



Test Bed 2: Unified CCE with Unified CVP, Local Agents

The Cisco Unified Contact Center Enterprise (Unified CCE) with Cisco Unified Customer Voice Portal (Unified CVP) test bed, used to complete testing for the Unified Communication System Release 9.0(1), is designed to simulate a medium sized inbound call center 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 the [Cisco Unified Contact Center Enterprise Release 9.x Solution Reference Network Design \(SRND\)](#) and the [Cisco Unified Customer Voice Portal Release 9.0\(1\) SRND](#).

This topic contains the following sections:

- [Operating Conditions](#)
- [Unified CVP Test Site](#)

Operating Conditions

Sizing Unified CCE Components and Servers

[Table 1](#) shows the operating conditions used to determine the capacity of components and servers deployed in this test bed.

Table 1 **Component Operating Conditions**

Feature/Component	Operating Conditions Value
Skill Group per Agent	5
Agent to Supervisor Ratio	9
Refresh Rate for Skill Group	10 seconds
Agent Statistics Columns for CTI OS	6

Table 1 **Component Operating Conditions**

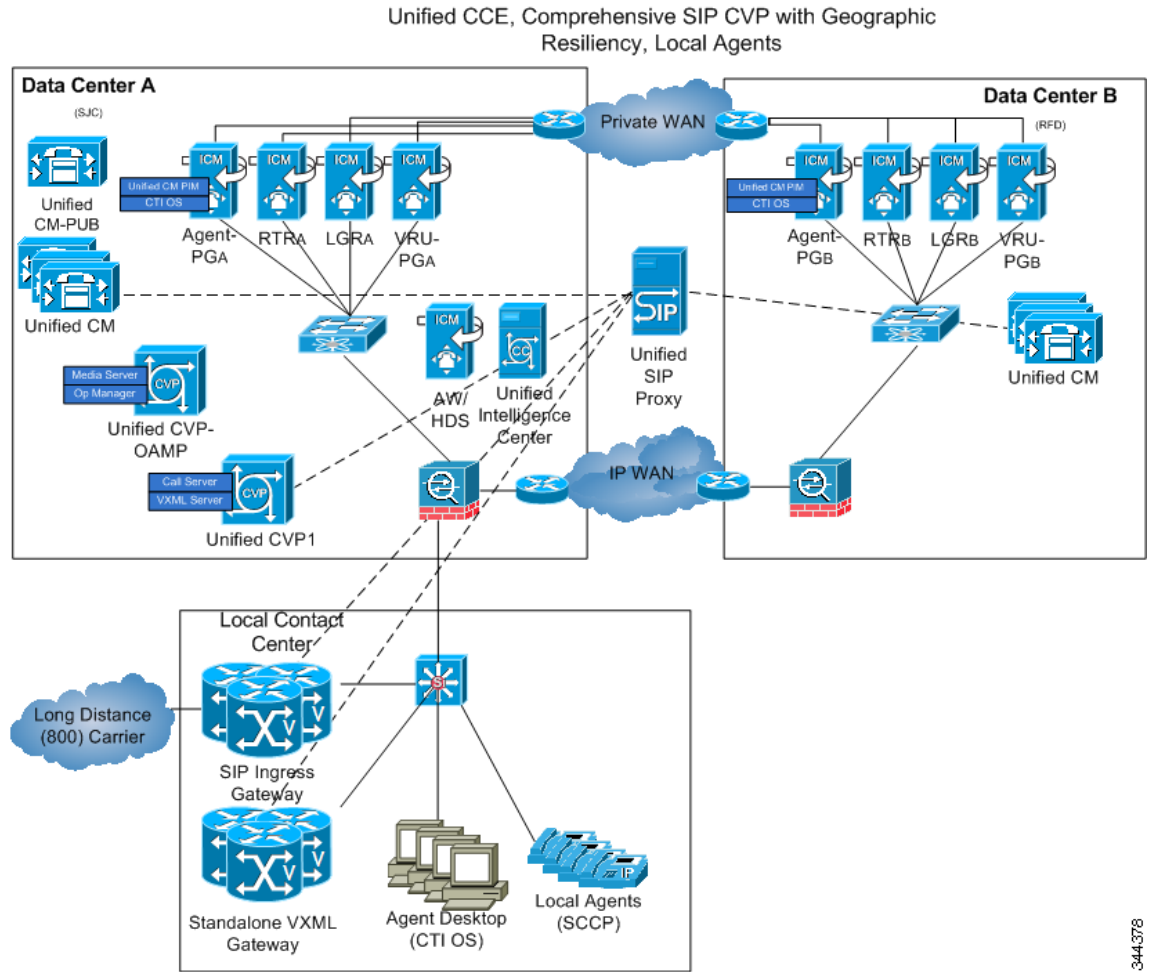
Feature/Component	Operating Conditions Value
TLS for CTI OS	OFF
Agent Statistics	ON
All Events Client (CTI server)	1
Persistent ECC Variables	5 Scalars
Number of Mobile Agents	0
Number of Dialer Ports	0
Multi-Channel Agents	0
BHCA per Agent	9
Average Talk Time	250 seconds
Average Wrap-up Time	0 seconds
Average VRU Time	10 seconds
Call Flow Traffic on Transfer Calls	10%
Call Flow Traffic on Conference Calls	5%
Unified Communications Manager Based Silent Monitor	0%
Unified Communications Manager Based Recording (BIB)	0%
Courtesy Call Back	0%
Post Call Survey	0%

