Data Sheet

Catalyst 6000 Family FXS Analog Interface Module

The analog interface module provides enterprises with the ability to connect legacy analog telephony equipment such as phones, speaker phones, and faxes to Cisco Catalyst® 6000 switches.

The Catalyst FXS Analog Interface Module integrates legacy analog devices into the campus multiservice network within Cisco AVVID (Architecture for Voice, Video, and Integrated Data). (See Figure 1.) By providing legacy analog devices with access to the benefits of the campus multiservice network, the useful life and thus the return on investment (ROI) of these devices can be maximized. Migration to a fully converged multiservice network is also simplified.

Benefits of Converged Networks

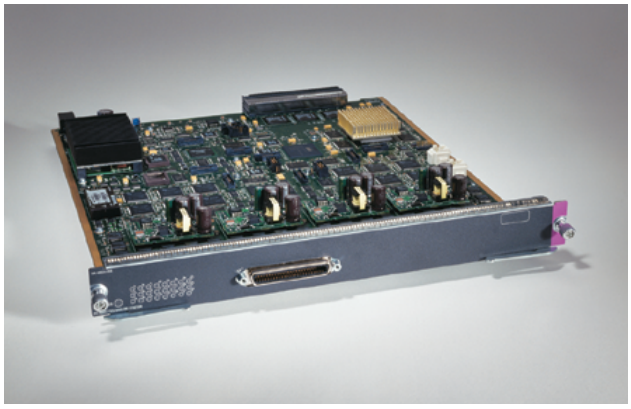
Based on an Internet model, converged networks rely on a distributed architecture to ensure system availability and scalability. With the trend continuing toward distributed computing, customers are quickly realizing the benefit of having no single point of failure and are able to build as little or as much availability as they need into an integrated solution.

Another key element of a converged network is its open and interoperable nature. This means that customers can choose the best-in-class solution in a number of different areas, where previously they were locked into proprietary applications from a single vendor. As a result, innovation is encouraged and overall networking costs will come down based on market demands and competition, resulting in a lower total cost of ownership (TCO).

One of the primary benefits of a converged network solution is the ability to deploy advanced applications for a competitive advantage while minimizing information technology (IT) expenses. Converged networks based on the Internet model have a distributed and open architecture. Through this open architecture, developers can write next-generation applications on leading development platforms such as Windows NT, TAPI, and JTAPI, ultimately providing customers with a wide range of innovative options.

Figure 1

The Catalyst 6000 FXS Analog Interface Module enhances the telephony features and functionality of the award-winning Catalyst family of switches.

