



Prepare and Plan

Introduction to Prepare and Plan

In the Prepare and Plan 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.

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](#) section. 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

- [Planning Concepts](#)
- [Planning Tasks](#)

Planning Concepts

Read these conceptual, overview topics for the background knowledge that you need to build an intelligent plan.

- [Cisco Unified Communications System Description](#)

This document contains a high-level overview of the Cisco Unified Communications family of products.

- [Contact Center Overview](#)

Links to other key topics:

- [Determine Your Business Requirements](#)
- [Understand Your Deployment Options](#)
- [Understanding Call Flows](#)

Cisco Unified Communications System Description

The Cisco Unified Communications System Description document is a high-level overview of the Cisco Unified Communications system approach, in which individual Cisco hardware and software components are integrated for seamless interoperability. Download the complete PDF version of the [Cisco Unified Communications System Description](#) (right-click to download PDF), or view these topics:

- [Contact Center Overview](#)
- [Deployment Models](#)
- [Component Protocols and APIs](#)
- [Cisco Unified Communications Component Overviews](#)
- [Deployment Methodology](#)

Cisco Unified Communications Features and Benefits Overview

The Cisco Unified Communications 5.1 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 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](#)

- [Deployment and Migration](#)
- [Serviceability](#)

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.

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 CallManager, Cisco Unity, Cisco Unified MeetingPlace, 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.

For example, in Cisco Unified Communications release 5.1(1), “5” indicates the major release, the first “1” indicates the minor release, and the second “1” indicates the maintenance 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.

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 CallManager, 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.

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 Unified 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 Server**—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), 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 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
 - 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.
- Mobility—Provides for several forms of user mobility, including:
 - Extension Mobility—Allows users to access any phone in the Cisco Unified Communications network as their simply logging in to the phone. After login, 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 Phone 7920G.
- 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.

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 (line side) and to a variety of SIP endpoints. An integrated Cisco Unified Presence Server 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.

Serviceability

The Cisco Unified Communications Solution includes a set of complementary products, solutions, and services to help centrally manage an entire deployment. Capabilities include:

- Resource Management Essentials (RME)—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 Campus Manager—Provides graphical views of network topology and manages VLANs.
- Cisco Unified Operations Manager—Provides a unified view of the entire IP communications infrastructure and presents the current operational status of each element of the IP communications network. It continuously monitors the status of various IP communications elements, and provides diagnostic capabilities for troubleshooting and resolution.
- Cisco Unified Service Monitor—Provides a method for monitoring and evaluating the quality of IP communications-based telephony. It continuously monitors active calls and provides real-time notification if the voice quality of a call does not meet a predefined quality value.

- CiscoWorks LAN Management Solution (LMS)—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
- Cisco Unified Communication Essential Operate Service—Cisco 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 Select Operate Service—Proactive support for Cisco voice technologies that combines Cisco technical support with voice application monitoring and reporting. Support activities include:
 - Incident troubleshooting
 - Incident remediation
 - Provisioning monitoring solution
 - Monitoring and notification
 - Network infrastructure device replacement
 - Access to applications software updates
 - Assistance using leading practices
- Cisco Unified Communications Remote Management Service—Remote management service that provides comprehensive monitoring, issue resolution, and day-to-day management of voice applications and converged networks. Support and management activities include:
 - 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

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 four primary Cisco software components:

- IP communications infrastructure: Cisco Unified CallManager (Unified CallManager)
- Contact center routing and agent management: Cisco Unified Intelligent Contact Management (Unified ICM) software
- Queuing and self-service: Customer Response Solutions (Unified IP IVR) or Cisco Unified Customer Voice Portal (Unified CVP)
- Agent desktop software: Cisco Agent Desktop (CAD) or Customer Telephony Integration Object Server (CTI Object Server)

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

- Cisco IP Phones
- Cisco voice gateways
- Cisco LAN/WAN infrastructure

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.

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 Cisco Unified CallManager (Unified CallManager) release.

For detailed contact center feature information, see the [System Release Notes for Contact Center: Cisco Unified Communications System, Release 5.1\(1\)](#).

Base Components and Applications

The contact center includes these software components:

- Cisco Unified CallManager—Provides scalable, distributable, and highly available enterprise IP telephony call-processing capabilities.
- Cisco Unified Intelligent Contact Management (Unified ICM)—Provides ACD functionality that includes monitoring and control of agent state, routing and queuing contacts, CTI capabilities, real-time data, and historical reporting.
- 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.

The contact center offers two options for self-service call treatment capability:

- Customer Response Solutions (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 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) 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](#).

