



Service Fulfillment Planning

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Prerequisites

Before you plan Service Fulfillment for your Cisco HCS installation, make sure that you:

- Review and have access to the *Cisco Hosted Collaboration Solution Release 14 Solution Reference Network Design Guide* available here: http://www.cisco.com/en/US/partner/products/ps11363/products_implementation_design_guides_list.html.
- Complete the actions outlined in previous sections of this guide including:
 - Initial system requirements and planned growth
 - Data center requirements
 - Licensing requirements
 - Customer premise equipment requirements
- Plan to use the Cisco Unified Communications Domain Manager for Service Fulfillment tasks.
- Gather credentials for vCenter, UCSM, and Cisco Unified Communications Domain Manager for provisioning into HCM-F.
- Network planning—Include these elements for L2 and L3 network design planning.

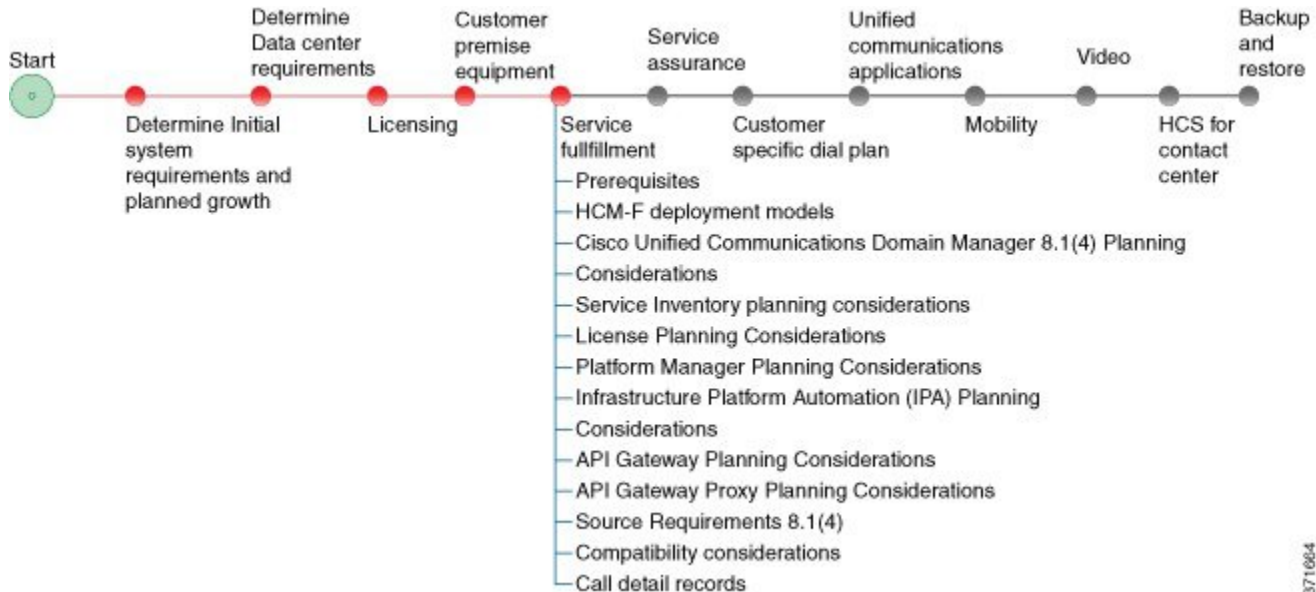
- Management Network design (with complete VLAN/VRF)
- Management Network implementation and validation (vCenter where required)
- Have a security strategy or plan, including a list of certificates needed.



Note The Subject Alternate Name (SAN) certificate signing request is not supported in Unified CDM for authenticating Unified CDM servers or web proxy servers using a different name or IP address.

- Evaluate the list of available language localizations for HCM-F and determine if you want to use one.

Service Fulfillment Workflow



HCM-F Deployment Models

HCM-F scales to the following deployment models:

1. Default Deployment
 - Node 1: SDR + Core HCM-F applications
 - SBI (apps + dm) direct access
2. Transitional Deployment (two Nodes (transition to three nodes or API trial)
 - Node 1: SDR + Core HCM-F applications (App Node)

- HCM-F API access directly to NBI-WS
3. Full Deployment (N Nodes (three or more HCM-F nodes))
 - Node 1: SDR + Core HCM-F applications
 - Load Balancer

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*.

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 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*.

Limitations and restrictions

The following list describes the current limitations for Platform Manager.

- Platform Manager is not a diagnostic tool. An error message does appear on the task list page if a task fails; however, you should use your usual set of tools and procedures to diagnose and correct the problem.
- The SOAP services do not replace the existing OS Administration and CLI upgrade processes.

Servers functionality classification

Platform Manager offers a wide range of different user-defined servers types to accommodate the management of potentially thousands of servers. You can tag servers with one or more roles such as publisher, subscriber, TFTP, music on hold, secondary TFTP, secondary music on hold to help classify the different servers in your system. You can then tag your servers with one or more server roles for easier identification. Server roles allow you to classify each server in your Platform Manager, making your task creation and viewing more efficient.

