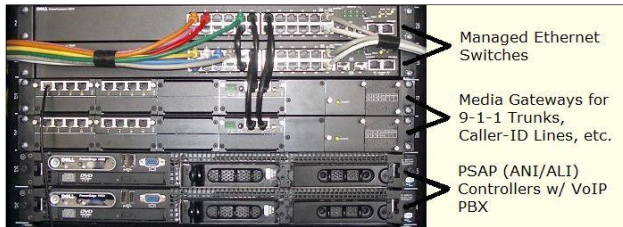


General



- Exceeds "NENA Recommended Generic Standards for E911 PSAP Equipment"
- High Availability (HA) system with 99.999% uptime (aka five nines). Note: Current installed systems have experienced 99.9999% uptime (aka six nines)
- Designed for Linux
- Takes advantage of Multi-Core servers for increased performance
- Comprehensive IP based communication design
- Fully Redundant
- Uses server clustering with "n" number of servers (two servers required for HA)
- Sub-second failover
- Supports 94 trunks; trunks 95-99 are used for manual ALI requests per NENA specifications (can be modified to handle 994 trunks)
- Supports integration of different and multiple ANI systems (e.g. Media Gateways, ANI-Link, etc.)
- Supports 99 positions (can be modified to handle 999 positions)
- Supports Phase I & II wireless
- Supports E2 Protocol
- Integrated VoIP PBX via Asterisk
- Uses UDP for communications
- Serial communication accomplished via Serial Device Server (aka Ethernet to serial converter)
- Software based TDD (No physical TDD modem) when using ANI systems other than ANI-Link
- Built-in self-diagnostics troubleshoot line errors, communication problems, etc.
- Email Message Notification:
 - Informational messages on startup
 - Warning messages for unusual activity
 - Alarm messages for connection down/unavailable
 - Reminder messages that alarm condition still exists
- Built-in Firewall and Denial of Service Protection for all ports:
 - Ignores packets from unknown IP addresses
 - Timed shutdown when approaching full buffer on ports
 - Ports are turned off when not expecting data
 - Smart Queue can identify and flush bad data from ports
- NTP time synchronization for all servers controlled by the "master" server
- Heartbeat signal to support center (via the Internet) for external monitoring of network/Internet access
- Threaded Implementation provides efficient utilization and reduces resource monopolization
- Hot-Key menu(s) to perform services:
 - Change log and display modes
 - Server and workstation status tables
 - Control who is master server
 - Check available disk space
 - Up-time, Version number, etc.

- Remote Access Cards in each server; allows server access at the hardware level prior to the operating system booting
- Remote access via SSH and VNC
- Redundant remote access paths to each server
- Redundant Ethernet switches
- Redundant power switches

ANI

- Supports both 8, 10 and 20 digit ANI formats
- Supports MF/CAMA trunks and POTS/Caller-ID lines. SS7 and T1/E1 supported by Media Gateway.
- Supports 94 trunks (can be modified to support 994)
- Identifies incoming call type when possible (e.g. 911 Wireless/VoIP, 911 Landline, Caller-ID, etc.)
- Data error correction and data reconstruction provided for out of order data reception (cable pulled scenarios)
- Support of incoming calls with unknown NPD codes when using 8 digit ANI format
- Each call is assigned a unique call ID number for better data collection and reporting
- Continually monitors ANI heartbeats to ensure connection and equipment availability
- Rotating trunk monitoring/check
- Open ended design allows easy integration of different and multiple ANI systems (e.g. Media Gateways, ANI-Link, etc.)

ALI

- Supports both 8 and 10 digit ALI request formats
- Ability to connect to unlimited number of ALI databases
- Ability to connect unlimited number of ALI line pairs to each ALI database
- When database has multiple line pairs, uses round-robin approach to select line pair
- Ability to select ALI database by callback/pANI number ranges
- When database callback/pANI number ranges overlap, uses round-robin approach to select database
- ALI database format Independent (Does not require knowledge of ALI record format)
- Receives Phase II requests from workstation GUI
- Phase II ALI request timeouts can be customized for multiple wireless providers (i.e. Verizon, Sprint, etc.)
- Uses trunk number and ALI request number to match ALI request with ALI received
- Performs ALI request on ring of incoming call
- Multiple ALI requests can be active at any given time
- Supports up to 5 simultaneous manual ALI requests
- Supports ANI callback number confirmation from ALI when ANI is 8 or 10 digits
- Enable/disable the ability to perform manual ALI requests
- Supports the setting of x number of automatic wireless ALI requests
- Enable/disable the ability to perform automatic wireless ALI requests; as well as and set ALI request interval

