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We're ready. Are you?

Best Practices for Migrating Previous Versions of Cisco Unified Communications Manager (CUCM) to Version 11.0

BRKUCC-2011

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Agenda

1. Session Objectives and Scope
 2. CUCM 11.0 Upgrade Definition and Upgrade Path
 3. CUCM License
 4. Virtualized CUCM
 5. System Level Upgrade
- Q&A
- * Cisco Unified Communications Manager = CUCM = Unified CM = CallManager
- * Cisco Prime License Manager = PLM = Cisco Enterprise License Manager = ELM

Session Objectives and Scope

1

Session Highlights

CUCM Migration

- Automated process with PCD
- CUCM 10+ Virtualized ONLY (MCS → UCS)

Licensing and License Migration

- Manual process
- Automated process

Prime Collaboration Deployment (PCD)

- CUCM Orchestration tool for operational tasks
- Migrations, Upgrade, COP file installation, fresh installation or hostname/IP Address change

Solution Names and Versions

CUCM / Unified CM /
CallManager / UC Manager

Cisco CallManager
3.0-3.3

Cisco Unified CallManager
4.0-4.2

Cisco Unified
Communications Manager
(CUCM)
4.3-11.0

License Manager

Enterprise License Manager
(ELM)
9.0 – 9.1

Prime License Manager
(PLM)
10.0-11.0

CUCM Platform Terminology



MCS, HP or IBM Servers

Appliance or bare metal servers
“Bare Metal CUCM”



Specs-Based



UC on UCS or UC virtualization
“Virtualized CUCM”

Session Scope



- Platform conversion from bare metal CUCM to virtualized CUCM 11.0
- Upgrade or migrate to CUCM 11.0
- System level approach

CUCM 11.0 Upgrade Definition and Upgrade Path

2



CUCM Version, Build and Upgrade Schedule

CUCM Major/Minor Versions

CUCM Major Version	CUCM Minor Version
11.0	11.5
10.0	10.5
9.0	9.1
8.0	8.5 and 8.6
7.0	7.1
6.0	6.1
5.0	5.1

- Major and minor version upgrades requires active Cisco Software Support Service (SWSS)
- End of Sales support service contracts
 - Minor version upgrade requires active Essential Operate Service (ESW) contract
 - Major version upgrade requires active Unified Communication Software Subscription (UCSS) contract
- End of Sales (EOS) notice 
 - <http://www.cisco.com/c/en/us/products/collateral/unified-communications/unified-communications-software-subscription/eos-eol-notice-c51-732026.html>

End of Life/Support Notices and Release Selection

Milestone	Potential Activity	Summary
Before End-of-Sales Date	Ability to deploying new cluster	
After End-of-Sales Date	Start planning for upgrades	
End of SW Maintenance	Desire to complete the upgrade	

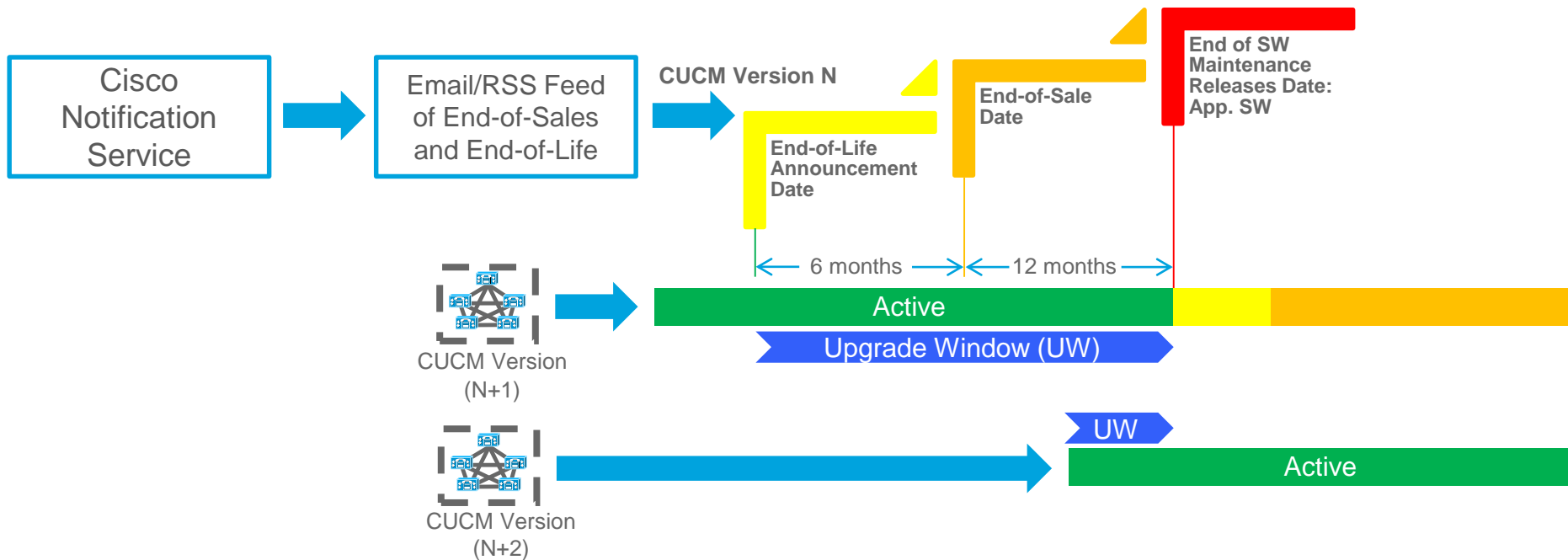
Deployment Models:

- Extended period on a single release with “Long-Life Release” (i.e. 10.5, 11.5, etc.)
- New features with “Short-Life Releases” (i.e. 11.0, 12.0, etc.)

Upgrade Planning:


- Consistent release cycles 
- Predictable End of Sales/Support milestone durations

Sample Upgrade Schedule for Long-Life Release



Long-life release customers can upgrade to every Long-Life release or every other Long-life releases

Sample CUCM Versions and Builds

CUCM Version	CUCM Build	Numbering Convention
11.0(1a)SU1 	11.0.1.21900-11	(A.B.C.XYzzz-x)
11.0(1a)	11.0.1.20000-2	(A) Major version (License) 10.5.2.10000-5
10.5(2)SU3	10.5.2.13900-12	(B) Minor version (Long Life Release) 10.5.2.10000-5
10.5(2)	10.5.2.10000-5	(C) Maintenance release (Patch and/or Features) 10.5.2.10000-5
10.5(1)	10.5.1.10000-6	(X) Build (Patch) 10.5.2.10000-5
10.0(1)SU2	10.0.1.12900-2	10.5.2.10000-5 (example)
10.0(1)SU1	10.0.1.11900-2	(Y) FCS:0, ES or SU: 1-9 10.5.2.10000-5 (FCS)
9.1(2)SU4	9.1.2.14900-14	10.5.2.11900-1 (ES or SU look at last three digits)
9.1(2)SU2a	9.1.2.12901-3	(zzz) FCS:000, ES: 001-899, SU: 900-999 10.5.2.10000-5 (FCS)
9.1(2)SU2	9.1.2.12900-11	10.5.2.11001-5 (ES) (example)
9.1(2)SU1	9.1.2.11900-12	10.5.2.11900-X (SU)
9.1(2)	9.1.2.10000-28	

