RADIONET

Constellation®

VoIP/RoIP Radio-telecom Interoperability Command and Control System

Constellation is a 4th generation VoIP based radio telecom interoperability gateway. Constellation® employs the latest softswitch and DSP technology for enhanced communications between radios, command center PBX's, telephone lines and VoIP networked command and communication consoles. Constellation interfaces with all types of conventional, trunking, military and satellite radios.

At the core of Constellation® is a network based VoIP/RoIP softswitch, achieving radio and telephone integration in the same system. The revolutionary Constellation technology provides a high density, compact configuration requiring a fraction of the size, power, heat and weight of previous generation designs.

Not only does the dramatic reduction in power extend the life of Constellation components as compared to earlier designs, all Constellation boards are hot- swappable, allowing maintenance to proceed without incurring system down time. Constellation hot standby redundant configurations achieve an industry leading "five nines" reliability.

All command and control consoles are connected via a dual redundant Ethernet network to achieve exceptional reliability. Constellation supports diverse equipment locations, backup dispatch centers and geographical dispersion of resources, as well as integration with all standard networked database and computing systems.

Constellation is integrated with RadioNet's Apex series of radio interoperability systems, allowing for flexible communications between local and remote radio site locations via VoIP (LAN/WAN).

Constellation is totally programmable via LAN/WAN and Internet, allowing control of unmanned remote sites from a central location.

Administrative control may be performed via a PC or workstation running a standard web browser.

Constellation offers superior scalability, to accommodate from the smallest to the largest capacity dispatch system.

CONSTELLATION RADIO FUNCTIONALITY

- Interfaces for all types of conventional, trunking, military, and satellite radios.

- Specialized interfaces for cellular network and other custom interfaces.

- Project 25 with IMBE vocoding.

- AMBE and a multitude of industry standard vocoders.

- All standard paging formats, universal analog tones, custom tones, DTMF and MF tones.

- EIA Standard Tone, DC and E&M base station control formats.

- VoIP base station controller with Ethernet and programmable command protocols.

- Universal analog and digital radio interfacing.

TELEPHONE AND PBX FUNCTIONALITY

- Analog and SIP VoIP (Network) Telephone Integration.

- Complete integrated telephone system in the Constellation chassis or integration to existing phone systems.

- Integration with popular PBX systems via PRI ISDN and Q.sig.

- FXO, E&M and FXS telephone line interface options.

- Caller ID and secure access.

- Flexible conferencing types – meet me, preset and more.

VoIP AND RoIP FUNCTIONALITY

- Industry standard SIP VoIP gateway.

- High density vocoding to multiply resource capability.

- Web based GUI configuration and operating screens support VoIP networked command/ control consoles.

- Integral IP PBX option

OPERATOR COMMAND & CONTROL CONSOLES

- Operator Consoles are VoIP based and do not require cards or ports on Constellation.

- 64 channels of programmable mixing of radio and intercom audio without degradation.

- Integrated access to PSTN via console softphone.

- Centralized recording (Instant-Recall and Logging) allows selective playback from any Operator Console.

- Multiple control methods - mouse, trackball, touch screen.

- Web-based JAVA applets for Graphic User Interface (GUI).

- Headset interface provides high quality, low delay audio without degradation during graphics and data intensive console operations.

- Intercom to any selected Operator, or All Call, regardless of location on network.

CONSTELLATION FEATURES & BENEFITS

- 4 wire analog radio control interfaces with PTT and COR provides universal interface to conventional radios.

- Specialized interfaces provide compatibility with cellular and satellite linked radio networks.

- May be configured for redundant operation with no single points of failure,

- Integral switching allows console control of call forwarding, radio cross-patching, conferencing and monitoring activities.

- VoIP Gateway interoperates radios and command consoles with industry standard IP networked communication terminals, such as SIP telephones and laptop computers.

- Redundant configuration offers "five nines" system availability.

- ISDN/Q.sig links allow seamless integration between radios, VoIP networks and command center legacy PBX telephone systems.

- FXO, E&M, FXS and programmable tone signaling capabilities provide compatibility with legacy and remote radio equipment.