Additional Product Information

- [Cisco Unified Contact Center Enterprise Data Sheet](#)
- [Cisco Unified Contact Center Product Overview](#)

Contact Center Topology

The contact center test environment includes the following two test beds:

- [Test Bed 1: Unified IP IVR Test Sites](#)
- [Test Bed 2: Unified CVP Test Sites](#)

Planning Tasks

The following overview shows the high-level tasks of the planning process:

- [Determine Your Business Requirements](#)
- [Use Planning Tools and Templates](#)
- [Understand Your Deployment Options](#)
- [Identify System Components](#)
- [Review Release Matrix](#)
- [Collect and Analyze Data](#)
- [Create High-Level Design](#)

Determine Your Business Requirements

Consider the following factors in your call center:

- Call center operations
 - Number of sites
 - Agents and types of services
 - Types of calls, call treatment, and call handling
 - Busy hour calls attempts (BHCA) rate
- Call flows
- Installation and upgrade requirements
 - Installation and configuration information
 - Upgrade information: Planning an upgrade

Call Center Operations

Review the business case studies in [Test Case Studies](#) for information on customer business requirements such as number of sites, agent profiles, types of calls, call handling and call treatment options, and sample call flows.

Call Flows

See the [Understanding Call Flows](#) topic.

Planning a New System Installation

For a list of installation and configuration documents for the software and hardware components that are part of the Cisco Unified Communications family of contact center products, see the [Component Installation and Configuration Guides](#) topic on the Implement tab.

Planning an Upgrade

See the [Planning Your System Upgrade](#) topic.

Use Planning Tools and Templates

Solution Reference Network Design (SRND) documents provide guidelines, recommendations, and best practices for implementing enterprise networking solutions. The following SRNDs are recommended for designing Cisco Unified Communications systems:

- [Cisco Unified Contact Center Enterprise Releases 7.0 and 7.1 SRND](#)
- [Cisco Unified Communications SRND Based on Cisco Unified CallManager 5.x](#)
- [Cisco Unified Communications SRND Based on Cisco CallManager 4.x](#)
- [Enterprise QoS System Reference Network Design, Version 3.3, November 2005](#) (right-click to download PDF)
- [Cisco IPCC Express Edition Release 4.5 SRND](#) (right-click to download PDF)
- [Cisco Customer Voice Portal \(CVP\) Release 3.1 SRND](#)

Additional SRND resources are available at this location:

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

Solution Expert Tool

Solution Expert is a web-based tool that assists in the design, configuration, quoting, and ordering of Cisco Unified Communications products. Solution Expert is available for Cisco sales and partner systems engineers who have Unified Communications specializations.

With the Solution Expert tool, users can generate a recommended solution based on their requirements. Users can modify the recommended configuration if desired. Solution Expert validates any changes when it presents the new solution. Solution Expert also generates a bill of materials with list pricing, a Visio diagram, and other design documentation. To access Solution Expert, go to the following URL. For an overview of how to use the tool, see the introductory PDF on the home page.

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

For more ordering information, see [Ordering Guides](#) in the Resource Library.

Understand Your Deployment Options

Review the [Deployment Models](#) chapter in the *Cisco Unified Communications System Description* for a guide to site models that have been tested and verified for Cisco Unified Communications Release 5.1(1).

The following deployment models were designed and tested as part of testing for the contact center environment:

- **Single site**—In this model, all the voice gateways, agents, desktops, IP Phones, and call processing servers such as Unified CallManager, Unified ICM, and Customer Response Solutions (CRS) and/or Unified CVP are located at the same site and have no WAN connectivity between any contact center software modules.
- **Multisite centralized**—In the multisite WAN model with centralized call processing, the Unified CallManager cluster resides at a central (or hub) campus and communication with remote offices occurs over the IP WAN. The central site or data center provides the call processing services and acts as the hub for the remote sites. This model also contains distributed voice gateways for locally dialed calls.
- **Multisite WAN distributed**—In the multisite WAN model with distributed call processing, typically some sites have their own Unified CallManager cluster and are interconnected with intercluster trunks (ICT Trunking). Similar to the multisite centralized model, sites in the multisite WAN distributed model are deployed with distributed voice gateways. Communication between sites occurs over the IP WAN.

See also the [Defining Case Studies](#) topic.

Identify System Components

For a brief description of all the components that are available with Cisco Unified Communications, see the [Cisco Unified Communications Component Overviews](#) chapter in the *Cisco Unified Communications System Description*.

The [Component Installation and Configuration Guides](#) topic links to information that describes components that are specific to the contact center.

The Release Matrix identifies what components and releases are needed for a selected application and the recommended hardware and software for each component. See [Review Release Matrix](#).

The Bill of Materials (BOM) specifies the hardware and system software compatible with and required for Release 7.0(0) of Cisco Unified ICM and Cisco Unified CCE. For detailed information, see the [Cisco ICM/IPCC Enterprise & Hosted Editions, Hardware and System Software Specification \(Bill of Materials\)](#) document (right-click to download PDF).

Review Release Matrix

The Release Matrix (which includes the [Software Version Matrix](#) and the [Firmware Version Matrix](#)) lists all the components and their versions for a particular release. This is the recommended set of components and specific release versions that have been tested and verified for interoperability.

Collect and Analyze Data

Using available tools, collect data on the network to assess network readiness.

Tasks for data collection and analysis:

- **Perform an infrastructure analysis**—Obtain floor plans and campus maps, including utilities and conduit systems, to identify deficiencies in infrastructure.

