Planning Considerations

Prerequisites

Before you plan the initial system requirements and planned growth for the Cisco Hosted Collaboration Solution (HCS), make sure you have completed the BOM tool questionnaire.

You should also review the following documents:

- *Cisco Hosted Collaboration Solution, Release 10.1(1) Reference Network Design Guide*

- *Cisco Hosted Collaboration Solution, Release 10.1(1) Capacity Planning Guide*

VMware Planning Considerations

Use VMware's Distributed Resource Scheduler and high availability features to improve the resiliency of HCM-F nodes. For more information, see www.vmware.com.

> **Note**   VMware's Distributed Resource Scheduler is not supported for UC applications.

Service Inventory planning considerations

Service Inventory is an HCM-F service that queries the Cisco Unified Communications Domain Manager 10.1(1) daily and reports detailed configurations of customers, subscribers, and devices for all Unified Communications Manager and Cisco Unity Connection (CUCxn) application instances. The Service Inventory report also provides a summary of all customers, UC clusters, users, and end devices deployed within HCS.

Complete the following steps when planning service inventory:

Procedure

Step 1   Plan to deploy an SFTP server (and an optional backup SFTP server) with adequate capacity to receive Service Inventory report files. A typical compressed file size would be 8-10 MB for 200,000 users.

Step 2   Decide whether the files will be pushed or pulled, scheduled or automatic.

Step 3   Decide which application you will use to parse the detailed inventory data into a form that can be used by your business system.

> **Note**   For details on Service Inventory reports and their formatting, see the *Cisco Hosted Collaboration Solution, Release 10.1(1) Maintain and Operate Guide*
> .

License Planning Considerations

HCS License Manager

HCS License Manager is an HCM-F service that provides centralized license management for HCS. HCS License Manager extends the functionality of Prime License Manager (formerly Enterprise Licence Manager) beyond the scope of one enterprise for use by service providers. HCS License Manager is used to assign each cluster to an Prime License Manager. HCS License Manager aggregates license usage by each cluster from each Prime License Manager into a License Summary report.

Consider the steps in the following procedure for HCS License Manager planning:

- Use one HCS License Manager for each installation of HCS.

- Set up each Prime License Manager in the HCS License Manager.

- Load HCS licenses on a Prime License Manager before configuring the Prime License Manager on an HCS License Manager

- When new customers are onboarded, their clusters must be assigned to an Prime License Manager through the HCS License Manager. Do not use the native management interface of Prime License Manager to assign a cluster. Always use the HCS License Manager to assign clusters to Prime License Manager.

Prime License Manager

Prime License Manager manages licensing for Unified Communications Manager clusters, and Cisco Unity Connection servers for multiple customers deployed in HCS. Typically, multiple customers are assigned to the same Prime License Manager server. HCS License Manager allows a customer's clusters to be assigned to different Prime License Managers.

HCS licenses are registered to and loaded and activated onto the Prime License Managers deployed in HCS. The Prime License Managers deploy the HCS licenses to the UCM clusters and Unity Connection servers that are assigned.

Take the following actions for Prime License Manager planning:

Procedure

Step 1 Determine if you need multiple instances of Prime License Manager, which would be the case in either of the following scenarios:

- If a Service Provider has resellers and wants to segregate the HCS licenses it provides to each reseller

- If there will be more than 1000 Unified Communications application clusters in the HCS deployment

Step 2 Install the Prime License Manager on the same management network as HCM-F so that Prime License Manager can access all Unified Communications application clusters.

Step 3 Install standalone Prime License Managers in the HCS Management domain. Set up each customer domain firewall to allow Prime License Manager to connect to UCM and Unity Connection through the HTTPS port 443 from the HCS management domain.

Step 4 Plan for appropriate usage of the Prime License Manager web interface:

- For initial configuration, to generate license requests, to load license files, and to display license usage by cluster if desired.

- To assign a cluster (using only the HCS License Manager) to a Prime License Manager instance so that the HCS License Manager can set the appropriate deployment mode to the cluster and consolidate license usage for all customers and clusters.

