



Test Deployment Models and Sites

This topic describes the deployment models and test beds that were designed and tested as part of Cisco Unified Communications System Release 5.0 for Contact Center.

This topic contains the following sections:

- [Deployment Models and Test Beds](#)
- [Site Relationships and Call Routing](#)
- [Test Bed 1: Unified IP IVR Test Sites](#)
- [Test Bed 2: Unified CVP Test Sites](#)

In [Chapter 1, “Test Case Studies”](#), we discussed and defined business requirements that would require a contact center system for two fictitious businesses with call centers:

- Financial industry business model—The first sample case study was based on a bank providing call centers for its customers for internet banking.
- Retail industry business model—The second sample case study was based on a business-to-business model for a retail company with a distribution center and retail centers supporting customer sales by phone.

For guidelines, recommendations, and best practices to help you design and deploy enterprise networking solutions based on your specific business needs and requirements, see the Cisco Solution Reference Network Design (SRND) guides, which are available at: <http://www.cisco.com/go/srnd>

Deployment Models and Test Beds

The following three deployment models were implemented to test the contact center solution that was developed from the business case studies:

- [Single-site](#)
- [Multisite Centralized](#)
- [Multisite Distributed](#)

Typically, a model deploying centralized call processing servers or voice gateways is adequate for an enterprise with small remote sites or offices in a metropolitan area. However, a distributed deployment model is more efficient as sites become larger or more geographically disperse.

The sites were configured and deployed based on the customer requirements and testing was done to validate the interoperability of the contact center components.

Two test beds were then set up based on an multisite distributed deployment model encompassing one or more multi site centralized deployment models, including a single-site deployment model.

For ease of use, we will use Test Bed 1 and Test Bed 2 to refer to the two test beds described below and site numbers to refer to sites in each test bed.

The two test beds are:

- Test Bed 1 consisting of eight sites where Customer Response Solutions (CRS), is deployed for call handling and call treatment functions. See [Test Bed 1: Unified IP IVR Test Sites](#) for more information.

Additionally, in Test Bed 1, Cisco Unified Contact Center Gateway Enterprise (Unified CCGE) feature and the parent and child model are implemented. See [Cisco Unified Contact Center Gateway Enterprise Feature](#) for more information.

- Test Bed 2 consisting of six sites where Cisco Unified Customer Voice Portal (Unified CVP) is deployed for call handling and call treatment functions. See [Test Bed 2: Unified CVP Test Sites](#) for more information.

Single-site

In the single-site deployment model, all the voice gateways, agents, desktops, Cisco Unified IP Phones (Unified IP Phones), and call processing servers such as Cisco Unified CallManager (Unified CallManager), Cisco Unified Intelligent Contact Management (Unified ICM), and CRS (Unified IP IVR) and/or Unified CVP are located at the same site and have no WAN connectivity between any Unified Contact Center Enterprise (Unified CCE) 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 communications with remote offices take place 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 deployment model also contains distributed voice gateways for locally dialed calls.

In both test beds, a distributed data center is implemented at the data center locations, for geographic redundancy of the Unified CCE components such as Central Controller (Call Router and Logger known as Rogger), Peripheral Gateways, Unified CallManager, CTI OS and CAD Servers, and is split across the WAN. This type of deployment is referred to as Clustering over the WAN (CoW) for Unified CCE and provides full agent redundancy in the case of a data center outage.

Multisite Distributed

In the multisite WAN model with distributed call processing, typically, some sites have their own Unified CallManager cluster and are interconnected with inter-cluster trunks (ICT Trunking). Similar to the multisite centralized deployment model, sites in the multisite WAN distributed model are deployed with distributed voice gateways. Communication between sites takes place over the IP WAN.

Test Bed Software Implementation

In this section, we discuss how customer contact software, network management, security, CRS (Unified IP IVR), Unified CVP, the Unified CCGE feature, and the parent and child model are implemented in the test beds.

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

Unified CCE and Unified ICM, integral components of the Cisco Unified Communications system, provide intelligent routing and call treatment with transparent blending of multiple communication channels, while easing the transition from a traditional automatic call distributor (ACD) to an IP-based ACD.

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

Unified CCE/Unified ICM software is deployed at the test sites in the contact center environment. With Unified CCE/Unified ICM, the call center manager can configure agents to handle inbound and outbound voice, Web collaboration, text chat, and e-mail requests. The agents can switch between these media on a task-by-task basis. Customers can choose the medium that is most comfortable and convenient for them. Unified CCE/Unified ICM can be used in a single-site environment or integrated into a multisite call center.

Cisco Unified Customer Voice Portal

The Cisco Unified Customer Service 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, which is implemented at this test environment in the comprehensive mode, includes support for agent queuing, multisite call switching, and speech-enabled and touch-tone applications. Unified CVP consists of the Voice Browser which plays media files to the caller and collects information in return, and the Application Server which interprets messages from Unified ICM and generates VXML documents that it uses to communicate with the Voice Browser.

Customer Response Solutions

CRS implementation at the test sites includes the Cisco Unified IP Interactive Voice Response (Unified IP IVR) product. Unified IP IVR is a multimedia (voice, data, and web) IP-enabled interactive voice response solution that automates call handling by autonomously interacting with contacts.

Using Unified IP IVR, one can create applications that answer calls, provide menu choices for callers, obtain caller data such as passwords or account identification, and transfer calls to caller-selected extensions.

Unified IP IVR is a part of the Unified CCE solution, which is capable of distributing calls to multiple sites and performing pre- and post-routing functions. Unified CCE uses Unified ICM software to direct calls to other systems, such as interactive VRUs and ACD systems.

For purposes of this manual, we will refer to this version of the CRS implementation interchangeably as CRS (when referring to the system) or as Unified IP IVR (when referring to the product).

Network Management

Network Management is implemented at all the test sites by using the following reporting tools:

- Cisco Unified Operations Manager (Unified Operations Manager) (formerly CiscoWorks ITEM)—Unified Operations Manager provides a unified view of the entire Cisco Unified Communications infrastructure and presents the current operational status of each element of the Cisco Unified Communications network. It continuously monitors the current operational status of different Cisco Unified Communications products such as Unified CallManager, Unified CCE, Cisco gateways, routers, and phones and provides diagnostic capabilities for faster trouble isolation and resolution.
- Cisco Remote Monitoring Suite (RMS)—This tool is used for tracking alarms on Unified IP IVR servers, provides a real-time, high-level overview of the status for customers' Unified ICM nodes, events and alarms, and allows monitoring in a single application.
- Real Time Monitoring Tool (RTMT)—Unified CallManager Serviceability provides a client side standalone plugin, RTMT, that monitors real-time behavior of the components in a Unified CallManager cluster. RTMT runs as an application and uses HTTP and TCP to monitor device status, system performance, device discovery, and CTI applications. It also connects directly to devices by using HTTP for troubleshooting system problems.

RTMT continuously monitors a set of management objects that are preconfigured and generates various alerts, in the form of emails, for these objects when values go over/below user-configured thresholds. RTMT then generates daily reports for these objects.

- Perfmon counters—These counters, for all windows-based servers, collect and display system and device statistics in real time. The counters contain simple, useful counts such as number of registered phones, number of active calls, and number of available conference bridge resources.

Security

CiscoWorks Management Center for Cisco Security Agents is implemented at the various sites as follows:

- CiscoWorks Management Center for Cisco Security Agents—The core management software that provides a central means of defining and distributing policies, providing software updates, and maintaining communications to the agents.
- Cisco Security Agents—The core endpoint software that resides on all Unified CallManager, Unified ICM, Unified CVP, CRS, Cisco Unified Outbound Dialers (Unified OUTD), CTI OS, and CAD servers. Cisco Security Agent autonomously enforces local policies that prevent attacks.



Note

Unified CallManager supports Cisco Security Agent only as a standalone agent.

Cisco Unified Contact Center Gateway Enterprise Feature

The following is a brief description of the Cisco Unified Contact Center Gateway (Unified CCGE) feature that is part of the Cisco Unified Communications System Release 5.0 for Contact Center. The following features are relevant to the new functionality:

- Cisco Unified Contact Center Gateway (Unified CCGE) feature—Allows Cisco Unified Contact Center Enterprise (Unified CCE) to appear as an ACD to Unified ICM software
- Cisco Unified System Contact Center Gateway (Unified SCCG)—Combines the Unified CallManager Peripheral Gateway (PG) and VRU PG to look like one peripheral
- Cisco Unified System Contact Center (Unified SCC)—Simplifies the deployment of Unified Contact Center Enterprise software with a streamlined installation and web-based administration
- Parent and Child systems—Play different roles in an Unified CCGE deployment, the parent system acts as the enterprise routing point and the child system as an ACD

Cisco Unified Contact Center Gateway and Cisco Unified System Contact Center Gateway

In an Unified CCGE deployment, Unified CCE appears as a traditional ACD connected to the Cisco Unified Intelligent Contact Management (Unified ICM) system. Unified ICM uses Unified CCGEs to communicate to the CTI server on the Unified SCCG in Unified CCE.

Unified CCGE provides all standard Peripheral Interface Manager (PIM) data and functionality including translation routing, pre- and post-routing, and an auto configuration feature that eliminates repeating configuration tasks between the Unified CCE and Unified ICM systems.

Cisco Unified System Contact Center

Cisco Unified System Contact Center (Unified SCC) is installed at the single-site and participates in the parent and child model. Unified SCC is installed on a single server as an all-in-one implementation (known as the Progger) combining major software processes such as the Peripheral Gateway (PG), Router, Logger, Unified CallManager PIM, Unified IP IVR PIMs, CTI Server, Customer Telephony Integration Object Server (CTI OS) and Cisco Agent Desktop (CAD) servers.

The Unified SCC deployment has a streamlined installation and a browser-based interface associated with it. The new Unified CCE Secure Web Administration, available exclusively with this model:

- Reduces complexity for Unified CCE software configuration and administration
- Provides remote administration capability through a browser, and therefore does not require installing additional administration workstations

Parent and Child Model

The Unified CCGE feature and the parent and child model are implemented for testing additional contact center functionality. In the parent and child model, the child system is configured to function completely on its own and does not need the connection to the parent to route calls to agents. This independence provides complete local survivability for mission-critical call centers if the network between the child and parent goes down or if there is a problem with the parent or the gateway connection.

The parent and child model on Test Bed 1 is deployed as a single parent system with multiple child systems. Unified CCGEs are installed at the parent sites and Cisco Unified System Contact Center Gateways (Unified SCCGs) are installed at both the parent and child sites. [Figure 2-2](#) shows the sites and components participating in the parent and child deployment in Test Bed 1.

Parent and Child Systems Relationships

The systems in an Unified CCGE deployment play different roles. The following terms describe the relationship between these roles:

- Parent system—The Unified ICM Enterprise system that serves as the network or enterprise routing point, involving Unified CCGEs.
- Child system—The Unified CCE system that is set up to function as an ACD, involving Unified SCCGs.

The parent system does the following:

- Routes calls between children.
- Uses Unified CVP to provide initial call treatment (prompting) and queuing for Unified CVP Post-Routed calls that come into the test beds.
- Based on Unified ICM call routing logic, routes the call to an available agent in the child system. If no agents are available, does one of the following:
 - Uses Unified CVP to queue it at the VXML gateway in the parent site
 - Queues the call at the local CRS (Unified IP IVR) at the child system

The child system does the following:

- Can receive calls with or without the involvement of the parent system.
- For calls received directly by the child, uses CRS (Unified IP IVR) to provide initial call treatment for Unified CallManager Post-Routed calls that come into the test bed.
- Based on Unified ICM call routing logic, routes the call to an available agent at its own site or queues it at the CRS system locally.

The advantage with the parent and child deployment is that call center operations can continue, even if the WAN connection between the data centers and remote sites is not operational.

For detailed information on the parent and child deployment, see the *Cisco IPCC Gateway Deployment Guide ICM/IPCC Enterprise Edition Release 7.0(0)* at:

http://www.cisco.com/application/pdf/en/us/guest/products/ps1001/c1097/ccmigration_09186a0080626383.pdf

Deployment Options for Call Flows in Test Bed 1

Table 2-1 provides a brief overview of the deployment options available for the Parent/Child call flow and the Unified CallManager Post-Routed call flow in Test Bed 1.

Table 2-1 Deployment Options in Test Bed 1

Deployment Options	Unified CallManager Post-Routed Call Flow	Parent/Child Call Flow	
		Parent System	Child System
Clustering	Single-site Multisite Centralized Multisite Distributed CoW	Single-site Multisite Centralized Multisite Distributed CoW	Single-site Multisite Centralized Multisite Distributed CoW
Controller	PROGGER -or- ROGGER	PROGGER -or- ROGGER	PROGGER -or- ROGGER
Unified ICM Redundancy	co-located vs. geographically separate	co-located vs. geographically separate	co-located vs. geographically separate
PG Redundancy	co-located vs. geographically separate	Unified CCGE located at parent ¹ or child site, but not co-resident with Unified SCCG on the same server	Unified SCCG at child sites Unified SCCG deployment at independent single-site
Types of PGs	Generic PG vs. Unified SCCG	Unified CCGE & VRU PG	Unified SCCGs
PSTN Gateways	Centralized vs. distributed	Centralized	Centralized vs. distributed
Number of Unified IP IVR Servers	not applicable	not supported	Maximum five (5)
Desktop	CAD vs. CTI OS	No agents	CAD vs. CTI OS
Miscellaneous Options	Cisco Unified Outbound Dialer supported with Unified SCCG (requires a separate MR PG) Multi-channel	No outbound agents	Cisco Unified Outbound Dialer supported with Unified SCCG (requires a separate MR PG) Multi-channel
Installation	Traditional installation (Unified ICM SetUp and Admin Workstation)	New installation with Unified CCGE -or- Install Unified CCGE after upgrading Unified ICM	New installation based on Unified SCCG -or- Install Unified SCCG after upgrading Unified CCE
Upgrade	Traditional upgrade based on single stage or multi-staged upgrade approaches	No upgrade FROM non-parent	No upgrade FROM non-Unified SCCG
Call Treatment and Queuing	Unified IP IVR -or- Unified CVP	Unified CVP only	Unified IP IVR only

1. We recommend that Unified CCGE is co-located at the same site as Unified SCCG.

Test Bed 1: Unified IP IVR Test Sites

The following eight sites make up the single-site, multisite centralized and multisite distributed deployment models for testing the Unified CallManager (and Unified CVP for the parent and child model) Post-Routed call flow:

- Canton/[Site1: Data Center Site](#)
- Chicago/[Site2: Remote Site](#)
- Clifton/[Site3: Remote Site](#)
- Clinton/[Site4: Data Center Site](#)
- Clover/[Site5: Branch Office Site](#)
- Carefree/[Site6: Remote Site](#)
- Remote Agent/[Site8: Remote Agent Site](#)
- Carson City/[Site9: Branch Office Site](#)

See [Topology of Cisco Unified IP IVR Sites](#) for a complete map of the eight sites, their individual topologies, and the relationship between the sites. See [Unified IP IVR Site Definitions](#) for more information on the individual sites in Test Bed 1.

Site Relationships and Call Routing

Listed below are the relationships of the eight sites and the call routing deployed in Test Bed 1.

Multisite Centralized Site Relationships

- Site1 and Site4 are data centers which *share* Unified CCE components over the WAN (CoW).
- Site1 and Site4 participate in one of the multisite centralized configurations and act as the hubs for Site2, Site3, and Site8.
- Site5 has its own Unified CallManager cluster and participates in the other multisite centralized configuration.
- Site6 is a remote of Site5.
- Site8 is a remote *telecommuter* agent associated with Site2.
- Agents at Site2, Site3, and Site9 provide call center support for outsourced calls.
- Site9 has its own Unified CallManager cluster and operates as an independent single-site deployment. It is also referred to as the Unified SCC implementation in the parent and child deployment.

Multisite Distributed Site Relationships

- In addition to Site1 and Site4, Site5 and Site9 have Unified CallManager clusters resident at their sites for independent call processing locally.
- Site2, Site3, and Site8 depend on Site1/Site4 for providing call processing functionality and Site6 depends on Site5 for its call processing.

Call Routing

- General call flow—Customer calls come into the data centers (Site1/Site4) and are processed and routed over the WAN to agents in the remote sites.

