



## CHAPTER 3

# Cisco Unified Communications Component Overviews

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## Cisco Integrated Services Routers

Cisco 1800, 2800, 3800, 2900, and 3900 series integrated services routers can be deployed as voice gateway routers as part of the Cisco IP Communications solution. Deployments can use these routers as voice gateways with call component process for Cisco Unified Communications Manager.

The Cisco 1800 Series integrated services routers are ideal for small to medium-sized businesses and small enterprise branch offices. The 1800 series routers help businesses to reduce costs by deploying a single, resilient system for fast, secure delivery of multiple mission-critical business services. The Cisco 1861 integrated services router is a modular platform that provides voice, data, voice-mail, automated attendant, video, and security capabilities while integrating with existing desktop applications such as calendar, e-mail, and customer relationship management (CRM) programs and with built-in security. It includes:

- Cisco Unified Communications Manager Express or Survivable Remote Site Telephony for call processing for up to 8 users
- Optional Cisco Unity Express, for voice messaging and automated attendant
- LAN switching with Power over Ethernet (PoE) expandable through Cisco Catalyst Switches
- Onboard voice ports for PSTN, PBX, and key system connections

Cisco 2800 and 3800 series integrated services routers communicate directly with Cisco Unified Communications Manager, allowing for the deployment of IP telephony solutions for large enterprises and service providers that offer managed network services. These routers provide a highly flexible and scalable solution for small and medium-sized branches and regional offices.

The Cisco 2800 and 3800 series voice gateway routers support a wide range of packet telephony-based voice interfaces and signaling protocols, providing connectivity support for more than 90 percent of PBX and PSTN connection points. Signaling support includes T1/E1 Primary Rate Interface (PRI), T1 channel associated signaling (CAS), E1-R2, T1/E1 QSIG protocol, T1 Feature Group D (FGD), Basic Rate Interface (BRI), foreign exchange office (FXO), ear and mouth (E&M), and foreign exchange station (FXS). These voice gateway routers can be configured to support from 2 to 540 voice channels.

The Cisco 2900 and 3900 series integrated services routers (ISRs) offer secure, wire-speed delivery of concurrent data, voice, and video services. The modular design of these routers provides maximum flexibility and allows you to configure the router to meet evolving needs.

The routers support virtual private network (VPN) encryption acceleration, intrusion-protection and firewall functions, and optional integrated call processing and voice mail. A wide variety of legacy network modules and interfaces, service modules (SMs), internal services modules (ISM), next-generation packet voice/data modules (PVD3), Services Performance Engines (SPEs), high-density interfaces for a wide range of connectivity requirements, and sufficient performance and slot density for future network expansion requirements and advanced applications are available.

Cisco 2900 and 3900 series integrated services routers with Cisco IOS Release 15.x supports FXS ports, Conferencing and transcoding DSP resources with the following gateways—MGCP 0.1, H.323, SCCP, and SIP.

However, the Cisco 2900 and 3900 Series gateways with the PVD3 DSPs do not support Cisco fax relay.

For additional information, go to:

<http://www.cisco.com/en/US/products/hw/routers/index.html>

## Cisco Unified Computing System

Cisco Unified Computing System (Cisco UCS) is an architecture that integrates computing resources (CPU, memory, and I/O), IP networking, network-based storage, and virtualization, into a single highly available system. This level of integration provides economies of power and cooling, simplified server connectivity into the network, dynamic application instance repositioning between physical hosts, and pooled disk storage capacity. The architecture uses Unified fabric that provides transport for LAN, storage, and high-performance computing traffic over a single infrastructure with the help of technologies such as Fiber Channel over Ethernet. Cisco's unified fabric technology is built on a 10-Gbps Ethernet foundation that eliminates the need for multiple sets of adapters, cables, and switches for LANs, SANs, and high-performance computing networks.

The Cisco Unified Computing System:

- Streamlines data center resources to reduce total cost of ownership
- Scales service delivery to increase business agility
- Radically reduces the number of devices requiring setup, management, power, cooling, and cabling

For more details on the Cisco Unified Computing System architecture, go to:

<http://www.cisco.com/en/US/netsol/ns944/index.html>

Two types of Cisco Unified Computing System servers are available for a Unified Communications solution:

- **B-Series Blade Servers**—The Cisco UCS B200 M2 Blade Server support production-level virtualization and other mainstream data center workloads. The server is a half-width, 2-socket blade server with substantial throughput and scalability. Up to eight Cisco UCS B200 M2 Blade Servers can be housed in a Cisco UCS 5108 Blade Server Chassis, with a maximum of 320 blade servers per Unified Computing System.
- **C-Series Rack-Mount Servers**—Two models of low-profile, rack-mount C-series servers are available:
  - The Cisco UCS C200 M2 server is a high-density, 2-socket, 1 rack unit (RU) rack-mount server built for production-level network infrastructure, web services, and mainstream data center, branch, and remote-office applications.
  - The Cisco UCS C210 M2 server is a general purpose, 2-socket, 2 rack unit (RU) rack-mount server that balances performance, density, and efficiency for storage-intensive workloads. The system is built for applications such as network file servers and appliances, storage servers, database servers, and content-delivery servers.

All Cisco Unified Computing System servers contain Intel Xeon 5600 Series processors, which adjust server performance according to application needs.

Cisco Unified Communications applications require use of VMware vSphere 4 (ESXi 4.0 or later) to support Cisco Unified Computing System hardware. No applications run or install directly on the server hardware; all applications run only as VMware virtual machines. For Cisco Unified Communications System Release 8.5(1), the following applications are supported on both B-Series and C-Series Cisco UCS servers:

- Call Control
  - Cisco Unified Communications Manager
  - Cisco Unified Communications Manager Session Management Edition
- Contact Center
  - Cisco Unified Contact Center Enterprise (including Cisco Agent Desktop, Cisco MediaSense, Cisco Unified Contact Center Management Portal, and Cisco Unified Intelligence Center)
  - Cisco Unified Customer Voice Portal
  - Cisco Unified Contact Center Express
  - Cisco SocialMiner
- Unified Communications Applications
  - Cisco Unified Presence
  - Cisco Emergency Responder
- Voice Mail and Unified Messaging
  - Cisco Unity
  - Cisco Unity Connection
- Network Management
  - Cisco Unified Operations Manager
  - Cisco Unified Provisioning Manager
  - Cisco Unified Service Monitor
  - Cisco Unified Service Statistics Manager

For the specific releases of these applications supported by Cisco Unified Communications System Release 8.5(1) on UCS servers, see the following documents:

- *System Release Notes for Contact Center: Unified Communications System, Release 8.5(1)*
- *System Release Notes for IP Telephony: Unified Communications System, Release 8.5(1)*

Application co-residency is also supported on certain configurations. For more information on Unified Communications on Unified Computing System, see:

[http://docwiki.cisco.com/wiki/Unified\\_Communications\\_Virtualization](http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization)

## Cisco 7800 Series Media Convergence Servers

Cisco Media Convergence Servers (MCS) provide highly available server platforms to host applications within the Cisco Unified Communications system. These platforms address enterprise customer requirements for Cisco Unified Communications Manager installations from two to 30,000 IP phones within a single Cisco Unified Communications Manager cluster.

Cisco Unified Communications Manager is supported on specific Cisco MCS 7816, 7825, 7828, 7835, and 7845 servers or on customer-provided HP and IBM servers that have been verified by Cisco to meet the following minimum requirements:

- Processor speed must be 2.0 GHz or greater
- Physical memory size must be 2 GB or greater
- Physical hard disk size must be 72 GB or larger

For a complete list of currently supported hardware configurations, refer to the documentation available at:

<http://www.cisco.com/go/swonly>



### Note

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The Cisco MCS 7828 servers support only Unified Communications Manager Business Edition.

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For more information about these components, go to:

<http://www.cisco.com/en/US/products/hw/voiceapp/ps378/index.html>

## Cisco Unified IP Phones

Cisco Unified IP Phones are full-featured telephones that provide voice communication over an IP network. They function much like digital business phones, allowing you to place and receive phone calls and to access features such as mute, hold, transfer, speed dial, call forward, and more. In addition, because Cisco IP Phones are connected to your data network, they offer enhanced IP telephony features, including access to network information and services, and customizable features and services. Many phone models also support security features that include file authentication, device authentication, signaling encryption, and media encryption.

The Cisco Unified Communications system supports these Cisco Unified IP Phone series:

- The Cisco Unified IP Phone 6900 Series is a innovative portfolio of endpoints, delivering cost-effective business-grade voice communication services to customers worldwide. The Cisco Unified IP Phone 6900 Series offers personalization options, including the choice of two colors and

two handset weights. These devices are also energy efficient, consuming less power in support of customer green initiatives. Five Cisco Unified IP Phone 6900 Series models are available, grouped into two categories:

- Two models without displays are available: 6901 and 6911. Both models are single-line only, and neither one has a display. Cisco Unified IP Phone 6911 is intended as more of a telephony-only endpoint (vs multi-media endpoint) to be used on lower-end worker desktops (generally not knowledge workers, but contact center agents) where cost is at a premium, but a data port is still needed. Cisco Unified IP Phone 6901 is a “trimline” (2500-set) phone, with no data port, intended more for non-desktop use such as common areas in an office or hotel bathrooms.
- Four models with displays are available: 6921 (two-line), 6941 (four-line), 6945 (four-line), and 6961 (twelve-line). All four models support full duplex speakerphones and single call-per-line appearance, resulting in a more productive, flexible and easier-to-use endpoint experience. Right-to-left language presentation is also supported on the displays, addressing the language localization needs of global customers. The new 6945, introduced with Cisco Unified Communications System Release 8.5(1), is similar to the 6941 but also support gigabit Ethernet, offers high-quality wideband audio (G.722 / TIA920-adherent), and provides an auxiliary port.

For additional information on the Cisco Unified IP Phone 6900 Series, go to:

[http://www.cisco.com/en/US/products/ps10326/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps10326/tsd_products_support_series_home.html)

- The Cisco Unified IP Phone 7900 Series provides IP phones with color liquid crystal display (LCD), including dynamic soft keys for call features and functions. This series also offers support for information services, including Extensible Markup Language (XML) capabilities to extend IP phone systems. The capability to customize XML-based services allows users access a variety of information, such as stock quotes, employee directories, and web content. The following Cisco Unified IP Phones 7900 Series models are available:
  - Cisco Unified IP Phones 7911G—Suitable for a user who conducts low to moderate telephone traffic and has a PC connected to the phone. Includes one line (DN), Ethernet switch and PC port, four dynamic softkeys, a pixel-based display, and support for XML services. Offers security features and several power options, including IEEE 802.3af power.
  - Cisco Unified Wireless IP Phone 7921G, 7925G, and 7925G-EX (IEEE 802.11a/b/g wireless IP phones)—Provide on-campus mobility using voice over wireless LAN to extend advanced unified communications capabilities for mobile workers. All models support up to six lines, enhanced security features, XML services, and many telephony features as well as a full color display and built-in speaker phone. Offers security and QoS features and several power options, including IEEE 802.11a, b, and g standards that allow customers to use these phones in the 2.4 GHz or 5 GHz bands. The 7925G supports Bluetooth v2.0 and Push-to-Talk capability using XML. The 7925G-EX delivers the same capabilities of the 7925G with additional ruggedness and resiliency that makes it certified for deployment in potentially explosive environments such as chemical and manufacturing plants, utilities, and oil refineries.
  - Cisco Unified IP Phone 7931G—Suitable for a user in retail, commercial, or manufacturing who conducts moderate telephone traffic. Includes twenty-four lighted line keys, each of which can be assigned to a different line, dedicated keys for hold, redial, and transfer, as well as four soft keys. Also includes high-quality speakerphone, built-in headset port, integrated Ethernet switch, and audio controls for full-duplex speakerphone, handset, and headset. Supports XML services, security features, and power options.
  - Cisco Unified IP Conference Station 7936G and 7937G—Suitable for rooms up to 30-feet by 40-feet with 360 degree coverage. Includes one line (DN), a backlit LCD display, and two ports for optional extension microphones.

- Cisco Unified IP Phone 7940G and 7960G—Suitable for the needs of a transaction-type worker. Provides two lines (DNs) or a combination of lines and direct access to telephony features on the 7940G, and six lines or combination of lines and direct access to telephony features on the 7960G. Also includes a large LCD display, programmable line and feature keys, dynamic softkeys, high-quality speakerphone, built-in headset port, integrated Ethernet switch, and audio controls for full-duplex speakerphone, handset, and headset. Supports XML services, security features, and power options.
- Cisco Unified IP Phone 7941G, 7941G-GE, 7961G, 7961G-GE—Provides similar capabilities to the Cisco Unified IP Phone 7940G and 7960G, with the addition of a higher-resolution grayscale pixel-based LCD and IEEE 802.3af power. Includes two lines (DNs) or combination of lines and direct access to telephony features on the 7941G / 7941G-GE, and six lines or combination of lines and direct access to telephony features on the 7961G and 7961G-GE. GE models include a gigabit Ethernet port for integration with PCs or desktop servers.
- Cisco Unified IP Phone 7942G and 7962G—Suitable for advanced business use, managers and executives. Provides support for high-quality wideband audio (G.722 / TIA920-adherent) and a high-resolution 4-bit grey scale display.
- Cisco Unified IP Phone 7945G, 7965G, and 7975G—Suitable for enhanced business use, manager and executive. Provides support for high-quality wideband audio (G.722 / TIA920-adherent), a backlit TFT color display, and an integrated Gigabit Ethernet switch and a four-way navigation rocker with Select key.
- Cisco Unified IP Phone 7970G and 7971G-GE—Suitable for managers and executives. Includes a backlit, high-resolution color touch-screen display. Supports up to eight telephone lines or combination of lines and direct access to telephony features and provides hands-free speakerphone, built-in headset connection, and many telephony features. Offers security features and several power options, including IEEE 802.3af power. GE model includes a gigabit Ethernet port.
- Cisco Unified IP Phone 7975G—Like the 7971G-GE, this model can have up to eight directory numbers and two 10/100/1000 Base-T Ethernet connections. Unlike the 7971G-GE, however, the 7975G adds the G.722 wideband codec and high-fidelity speaker, microphone, and handset. The 7975G also has a touchscreen color display.
- Cisco Unified IP Phone 7985G—A personal desktop video phone for the Cisco Unified IP Communications solution. Provides all components needed for video calls, including camera, LCD screen, speaker, keypad, and handset. Includes one line (DN) and a backlit, high-resolution color video display. Supports hands-free speakerphone, high-quality voice codecs, built-in headset connection, and many telephony features. Offers security features and several power options including IEEE 802.3af power.

For additional information on the Cisco Unified IP Phone 7900 Series, go to:

<http://www.cisco.com/en/US/products/hw/phones/ps379/index.html>

- The Cisco Unified IP Phones 8900 Series phones accelerate business success by delivering a high-performance, rich multimedia communications experience. This series offers a broad portfolio of XML and MIDlet applications that can help a company transform its business processes, reduce operating and administration costs, and boost productivity. Currently, one Cisco Unified IP Phone 8900 Series model is available:
  - Cisco Unified IP Phone 8961—Offers advanced capabilities within the Cisco IP phone portfolio. The 8961 supports up to five directory numbers, two 10/100/1000 Base-T Ethernet connections, and a five-way navigation button set. The 8961 also includes five session keys, a USB port for headset use, and the most commonly used call features on fixed hard buttons (hold, transfer, and conference) for a rich user experience. The 8961 also incorporates a wideband audio headset, speaker, and handset, and support for MIDlet and XML applications.



For additional information on the Cisco Unified IP Phone 8900 Series, go to:

[http://www.cisco.com/en/US/products/ps10451/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps10451/tsd_products_support_series_home.html)

- The Cisco Unified IP Phones 9900 Series supports interactive, high-performance business video, enabled directly from the endpoint, with an optional Cisco Unified Video Camera that supports full-screen, two- and multiparty H.264 standard video. Four Cisco Unified IP Phone 9900 Series models are available:
  - Cisco Unified IP Phone 9951—Suitable for upper and mid-level managers, who collaborate frequently, often remotely. Highlights include multifunction USB (keyboard or headset) and Bluetooth capabilities, and 2-way video with optional Camera module, but on a slightly smaller 5" VGA (non-touch) display screen.
  - Cisco Unified IP Phone 9971—Suitable for Executives such as mid- to high-level management, who have an Admin/Secretary, and many direct reports, with all of whom they need to collaborate and interact frequently, but often remotely.

For additional information on the Cisco Unified IP Phone 9900 Series, go to:

[http://www.cisco.com/en/US/products/ps10453/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps10453/tsd_products_support_series_home.html)

## Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916

The Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916 are for administrative assistants and others who need to determine the status of a number of lines beyond the current line capability of the phone.

The Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916 extend the capability of the Cisco Unified IP Phones 7960G, 7961G, 7961G-GE, 7962G, 7965G, 7970G, 7971G-GE, or 7975G with additional buttons and an LCD. The Cisco Unified IP Phone Expansion Module 7914 provides 14 buttons per module, and the Cisco Unified IP Phone Expansion Modules 7915 and 7916 provide up to 24 buttons per module. Cisco Unified IP Phones 796xG and 797xG can support up to two Cisco Unified IP Phone Expansion Modules. If the IP phone uses Cisco inline power or IEEE802.3af PoE, then the Cisco Unified IP Phone Expansion Modules 7914, 7915, and 7916 require the use of an external power adaptor (CP-PWR-CUBE-3).



### Note

When two Expansion Modules are used with a single phone, the second module must be the same model as the first one.

## Cisco Unified Communications Manager

Cisco Unified Communications Manager software is the call processing component of the Cisco Unified Communications system. Cisco Unified Communications Manager 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 services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems are made possible through Cisco Unified Communications Manager open telephony APIs. Cisco Unified Communications Manager offers a suite of integrated voice applications and utilities, including the Cisco Unified Communications Manager Attendant Console, an ad-hoc conferencing application, the Cisco Unified Communications Manager Bulk Administration Tool, the Cisco Unified Communications



Manager CDR (call detail record) Analysis and Reporting Tool, the Cisco Unified Communications Manager Real-Time Monitoring Tool, and the Cisco Unified Communications Manager Assistant application.

The dial plan feature in Unified Communications Manager enable you to:

- Route calls based on the physical location context of the caller.
- Represent calling and called party numbers in a global form such as that described by the International Telecommunications Union's E.164 recommendation.
- Present calls to users in a format based on local dialing habits.
- Present calls to external networks (for example, the PSTN) in a manner compatible with the local requirements for calling party number, called party number, and their respective numbering types.
- Derive the global form of the calling party number on incoming calls from gateways, based on the calling number digits and the numbering type.

For additional information, go to:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd\\_products\\_support\\_general\\_information.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_general_information.html)

## Cisco Unified Communications Manager Business Edition

The Cisco Unified Communications Manager Business Edition is the call-processing, mobility, and messaging component of the Cisco Unified Communications system for medium-sized businesses. It includes the features and capabilities of Cisco Unified Communications Manager, Cisco Unified Mobility, and Cisco Unity Connection co-resident on a single, low-cost Media Convergence Server.

The Cisco Unified Communications Manager Business Edition is designed to support 150 to 500 users in one main and up to five remote locations. It also supports up to 575 Skinny Client Control Protocol (SCCP) or Session Initiation Protocol (SIP) IP phones or video endpoints per Cisco Unified Communications Manager Business Edition autonomous system. Installation is simplified as the applications come pre-loaded onto the server. And management of all applications can be performed through a consolidated interface.

The Cisco Unified Communications Manager Business Edition supports corporate directory synchronization. This feature enables Cisco Unified Communications Manager Business Edition to synchronize directly with an existing corporate directory using LDAP integration. This feature enables administrators to provision users automatically from the corporate directory into the Cisco Unified Communications Manager Business Edition database, thus allowing administrators to maintain a single directory. This method avoids having to add, remove, or modify core user information manually in Cisco Unified Communications Manager Business Edition each time a change occurs in the corporate directory. This feature also helps the end-users authenticate using single sign-on functionality, thus reducing the number of passwords across the network.

For additional information, go to:

[http://www.cisco.com/en/US/products/ps7273/tsd\\_products\\_support\\_general\\_information.html](http://www.cisco.com/en/US/products/ps7273/tsd_products_support_general_information.html)

# Cisco Unified Communications Manager Session Management Edition

Cisco Unified Communications Manager Session Management Edition provides SIP Session manager that consolidates SIP trunks and Application interfaces across multi vendor voice deployments for large Enterprise customers. Cisco Unified Communications Manager Session Management Edition is essentially a Unified Communications Manager cluster with trunk interfaces only and no IP endpoints. It enables aggregation of multiple unified communications systems, referred to as leaf systems.

Cisco Unified Communications Manager Session Management Edition supports:

- H.323 Annex M1 intercluster trunks
- SIP intercluster trunks
- Multi vendor SIP and Q.SIG interoperability with Nortel, Siemens, Avaya, and Microsoft
- SIP trunk with Cisco Unified Border Element
- Voice, video, and fax calls

For additional information, go to:

[http://www.cisco.com/en/US/products/ps10661/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps10661/tsd_products_support_series_home.html)

## Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Express is an entry-level call processing system that provides a wide range of IP telephony features for small to medium-sized businesses and autonomous small enterprise branch offices with up to 450 phones.

All files and configurations for IP phones are stored internally on a single Cisco Integrated Services router or on the new Unified Communications 500 Series router for a cost-effective, highly reliable, IP communications solution. Cisco Unified Communications Manager Express helps ensure investment protection and offers scalability because all hardware and software is fully compatible with Cisco Unified Communications Manager and Cisco Unified Survivable Remote Site Telephony.

Cisco Unified Communications Manager Express provides key system and PBX modes of operation on a single network and several industry-unique features, including:

- Call processing for local IP and analog phones attached to a Cisco router
- Support for analog phones in SCCP mode, Session Initiation Protocol (SIP) line side support with supported Cisco Unified IP phones, and a robust set of PSTN interfaces
- Call routing over a WAN with calling party name and number information, and compressed voice for reduced WAN bandwidth utilization
- Support for peripheral services such as voice mail, automated attendant, and IP-based XML and Telephony Application Programming Interface (TAPI) applications
- Interoperability with Cisco Unified CallManger and the Cisco Unity Express
- Simple software configuration change on the Cisco router converts system to a highly available survivable telephony gateway with support for more features than SRST for a remote site in a centralized Cisco Unified Communications Manager deployment

System management features in the Cisco Unified Communications Manager Express environment enable you to:

- Accomplish initial installation of Cisco Unified Communications Manager Express easily using the Quick Configuration Tool (QCT) that prompts for answers to pertinent questions
- Perform everyday administration and remote troubleshooting using the Cisco IOS software command-line interface (CLI)
- Add users, phones, and extensions or make changes for system and integrated voice-mail using a single web-based GUI designed for nontechnical staff
- Monitor deployments with Cisco Monitor Manager and Cisco Monitor Director
- Use Cisco Configuration Agent (CCA) for configuration tasks

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps4625/index.html>

## Cisco Unified Survivable Remote Site Telephony

Cisco Unified Communications Manager with Cisco Unified Survivable Remote Site Telephony (SRST) allows companies to extend high-availability IP telephony to their remote branch offices with a cost-effective solution that is easy to deploy, administer, and maintain. The SRST capability is embedded in the Cisco IOS Software that runs on the Cisco integrated services routers.

SRST software automatically detects a connectivity failure between Cisco Unified Communications Manager and IP phones at a branch office. SRST initiates a process to automatically configure the Cisco integrated services routers to provide call-processing backup redundancy for the IP phones and PSTN access in the affected office. The router provides essential call-processing services for the duration of the failure, helping ensure that critical phone capabilities are operational. Upon restoration of the connectivity to the Cisco Unified Communications Manager, the system automatically shifts call-processing functions back to the primary Cisco Unified Communications Manager cluster.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps2169/index.html>

## Cisco Unified Presence

Cisco Unified Presence enables the deployment of Session Initiation Protocol (SIP) or eXtensible Messaging and Presence Protocol (XMPP) technology to support unified communication in an enterprise environment. SIP enhances the voice network by providing a core set of behaviors for session establishment and control that can be applied in a wide array of features and services. In addition to core SIP support, Cisco Unified Presence uses SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions) technology to support instant messaging (IM) and presence. XMPP provides real-time communication of applications including instant messaging, presence, multi-party chat, voice and video calls, and collaboration.

The presence engine collects user presence information (such as busy, idle, away, or available status) and user capabilities (such as the ability to support voice, video, instant messaging, and web collaboration), and compiles the data in a repository for each user. This repository is accessed by the applications and features that each user employs. A user can apply unique user rules and privacy to ensure that only authorized applications and users have access to presence information.

Cisco Unified Presence integrates with various desktop clients and applications. It enables Cisco Unified Personal Communicator to perform functions such as click-to-dial and phone control as well as voice, video, and web collaboration. In addition, Cisco Unified Presence provides a core IM service for Cisco

Unified IP Phones that are connected to Cisco Unified Communications Manager. Cisco Unified Presence also supports interoperability with Microsoft and IBM Lotus, enabling specific functions to work with Cisco Unified IP Phones supported on Cisco Unified Communications Manager. Finally, the SIP/SIMPLE and XMPP interfaces on Cisco Unified Presence can provide value add presence and call control capabilities to any standards based application or service.

For additional information, go to:

<http://www.cisco.com/en/US/products/ps6837/index.html>

## Cisco Intercompany Media Engine

The Cisco Intercompany Media Engine (Cisco IME) allows you to establish direct IP connectivity between enterprises by combining peer-to-peer technologies with existing PSTN infrastructure. It moves calls from the PSTN to Direct SIP trunks. The term boundary-less Unified Communications is used to describe this technology because it allows for the business-to-business extension of Unified Communications capabilities such as high-fidelity codecs, enhanced caller ID, and video telephony outside the corporate networks. The solution learns routes in a dynamic, secure manner and provides for secure communications between organizations across the internet. Organizations that work closely together and have high levels of intercompany communications will benefit most from the enhanced communications offered by Cisco IME.

Cisco IME provides the following:

- Allows any two enterprises in the world to connect over the public internet as well as support for closed user groups (CUGs) to allow cooperating enterprises to work with each other
- Requires minimal configuration; dial plan restructuring or entry of anyone else's dial plan is not required
- Requires no Service Provider support beyond public IP and basic PSTN
- Cisco IME monitors the QoS of the Real-Time Transport Protocol (RTP) traffic in real time and fallback to PSTN automatically if problems arise.

For additional information, go to:

[http://www.aboutcisco.biz/en/US/products/ps10669/tsd\\_products\\_support\\_series\\_home.html](http://www.aboutcisco.biz/en/US/products/ps10669/tsd_products_support_series_home.html)

## Cisco Emergency Responder

Cisco Emergency Responder enhances emergency calling from Cisco Unified Communications Manager. It helps assure that Cisco Unified Communications Manager sends emergency calls to the appropriate Public Safety Answering Point (PSAP) for the caller's location, and that the PSAP can identify the caller's location and, if necessary, return the call. Cisco Emergency Responder can also notify customer security personnel of an emergency call in progress and of a caller's location.

Cisco Emergency Responder helps Cisco Unified Communications Manager customers comply more effectively with their legal or regulatory obligations and reduce their risk of liability related to emergency calls. It includes these key features:

- Automatically tracks IP phone location
- Provides emergency call routing instructions to Cisco Unified Communications Manager
- Identifies caller location to local exchange carriers and PSAPs
- Alerts customer security personnel to emergency calls in progress

- Supports Emergency callback
- Logs emergency calls and location record changes

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps842/index.html>

## Cisco Unified Communications Manager Attendant Console

The three types of Cisco Attendant Console supported by Cisco Unified Communications Manager are:

- Cisco Unified Communications Manager Attendant Console (AC)—native AC within Cisco Unified Communications Manager
- Cisco Unified Business Attendant Console—OEM'd version of ARC Console
- Cisco Unified Department Attendant Console—OEM'd version of ARC Console

Cisco Attendant Console integrates traditional time-division multiplexing (TDM) telephony functions with advanced IP telephony applications and services such as Lightweight Directory Access Protocol (LDAP) directory. Cisco Unified Communications Manager Attendant Console gives the user the ability to monitor the state of every line in the system and to efficiently dispatch calls.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps555/index.html>

## Cisco Unified Border Element

The Cisco Unified Border Element is an integrated application within Cisco IOS software load that runs on the Cisco Integrated Service Routers—Cisco 2800 and Cisco 3800 series for integrated voice, video and data services, and on Cisco 7200VXR and Cisco 7301 series of routing and gateway platforms.

Designed to meet enterprise and service provider Session Border Controller (SBC) needs, the Cisco Multiservice Cisco Unified Border Element facilitates simple and cost-effective connectivity between independent VoIP and video networks. It provides a network-to-network interface point for:

- Signaling interworking (H.323, SIP)
- Media interworking (DTMF, fax, modem and codec transcoding)
- Address and port translations (privacy and topology hiding)
- Billing and CDR Normalization
- QoS and bandwidth management (QoS marking using TOS, DSCP and bandwidth enforcement using RSVP and codec filtering)

The Cisco Multiservice Cisco Unified Border Element integrates SBC needs into the network layer to interconnect VoIP and video networks in intra-enterprise, inter-enterprise, enterprise to service provider, and inter-service provider architectures.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps5640/index.html>

## Cisco RSVP Agent

Cisco RSVP Agent is a Cisco IOS Software feature that uses the network to deliver call admission control and quality of service for Cisco Unified Communications Manager deployments. Cisco RSVP Agent employs Resource Reservation Protocol (RSVP), an IETF standards-based signaling protocol for reserving bandwidth in an IP network. The RSVP protocol enables dynamic adjustment to changes in the network, supports complex network topologies, and enables call admission decisions.

Cisco RSVP Agent offer benefits such as:

- Provides guaranteed WAN bandwidth for Cisco Unified Communications Manager calls
- Supports complex network topologies, including meshed designs, redundant links, and dynamically changing topologies
- Controls the quality and availability of voice and video calls, and authorization of calls
- Provides seamless interworking of any call control signaling that Cisco Unified Communications Manager supports such as SIP, H.323, Media Gateway Control Protocol (MGCP), and Skinny Client Control Protocol (SCCP).

For additional information, go to:

<http://www.cisco.com/en/US/products/ps6832/index.html>

## Cisco Unified Application Environment

Cisco Unified Application Environment enables the rapid development, reliable execution, and automated management of applications that converge voice and video with enterprise applications and data. It is a suite of products including:

- Cisco Unified Application Designer—Enables developers to visually construct applications by dragging and dropping prebuilt functions onto a graphical communications business logic canvas and visually updating parameters associated with the graphical functions.
- Cisco Unified Application Server—Abstracts the complexity of telephony protocols, separates application logic from core call routing to protect Cisco Unified Communications Manager, and provides a standard way to manage all of an organization's unified communications applications.
- Cisco Unified Media Engine—Provides ready-to-use, sophisticated media processing capabilities for all applications built using the Cisco Unified Application Designer-functions such as interactive voice response (IVR), conferencing, transcoding, text-to-speech (TTS), speech recognition, and speaker verification.

For additional information, go to:

[http://www.cisco.com/en/US/products/ps6789/Products\\_Sub\\_Category\\_Home.html](http://www.cisco.com/en/US/products/ps6789/Products_Sub_Category_Home.html)

# Cisco Unified Contact Center Enterprise and Cisco Unified Intelligent Contact Management Enterprise Software

Cisco Unified Contact Center Enterprise provides a full-featured distributed contact center infrastructure, which segments customers, monitors resource availability, and delivers each contact to the most appropriate resource. It provides a VoIP contact center solution that integrates inbound and outbound voice applications with Internet applications, including real-time chat, web collaboration and e-mail. Cisco Unified Contact Center Enterprise has several components including but not limited to:

- Unified Intelligent Contact Management Enterprise - provides pre-routing and post-routing capabilities
- Cisco Unified Communications Manager
- Cisco Unified IP IVR (UCCX)
- Cisco Unified Customer Voice Portal

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/custcosw/ps1844/index.html>

and

[http://www.cisco.com/en/US/products/sw/custcosw/ps1001/tsd\\_products\\_support\\_general\\_information.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/tsd_products_support_general_information.html)

## Cisco Unified Contact Center Express

Cisco Unified Contact Center Express provides departmental, enterprise branch, or small to medium-sized companies with easy-to-deploy, easy-to-use, and sophisticated customer interaction management for up to 400 agents. It provides a VoIP contact center solution that integrates inbound and outbound voice applications with Internet applications, including real-time chat, web collaboration and e-mail. To provide presence information, Cisco Agent Desktop (CAD) can be integrated with Cisco Unified Presence. These applications securely support a virtual contact center with integrated self-service applications across numerous sites. They provide support for powerful agent-based assisted service and fully integrated self-service applications and offer distributed automatic call distributor (ACD), interactive voice response (IVR), computer telephony integration (CTI), and agent and desktop services.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/custcosw/ps1846/index.html>

## Cisco Unified Expert Advisor

Cisco Unified Expert Advisor is an optional component in a Cisco Unified Intelligent Contact Management Enterprise deployment. It allows calls to be routed to expert advisors in addition to traditional contact center agents. An expert advisor differs from a traditional agent such that it is not the expert advisor's main job to answer the phone and also the advisor is often mobile and can be reachable at different numbers at different times. The expert advisor is a part of the enterprise but usually not a part of the call center. They are involved only by those traditional agents who have already received calls and who wish to consult an advisor. The agent may consult and, if the company's business practices permit it, conference or transfer to the advisor. However, the expert advisor has an expertise that may be tapped



by traditional agents or tapped directly by callers into the contact center bypassing the traditional contact center completely and allowing outside callers to reach members of the enterprise directly. Thus, the company may develop a business model that allows the call center to reach into the enterprise to involve specifically designated expert advisors.

For additional information, go to:

[http://www.cisco.com/en/US/products/ps9675/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps9675/tsd_products_support_series_home.html)

## Cisco Unified Customer Voice Portal

The Cisco Unified Customer Voice Portal provides call-management and call-treatment solutions with self-service IVR capabilities, allowing callers to obtain personalized answers to complex questions and to conduct business without interacting with a live agent.

The Cisco Unified Customer Voice Portal includes support for agent queuing and for multisite call switching capabilities. It uses standard Internet technologies to provide a smooth customer experience even when transferring calls between several locations. With support for the Cisco Unified Intelligent Contact Management and Cisco Unified Contact Center products, the Cisco Unified Customer Voice Portal delivers self-service as part of a comprehensive customer contact strategy that provides unique, personalized interactions.

The Cisco Unified Customer Voice Portal supports speech-enabled and touch-tone applications, which can be quickly integrated with back-end data and business rules that are available on the web. Using the standard Java 2 Platform, Enterprise Edition (J2EE) and Voice Extensible Markup Language (VoiceXML) with the graphical development tools provided with the portal (which are compliant with the Eclipse standard for building web applications), you can develop complex voice applications quickly and cost-effectively.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/custcosw/ps1006/index.html>

## Cisco Unified Intelligence Suite and Intelligence Center

Cisco Unified Intelligence Center extends the boundaries of traditional contact center reporting by creating a comprehensive information portal where data can be integrated from multiple sources and shared throughout an organization. With this intuitive advanced reporting platform, you can report on relevant business data and web components with ease. Unified Intelligence Center provides a dashboard-based canvas for grouping multiple reporting objects together, offering a comprehensive view of contact center statistics, linking multiple reports, and integrating third-party data including workforce management, quality management, and web content.

For additional information, go to:

<http://www.cisco.com/en/US/products/ps9755/index.html>

## Cisco Computer Telephony Integration

The Cisco Computer Telephony Integration (CTI) Option enables Cisco Unified Intelligent Contact Management (ICM) Enterprise and Cisco Unified Contact Center Enterprise to provide a complete network-to-desktop strategy, including comprehensive functionality at individual workstations.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/custcosw/ps14/index.html>

## Cisco Agent Desktop

Cisco Agent Desktop is a computer telephony integration (CTI) solution for single- and multisite IP-based contact centers. It is easy to deploy, configure, and manage. Powerful tools help increase agent and supervisor productivity, improve customer satisfaction, and reduce costs. An intuitive GUI decreases IT dependency and simplifies customization, maintenance, and change management. Transparent integration with Cisco Unified Contact Center helps you easily deploy CTI capabilities at new locations as customer contact operations expand.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/custcosw/ps427/index.html>

## Cisco SocialMiner

Cisco SocialMiner is a social media customer care solution that can help you proactively respond to customers and prospects communicating through public social media networks like Twitter, Facebook, or other public forums or blogging sites. By providing social media monitoring, queuing, and workflow to organize customer posts on social media networks and deliver them to your social media customer care team, your company can respond to customers in real time using the same social network they are using.

Cisco SocialMiner provides:

- The ability to configure multiple campaigns to search for customer postings on the public social web about your company's products, services, or area of expertise
- Filtering of social contacts based on preconfigured campaign filters to focus campaign searches
- Routing of social contacts to skilled customer care representatives in the contact center or to experts in the enterprise--multiple people can work together to handle responses to customer postings through shared work queues
- Detailed metrics for social media customer care activities, campaign reports, and team reports

For additional information, go to:

[http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps11349/cis110970\\_socialminer.html](http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps11349/cis110970_socialminer.html)

## Cisco Unified MeetingPlace

Cisco Unified MeetingPlace is a complete rich-media conferencing solution that integrates voice, video, and web collaboration capabilities. It allows users from any location to meet at any time and to easily integrating web, voice, and video conferencing into everyday communications.

Cisco Unified MeetingPlace provides intuitive interfaces for setting up, attending, and managing meetings. It allows immediate or future voice, video, and web conferences to be set up and attended in a single step—from Cisco Unified IP Phones, instant messaging clients, web browsers, and Microsoft Outlook and Lotus Notes calendars. Meeting participants have complete control over voice, video, and web conferences from a single browser interface.

Cisco Unified MeetingPlace can be deployed “on network,” behind a firewall, and integrated directly into an organization’s private voice and data networks and collaborative applications. This deployment enables cost savings because organizations can use their IP network infrastructures to reduce transport costs paid to service providers. In addition, on-network deployment results in a secure meeting environment by allowing organizations to isolate confidential meetings and content behind the firewall while providing the flexibility to meet with external parties. To prevent unauthorized access and toll fraud, Cisco Unified MeetingPlace integrates with the corporate directory to provide synchronized updates as an employee’s status changes.

Cisco MeetingPlace can be located in on-premises or hosted in off-site facilities. It can be managed in-house or management can be outsourced.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/ps5664/ps5669/index.html>

## Cisco IP Communicator

Cisco IP Communicator provides personal computers with the functionality of IP phones. This Microsoft Windows-based application provides high-quality voice calls to users from wherever they have access to the corporate network. It can serve as a supplemental telephone, a telecommuting device, or a primary desktop telephone.

When registered to Cisco Unified Communications Manager, Cisco IP Communicator has the functionality of a full-featured Cisco Unified IP Phone, including the ability to transfer calls, forward calls, and conference additional participants to an existing call. In addition, a Cisco IP Communicator that is registered to Cisco Unified Communications Manager can be provisioned like any other Cisco Unified IP Phone, which greatly simplifies phone management.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicew/ps5475/index.html>

## Cisco Unified Personal Communicator

Cisco Unified Personal Communicator integrates a wide array of communications applications and services into a single desktop computer application. It provides access to a variety of communications tools, including voice (Cisco Unity or Unity Connection), video (Cisco Unified Videoconferencing), web conferencing (Cisco Unified MeetingPlace or MeetingPlace Express), call management (Unified CM), directories (LDAP), and presence and instant messaging (Unified Presence) information. Cisco Unified Personal Communicator offers an easy-to-use interface that streamlines the communications experience and facilitates collaboration. With Cisco Unified Personal Communicator, users can communicate virtually anytime, from anywhere, and can easily escalate communication methods as required.

Cisco Unified Personal Communicator operates in Desk Phone (CTI control of the user’s desk phone for Click to Call) and Soft Phone (software client operation) modes, and is supported on Apple Macintosh and Microsoft Windows platforms.

For additional information, go to:

[http://www.cisco.com/en/US/products/ps6844/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps6844/tsd_products_support_series_home.html)

## Cisco Unified Mobility

Cisco Unified Mobility provides features and functionality for Cisco Unified Communications Manager users who want to consolidate all their business calls with a single enterprise IP phone number. The Cisco Mobile Connect service helps mobile workers direct their inbound business calls to both their IP desk phone as well as their mobile phone or other remote phone numbers while Cisco Mobile Voice Access and Cisco Enterprise Feature Access 2-Stage Dialing provide users the ability to initiate outbound business calls as if they were at their IP phone—all from a mobile phone or other remote destination phone. To support Cisco Mobile Connect, Cisco Mobile Voice Access, and Enterprise Feature Access 2-Stage Dialing, Cisco Unified Mobility uses the web-based system administration and user configuration facilities built in to the Cisco Unified Communications Manager, which enables enterprise mobile workers to take advantage of these features.

Cisco Unified Mobility includes these features:

- Simultaneous desktop ringing
- Desk phone pickup
- Mobile phone or remote destination pickup
- Security and privacy for Cisco Mobile Connect calls
- Allow or Block Mobile Connect Calls based on Caller ID Access Lists and/or Time of Day
- Cisco Mobile Voice Access which provides IVR-based remote access to the system with user identification and personal identification number protection for making calls
- Cisco Enterprise Feature Access 2-Stage Dialing which provides non-IVR-based remote access to the system with caller ID identification and personal identification number protection for making calls
- Single enterprise voice mailbox
- Caller identification
- System administrator-controllable user profile access
- Remote on/off control
- Call tracing
- Mid-call features (Hold, Resume, Transfer, Conference, Directed Call Park)

For additional information, go to:

<http://www.cisco.com/en/US/products/ps6567/index.html>

## Cisco Unified Mobile Communicator

Cisco Unified Mobile Communicator is a graphical client that works in conjunction with a server running the Cisco Unified Mobility Advantage software to provide a rich user interface for accessing and controlling mobile phone features and functionality. The system integrates into existing corporate LDAP directories, allowing users to use a single set of credentials across all devices. Further, all traffic between Unified Mobile Communicator and Unified Mobility Advantage is protected by the Secure

Socket Layer (SSL) protocol. Cisco Unified Mobile Communicator provides users traveling outside the organization with the ability to use their mobile device to access and utilize various Unified Communications applications that reside inside the enterprise such as:

- Access to corporate and personal directories
- Presence and buddy synchronization with the enterprise
- Visual access to corporate voicemail
- Visibility into desk phone history of missed, placed, and received calls
- Secure store-and-forward text messaging
- Reception of conference notifications
- Dial-via-office using Cisco Unified CM

Cisco Unified Mobile Communicator for iPhone extends the following UC Telephony features to the iPhone:

- Visual voicemail using Cisco Unity, Cisco Unity Connection
- Enterprise call logs
- Single number reach settings
- Dial-via-office using Cisco Unified CM
- Directory search

For additional information, go to:

<http://www.cisco.com/en/US/products/ps7271/index.html>

[http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps7290/ps7271/data\\_sheet\\_c78-502296.html](http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps7290/ps7271/data_sheet_c78-502296.html)

## Cisco Unified Communications Integration™ for Microsoft Office Communicator

Cisco Unified Communications Integration™ for Microsoft Office Communicator or Microsoft Lync provides seamless collaboration with Cisco Unified Communications and Microsoft instant messaging (IM) and Presence capabilities.

It extends proven Cisco Unified Communications services to Microsoft Office Communicator or Microsoft Lync with a single easy-to-manage communications platform. This provides interoperability with Microsoft Office Communicator Server 2007 (OCS) and Microsoft Office Communicator (MOC) client or Microsoft Lync Server 2010 and Microsoft Lync. Cisco UC Integration™ for Microsoft Office Communicator or Microsoft Lync uses the Client Services Framework (CSF) and incorporates it into Microsoft Office Communicator or Microsoft Lync. This integration allows for the use of audio telephony of existing Cisco Unified Communications Manager endpoints, acting both as a softphone (softphone mode) and controlling a Cisco Unified IP Phone (desk phone mode).

This integration for Microsoft leverages a common unified client services framework to:

- Increase productivity—Instantly connect with colleagues, partners, and customers from anywhere and have a business-class communication experience with an integrated Cisco IP softphone.
- Streamline communications—View telephony presence status, access corporate voicemail and communications history, or simply click to call through Cisco Unified IP Phone directly from your desktop.

- Enhance collaboration—Initiate multiparty conference calls and quickly add more participants as needed.
- Reduced complexity—Extend proven attributes of Cisco Unified Communications Manager directly to your desktop with an easy-to-deploy integration and benefit from reduced management complexity of a single call control architecture.
- Protect investments—Make an immediate business impact with interoperable Cisco Unified Communications while protecting your investments in existing desktop applications.

For additional information, go to:

<http://www.cisco.com/en/US/products/ps10317/index.html>

## Cisco UC Integration™ for Cisco WebEx Connect

Cisco UC Integration(TM) for Cisco WebEx Connect is a collaborative software-as-a-service (SaaS) platform that enables developers, partners, and customers to create powerful collaborative business solutions that can extend their reach through collaborative solutions. Cisco WebEx Connect provides an open and extensible collaboration platform for enforcing enterprise-class security, scalability, performance, and availability, while delivering transparent communication with the Cisco Unified Communications solution. Cisco WebEx Connect contains two main components, the Cisco WebEx Connect Client and the Cisco WebEx Connect Platform.

For additional information, go to:

[http://www.cisco.com/en/US/products/ps10627/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps10627/tsd_products_support_series_home.html)

## Cisco Unified Communications Widgets

Cisco Unified Communications Widgets helps you to streamline business communications and instantly access rich Cisco Unified Communications and have a customized and familiar collaboration experience in every workspace.

Cisco Unified Communications Widgets include the following applications:

- Phone Designer—enables you to quickly customize Cisco Unified IP Phone displays with wallpapers of your choice and to create or change ring tones
- Click to Call—for PCs lets you connect and collaborate with everyone instantly by allowing you to place Cisco Unified Communications Manager calls directly from your desktop productivity applications and web browsers.
- Visual Voicemail—enables you to view, listen, and respond to Cisco Unity and Cisco Unity Connection voicemail messages right from the Cisco Unified IP Phone display, without having to dial into your corporate voicemail box.
- Provide support for Cisco Unified IP Phone 6900 Series (6921,6941,6961) models and Cisco Unified Wireless IP Phone models 7921G, 7925G, 7911G.

For additional information, go to:

<http://www.cisco.com/en/US/products/ps9829/index.html>

## Cisco Unified Client Services Framework

Cisco Unified Client Services Framework (CSF) is a software application based on Microsoft Windows that provides an underlying framework for integration of Unified Communications services including audio, video, web collaboration, visual voicemail, and so forth, into a presence and instant messaging application. The Cisco Unified Client Services Framework allows users to access a variety of communications services that interface into Cisco Unified Communications Manager, Cisco Unity, Cisco Unity Connection, Cisco Unified MeetingPlace, and a Lightweight Directory Access Protocol (LDAP) version 3 (v3) server.

The Cisco Unified Client Services Framework is a new device in Cisco Unified CM, and it operates in either softphone mode or deskphone mode to control a Cisco Unified IP Phone.

## Cisco Unified Video Advantage

Cisco Unified Video Advantage brings video telephony functionality to the Cisco Unified IP Phone 7900 Series and to Cisco IP Communicator. It is composed of Cisco Unified Video Advantage software and Cisco VT Camera II, a video telephony USB camera. System administrators provision a Cisco Unified IP Phone with Cisco Unified Video Advantage just as they would provision a phone for audio calls. Users make and receive calls on their Cisco Unified IP Phones using the familiar phone interface, and calls display with video on user PCs without additional user action required.

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps5662/index.html>

## Cisco Unified Videoconferencing

Cisco Unified Videoconferencing provides organizations with a reliable, easy-to-manage, versatile, and cost-effective network infrastructure for videoconferencing applications. In addition to integrating legacy and IP-based room systems over a single infrastructure, Cisco Unified Videoconferencing solutions offer video-enable telephony endpoints and rich media applications, enabling participants to collaborate and share information in real time. Cisco Unified Videoconferencing offers simple dialing options, a range of dynamic layouts, and many in-conference controls. Cisco Unified Videoconferencing provides support for H.323, H.320, SIP and SCCP video endpoints with a variety of formats, speeds and functionality

The Cisco Unified Videoconferencing product family is composed of the Cisco Unified Videoconferencing MCU 3515, 3522, 3527, and 3545. These products work with Cisco IOS gatekeepers and gateways.

For additional information, go to:

<http://www.cisco.com/en/US/products/hw/video/ps1870/index.html>

## Cisco Unity

Cisco Unity is a messaging platform designed for enterprises of all sizes. It provides unified messaging (e-mail, voice, and fax messages sent to one inbox) and full-featured voice mail. Cisco Unity interoperates with most legacy TDM PBXs and with Cisco Unified Communications Manager to enable a transition to IP telephony while protecting existing infrastructure investments.



Key features of Cisco Unity include:

- Integration with Outlook or Lotus Notes desktop clients.
- Telephone interface (TUI) for DTMF-based control of messages. An intuitive interface allows accessing, creating, replying to, and forwarding messages using a traditional telephone, and allows managing and customizing mailbox features.
- Web-based desktop interface that allows users to manage and customize their mailbox features and to access their voice messages directly from a PC.
- Text-to-speech (TTS) for telephone access to e-mail messages.
- Integration with Exchange or Lotus Domino to provide a single location to store and manage all of messages.
- Unity Digital Networking using integration into a common Active Directory or Lotus Domino Directory to provide seamless message exchange between users at several sites on different Cisco Unity servers.
- Mobile message access for Unified Messaging subscribers using Blackberry or Treo devices.
- Cisco FAX server support or integration with third-party FAX vendors to provide FAX messages in a single, unified inbox.
- Interoperability with a wide range of legacy TDM PBX systems using analog DTMF, serial SMDI, or digital set emulation.
- Interoperability with a wide range of legacy voice messaging system using AMIS, VPIM, or Cisco Unity Bridge (for Octel node emulation).

