



Media Processor for VoIP Networks

Packet Voice Processor™



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Voice over IP (VoIP) is transforming the world of telecommunications. As service providers transition from traditional circuit-switched network infrastructure to VoIP, they must address the challenges of providing high quality voice and service flexibility, while continuing to meet high customer expectations.

The migration to VoIP presents a fundamental change in how voice networks are built, operated, and maintained. With a variety of consumers and enterprises accessing the network across a number of different network types (Cable, DSL, T1/E1, etc.), providers must solve the many voice and service quality problems of the new VoIP network. The new VoIP devices, network types, and interconnectivity lead to problems such as differing codec formats, packet impairments (packet loss, delay, and jitter), and voice impairments (echo, level mismatch, and noise) that lower the quality of VoIP calls.

Ditech Networks' Packet Voice Processor is a voice processing platform that enables carriers to deploy scalable, carrier-grade VoIP services. Designed to address the voice quality and interoperability problems of the VoIP network, Ditech's Packet Voice Processor is integrated with a comprehensive set of voice processing features that ensure consistently good voice quality while maximizing carrier service offerings.

Codec Transcoding

Ditech's codec transcoding feature provides dynamic voice codec transcoding with best-in-class scalability and density. With a universal media transcoding framework and an industry-leading array of wireline and wireless codec formats, the Packet Voice Processor enables carriers to optimize bandwidth and serve the largest set of customers worldwide. The advanced voice processing architecture of the Packet Voice Processor supports over 48,000 transcoding sessions per rack with very low transcoding delay.

Voice Quality Assurance (VQA™)

Ditech's VQA software suite provides a collection of advanced voice processing features to process and improve voice quality with VoIP. Utilizing state-of-the-art algorithms to remove voice quality impairments such as echo and noise in addition to adjusting level and enhancing intelligibility, VQA delivers higher quality voice calls

to customers using VoIP networks.

Ditech's software addresses the issues of packet loss and jitter that are prevalent in the IP network. Network congestion in large IP networks becomes increasingly problematic for the delivery of real-time voice services. Ditech's PQA algorithms enable providers to repair and reconstruct missing packets from a voice call, improving the perceivable end-to-end quality of VoIP calls.

Experience Intelligence™ (EXi)

Ditech's EXi solution offers carriers robust continuous monitoring and measurement capabilities for all voice channels on a network. The EXi solution consists of an EXi-Agent on the Packet Voice Processor, an EXi-Collector to gather information from multiple systems, and an EXi-Reporter to display networkwide data. With this capability, carriers can ensure total voice quality, recognize and identify network trouble points, receive automatic alerts when a problem arises, and provide advanced reporting for network planning and customer SLAs. With this capability, carriers can ensure total voice quality, recognize and identify network trouble points, receive automatic alerts when a problem arises, and provide advanced reporting for network planning and customer SLAs.

PRODUCT FEATURES

- Dynamic voice codec transcoding
- Advanced voice and packet quality software suites
- Real-time voice quality monitoring and measurement
- High-performance voice processing
- Pooled DSP architecture with redundancy
- Carrier-grade scalability and reliability
- Industry-leading channel density

NETWORK SOLUTIONS

- Codec Normalization
- Bandwidth Optimization
- Voice Enhancement
- Echo Cancellation
- Packet Restoration
- Voice Quality Monitoring and Measurement

About Ditech Networks

Ditech Networks supplies voice processing equipment for TDM and IP networks around the world. Ditech Networks' technology solutions include voice, media processing, SIP, and security delivered on carrier-grade, scalable platforms to enhance the delivery of voice and other communications services over mobile, Voice over IP, and traditional circuit-switched wireline networks. Ditech Networks (Nasdaq: DITC) is headquartered in Mountain View, California, USA.

TECHNICAL SPECIFICATIONS

Highlighted Features

- Full VoIP media transcoding framework
- Complete VoIP voice quality feature set
- Advanced VoIP monitoring and measurement
- High performance voice processing
- Carrier-grade 99.999% reliability
- Pooled DSPs with redundancy
- High density and scalability

Vocoders & Media Processing

- G.711 μ -law
- G.711 A-law
- G.723.1
- G.726
- G.729
- G.729a
- G.729b
- G.729ab
- G.729e
- G.729g
- EVRC
- iLBC
- G.722*
- G.722.1*
- GSM-HR, GSM-FR, GSM-EFR*
- GSM-AMR (AMR-NB)*
- G.722.2 (AMR-WB)*
- VMR-WB*
- Speex*
- BroadVoice® 16/32*
- iSAC*
- iPCM-wb*
- Voice Activity Detection (VAD)
- T.38 Fax Relay
- DTMF Relay
- Modem Detection and Fallback

Voice Quality Assurance (VQA/PQA)

- Acoustic Echo Control (AEC)
- Adaptive Noise Cancellation (ANC)
- Automatic Level Control (ALC)
- Intelligent Packet Restoration (IPR)
- Hybrid Echo Cancellation (HEC)
- Enhanced Voice Intelligibility (EVI)

EXi-Agent

- Noise and speech levels
- Echo and delay
- Transmission Rating (R) Factors
- Mean Opinion Scores (MOS)
- Packet network statistics
- Packet count
- Per Call Session records

Call Control & Signaling

- SIP (RFC 3261)
- H.248*

Protocols

- IP, UDP/TCP, RTP

Clocking & Synchronization

- Internal oscillator (Stratum 3 clock)
- Dual BITS clock inputs
- Network Time Protocol (NTP)*

Network Management

- Ditech NetConsul™ EMS with web interface
- Ditech EXi-Collector multi-system data collector
- Ditech EXi-Reporter graphical data display
- SNMP v1, v2, and v3*
- Telnet, Command Line Interface (CLI)
- 10/100Base-T management interface

Switching

- Dual 40 Gbps protocol-independent fabric

Interface Processing Card Options

- 4-port 1000Base-T copper
- 4-port 1000Base-LX optical
- 4-port 1000Base-SX optical

Redundancy & Reliability

- Network interfaces: 1:1 or 1:N
- Media processing resources: 1:N (pooled)
- Shelf control card with fabric: 1:1
- Application processor card: 1:1
- Automatic card protection switching
- Hot-swappable boards, power supplies, fans
- LACP protocol, VRRP support
- Integrated and dedicated signaling ports

Capacity

- Up to 16,128 VoIP sessions per chassis
- Up to 3 chassis per 7-foot rack

Dimensions & Weight

- Enclosure: 13 RU, 14 slot
- Dimensions (H x W x D): 22.75 x 18.9 x 18 in (578 x 480 x 458 mm)
- Mounts for 19" ANSI/EIA racks
- Weight, empty: ~80 lbs (36 kg)
- Weight, fully loaded: ~190 lbs (86 kg)

Power & Cooling

- Input voltage: A&B -48 VDC (-39 to -60 VDC)
- Power: *c*/2
- Cooling: filtered, vertical forced air (500 CFM)
- Blowers: 4 fan modules

Environmental

- Operating temperature: 0° to 50°C
- Operating humidity: 0 to 95%, non-condensing
- Heat output: 10,600 BTU/hour max. per chassis

Regulatory Information

- UL 60950 / EN 60950
- CAN/CSA-C22.2
- FCC part 15 Class A
- EN 300 386-1 and -2
- EN 55022 (CISPR 22) Class B
- EN 55024
- Telcordia GR-1089-CORE
- NEBS Level 3 per Telcordia SR-3580
- CE Mark

*Future capability



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