Unified CVP Test Site

Unified CCE with Unified CVP Deployment Model

The Cisco Unified Contact Center Enterprise (Unified CCE) with Cisco Unified Customer Voice Portal (Unified CVP) test bed is designed to replicate a 1000 Agent inbound call center in a single site where all agents are local. It is combined with a general IPT office deployment on a Cisco Unified Communications Manager (Unified Communications Manager) megacluster. A SIP based Unified CVP deployment is used for prompting, collecting and queuing. Agents use SCCP phones and CTI OS desktops. The entire deployment uses two data centers connected via high speed WANs for redundancy. All solution components are designed for high availability when possible. The topology and relationships of the Unified CCE with Unified CVP deployment is shown in [Figure 1](#).

Figure 1 Unified CCE with Unified CVP Test Bed Topology



344378

General Deployment Options

The following deployment options were used on this Unified CCE with Unified CVP test bed.



Note

See [Release Notes for Cisco Unified Contact Center Enterprise, Release 9.0\(1\)](#) for Unified CCE configuration options.

IPT Deployment

The IPT deployment is a combination of the Single Site model and the Clustering over the WAN model. In this deployment, the agents are local (connected via LAN/MAN infrastructure) to one side of the Unified CCE deployment, while the Unified CCE components and Unified Communications Manager components have redundancy in a secondary data center for disaster recovery. The two data centers are separated by a WAN.

The clustering over the WAN has the following setup:

- Unified CCE clustering over the WAN with two links, one for Unified CCE public + Intra-Cluster Communication Signaling (ICCS) traffic and one for Unified CCE private traffic.
- Separate dedicated link(s) for Unified CCE private communications between Unified CCE Central Controllers Side A and Side B and between Peripheral Gateways Side A and Side B to ensure path diversity. Path diversity is required due to the architecture of Unified CCE.

Unified Contact Center Enterprise Desktop

CTI OS agent desktops (simulated) are used in this deployment. Desktop functionality used during testing includes handling of inbound calls, transfer, conference, and Agent Greeting.

Security for Cisco Unified Contact Center Enterprise

- Network Firewalls are used to secure the data center. Unified CCE server components are separated from the agent phones and desktops with the firewalls.
- Virus Protection is used on all servers.

Agent Peripheral Options

Enterprise Unified CCE Peripheral option is used for agent peripherals where the Unified CCE software treats the VRU and Unified Communications Manager as separate peripherals. The Unified Communications Manager peripheral gateway and VRU peripheral gateway are deployed independently.

Unified CCE Administration & Data Server

An Administration & Data Server is used for historical and real-time data as an AW-HDS. Cisco Unified Intelligence Center (Unified Intelligence Center) is also used for real-time and historical reporting.

SIP Support

SIP trunking is used for the Unified CVP deployment with Cisco IOS gateways and Cisco Unified Border Element (Unified Border Element).

Virtualization Support

Some components of the solution are running in virtual machines on Cisco Unified Computing System UCS hardware.

Whisper Announcement Support

All calls to agents are enabled for Whisper Announcement feature to play a pre-recorded announcement to an agent right before the caller is connected. This feature operates with the type 10 Network VRU based on Unified CVP with SIP as the Unified CVP call control protocol. It is used for the local in-house agents only.

Agent Greeting Support

The Agent Greeting feature is enabled and used for all agents for all calls. This feature allows a contact center agent to record a greeting that automatically plays for the caller and agent at the same time when an agent receives a new call. The agent greeting playback is immediately followed by a caller and agent connected in a call. This feature is enabled with the type 10 Network VRU based on Unified CVP with SIP as the Unified CVP call control protocol.

Deployment Solution Components

Table 2 lists the equipment, hardware platform, quantity and some general deployment notes for the Unified CCE with Unified CVP test bed. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2 Unified CCE with Unified CVP Test Bed Equipment List

Component	Hardware Platform	Quantity	Deployment Notes
Cisco Unified Communications Manager (Unified Communications Manager)	UCS-C210M1-K9-VCD1 UCS-C210M2-VCD2	15	<ul style="list-style-type: none"> Unified Communications Manager is deployed as a 15 node cluster, 2 nodes dedicated to call center Single Site Deployment Clustering -over -the -WAN in two data centers with 1:1 redundancy Combines Cisco Unified IP phones with both normal IP Telephony (office) extensions and Unified CCE (call center) extensions
Cisco Voice Gateways	Cisco 3945	4	<ul style="list-style-type: none"> T1 Gateway XVML Gateway SIP
Agent Phones	n/a	1000	<ul style="list-style-type: none"> SCCP (simulated Cisco Unified IP Phones 7900 Series) Single-line Agent Greeting enabled Phones have ACD line only, no general office lines
Agent Desktops	n/a	1000	<ul style="list-style-type: none"> CTI Object Server (CTI OS) (simulated)

Agent Phones	n/a	1000	<ul style="list-style-type: none"> • SCCP (simulated Cisco Unified IP Phones 7900 Series) • Single-line • Agent Greeting enabled • Phones have ACD line only, no general office lines
Agent Desktops	n/a	1000	<ul style="list-style-type: none"> • CTI Object Server (CTI OS) (simulated)