- Integral PBX capability eliminates the requirement for a separate PBX.

- Left-right headset and radio monitor/mixing capabilities simplify command and control console operation.

- All analog tones, formats, custom tones, DTMF, and MF included for universal paging capability.

- EIA Standard Tone, DC and E&M base control formats offers universal radio compatibility.

- Remote control of alarms, doors and other electrically operated accessories from the dispatch console.

- Instant-Recall and Logging Recorder capability is a standard feature, eliminating additional cost and simplifying operation.

- Enterprise Intercom (64 party capability) supports Large-Scale coordination of users and resources during Emergency Management scenarios.

- Custom applications programming and engineering available to fit your particular needs

Mobile Command Post

Portable
Communications

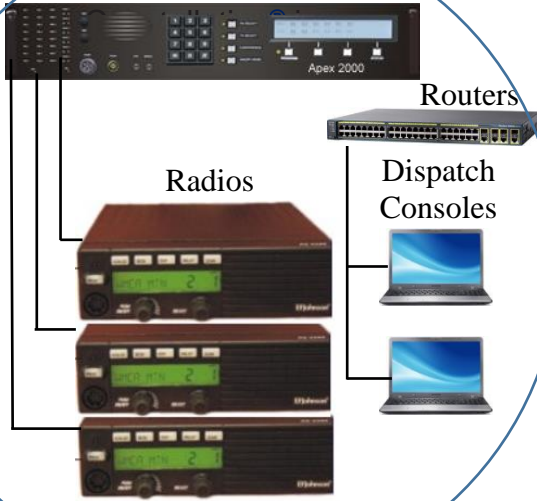Portable & Team
Communications

Remote Site

LYNXtm

APEX® 2000

Routers

Radios

Dispatch
Consoles

Vehicle
Communications

VoIP

Primary Communications Center

Radiodata

CONSTELLATION®

Dispatch
Consoles

Routers

Radios

IP
PBX
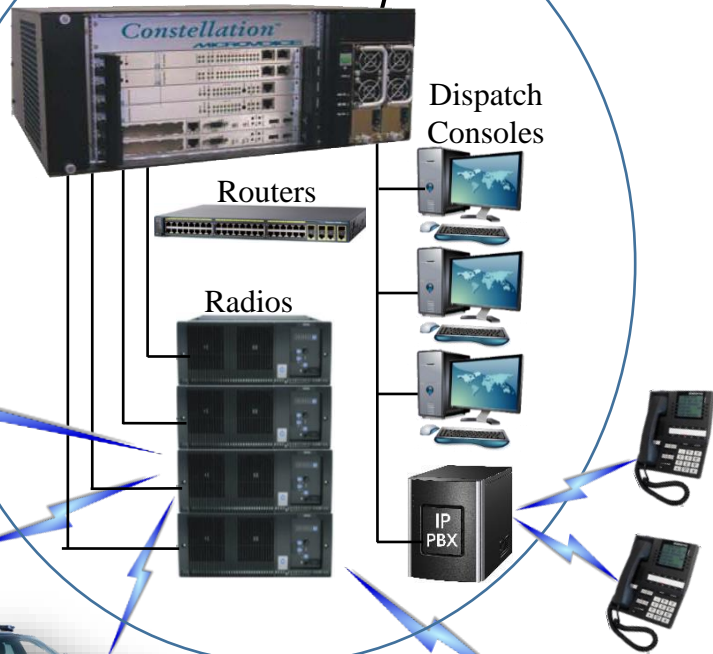
APEX® 1000

Portable & Team
Communications

Vehicle Communications

8661 Country Crossings St · Las Vegas, NV 89123
Phone: 805-389-2922 · Fax: 805-389-1513
www.roipnet.com · www.rnsales@roipnet.com

CONSTELLATION SPECIFICATIONS

ANALOG RADIO INTERFACES

- Channel Capacity: 12 radio interfaces per card

- Line In: 600 ohm transformer isolated and transient protected, 0 dB nominal

- 60db programmable gain, protected to +/- 50V.

- Line Out: 150/600 ohm transformer isolated and transient protected, programmable from 0 to 10V pk-pk max output.