Upgrade Definition

Current CUCM Upgrade Process and Definition

L2 L2 Upgrade: Appliance/Virtual to Appliance/Virtual model

- Low complexity with possible shortest downtime
- Between CUCM versions with the same **major** RHEL versions
- (e.g. CUCM 10.0 to 11.0 or CUCM 10.5 to 11.0)

RU RU (Refresh Upgrade): Appliance/Virtual to Appliance/Virtual model with **major** RHEL version change (starting with RHEL 5)

- Medium complexity with possible longer downtime
- (e.g. CUCM 8.6 to 11.0 or CUCM 9.1 to 11.0)

PC Platform Change: Appliance to Virtualized model

- Variable complexity with variable downtime pending approach
- Single or multiple hop upgrade or migration
- (i.e. Bare metal servers that cannot run CUCM 10.0 or above)

L2 versus RU Upgrade

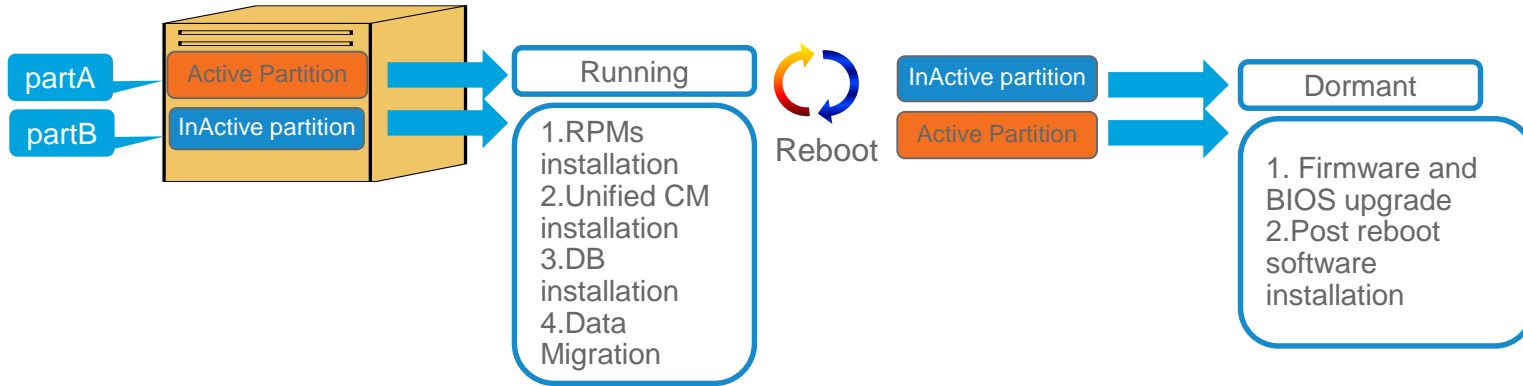
L2 Upgrade

- **Active partition is running** while software is upgraded on inactive partition
- Low downtime since upgrade can be done while system is functioning

RU Upgrade

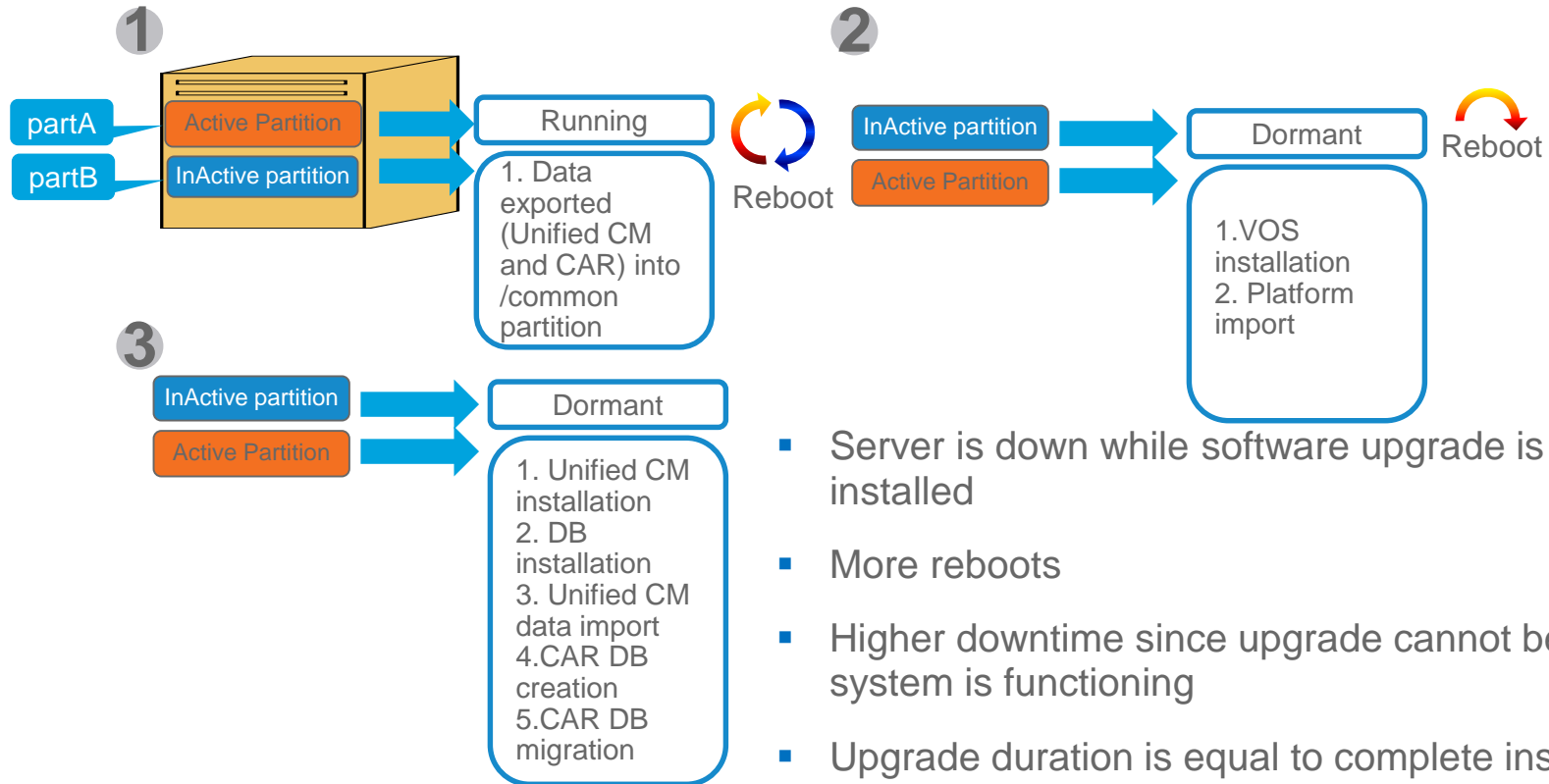
- **Server is down** while software is upgraded
- Higher downtime since upgrade cannot be done while system is functioning
- Upgrade Time is equal to complete installation of CUCM