Platform Manager Planning Considerations

Platform Manager is a Cisco Hosted Collaboration Mediation Fulfillment service that allows you to schedule and monitor the automated installation, upgrade, restart and backup of multiple application instances across customers for the following applications:

- Cisco Unified Communications Manager
- Cisco Unity Connection
- Cisco Unified Presence / Cisco Unified IM and Presence

Take the following actions for Platform Manager planning as you onboard each customer or cluster:

- Determine the number of server groups needed.
- Select server groups for backup tasks that will avoid overloading blade hardware or I/O bandwidth to data storage LUNs.
- Put all servers (for example, Publishers) on a specific ESXi-Host or blade into a common server group. This way the backup of the servers on the host is done serially, minimizing the backup CPU load on the host.
- Spread the SFTP servers assigned to backup groups across different storage LUNs so that backup transfer load is spread out.
- Ensure that no more than 2 applications are backed up on a specific blade at any one time.

For details on Platform Manager, see the *Cisco Hosted Collaboration Mediation Fulfillment Maintain and Operate Guide, Release 10.1(1)*.

For details on Platform Manager, see the *Cisco Hosted Collaboration Mediation Fulfillment Installation and Configuration Guide, Release 10.1(1)*.

Infrastructure Platform Automation (IPA) Planning Considerations

Infrastructure Platform Automation (IPA) is an application designed to be an optional tool used to assist in the automation of the provisioning steps for on-boarding customers inside both the Cisco Unified Communications Manager application and the Cisco Unity Connection by using an XML configuration file that is loaded in Infrastructure Manager within the HCM-F interface. The automation process includes Virtual Machine cloning from golden templates and running change identity on the Cisco Unified Communications Manager or Cisco Unity Connection Publisher and Subscriber Virtual Machines. If the Virtual Machines are pre-cloned, for example by Cloud-O or manually, IPA performs only identity operations on Virtual Machines.

In HCS 10.0(1) and later, IPA supports deploying IM and Presence nodes in a Cisco Unified Communications Manager cluster.

Golden templates are master copies of Cisco Unified Communications Manager and Cisco Unity Connection that you can reuse or install on multiple virtual machines. They are built on a source system controlled by a service provider. Golden templates are built one for publisher and one for subscriber. After golden templates are built, IPA automates the process of cloning, identity, and post-installation operations of the virtual machine.

Note   IPA requires the Cisco Nexus 1000V Switch for VMware vSphere and vSphere Enterprise Plus to function. This impacts Micro Node deployments which only require a vNetwork Standard Switch (vSwitch) and vSphere Standard. For more information on vNetwork Distributed Switch concepts see Overview of vNetwork Distributed Switch concepts (1010555) at the VMware Knowledge Base.

Take the following actions for IPA planning:

Procedure

Step 1   Create golden templates one time for the different sized UCM Publisher, UCM Subscriber and Unity Connection nodes for IPA use. For details on creating golden templates, see the *Cisco Hosted Collaboration Mediation Fulfillment Installation and Configuration Guide , Release 10.1(1)*.

Step 2   Carefully gather the detailed configuration defined by the XML configuration file. The XML configuration file requires details for the customer organization, UCM and CUCxn applications, and VM.

Note   IPA can only be used in data center deployments. On-premises setup is not supported by IPA because there is no access to the EXSi host.

Note   Be aware that IPA version 9.2.1 will not create the IM and Presence server; you need to create it manually.

For details on IPA, see the *Cisco Hosted Collaboration Mediation Fulfillment Installation and Configuration Guide , Release 10.1(1)*.

API Gateway Proxy Planning Considerations

The API Gateway Proxy, which provides a single point of integration for the HCS Management Fulfillment APIs, runs on a web services node and provides a routing proxy that is based upon customer information stored in the Shared Data Repository (SDR). The API Gateway Proxy provides access to Service Fulfillment APIs of HCS management components HCM-F, Cisco Unified Communications Domain Manager, and Unified CCDM. It leverages infrastructure information in the Shared Data Repository to route API requests to the appropriate application. The API Gateway also provides an Application Reference Directory that provides a list of unique URLs for every routable application.

Take the following actions for API Gateway Proxy planning:

Procedure

Step 1   Determine if you will use the automated provisioning system that communicates through the API Gateway Proxy or manual provisioning with the GUI interface.

Step 2   Deploy the API Gateway Proxy only if one of the following scenarios exists:

- You want to manage some fulfillment activities from your in-house portal.