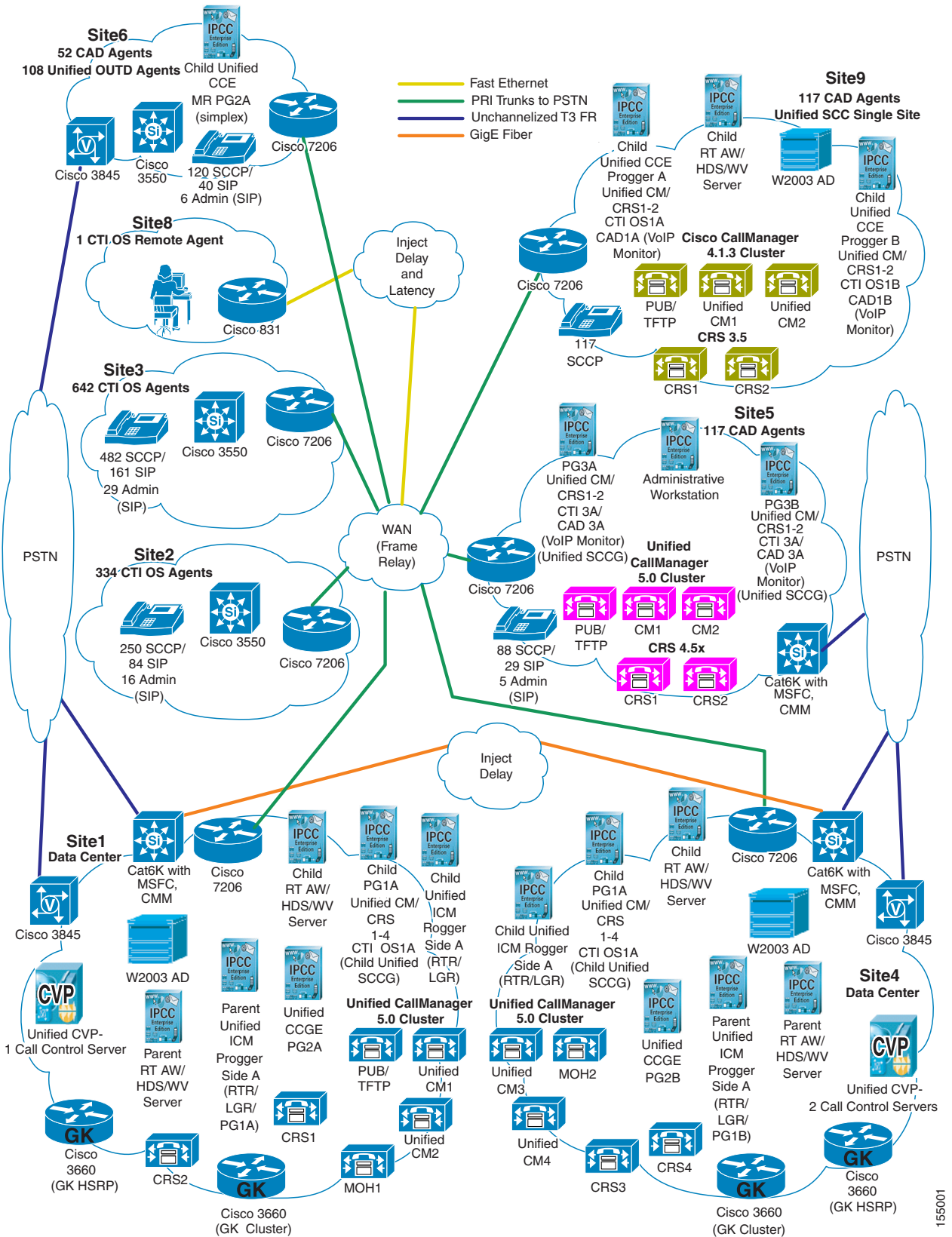
- Unified CallManager Post-Routed Call Flow—Site1 and Site4 participate in this call flow and receive calls from the PSTN. Calls coming into these sites are routed over the WAN to agents at Site2, Site3, and Site8.
- Unified OUTD Call Flow—Site6 with dedicated agents participates in this call flow.
- Parent/Child Call Flow—The parent systems in Site1/Site4 route calls to the two child systems. Calls are also routed directly to the child systems in Site2, Site3, and Site8 without involving the parent system and the parent sites. Site9 receives its calls only from the parent systems.

[Chapter 4, “Tested Call Flows”](#) discusses these call flows in greater detail.

Topology of Cisco Unified IP IVR Sites

The topology and relationships of the eight sites, where Unified IP IVR is deployed, is shown in [Figure 2-1](#):

Figure 2-1 Unified IP IVR Sites in Test Bed 1



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Snapshot of Unified IP IVR Sites Components

Table 2-2 provides a comprehensive view of the different components deployed at the various Unified IP IVR sites. For specific component names and quantities, see the individual site descriptions in this section.

Table 2-2 Comprehensive Unified IP IVR Sites Components List

Components	Site1	Site2	Site3	Site4	Site5	Site6	Site9
Hub/Data Center	X			X			
Branch Office					X		X
Remote Site		X	X			X	
Agents	0	334	642	0	117	160	117
BHCA	n/a	5,616	10,023	n/a	1,989	5,202	2,047
Outsourcer Agents	0	33	45	0	0	0	117
Outsourcer BHCA	n/a	561	765	n/a	n/a	n/a	2,047
Unified CallManager Cluster	X			X	X		X
Music On Hold (MOH)	X			X	X		X
HW Conference/MTP	X			X	X		X
Domain Controller	X			X			X
Unified ICM Rogger	X			X			
Unified ICM Progger	X			X			X
RT AW/HDS/WebView	X			X	X		X
Windows 2003 AD	X			X			X
Unified CCGE	X			X			
Unified SCCG	X			X			X
Generic PG					X		
MR PG (co-resident on Unified OUTD)						X	
Access Switch	X	X	X	X	X	X	X
CMM Gateway: SIP (1) & MGCP (5)	X				X		
IOS (H.323) Gateway				X			
PSTN Gateway	X			X	X	X	
VXML Gateway	X			X			
Gatekeeper	X			X			X

Table 2-2 Comprehensive Unified IP IVR Sites Components List (continued)

Components	Site1	Site2	Site3	Site4	Site5	Site6	Site9
WAN Router	X	X	X	X	X	X	X
CRS (Unified IP IVR)	X			X	X		X
Unified CVP Server (Call Control)	X			X			
CAD Server: co-resident on Generic PG (5) & Progger (9)					X		X
CTI/CTI OS Server: co-resident on Unified SCCG (1 & 4), Generic PG (5), & Progger (9)	X			X	X		X
CAD Agent/Supervisor Desktop					X	X	X
CTI OS Agent/Supervisor Desktop		X	X				
Unified OUTD						X	
DHCP Server (on router)	X	X	X	X	X	X	X
VoIP Monitor Server: co-resident on Generic PG (5) & Progger (9)					X		X
Unified IP Phones (SCCP and SIP)	X	X	X	X	X	X	X
CiscoWorks Management Center for Cisco Security Agent	X						
Cisco Security Agent	X	X	X	X	X	X	X
Cisco RMS Alarm Tracker	X						X
Unified Operations Manager				X			
Third-Party Software	X	X	X	X	X	X	X

**Note**

Site8 has a Cisco Telecommuter Router 831 and Cisco IP Communicator for connectivity to the data centers. Cisco 7507 is the core switch that provides Frame Relay services to the Unified IP IVR sites.

Parent and Child Topology in Test Bed 1

The topology and relationships of the five sites in Test Bed 1 configured in the parent and child model and participating components are shown in [Figure 2-2](#).

Site Relationships and Call Routing

Listed below are the relationships of the parent and child sites and the Parent/Child call routing deployed in Test Bed 1.

Parent Sites:

- Site1 and Site4 are parent sites.

- Both Site1 (Side A) and Site4 (Side B) have the following component configuration for the parent system:
 - Central Controller (Rogger) components for parent systems
 - Unified CVP systems that service Unified CVP Post-Routed calls
 - Unified CCGE

Child Sites:

- Child sites include Site1, Site2, Site3, Site4, Site8, and Site9.
- Site1, Site2, Site3, Site4, and Site8 are in the first child grouping.
- Site9 is in the second child grouping. In addition, Site9 has its own dual Progger system (Side A and Side B) for built-in redundancy.
- Both Site1 (Side A) and Site4 (Side B) have the following component configuration for the child system:
 - Central Controller (Rogger) components for the child systems
 - CRS systems that service both Unified CallManager Post-Routed and Parent/Child calls flows
 - Unified SCCG

Parent and Child Site Relationships

- Site1 and Site4 participate in the parent and child deployment. Unified CCGEs (parent) and the Unified SCCGs (for the first child system) are located at these sites.
- Site1, Site2, Site3, Site4, and Site8 are part of the first child system in the single parent with multiple children configuration.
- Site9 is part of the second child system configuration. An Unified ICM Progger (Central Controller and Agent/IVR Controller) and a RTAW are located here.

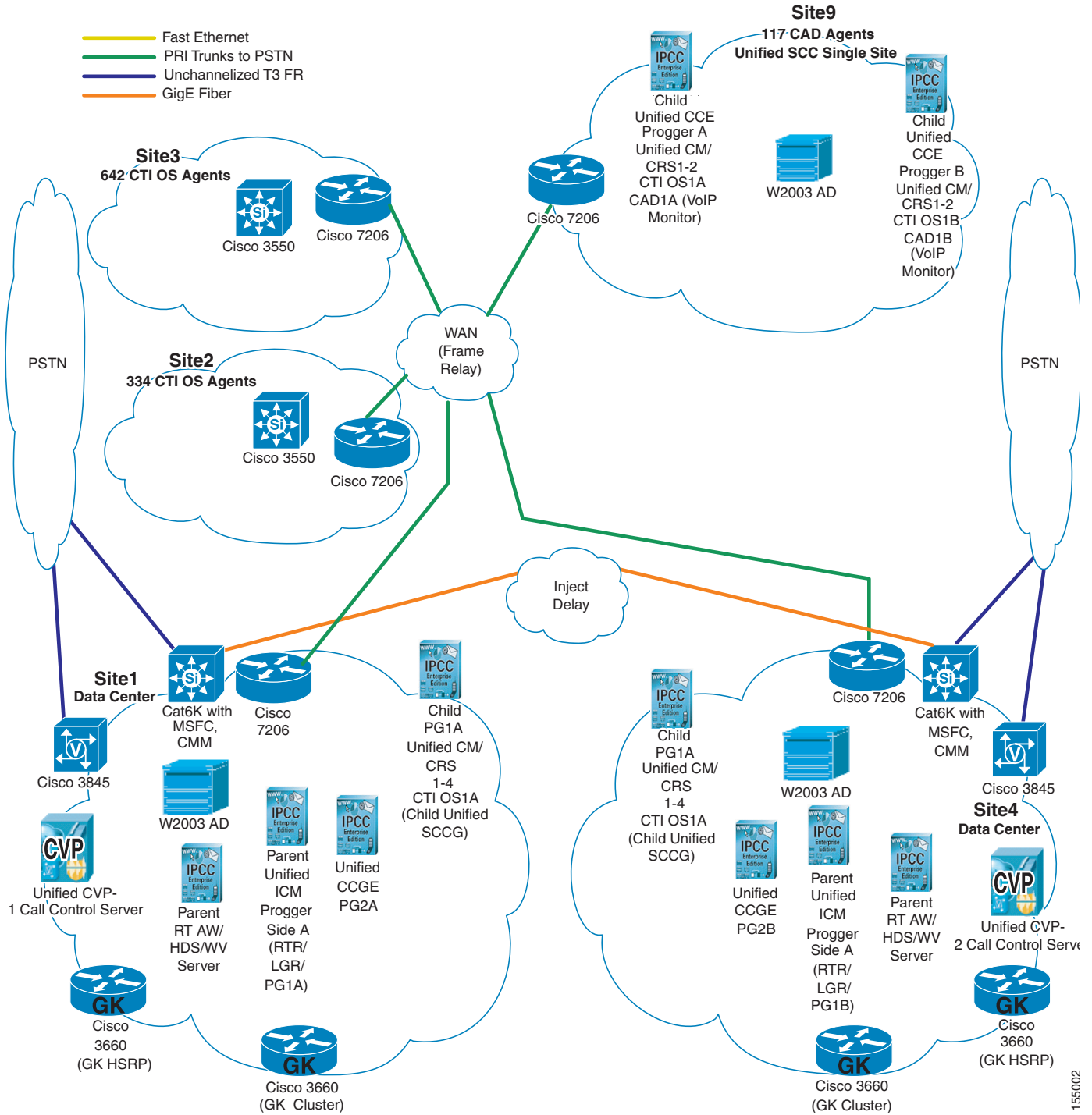
Parent/Child Call Routing

Calls in the parent and child deployment are routed in one of the following ways:

- Calls can be translation-routed from the parent Unified ICM Enterprise system (with Unified CCGE) to either of the two child Unified CCE systems (with Unified SCCG). Each child system is treated as a separate ACD by the parent system. The Unified CVP system at the data centers performs the initial call treatment at the parent site and CRS provides queueing capabilities locally at the child sites.
- Calls can be both post- and translation-routed from one child to another through the parent including transfers, consults, and others.
- Each child system can route calls incoming to those sites through voice gateways that are not related to the parent system, thereby ensuring that call center operations can continue even if the WAN connection is not reliable.

Chapter 4, “Tested Call Flows” discusses the Parent/Child call flow in greater detail.

Figure 2-2 Parent and Child Sites in Test Bed 1



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Unified IP IVR Site Definitions

The following section describes the sites that were created for the various deployment models in Test Bed 1 for testing Unified CallManager Post-Routed call flows. Each topic defines the design characteristics of an individual site and includes logical and physical topology maps and a site equipment table.

**Note**

For testing the [Single-site](#) deployment model and the Unified SCC implementation, Unified CVP Post-Routed traffic is directed into this test bed. The Unified CCGE feature is implemented as a parent and child deployment (see [Figure 2-2](#)) in Test Bed 1. Parent and child systems are deployed at Site1/Site4 and Unified CVP systems are set up at the data centers to provide call treatment and queueing for the Unified CVP Post-Routed calls.

Site1: Data Center Site

Site Profile

Site1 is the hub and the data center in a multisite distributed WAN configuration with Site4 as its backup hub. This site acts as the hub for Site2, Site3, and Site8 remote sites. This site participates as the parent, along with Site4, in the parent and child deployment.

The test site is deployed as follows:

- Agents:
 - There are no agents and ingress calls are not answered at this site.
 - Site1 manages and services the agents located in Site2, Site3 and Site8.
- Call Flows:
 - CRS is used for menu prompting and call queue management of the Unified CallManager Post-Routed call flow and load sharing at Site1.
 - Unified CVP at Site1/Site4 (parent sites) is used to provide the initial call treatment (prompting) and queueing for the Unified CVP Post-Routed call flow. CRS (Unified IP IVR) can also provide subsequent queueing at the child sites.
 - The Cisco SIP Catalyst CMM acts as a gateway into this site and is used to terminate the traffic originating from the PSTN simulators.
- Call Processing/Routing:
 - A Peripheral Gateway, Router and Logger (Progger) can be co-resident and a Router and Logger (Rogger) can be co-resident on Unified ICM systems. Both provide enterprise-wide Unified ICM capability by distributing voice and data from multiple channels to enterprise resources.
 - An Unified ICM Progger and a Rogger (Side A) are located at this hub. There is a dedicated private and separate visible WAN connection to the Unified ICM Progger and Rogger (Side B) at Site4.
 - The central database is associated with the Logger. The Historical Database Server (HDS) and WebView Server (WVS) are installed on the Real-Time Admin Workstation (RT AW). There are two RT AW/HDS/WVS (Side A parent and child) located at this site.
 - Both Unified CVP and CRS provide call treatment and queueing based on the type of post-routed calls coming into Site1.

- Infrastructure:
 - A Unified CallManager cluster with 1 Publisher and 3 Subscribers.
 - There are 2 types of Peripheral Gateways implemented at Site1.
The Unified CCGE supports two Peripheral Interface Manager (PIMs) to provide connectivity to the peripherals or child systems at the remote sites.
The Unified SCCGs are used to communicate with the local Unified CallManager cluster, the CRS system, CTI OS servers, and the Unified OUTD in Site6.
 - The SIP Catalyst CMM acts as the voice gateway connected directly to the WAN and indirectly to the PSTN simulators.
 - The Gatekeepers are implemented in HSRP and Cluster models.
 - A WAN router and DS3 link provide clustering over the WAN (CoW) private connectivity to the backup data center in Site4.
 - A DHCP Server (on the router) provides IP addresses to the admin Unified IP Phones that are needed for basic functionality testing.
 - Windows 2003 AD provides the active directory structure and DNS services.
 - Cisco 2651 device which acts as the Headend for VPN Aggregation for the Cisco 831 Teleworker router.
- Unified IP Phones:
 - There are admin phones at this site.
- Network Management:
 - Perfmon, Alarm Tracker, and WebView are installed at this site to provide reporting and troubleshooting information.
- Redundancy and Failover:
 - The Unified CallManager cluster has been set up in 1:1 load sharing mode.
 - Failover capabilities are in place in Site4 for the Unified CallManager, Unified CVP, CRS, and the Unified CCGE and Unified SCCG systems.
 - The second Progger and Rogger at Site4 provide data center redundancy for this site.
 - Gatekeepers are implemented in HSRP and Cluster models.
- Security:
 - Core management security is implemented with CiscoWorks Management Center.
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers.

Figure 2-3 shows the logical topology of Site1.