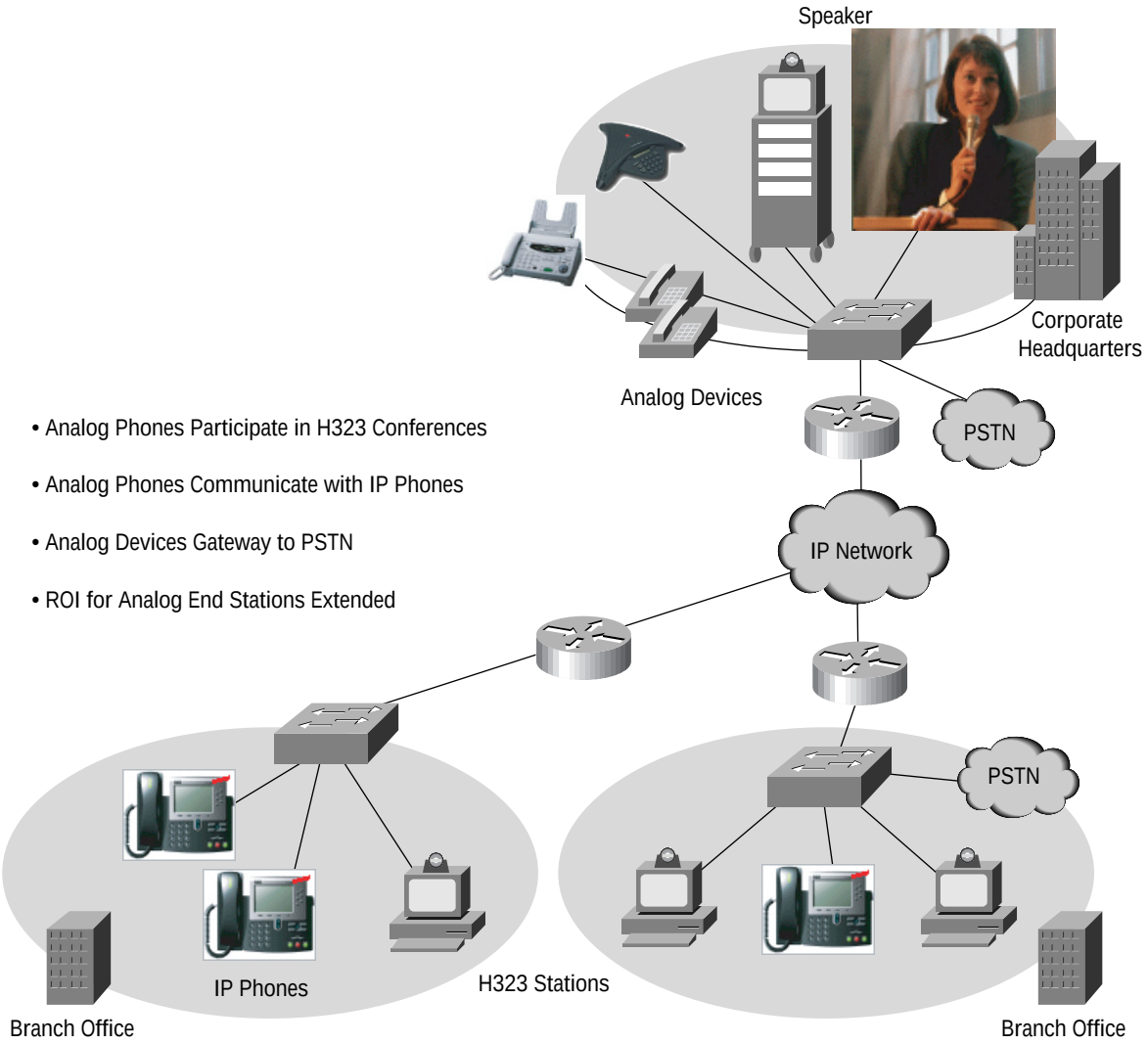


Supporting Analog Telephony in a Converged Network

At a minimum the analog phone or fax machine needs to behave as if connected to a normal central office or private branch exchange (PBX), and in this respect the Cisco Catalyst foreign exchange station (FXS) analog interface module emulates the central office or PBX.

The analog interface module provides a gateway function between the analog world and the enterprise IP network, offering access to the full benefits of the converged multiservice network. The gateway function encodes the audio signals to G.711 or G.729a, depending on the application, and applies quality of service (QoS) to ensure audio quality. (See Figure 2.)

Figure 2
The Catalyst 6000 FXS Analog Interface Module integrates analog end stations into the campus multiservice network.



Extending Analog Station ROI

The analog interface module provides an FXS interface to analog end stations such as analog phones, conference-room speaker phones, modems, and fax machines. This provides a gateway for these devices into the campus multiservice network.

