



Planning Considerations

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Prerequisites

Before you plan the initial system requirements and the growth of Cisco Hosted Collaboration Solution (HCS), ensure you refer to the Collaboration Sizing Tool: <http://cucst.cloudapps.cisco.com/landing>.

You can review the following documents:

- *Cisco Hosted Collaboration Solution Solution Reference Network Design Guide*
- *Cisco Hosted Collaboration Solution Capacity Planning Guide*

VMware Planning Considerations

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



Note Distributed Resource Scheduler of VMware is not supported for UC applications.

Service Inventory Planning Considerations

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



Note Service Inventory pulls customer information from the Cisco Unified Communications Domain Manager, and generates a report file (or files) for all the customers.

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 can be used to parse the detailed inventory data into a form that can be used by your business system.

For more details on Service Inventory reports and their formatting, see *Cisco Hosted Collaboration Mediation Fulfillment Maintain and Operate Guide*.

License Planning Considerations

This section describes about the different license manager.

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 License 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 a 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.



Note For UC applications cluster versions higher than 11.x, PLM is not supported. All the 12.x UC applications cluster must be registered to CSSM. For more information on Smart Licensing, see *Hosted Collaboration Solution Smart Licensing Guide* at [cisco.com](https://www.cisco.com).

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 the clusters of a customer to be assigned to different Prime License Managers.

HCS licenses are registered to and loaded and activated onto the Prime License Managers that are 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 can 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 are 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.
- For the compatible versions of HCM-F and PLM before installation, see *Cisco Hosted Collaboration Solution Compatibility Matrix*.
- 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.
- Note** We do not recommend using the same Prime License Manager for two different HCM-F.
- 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, the HCS License Manager can set the appropriate deployment mode to the cluster. It can consolidate license usage for all customers and clusters.

Coresident Prime License Manager

If you require separate licenses per customer, Prime License Manager can reside in Cisco Unified Communications Manager (Coresident PLM).

When a PLM is added in HCM-F (**License Management** > **License Manager Summary**), the **Network Space** field signifies where the PLM is located, and not which address space to use to reach PLM.

Use the following values depending on the PLM location:

- If Standalone PLM located in Service Provider space, use **Service Provider Space**.
- If Coresident PLM is located in Application space, use **Application Space**.



Note Before adding the Coresident PLM, ensure to add Unified CM cluster and applications in HCM-F with all the network settings and credentials.

Ensure that the License Management service is started to activate Cisco Prime License Manager Resource API and Cisco Prime License Manager Resource Legacy API using the CLI commands:

- `utils service activate Cisco Prime LM Resource API`
- `utils service activate Cisco Prime LM Resource Legacy API`

Infrastructure Platform Automation Deprecation

The support for Infrastructure Platform Automation (IPA) application within Cisco Hosted Collaboration Solution (HCS) is deprecated from HCS 11.5(1) and later. We encourage service providers to transition to Prime Collaboration Deployment, if you wish to continue using a Cisco-provided tool.

Infrastructure Platform Automation (IPA) application within Cisco Hosted Collaboration Solution (HCS) that you can use to automate the provisioning steps when you onboard customers. IPA automates the provisioning steps in 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 cloning the virtual machine from golden templates and changing the identity of the Unified CM or Cisco Unity Connection Publisher and Subscriber virtual machines. If the virtual machines are precloned manually, or for example, by Cloud-O, IPA only identifies the virtual machines.

The following table identifies the UC applications, functions, and versions of the functions that IPA supports.

Table 1: IPA Support

UC Application	VMware Cloning from Golden Template	Readdress Task (Change Hostname or IP Addresses for One or More Nodes in a Cluster)
Cisco Unified CM	9.0.(1), 9.1(1), 9.1(2), 10.0(1)	9.0.(1), 9.1(1), 9.1(2), 10.0(1)
Cisco Unified Communications Manager IM and Presence Service	Not Supported	Not Supported
IM and Presence Service	10.0.(1)	10.0.(1)
Cisco Unified Contact Center Express	Not Supported	Not Supported
Cisco Unity Connection	9.x and 10.0.(1)	9.x and 10.0.(1)

UC application teams and Cisco TAC do not support Golden templates for Unified Communications 10.5 applications and later.

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:

Platform Manager is a Cisco Hosted Collaboration Mediation Fulfillment service that allows you to backup multiple application instances across customers for the following applications:

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

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 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 that are assigned to backup groups across different storage LUNs so that backup transfer load is spread out.
- Ensure that no more than two applications are backed up on a specific blade at any one time.

For details on Platform Manager, see the

Cisco Hosted Collaboration Mediation Fulfillment Install and Configure Guide

Prime Collaboration Deployment for UC Applications

Cisco Prime Collaboration Deployment helps you to manage Unified Communications (UC) applications. Its functions are to:

- Migrate a cluster of UC servers to a new cluster (such as MCS to virtual, or virtual to virtual).



Tip Cisco Prime Collaboration Deployment does not delete the source cluster VMs after migration is complete. You can fail over to the source VMs if there is a problem with the new VMs. When you are satisfied with the migration, you can manually delete the source VMs.

- Perform operations on clusters, such as:
 - Upgrade
 - Switch version
 - Restart
- Fresh install a new release UC cluster
- Change IP addresses or hostnames in clusters (for a network migration).

Cisco Prime Collaboration Deployment supports simple migration and network migration. Changing IP addresses or hostnames is not required for a simple migration. For more information, see the [Prime Collaboration Deployment Guide](#).

The functions that are supported by the Cisco Prime Collaboration Deployment can be found in the [Prime Collaboration Deployment Administration Guide](#).

Cisco supports virtualized deployments of Cisco Prime Collaboration Deployment. The application is deployed by using an OVA that contains the preinstalled application. This OVA is obtained with a licensed copy of Cisco Unified Communications Manager software. For more information about how to extract and deploy the `PCD_VAPP.OVA` file, see the *Cisco Prime Collaboration Deployment Administration Guide*.

In your Cisco HCS environment, install only one instance of Cisco Prime Collaboration Deployment, which must have the following:

- Access to all Cisco Unified Communications Manager clusters for all customers, including those behind a NAT
- A fixed, nonoverlapping IP address

Use the **Cluster Discovery** feature to find application clusters on which to perform fresh installs, migration, and upgrade functions. Perform this discovery on a blade-by-blade basis.

For more information about features, installation, configuration and administration, best practices, and troubleshooting, see the following documents:

- [Prime Collaboration Deployment Administration Guide](#)
- [Release Notes for Cisco Prime Collaboration Deployment](#)

API Gateway Proxy Planning Considerations



Note This service is deprecated.

The API Gateway Proxy, which provides a single point of integration for the HCS Management Fulfillment APIs, runs on a web services node. It also 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 to 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 Cisco HCS Management Fulfillment APIs. The API Gateway provides access to Service Fulfillment APIs of HCS management components Cisco Unified Communications Domain Manager 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.
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Cisco Unified Communications Domain Manager 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 Cisco Webex and Contact Center will be integrated.
- Step 2** Cisco Unified Communications Domain Manager 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 *Cisco Hosted Collaboration Solution End-to-End Planning Guide*.
- 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 service portal. If yes, you should allow access for customers or end-users.
- Step 6** Check to see what the static deployment requirements are on Cisco Unified Communications Manager 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 Resource Requirements

The following table lists the resource requirements for the listed service fulfillment components.

HCS 11.5(x)/12.5(x)					
Fulfillment component	vCPU	RAM (GB)	Storage	IOPS	OS
Unified CDM Multi-node	4 vCPU @ 2 GHz	8 GB	370 GB partitioned as follows: <ul style="list-style-type: none"> • 20 GB for OS • 50 GB for application • 10 GB for logs • 50 GB for compressed backups • 250 GB for database 	300	
WebProxy Nodes	2 vCPU @ 2 GHz	4 GB	150 GB		
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

The Database storage partition is sized at the initial installation to support the maximum deployment size for the release. Further increase in the size of the partition is not required as new customers are on-boarded.

To set up the disk requirements, the disk has to be set up on the VMWare GUI **Resources** tab where a disk can be created. This task can be done after the OVA import but prior to the system boots.

Compatibility Considerations

See the Service Fulfillment compatibility table in the *Cisco Hosted Collaboration Solution 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.



Note Cisco Prime Collaboration Assurance uses CDR and CMR for diagnostic purpose only (not for billing).

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*.