L2 Upgrade



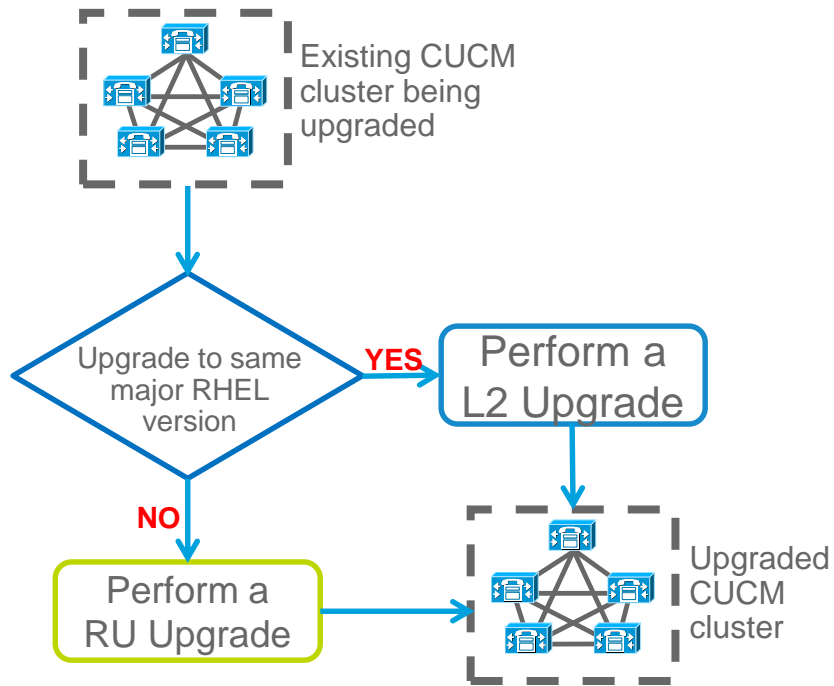
- Active partition is running while upgrade software is being installed on inactive partition
- Short downtime (20-30) min since upgrade can be done while system is functioning


Refresh Upgrade (RU)



- Server is down while software upgrade is being installed
- More reboots
- Higher downtime since upgrade cannot be done while system is functioning
- Upgrade duration is equal to complete installation of Unified CM

L2 and RU Upgrade: Appliance/Virtual to Appliance/Virtual Decision Tree



CUCM Version	RHEL Release	L2	RU
5.0(4)	RHEL 3 Update 6	L2	RU
5.1(x) & 6.X	RHEL 3 Update 8		
7.0(1)	RHEL 4 Update 4		
7.1(2)	RHEL 4 Update 6	L2	
7.1(3) & 8.0(x)	RHEL 4 Update 7		
8.5	RHEL 4 Update 8	L2	
8.6*	RHEL 5 Update 5		
9.X	RHEL 5 Update 7	L2	
10.0(1)	RHEL 6 Update 2		
10.5(2)	RHEL 6 Update 5		
11.0(1) 	RHEL 6 Update 6		

* RU starts with CUCM 8.6 or RHEL 5 for CUCM.

