



Unified CCE Test Bed Description for CSR 10.6(1)

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CHAPTER

1

Test Bed: Unified CCE

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Overview

This Cisco Unified Contact Center Enterprise (Unified CCE) with Cisco Unified Customer Voice Portal (Unified CVP), local and remote agents test bed used to complete testing for the Cisco Collaborative Systems Release 10.6(1), is designed to simulate a medium-sized inbound and outbound contact center with local and remote agents using Unified CCE with Unified CVP for call treatment and queuing and Cisco Unified Communications Manager (Unified Communications Manager) for call control.

This test bed is designed to implement and test some of the design considerations and guidelines of:

- [Cisco Unified Communications System Release 10.x SRND](#)
- [Cisco Unified Contact Center Enterprise Release 10.x Solution Reference Network Design \(SRND\)](#)
- [Cisco Unified Customer Voice Portal Release SRND](#)

For information about how to install and configure these and other Contact Center components, see Components Installation and Configuration Guides at: [Cisco Collaboration Systems for Contact Center Release 10.6\(1\)](#).

Additional configuration information for contact center call flows and components is available at: [Unified Communications System Implementation](#).

Unified CCE with Unified CVP Test Bed and Deployment Architecture

This Unified CCE with Unified CVP test bed is designed to replicate a 4000 agent inbound and outbound contact center in multiple sites where agents are located locally, as well as in remote sites. It is combined with a general collaboration office deployment on a Unified Communications Manager cluster. A SIP-based Unified CVP deployment is used for prompting, collecting and queuing. Agents use SCCP phones, SIP Phones, Cisco Unified IP Phones (69xx, 79xx, 89xx, 99xx), and video endpoints Cisco TelePresence System EX 60, and Cisco TelePresence System EX 90.

Agents also use Cisco Finesse and CTI OS desktops. Some local and remote agents also use virtualized clients. The entire deployment uses two data centers connected through a high speed WAN for redundancy. All solution components are designed for high availability (HA) wherever possible. The topology and relationship of Unified CCE with Unified CVP deployment is shown in

The deployment is a Clustering over WAN model. In this deployment, the agents are local and connected through LAN/MAN infrastructure to the Unified CCE deployment. The Unified CCE components and Unified Communications Manager components in the secondary data center provide redundancy if disaster recovery is needed. The two data centers are separated by a WAN.