Figure 2-3 Site1 Logical Topology

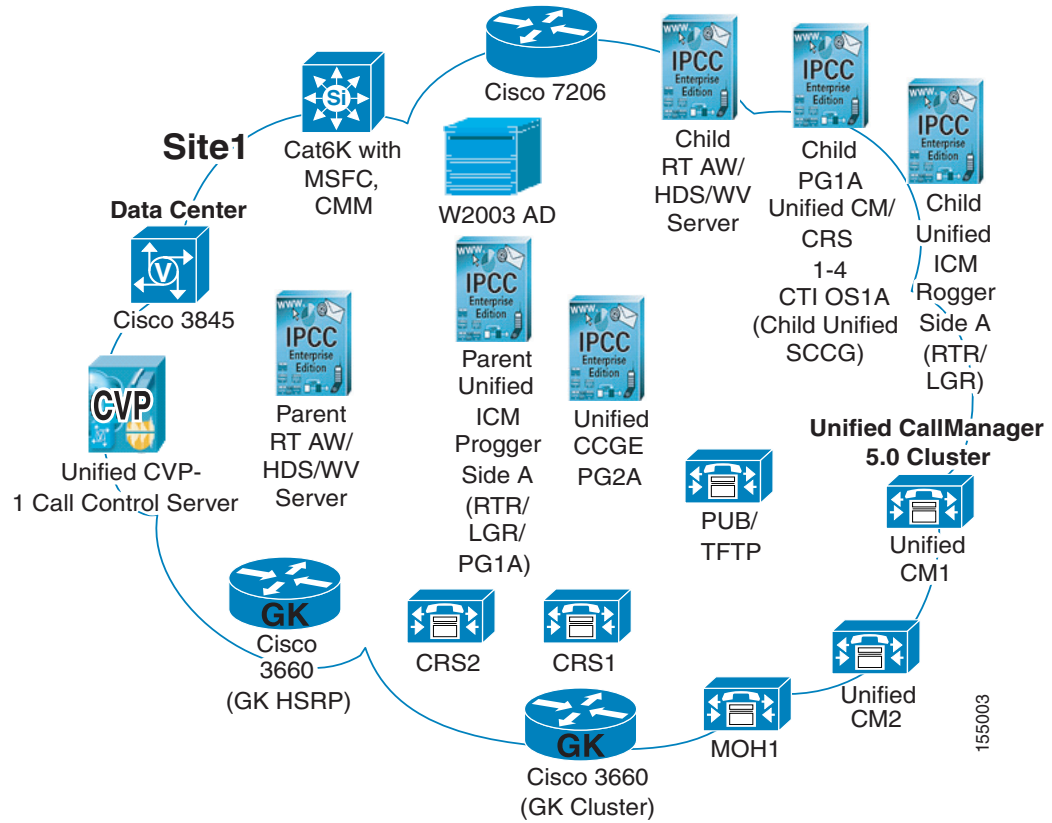


Table 2-3 lists the equipment and hardware platforms used in Site1. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-3 Site1 Equipment List

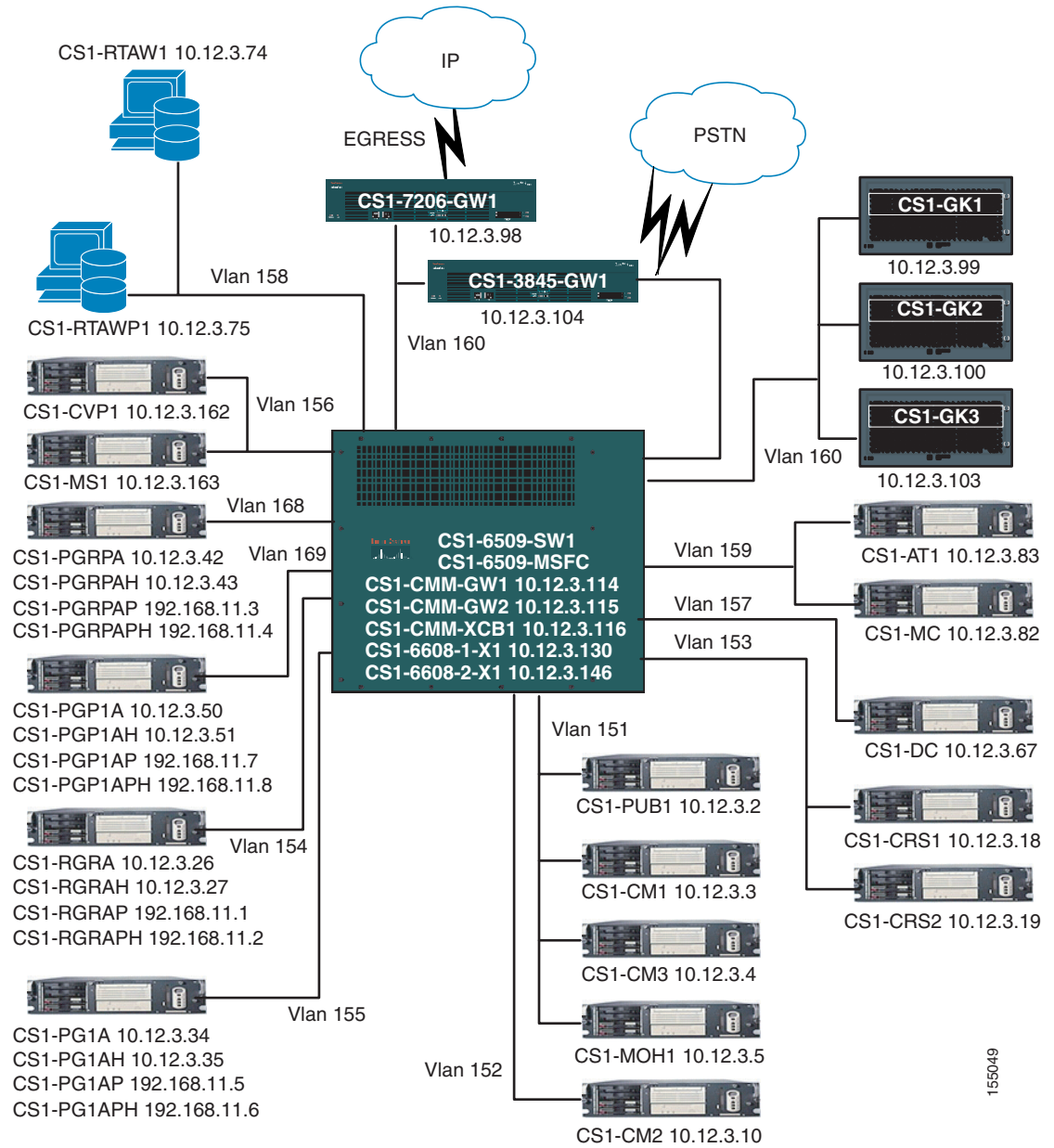
Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6509	1	Catalyst 6500 Series
Alarm Tracker	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Unified CallManager	MCS-7845H-3.0-IPC1	3	Cisco Unified CallManager
CMM (SIP) Gateway	Catalyst 6500 (MSFC)	1	Catalyst 6500 Series
CRS (Unified IP IVR)	MCS-7845H-2.4-EVV1	2	Cisco Customer Response Solutions

Table 2-3 Site1 Equipment List (continued)

Component	Hardware Platform	Qty	Reference
CiscoWorks Management Center	MCS-7845H-2.4-EVV1	1	CiscoWorks Management Center for Cisco Security Agent and Cisco Security Agent
Unified CVP Servers	MCS-7845H-2.4-EVV1	2	Cisco Unified Customer Voice Portal
Domain Controller	MCS-7845H-3000	1	Cisco Unified Intelligent Contact Management
Gatekeeper (Cluster and HSRP)	Cisco 3660	3	Gateways/Gatekeepers
HW Conference/MTP	Catalyst 6509 CMM (ACT)	1	Catalyst 6500 Series
Unified CCGE	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Unified SCCG	MCS-7845H-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	2	Cisco Unified IP Phones
Music on Hold (MOH)	MCS-7845H-2.4-EVV1	1	Cisco Unified CallManager
PSTN/VXML Gateway	Cisco 3745	1	Gateways/Gatekeepers
Progger (Parent)	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Rogger (Child)	MCS-7845H-H1-CC1	1	Cisco Unified Intelligent Contact Management
RTAW /HDS / WebView (Parent)	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
RTAW /HDS / WebView (Child)	MCS-7845H-H1-CC1	1	Cisco Unified Intelligent Contact Management
WAN Router	Cisco 7206VXR	1	Routers
Windows 2003 AD	MCS-7845-1400	1	Cisco Unified Intelligent Contact Management

Figure 2-4 shows the physical topology of Site1 displaying the equipment listed in Table 2-2.

Figure 2-4 Site1 Physical Topology



Site2: Remote Site

Site Profile

Site2 is a small remote office of Site1 in the multisite centralized configuration. It participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - 334 agents use CTI OS Desktop Application for call control functions.
 - Calls arriving and being processed here have a BHCA of 5,616.
 - Agents in this site also handle outsourced calls.
 - Teleworker agent (in Site8) is associated with this site.
- Call Flows:
 - Agents receive both Unified CallManager Post-Routed and Parent/Child call flows.
 - Agents in this site receive transfers from Site3.
- Infrastructure:
 - A WAN router and DS3 link provide connectivity to other sites through a Frame Relay cloud.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
- Unified IP Phones:
 - 250 SCCP phones are located at this site.
 - 84 agent and 16 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-5 shows the logical topology of Site2.

Figure 2-5 Site2 Logical Topology

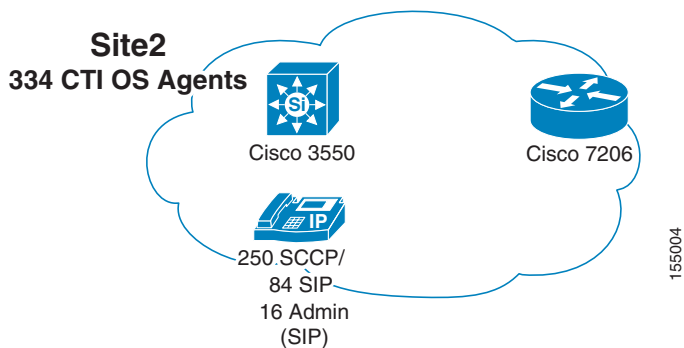


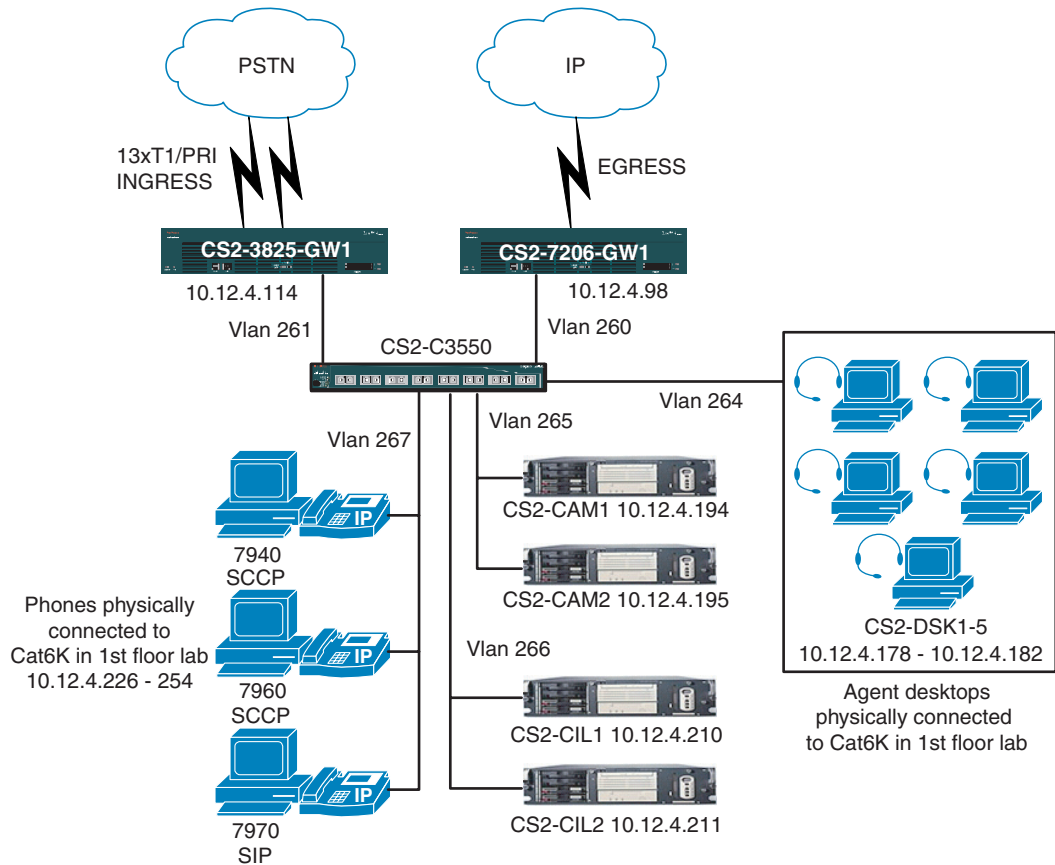
Table 2-4 lists the equipment and hardware platforms used in Site2. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-4 Site2 Equipment List

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 3550	1	Catalyst 3500 Series
CTI OS Agent and Supervisor Desktop	Pentium IV Desktop	3	Cisco Telephony Integration Object Server
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	2	Cisco Unified IP Phones
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-6 shows the physical topology of Site2 displaying the equipment listed in Table 2-3.

Figure 2-6 Site2 Physical Topology



155050

Site3: Remote Site

Site Profile

Site3 is a medium remote site of Site1 in the multisite distributed configuration. It participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - 642 Agents use CTI OS Desktop Application for call control functions
 - Calls arriving and being processed here have a BHCA of 10,023.
 - Agents in this site also handle outsourced calls.
- Call Flows:
 - Agents receive both Unified CallManager Post-Routed and Parent/Child call flows.
 - Agents in this site receive transfers from Site2.
- Infrastructure:
 - A WAN router and DS3 link provide connectivity to other sites through a Frame Relay cloud.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
- Unified IP Phones:
 - 482 SCCP phones are located at this site.
 - 161 agent and 29 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-7 shows the logical topology of Site3.

Figure 2-7 Site3 Logical Topology

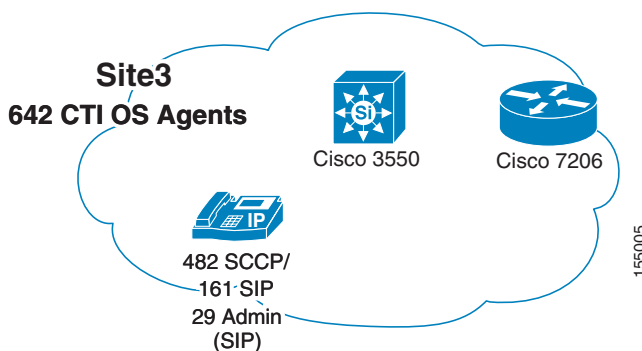


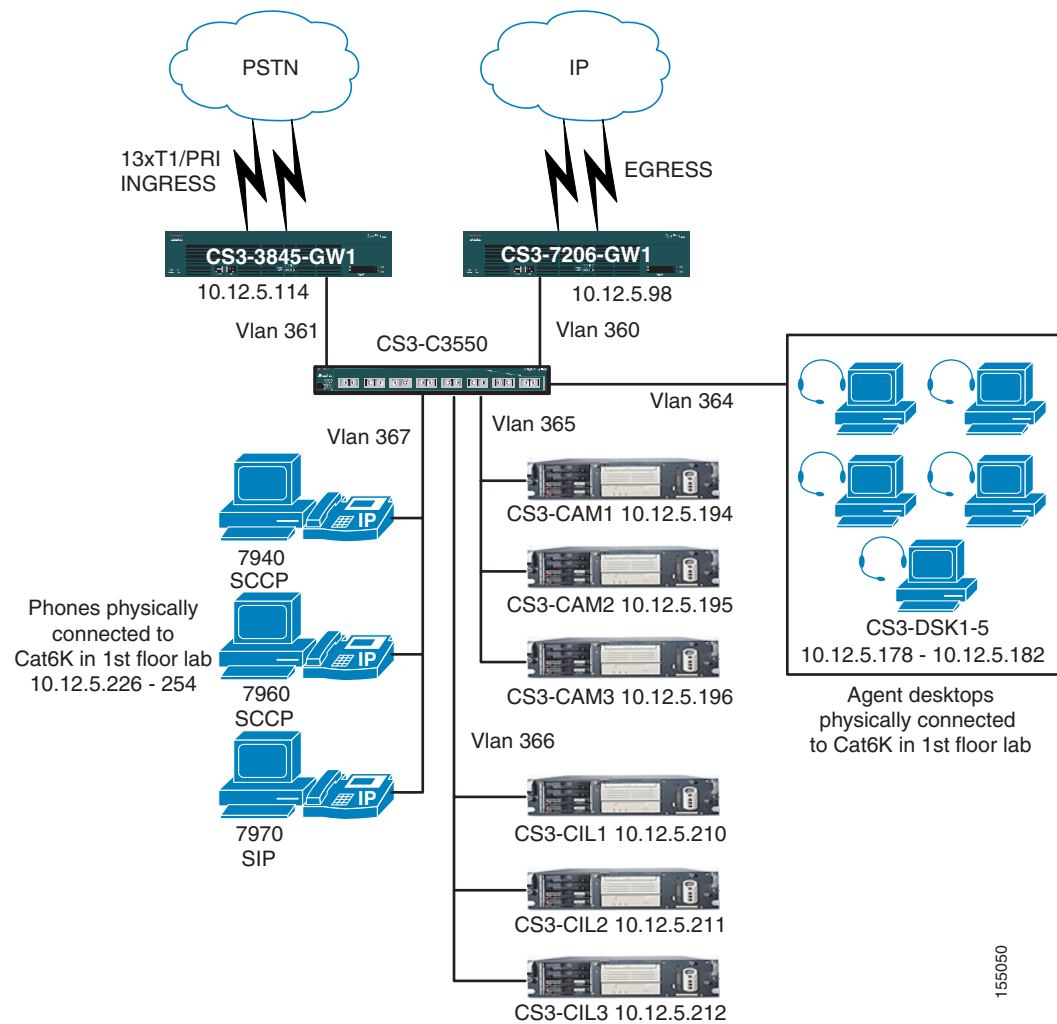
Table 2-5 shows the equipment and hardware platforms used in Site3. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-5 Site3 Equipment List

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 3550	1	Catalyst 3500 Series
CTI OS Agent and Supervisor Desktop	Pentium IV Desktop	3	Cisco Telephony Integration Object Server
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	2	Cisco Unified IP Phones
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-8 shows the physical topology of Site3 displaying the equipment listed in Table 2-4.