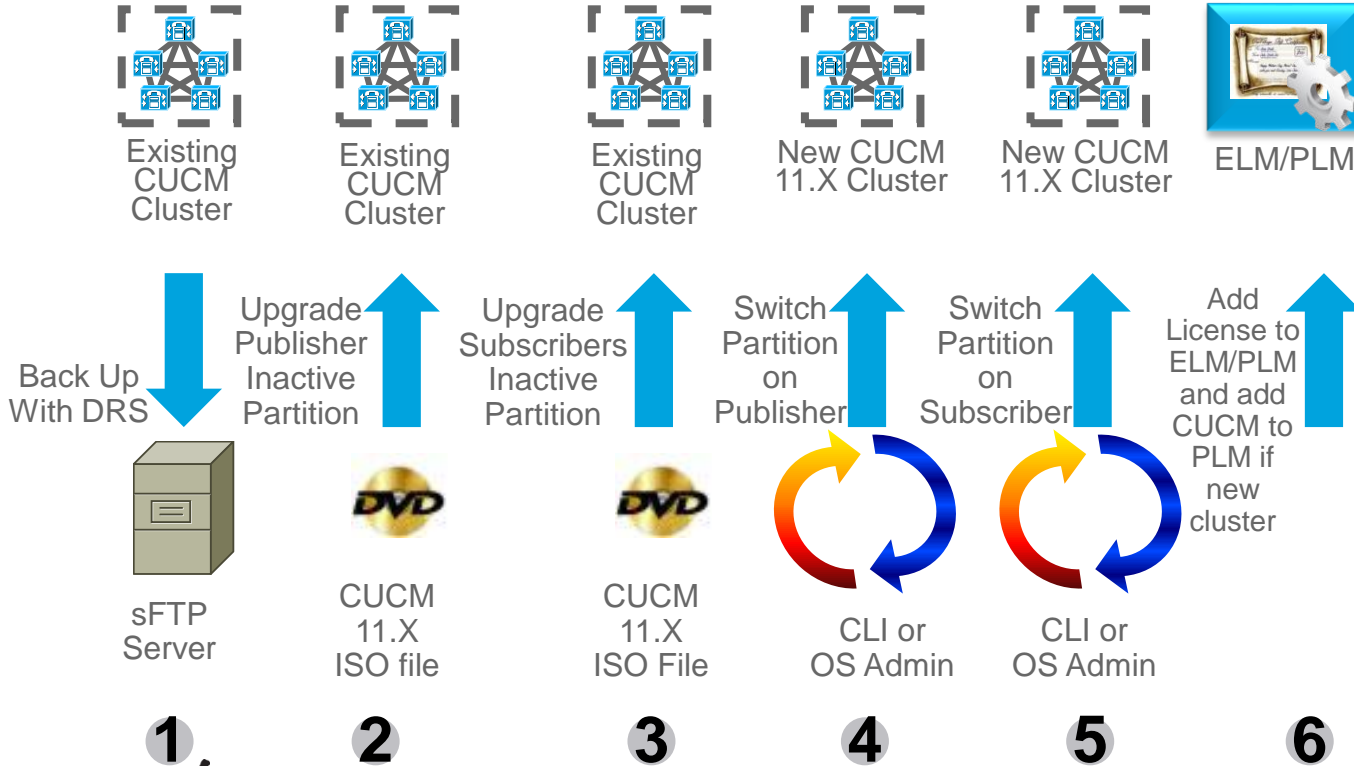


Refresh Upgrade (RU) and COP File

- Always Perform a DRS back up before upgrade
- Must Install the latest COP (ciscocm.refresh_upgrade_v1.5.cop.sgn) file on CUCM version 8.5 or earlier to allow for successful upgrade and limit switch version after upgrade
 - COP file is **NOT** required for CUCM version 8.6 or later to upgrade to 9.X +
 - Other COP file install(s) may be needed
 - ciscocm.free_common_space_v1.3.k3.cop.sgn (**!!! Wipes Inactive Partition Clean !!!**)
 - ciscocm.version3-keys.cop.sgn
- Track console to monitor progress of upgrade
- To minimize downtime, upgrade Publisher until completion, followed by dedicated MOH/TFTP servers and then backup Subscribers or secondary nodes and finally the primary Subscriber servers
 - Consider **Automatically switch to new version after successful upgrade**

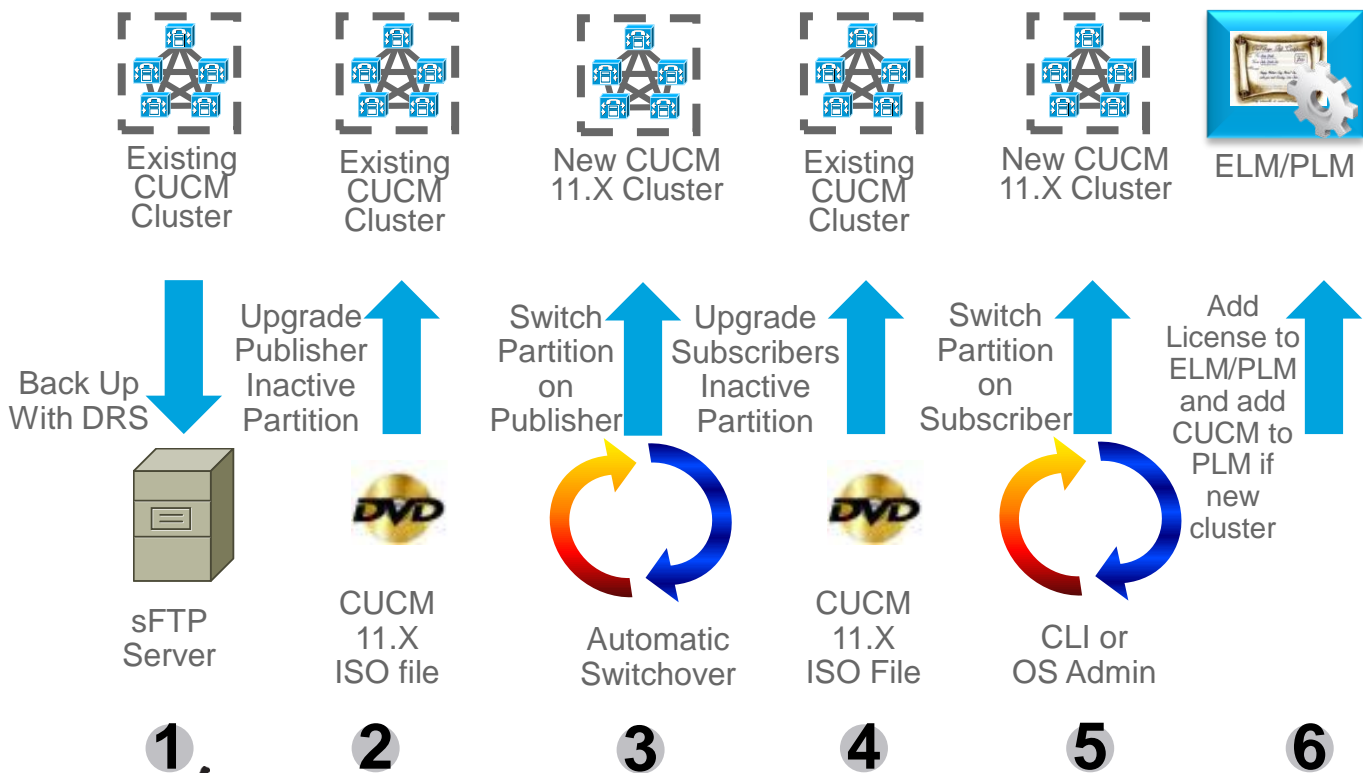


In-Place L2 Upgrade Process



- Add version 11 of license for the appropriate ELM or PLM
- Or Upgrade Standalone PLM to 11.0 First
- For 9.X to 11.X, upgrade IM&P after CUCM cluster is upgraded
- This scenario applies to virtualized CUCM only

In-Place RU Upgrade Process



- Add version 11 of license for the appropriate ELM or PLM
- Or Upgrade Standalone PLM to 11.0 First
- For 9.X to 11.X, upgrade IM&P after CUCM cluster is upgraded
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COP Files for Upgrades

CUCM and RSA (Rivest Shamir Adleman) Version



CUCM RSA Version

RSA version of ISO or COP file(s) have match what CUCM supports



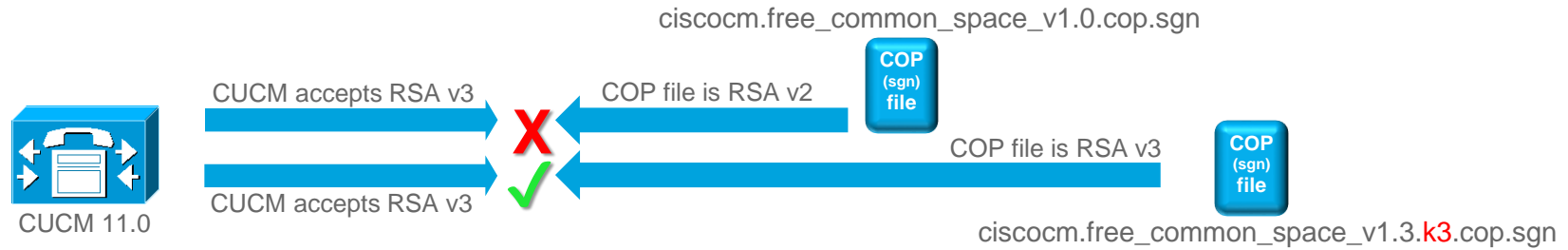
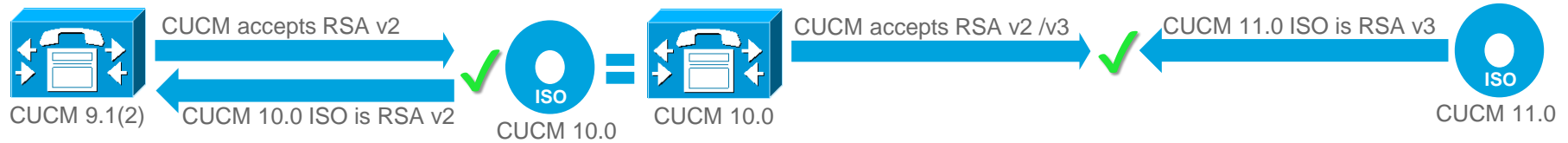
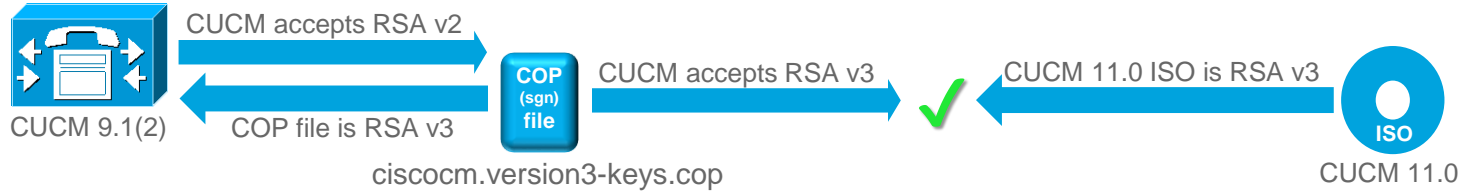
RSA Signed Files