- COR Input: 500V isolation, optional pull up to +5V through a 100K resistor

- XMIT Control to Radio: isolated relay contacts output,

- Transmit to receive cross talk at 0dBm0 level: -90 dB typical

- Connectors: industry standard 25 pair Amphenol telecom connectors.

VoIP HEADSET INTERFACE BOX

- Dual operator position capacity, with independent binaural (left-right ear operation) headset for each operator

- Dynamic mic inputs: 25mv, 200 ohm; Electret mic inputs: .25V, 10K. Power source provided for electret microphones.

- Headset outputs: single ended 5V pk-pk; balanced 10V pk-pk., 200 ohm.

- PTT Input: inputs for contact closure pulled up to +5V through a 100K resistor

- Cross talk between operators at 0dBm0 level: -90 dB typical

- Connectors: industry standard aviation or PL type connectors for each headset and dual RJ45 10/100 Ethernet connectors.

T1 / E1 SPAN

- PRI ISDN T1/E1/J1 and Q.SIG

- Data: T1: 1,544 Mbps @ 100 ohms; E1: 2.048 Mbps @ 75 or 120 ohms.

- Framing: T1: D4, ESF; E1: CAS, CCS

- Coding: T1: AM1, B8ZS; E1: AM1, HDB3

- T1 Line Build Out: 0-133, 133-266, 266-399, 399-533 or 533-655 ft.

- Network Connector: RJ48C

FXO/FXS AND E&M TRUNKS

- FXO - 2 wire 600ohm at 1KHz. Operating loop current 15 - 80 ma. Operating loop resistance 2800 ohms at 15 ma. Ring detect 15- 68hz @ 14 - 120V$_{RMS}$. ER1 20db min, 500-2500 Hz.

- FXS - 2 wire 600ohms at 1KHz, 30 ma constant current, over current protection. Internally generated -48V battery feed voltage. Ring generator 20hz sine wave, 90vrms. REN=4 min. 1,750 ohms at 20Hz.

- E&M Trunk - 4 wire transformer isolated 600ohm at 1KHz, type I, IV and V signaling.

DIGITAL RADIO INTERFACE

- RS232 or 100bT Ethernet interfaces. Programmable protocols for commonly available base stations, contact RadioNet for specifics.

RELIABILITY AND SERVICEABILITY

- All Constellation cards are hot swappable. System MTBF 100,000 hours.

- Constellation chassis offers redundant power supplies, voltage, temperature and fan monitoring alarms.

CONSTELLATION 2000 DIMENSIONS, WEIGHT AND POWER

- Size (WxHxD): 2u Chassis, 440 x 88x 360 mm (17.3" x 3.5" x14.1")

- Radio Capacity: 24 in 8 port increments.

- Weight: 10 kg (22 lb.)

- Power: 100-240 VAC, 47-63 Hz, 75 Watts, 1+1 Redundant power supplies

CONSTELLATION 4000 DIMENSIONS, WEIGHT AND POWER

- Size (WxHxD): 4U Chassis, 440 x 177 x 340mm (17.3" x 7" x 13.4")

- Radio Capacity: 56 in 8 port increments.

- Weight: 15kg (33lb)

- Power: 100-240VAC, 47-63 Hz, 150 Watts, 1+1 redundant power supplies.

AUDIO

- 100-3400Hz. bandwidth, +/- .7db; 8 bit u/a law PCM.

ETHERNET LANS

- Dual 10/100bT auto switching LANs

- RJ45 connectors

REGULATORY APPROVALS

- CE, UL, CSA, TUV

ENVIRONMENT

- Temperature: Operating: 0-50 0C (32 - 122 0F). Non-Operating: -40 - 60 0C (-40 - 140 0F)

- Humidity: 0-95% @ 60 0C, non-condensing

- Vibration: Operating: (5-500 Hz) - 1.0 Grms. Non-Operating: (5-500 Hz) - 2.0 Grms

Specifications Subject to Change without Notice
© 2008 – 2017, RadioNet Corporation, All Rights Reserved

US patents 8,442,506 and 9,154,630

Constellation® and Apex® are registered trademarks of RadioNet Corporation