

# Cisco CallManager Version 3.2



Cisco CallManager is the software-based call-processing component of the Cisco enterprise IP telephony solution and is a product enabled by Cisco AVVID (Architecture for Voice, Video and Integrated Data). Cisco CallManager software extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. Additional data, voice, and video services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems interact with the IP telephony solution through Cisco CallManager's open telephony application programming interfaces (APIs). Cisco CallManager is installed on the Cisco Media Convergence Server (MCS) and selected third-party servers. Cisco CallManager software is shipped with a suite of integrated voice applications and utilities, including the Cisco WebAttendant, which is a software-only manual attendant console; a software-only conferencing application; the Bulk Administration Tool (BAT); the CDR Analysis and Reporting (CAR) tool; and the Admin Serviceability Tool (AST).

## Key Features and Benefits

Cisco CallManager version 3.2 provides a scalable, distributable, and highly available enterprise IP telephony call-processing solution. Multiple Cisco CallManager servers are clustered and managed as a single entity. Clustering

multiple call-processing servers on an IP network is a unique capability in the industry and highlights the leading architecture provided by Cisco AVVID. Cisco CallManager clustering yields scalability of up to 10,000 users per cluster. By interlinking multiple clusters, system capacity can be increased to as many as one million users in a 100-site system. Clustering aggregates the power of multiple, distributed Cisco CallManagers, enhancing the scalability and accessibility of the servers to phones, gateways, and applications. Triple call-processing server redundancy improves overall system availability.

The benefit of this distributed architecture is improved system availability and scalability. Call admission control ensures that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternative Public Switched Telephone Network (PSTN) routes when WAN bandwidth is not available. A Web-browsable interface to the configuration database enables remote device and system configuration. HTML-based online help is available for users and administrators.

Enhancements in Cisco CallManager 3.2 include:

- Client user interface internationalization and localization
- Auto-answer at destination IP phone's speaker, enabling hands-free intercom service
- Host-based Intrusion Detection System (IDS) certification
- Virus checker certification

- H.323 performance improvement, enabling 1000 H.323 calls per server in a cluster
- Cisco Analog Telephone Adapter, ATA-186 integration
- MGCP protocol extensions, including T1/E1 PRI and T1-CAS (E&M)
  - Cisco Catalyst® 4224 Access Gateway Switch
  - Cisco Catalyst 4000 Access Gateway Module
  - Cisco 2600 and 3600 Series multiservice routers
- Drop last conference party
- WebAttendant consult transfer
- Message Waiting Indication (MWI) enhancements
  - MWI light enable/disable per line
  - Voice-mail mailbox info delivery per line
- Support for new products:
  - Cisco 7914 Line Extender Device
  - Cisco VG-248 Analog Phone Gateway

A more complete summary of enhancements is included below. Additional RAM may be required in media convergence servers to support existing and enhanced services in Cisco CallManager 3.2.

## Specifications

### Platforms

- Media Convergence Server (MCS)
- Integrated Communications Server (ICS-7750)
- Selected third-party servers

### Bundled Software

- Cisco CallManager version 3.2 (call-processing and call-control application)
- Cisco CallManager version 3.2 configuration database (contains system and device configuration information, including dial plan)
- Cisco CallManager Administration software
- Cisco Conference Bridge
- Cisco WebAttendant
- Bulk Administration Tool (BAT)
- CDR Analysis and Reporting (CAR) Tool
- Admin Serviceability Tool (AST)

## System Capabilities Summary

- Alternate Automatic Routing (AAR)
- Attenuation/gain adjustment per device (phone and gateway)
- Automated bandwidth selection
- Automated Route Selection (ARS)
- Call Admission Control (CAC)—intercluster and intracluster
- Comfort Noise Generation (Cisco IP Phone 7900 Series, Cisco Catalyst 6000 gateways, Cisco IOS® gateways)
- Codec support for automated bandwidth selection
  - G.711 mu-law, A-law
  - G.723.1
  - G.729A/B
  - GSM-EFR, FR
  - Wideband audio (proprietary 16-bit resolution, 16-kHz sampled audio)
- Digit analysis and call treatment (digit string insertion, deletion, stripping, dial access codes, digit string translation)
- Distributed call processing
  - Deployment of devices and applications across an IP network
  - “Clusters” of Cisco CallManagers for scalability, redundancy, and load balancing
  - Maximum 2500 devices per Cisco CallManager server
  - Maximum BHCC 50,000 per Cisco CallManager server
  - Eight Cisco CallManager servers per cluster
  - Maximum BHCC 125,000 per Cisco CallManager cluster
  - Maximum 10,000 devices per cluster
  - Intercluster scalability to 100 sites or clusters through H.323 gatekeeper
  - Intracluster feature transparency
  - Intracluster management transparency
- Fax over IP—G.711 pass-through



