

Tenor® VoIP Carrier MultiPath Switch



Tenor® CMS
CARRIER MULTIPATH SWITCH

SelectNet™ Auto-Switching provides superior voice quality

Intelligent Call Routing

VoIP and Tandem Circuit Switching

Integrated H.323 gateway and gatekeeper

SIP User Agent

Up to 960 VoIP channels

Up to 32 T1/E1/PRI Spans per chassis (Up to 960 DS0s)

IVR/Radius AAA Compliant (Multi-lingual IVR)

Support for external Quintum Call Routing Server*

Support for external Quintum Network Management Server*

Available in 2 or 8 slot chassis

A more intelligent way to enter the VoIP market

The Quintum Tenor Carrier MultiPath Switch offers a two or an eight port chassis to give service providers, CLECs, ISPs and next generation service providers an easy, cost-effective way to deliver low-cost, high-quality voice services over IP networks. The Tenor supports H.323, SIP, intelligent call routing, and QoS all in one solution. Tenor CMS provides the functionality required to support applications such as:

Wholesale VoIP Termination
IP Local Loop

Tandem Switching
Least Cost Routing

Call Centers
Calling Card

Carrier class intelligence delivers a complete application solution.

- **Integrated VoIP and Circuit Switching:** Complete VoIP/circuit switch intelligently switches calls between circuits (DS0's) and IP, between multiple circuits and between IP endpoints.
- **Advanced Call Routing Support:** Quintum's external VoIP Call Routing Server provides scalable, centralized network routing control and administration for larger networks. Provides enhanced network-wide routing flexibility including QoS routing, least cost routing, source based routing, and extensive network routing statistics/report generation.
- **Network Management Support:** Quintum's external Network Management Server helps lower maintenance costs through centralized provisioning, alarm monitoring, CDR collecting and real time call monitoring.
- **Enhanced Interactive Voice Response (IVR):** Supports multiple user selectable languages and prompts.

SelectNet™ intelligence takes the risk out of VoIP.

With our patented SelectNet™ Technology, the Tenor continuously monitors the IP network on a call by call basis for jitter, latency and packet loss, and transparently switches customer calls to the PSTN when required. This intelligent switching allows you to achieve the Quality of Service targets that your customers demand, at costs that traditional phone companies simply cannot match.

PacketSaver™ intelligence minimizes network congestion.

PacketSaver™ Technology allows the Tenor to reduce bandwidth consumption up to 50%, by combining voice packets from several calls into a single packet to minimize bandwidth overhead.

NATAccess™ intelligence means greater security. The Tenor VoIP MultiPath Switch also features a unique technology that allows it to operate behind NAT-enabled firewalls. The innovative NATAccess™ solution overcomes the problem of NAT firewalls not correctly translating internal IP addresses into public addresses when a VoIP call is established with an outside party.

*Quintum product purchased separately

CALL MANAGEMENT FEATURES

- Automatic call type detection: Voice/Modem/Fax
- Answer and Disconnect Supervision
- Trunk group support
- Public and private dial plan support
- Automated load balancing
- Forced routing
- Pass-through support for calls to 800, 911, 411, etc.
- Automatic appending and stripping of digits to dialed numbers
- Call Detail Records
- Least cost routing with Quintum VoIP Call Routing Server*
- Call Blocking

TECHNICAL SPECIFICATIONS

Telephony Specifications

- Voice algorithms: G.723.1a, G.729ab, G.726 ADPCM, G.711
- Fax support: Industry standard T.38 and Group III at 2.4, 4.8, 7.2, 9.6, 14.4 Kbps
- Coding: A-law, μ -law
- PRI Signaling Protocols: National ISDN-2, Euro ISDN NET5, Japan INS-NET1500, KDD, 4ESS, 5ESS, DMS100
- T1 CAS (E&M, Loop Start, Feature Group-D, DTMF, MF)
- E1 CAS (R2 MF)
- DASS2
- Tandem/TDM switching

IP Network Specifications

- LAN Interface: 4 Fast Ethernet ports (10/100 Base-T)
- Standard RJ-45 Interface (IEEE 802.3) for 10 Base-T or 100 Base-T connections
- QoS Support: IP TOS

Configuration / Management

- Network Management Server Interface for network wide administration and monitoring
- Central provisioning and management
- SNMP v2 Agent
- Alarm/Fault detection and reporting
- Command Line Interface

VoIP Network Specification

- H.323 v.4 Gateway and Integrated Gatekeeper
- SIP User Agent
- SIP Redirect and Registrar Server
- IVR/RADIUS server support for AAA with integrated multi-lingual IVR
- Adaptive Voice Activity Detection (VAD) with Comfort Noise Generation (CNG)
- Adaptive Jitter Buffer
- Carrier Grade Echo Cancellation: ITU Rec. G.165/G.168, up to 128 msec tailsize
- Packet Loss Compensation
- NATAccess™
- Security: IP Filtering

Card Specifications

- System Controller (CPU) with four Fast Ethernet ports 10/100 Base-T
- DS-1 8 Port (T1/E1/PRI) Line Interface Card with built-in CSU. Individual spans software configurable between T1 and E1; accepts one or two plug-in DSP resource modules.
- DSP-120 DSP Resource Module supports up to 120 simultaneous VoIP calls

General Specifications for the CMS

- Operating temperature: 32° - 104° F (0° - 40° C)
- Operating humidity: 20% - 80% non-condensing
- Telco: FCC Part 68, TS-016, TBR4, TS-038
- EMC: FCC Part 15 Class A, EN55022 Class A (CISPR 22), AS/3548, VCCI
- Safety: UL, IEC 60950, TS001

2 Slot Chassis (1U)

- Dimensions:
W 17¹/₂" x H 1³/₄" x D 11⁷/₈"
W 44.5cm x H 4.5cm x D 30.2cm
- Maximum weight: 11.5 lbs (5.25kg)
- AC Power: 100-240 Volts AC, 50/60 Hz, 3.5A maximum
- DC Power: - 48 Volts DC, 3.5A maximum

8 Slot Chassis: (4U)

- Dimensions:
W 17" x H 7" x D 11⁷/₈"
W 44.5cm x H 17.8cm x D 30.2cm
- Maximum weight: 27.6 lbs (12.5 kg)
- AC Power: 100-240 Volts AC, 50/60 Hz, 10A maximum
- DC Power: - 48 Volts DC, 10A maximum



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