CUCM Build	RSA Version
< 8.5.1.17123-1	RSA v2
< 8.6.2.24122-1	RSA v2
< 9.1.2.11018-1	RSA v2
10.X	RSA v2 and v3
11.X	RSA v3

CUCM Build	Signed RSA Version
5.0(4) – 10.0(X)	RSA v2
10.5(1) or higher	RSA v3
ciscocm.free_common_space_v1.3.k3.cop.sgn	
Third party COP files need RSA v3 signature	

← Only RSA v3 files can be added to CUCM 11.X and later

CUCM and ISO/COP Files



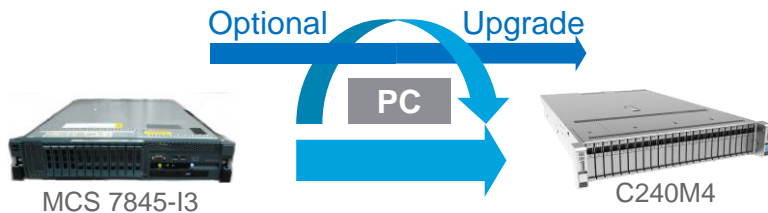
Verify that Third-party COP files have been signed with RSA v3 if installed onto CUCM 11.X or later:
2N, Ascom, Avara, BT, DoCoMo, Fujitsu, Intelbras, IP Blue, IP Trade, Mindshare, Mobile Heartbeat, Nokia, RIM, Sony, Speakerbus, Spectralink, Syn-Apps, Tandberg, Telecom, Telematrix, Verizon

CUCM COP Files for Upgrade

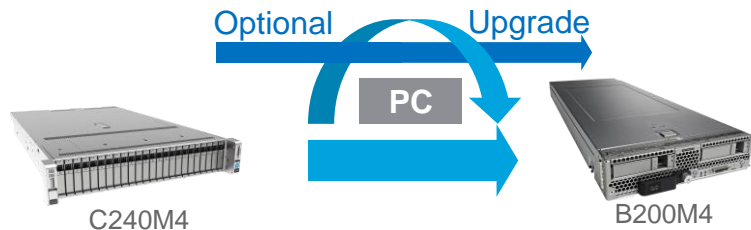
Current Version	Target Version	
<8.5.1.17123-1 <8.6.2.24122-1 / 8.6(2)su5 <9.1.2.11018-1 / 9.1(2)su1	10.5(1) or higher	ciscocm.version3-keys.cop.sgn * 8.6(2)su5+ and 9.1(2)su1+ has v3 Keys pre-installed
8.5(x) or lower	8.6 or higher	ciscocm.refresh_upgrade_v1.5.cop.sgn
8.5(1), 8.6(2), 9.1(1), 9.1(2) or lower		ciscocm.vmware-disk-size-reallocation-1.0.cop.sgn
Any CUCM with <25GB available in Common	9.1(x) or higher	ciscocm.free_common_space_v1.3.k3.cop.sgn
6.1(4), 6.1(5), 7.1(3)	8.5(x)	ciscocm.allow_upgrade_to_unrestricted.cop.sgn

- Always Backup system before apply COP file
- Match RSA version of COP file to CUCM supported RSA version
- To check for COP file installed, use “show version active” in CLI or “Show > Software” in OS Admin

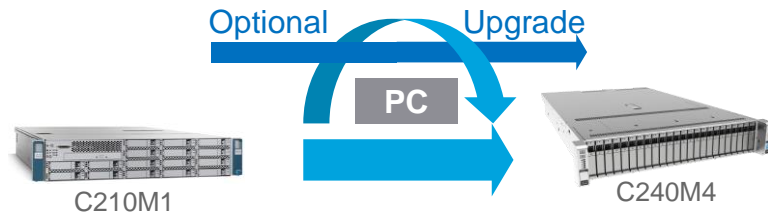
CUCM Platform Conversion (PC) with Examples



- Bare Metal or Appliance to Virtual Platform Conversion
- E.g. CUCM 10.X and later can only run virtualized
- E.g. MCS to UCS

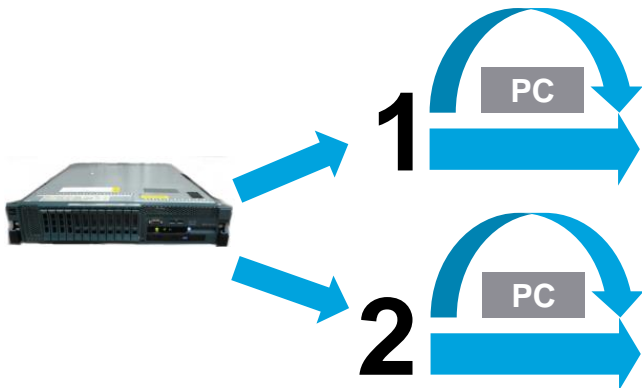


- Virtual to Virtual Platform Conversion
- E.g. Change from C-Series Rack Servers to B-Series Blade Servers



- Virtual to Virtual Platform Conversion
- E.g. Change older C-Series Rack Servers to current older C-Series Rack Servers

CUCM Platform Conversion (PC) Approaches



Cisco DRS (Disaster Recovery System):