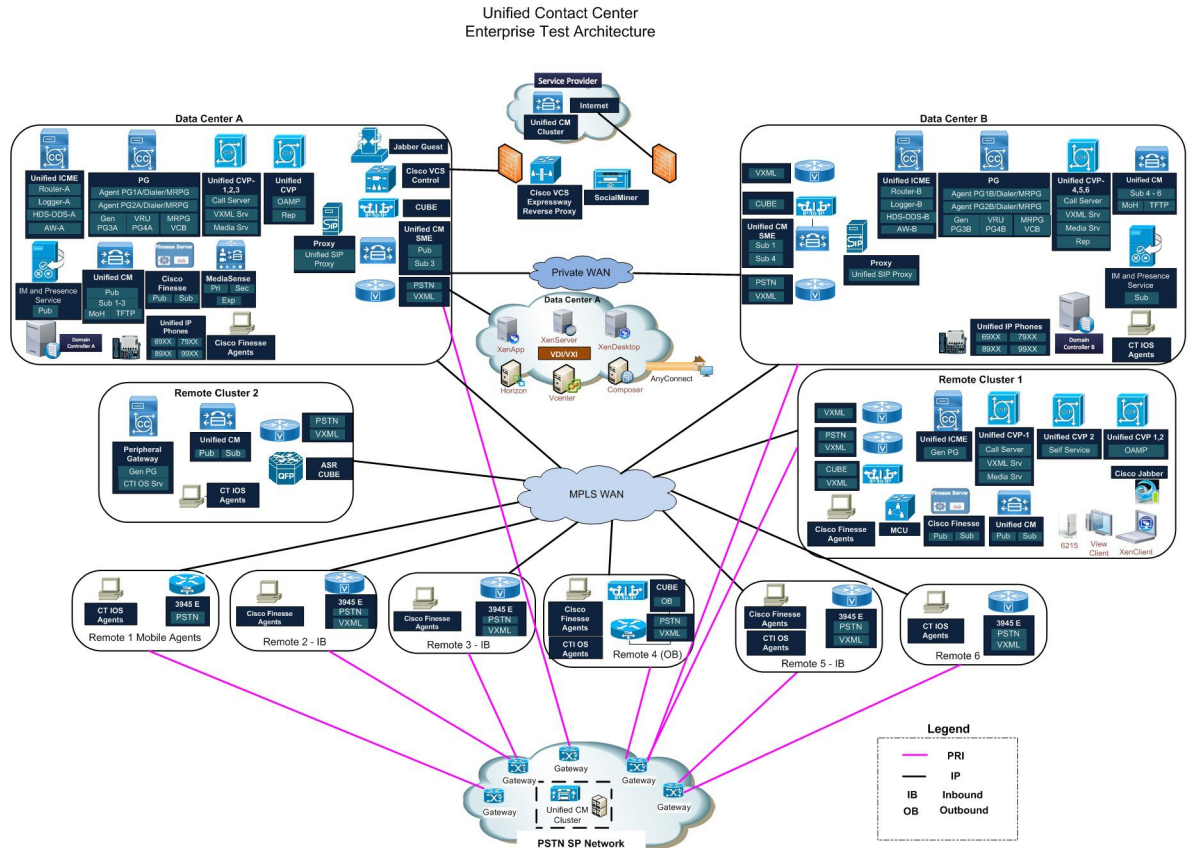
The Clustering over WAN model has the following setup:

- Unified CCE clustering with two links, one for Unified CCE public and Intra-Cluster Communication Signaling (ICCS) traffic and one for Unified CCE private traffic.
- To ensure path diversity, there are separate, dedicated links for Unified CCE private communication. The links are between the Unified CCE Central Controllers on Side A and Side B, and between the peripheral gateways on Side A and Side B. Path diversity is required due to the architecture of Unified CCE.

Remote Gateway 2 (3925) ISR G2 has two Services Modules (SM) with MediaSense primary and MediaSense secondary nodes installed. It is used to record audio calls using Unified Communications Manager-based forking and Unified Border Element-based forking methods.

For a Visio version of the test bed topology diagram, see the [Resource Library](#) chapter of the Technical Information Site.

Figure 1: Collaboration Systems Release 10.6(1) Unified CCE Test Bed Architecture



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General Deployment Options

The test bed addresses Contact Center functionalities that provide value to customers.

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

Unified CCE and Cisco Unified Intelligent Contact Management Enterprise (Unified ICME), integral components of the Cisco Unified Communications System, provide intelligent routing and call treatment with transparent blending of multiple communication channels. These components also ease the transition from a traditional automatic call distributor (ACD) to an IP-based ACD.

Unified CCE/Unified ICME is part of a strategic platform that helps customers move into the next phase of customer contact, Customer Interaction Network. The Customer Interaction Network is a distributed, IP-based customer service infrastructure that comprises of a continuously evolving suite of innovative, multichannel services and customer-relationship-management (CRM) applications.

Unified CCE/Unified ICME software is deployed at the test sites in the contact center environment. With Unified CCE/Unified ICME, the call center manager can configure agents to handle inbound and outbound voice calls. The agents can switch between these media on a task-by-task basis.

For the latest configuration options for Cisco Unified Contact Center Enterprise, go to http://www.cisco.com/en/US/partner/products/sw/custcosw/ps1844/products_installation_and_configuration_guides_list.html.