- Perform an initial hardware and software gap analysis—Do a hardware gap analysis to address space, power, cabling, conduits, PBXs, Key Systems, switches, routers, servers, WAN connections including analog and digital voice, and demarcs.
- Perform an initial traffic analysis—Collect data on all potential converged infrastructure traffic flows. Use station message detail recording (SMDR) and billing records to determine legacy call volumes and use network management tools to collect key statistics on your IP data network.

Create High-Level Design

Once data is collected and analyzed, record the results in the site survey and high-level design documents.

The next topic, [Understanding Call Flows](#), shows you how to use call flow data for your design.

Understanding Call Flows

Call flow analysis is an important part of determining your business requirements. Call flows show you how your calls are handled physically, which drives your equipment requirements. Call flows also help to determine the network routing plan. For sample call flows that are discussed in the context of case studies, see [Test Case Studies](#).

These sample call flows were tested and verified in two separate test setups in the contact center environment: Test Bed 1 and Test Bed 2.

Test Bed 1

Test Bed 1—Unified IP IVR test bed, which handles the following call flows:

- [Cisco Unified CallManager \(Unified CallManager\) Post-Routed call flow](#)
- [Parent/Child call flow](#)
- [Cisco Unified Outbound Dialer \(Unified OUTD\) call flow](#)
- [Cisco Unified Mobile Agent \(Unified MA\) call flow](#)

**Note**

Cisco Unified Customer Voice Portal (Unified CVP) implemented at Site1/Site4 provides initial call treatment for the Parent/Child call flow, while Customer Response Solutions (CRS) provides call queuing capabilities.

Test Bed 2

Test Bed 2—Unified CVP test bed, which handles the following call flows:

- [Unified Customer Voice Portal \(Unified CVP\) Post-Routed call flow](#)
- [Cisco Unified Outbound Dialer \(Unified OUTD\) call flow](#)
- [Cisco Unified Mobile Agent \(Unified MA\) call flow](#)

Planning Your System Upgrade

This topic provides an overview of the upgrade process, the software releases that are involved in the upgrade process, and the different upgrade strategies that can be used based on the size of the customer network.

This topic contains the following sections:

- [Introduction](#)
- [Release Sets](#)
- [Upgrade Roadmap](#)
- [Upgrade Overview](#)
- [System Upgrade Paths](#)
- [System Upgrade Strategy](#)

When your upgrade plan is in place and you are ready to upgrade, go to [Performing a System Upgrade](#) on the Optimize tab.

Defining Case Studies

System testing uses case studies to define and validate the interoperability and stability of components that comprise a complete and optimized Cisco Unified Communications system. The system test includes installing, configuring, and testing contact center hardware and software that are designed to work together in a predictable, effective, and reliable manner.

Use Case Studies to Define Your Business Requirements

Cisco Systems has defined real-world business requirements in two case studies that utilize the contact center system. The business requirements for each case study were created in a test environment in order to validate the contact center solution for these business models.

The first case study is a financial firm with distributed call centers. The second case study is a large distribution and retail company. Both case studies define business requirements, agent profiles, and call flows that are typically used by these business models.

Financial Business Case Study

This case study is a financial firm with distributed call centers, including outsourcer call centers. The case study overview includes:

- [Business Requirements](#)
- [Sample Call Flows](#)

Retail Business Case Study

This case study is a large retail and distribution company that supports "business to business" and consumer retail call center operations for its customers. The case study overview includes:

- [Business Requirements](#)

- [Sample Call Flows](#)

Review these case studies to understand how the contact center system meets real-world business needs.

Call Flow Models


The call flows that are deployed by the sample businesses are as follows:

- Test Bed 1—Unified IP IVR (Unified CallManager Post-Routed calls) for the financial business model that is representative of the banking industry call center operations.
- Test Bed 2—Unified CVP (CVP Post-Routed calls) for the retail business model that is representative of the retailing industry call center operations.

The case study methodology is continued for each PPDI/OO process by using the deployment models and sites that were developed for testing.

- [Review Tested Deployment Models](#) is continued on the Design tab.
- [Install and Configure System Components](#) is continued on the Implement tab.
- [Operating Contact Center Systems](#) continues tested call flows on the Operate tab.
- [Failover and Redundancy](#) is continued on the Optimize tab.

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.

Related Training

View these videos for general training on planning Cisco Unified Communications systems:

- [Cisco Unified Communications System Overview](#)

This video describes the system release approach. It presents the system components at a high level; describes system bundles, pricing, and services; and outlines the deployment models and migration strategies.

- Cisco Unified Communications System Architecture

These videos describe the purposes and uses of the system architecture components. They detail the SRND-recommended deployment models and describe the changes to the deployment models for Cisco Unified CallManager and Cisco Unity. They also cover security and network management recommendations.

- [Part 1: Unified Communications Architecture](#)
- [Part 2: Contact Center Architecture](#)

For more Cisco Unified Communications training videos, see the [Training Library](#).

Cisco Unified Communications System Demo

The Cisco Unified Communications System Demo describes the various methods that are available for use by Cisco field offices worldwide to demonstrate the Cisco Unified Communications system.

[Cisco Unified Communications System Demonstration \[INTERNAL\]](#)