Figure 2-8 Site3 Physical Topology



Site4: Data Center Site

Site Profile

Site4 is a redundant hub and the backup data center for Site1 with which it participates in a multisite centralized configuration for Site2, Site3, and Site8. This site participates as the backup parent, for Site1, in the parent and child deployment. It also participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - There are no agents and ingress calls are not answered at this site.
- Call Flows:
 - This site acts as a backup to Site1 and helps Site1 manage and service the agents at Site2, Site3, and Site8.
 - CRS is used for menu prompting, call queue management, and load sharing of the Unified CallManager Post-Routed call flow at Site1.
 - Unified CVP at Site1/Site4 (parent sites) is used to provide the initial call treatment (prompting) and queueing for the Unified CVP Post-Routed call flow. CRS (Unified IP IVR) can also provide subsequent queueing at the child sites.
 - The AS5850 gateway acts as a H.323 gateway into this site and is used to terminate the traffic originating from the PSTN simulators.
- Call Processing/Routing:
 - An Unified ICM Progger and Rogger (Side B) are located at this hub. There is a dedicated private and separate visible WAN connection to the other Unified ICM Progger and Rogger (Side A) in Site1.
 - HDS and WVS are installed on RT AWs. There are two RT AW/HDS/WVS (Side B parent and child) located at this site.
 - Both Unified CVP and CRS provide call treatment and queueing based on the type of post-routed calls coming into Site4.
 - Unity Connection provides voicemail functionality for agents at Site2, Site3, and Site8.
- Infrastructure:
 - A Unified CallManager cluster with 1 Publisher and 3 Subscribers.
 - There are 2 types of Peripheral Gateways implemented at Site4.
 - The Unified CCGE supports two Peripheral Interface Manager (PIMs) to provide connectivity to the peripherals or child systems at the remote sites.
 - The Unified SCCGs are used to communicate with the local Unified CallManager cluster, the CRS system, CTI OS servers, and the Unified OUTD in Site6.
 - Two Gatekeepers are implemented in HSRP and Cluster models.
 - A WAN router and DS3 link provide connectivity to other sites through a Frame Relay cloud.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
 - Windows 2003 AD provides the active directory structure and DNS services.
- Unified IP Phones:
 - There are admin phones at this site.

- Network Management:
 - Perfmon, Cisco Unified Operations Manager (Unified Operations Manager), and WebView are installed at this site to provide reporting and troubleshooting information.
- Redundancy and Failover:
 - The Unified CallManager cluster has been set up in 1:1 load sharing mode.
 - Failover capabilities are in place in Site1 for the Unified CallManager, Unified CVP, CRS, and the Unified CCGE and Unified SCCG systems.
 - Redundancy for the Progger and Rogger is in place with the other Progger and Rogger (Side A) located in Site1.
 - Gatekeepers are implemented in HSRP and Cluster models.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers.

Figure 2-9 is a logical topology of Site4.

Figure 2-9 Site4 Logical Topology

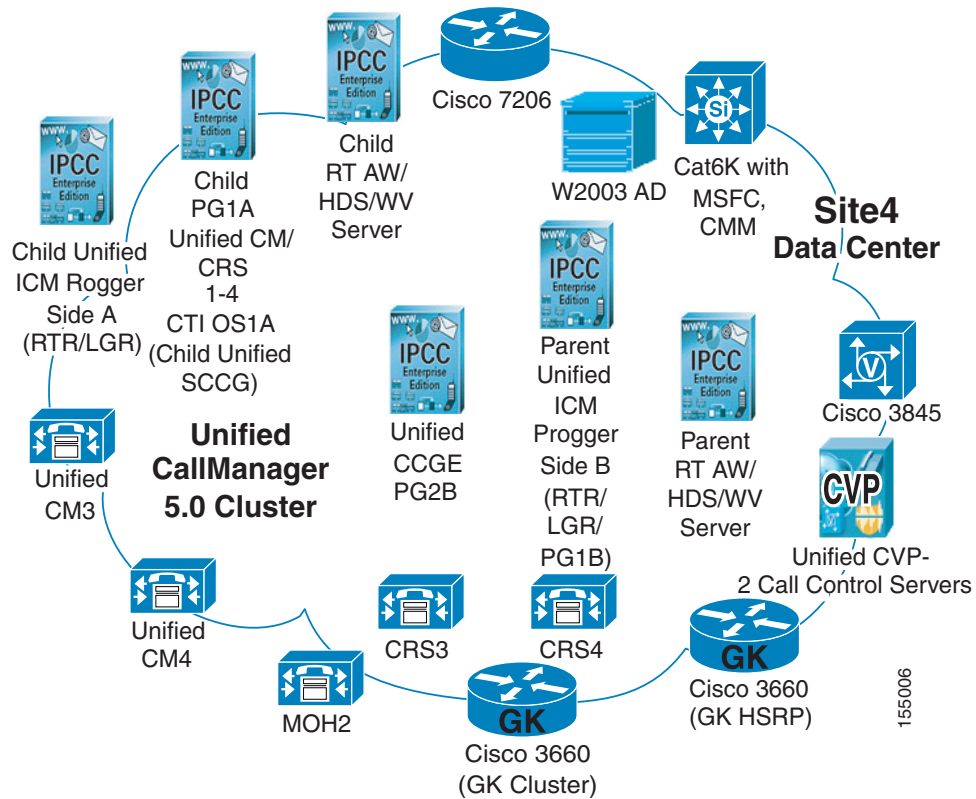


Table 2-6 lists the equipment and hardware platforms used in Site4. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-6 Site4 Equipment List

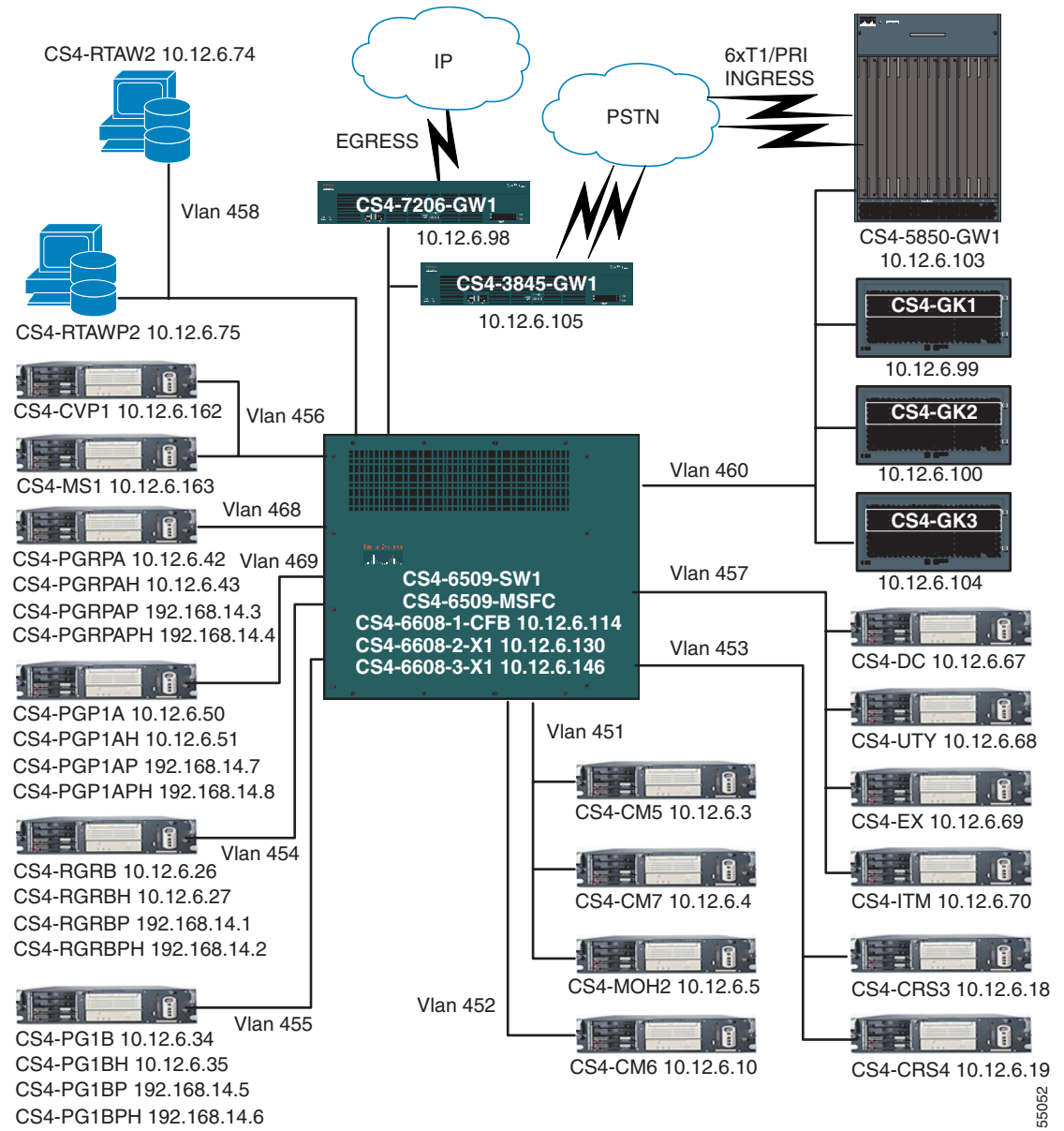
Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6509	1	Catalyst 6500 Series
Unified CallManager	MCS-7845H-3.0-IPC1	4	Cisco Unified CallManager
Unified Operations Manager	MCS-7845H-2.4-EVV1	1	Cisco Unified Operations Manager
CRS (Unified IP IVR)	MCS-7845H-2.4-EVV1	2	Cisco Customer Response Solutions
Unified CVP Server	MCS-7845H-2.4-EVV1	2	Cisco Unified Customer Voice Portal
Domain Controller	MCS-7845H-3000	1	Cisco Unified Intelligent Contact Management
Gatekeeper (Cluster and HSRP)	Cisco 3660	3	Gateways/Gatekeepers
Gateway (H.323)	AS5850	1	Gateways/Gatekeepers
HW Conference/MTP	Catalyst 6509 CMM (ACT)	1	Catalyst 6500 Series
Unified CCGE	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Unified SCCG	MCS-7845H-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	2	Cisco Unified IP Phones
Music on Hold (MOH)	MCS-7845H-2.4-EVV1	1	Cisco Unified CallManager
PSTN/VXML Gateway	Cisco 3745	1	Gateways/Gatekeepers
Rogger (Parent)	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Rogger (Child)	MCS-7845H-H1-CC1	1	Cisco Unified Intelligent Contact Management
RTAW /HDS / WebView (Parent)	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
RTAW /HDS / WebView (Child)	MCS-7845H-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unity Connection	MCS-78551-1.5-ECS2	1	Cisco Unity Connection
WAN Router	Cisco 7206VXR	1	Routers

Table 2-6 Site4 Equipment List (continued)

Component	Hardware Platform	Qty	Reference
Windows 2003 AD	MCS-7845-1400	1	Cisco Unified Intelligent Contact Management

Figure 2-10 shows the physical topology of Site4 displaying the equipment listed in Table 2-5.

Figure 2-10 Site4 Physical Topology



155052

Site5: Branch Office Site

Site Profile

Site5 is a medium remote branch office in a multisite centralized configuration for Site6. It also participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - 117 agents use Cisco Agent Desktop (CAD) Application for call control functions.
 - Calls arriving and being processed at this site have a BHCA of 1,989.
- Call Flows:
 - CRS servers at Site5 provide local call treatment, management, and queueing.
 - The Catalyst CMM (MGCP) is the voice gateway that is used to accept calls originating from the PSTN simulators. It routes the calls to the local agents or to the WAN gateway for other sites if the local agents are not available.
- Call Processing/Routing:
 - A RT AW/HDS/WVS is located at this site.
- Infrastructure:
 - A small Unified CallManager cluster with 1 Publisher and 2 Subscribers.
 - The Generic PG communicates with the Central Controller (Rogger) in the data centers (Site1/Site4) and support the local Unified CallManager cluster, CRS, and CAD services.
 - A WAN router and DS3 link provide connectivity to other sites through a Frame Relay cloud.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
 - A VoIP Monitor provides SPAN monitoring services.
- Unified IP Phones:
 - 88 SCCP phones are located at this site.
 - 29 agent and 5 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-11 shows the logical topology of Site5.

Figure 2-11 Site5 Logical Topology

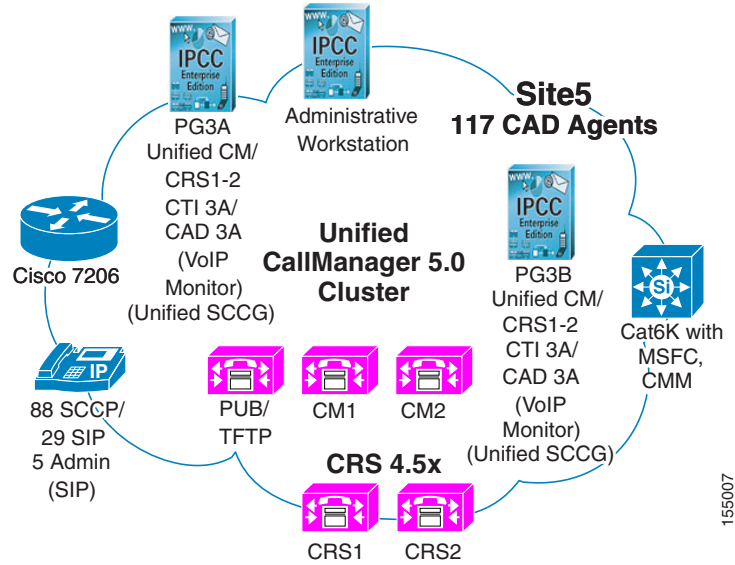


Table 2-7 lists the equipment and hardware platforms used in Site5. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-7 Site5 Equipment List

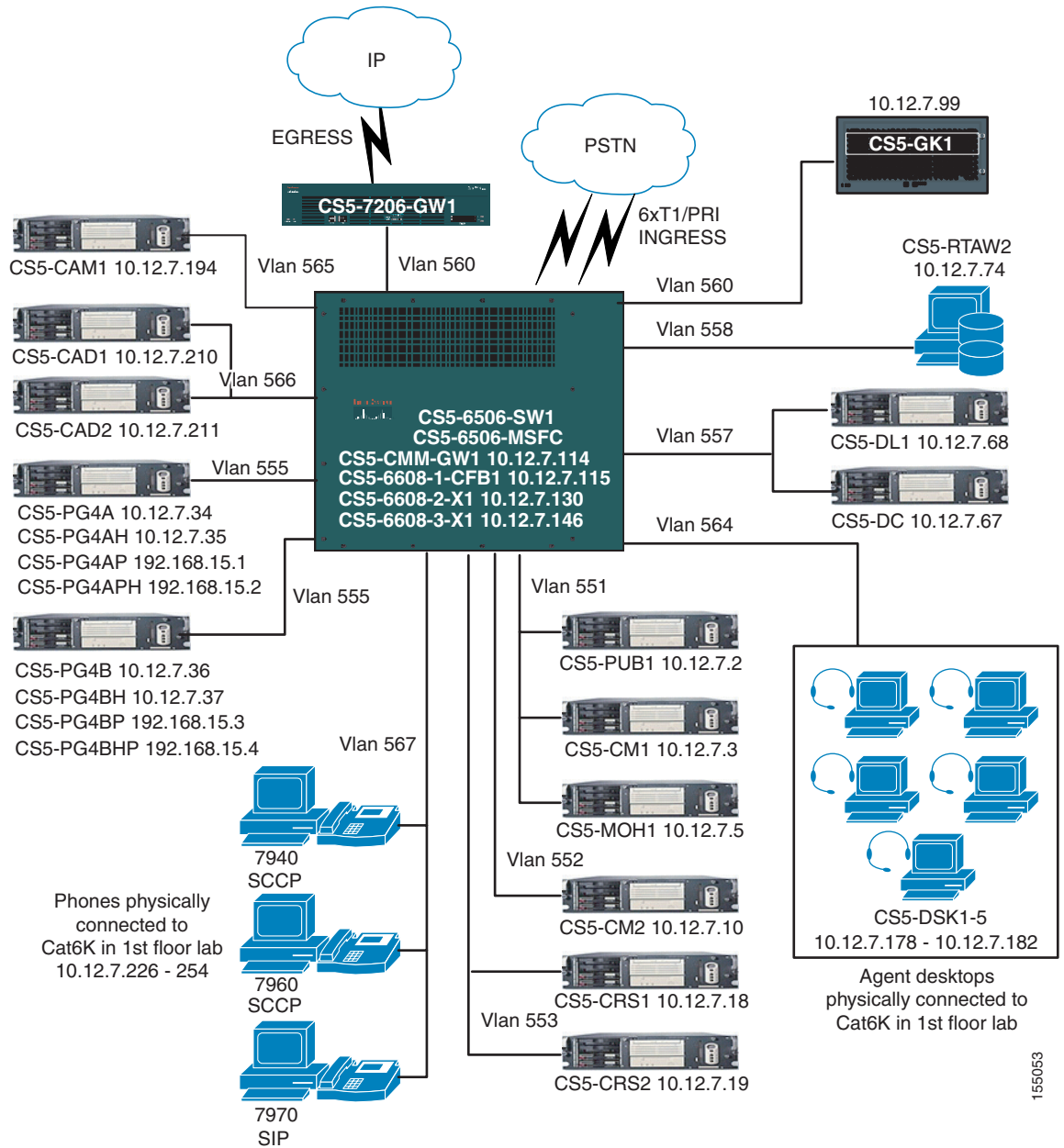
Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6506	1	Catalyst 6500 Series
Cisco Agent and Supervisor Desktop	Pentium IV Desktop	3	Cisco Agent Desktop
Unified CallManager	MCS-7845-H1-IPC1	3	Cisco Unified CallManager
CMM Gateway	Catalyst 6500	1	Catalyst 6500 Series
CRS (Unified IP IVR)	MCS-7845-H1-IPC1	1	Cisco Customer Response Solutions
Generic PG	MCS-7845-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	2	Cisco Unified IP Phones
Music On Hold (MOH)	MCS-7845-H1-IPC1	1	Cisco Unified CallManager
RT AW/ HDS/ WVS	MCS-7845-H1-CC1	1	Cisco Unified Intelligent Contact Management

Table 2-7 Site5 Equipment List (continued)

Component	Hardware Platform	Qty	Reference
VoIP Monitor (co-resident on Generic PG)	MCS-7845-H1-CC1	1	Cisco Agent Desktop
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-12 shows the physical topology of Site5 displaying the equipment listed in Table 2-6.