Cisco Unified Customer Voice Portal

The Cisco Unified Customer Voice Portal (Unified CVP) provides interactive voice response and queuing capabilities in a contact center environment and supports automated speech recognition (ASR) and text-to-speech (TTS) capabilities. Unified CVP is implemented in this test environment in self-service mode, and the comprehensive mode that includes support for agent queuing, multisite call switching, and speech-enabled and touch-tone applications. Customers can use touchtone signals or their own voice to request self-service information. Its components work together to enable you to create and deploy IVR applications that include voice interaction as well as traditional numeric input to provide intelligent, personalized self-service over the phone.

Unified CVP Call Server consists of SIP services and plays media files to the caller and collects information in return. It also interprets messages from Unified ICME and generates VXML documents that it uses to route the call.

Through an operations console, Unified CVP also provides the ability to monitor, manage, and configure all Unified CVP solution components from a central, single operations console.

For additional information about Cisco Unified Customer Service Portal, see <http://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/tsd-products-support-series-home.html>

Cisco Outbound Dialer Option

The Cisco Outbound Option application provides outbound dialing functionality along with the existing inbound capabilities of Unified CCE. This application enables the contact center to dial customers and direct customers to agents or IVRs. The Outbound Option Dialer component, which resides on the peripheral gateway server, dials customers using Cisco Unified Communications Manager and voice gateways, reserves agents through the Media Routing (MR) interface and transfers answered customer calls to reserved agents.

In an Outbound Option deployment that uses the SIP Dialer, functions such as dialing, call control, and Call Progress Analysis for Outbound campaigns are handled by the voice gateway, and not by Unified Communications Manager. This increases the number of outbound agents that a deployment can service on a peripheral gateway. Also, it reduces the number of peripheral gateways and dialers customers need to deploy for larger enterprise systems.

For additional information about Cisco Outbound Dialer Option, see http://www.cisco.com/en/US/products/sw/custcosw/ps524/tsd_products_support_series_home.html.

Cisco Mobile Agent

The Cisco Mobile Agent feature enables Unified CCE/Unified ICME to support agents using phones not directly controlled by Unified Communications Manager. This could be an agent:

- Outside the call center, using an analog phone at home or a cell phone
- Inside the call center, using an IP phone connection not controlled by Unified CCE or an associated Unified Communications Manager

If you plan to configure a mobile agent to use an analog phone or an Cisco Unified IP Phone (Unified IP Phone) without the Cisco Business Ready Teleworker setup:

- Use the Cisco Mobile Agent option

For all support information for Cisco Mobile Agent, see http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps6223/product_data_sheet0900aecd80425476.html.

Cisco MediaSense

Cisco MediaSense (MediaSense) is a SIP-based service. MediaSense allows other network devices to monitor customer conversations, including recording, playback, and streaming in real-time. It also supports storage of audio and video data, including Video on Hold (VoH) and Video in Queue (ViQ). MediaSense automatically captures and stores every Voice over IP (VoIP) conversation which crosses configured Unified Communications Manager IP phones or Unified Border Element devices.

MediaSense is an IP media recording and playback system that implements the Open Recording Architecture open interfaces. MediaSense comprises of many elements to support IP based recording. It solves the topology issues and accelerates the adoption of Cisco Collaboration Systems. It captures, stores, and processes multimedia on a unified network platform. MediaSense enables contact center supervisors to perform live monitoring of conversations and assists agents in resolving caller issues. MediaSense provides open, standardized hooks for real-time speech analytics, to help customer service representatives assist callers faster and more effectively.

For all Cisco MediaSense support information, see http://www.cisco.com/en/US/products/ps11389/tsd_products_support_series_home.html.

Cisco Finesse

Cisco Finesse is a next-generation agent and supervisor desktop designed to provide a collaborative experience for the communities that interact with your customer service organization. In this deployment, Cisco Finesse is installed on a virtual machine as a primary and secondary node.

