Network Equipment Technologies

VX Series

VX Series

VX400, VX900t, VX900, VX1800 Secure Voice Exchange

- **Bandwidth efficient secure voice platform**
- **Robust secure voice relay over IP**
- **Purpose-built voice and data solution for government and military networks**
- **Integrated signaling, gateway, and media server functions**
- **Dynamic flow control technology to keep secure call connected in a degraded environment**
- **Supports 600 simultaneous STU calls over IP**

The award winning VX SERIES™ platform provides the most powerful, most complete, voice over IP (VoIP) solution for the government market. VX SERIES offers an efficient, robust, and cost-effective way to provide high-quality voice and secure voice services over the diverse and challenging transmission environments in fixed/mobile government and military networks.

POWERFUL COST EFFECTIVE SOLUTION

The VX SERIES platform supports analog, digital, and native IP voice, as well as port and trunk side serial data, making it a compelling solution for any government agency looking to deploy IP-based voice and data solutions. The product line combines the functionality of a media gateway, signaling control point, H.323/SIP inter-working device, media server and voice/data mux in a single chassis. As a port side interface, the optional serial data card enables legacy equipment to take advantage of the IP backbone, realizing full convergence.

The serial data card allows users to connect serial data circuits to the VX SERIES at rates from 300Bps to 8.192Mbps, making VX SERIES a versatile voice and data multiplexing platform. Data from the serial interface is encapsulated into IP packets using the Structure Agnostic TDM over Packet (SAToP) standard allowing it to inter-work with the Promina IP trunk solution. As a trunk side interface, the serial data card can interface with any serial based transport, including legacy satellite systems, HF radio equipment and serial crypto devices.

ROBUST IMPLEMENTATION

The VX SERIES uses dynamic flow control technology to overcome the challenges of maintaining secure VoIP calls in a degraded environment. The platform will keep secure calls connected even when the network experiences slow traffic flow and significant packet loss. Other implementations "relay" secure traffic as a normal (high bit rate) compressed audio call. Any lost, late or corrupt packets often result in the modem carrier slipping, causing the modem to retrain which typically results in a dropped call. The VX SERIES can withstand significant packet loss and jitter, and still keep the calls connected. SCIP calls on VX SERIES can withstand complete network failure for up to 10 seconds without failing the call. SCIP calls can sustain up to 5% packet loss mid call with no significant degradation of audio quality.

BANDWIDTH SAVINGS

In addition to a wide range of voice compression technologies, the VX SERIES platform uses BESTflow™ technology to enable secure calls to be carried over an IP network at 2.4k, 4.8k, or 9.6k, rather than the conventional 64k or 32 kbps. This capability offers tremendous cost savings in bandwidth, as well as preserving QoS in the IP network. The VX secure call relay transmits only the demodulated data for a secure call. This proven method of transporting secure calls in an IP network is the only one that works in real government and military networks.

COMPREHENSIVE PROTOCOL SUPPORT

The VX SERIES platform can be set up in multiple deployment scenarios and in multi-vendor environments. Our comprehensive voice protocol support allows a site to inter-connect to any system in the network, including IP phones, soft switches, IP PBXs and traditional TDM PBXs, providing true any-to-any protocol translation. Conformance to the latest VoIP signaling and call control standards, such as SIP and H.323, guarantees VX SERIES interoperability in a multi-vendor VoIP deployment. The platform's inter-working agility allow it to be easily deployed into an existing VoIP network.

