



Cisco IP Telephony Overview

Multiple communication networks exist as entirely separate entities, each serving a specific application. The traditional public switched telephone network (PSTN) time-division multiplexing (TDM) network serves the voice application; the Internet and intranets serve data communications.

Business requirements often force these networks to interoperate. As a result, deploying multiservice (data, voice, and video) applications such as unified messaging or web-based customer contact centers requires expensive and complex links between proprietary systems, such as private branch exchanges (PBXs) and standards-based data networks.

The traditional enterprise communication takes place on two separate networks:

- Voice
- Data

Internet Ecosystem

Over time, the Internet (and data networking technology in general) encompassed the traditional traffic types. This convergence recently started to absorb voice and video as applications into the data network. Several large Post, Telephone, and Telegraph (PTT) carriers use packet switching or voice over ATM as their backbone technology, and enterprise customers accept virtual trunking, or connecting their disparate PBXs via their wide-area data network, to avoid long-distance charges.

By converging these previously disparate networks into a single, unified network, you can begin to realize savings in multiple areas, including lower total cost of ownership, toll savings, and increased productivity.

Cisco CallManager and Cisco IP Phones provide an IP telephony solution that operates on an IP infrastructure. The clustering architecture of Cisco CallManagers allows you to scale to a highly available voice-over-IP (VoIP) network.

Cisco Architecture for Voice, Video, and Integrated Data (Cisco AVVID)

Cisco AVVID encompasses the following components:

- Converged client devices
- Hardware/software
- Directory services
- Call processing
- Telephony/data applications
- Network management
- Service and support

Cisco AVVID solutions enable you to

- Deploy IP-enabled business applications
- Implement a standards-based open architecture
- Migrate to a converged network in your own time frame

Cisco AVVID enables you to move from maintaining a separate data network and a closed, proprietary voice PBX system to maintaining one open and standards-based, converged network for all your data, voice, and video needs.

Applications

The following list gives some voice and video applications in the application layer of Cisco AVVID:

- Cisco Unity—The Cisco Unity messaging application provides voice messaging to enterprise communications.
- Video—IP-TV and IP-video conferencing products enable distance learning and workgroup collaboration.
- Cisco IP IVR—As an IP-powered interactive voice response (IVR) solution, Cisco IP IVR, combined with Cisco IP AutoAttendant, provides an open and feature-rich foundation for delivering IVR solutions over an IP network.
- Cisco CallManager Attendant Console—This flexible and scalable application replaces the traditional PBX manual attendant console.
- Cisco IP SoftPhone—The Cisco IP SoftPhone, a software, computer-based phone, provides communication capabilities that increase efficiency and promote collaboration.
- Cisco Personal Assistant—Cisco Personal Assistant selectively handles calls and helps you make outgoing calls. Cisco Personal Assistant provides rule-based call routing, speech-enabled directory dialing, voice message browsing, and simple ad hoc conferencing.

Call Processing

Cisco CallManager, a software-only call-processing application, distributes calls and features and clusters phones, regions, and groups over an IP network, which allows scalability to 30,000 users and triple call-processing redundancy.

Cisco CallManager provides signaling and call-control services to Cisco-integrated applications, as well as to third-party applications.

Infrastructure

The following list shows the components of the infrastructure layer of Cisco AVVID:

- Media convergence servers
- General voice products for Cisco IP Telephony Solutions
- Switches
- Integrated IP telephony solution
- Voice trunks
- Voice gateways
- Toll bypass products
- IP protocols such as MGCP, H.323, and SIP

Clients

Cisco delivers the following IP-enabled communication devices:

- Cisco IP Phone 7970
- Cisco IP Phone 7960
- Cisco IP Phone 7940
- Cisco IP Phone 7912
- Cisco IP Phone 7910
- Cisco IP Phone 7905
- Cisco IP Phone 7902
- Cisco IP Conference Station 7936
- Cisco IP Conference Station 7935
- Cisco IP SoftPhone
- Cisco IP Phone Expansion Module 7914

Cisco IP Telephony Network

The Cisco IP Telephony network includes the following components:

- Cisco CallManager
- Cisco IP Phones
- IOS platforms
- Digital gateways
- Analog gateways
- Transcoders
- Conferencing (hardware/software)
- Media Termination Point (MTP)
- Music On Hold (MOH)
- Annunciator
- Inline power modules (10/100 Ethernet switching modules)
- Cisco IP SoftPhone

Control from the Cisco IP Phone to Cisco CallManager uses skinny client control protocol and, independently, desktop computer to Cisco CallManager, as an H.323 gatekeeper that is using H.225/H.245 over transmission control protocol (TCP).

Where to Find More Information

Related Topics

- [Introduction, page 1-1](#)
- [System Configuration Overview, page 3-1](#)
- [Device Support, page 10-1](#)
- [Understanding Cisco CallManager Voice Gateways, page 35-1](#)
- [Transcoders, page 21-1](#)
- [Conference Bridges, page 20-1](#)

Additional Cisco Documentation

- [Cisco CallManager Configuration](#), *Cisco CallManager Administration Guide*
- [Device Defaults Configuration](#), *Cisco CallManager Administration Guide*
- [Cisco IP Phone Configuration](#), *Cisco CallManager Administration Guide*
- [Gateway Configuration](#), *Cisco CallManager Administration Guide*
- [Transcoder Configuration](#), *Cisco CallManager Administration Guide*
- [Conference Bridge Configuration](#), *Cisco CallManager Administration Guide*
- *Cisco CallManager Features and Services Guide*
- *Cisco IP Telephony Solution Reference Network Design Guide*
- Cisco IP Phone user and administration documentation
- Gateway documentation