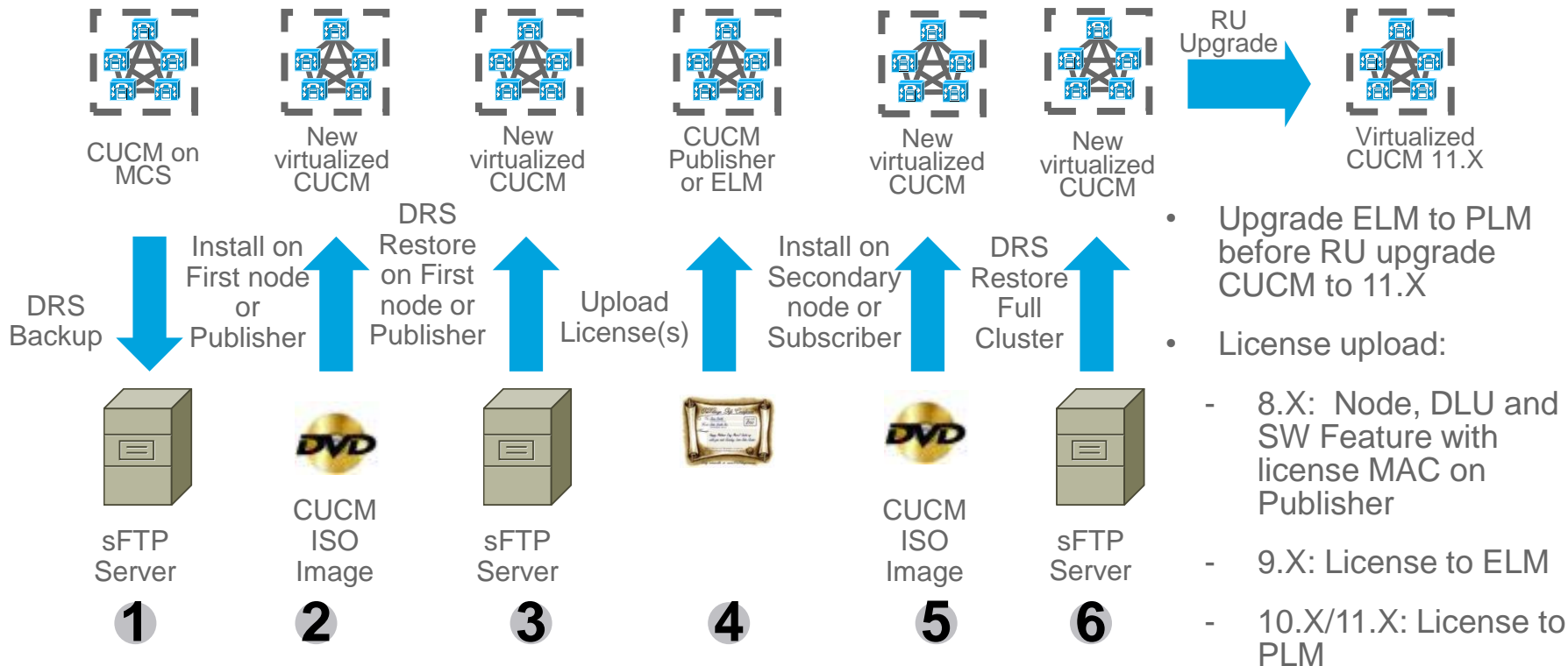
Traditional method leveraging DRS backup and DRS restore to change platform **only**

Cisco PCD (Prime Collaboration Deployment)

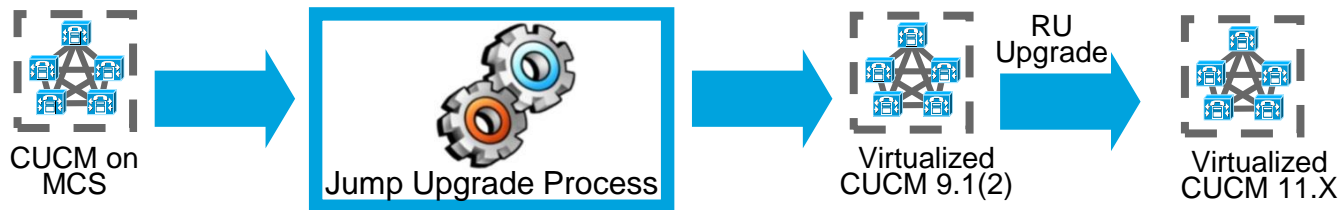
New method leveraging PCD to change platform and/or **upgrade**

Cisco DRS Approach

PC and Upgrade Using DRS for 8.0(2) - 9.1(2)



PC and Upgrade for 6.1(4), 6.1(5), 7.1(3) or 7.1(5)

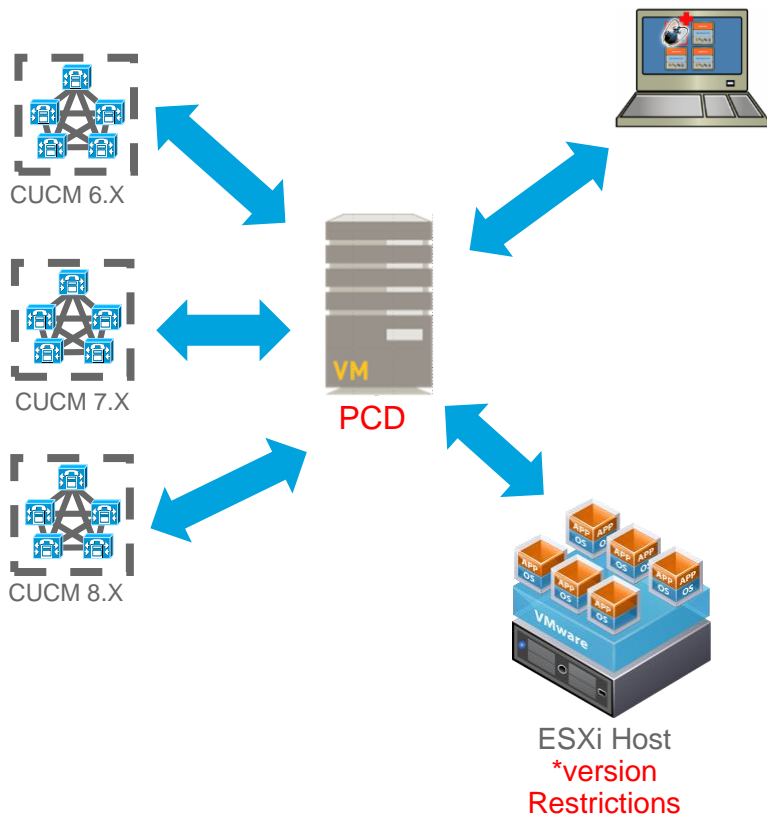


- Leverage Jump Upgrade to by-pass MCS server limitation on running CUCM 8.X or later to get to CUCM version 9.1(2)
- RU upgrade to CUCM version 11.X
- For other CUCM clusters not on version 6.1(4), 6.1(5), 7.1(3) or 7.1(5), upgrade to the above releases