- H.323 interface to selected devices
- Hot Line and Private Line Automated Ringdown (PLAR)
- Hunt Groups—longest idle, linear
- Interface to H.323 gatekeeper for scalability and call admission control
- Language support for client user interfaces (languages specified separately)
- Multilocation—dial plan partition
- Multiple ISDN protocol support
- Multiple remote CallManager platform administration and debug utilities
  - Real-time and historical application performance monitoring through operating system tools and Simple Network Management Protocol (SNMP)
  - Monitored data collection service
  - Remote terminal service for off-net system monitoring and alerting
  - Telnet relay application
  - Platform and database debugging tools—Supports show command using command-line interface
  - Real-time event monitoring and presentation to common syslog
  - Call trace utility
  - Browse to onboard device statistics
- Multisite (cross-WAN) capability with intersite call admission control
- Dial-plan partitioning
- Off-premise station (OPX)
- Outbound call blocking
- Out-of-band DTMF signaling over IP
- PSTN failover on route nonavailability—Alternate Automatic Routing (AAR)
- Redundancy and automated failover on call-processing failure
  - Call preservation on call-processing failure
    - Station-to-station
    - Station through trunk (MGCP gateways)
  - JTAPI and TAPI applications enabled with automated failover
  - Triple Cisco CallManager redundancy per device (phones, gateway, applications) with automated failover and recovery
  - Trunk groups
- Survivable Remote Site Telephony (SRST)
- Third-party applications support
  - Broadcast paging—through FXS
  - SMDI for message waiting indication
  - Hook-flash support on selected FXS gateways
  - TAPI 2.1 service provider (TSP) interface
  - JTAPI 1.2 service provider interface
  - Billing and call statistics
- Shared resource/application management and configuration
  - Transcoder resource
  - Conference bridge resource
  - Topological association of shared resource devices (conference bridge, MoH sources, transcoders)
- Silence suppression, voice activity detection
- Simplified North American Numbering Plan (NANP) and Non-NANP support
- SMDI interface for message waiting indication
- Toll restriction—dial plan partition
- Unified device and system configuration
- Unified dial plan

*\*Indicates new feature or service for Cisco CallManager version 3.2*

### Summary of User Features

- Answer/answer release
- Auto-answer/\*intercom
- Call connection
- Call coverage
- Call forward—all (off-net/on-net)
- Call forward—busy
- Call forward—no answer
- Call hold/retrieve

- Call park/pickup
- Call pickup group-universal
- Call status per line (state, duration, number)
- Call waiting/retrieve
- Calling Line Identification (CLID)
- Calling party name identification (CNID)
- Direct inward dial (DID)
- Direct outward dial (DOD)
- Directory dial from phone—corporate, \*personal
- Directories—missed, placed, received calls list stored on selected IP phones
- Distinctive ring (on-net versus off-net)
- Distinctive ring per phone
- Drop last conference party (ad-hoc conferences)
- Extension mobility support
- Hands-free, full-duplex speakerphone
- HTML help access from phone
- Last number redial (off-net/on-net)
- Message waiting indication
- Multiparty conference—Ad-hoc with add-on, Meet-me
- Multiple line appearances per phone
- Music-on-hold
- Mute capability from speakerphone and handset
- On-hook dialing
- Operator attendant—Web-browser interface, loop key notification, logon/logoff, busy/available, left/right hand access, headphone access, busy lamp field, direct station select, drag and drop transfer, call status (state, duration, and number)
- Privacy
- Real-time QoS statistics through http browse to phone
- Recent dial list—calls to phone, calls from phone, auto-dial, and edit dial
- Single button data collaboration on SoftPhone—chat, whiteboard, and app sharing
- Single directory number, multiple phones—bridged line appearances

- Speed dial—multiple speed dials per phone
- Station volume controls (audio, ringer)
- Transfer—with consultation hold
- User-configured speed dial and call forward through Web access
- Web services access from phone
- Wideband audio codec support—proprietary 16-bit resolution, 16-kHz sampling rate codec

*\*Indicates new feature or service for Cisco CallManager version 3.2*

### Summary of Administrative Features

- Application discovery and registration to SNMP manager
- Call Detail Records (CDR)
- Call forward reason code delivery
- Centralized, replicated configuration database, distributed Web-based management viewers
- Configurable and default ringer WAV files per phone
- Configuration database API
- Database automated change notification
- Date/time display format configurable per phone
- Debug information to common syslog file
- Device addition through wizards
- Device downloadable feature upgrades—Phones, hardware transcoder resource, hardware conference bridge resource, VoIP gateway resource
- Device groups and pools for large system management
- Device mapping tool—IP address to MAC address
- Dynamic Host Configuration Protocol (DHCP) block IP assignment—phones and gateways
- Dialed number translation table (inbound/outbound translation)
- Dialed Number Identification Service (DNIS)
- Enhanced 911 service
- H.323-compliant interface to H.323 clients, gateways, and gatekeepers
- JTAPI 1.2 computer telephony interface