Server roles include:

- Call Processing
- Backup Call Processing
- Music on Hold
- TFTP
- Backup TFTP
- Primary Presence
- Secondary Presence
- Primary Voicemail
- Secondary Voicemail



Note Server roles are labels to help users identify a server. Setting a server role does not activate any services. Mislabeling a server does not cause any service outages.

Server group usage

Server groups allow you to logically join together different servers that you want to perform tasks on as a group. You have the flexibility to group servers to accommodate the varied requests for installation, backup, upgrades and restart tasks.



Note A task is applied to all servers under the same server group. If you do not want to lose a service, do not put your Active Call Control server in the same server group as its backup when you run a switch version or reboot task.

Server groups allow you to logically combine various servers; for example, you can create server groups for the following areas:

- Server Group by Role - Create call processing server groups and a backup processing server group.
- Server Group by Product - Create product A and product B groups.
- Server Group by Customer and Product - Create customer A-product A and customer A-product B groups.



Note You can have as many servers as you like in a group; however, all servers must be of the same product type. A server can be a member of more than one group.

Limitation in server groups

The following limitations apply when you create server groups:

- You cannot have multiple products in the same server group. For example, if you have a customer that has Cisco Unified Communications Manager and Cisco Unified Communications Manager IM and Presence Service, you must create two groups for this customer.
- You cannot have publisher servers in the same group as subscriber servers if you want to run upgrade or switch version tasks on the group. For example, if you want to upgrade all of a customer's services, you must create at least two groups: a publisher server group and at least one subscriber server group to execute the task on the publisher servers before the subscriber servers. This does not apply to restart server tasks. Publishers and subscribers can be in the same group if that group is used for restart server task.

Task creation

Tasks are the main function of Platform Manager. For example, you may want your publisher servers to back up your subscriber servers within a certain application group. The create tasks pages can help you with this.

The Backup Schedule task feature provides a central location to schedule and monitor backups while reusing of the existing backup infrastructure-the Disaster Recovery System. This feature also enables backup load balancing.

Data filtering

Platform Manager has a powerful filtering capabilities to allow you to view specific information. The following pages have filter options available:

- Servers
- Server Groups
- Task List

Field	Description
Quick Filter	View the data by any column on the page. For example, if you want to only see a specific customer servers, you can filter on a customer name. If you want to see all of your Unified Communications Manager servers, you can filter on product and only your Unified Communications Manager servers appear.
Advanced Filter	View data by multiple columns and multiple terms in the same column. For example, perhaps you want to see all the Unified Communications Manager and Cisco Unified Presence server groups for customer A and customer B. Add all of the details in the search boxes and your results appear.
Set Default Filter	Set a default view for your content. For example, you may want the Quick Filter screen to be the default view on the servers page to it does not have to load all of servers every time to you go the page.

Best practices

The following are recommendations for configuring your systems as suggested by Cisco development and testing teams.

- Use the SDR Synchronization, the Server Import functionality, or the VCenter Sync operation to populate the servers in your system if possible.
 - You can perform the VCenter Sync operation through a manual sync request from the **Administration** menu, or by enabling **vCenter Sync** from the **Data Center Management** menu.



Note Ensure that the cluster applications are associated with the correct VMs in the **Cluster Applications** page of **Application Management** menu. For more information, see the *Configure HCMF* section in *Cisco Hosted Collaboration Mediation Fulfillment Install and Configure Guide*

- Create groups with multiple servers that you perform similar tasks on.

- When you name groups, keep the terminology simple and use easy-to-recognize names.
- Use the sequencing feature in a task when you want a second group of servers to wait until the first group is done before performing that task.
- Use the Backup Schedule task for a more efficient and powerful way to run backups. It helps to control multiple servers that are backed up at the same time and enables load balancing. SFTP servers for DRS backup are configured in Disaster Recovery System (DRS). All the first nodes that use the same SFTP server should be assigned to the same server group for backup, or should be scheduled for backups on different days of the week.

For more information, refer to the HCS Maintain and Operate Guide at <http://www.cisco.com/c/en/us/support/unified-communications/hosted-collaboration-solution-hcs/tsd-products-support-series-home.html>.

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](#).

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](#)

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 CAA CUCM 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*.

LDAP Integration Considerations

If you intend to integrate LDAP users into Cisco Unified Communications Domain Manager, you need to identify the LDAP servers that will be used. LDAP servers can be integrated at the provider, reseller, customer, or site level in Cisco Unified Communications Domain Manager. The User Distinguished Name and Base Distinguished Name for LDAP search must be identified for LDAP servers being integrated.

Single Sign On Considerations

If you intend to deploy Single Sign On (SSO) in Cisco Unified Communications Domain Manager, you need to identify the Identity Provider (IdP) servers that will be used. IdPs can be located at the provider, reseller,

or customer levels in Cisco Unified Communications Domain Manager. You will need to be able to upload Service Provider metadata to the IdP and also download IdP metadata.

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.



Note Cisco HCM-F will deprecate the support of Cisco Unified Communications Domain Manager in the upcoming releases with limited support for existing integration, Cisco HCS partners and customers are advised to take necessary steps to align their requirements.

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

Procedure

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- Step 1** Determine if 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.



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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	-	

HCS 11.5(x)/12.5(x)					
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.