- You want to automate HCS Fulfillment by integrating one or more of your in-house systems with HCM-F or Cisco Unified Communications Domain Manager.

If neither of these scenarios apply, you do not need to deploy the API Gateway Proxy.

Step 3 For high availability, implement at least two instances of the API Gateway Proxy web services node, including the following: use a load balancer to provide a single virtual IP address and balance the traffic flowing to the API Gateway Proxy nodes. The load balancer must be sourced by the service provider.

Step 4 Use a DNS to support API Gateway Proxy deployment to avoid a 10-second delay each time a new session is established between the gateway and other HCS components.

Note Redundancy is provided as N+1 multinode in conjunction with a partner-deployed load balancer.

For details, refer to the *Cisco Hosted Collaboration Solution API Gateway Proxy Developer Guide*.

API Gateway Planning Considerations

The API Gateway provides a single point of integration for the HCS Management Fulfillment APIs. The API Gateway provides access to Service Fulfillment APIs of HCS management components, Cisco Unified Communications Domain Manager 10.1(1), and CCDM.

Take the following actions for API Gateway planning:

Procedure

Step 1 Determine if you will use the automated provisioning system that communicates through the API Gateway, or manual provisioning with the GUI interface.

Step 2 Determine if you will use a load balancer to provide a single virtual IP address and balance the traffic flowing to the API Gateway nodes. The load balancer must be sourced by the service provider.

Cisco Unified Communications Domain Manager 8.1(4) Planning Considerations

Cisco Unified Communications Domain Manager is an integral part of the service fulfillment subsystem. It is primarily responsible for the configuration and registration of users, subscribers, and endpoints with the back-end Cisco Unified Communications Manager, Cisco Unity Connection, and IM and Presence Service servers. Cisco Unified Communications Domain Manager provides the day-to-day service and device provisioning and management tools. One instance supports all deployment sizes up to 200,000 subscribers.

Consider the steps in the following procedure for Cisco Unified Communications Domain Manager planning:

Procedure

Step 1 Determine if WebEx and Contact Center will be integrated.

Step 2 Set up Cisco Unified Communications Domain Manager redundancy at the initial install; it cannot be introduced later. Cisco Unified Communications Domain Manager is deployed as one Unified Communications Domain Manager Master/Active instance and one Disaster Recovery (DR) instance hosted across two data centers, and management must be able to route to both. There is an added layer of High Availability that is provided

by VMware HA for both the active and standby Cisco Unified Communications Domain Manager node. Redundancy is provided by the active sync of data between the active Cisco Unified Communications Domain Manager node and the standby Cisco Unified Communications Domain Manager node.

Step 3   Determine which dial plan to use. See the "Customer specific dial plan" section in this document

Step 4   For user activations, decide if you will use automated system activations based on system inventory or the Cisco Unified Communications Domain Manager admin interface.

Step 5   Decide if you want to use the Cisco Unified Communications Domain Manager user self-care portal. If yes, you need to allow access for customers or end users.

Step 6   Check to see what the static deployment requirements are on UCM clusters before managing a cluster from Cisco Unified Communications Domain Manager. Gather the following information:

   a) Location of the Cisco Unified Communications Domain Manager

   b) Determine latency between Cisco Unified Communications Domain Manager and UC applications, which must be within defined limits. The maximum supported latency is 200 ms Round Trip Time (RTT).

   Note   A higher latency (e.g. 250 ms RTT) may work in certain instances, but this must be tested prior to deployment.

Step 7   Determine if additional languages are required for the system other than English.

Step 8   Determine if custom branding is desired.

Cisco Unified Communications Domain Manager Planning Considerations

Cisco Unified Communications Domain Manager 10.1(1) is an integral part of the service fulfillment subsystem. It is primarily responsible for the configuration and registration of users, subscribers, and endpoints with the back-end Cisco Unified Communications Manager, Cisco Unity Connection, and IM and Presence Service servers. Cisco Unified Communications Domain Manager 10.1(1) provides the day-to-day service and device provisioning and management tools. One instance supports all deployment sizes up to 200,000 subscribers.

Consider the steps in the following procedure for Cisco Unified Communications Domain Manager 10.1(1) planning:

Procedure

Step 1   Determine if WebEx and Contact Center will be integrated.