- LDAP version 3 directory interface to selected vendor's LDAP directories
  - Active Directory
  - Netscape Directory Server
- MGCP signaling and control to selected Cisco VoIP gateways
- Native supplementary services support to Cisco H.323 gateways
- Paperless phone DNIS—display driven button labels on phones
- Performance monitoring SNMP statistics from applications to SNMP manager or to operating system Performance Monitor
- QoS statistics recorded per call
- Redirected DNIS (RDNIS), inbound, outbound (to H.323 devices)
- Select specified line appearance to ring
- Select specified phone to ring
- Single CDR per cluster
- Single point system/device configuration
- Sortable component inventory list by device, user, or line
- System event reporting—to common syslog or operating system event viewer
- TAPI 2.1 computer telephony interface
- Time-zone configurable per phone
- XML API into IP phones (7940/7960)
- Zero cost automated phone moves
- Zero cost phone adds

*\*Indicates new feature or service for Cisco CallManager version 3.2*

## Cisco CallManager Version 3.2 Enhancements

### User Feature Enhancements

- Auto-answer/intercom to IP phone speaker
- Client device/application user interface localization to separately named languages
  - 7940/60 IP phone GUI (telephony features, directory, help)
  - 7940/60 IP phone AUI (inband tones, cadences)
  - VoIP gateway AUI (offnet call tones, cadences)
  - IP Phone User Options Web pages
  - Cisco WebAttendant GUI
  - Tool for Auto-registered Phone Support AUI (audio prompts)
- Drop last conference party (ad-hoc conference)
- ATA-186 FXS gateway integration—low-density analog phone, Fax solution
- WebAttendant Consult Transfer
- Message Waiting Indication light enable/disable per line
- Cisco 7914 Line Extender Device support
- Telephony feature support to analog phones through VG-248 support

### System Capabilities Enhancements

- H.323 scalability improvements—1,000 H.323 calls per CallManager server in cluster
- Virus checker certification
- Cisco IDS Host-Based Sensor certification

### Administrative Enhancements

- Device, user, network localization for multiple language support within same cluster

## Ordering Information

### Description

- Base MCS installation—CD-ROMs, documentation shipped with ordered MCS servers
- Base ICS-7750 installation—Operating system, database, and documentation preinstalled to ordered ICS-7750 platform
- Upgrade CD-ROM package—Upgrade from Cisco CallManager 3.0(X) and 3.1(X) to CallManager 3.2(1)
- Upgrade available for download from Cisco.com

### Part Numbers

- Base MCS installation—ordered as software option to MCS servers. See MCS data sheets for detail.

- Base ICS-7750 installation—ordered as component software to ICS-7750 platform. See ICS-7750 data sheet for detail.
- Cisco CallManager 3.2 upgrade—CD-ROM package includes supporting software (operating system upgrade and database server upgrade) and documentation (part number provided separately)
- Base installation to selected third-party servers CD-ROM package (part number provided separately)

## Service and Support Solutions

Cisco AVVID (Architecture for Voice, Video and Integrated Data) support solutions are delivered by a team of design and technical experts trained and certified in this highly specialized field. Cisco and its Specialized Channel Partners offer implementation services based on tested and verified designs and best practices. Delivered through

Cisco and its partners, end-to-end services enable businesses to configure and optimize each converged solution. Cisco service and support solutions enhance the value of your investments in network infrastructure, resulting in an overall reduction in the cost of doing business.

- Advanced Services enable you to plan, design, build, implement, and optimize your solution for rapid deployment and increased stability and availability.
- Technical Support Services provide the maintenance and troubleshooting you need to keep your solution operational.

Delivered directly or through an ecosystem of best-of-breed service partners, Cisco provides strategic and consultative support that maps to each stage of the solution lifecycle: planning, design, implementation, operation, and optimization (PDIOO).



Corporate Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

European Headquarters  
Cisco Systems Europe  
11, Rue Camille Desmoulins  
92782 Issy-les-Moulineaux  
Cedex 9  
France  
www-europe.cisco.com  
Tel: 33 1 58 04 60 00  
Fax: 33 1 58 04 61 00

Americas Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

Asia Pacific Headquarters  
Cisco Systems Australia, Pty., Ltd  
Level 9, 80 Pacific Highway  
P.O. Box 469  
North Sydney  
NSW 2060 Australia  
www.cisco.com  
Tel: +61 2 8448 7100  
Fax: +61 2 9957 4350

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the

**Cisco Web site at [www.cisco.com/go/offices](http://www.cisco.com/go/offices)**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia  
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia  
Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru  
Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa  
Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe