



CHAPTER 2

Prepare

Introduction to Prepare

In the Prepare phase, you evaluate Cisco technologies that address your business needs. Gather information about your business and technical environment that will feed into the high-level design. Create a business case for the contact center solution that provides the best return on your investment.



Tip

You can navigate to any topic on this tab by using the tab navigation pane at the left of the content pane. This navigation pane contains the table of contents (TOC) for the active tab.

Before You Begin

Understand the features and functions of contact center applications. Start with the [Contact Center Overview](#) and the [System Release Notes for Contact Center: Cisco Unified Communications System, Release 7.0\(1\)](#). Then review the business requirements, deployment models, and sites to understand the options that are available for your specific environment.

When You Are Done

You have defined and created the following:

- Your business and system requirements
- A list of components and applications that match the requirements
- A project plan based on those requirements including a proposed, high-level design

Major Concepts and Tasks in This Process

- [Cisco Unified Communications Features and Benefits Overview](#)
- [Contact Center Overview](#)

Cisco Unified Communications Features and Benefits Overview

The Cisco Unified Communications 7.0(1) system securely integrates voice, video, and other collaborative data applications into intelligent network communications solutions. This system, which includes IP telephony, unified communications, rich-media conferencing, IP video broadcasting, and customer contact solutions, takes full advantage of the power, resiliency, and flexibility of an IP network. The elements of this system were designed, developed, documented, and tested as part of a comprehensive, end-to-end Unified Communications System.

The Cisco Unified Communications system reduces the cost and complexity associated with managing multiple and remote sites, meets stringent quality of service (QoS) requirements, and provides optimal availability and security when deployed as part of a converged network. In addition, the solution interoperates with existing time-division multiplexing (TDM)-based systems and enterprise business applications, allowing organizations to migrate to full-featured IP Communications while maintaining existing technology investments.

This topic provides an overview of the key features and benefits of Cisco Unified Communications. It includes these sections:

- [System Definition](#)
- [System Release Strategy](#)
- [Service Offerings](#)
- [Career Certifications](#)
- [Solution Bundling](#)
- [Intelligent Information Network](#)
- [Business Productivity Applications](#)
- [Customer Interaction Network](#)
- [IP Communications](#)
- [Security](#)
- [Network Management](#)
- [Deployment and Migration](#)

System Definition

The Cisco Unified Communications system is designed for a single, secure, converged network. Part of an integrated, comprehensive Cisco architecture, the communications applications reside “in” the network, not “on” the network, and can easily incorporate emerging business processes, applications, and new devices. Applications can be deployed in a single instance, rather than in multiple instances, and managed services offerings further increase deployment flexibility. Standards-based Cisco Unified Communications products let organizations migrate based on business needs, not technical limitations, to keep pace with new technology.

The Cisco Unified Communications system offers the following solutions:

- Enterprise solution for large businesses, which supports 30,000 users with Cisco Unified Communications Manager as the call processing component.
- Mid-market solution, which supports up to 500 users with Cisco Unified Communications Manager Business Edition as the call processing component.
- Small and Medium (SMB) solution with:
 - Cisco Unified Communications Express suitable for businesses with 50 to 250 users
 - Unified Communications 500 Series which is an integral component of Smart Business Communication System (SBCS) suitable for businesses with less than 50 users.

The Cisco Unified Communications System also includes a suite of network management applications that allow you to monitor, manage, and troubleshoot your system. It also includes tools that allow you to analyze the readiness of your infrastructure to support the Unified Communications system.

System Release Strategy

The Cisco Unified Communications system includes the following types of releases:

- Major release—Marks the beginning of a major new release version. This release type typically is based on a major release of at least one of these components: Cisco Unified Communications Manager, Cisco Unity, Cisco Unified MeetingPlace, or Cisco Customer Response Solutions.
- Minor release—Adds features and fixes to an existing major release. This release type can consist of revisions to existing components and new versions of components.
- Maintenance release—Contains bug fixes for one or more of the components. This release type is based on an existing major or minor release.

Service Offerings

Using the Cisco Lifecycle Services approach, Cisco Systems and its partners offer a broad portfolio of end-to-end services. These services are based on proven methodologies for deploying, operating, and optimizing Unified Communications solutions. Planning and design services, for example, can help you meet aggressive deployment schedules and minimize network disruption during implementation. Operate services reduce the risk of communications downtime with expert technical support. Optimize services enhance solution performance for operational excellence. Cisco and its partners offer a system-level service and support approach that can help you create and maintain a resilient, converged network that meets your business needs.

Service offerings include:

- Cisco Unified Communications Software Subscription, which allows you to purchase major software version upgrades of various Cisco Unified Communications products at a reduced cost through a one-, two-, or three-year subscription.
- Cisco Unified Communications Essential Operate Service, which provides 24-hour, 365-day-a-year access to Cisco Systems engineers and certified partners who are highly trained and have a deep understanding of Cisco Unified Communications products and technologies.
- Cisco Unified Communications Select Operate Service, which provides a proactive support solution that combines 24-hour, 365-day-a-year access to technical support representatives plus a simple-to-install monitoring solution designed for Cisco Unified Communications.
- Cisco Unified Communications Cisco SMB Network Operate & Optimize Service, is a partner-led service offering (designed specifically for the medium-sized businesses) that enables the delivery of affordable, ongoing, high-availability network support.

Career Certifications

The Cisco Certified Voice Professional (CCVP) certification and related certifications are designed for IT professionals who are responsible for integrating voice technology into underlying network architectures. Individuals who earn a CCVP certification can help create a telephony solution that is transparent, scalable, and manageable. Earning a CCVP certification validates a robust set of skills in implementing, operating, configuring, and troubleshooting a converged IP network. The certification content focuses on many components of the Cisco Unified Communications system, including Cisco Unified Communications Manager, quality of service (QoS), gateways, gatekeepers, IP phones, voice applications, and utilities on Cisco routers and Cisco Catalyst switches.

Solution Bundling

In addition to providing traditional solution ordering, where you choose the individual components and quantities that you require, the Cisco Unified Communications system provides flexible bundling options. A bundled solution simplifies the way in which you order applications and services and makes it easy to add options.

This release of the Cisco Unified Communications system introduces two new bundling options for SMB businesses. These options include the Cisco Unified Communications Express designed specifically to address the call processing and messaging needs of medium-sized businesses with up to 250 users, and Smart Business Communication System (SBCS) suitable for businesses with less than 50 users.

Intelligent Information Network

The Cisco Intelligent Information Network facilitates the evolution of networking to systems. It allows the network to be used as a strategic asset and provides capabilities that include:

- **Cisco Discovery Protocol (CDP)**—A simple broadcast protocol that devices use to advertise their presence, it operates in the background and facilitates communication between a Cisco Unified IP Phone plugged into a network and the network switch.
- **QoS**—Cisco provides an end-to-end solution to ensure quality of service. QoS starts at the phone and LAN distribution layer, where packets are classified and marked as high priority traffic. Traffic markings originating from Cisco Unified IP Phones are automatically trusted by the Cisco switch infrastructure, which typically remarks traffic from nontrusted end user workstations. Configuration is made easier through Cisco AutoQoS, which automatically handles a range of tasks traditionally done manually, including classifying applications, generating policies, configuring the proper QoS configurations, monitoring and reporting to test QoS effectiveness, and enforcing service-level consistency.

As traffic flows through the access layer, priority queuing and buffer management ensure that real-time traffic is prioritized over less time-critical data. Where bandwidth is most restricted, across the WAN, the Cisco solution provides RSVP for reserving the bandwidth needed for voice. Fragmentation and interleaving of large blocks of data ensure a steady stream of voice traffic, and voice packet header compression minimizes bandwidth consumed.

- **VLAN**—When a Cisco Unified IP Phone boots up on the IP network, it advertises its presence using CDP, and it requests an IP address lease from a DHCP server. The Cisco LAN switch learns of the new phones via CDP and automatically reconfigures to add that port to the VLAN used for voice. With this feature, the LAN infrastructure can distinguish a phone from a PC and does not require manual configuration every time a phone is added, moved, or removed.
- **Wireless**—Cisco wireless access points allow Cisco wireless phone users to roam a campus without losing voice connectivity. If a user roams to a different site, the system will discover the new physical location for emergency 911 information purposes.
- **Power over Ethernet (POE)**—Eliminates the need for local power connections for every phone. Cisco switches can be configured with redundant power supplies connected to uninterruptible power supplies in a data center to ensure that the power to the phone is preserved, even when local power for other equipment at the desk is lost. Most Cisco Unified IP Phone models support the industry-standard 802.3af power and the Cisco pre-standard inline power.
- **Gigabit Ethernet (GigE)**—Allows certain Cisco Unified IP Phone models to take advantage of the emerging Gigabit Ethernet LAN infrastructure.

Business Productivity Applications

The Cisco Unified Communications system provides a wide array of applications that enhance business and organizational productivity and efficiency. These applications offer capabilities that include:

- **Rich-media conferencing**—Cisco Unified MeetingPlace provides intuitive interfaces for setting up, attending, and managing meetings. Extensive voice, video using Cisco Unified Videoconferencing, and web conferencing capabilities enable a range of meeting applications, including highly-collaborative meetings, training sessions, and presentations.
- **Messaging**—Cisco Unity provides users with access to voice, e-mail, and fax messages from a Cisco Unified IP Phone or from a PC. These solutions combine unified messaging with personal productivity tools to help manage communications quickly and conveniently. For midsize organizations, Cisco Unity Connection provides voice messaging, speech recognition, call routing rules, and desktop PC message access in a system that is easy to manage and deploy. For small organizations, Cisco Unity Express offers a voice messaging solution that integrates with your router.
- **Common interface**—Cisco Unified Personal Communicator is a presence-based desktop application that provides a focal point for phone services, directory services, messaging, and conferencing.
- **Cisco Unified Presence**—The focal point of all status processing, including attributes and capabilities. It links the various knowledge within each application to provide a ubiquitous and broad view of a defined user within the Cisco Unified Communications system.

Customer Interaction Network

The Cisco Customer Interaction Network component provides a single, integrated platform for all contact center locations. It is a distributed, IP-based customer-service infrastructure that easily integrates with legacy contact center platforms and networks, providing multi-channel services and integration with customer relationship management applications.

- **Intelligent contact routing and multi-channel automatic call distribution (ACD)**—Enables interaction with customers via phone (inbound or outbound), video, web, e-mail or chat. The application provides call handling tailored to different classes of customers and to individual customers, providing flexible contact center operational profiles based on varying business needs.
- **Voice, Video, and web self-service**—Extracts and parses web content and presents this data to customers through a telephony interface, allowing simple transactional requests to be handled by the interactive voice response (IVR) system instead of by agents. This application provides self-service automation with automatic speech recognition (ASR) and TTS. It also performs *prompt-and-collect* functions to obtain user data such as passwords or account identification that it can then pass to contact center agents, and it delivers proactive notification users through e-mail, fax, pager, and short message service (SMS).
- **Agent and supervisor options**—Provide full support for agent or supervisor interaction using chat capabilities. Instant messaging offers the capability to communicate with any or all the agents on a supervisor's team. Other options include:
 - Agent status monitoring (agent types such as mobile agents, remote agents, and expert adviser)
 - Silent monitoring
 - Barge-in
 - Intercept
 - Real-time and historical reporting

- ACD

IP Communications

IP communications provides powerful and efficient voice, data, and video communications, and related capabilities. Key features include:

- Video telephony—Allows video calls to be placed and received over an IP telephony network using the familiar phone interface. Video endpoints support common call features such as forward, transfer, conference, and hold. Use of a single infrastructure also enables a unified dial plan and user directory for voice and video calls. This release of the Cisco Unified Communications system also includes Cisco Unified Conferencing for TelePresence, which is a new technology that combines rich audio, high-definition video, and interactive elements to deliver a unique in-person experience.
- Mobility—Provides for several forms of user mobility, including:
 - Extension Mobility—Allows users to access any phone within a single Cisco Unified Communications cluster as their own, by simply logging in to the phone. After log in, the phone assumes all of the user profile information, including line numbers, speed dials and service links.
 - Site/campus mobility—Allows users to access the Cisco Unified Communications network through the wireless Cisco Unified Wireless IP Phones 7920G and 7921G. In addition, this release includes enhanced mobile IP phone applications that allow users to:
 - Dynamically manage how and when mobile calls take place
 - Intelligently screen calls based on urgency, subject matter, and caller identity
 - Identify which users are available to talk and which users choose not to be disturbed
 - Increase accessibility of corporate calendar and contact information from mobile phones.
- Emergency caller response/safety and security—Enables emergency calls in an IP network to be directed to the appropriate Public Safety Answering Point (PSAP). In this way, emergency agencies can identify the location of 911 callers without a system administrator needing to keep location information current.

Security

The Cisco Unified Communications system takes a layered approach to protecting against various attacks, including denial of service (DOS), privacy, and toll fraud. Security features include:

- Encryption of signaling and media—Ensures that the signaling and the actual phone conversations are protected against unintended interception by third parties.
- Catalyst Integrated Security Features (CISF)—Includes private VLANs, port security, DHCP snooping, IPSource Guard, secure Address Resolution Protocol (ARP) detection, and dynamic ARP inspection. These features protect the network against attacks such as man-in-the-middle attacks and other spoofing.
- Integration with firewalls—Ensures that system platforms are accessible only by authorized devices. The firewall acts as a guardian between all IP devices and the Cisco Unified Communications system platforms, ensuring that only specific transactions are allowed.
- Secure platforms—Provides features, such as host-based intrusion detection, optional security scripts, and anti-virus software, that ensure that the platform is hardened against intruders and malicious code.

- Enhanced phone security features—Provides configurable levels of security. Options include configuring the phone to ignore Gratuitous Address Resolution Protocol (GARP) requests, disabling the PC port on the phone, disabling access to network configuration settings on a phone, and configuring a phone to accept only digitally signed firmware images.

Network Management

The Cisco Unified Communications system uses the following network management products to monitor the various devices deployed in the Unified Communications system:

- Cisco Unified Operations Manager
- Cisco netManager
- Cisco Unified Provisioning Manager
- Cisco Unified Service Statistics Manager
- Cisco Monitor Manager and Cisco Monitor Director
- Cisco Unified Service Monitor

Deployment and Migration

The Cisco Unified Communications system is designed to be deployed efficiently and effectively. The solution offers:

- Flexible deployment models—Cisco Unified Communications supports LAN and WAN connectivity and can be configured for single-site or multi-site networks. Headquarters, contact centers, branch offices, and telecommuter configurations can be interconnected without geographic constraints. Call processing and administration can be centralized or distributed.
- Integration with existing equipment and networks—Cisco Unified Communications provides gateway support to enable integration and interoperability with existing call processing equipment, phones, and TDM networks. This capability ensures compatibility with and migration from legacy systems, and supports:
 - Integration with PBXs through QSIG, Digital Private Network Signaling System (DPNSS), and PRI links
 - Integration with ACD platforms via CTI interface
 - Integration with legacy phones through gateways
 - Integration with TDM networks through gateways via T1, E1, and PRI links
- Open IP connectivity through SIP—Cisco Unified Communications provides enhanced support for SIP trunking and to a variety of SIP endpoints. An integrated Cisco Unified Presence provides user information and status and enables interconnection to popular messaging networks.
- High availability—Cisco Unified Communications networks can be built to meet high availability requirements as business needs dictate. Networks can be designed to ensure no single point of failure in either network topology or applications. Cisco Unified Survivable Remote Site Telephony (Unified SRST) allows remote branch offices to remain in service even when the WAN access link is lost.

Contact Center Overview

The Cisco Unified Communications System for Contact Center is a complete contact center system that includes a rich suite of customer-relationship management (CRM) applications. The contact center functionality delivers intelligent call routing, network-to-desktop computer telephony integration (CTI), and multimedia contact management to contact center agents over an IP infrastructure.

The contact center system consists of the following primary Cisco software components:

- IP communications infrastructure: Cisco Unified Communications Manager (Unified Communications Manager)
- Contact center routing and agent management: Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) software
- Queuing and self-service: Cisco Unified IP Integrated Voice Response (Unified IP IVR) or Cisco Unified Customer Voice Portal (Unified CVP)
- Agent desktop software: Cisco Agent Desktop (CAD) or Computer Telephony Integration Object Server (CTI OS)
- Product options: Cisco Unified Expert Advisor

The following Cisco hardware and software products are required for a complete contact center deployment:

- Cisco Unified IP Phones
- Cisco gateways and gatekeepers
- Cisco LAN/WAN infrastructure and components
- Cisco security components
- Network management tools
- Video components and endpoints

By integrating automatic call distribution (ACD), IVR, and CTI functionality, the contact center enables companies to rapidly deploy a distributed contact center enterprise network.

The contact center software profiles each customer by using contact-related data such as dialed number and caller-entered digits (CEDs). The system also monitors the resources at the contact center to meet customer needs, including agent skills and availability, queue lengths, and expected delays. The combination of customer and contact center data is processed through routing scripts that graphically reflect a company's business rules, thus enabling the contact center software to route each contact to the optimum resource anywhere in the enterprise.

For more information on contact center features, go to [System Features in This Release](#).

Contact Center Deployment Models

A Cisco Unified Communications contact center system supports the deployment models in [Table 2-1](#).

Table 2-1 Contact Center Deployment Models

Deployment Model	Description
Single-Site Model	This model is designed for autonomous offices in which most or all employees are IPC users. This model can support up to 30,000 users.
Multisite Centralized Call Processing Model	This model is designed for distributed operations with a large central or headquarters site and multiple remote or branch sites. This model can support up to a total of 30,000 phones distributed among up to a maximum of 1000 sites. Based upon the bandwidth available, each site can support any number of users up to the overall total of 30,000 phones.
Multisite Distributed Call Processing Model	This model is designed for organizations with large user populations or large numbers of geographically distributed sites resulting in the need for more than a single call processing entity. This model is suited for deployments that require multiple Cisco Unified Communications Manager clusters or Cisco Unified Communications Manager Express platforms. Each call processing entity in this model is configured as a Single-Site Model or Multisite Centralized Call Processing Model and each has a common dial plan and feature set.
Clustering Over IP WAN Call Processing Model	This model is designed for organizations with large user populations across multiple sites that are connected by an IP WAN with the QoS features enabled. It supports the Local Failover Deployment Model and the Remote Failover Deployment Model.

See also [Deployment Methodology](#) in the Cisco Unified Communications System Description.

System Features in This Release

The Cisco contact center system is a portion of the end-to-end system release for enterprise Cisco Unified Communications, which integrates telephony, conferencing, messaging, and contact center products for enterprise IP customers in a variety of deployment models using SIP and SCCP endpoints over IP networks. Cisco Unified Communications is centered on the latest Unified Communications Manager release.

For detailed contact center feature information, see the [System Release Notes for Contact Center: Cisco Unified Communications System, Release 7.0\(1\)](#).

Base Components and Applications

The contact center includes these software components:

- Cisco Unified Communications Manager—Provides scalable, distributable, and highly available enterprise IP telephony call-processing capabilities.

- Cisco Unified Intelligent Contact Management Enterprise (Unified ICME)—Provides ACD functionality that includes monitoring and control of agent state, routing and queuing contacts, CTI capabilities, real-time data, and historical reporting.
- Cisco Unified Contact Center Enterprise (Unified CCE) and Cisco Unified System Contact Center Enterprise (Unified SCCE)—Creates an IP-based contact management solution that provides intelligent call routing, network-to-desktop CTI, and multimedia contact management.
- Cisco Agent Desktop (CAD)—Provides productivity tools for agents and supervisors. Allows supervisors to view agent states and call information and to send text messages to agents, record conversations, and provide advanced monitoring functions.
- Computer Telephony Integration Object Server (CTI OS)—Combines a powerful, feature-rich server and an object-oriented software development toolkit to enable rapid development and deployment of complex CTI applications.
- Cisco Unified Expert Advisor—Extends the call center by allowing an expert to handle certain incoming calls.

The contact center offers two products that provide self-service call treatment capability:

- Cisco Unified IP IVR—Automates access to account information or user-directed call routing by processing user commands through touch-tone input or speech-recognition technologies. Unified IP IVR helps customers who are calling the contact center use voice commands to retrieve the information that they require without ever speaking with an agent, or to quickly navigate to a customer service agent who can help them the first time.

For a comprehensive view of the different components that are deployed in the Unified IP IVR test bed, see [Snapshot of Unified IP IVR Sites Components](#).

- Cisco Unified Customer Voice Portal (Unified CVP)—Integrates time-division multiplexing (TDM) with IP-based contact centers to provide audio and video call management and call treatment functions. Unified CVP includes a self-service IVR option that can use information that is available to customers on the corporate web server. With support for automated speech recognition (ASR) and text-to-speech (TTS) and video self-service capabilities, callers can obtain personalized answers to complex questions and conduct business without the cost of interacting with a live agent.

For a comprehensive view of the different components that are deployed in the Unified CVP test bed, see [Snapshot of Unified CVP Sites Components](#).

**Note**

In the Parent and Child test bed, Unified CVP provides call treatment and queuing for Unified CVP post-routed calls. Unified IP IVR provides call treatment and queuing for Unified Communications Manager post-routed calls that are received directly by a child system.

For a comprehensive view of the different components that are deployed in the Parent and Child test bed, see [Snapshot of Parent and Child Sites Components](#).

Additional Product Information

- [Cisco Unified Customer Contact Solutions](#)
- [Cisco Unified Contact Center Enterprise](#)

Additional Sites and Services

Steps to Success is a Cisco methodology that outlines the tasks required to complete a successful customer engagement. Registered users can visit the [Steps to Success](#) resource site for Cisco Unified Communications process flows.

Cisco Unified Communications Services is a Cisco service offering that provides engineering expertise and best practices.

- Registered users can visit the [Cisco Unified Communications Services](#) partner site.
- Nonregistered users can visit the [Cisco Unified Communications Services](#) site.