Figure 2-12 Site5 Physical Topology



Site6: Remote Site

Site Profile

Site6 is a small remote office of Site5 which participates in the multisite centralized configuration. It also participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - A total of 160 agents use Cisco Agent Desktop (CAD) Application for call control functions.
 - 52 agents handle inbound calls only.
 - 108 agents are dedicated to the skill group that handles only outbound credit card collections calls to customers.
 - Outbound calls at this site have a BHCA of 4,338
- Call Flows:
 - Unified OUTDs perform outbound call campaigns.
 - Agents in this site receive transfers from Site5.
- Infrastructure:
 - A WAN router and DS3 link provide connectivity to other sites through a Frame Relay cloud.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
- Unified IP Phones:
 - 120 SCCP phones are located at this site.
 - 40 agent and 8 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-13 shows the logical topology of Site6.

Figure 2-13 Site6 Logical Topology

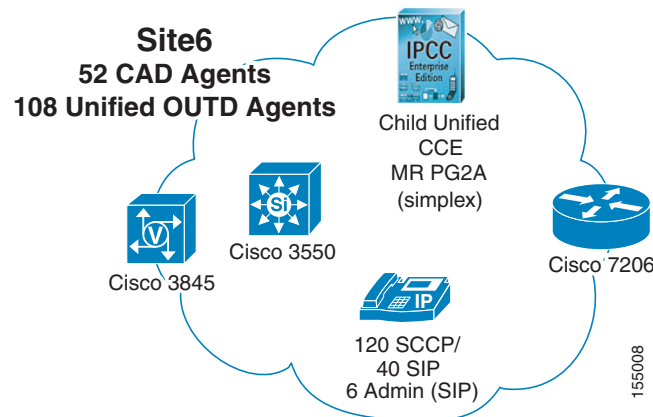


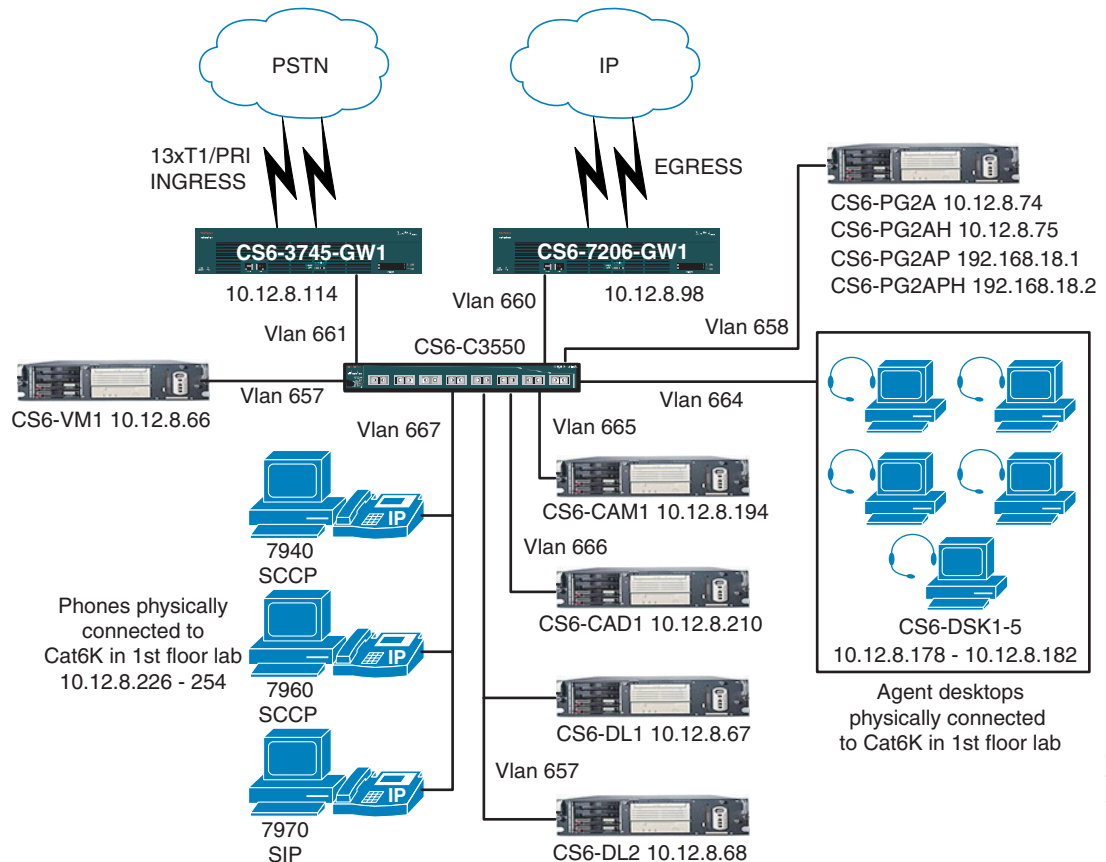
Table 2-8 lists the equipment and hardware platforms used in Site6. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-8 Site6 Equipment List

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 3550	1	Catalyst 3500 Series
Cisco Agent and Supervisor Desktop	Pentium IV Desktop	3	Cisco Agent Desktop
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	2	Cisco Unified IP Phones
Unified OUTD	MCS-7835H-3.0-CC1	2	Cisco Unified Intelligent Contact Management
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-14 shows the physical topology of Site6 displaying the equipment listed in Table 2-7.

Figure 2-14 Site6 Physical Topology



Site8: Remote Agent Site

Site Profile

Site8 is the site of the remote agent who uses the Unified CCE Home Agent with Broadband solution in the remote agent model. Site8 is associated with Site2 and participates in the multisite centralized configuration with Site1/Site4 and in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - The remote agent is associated with Site2 and can handle calls meant for Site2 based on the skill group assignment.
- Infrastructure:
 - A Cisco Teleworker router at this site provides connectivity to the data centers (Site1/Site4).
- Unified IP Phones:
 - 1 SCCP phone and 1 SIP phone are located at this site.

Figure 2-15 shows the logical topology of Site8.

Figure 2-15 Site8 Logical Topology



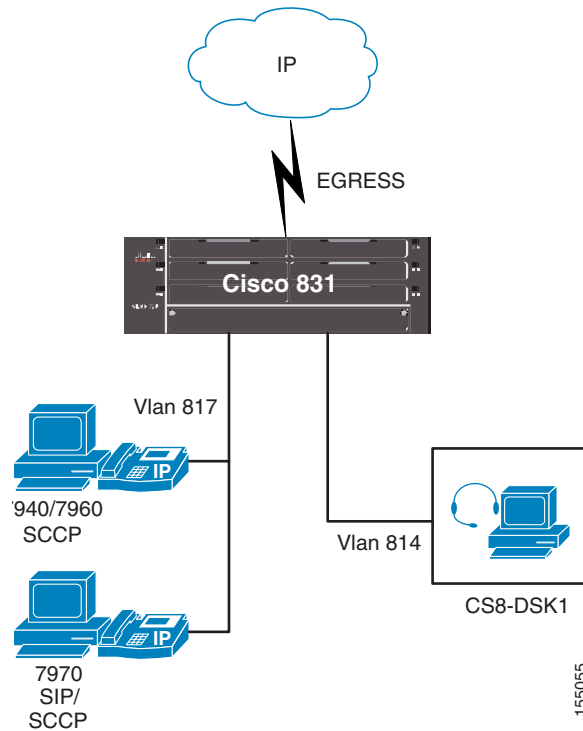
Table 2-9 lists the equipment and hardware platforms used in Site8. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-9 Site8 Equipment Table

Component	Hardware Platform	Qty	Reference
Unified IP Phones	Unified IP Phones (SCCP) 7960	1	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7971	1	Cisco Unified IP Phones
Teleworker Access Router	Cisco Teleworker 831	1	Routers

Figure 2-16 shows the physical topology of Site8 displaying the equipment listed in Table 2-8.

Figure 2-16 Site8 Physical Topology



Site9: Branch Office Site

Site Profile

Site9 is a branch office, single-site deployment in the multisite centralized configuration. It also participates in the multisite distributed WAN configuration. This is also the site where Unified SCC is implemented.

The test site is deployed as follows:

- Agents:
 - 117 agents use Cisco Agent Desktop (CAD) Application for call control functions.
 - Calls arriving at this site have a BHCA of 2,047.
 - Agents in this site only handle outsourced calls.
- Call Flows:
 - CRS servers at this site provide local call treatment, management, and queuing.
- Call Processing/Routing:
 - Unified ICM Progrgers, each of which contains the PG, Router, Logger, CTI OS, and CAD on one device.
 - One RT AW/HDS/WVS is located at this site.

- Infrastructure:
 - A Unified CallManager cluster (running a previous version of the software) with 1 Publisher and 2 Subscribers.
 - A WAN router and DS3 link provide connectivity to other sites through a Frame Relay cloud.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
 - A VoIP Monitor (co-resident on the Unified SCCG) provides SPAN monitoring services.
 - Windows 2003 provides the active directory structure and DNS services.
- Unified IP Phones:
 - 117 SCCP phones are located at this site.
- Network Management:
 - Alarm Tracker is used for network reporting.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-17 shows the logical topology of Site9.

Figure 2-17 Site9 Logical Topology

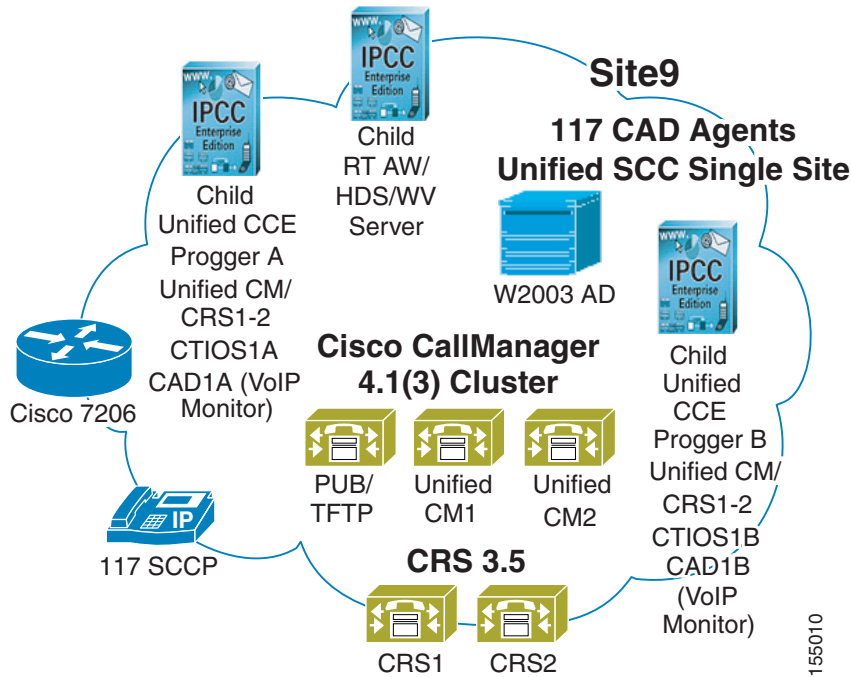


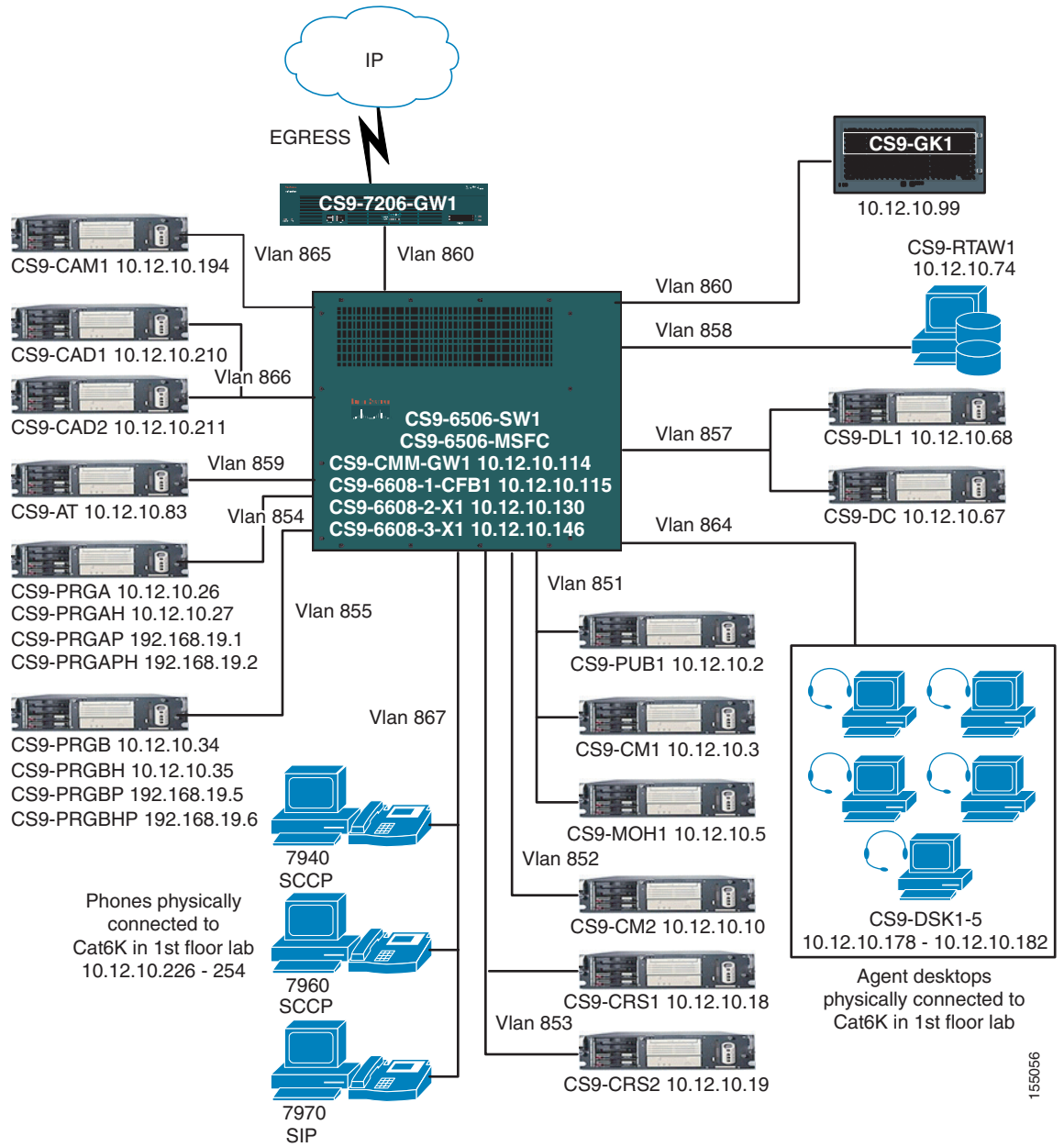
Table 2-10 lists the equipment and hardware platforms used in Site7. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-10 Site9 Equipment Table

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6506	1	Catalyst 6500 Series
Alarm Tracker	MCS-7845H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Cisco Agent and Supervisor Desktop	Pentium IV Desktop	3	Cisco Agent Desktop
Unified CallManager	MCS-7845H-2.4-EVV1	3	Cisco Unified CallManager
CRS	MCS-7835H-2.4-EVV1	1	Cisco Customer Response Solutions
Gatekeeper	Cisco 3660	1	Gateways/Gatekeepers
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	2	Cisco Unified IP Phones
Music On Hold (MOH)	MCS-7845H-2.4-EVV1	1	Cisco Unified CallManager
Progger	MCS-7845-H1-CC1	2	Cisco Unified Intelligent Contact Management
RT AW/HDS/WVS	MCS-7835H-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
VoIP Monitor (co-resident on Progger)	MCS-7845-H1-CC1	1	Cisco Agent Desktop
WAN Router	Cisco 7206VXR	1	Routers
Windows 2003 AD	MCS-7845-1400	1	Cisco Unified Intelligent Contact Management

Figure 2-18 shows the physical topology of Site9 displaying all the equipment listed in Table 2-8.

Figure 2-18 Site9 Physical Topology



155056

Test Bed 2: Unified CVP Test Sites

The following six sites make up the multisite centralized and multisite distributed WAN configurations for testing Unified CVP call flows in Test Bed 2:

- Chicago Distribution Center/[Site1: Data Center](#)
- Central Branch/[Site3: Distribution Center](#)
- Dallas Distribution Center/[Site5: Data Center](#)
- Mid-Atlantic Retail Center/[Site6: Mid-Atlantic Retail Center](#)
- North Central Retail Center/[Site7: North-Central Retail Center, page 2-57](#)
- South Central Retail Center/[Site8: South-Central Retail Center](#)

See [Topology of Unified CVP Sites](#) for a complete map of the six sites, their individual topologies, and the relationship between the sites. See [Unified CVP Site Definitions](#) for more information on the individual sites in Test Bed 2.

Site Relationships and Call Routing

Listed below are the relationships of the six sites and the call routing deployed in Test Bed 2.

Multisite Centralized Site Relationships

- Site1 and Site5 participate in the multisite centralized configuration and *share* several contact center components over the WAN (CoW).
- Site1 and Site5 are data centers and act as hubs for Site6 and Site8.
- Site3 and Site7 have their own Unified CallManager cluster for call processing.

Multisite Distributed Site Relationships

- In addition to Site1 and Site5, Site3 (distribution center/branch office) and Site7 (retail center) have Unified CallManager clusters resident at their sites for independent call processing locally and are connected by ICT trunks to the data centers.
- Site7 handles conferences/ transfers for Site6 and Site8.