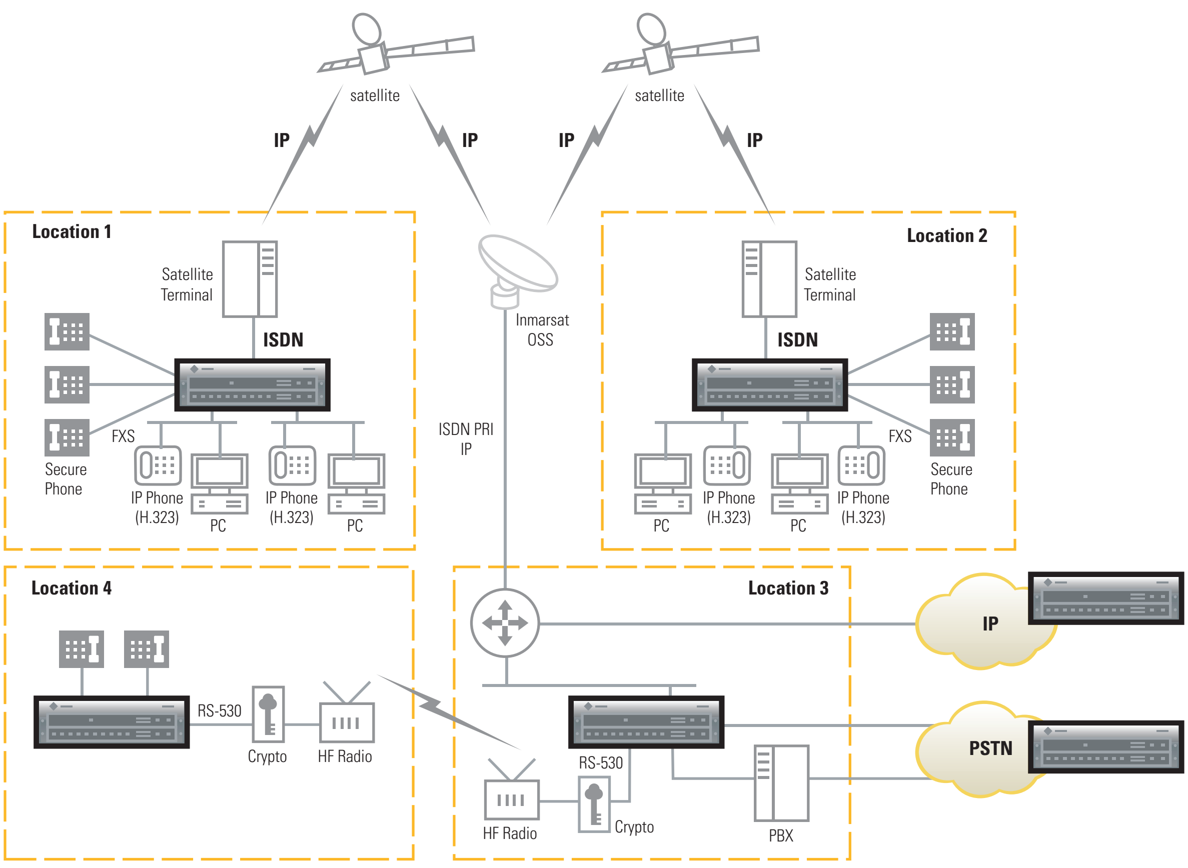
DISTRIBUTED ARCHITECTURE

The VX SERIES integrates the key elements of a VoIP network into a single platform. By implementing a distributed architecture, each VX SERIES node acts as an independent intelligent processing element. There is no reliance on centralized servers for routing and management decisions, so a VX SERIES network has no single point of failure. A distributed architecture also results in lower call set-up times and allows the network to grow to any size without a detrimental effect on call performance. Each node essentially adds processing power to the network.

SUPPORT SYSTEM

The VX SERIES system incorporates comprehensive provisioning and monitoring tools that ensures successful deployment and smooth operation of IP based voice services. VXbuilder™ is a graphical user interface (GUI) that allows network operators to configure every aspect of the VX SERIES network in real time. VXwatch™ provides GUI-based, real time monitoring of all channel and alarm activity on VX SERIES nodes throughout a network.

- Secure VoIP Appliance enabling non-disruptive migration from a TDM infrastructure to a converged IP network
- Integrated platform with voice router, media gateway, signaling and protocol conversion capabilities
- Efficient STU/SCIP relay over IP backbone
- Advanced call routing and trunk group concepts
- Industry-leading frame packing solution
- Flexible any-to-any signaling protocol conversion
- Comprehensive topology and link quality management (LQM)
- Secure NAT traversal and firewall traversal
- Unique SIP user agent proxy interface for non-SIP devices (TDM and H.323)



Model	VX400	VX900t	VX900	VX1800
T1/E1 Capacity	Not available	1-8T1/E1	1-8T1/E1	4-24T1/E1
FXS Capacity	4	16	16	48
Compressed Call Capacity	4	192 (T1) / 240 (E1)	192 (T1) / 240 (E1)	576 (T1) / 720 (E1)
Rack Units	Not Available	1	1	3
Dimensions (HxWxD)	1.74 x 9.25 x 4.6 (in.) 44.5 x 245.4 x 120.7 (mm)	1.75 x 11 x 15.5 (in.) 44.5 x 279.4 x 393.7 (mm)	1.75 x 17 x 18.5 (in.) 44.45 x 431.8 x 457 (mm)	5.25 x 17.2 x 17.2 (in.) 133.35 x 431.8 x 431.8 (mm)