Cisco Finesse with Cisco Virtualization Experience Media Engine 9.7 was tested with both Citrix Desktop 7.0 and with VMWare View. Cisco Finesse is installed on the Linux-based Cisco Unified Communication Voice Operating System. Primary and secondary Cisco Finesse servers are installed on the same site as Unified CCE components. Currently Cisco Finesse does not support primary and secondary nodes separated over WAN. Agents can sign on to the Cisco Finesse Server from Microsoft Internet Explorer 9.0 or Mozilla Firefox version later than 24, using a laptop or a desktop connected directly to the data center or remotely using Cisco VXC 62xx clients such as VPN using VMWare/Citrix View.

Agents sign on to the Cisco Finesse server from Microsoft Internet Explorer 9.0 either using a laptop or a desktop unit connected directly to the data center or remotely using Virtual Desktop Infrastructure (VDI) devices.

For all support information on Cisco Finesse, see http://www.cisco.com/en/US/products/ps11324/tsd_products_support_series_home.html.

Cisco SocialMiner

Cisco SocialMiner (SocialMiner) is a social media customer care solution. SocialMiner can help you proactively respond to customers who communicate through public networks. SocialMiner and Unified CCE work in tandem to process the Agent Request (Voice CallBack) from its inception through the receipt of the call back.

The role of SocialMiner in the Agent Request feature:

- Provide a notification mechanism (the Connection to Unified CCE notification type) used to forward callback requests to Unified CCE through a Media Routing (MR) connection.
- Provide the API used by custom applications to initiate a callback.
- Forward the callback details to Unified CCE.
- Provide an API used by custom applications to retrieve the state of the callback. This includes a field in the GET call that can be communicate to the end user the estimated wait time until an agent becomes available.
- Provide an API used by custom applications to cancel a requested callback.

For more information about Cisco SocialMiner, see <http://www.cisco.com/en/US/products/ps11349/index.html>.

Cisco Jabber for Windows

Cisco Jabber for Windows streamlines communication and enhances productivity through IM and Presence Service, instant messaging, and audio conference into one client on your desktop. Built on open standards, Cisco Jabber for Windows integrates with commonly used desktop applications. Cisco Jabber for Windows 9.7.1 Unified IP Phones are installed in data center A, data center B, and remote sites.

For all support information for Cisco Jabber for Windows, see <http://www.cisco.com/c/en/us/support/unified-communications/jabber-windows/tsd-products-support-series-home.html>.

Cisco Virtual Office and Cisco AnyConnect VPN client

CT IOS and Cisco Finesse Agent/phones are connected to the data center through a VPN tunnel.

In the Cisco Virtual Office (CVO) case, the VPN tunnel is established from the head-end VPN Hub router, which is connected to Data Center side A and terminated at a CVO spoke Router (881 and 891 routers), where Agent desktops and phones are connected. In the Cisco AnyConnect Secure Mobility Client case, the VPN tunnel is established from the ASA that is connected to Data Center Side A and terminated at Unified IP Phone models such as 79XX, 89XX, and 99XX series that support the VPN services.

For additional information about Cisco Virtual Office, see <http://www.cisco.com/en/US/netsol/ns855/>.

For additional information about Cisco Anyconnect VPN client, see http://www.cisco.com/en/US/products/ps8411/tsd_products_support_series_home.html.

Cisco Unified Contact Center Enterprise Desktop

The Cisco Computer Telephony Integration Option (CTI OS) Agent Desktop and the Finesse Agent Desktop are both tested. CTI OS Agent Desktop functionality used during testing includes handling of inbound calls, outbound calls, transfer and conference. Cisco Finesse Agent Desktop testing includes handling of inbound calls, transfer and conference.