Call Routing

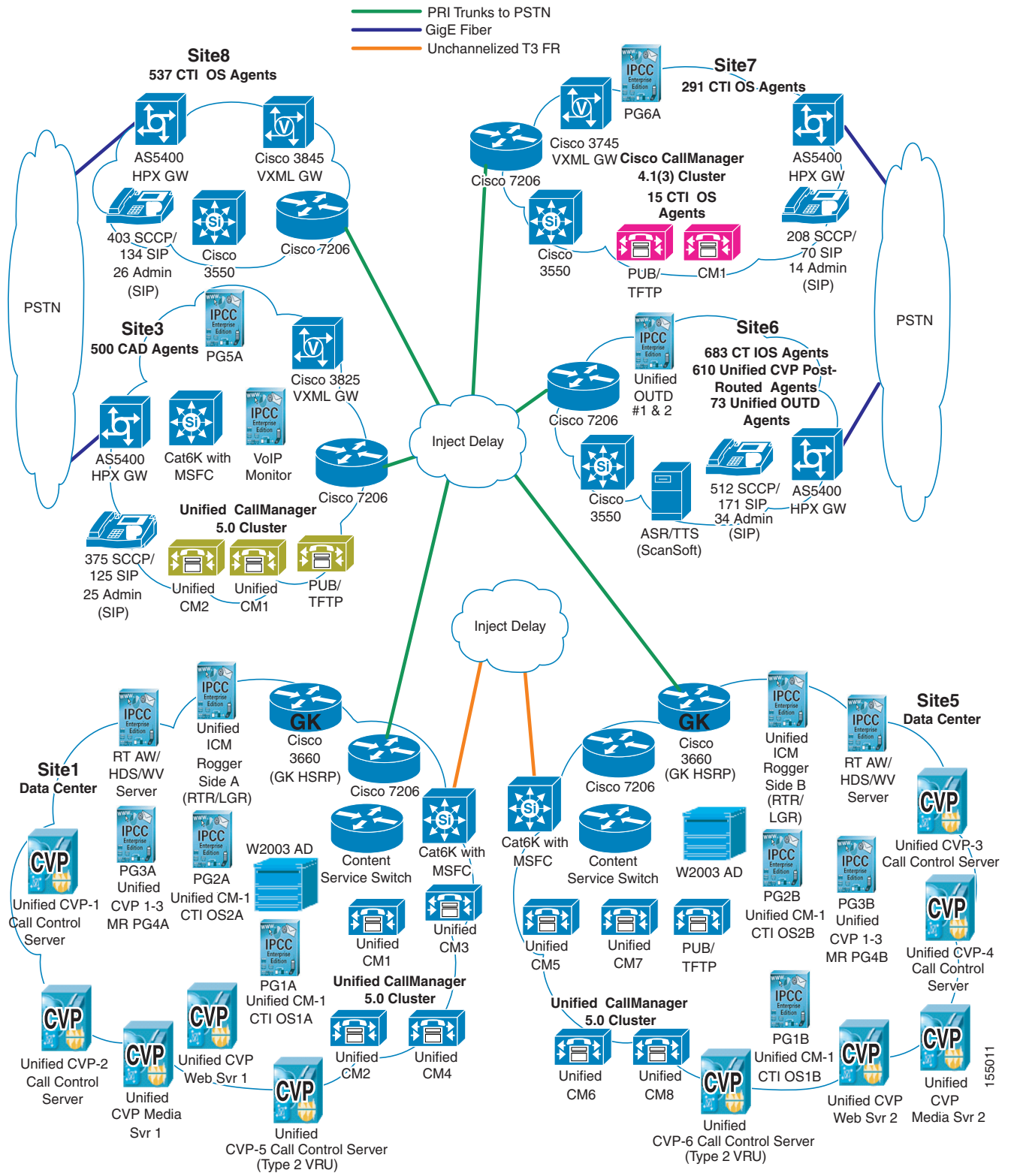
- General call flow—Customer calls come in from the gateways in the remote sites, get sent to the data centers (Site1/Site5) for processing, and then routed to agents at the appropriate remote sites.
- Unified CVP Post-Routed Call Flow—Site1 and Site5 participate in this type of call flow.
- Unified OUTD Call Flow—Site6 with dedicated agents participates in this call flow.

[Chapter 4, “Tested Call Flows”](#) discusses these call flows in greater detail.

Topology of Unified CVP Sites

The topology and relationships of the six Unified CVP sites, where Unified CCE with Unified CVP is deployed, is shown in [Figure 2-19](#):

Figure 2-19 Unified CVP Sites in Test Bed 2



Snapshot of Unified CVP Sites Components

Table 2-11 provides a comprehensive view of the different components deployed at the various Unified CVP sites. For specific component names and quantities, see the individual site descriptions in this section.

Table 2-11 Comprehensive Unified CVP Sites Components List

Components	Site1	Site3	Site5	Site6	Site7	Site8
Hub/Data Center	X		X			
Distribution Center		X				
Retail Center				X	X	X
Agents	0	500	0	683	291	537
BHCA	n/a	7,942	n/a	11,623	4,935	9,062
Unified CallManager Cluster	X	X	X		X	
Music On Hold (MOH)	X		X			
HW Conference/MTP	X	X	X		X	
Unified ICM Rogger	X		X			
RT AW/HDS/Webview	X		X			
Windows 2003 Active Directory	X		X			
Generic Peripheral Gateway (PG)	X	X	X		X	
IOS (H.323) Gateway		X		X	X	X
Unified CVP (VXML) Gateway		X		X	X	X
H.323 Gatekeeper	X		X			
Access Switch	X	X	X	X	X	X
Cisco Content Switch	X		X			
CTI/CTI OS Servers (co-resident on Generic PG)	X	X	X		X	
CAD Server (co-resident on Generic PG)		X				
MR PG (co-resident on Generic PG)	X		X			
DHCP Server (on router)	X	X	X	X	X	X
Unified CVP Servers (Call Control/Web/Media)	X		X			
ASR/TTS				X		
Unified OUTD				X		
VoIP Monitor Server		X				

Table 2-11 Comprehensive Unified CVP Sites Components List (continued)

Components	Site1	Site3	Site5	Site6	Site7	Site8
Cisco Unified IP Phones	X	X	X	X	X	X
CAD Agent/Supervisor Desktop		X				
CTI OS Agent/ Supervisor Desktop				X	X	X
CiscoWorks Management Center for Cisco Security Agent	X					
Cisco Security Agent	X	X	X	X	X	X
Cisco Unified Operations Manager			X			
Cisco RMS Alarm Tracker	X					
WAN Router	X	X	X	X	X	X
Third-Party Software	X	X	X	X	X	X

**Note**

Cisco 7507 is the core switch that provides Frame Relay services to the sites in Test Bed 2.

Unified CVP Site Definitions

The following section describes the sites that were created to deploy the various test deployment models in Test Bed 2 for testing Unified CVP Post-Routed call flows. Each topic in this section defines the design characteristics of an individual site and includes logical and physical topology maps and a site equipment table.

Side A:

- Participating sites include Site1 and Site3.
- Site1 has the following configuration:
 - Side A of the Unified ICM Rogger.
 - Unified CVP systems that service this side of the test bed.
 - PGs of which PG1, PG2 and PG3 also service Side B of the test bed.
 - A Unified CallManager cluster with 4 Subscribers and one MOH for Side A (the Publisher and TFTP server are in Side B).
- Site3 has its own Unified CallManager cluster for call processing, but uses Unified CVP in Site1/Site5 for call treatment and queueing.
- Agents in this part of the test bed use CAD Agent Desktop applications.

Side B:

- Participating sites include Site5, Site6, Site7, and Site8.
- Site5 has the following configuration:
 - Side B of the Unified ICM Rogger.

- Unified CVP systems that service this side of the test bed.
- PGs of which PG1, PG2 and PG3 also service Side A of the test bed.
- A Unified CallManager cluster with a Publisher/TFTP, 4 Subscribers and one MOH for Side B.
- Site6 has Unified OUTD with ASR/TTS capabilities.
- Site7 has its own Unified CallManager cluster (running a previous version of the software) for call processing, but uses Unified CVP in Site1/Site5 for call treatment and queueing.
- Agents in this part of the test bed use CTI OS Agent Desktop applications.

Site1: Data Center

Site Profile

Site1 is the hub and the data center in a multisite centralized configuration along with Site5 as its backup data center and redundant hub. It also participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - There are no agents in this site and ingress calls are not answered.
- Call Flows:
 - The Unified CVP Application Servers and Unified CVP Voice Browsers are co-located on a single Unified CVP Call Control server. Additionally, there are separate Unified CVP Web and HTTP Media Servers. Two of the Unified CVP Call Control servers are configured in a comprehensive mode to provide call treatment and queueing functionality. The third Unified CVP server is used to support transfer to IVR outbound campaigns and warm consultative transfers.
- Call Processing/Routing:
 - The Router and Logger are co-resident (known as a Rogger) on Unified ICM and provide enterprise-wide Unified ICM capability by distributing voice and data from multiple channels to enterprise resources.
 - Unified ICM Rogger (Side A) is located at this hub. There is a dedicated private WAN connection used for clustering over the WAN (CoW) to Site5. In addition, there is also a visible WAN connection to the other sites.
 - The central database is associated with the Logger. The Historical Database Server (HDS) and the WebView Server (WVS) are installed on the Real-Time Admin Workstation (RT AW).
- Infrastructure:
 - The Unified CallManager cluster has 4 Subscribers and a MOH (the Publisher/ TFTP server is in the other data center Site5).
 - The Gatekeepers are in a HSRP cluster model to handle the transfers done by Unified CVP.
 - The PGs in this data center are configured as follows:
 - a. PG1 is configured with the first Unified CallManager PIM and the CTI/CTI OS server which handles 974 agents (at Site6 and Site7).
 - b. PG2 is configured with the second Unified CallManager PIM and the CTI/CTI OS server which handles 537 agents (at Site8).
 - c. PG3 is configured to handle the IVR PIMs for which the Unified CVP servers are the peripherals.

- d. PG4 is configured as a Media Routing Peripheral Gateway (MR PG) to handle the Unified OUTDs located in Site6.
 - One Catalyst switch acts as a Layer2 access switch for Site1.
 - A WAN router and DS3 link provide clustering over the WAN (CoW) private connectivity to the backup data center in Site5.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones.
 - Windows 2003 AD provides the active directory structure and DNS services.
- Unified IP Phones:
 - There are admin phones at this site.
- Network Management:
 - Perfmon and AlarmTracker are used for network reporting.
- Redundancy and Failover:
 - For the Unified CallManager cluster in Side A, there are 4 Subscribers in a 1:1 load sharing mode.
 - The second Rogger at Site5 provides data center redundancy for this site.
 - Side B PGs located in Site5 also provide data center redundancy for this site.
 - Failover capabilities are in place for the Unified CallManager and the IPCC PG systems.
 - A Content Switch is used for load-balancing the Unified CVP servers.
 - Gatekeepers are implemented in an HSRP redundancy model.
- Security:
 - Core management security is implemented with CiscoWorks Management Center.
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers.

Figure 2-20 shows the logical topology of Site1.

Figure 2-20 Site1 Logical Topology

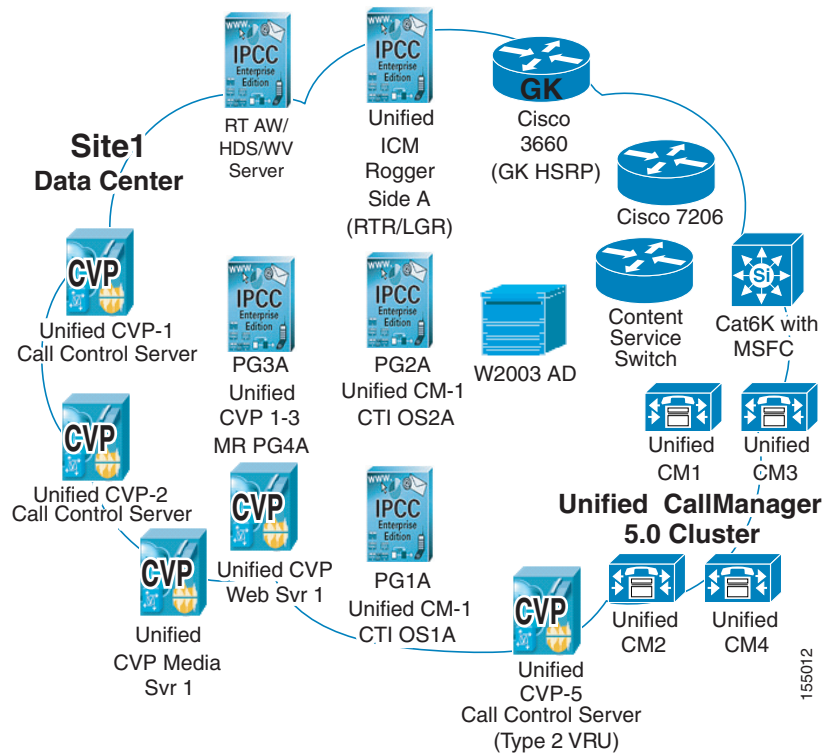


Table 2-12 lists the equipment and hardware platforms used in Site1. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-12 Site1 Equipment List

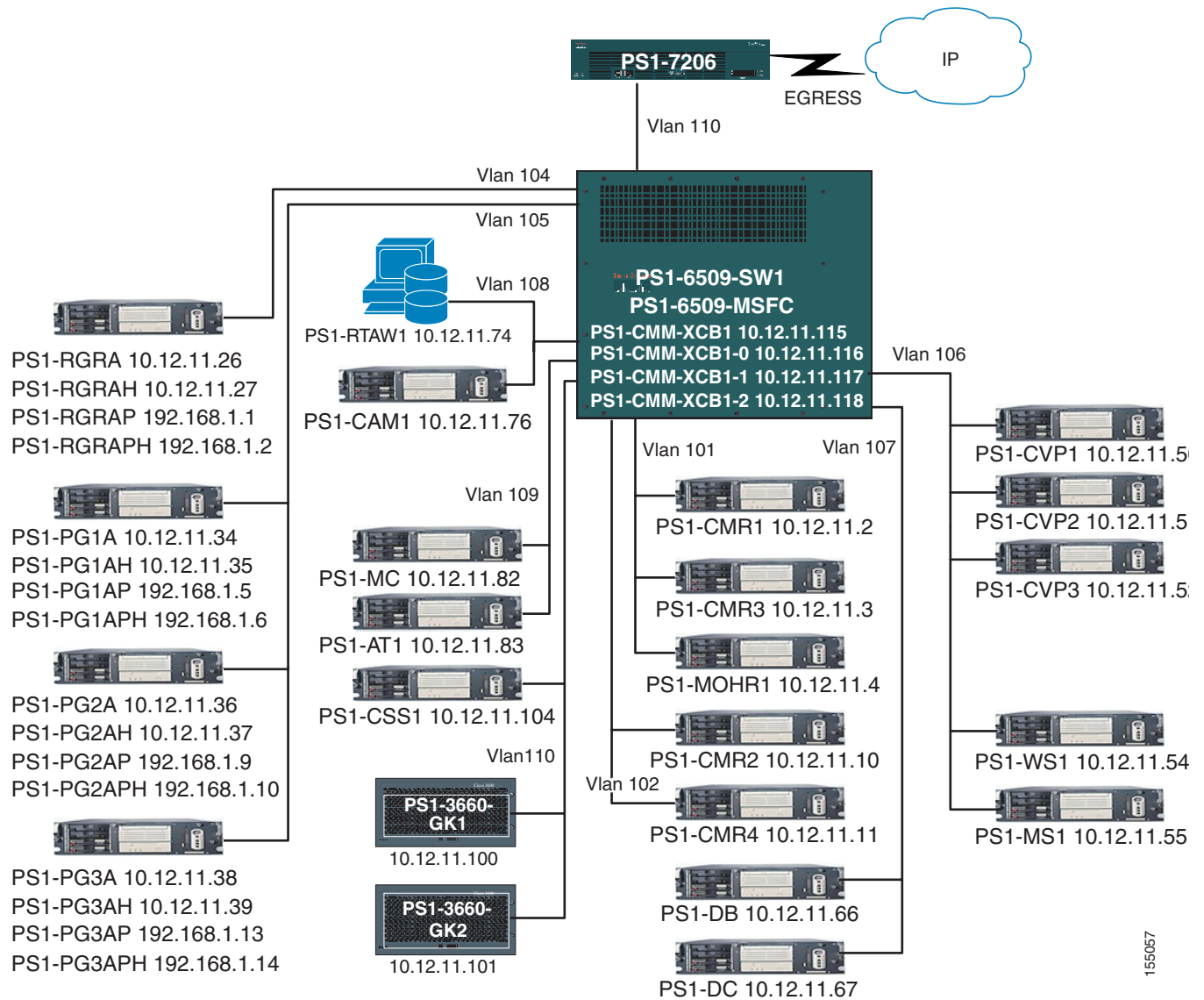
Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6509	1	Catalyst 6500 Series
Alarm Tracker	MCS-7835-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
Unified CallManager	MCS-7845-H1-IPC1	4	Cisco Unified CallManager
Cisco Content Switch (CSS)	CSS 11500	1	Cisco Content Services Switch
CiscoWorks Management Center	MCS-7835-2.4-EVV1	1	CiscoWorks Management Center for Cisco Security Agent and Cisco Security Agent
Unified CVP Call Control Server	MCS-7845-H1-CC1	3	Cisco Unified Customer Voice Portal
Unified CVP Web Server/HTTP Media Server	MCS-7835-2.4-EVV1	2	Cisco Unified Customer Voice Portal

Table 2-12 Site1 Equipment List (continued)

Component	Hardware Platform	Qty	Reference
Gatekeeper (HSRP cluster)	Cisco 3660	2	Gateways/Gatekeepers
Generic PG	MCS-7845-H1-CC1	3	Cisco Unified Intelligent Contact Management
Unified ICM Rogger	MCS-7845-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones 7960	2	Cisco Unified IP Phones
Music On Hold (MOH)	MCS-7845-H1-IPC1	1	Cisco Unified CallManager
RTAW /HDS / WebView	MCS-7835-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
WAN Router	Cisco 7206VXR	1	Routers
Windows 2003 AD	MCS-7845-1400	1	Cisco Unified Intelligent Contact Management

Figure 2-21 shows the physical topology of Site1 displaying the equipment listed in Table 2-11.