Detailed Jump Upgrade Process is in the appendix

Cisco Prime Collaboration Deployment (PCD) Approach


Prime Collaboration Deployment (PCD)



- PCD is a VMware vApp used for management of Cisco collaboration applications:
 - CUCM
 - CUC
 - CUP / IM&P
 - CUCCX
- Management tasks (Upgrade, Switch Versions, Server Restart, Readdress, Install and Migrate) are based on collaboration application and version of the application
- VMware vApp is pre-configured virtual machine with OS and PCD application (1.5GB)
 - pcd_vApp_UCOS_11.0.1.20000-2_vmv7_v1.2.ova
 - PCD OVA containing preinstalled app ships as part of UCM media kit
- Available via PUT or TAC (**NOT posted on CCO**)
 - Updates are Posted on CCO under CUCM


CUCM Supported Tasks by PCD 11.0

Reference

Feature	CUCM 6.1(5)	CUCM 7.1(3), 7.1(5)	CUCM 8.0(1-3)	CUCM 8.5(1)	CUCM 8.6(1-2)	CUCM 9.x	CUCM 10.X	CUCM 11.X
Migration to 10.X/11.X 	X	X	X	X	X	X	X	X
Fresh Install							X	X
Upgrade + COP Install					X	X	X	X
Switch Version					X	X	X	X
Restart					X	X	X	X
Readdress (Hostname/IP Address Change)							X	X

CUP/IM&P Supported Tasks by PCD 11.0

Reference

Feature	8.5(4)	8.6(3-5)	9.x	10.x	11.X
Migration to 10.X/11.X 	X	X	X	X	X
Fresh Install				X	X
Upgrade + COP Install		X	X	X	X
Switch Version		X	X	X	X
Restart		X	X	X	X
Readdress (Hostname/IP Address Change)					

PCD Requirements

- Virtual machine virtual requirements

- 2 vCPU
- 4 GB vRAM
- 80 GB vDisk

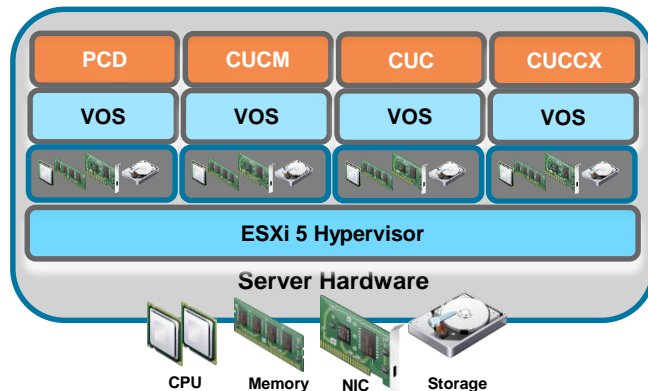
- Consider Increasing after deployment

- VMware requirements

- ESXi 4.1, 5.0, 5.1 and **5.5 NOT 6.0** 🤔

- VMware API / License Requirements:

- Cisco UC Virtualization Foundation, VMware vSphere Foundation, Standard Edition, Enterprise Edition, or Enterprise Plus Edition
- CUCM-BE 6K and CUCM-BE 7K comes with Cisco UC Virtualization Hypervisor. Update to Cisco UC Virtualization Foundation



Product: VMware vSphere 5 Enterprise Plus Licensed
License Key: [REDACTED]
Expires: [REDACTED]

Product Features:
Unlimited virtual SMP
vCenter agent for VMware host
Reliable Memory
vShield Endpoint

vSphere API Storage APIs

vSphere HA
Hot-Pluggable virtual HW
vSphere vMotion
vSphere FT
vSphere Data Protection
vShield Zones
vSphere DRS
vSphere Storage vMotion
MPIO / Third-Party Multi-Pathing
vSphere Distributed Switch
vSphere Host Profiles
Remote virtual Serial Port Concentrator
vSphere Storage I/O Control
Direct Path vMotion
vSphere Storage APIs for Array Integration
Shared Smart Card Reader
vSphere Storage DRS
vSphere Profile-Driven Storage
vSphere vMotion Metro
vSphere Auto Deploy
vSphere View Accelerator
vSphere App HA
vSphere Flash Read Cache

Ordering and Deploying PCD for Upgrade



PCD Version	PCD Build
11.0(1)	11.0.1.20000-2 NEW
10.5(3)SU1	10.5.3.11900-3
10.0(1)	10.0.1.10000-14

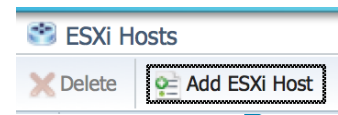
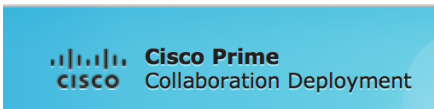
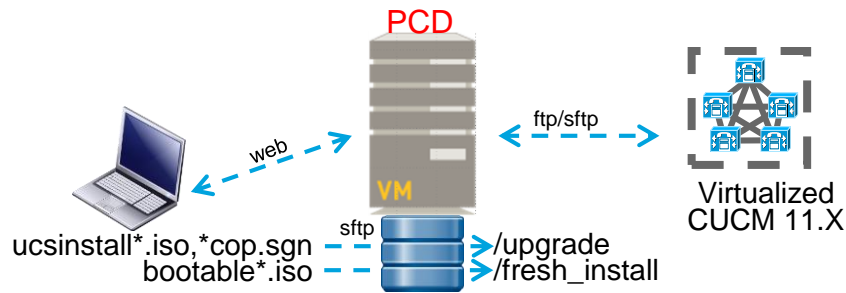
- Product Upgrade Tool (PUT) - www.cisco.com/upgrade
- PCD part of “CUCM Software Version 10.X/11.X for PUT Only”
- Download as `pcd_vApp_UCOS_11.0.1.20000-2.iso`

PCD Interactions with External Components

- PCD and VMware ESXi communication
 - ESXi host **root credential**
 - NFS mounts PCD /fresh_install directory
 - ESXi Support Limitations 5.x vs 6.0
 - ESXi License Requirements
 - Data center or server team coordination

View: **Datstores** **Devices**

Identification	Device
datastore1	Local LSI Disk (naa.60030130f09000001ae2452c...
datastore2	Local LSI Disk (naa.60030130f09000001ae2452c...
pcd-10-83-113-237_NFS (read only)	10.83.113.237:/common/adminsftp/fresh_install/



Add ESXi Host

Please provide network information and root credentials for a VMWare ESXi Host then click the "OK" button

Hostname/IP Address

Username

Password

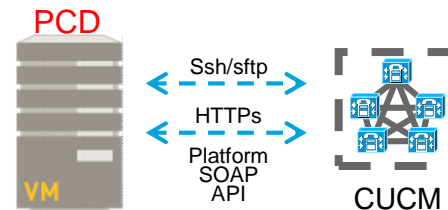
Description (optional)



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PCD Interactions with External Components Cont.