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps2237/index.html>

## Cisco Unity Connection

Cisco Unity Connection provides messaging capabilities for mid-size offices and small enterprises. It includes an intuitive telephone interface, voice-enabled navigation of messages, and desktop access to messages directly from a PC. Cisco Unity Connection integrates with Cisco Unified CallManger, Cisco Unified CallManger Express, and various legacy PBX models (using the PIMG) to support a variety of deployment models and configurations.

Key features of Cisco Unity Connection include:

- Voice-enabled message navigation (such as play, delete, reply, forward)
- Voice-enabled dialing to other system users
- Desktop messaging with the Unity Inbox web client
- Desktop messaging with IMAP-based e-mail clients
- Personal call transfer rules, which allow call routing based on caller, time of day, Outlook calendar status, and other parameters
- Text-to-speech (TTS), which allows access to Exchange e-mails from a telephone
- Message notifications to pagers, SMS phones, and other devices
- Automated attendant capabilities

For additional information, go to:

<http://www.cisco.com/en/US/products/ps6509/index.html>

# Cisco Survivable Remote Site Voicemail

Cisco Survivable Remote Site Voicemail (SRSV) provides backup voicemail service in the centralized messaging and centralized call processing deployment. SRSV utilizes Cisco Unity Express in the branch location to provide backup voicemail service for Cisco Unity Connection located in the headquarters when the connection between sites is unavailable. (See Figure 23-2.) During normal operation, Cisco Unified Messaging Gateway in the headquarters retrieves the configurations (for example, SRST phones, user, and mailbox information) from Cisco Unified CM and Cisco Unity Connection to provision and update the mailboxes in Cisco Unity Express SRSV based on a configured schedule. Cisco Unity Express SRSV is active when only SRST is activated, and it remains idle otherwise. When the network connection between sites is restored, Cisco Unity Express SRSV uploads all messages (new, saved, deleted, and so forth) to Cisco Unity Connection.

SRSV uses bandwidth from the WAN link during the following activities:

- Configuration uploads from Unified CM and Cisco Unity Connection to Cisco Unity Express SRSV
- Voice message uploads from Cisco Unity Express SRSV to Cisco Unity Connection when the WAN link is restored.

Survivable Remote Site Telephony (SRST) and Cisco Unity Express SRSV are one logical unit, with Cisco Unity Express SRSV installed in the SRST router.

For additional information, go to:

<http://www.cisco.com/en/US/products/ps10769/index.html>

## Cisco Unity Express

Cisco Unity Express provides integrated, entry-level, voice mail and automated attendant services for small and medium offices or branches in Cisco Unified Communications Manager or Cisco Unified Communications Manager Express environments. In Cisco Unified Communications Manager environments, Cisco Unity Express provides local storage and processing of voice mail and automated attendant services, alleviating WAN bandwidth and QoS concerns for the branch office. Combining Cisco Unified Communications Manager Express with Cisco Unity Express provides a centralized voicemail solution for up to 10 Cisco Unified Communications Manager Express sites and a core set of phone features for everyday business needs while offering a variety of telephony feature sets that have been provided by traditional key systems and hybrid PBXs.

Cisco Unity Express voice messaging and auto-attendant includes the following key features:

- Networking across several sites—Voice Profile for Internet Mail version 2 (VPIMv2) provides support for voice mail messaging interoperability between Cisco Unity Express sites and between Cisco Unity Express and Cisco Unity, with Non-Delivery Record (NDR) for networked messages and blind addressing
- Distribution lists—Public and private distribution lists of local and remote users can be created for sending messages to more than one subscriber
- Broadcast messages—Privileged subscribers can send messages to all users on the network
- Password and PIN length flexibility—Network administrators can set minimum lengths and expiry times for passwords and personal identification numbers (PINs) for greater network security
- SNMP MIB support—Network administrators can remotely monitor the health and performance of the Cisco Unity Express system.

- Support for caller ID information in incoming messages—Permits playing of caller identification information as part of the message envelope for new incoming voice mail messages
- Addition of remote users to the local directory—The voice-mail administrator can add frequently called remote users to the local directory, which permits local users to address voice mail messages to remote users using dial-by-name and to receive spoken name verification of the remote user address
- Undelete voice messages—Voice-mail users can restore a voice-mail message that was deleted during the current voice message retrieval session.
- Audio prompts in a variety of languages.
- Support for Cisco Fax Server

For additional information, go to:

<http://www.cisco.com/en/US/products/sw/voicesw/ps5520/index.html>

## Cisco Unified SIP Proxy

The Cisco Unified SIP Proxy provides SIP proxy functionality on a Cisco NME-522 network module that can be plugged into a network module slot on the Cisco 3800 Series Integrated Services Routers (ISRs). This ISR does not need to be dedicated to hosting the network module and running the proxy alone, but can be used simultaneously for other network functions such as to run the Cisco Unified Border Element.

The Cisco Unified SIP Proxy brings the following benefits to a network using Unified communications Manager SIP trunks:

- Aggregation and routing—The Unified SIP Proxy is capable of connecting several SIP servers to each other without each of the servers connecting to every other one in a full-mesh configuration
- Scalability—The Unified SIP Proxy can be used to terminate calls to and from the enterprise and IP-PSTN service providers. The proxy, in turn, distributes the calls across a pool of Unified Border Elements. More Unified Border Elements may be added to increase capacity.
- Availability and load balancing—The Unified SIP Proxy distributes calls over the pool of available Unified Border Elements and monitors the status of each Unified Border Element to ensure reliable call completion.
- Message normalization—The Unified SIP Proxy serves to hide differences in SIP protocol messaging by providing the means to manipulate headers and contents of the messages as they pass through the Unified SIP Proxy.

For additional information, go to:

<http://www.cisco.com/en/US/products/ps10140/index.html>

## Cisco Unified Messaging Gateway

The Cisco Unified Messaging Gateway provides an open and secure method of intelligently routing messages and exchanging subscriber and directory information within a unified messaging network. It acts as the central hub in a network of Cisco unified messaging solutions and third-party gateways that interface with older voicemail systems. The Cisco Unified Messaging Gateway supports:

- Unified messaging network scale as required for branch office customers and larger distributed enterprises

- Centralize voicemail system management
- Transparently integrate Cisco Unified Communications solutions into existing voicemail installations
- Integrates small to large-scale unified messaging deployments that consist of 5 Cisco Unity Express systems and above and supports up to 10,000 mixed Cisco Unity Express, Cisco Unity, and Cisco Unity Connection systems.

For additional information, go to:

[http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps5745/ps8605/product\\_data\\_sheet0900aec806a8a3c.html](http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps5745/ps8605/product_data_sheet0900aec806a8a3c.html)

## Cisco VG200 Series Gateways

The Cisco Unified Communications System supports the following VG200 Series Gateways:

- Cisco VG224 Analog Voice Gateway
- Cisco VG204 Analog Voice Gateway
- Cisco VG202 Analog Voice Gateway

The Cisco VG224 Analog Phone Gateway combines a high-density RJ21 analog interface with Cisco IOS Software manageability to provide a cost-effective platform for maximum functionality of existing analog phone equipment. It offers the following key benefits:

- High-density 24-port gateway for analog phones, fax machines, modems, and speakerphones
- DSP technology for fax and modem support
- Enhances an enterprise voice system architecture that is based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express

The Cisco VG204 Analog Voice Gateway combines granular RJ11 analog interfaces with Cisco IOS Software manageability to deliver a platform designed to maximize the functionality of existing distributed analog equipment in a Cisco Unified Communications system deployment. It offers the following key benefits:

- Low-density four-port gateway for analog phones, fax machines, modems, and speakerphones
- Enhances an enterprise voice system architecture that is based on a Cisco Integrated Services Router, Cisco modular access router or a Cisco VG224 in a Cisco Unified Communications Manager or Cisco Unified Communications Manager Express deployment
- Compact, fanless, desktop form-factor chassis that is wall-mountable

The Cisco VG202 Analog Voice Gateway combines granular RJ11 analog interfaces with Cisco IOS Software manageability to deliver a platform designed to maximize the functionality of existing distributed analog equipment in a Cisco Unified Communications system deployment. It offers the following key benefits:

- Low-density two-port gateway for analog phones, fax machines, modems, and speakerphones
- Enhances an enterprise voice system architecture that is based on a Cisco Integrated Services Router, Cisco modular access router, or a Cisco VG224 in a Cisco Unified Communications Manager or Cisco Unified Communications Manager Express deployment.
- Compact, fanless, desktop form-factor chassis that is wall-mountable

For additional information, go to:

<http://www.cisco.com/en/US/products/hw/gatecont/ps2250/index.html>

# Internet Protocol Version 6 (IPv6)

Cisco has taken a leading role in the definition and implementation of the IPv6 architecture within the Internet Engineering Task Force (IETF) and continues to lead the industry in IPv6 development and standardization.