Figure 2-21 Site1 Physical Topology



155057

Site3: Distribution Center

Site Profile

Site3 is a distribution center in the multisite centralized configuration of this test bed. It participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - 500 agents use Cisco Agent Desktop (CAD) application for call control.
 - Calls arriving at this site have a BHCA of 7,942.
- Call Flows:
 - The Unified CVP PRI gateways are used to terminate the Unified CVP Post-Routed traffic from the PSTN.
 - The Unified CVP (VXML) gateways are used to process the Unified CVP Post-Routed traffic from the PRI gateways and provide menu prompting and call queueing functionality.
- Call Processing/Routing:
 - For call control and processing, this site communicates with the data centers (Site1/Site5) over the WAN link.
- Infrastructure:
 - A Unified CallManager cluster consisting of 1 Publisher/TFTP server and 2 Subscriber is used for ICT transfers.
 - A Generic PG provides the Unified CallManager PIM for the Unified CallManager cluster at this site, and CTI OS and CAD services. It communicates with the Central Controller (Rogger) at the data centers (Site1/Site5) over the WAN.
 - A WAN router and DS3 link provided connectivity for call processing at Site1.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones.
 - A VoIP Monitor Server is used by supervisors to perform ad-hoc monitoring of calls to agents.
 - The CAD Desktop application communicates with the CAD services located in the PG at this site.
 - CAD Desktop administrator tool is loaded on the Windows XP machine.
- Unified IP Phones:
 - 375 SCCP phones are located at this site.
 - 125 agent and 25 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-22 shows the logical topology of Site3.

Figure 2-22 Site3 Logical Topology

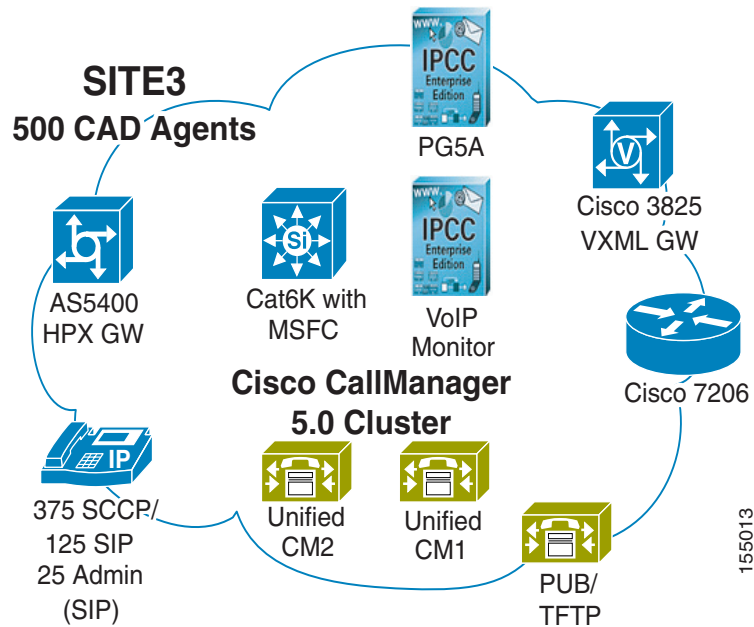


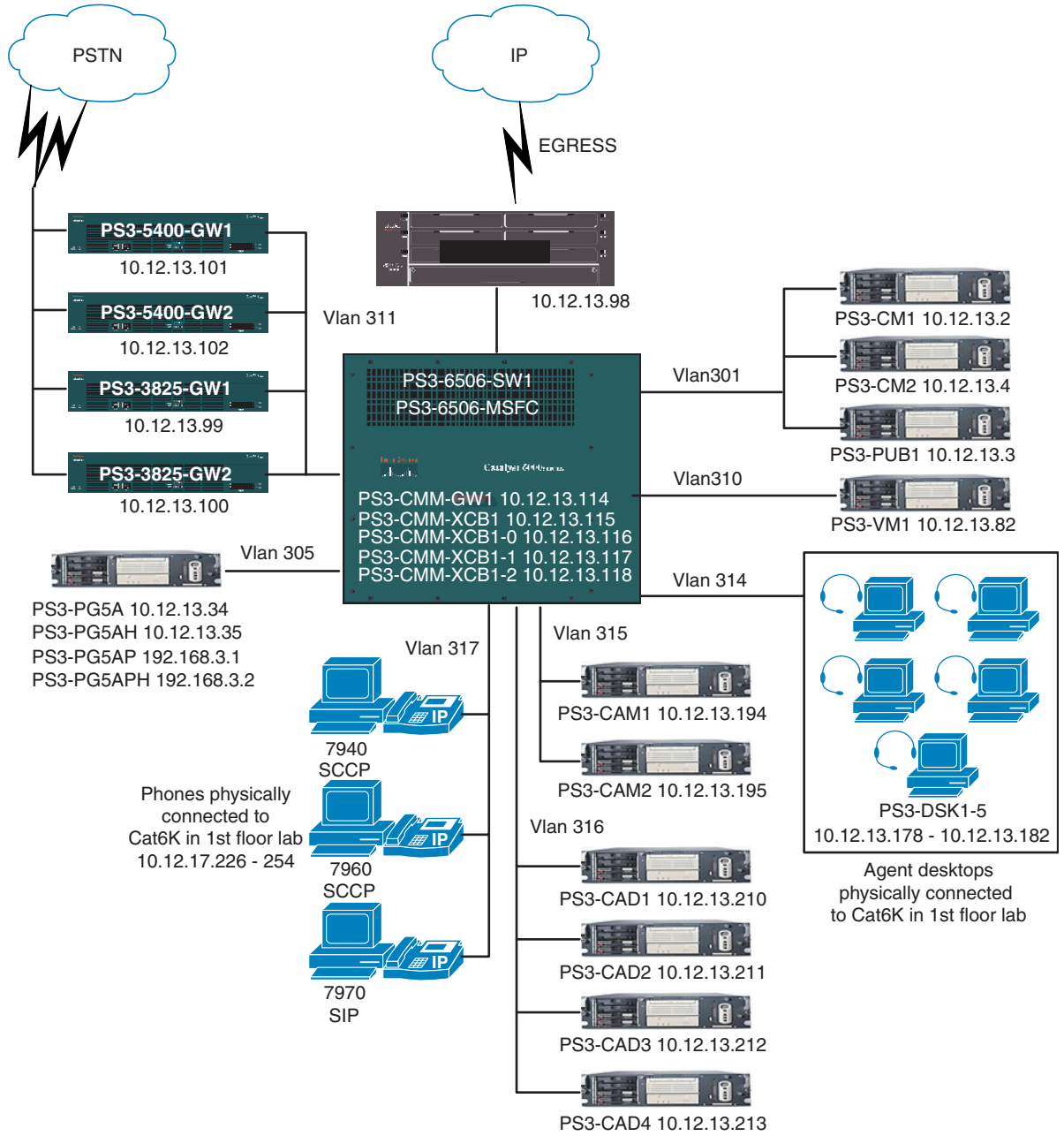
Table 2-13 shows the equipment and hardware platforms used in Site3. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-13 Site3 Equipment List

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6506	1	Catalyst 6500 Series
CAD Agent and Supervisor Desktop	Pentium IV Desktop	4	Cisco Agent Desktop
Unified CallManager	MCS-7845-H12.4-EVV1	3	Cisco Unified CallManager
Unified CVP PRI Gateway	Cisco AS5400HPX	2	Gateways/Gatekeepers
Unified CVP VXML Gateway	Cisco 3825	2	Gateways/Gatekeepers
Generic PG	MCS-7835-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	4	Cisco Unified IP Phones
VoIP Monitor	MCS-7845-H12.4-EVV1	1	Cisco Agent Desktop
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-23 shows the physical topology of Site3 displaying the equipment listed in Table 2-13.

Figure 2-23 Site3 Physical Topology



Site5: Data Center

Site Profile

Site5 is the backup data center and hub of Site1 in a multisite centralized configuration. It participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - No agents are located at this site and no calls are answered at this site.
- Call Flows:
 - The Unified CVP Application Server and Unified CVP Voice Browser are co-located on a single Unified CVP Call Control server. Additionally, there are separate Unified CVP Web and HTTP Media Servers. Two Unified CVP Call Control servers are configured in a comprehensive mode to provide call treatment and queuing functionality for Site5's remote branches (Site6, Site7, and Site8). The third Unified CVP server is used to support transfer to IVR outbound campaigns and warm consultative transfers.
- Call Processing/Routing:
 - Unified ICM Rogger (Side B) is located at this hub. There is a dedicated private WAN connection used for clustering over the WAN (CoW) to Site1. In addition, there is also a visible WAN connection to the other sites.
 - The central database is associated with the Logger. The Historical Database Server (HDS) and WebView Server (WVS) are installed on the Real-Time Admin Workstation (RT AW).
- Infrastructure:
 - The Unified CallManager cluster has 1 Publisher/ TFTP, 4 Subscribers, and one MOH (this Publisher/ TFTP also supports the Site1 data center).
 - The Gatekeepers are implemented in an HSRP cluster to handle transfers by Unified CVP.
 - The PGs in this data center are configured as follows:
 - a. PG1 is configured with the first Unified CallManager PIM and the CTI/CTI OS server which handles 974 agents (at Site6 and Site7).
 - b. PG2 is configured with the second Unified CallManager PIM and the CTI/CTI OS server which handles 537 agents (at Site8).
 - c. PG3 is configured to handle the IVR PIMs for which the Unified CVP servers are the peripherals.
 - d. PG4 is configured as a Media Routing Peripheral Gateway (MR PG) to handle the Unified OUTDs located in Site6.
 - One Catalyst switch acts as a Layer2 access switch for Site5.
 - A WAN router and DS3 link provide clustering over the WAN (CoW) private connectivity to the backup data center in Site5.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones.
 - Windows 2003 AD provides the active directory structure and DNS services.
- Unified IP Phones:
 - There are admin phones at this site.

- Network Management:
 - Perfmon and Unified Operations Manager are used for network reporting.
- Redundancy and Failover:
 - For the Unified CallManager cluster in Side B, there are 1 Publisher/TFTP, 4 Subscribers, and one MOH in a 1:1 load-sharing mode.
 - Failover capabilities are in place for the Unified CallManager and the IPCC PG systems.
 - The Rogger located in Site1 provides redundancy for the Rogger in this site.
 - Side A PGs located in Site1 also provide data center redundancy for this site.
 - A Content Switch is used for load-balancing the Unified CVP Servers.
 - Gatekeepers are implemented in an HSRP redundancy model.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers.

Figure 2-24 shows the logical topology of Site5.

Figure 2-24 Site5 Logical Topology

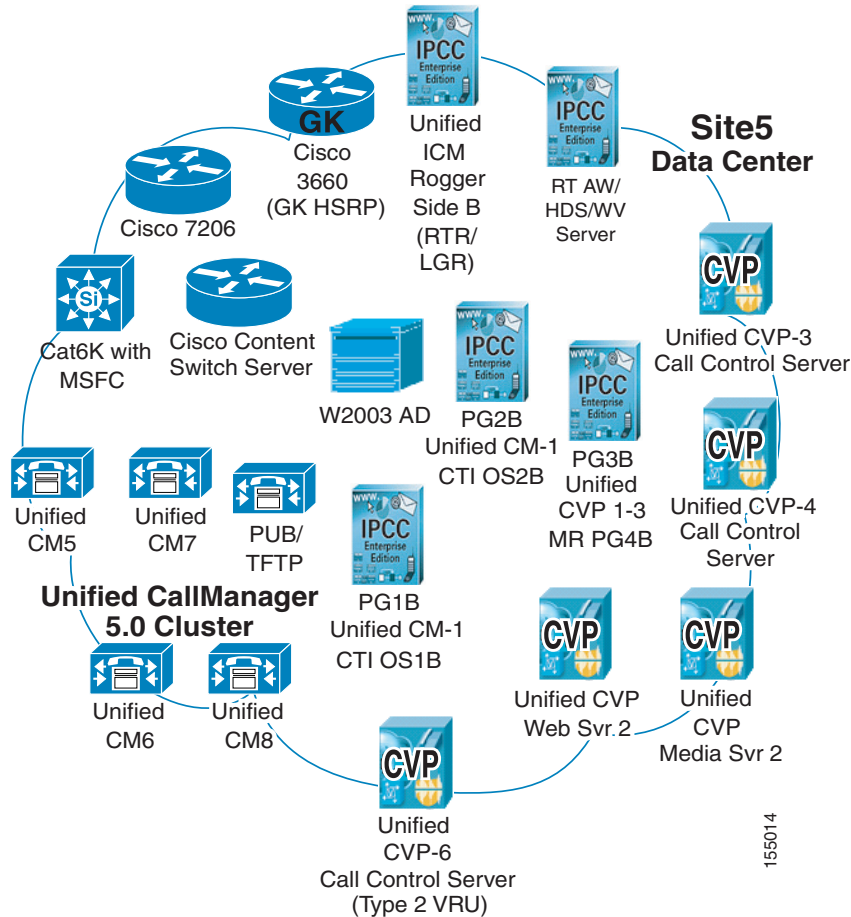


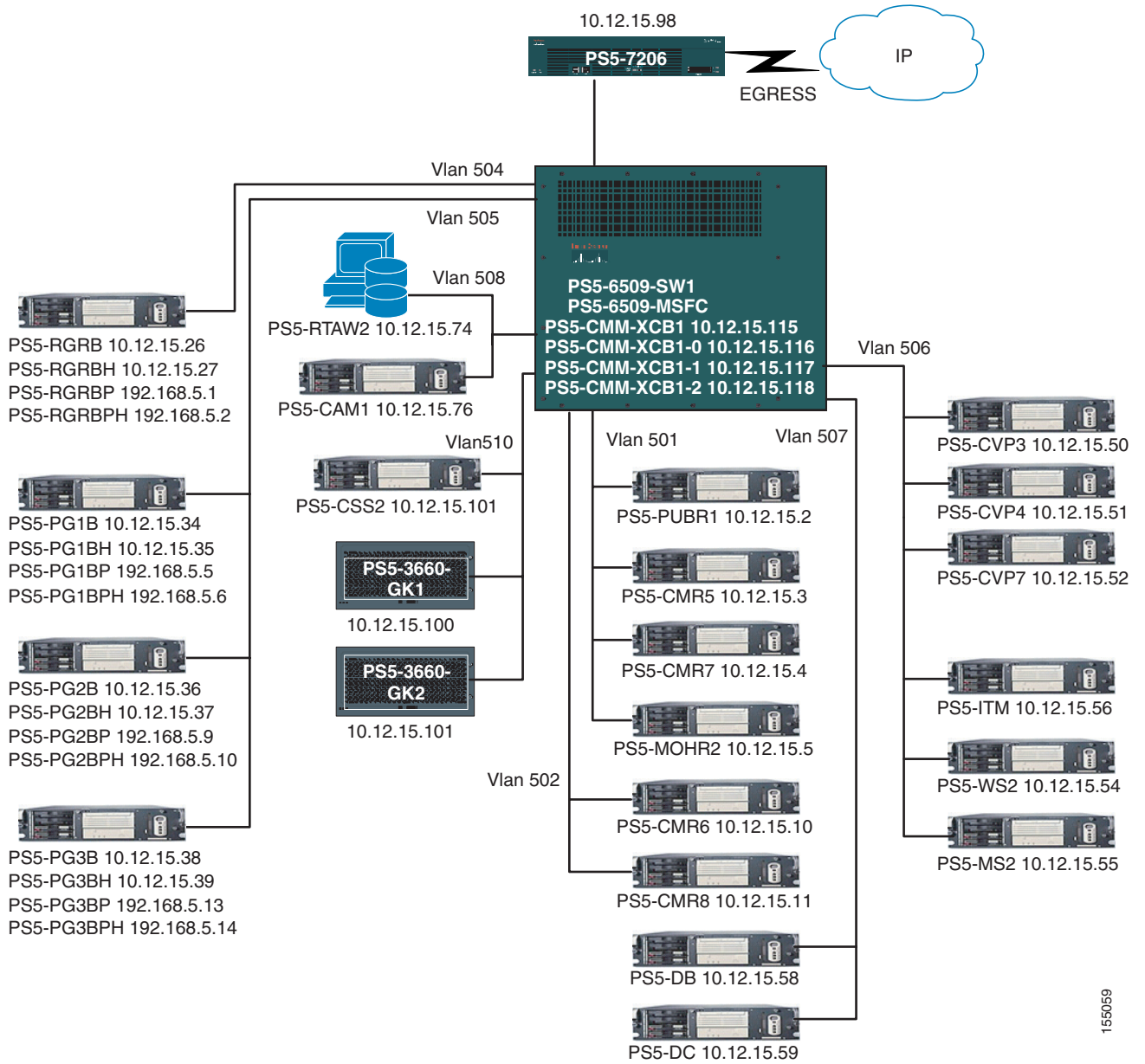
Table 2-14 lists the equipment and hardware platforms used in Site5. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-14 Site5 Equipment List

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 6509	1	Catalyst 6500 Series
Unified CallManager	MCS-7845-H1-IPC1	5	Cisco Unified CallManager
Cisco Content Switch (CSS)	CSS 11500	1	Cisco Content Services Switch
Unified Operations Manager	MCS-7835-2.4-EVV1	1	Cisco Unified Operations Manager
Unified CVP Call Control Server	MCS-7845-H1-CC1	3	Cisco Unified Customer Voice Portal
Unified CVP Web Server/HTTP Media Server	MCS-7835-2.4-EVV1	2	Cisco Unified Customer Voice Portal
Gatekeeper (HSRP cluster)	Cisco 3660	2	Gateways/Gatekeepers
Unified ICM Rogger	MCS-7845-H1-CC1	1	Cisco Unified Intelligent Contact Management
Generic PG	MCS-7845-H1-CC1	3	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones 7960	2	Cisco Unified IP Phones
Music On Hold (MOH)	MCS-7845-H1-IPC1	1	Cisco Unified CallManager
RTAW /HDS / WebView	MCS-7835-2.4-EVV1	1	Cisco Unified Intelligent Contact Management
WAN Router	Cisco 7206VXR	1	Routers
Windows 2003 AD	MCS-7845-1400	1	Cisco Unified Intelligent Contact Management

Figure 2-25 shows the physical topology of Site5 displaying the equipment listed in Table 2-15.