CAD

- Ability to connect to unlimited number of CAD [and mapping] systems
- Sends ALI record on position pickup (per NENA specifications)
- Ability for dispatcher to send ALI record with his or her position number.
- Ability to customize CAD ACK response

- o If ACKs are required for heartbeats
- o If ACKs are required for records (if ACK confirmation for records is required, waits for ACK or timeout before sending next record)
- Sends heartbeat once every minute when no activity and connection is available
- Enable/disable erase message on disconnect/on-hold

Log and Notifications

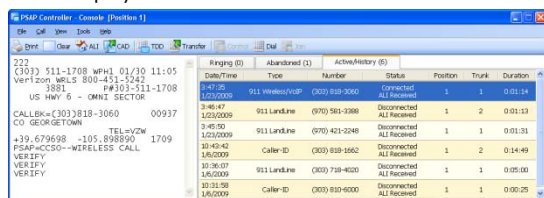
- All message are UTC and local date and time stamped
- Time stamps are accurate to the millisecond (0.001)
- Each message has corresponding message ID type
- Information, warnings and alarms are sent via email to support center
- Alarm messages are formatted for SMS (text Messages) and can be forwarded to one or more mobile phones
- Reminder messages for unresolved alarms
- Alarm delays prevent alarms caused by "hiccups" is service
- Utilizes internal SMTP server to send email messages
- Can send vender specific email alarms (i.e. CAD vendor, etc)
- Suppresses continuously repeating messages
- Logs stored in easy to read format
- Multiple logging and display modes include minimal, normal and debug per device (e.g. Debug ANI, Debug ALI, Debug CAD, etc.)
- Daily disk space availability check
- Automatic log deletion after a specified time period

Workstation

- Ability to connect 99 dispatcher workstations (can be modified to handle 999 positions)
- Workstations can connect from remote locations
- Workstations configuration is centralized by a configuration file on the servers
- Workstations heartbeat controller when active and ready to receive data
- Data sent and received from workstation in XML format
- Server call data can be rebuilt from information stored in the Workstation GUI

Workstation GUI

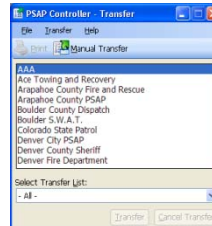
- Requires Microsoft Windows XP/Vista
- Designed specifically to work in conjunction with CAD systems
- Can perform independently all the basic functions necessary for a dispatcher to handle a 911 call
- Console Display



- o View ALI information
- o View status of call (ringing, connected, disconnected, etc.)
- o View answering position number
- o View incoming trunk number
- o View real-time call duration timer
- o View status of ALI request
- o Maintains previous call history
- o Select any or all positions to view
- o Phase II requests
- o Manual ALI request
- o Ability to resend ALI to CAD for a particular position
- o Perform callback of caller's number

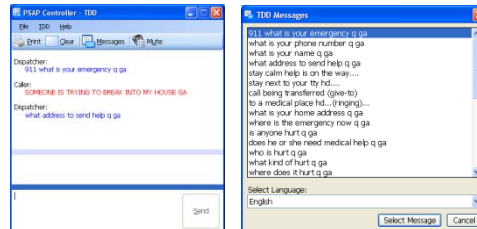
- o Dial outbound any phone number
- o Join call already connected
- o Print or Fax ANI/ALI
- o VoIP Softphone built into Console Display and allows answering of calls directly from GUI
 - Uses SIP to communicate
 - Features include Connect, Disconnect, Hold, Transfer, Join and Callback
 - Speed-Dial
 - Manual-Dial
 - Volume controls

Call Transfer Display



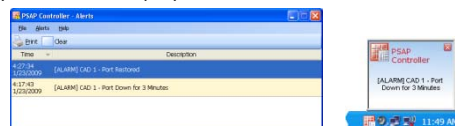
- o Transfer calls to other PSAPs or telephone numbers
- o Unlimited names and telephone numbers in transfer list
- o Group names and telephone numbers
- o Manually enter and transfer telephone numbers not in the transfer list
- o Calls transferred via the telephone company's tandem making the incoming trunk available again

TDD Display



- o Allows the dispatcher to communicate with hearing-impaired callers
- o Interface modeled after Microsoft's Instant Messenger
- o Automatically pops-up on incoming TDD call
- o Incoming text in uppercase, outgoing in lowercase
- o Incoming and outgoing text in unique colors
- o Unlimited predefined messages
- o Dispatcher can type message while receiving callers incoming message
- o Multiple dispatcher positions can communicate with a single caller
- o Easy click transmission of text
- o Telephone handset mute control
- o Print or Fax TDD text window
- o TDD conversations automatically saved in log

System Alert Displays



- o Displays list of alerts that can be reference at any time
- o Alert popup displays an alert as it occurs in the lower right corner of the Windows desktop. Popup does not interfere with dispatcher while working

PSAP (Internet Access) Monitor

- Requires Linux
- Centralized system at the support center used to monitor each PSAP Controller's access to the internet. Note: Internet access is necessary for receipt of alarms, remote access, etc.
- Receives heartbeats every x minutes from each PSAP Controller installed (for all PSAPs)
- Sends alarm message if heartbeats are no longer being received from any individual PSAP Controller

Asterisk/Experient Integration

- Custom integrated interface for Experient's PSAP Controller
- Can send specific Asterisk task commands via Experient's custom interface
- Digium (makers of Asterisk) hardware support for MF/CAMA trunks
- VoIP SIP (Session Initiation Protocol)
- Supports both hardware and software based SIP phones (Polycom SIP phones recommended)

Asterisk Features

- Call features
 - ADSI On-Screen Menu System
 - Alarm Receiver
 - Append Message
 - Authentication
 - Automated Attendant
 - Blacklists
 - Blind Transfer
 - Call Detail Records
 - Call Forward on Busy
 - Call Forward on No Answer
 - Call Forward Variable
 - Call Monitoring
 - Call Parking
 - Call Queuing
 - Call Recording
 - Call Retrieval
 - Call Routing (DID & ANI)
 - Call Snooping
 - Call Transfer
 - Call Waiting
 - Caller ID
 - Caller ID Blocking
 - Caller ID on Call Waiting
 - Calling Cards
 - Conference Bridging
 - Database Store / Retrieve
 - Database Integration
 - Dial by Name
 - Direct Inward System Access
 - Distinctive Ring
 - Distributed Universal
 - Number Discovery (DUNDi™)
 - Do Not Disturb
 - ENUM
 - Fax Transmit and
 - Receive (3rd Party OSS Package)
 - Flexible Extension Logic
 - Interactive Directory Listing
 - Interactive Voice
 - Response (IVR)
 - Local and Remote Call Agents
 - Macros
 - Music On-Hold

- Music On-Transfer:
 - Flexible Mp3-based System
 - Random or Linear Play
 - Volume Control
- Predictive Dialer
- Privacy
- Open Settlement
- Protocol (OSP)
- Overhead Paging
- Protocol Conversion
- Remote Call Pickup
- Remote Office Support
- Roaming Extensions
- Route by Caller ID
- SMS Messaging
- Spell / Say
- Streaming Media Access
- Supervised Transfer
- Talk Detection
- Text-to-Speech (via Festival)
- Three-way Calling
- Time and Date
- Transcoding
- Trunking
- VoIP Gateways
- Voicemail:
 - Visual Indicator for Message Waiting
 - Stutter Dialtone for Message Waiting
 - Voicemail to email
 - Voicemail Groups
 - Web Voicemail Interface
- Zapateller
- Computer-Telephony Integration
 - AGI (Asterisk Gateway Interface)
 - Graphical Call Manager
 - Outbound Call Spooling
 - Predictive Dialer
 - TCP/IP Management Interface
- Scalability
 - TDMoE (Time Division Multiplex over Ethernet)
 - Allows direct connection of Asterisk PBX
 - Zero latency
 - Uses commodity Ethernet hardware
 - Voice-over IP Allows for integration of physically separate installations
 - Uses commonly deployed data connections
 - Allows a unified dialplan across multiple offices
- Codecs
 - ADPCM
 - G.711 (A-Law & μ -Law)
 - G.722
 - G.723.1 (pass through)
 - G.726
 - G.729 (through purchase of a commercial license)
 - GSM
 - iLBCLinear
 - LPC-10
 - Speex
- Protocols
 - IAX™ (Inter-Asterisk Exchange)
 - H.323
 - SIP (Session Initiation Protocol)
 - MGCP (Media Gateway Control Protocol)
 - SCCP (Cisco® Skinny®)
- Traditional Telephony Interoperability

- E&M
- E&M Wink
- Feature Group D
- FXS
- FXO
- GR-303
- Loopstart
- Groundstart
- Kewlstart
- MF and DTMF support
- Robbed-bit Signaling (RBS) Types MFC-R2 (Not supported. However, a patch is available)
- PRI Protocols
 - 4ESS
 - BRI (ISDN4Linux)
 - DMS100
 - EuroISDN
 - Lucent 5E
 - National ISDN2
 - NFAS