The deployment of IPv6 is primarily driven by IPv4 address space exhaustion. As the worldwide usage of IP networks increases, the number of applications, devices, and services requiring IP addresses is rapidly increasing. Current estimates by the Internet Assigned Numbers Authority (IANA) and Regional Internet Registries (such as ARIN, LACNIC, and APNIC) indicate that their pools of un-allocated IPv4 addresses will be exhausted sometime between Q4 2011 and Q1 2012.

Because the current IPv4 address space is unable to satisfy the potential huge increase in the number of users and the geographical needs of the Internet expansion, many companies are either migrating to or planning their migration to IPv6, which offers a virtually unlimited supply of IP addresses.

The process of transforming the Internet from IPv4 to IPv6 is likely to take several years. During this period, IPv4 will co-exist with and then gradually be replaced by IPv6.

It is recommended that you deploy IPv6 in a dual-stack Cisco Unified Communications Manager (Unified CM) cluster with approved dual-stack devices (phones, gateways, and so forth). This approach is recommended to avoid IPv6-only deployments, which are not currently supported in production environments. Single-site and multiple-site distributed call processing deployments are supported, but multiple-site deployments with centralized call processing are not supported.

An IPv6 address consists of 8 sets of 16-bit hexadecimal values separated by colons (:), totaling 128 bits in length. For example:

```
2001:0db8:1234:5678:9abc:def0:1234:5678
```

Leading zeros can be omitted, and consecutive zeros in contiguous blocks can be represented by a double colon (::). Double colons can appear only once in the address. For example:

```
2001:0db8:0000:130F:0000:0000:087C:140B can be abbreviated as
```

```
2001:0db8:0:130F::87C:140B
```

As with the IPv4 Classless Inter-Domain Routing (CIDR) network prefix representation (such as 10.1.1.0/24), an IPv6 address network prefix is represented the same way:

```
2001:db8:12::/64
```

The following Cisco Unified Communications products support IPv6:

- Cisco Unified Communications Manager—All Cisco Media Convergence Server (MCS) platforms
- Cisco IP Phones
  - Third generation Cisco IP Phones running SCCP only—Cisco 7906G, Cisco 7911G, Cisco 7931G, Cisco 7941G, Cisco 7941GE Cisco 7942G, Cisco 7945G, Cisco 7961G, Cisco 7961GE, Cisco 7962G Cisco 7965G, Cisco 7970G, Cisco 7971G-GE, Cisco 7975G
- Gateways
  - SIP gateways (Cisco ISR 2800 and 3800 Series; Cisco AS5400)
  - Cisco VG224 SCCP Analogue Gateway
  - SCCP FXS ports on Cisco ISR 2800 and 3800 Series Routers
  - Cisco IOS MTPs for IPv4-to-IPv6 RTP media conversion
- Cisco Unified CM SIP Trunks
- Applications

- Cisco Unified CM CTI (IPv6 aware)
- Cisco Unified CM AXL/SOAP interface (IPv6 aware)
- Cisco Unified CM SNMP (IPv6 aware)

For more information on the implementation and deployment of IPv6 architecture see the Cisco Unified Communications SRND, available at:

<http://www.cisco.com/go/designzone>

## Security Component-Adaptive Security Appliances

Cisco ASA 5500 Series Adaptive Security Appliances provide intelligent threat defense and highly secure communications services. These solutions help organizations lower their deployment and operational costs while delivering comprehensive network security for networks of all sizes.

Cisco Adaptive Security Appliances integrate:

- Stop attacks before they penetrate the network perimeter
- Protect resources and data, as well as voice, video, and multimedia traffic
- Control network and application activity
- Reduce deployment and operational costs
- Adaptable architecture for rapid and customized security services deployment
- Advanced intrusion prevention services that defend against a broad range of threats
- Highly secure remote access and unified communications to enhance mobility, collaboration, and productivity

For more information about these components, go to:

<http://www.cisco.com/en/US/products/ps6120/index.html>

## Management and Serviceability Components

The Cisco Unified Communications Solution includes the following complementary products, solutions, and services to help centrally manage an entire deployment:

- Resource Management Essentials—Allows network administrators to view and update the status and configuration of all Cisco devices, including switches, access servers, and routers, from anywhere on the network through a standard web client. RME can rapidly and reliably deploy Cisco software images and view configurations of Cisco routers and switches.
- Cisco Unified Operations Manager—Used for comprehensive monitoring with proactive and reactive diagnostics for the Cisco Unified Communications system. It provides:
  - Built-in rules, which provide contextual diagnostics and enable troubleshooting of service-impacting outages.
  - A real-time, service-level view of the Cisco Unified Communications system, including the current operational status of each element.
  - Capabilities for application-level testing of telephony functions, which can be used proactively and reactively to identify problems and ensure that applications are functioning properly, for dial-plan validation, as well as for monitoring video-enabled endpoints.

- Cisco Unified Service Monitor—Used to monitor and evaluate the quality of voice in Cisco Unified Communications solutions. It provides:
  - Continuous monitoring of active calls supported by the Cisco Unified Communications system with near-real-time notification when the voice quality of a call fails to meet a user-defined mean opinion score (MOS).
  - Reports that characterize the user experience as measured by the system and details on the endpoints that are most frequently related to voice-quality alerts.
- Cisco Unified Provisioning Manager—Used for the provisioning and activation of Cisco Unified Communications products. It allows administrators to manage initial deployments and implementations, and then permits delegation of the ongoing operational provisioning and activation tasks that are required for changes to services for individual subscribers. It provides:
  - A single, consolidated view of subscribers across the organization.
  - A set of business-level, policy-driven management abstractions for managing subscriber services across the Cisco Unified Communications infrastructure.
- Cisco Unified Service Statistics Manager—Provides statistics management, analysis, and reporting capabilities for a Unified Communications deployment. It leverages the data collection capabilities of Unified Operations Manager and Service Monitor to gather Cisco Unified Communications statistics information from a variety of Cisco devices and systems (including Unified Communications Manager, Unity, Unity Connection, Unified Communications Manager Express, Unity Express, Unified Contact Center, and Unified Contact Center Express). It stores the statistics in a database and provides statistical analysis and reporting.
- CiscoWorks LAN Management Solution (LMS)—Provides a suite of management tools that simplify configuring, administrating, monitoring, and troubleshooting Cisco networks. These tools provide an integrated system for sharing device information across applications, and offer capabilities that include:
  - Network discovery, topology views, end-station tracking, and VLAN management
  - Hardware and software inventory management, centralized configuration tools, and syslog monitoring
  - Network response time and availability monitoring and tracking
  - Real-time device, link, and port traffic management, analysis, and reporting
  - Presentation of current operational status of an IP Communications deployment and service-level views of the network
  - Contextual diagnostic tools to assist with troubleshooting
  - Presentation of service-quality alerts by using the information available through Cisco Unified Service Monitor (when deployed)
  - Presentation of current information about connectivity- and registration-related outages that are affecting IP phones in the network, and information that identifies the IP phones
  - Tracking of IP Communications devices and the IP phone inventory, tracking of IP phone status changes (providing reports that document move, add, and change operations on IP phones in the network)
  - Real-time notifications using SNMP traps, syslog notifications, and e-mail
  - Real-time voice quality monitoring and real-time voice quality alerts
  - Network discovery, topology views, end-station tracking, and VLAN management



- Cisco Unified Communication Essential Operate service—Provides hardware and software maintenance and support for Cisco voice applications. Support activities include:
  - Incident troubleshooting
  - Incident remediation
  - Network infrastructure device replacement
  - Access to applications software updates
  - Assistance using leading practices
- Cisco Unified Communications Remote Management Service—Provides a remote management service that offers comprehensive monitoring, issue resolution, and day-to-day management of voice applications and converged networks. Support and management activities include:
  - IPC system monitoring
  - Incident diagnosing
  - Defining remediation actions required to resolve incident
  - Incident resolution, which can include managing break/fix service request, applying software updates and patches, or managing hardware replacements
  - Day-to-day operational changes in a network, including logical move, adds, changes, and deletions
  - Daily backup configurations for Cisco OS, Cisco Catalyst OS, and servers
  - Reporting
  - Maintenance management of third-party equipment

For more information about these components, go to:

<http://www.cisco.com/en/US/products/sw/netmgtsw/index.html>