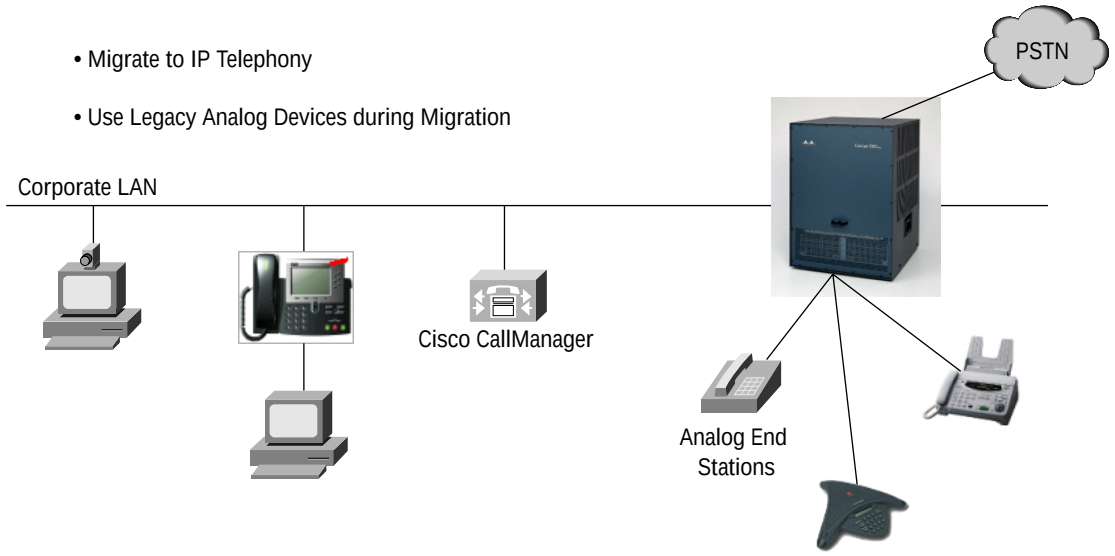
Since analog phones and fax machines can participate in the multiservice network, they have access to new advanced applications and can communicate with devices such as IP phones and H.323 end stations and gateways. The life cycle of these analog devices is extended and the ROI is increased.

Migration to Campus Multiservice Network

Fax machines and conference-room speaker phones are essential elements of a telephony network and should be part of a campus multiservice network. The FXS analog interface module integrates these devices into the IP network.

The migration to a campus multiservice network is simplified by integrating these analog devices into the IP network. Access to and from these analog devices is maintained and they can be migrated to IP end stations over time. (See Figure 3.)

Figure 3
The Catalyst 6000 FXS Analog Interface Module simplifies migration to a campus multiservice network.



Extended Management Capabilities

With the integration of legacy analog end stations, network administrators will require new tools and features to manage the interface module and associated devices. The FXS analog interface modules provide the network administrator with extended management features to control and monitor the telephony configuration, sessions, analog ports, and devices. Network management interfaces include Catalyst command-line interface (CLI), CiscoWorks, Cisco Voice Manager, and Cisco CallManager.

Features

The Cisco Catalyst FXS analog interface module features:

- G.711 and G.729 voice encoding
- Silence suppression, Voice Activity Detection (VAD)
- Comfort noise generation
- Dual tone multifrequency (DTMF) detection
- Echo cancellation (32 ms)
- Ringer—software programmable frequency and cadence, based on country
- Light emitting diodes (LED) for loop active, off-hook, ring cadence
- Signaling—loop start
- Impedance—600 ohms
- Programmable analog gain, signaling timers
- Fax pass-through and modem pass-through at V.34 rates.[1]
- 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

Ordering Information:

Product Number	Description
WS-X6624-FXS	Catalyst 6000 FXS Analog Interface Module

Specifications

Analog FXS Interface

Address signaling formats: in-band DTMF

Signaling formats: loop start

Ringing tone: programmable

Ringing voltage: programmable, based on country

Ringing frequency: programmable, based on country

Physical connector: RJ-21

Distance: 600 ohms maximum loop

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.

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

Safety

UL1950, CSA C22.2 No. 950, EN60950, IEC60950, 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)
- The CISCO dial control MIB; this is an extension to the 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
- Ethernet MIBs: RFCs 1157, 1643, 1493, 1213, 1573, and 1757, and Cisco Stack MIB.

Service and Support

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