Data Sheet

Catalyst 6000 Family
Voice T1/E1 and Services Modules

The Voice T1/E1 and Services Modules establishes the Cisco Catalyst® 6000 family as the most complete campus multiservice platform available, providing high-end T1 or E1 gateways to the Public Switched Telephone Network (PSTN) or legacy private branch exchanges (PBXs) and network-based voice services.

The Catalyst 6000 family brings data, voice, and video integration onto the campus for fully integrated communications on every desktop. Campus multiservice networking, or convergence, provides voice support using the IP network infrastructure rather than the traditional PBX. This drastically increases the leverage of telephony spending into overall infrastructure spending, reduces capital and operational costs, and opens the environment to innovation by supporting new applications. (See Figure 2.)

Cisco is using the Catalyst 6000 family to lead its customers to campus convergence. The Voice T1 and Services Module, also available in an E1 variant, introduces the following new features for campus multiservice networking:

- Digital T1 or E1 PSTN and PBX gateways
- Transcoding (G.711, G.729a, G.723)
- Conference bridging

Figure 1
Catalyst Voice T1 and Services Module

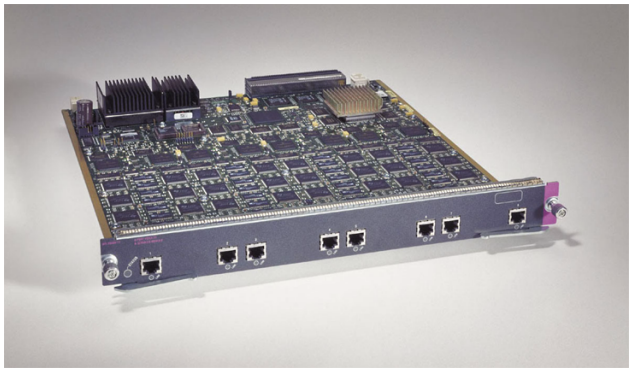
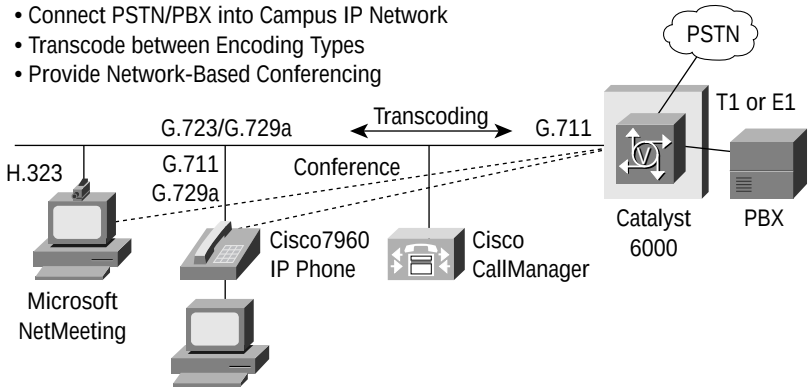


Figure 2
Campus Multiservice Networking



T1 or E1 PSTN and PBX gateway

The Voice T1 and Services Module allows larger enterprises to connect the PSTN and legacy PBXs directly into the campus multiservice network. Telephony signaling types supported include:

Common channel signaling (CCS)—In this mode there are 23 DS0 channels for T1 and 29 for E1 for voice traffic; the 24th T1 DS0 or 16th E1 channel is for signaling. Any channel can be configured for common channel signaling.

Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) signaling—Each interface supports 23 channels for T1 and 30 channels for E1. The default mode is for the 24th T1 channel or 16th E1 channel to be reserved for signaling. Both network side and user side operation modes are supported.

T1 CAS supported with use in conjunction with Cisco CallManager 3.1 or greater.

VoIP Protocol Support

The Cisco Catalyst 6608 gateway supports Skinny Gateway Control Protocol (SGCP) as well as Media Gateway Control Protocol (MGCP) when used in conjunction with Cisco CallManager 3.1. Gateway failover support is provided using the MGCP protocol.

Voice Services

The Voice T1 and Services Module provides transcoding and conferencing services for the multiservice network. Transcoding enables a full voice-compression solution by offering transcoding services to endpoints not capable of supporting compressed voice or a different encoding type to the remote end. Figure 3 shows an example of transcoding.

In the top part of Figure 3, a call is completed between two endpoints capable of supporting compressed voice. The bottom of Figure 3 shows what happens when the call is transferred to an endpoint, such as voice mail, that does not support compressed voice.

Figure 3
Example of Transcoding

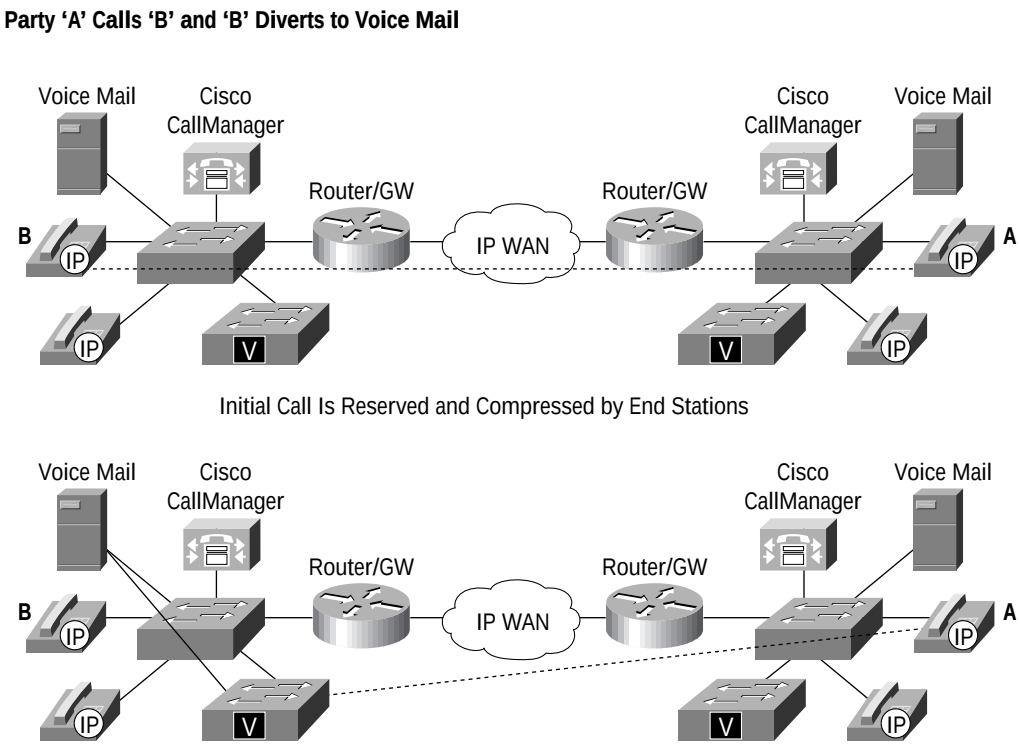
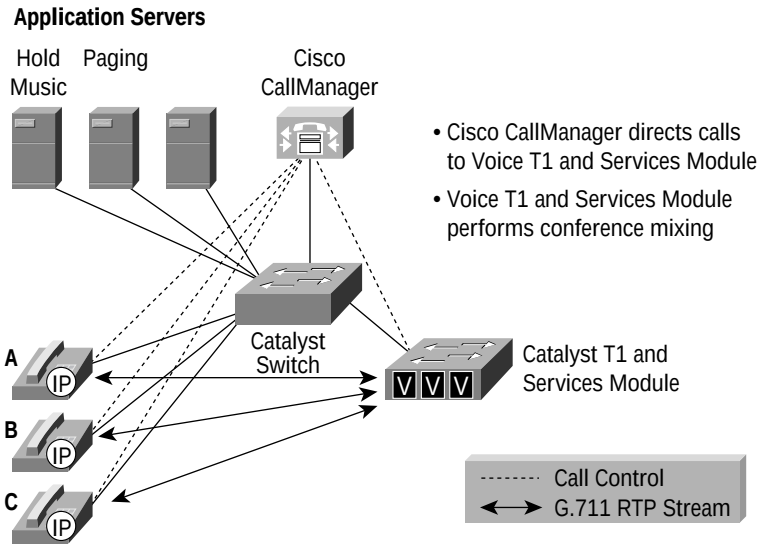


Figure 4 shows an example of the Voice T1 and Services Module in a conference bridge application. In Figure 3, IP Phone B conferences IP Phones A and C. The Cisco CallManager directs the media stream to the Voice T1 and Services Module, which bridges the media streams together. Combining the features of conferencing and transcoding allows endpoints supporting differing codecs to participate in the same conference session.

Figure 4
Catalyst Voice T1 and Services Module Used in Conference Bridge Application



Ordering Information:

Product Number	Description
WS-X6608-T1	Catalyst Voice T1 and Services Module
WS-X6608-E1	Catalyst Voice E1 and Services Module

Features

The Cisco Catalyst Voice T1 and Services Module features:

- T1 CCS signaling
- T1 binary 8-zero substitution/alternate mark inversion (B8ZS/AMI) line coding, u-law or a-law coding
- T1 CAS
- E1 CCS signaling
- E1 HDB3 line coding
- ISDN PRI, network and user side operation modes
- Echo cancellation
- Silence suppression, Voice Activity Detection (VAD)
- Comfort noise generation

- G.711 to G.723 and G.729a transcoding (max. 8 x 32 channels of transcoding)
- Conference bridging, meet-me and ad-hoc conference modes (max. 8 x 16 channels of conferencing)
- Fax pass-through and modem pass-through at V.34 rates.[1]
- Network management support
- Simple Network Management Protocol (SNMP) compliant
- CiscoWorks interface for configuration
- Cisco Voice Manager (CVM)
- Cisco CallManager
- Switched Port Analyzer (SPAN) or port mirroring support

For more information regarding the design of an IP Telephony network go to:

- http://www.cisco.com/univercd/cc/td/doc/product/voice/ip_tele/network/index.htm
- http://www.cisco.com/univercd/cc/td/doc/product/voice/ip_tele/avvidqos/index.htm

Specifications

Digital T1/E1 Interfaces

Interface type: RJ-48 connector

Line bit rate: T1—1.544 Mbps, E1—2.048 Mbps

Line code: T1—AMI, B8ZS; E1—HDB3

Framing format: D4 Super Frame (SF) and Extended Superframe (ESF)

Input level: +1 dBo to –24 dBmo

Output level: 0, –7.5, or –15 dB

Diagnostic loopback support

Physical Specifications

Occupies one slot in the Catalyst 6000 family platform

Dimensions (H x W x D): 1.2 x 14.4 x 16 in. (3.0 x 35.6 x 40.6 cm)

Environmental Conditions

- Operating temperature: 32 to 104 F (0 to 40 C)
- Storage temperature: –40 to 167 F (–40 to 75 C)
- Relative humidity: 10 to 90 percent, noncondensing
- Operating altitude: –60 to 4000m
- Mean Time Between Failure (MTBF): seven years for system configuration

1. Supports fax pass-through and modem pass-through at speeds up to V.34 depending upon the fax/modem capability of the VoIP gateways involved in the connection and the latency of the data network.

Telecom

T1—FCC Part 68 (CFR47), CS03, JATE Green Book E1—CTR13, TS016, TS014

Safety

UL1950, CSA C22.2 No. 950, EN60950, 1IC 60950, AS/NZS3260, TS001

EMC

- CE marking
- FCC Part 15 (CFR47) Class A
- EN55022 Class A with UTP (unshielded twisted-pair), EN55022 Class B with FTP (foil twisted pair)
- CISPR22 Class A with UTP, CISPR22 Class B with FTP
- VCCI Class A with UTP, VCCI Class B with FTP
- AS/NZS 3548 Class A with UTP, AZ/NZS 3548 Class B with FTP

Network Management

- Dial control Management Information Base (MIB) (RFC 2128) and CISCO dial control MIB ext. to RFC 2128
- CISCO-VOICE-DIAL-CONTROL-MIB Voice Dial Control MIB
- CISCO-VOICE_IF_MIB Voice Interface MIB
- CISCO-VOICE-ANALOG-IF_MIB Voice Analog Interface MIB
- CISCO-DSP-MGMT-MIB Digital Signal Processing Management MIB
- RFC 1157 SNMP
- RFC 1643 Ethernet MIB
- RFC 1493 Bridge MIB
- RFC 1213 MIB II
- RFC 1573 MIB II Interface Extensions
- RFC 1757 Ethernet RMON

Service and Support

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