VX SERIES SPECIFICATIONS

Interfaces
- 1, 2 and 4 port T1/E1
- 8 port FXS
- 1 port BRI (WAN interface only)
- 1 and 4 port sync serial (both port and network sides)

Secure Call Support
- STU/SCIP call detection and relay
- Up to 10 secure calls over a 64k IP link (2.4kbps per call)
- Up to 600 simultaneous compressed secure calls per node

Tested Secure Phones
- Motorola SY-71E, STU, STU-III, STU-IIIR and STU-IIb, Sectel 9600 and MMT 1500
- TCC CSD 4100/AT&T 1100
- L3 STE (Telephone Unit) STE and STU mode
- L3 Omni (Terminal Adapter) and STE (Telephone unit) (BRI interface not supported)
- General Dynamics Sectera (Terminal Adapter)

Serial Interface
- IP over serial (HDLC and Cisco HDLC)
- SAToP (Structure-Agnostic TDM over Packet)
- DTE and DCE modes
- Crypto re-synch
- Both access and network side support
- V.35, RS-449 and RS-530 interfaces
- Proven data interworking with Promina® and Promina BBS® platform families

VoIP Signaling
- SIP
- H.323
- BSP (BESTflow Signaling Protocol)

SIP
- Session Border Controller
- Transport Layer Security (TLS) encryption
- MD5 digest authentication
- SIP registrar for basic SIP IP-PBX
- Call Admission control with Static Local session control and management
- RFC2833 and in-band DTMF signaling over RTP
- Extends central SIP services to the non-SIP devices

Ethernet
- 802.1Q and 802.1pvLAN support
- 10/100/1000 support

TDM Signaling
- T1 CAS (E&M, DTMF, MF, Loopstart, R1)
- E1 CAS (MFCR2)
- ISDN - AT&T 4ESS, Nortel DMS-100, Euro ISDN (ETSI 300-102), QSIG, NTT (Japan), Harris 20/20, AT&T 5ESS, CoreNet and National ISDN-2 (NI-2)

Voice Features
- RTCP
- Automatic call type detection/pass through for voice/modem/fax
- A-law and μ-law encoding
- Voice compression: G.723 (5.3 or 6.3 Kbps), G.729A, G.729AB, G.711, G.726 (16, 24, or 32 Kbps), G.727 (16, 24, or 32 Kbps)
- G.168 echo cancellation (128ms tail size, full duplex)
- Fax: group 3 at 2.4 to 14.4 Kbps
- T.38 real time fax relay
- Voice activity detection, silence suppression, comfort noise generation
- Call progress tone generation - dial tone, busy, ring-back, and congestion

Routing
- Dynamic call routing/link quality management (LQM)
- Multiple routing tables per channel, per port
- Load balancing
- Static IP routing
- DiffServ-based IP QoS support (marking, queuing and scheduling)
- Least cost routing
- Hair-pinning - route backup over PSTN or secondary IP network

Security
- Secured RTP (SRTP)
- Built-in firewall
- SSH
- Smart card authentication
- IPsec
- Extensive ACL support
- Hardened operating system
- Denial of service (DOS) attack mitigation and protection
- Advanced remote access control
- Anti-spoofing
- DNIS, CLID, call type pre-authentication

Configuration/Network Management
- SNMPv2 - traps, alarms, and statistics
- VXbuilder (GUI-based provisioning tool)
- VXwatch (real-time alarm monitoring tool)
- Network logging (syslog)

Interactive Voice Response (IVR)
- Full platform integration
- No utilization of network bandwidth - all .wav files are played locally
- IVR support on all TDM and IP interfaces
- Fully customizable using VXscript

Service Creation via VX SERIESscript
- Fully integrated programming and scripting language
- Playback and recording of audio to and from a call
- DTMF digit collection
- Complete access to call routing and CDR parameters
- Enables the creation of unique customer applications

Network Timing
- Local stratum 3 clock as reference
- Redundant timing sources
- Syncronized between serial and T1/E1

Chassis Data
- Rack mount: 19in. (483mm) rack mountable with EIA and telco rack support
- Normal operating conditions: 40F to 104F (5C to 40C)
- AC power: 100 - 240 Volt, 50/60 Hz, 200 Watt
- Humidity: 20% to 80% non-condensing

EMC & Safety Compliance
- Meets EN 300 386, EN55022, EN55024, EN60950, UL60950, CB

LEADERS IN NETWORK EVOLUTION

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