Figure 2-25 Site5 Physical Topology



155059

Site6: Mid-Atlantic Retail Center

Site Profile

Site6 is a remote retail site in a multisite centralized configuration in this test bed. It participates in the multisite distributed WAN configuration. The test site is deployed as follows:

- Agents:
 - 683 agents use CTI OS Agent Desktop application for call control functions to handle both inbound calls from the PSTN and Unified ICM–initiated outbound calls.
 - 610 agents handle the inbound calls and 73 dedicated agents handle outbound calls.
 - Calls arriving at this site have a BHCA of 11,623 and outbound calls leaving Site6 have a BHCA of 4,338.
- Call Flows:
 - The Unified CVP PRI gateways are used to terminate the Unified CVP Post-Routed traffic from the PSTN.
 - The Unified CVP (VXML) gateways are used to process the Unified CVP Post-Routed traffic from the PRI gateways and provide menu prompting and call queueing functionality.
- Call Processing/Routing:
 - For call control and processing, this site communicates with the data center (Site1/Site5) over the WAN link.
- Infrastructure:
 - A WAN router and DS3 link provide connectivity for call processing at Site1/Site5.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones.
 - Unified OUTDs are installed at this site to provide required outbound campaigns.
 - ASR/TTS is installed at this site to provide the required Automated Speech Recognition and Text to Speech functionality.
- Unified IP Phones:
 - 512 SCCP phones are located at this site.
 - 171 agent and 34 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on the Unified OUTDs and all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-26 shows the logical topology of Site6.

Figure 2-26 Site6 Logical Topology

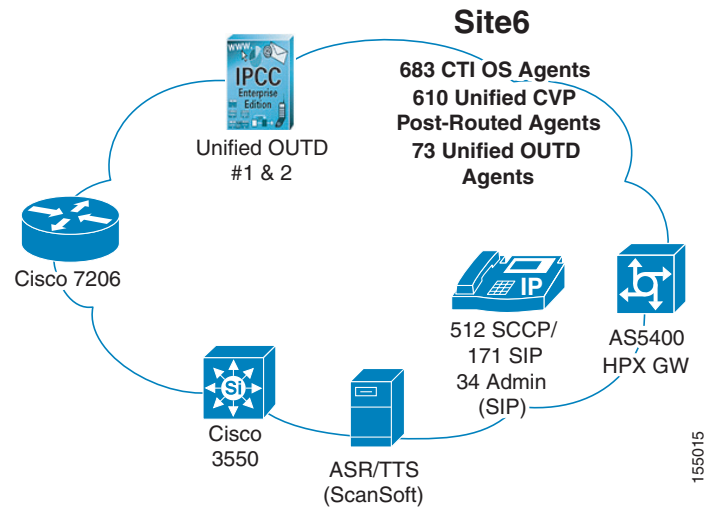


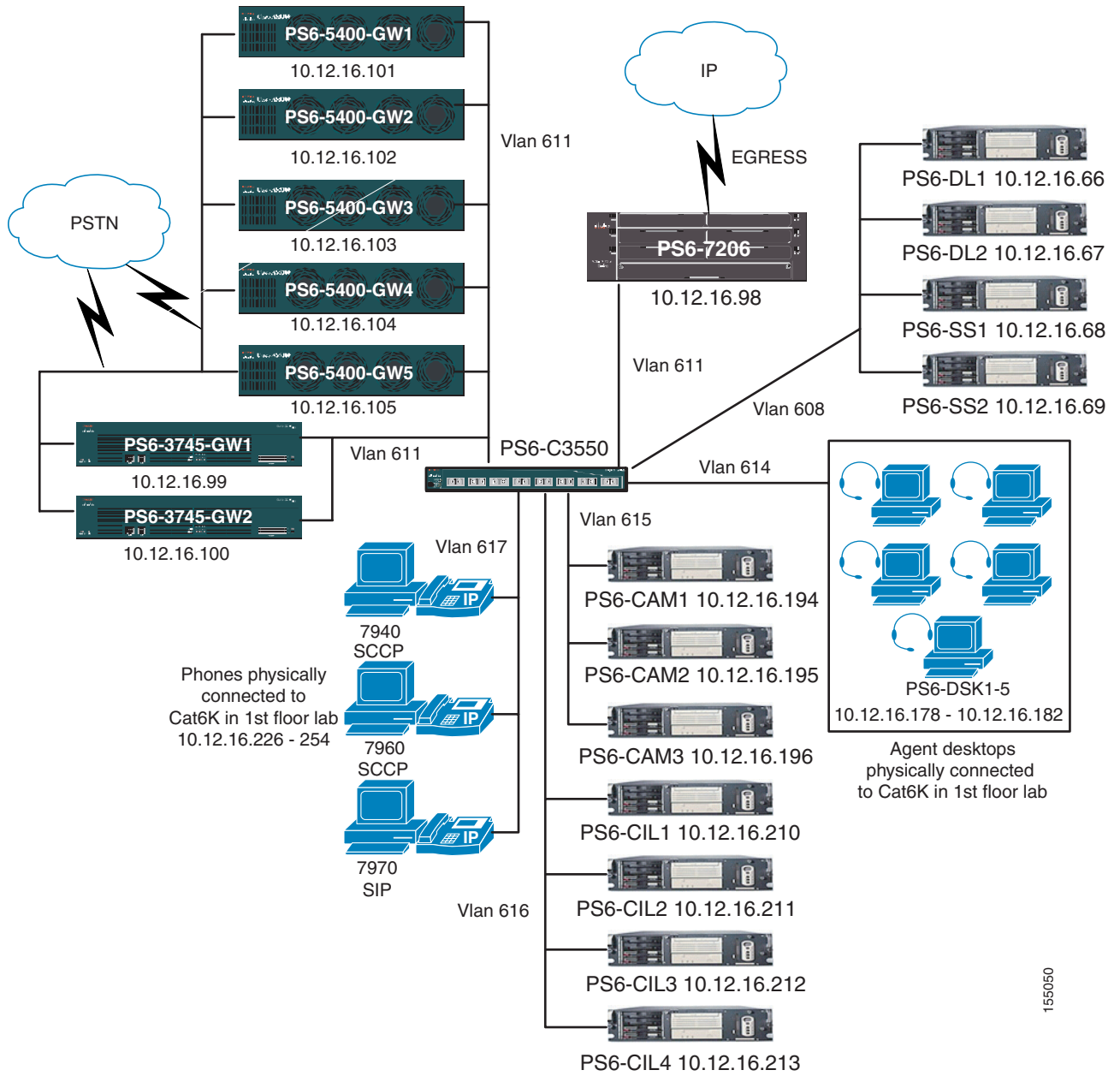
Table 2-15 lists the equipment and hardware platforms used in Site6. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-15 Site6 Equipment List

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 3550	1	Catalyst 3500 Series
CTI OS Agent and Supervisor Desktop	Pentium IV Desktop	4	Cisco Telephony Integration Object Server
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	4	Cisco Unified IP Phones
Unified CVP PRI Gateway	Cisco AS5400HPX	5	Gateways/Gatekeepers
Unified CVP VXML Gateway	Cisco 3745	2	Gateways/Gatekeepers
Unified OUTD	MCS-7835H-H1-CC1	2	Cisco Unified Intelligent Contact Management
Speechify Server	MCS-7845H-2.4-EVV1	2	Cisco Unified Customer Voice Portal
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-27 shows the physical topology of Site6 displaying the equipment listed in Table 2-16.

Figure 2-27 Site6 Physical Topology



Site7: North-Central Retail Center

Site Profile

Site7 is a medium remote retail site in a multisite centralized configuration in this test bed. It participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - 291 agents use CTI OS Desktop applications for call control functions.
 - Calls arriving at this site have a BHCA of 4,935.
- Call Flows:
 - The Unified CVP (PRI) gateway is used to terminate the Unified CVP Post-Routed traffic from the PSTN.
 - The Unified CVP Gateway (VXML) is used to process the Unified CVP Post-Routed traffic from the PRI gateway. It also provides the menu prompting and call queuing functionality for the local site.
- Infrastructure:
 - A Unified CallManager cluster (running a previous release of the software) consisting of 1 Publisher/TFTP server and 1 Subscriber handles the ICT transfers.
 - A Generic PG server provides the Unified CallManager PIM for the Unified CallManager cluster and CTI OS server at this site. It communicates with the Central Controller (Rogger) at the data centers (Site1/Site5) over the WAN link.
 - The CTI OS Desktop applications communicate with the CTI services located on the PG at this site and the data centers.
 - A WAN router and DS3 link provide connectivity for call processing at Site1/Site5.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones.
- Unified IP Phones:
 - 208 SCCP phones are located at this site.
 - 70 agent and 14 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-28 shows the logical topology of Site7.

Figure 2-28 Site7 Logical Topology

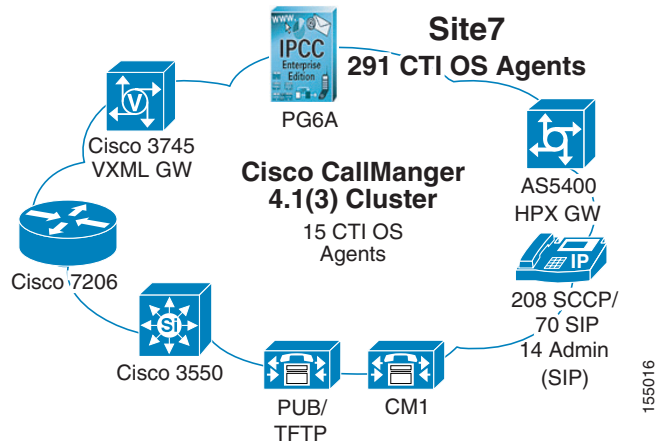


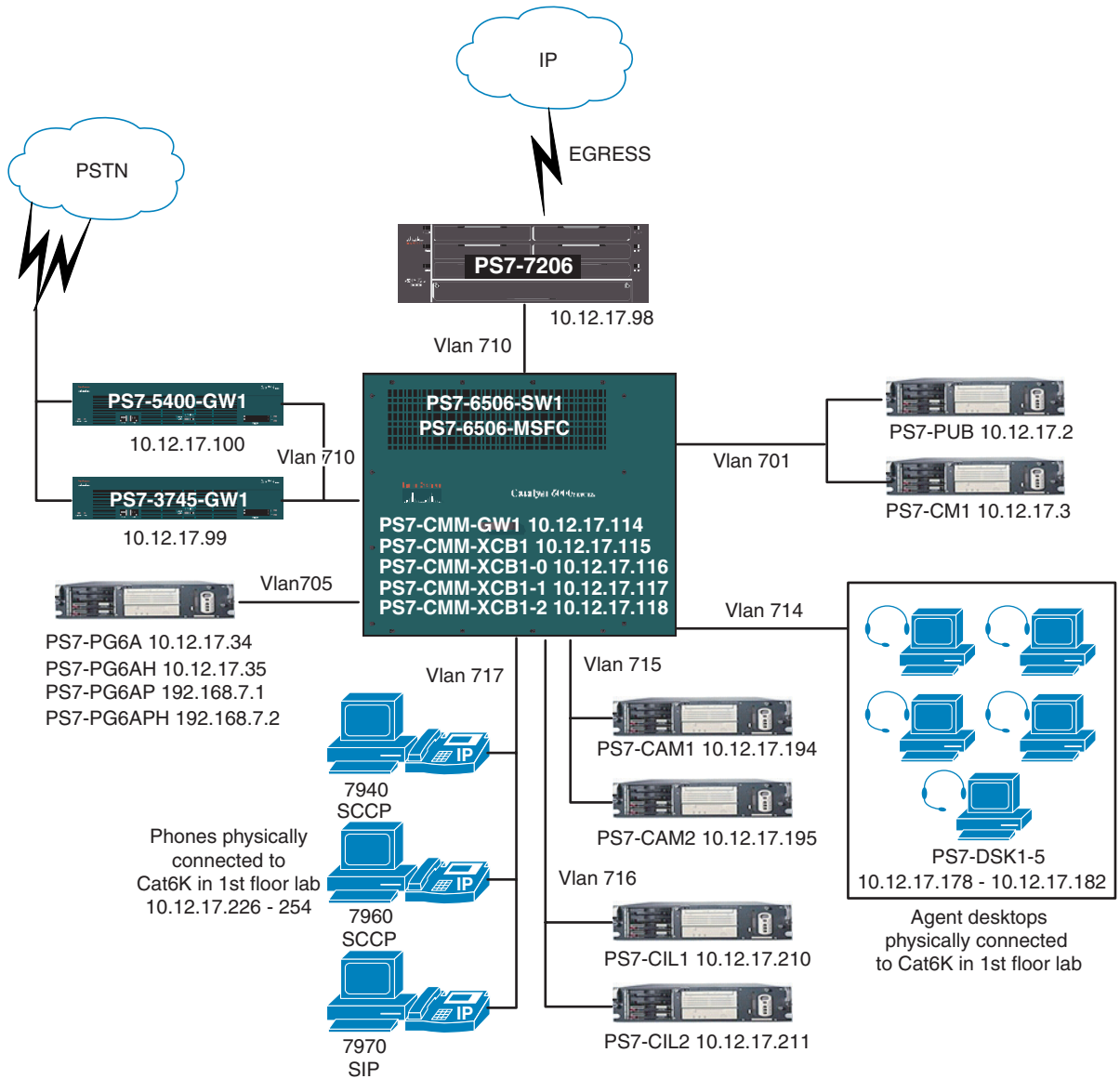
Table 2-16 lists the equipment and hardware platforms used in Site7. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-16 Site7 Equipment Table

Component	Hardware Platform	Qty	Reference
Access Switch	Cisco 6506	1	Catalyst 6500 Series
Unified CallManager	MCS-7845H-2.4-EVV1	2	Cisco Unified CallManager
CTI OS Agent and Supervisor Desktop	Pentium IV Desktop	3	Cisco Telephony Integration Object Server
Unified CVP PRI Gateway	Cisco AS5400HPX	1	Gateways/Gatekeepers
Unified CVP VXML Gateway	Cisco 3745	1	Gateways/Gatekeepers
Generic PG	MCS-7835H-H1-CC1	1	Cisco Unified Intelligent Contact Management
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	4	Cisco Unified IP Phones
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-29 shows the physical topology of Site7 displaying all the equipment listed in Table 2-17.

Figure 2-29 Site7 Physical Topology



Site8: South-Central Retail Center

Site Profile

Site8 is a remote retail site in a multisite centralized configuration in this test bed. It participates in the multisite distributed WAN configuration.

The test site is deployed as follows:

- Agents:
 - 537 agents use CTI OS Desktop applications for call control functions.

- Calls arriving at this site have a BHCA of 9,062.
- Call Flows:
 - The Unified CVP (PRI) gateways are used to terminate the Unified CVP Post-Routed traffic from the PSTN.
 - The Unified CVP Gateway (VXML) is used to process the Unified CVP Post-Routed traffic from the PRI gateways. It also provides the menu prompting and call queuing functionality for the local site.
- Call Processing/Routing:
 - For call control and processing, this site communicates with the data centers (Site1/Site5) over the WAN link.
- Infrastructure:
 - A WAN router and DS3 link provide connectivity for call processing at Site5.
 - A DHCP Server (on the router) provides IP addresses to the Unified IP Phones at the site.
- Unified IP Phones:
 - 403 SCCP phones are located at this site.
 - 134 agent and 26 admin SIP phones are located at this site.
- Security:
 - Cisco Security Agent is implemented as core endpoint security on all the servers.
 - McAfee Antivirus is installed on all the servers and the agent desktops.

Figure 2-30 shows the logical topology of Site8.

Figure 2-30 Site8 Logical Topology

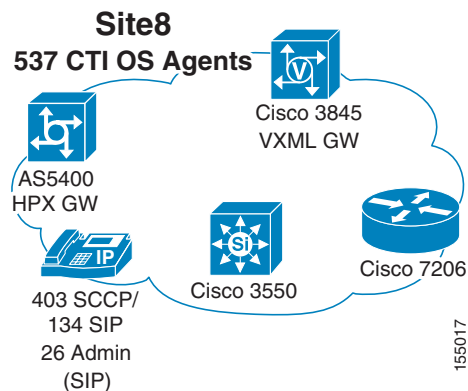


Table 2-17 lists the equipment and hardware platforms used in Site8. Use the reference information in the table to access corresponding software versions and model numbers.

Table 2-17 Site8 Equipment Table

Component	Hardware Platform	Qty	Reference
Access Switch	Catalyst 3550	1	Cisco Unified CallManager

Table 2-17 **Site8 Equipment Table (continued)**

CTI OS Agent and Supervisor Desktop	Pentium IV Desktop	4	Cisco Agent Desktop
Unified CVP PRI Gateway	Cisco AS5400HPX	2	Cisco Content Services Switch
Unified CVP VXML Gateway	Cisco 3845	1	Cisco Content Services Switch
Unified IP Phones	Unified IP Phones (SCCP) 7940/7960/7970	6	Cisco Unified IP Phones
Unified IP Phones	Unified IP Phones (SIP) 7970	4	Cisco Unified IP Phones
WAN Router	Cisco 7206VXR	1	Routers

Figure 2-31 shows the physical topology of Site8 displaying all the equipment listed in Table 2-18.

Figure 2-31 Site8 Physical Topology