Step 2   Cisco Unified Communications Domain Manager 10.1(1) is deployed either as a single node, or a cluster of multiple nodes with High Availability (HA) and/or Disaster Recovery (DR) qualities. Each node can be assigned one or more of the following functional roles:

   • WebProxy – load balancing across multiple application roles

   • Application – transactional business logic

   • Database – persistent storage of data

The following combined roles are defined:

   • Standalone – combines the Application and Database roles for use in a non-clustered environment

> • Unified – similar to the Standalone role combining Application and Database roles, but clustered with other nodes to provide HA and DR capabilities.

Step 3 Determine which dial plan to use. See the "Customer specific dial plan" section in this document

Step 4 For user activations, decide if you will use automated system activations based on system inventory or the Cisco Unified Communications Domain Manager 10.1(1) admin interface.

Step 5 Decide if you want to use the Cisco Unified Communications Domain Manager 10.1(1) user self-care portal. If yes, you need to allow access for customers or end users.

Step 6 Check to see what the static deployment requirements are on UCM clusters before managing a cluster from Cisco Unified Communications Domain Manager 10.1(1). Gather the following information:

a) Location of the Cisco Unified Communications Domain Manager 10.1(1)

b) Determine latency between Cisco Unified Communications Domain Manager 10.1(1) and UC applications, which must be within defined limits. The maximum supported latency is 200 ms Round Trip Time (RTT).

Note A higher latency (e.g. 250 ms RTT) may work in certain instances, but this must be tested prior to deployment.

Step 7 Determine if additional languages are required for the system other than English.

Step 8 Determine if custom branding is desired.

Cisco Unified Communications Domain Manager 8.1(4) Resource Requirements

The following table lists the resource requirements for the listed SF components.

HCS				
Fulfillment component	**vCPU**	**RAM (GB)**	**Storage (GB)**	**IOPS**
CUCDM	7	32	325 (includes a 100 GB dedicated backup partition)	300 during provisioning and 650 during database backup
HCM-F	4	16 (Res). Web service node (if used) uses 8 MB of RAM	80	200
Prime License Manager	1	4	50	-
CCDM	8	32	100	775 (DB server) 565 (web server)

Note   For current updates to the above requirements see the *Cisco Hosted Collaboration Solution Compatibility Matrix*.

Resource requirements

The following table lists the resource requirements for the listed SF components.

HCS 10.1(1)					
Fulfillment component	**vCPU**	**RAM (GB)**	**Storage**	**IOPS**	**OS**
CUCDM 10.1.1	7	32	255	300	
CUCDM 10.1.1 Multi-node	4	8	250		
HCM-F	4 x 1.8 GHz	16 (Res)	80	200	
PLM	1 vCPU x 1.8 GHz	4	50	-	
CCDM	8	32	100	775 (DB server) 565 (web server)	Microsoft Windows

Compatibility considerations

See the Service Fulfillment compatibility table in *Cisco Hosted Collaboration Solution, Release 10.1(1) Compatibility Matrix*.

Call Detail Records

Service Providers (SPs) can use Usage-based billing, using call detail records (CDRs) or Call Manager Management Records (CMRs) for the enterprise.

If a service provider is interested in usage type billing, they can direct CDRs from Unified Communications Manager to their billing system. If Cisco Prime Collaboration Assurance is configured as a management application, the Cisco HCS Provisioning Adapter (CHPA) service configures any CUCM (release 9.0(1) or higher) to send CDRs to Cisco Prime Collaboration Assurance. The option also exists to work with our third-party vendor to consume CDRs and CMRs to produce necessary billing information or invoices.

The Cisco TelePresence Exchange System collects and displays call detail records (CDRs) for calls that are placed on the system. From the administration console, you can view CDR details for the system and export a comma-separated value (.csv) file of that information.

The Cisco TelePresence Exchange System retains CDRs for up to 30 days from the recorded end time of the CDR. The system automatically purges CDRs that exceed this 30-day limit. If the total number of CDRs retained by the system reaches 100,000, the system retains only the most recent 100,000 records and automatically purges the rest.

The Cisco TelePresence Exchange System also provides an Application Programming Interface (API) for managing and retrieving call records. For more details, see the *API User Guide for the Cisco TelePresence Exchange System*.