For all support information for Cisco Unified Contact Center Enterprise Desktop, see http://www.cisco.com/en/US/partner/products/sw/custcosw/ps1844/tsd_products_support_series_home.html

For all support information for Cisco Computer Telephony Integration Option, go to: http://www.cisco.com/en/US/partner/products/sw/custcosw/ps14/tsd_products_support_series_home.html

Cisco Unified Border Element

SIP trunking is used for the Unified CVP deployment with Cisco IOS gateways and Cisco Unified Border Element (Unified Border Element). Stand-alone Unified Border Element is placed in Data center A and Data center B respectively. From each Unified Border Element, there is a SIP trunk on Transmission Control Protocol (TCP) (using VoIP dial-peer) to Unified CVP in Data Center A and Data Center B respectively. From Unified CVP, there is a SIP trunk on TCP to Unified Border Element. In addition, from each Unified Border Element (in Data Center A and B), there is another SIP trunk on User Datagram Protocol (using VoIP Dial-peers). This is to accept the IP calls from IP PSTN Service Provider network.

For further information about Cisco Unified Border Element, see http://www.cisco.com/en/US/products/sw/voicesw/ps5640/tsd_products_support_series_home.html.

Unified CM SME Support for Contact Center

Unified CM SME interoperability with Unified SIP Proxy and Unified CVP was deployed in 10.6. The qualification of Unified CM SME and Unified SIP Proxy in contact center topology was done. All basic contact center call flows and failover was tested over Unified CM SME. Unified SIP Proxy was deployed on the Cisco SRE Service Module on a Cisco 3945E Integrated Services Router.

The callers to the contact center can be routed through a Unified Border Element or PSTN Gateway. There would also be callers coming in from an ICT trunk to Unified CM SME and then routed to the contact center.

Virtualization support

Many components of the solution are running on virtual machines on Cisco Unified Communications on Cisco Unified Computing System hardware.

For further information about Virtualization Support, see <http://www.cisco.com/en/US/products/ps10265/>.

Desktop Virtualization

Cisco Virtualization Experience Media Engine 9.7 is deployed in the data center while the Cisco Virtualization Experience Client (Cisco Virtualization Experience Client 6215) runs on the local client. The Cisco Virtualization Experience Client 6xxx is a thin client that unifies voice, video and virtual desktops in one device. Cisco Virtualization Experience Clients 6xxx were deployed both in the data center as well as remote sites. PC over IP (PCoIP) and ICA were tested with Cisco Virtualization Experience Client 6xxx. Some of the remote clients were over VPN. Both CTI OS Agent Desktop and Cisco Finesse were tested with these virtualized clients.

As part of the 10.6 Release, Cisco Virtualization Experience Media Engine for Windows was tested in both VMWare and Citrix environments. VXME4Win is a windows plugin for VDI/VXI Cisco Jabber setup. In 10.6 Release, both VXME for SUSE Linux (6215) and VXME for Windows were tested.

For further information about Cisco Virtualization Experience Media Engine, see <http://www.cisco.com/c/en/us/products/collaboration-endpoints/virtualization-experience-media-engine/index.html>.

For further information about Cisco VXC 6000 Series, see <http://www.cisco.com/c/en/us/products/collaboration-endpoints/virtualization-experience-client-6000-series/index.html>.

Conferencing

The Cisco TelePresence Server is an innovative software solution enabling high quality standards-based conferencing for the mobile or desktop user and the immersive room meeting participant.

Cisco TelePresence Conductor helps ensure simple, reliable, and efficient multiparty telepresence and collaborative conferencing.

Cisco TelePresence MCU 4500 Series (MCU 4501) is a full high-definition multimedia conferencing bridge. MCU 4501 was deployed in the data center and registered to the Unified Communications Manager. MCU 4501 was part of the MRGL configured on all phones so that an initiated conference can allocate a video conference bridge.

Security

Security components include firewall, antivirus software. Security is implemented at the various sites as follows:

- McAfee Antivirus-Third-party antivirus agents are installed on Windows-based servers like Unified ICME and others, but not on non-Windows appliances such as Unified Communications Manager.