- PCD and CUCM communication
 - CUCM OS admin credential
 - Install ciscocm.ucmap_platformconfig.cop during Discovery and certain PCD Tasks such as Migration / Data Export
 - Platform SOAP API for certain PCD Tasks such as Restart, Upgrade, Switch Version
 - Requires Platform SOAP Services to be activated on CUCM 8.6 on all Nodes



If Discovery or Migration Task is stuck its possible this COP Install has stalled/failed.
Workaround: From Platform CLI or GUI “Assume control”, then cancel the install then try again on PCD

 **Cisco Prime**
Collaboration Deployment

Inventory | Administration |
Inventory
Clusters
ESXi Hosts
SFTP Servers and Datastore

 Clusters
Delete Discover Cluster

Discover Cluster

Step 1 of 3

Cluster Access

Provide a unique cluster nickname and the network information for the cluster publisher. If a CUCM/IM&P cluster, use the CUCM Publisher. The node will be contacted to identify the other nodes in the cluster.

Choose a Nickname for this Cluster
Hostname/IP Address of Cluster Publisher
OS Admin Username
OS Admin Password

 NEW PCD 10.5(2)

Enable NAT

Previous Next Finish Cancel

Cluster Discovery Progress

Cluster Settings

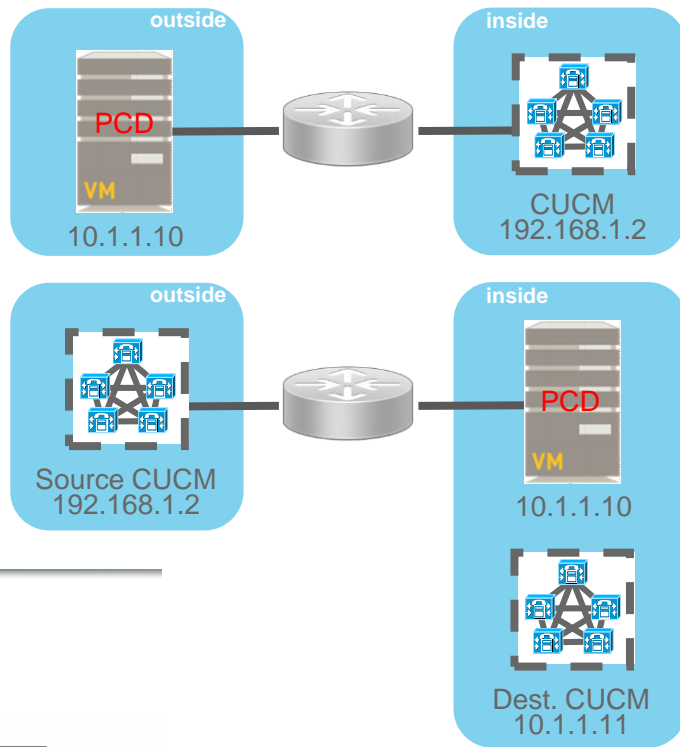
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PCD Interactions with External Components Cont.

- PCD and CUCM communication
 - Static NAT support with PCD 10.5(2)+
 - PCD Behind NAT
 - CUCM Behind NAT
 - PAT not enough need 1 to 1 Static NAT



 **Cisco Prime**
Collaboration Deployment

Administration | ▼

Administration
[Email Notification](#)
[NAT Settings](#)

PCD NAT Settings

Hostname: ecats-uc-pcd1.cisco.com

Private IP: 172.18.106.9

NAT IP:

Set PCD's NAT IP when it resides
behind a NAT Router (Inside)

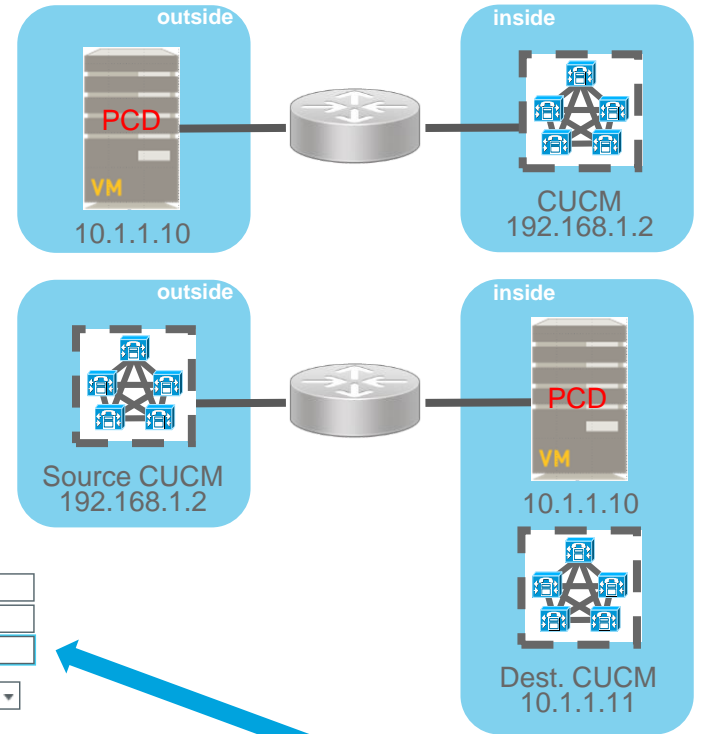
Save

Reset



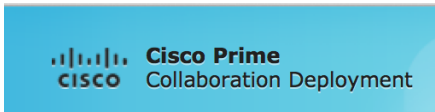
PCD Interactions with External Components Cont.

- PCD and CUCM communication
 - Static NAT support with PCD 10.5(2)+
 - PCD Behind NAT
 - CUCM Behind NAT
 - PAT not enough need 1 to 1 Static NAT



Edit Node

Cluster **vnt-cm1**
 Host **vnt-cm1a.cisco.com**
 Admin Username
 Password
 NAT IP(optional)
 SFTP Server



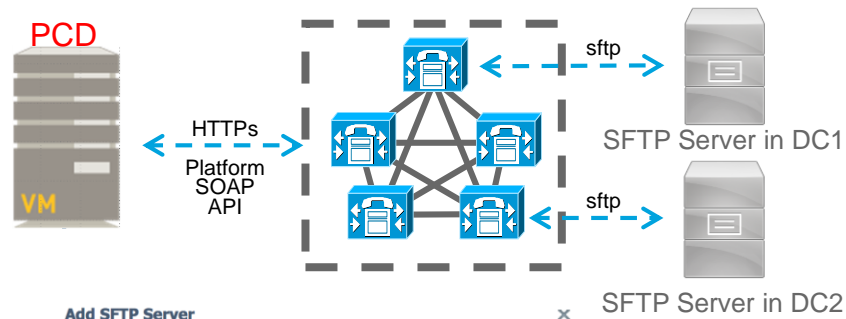
- Inventory | Administration |
 - Inventory
 - Clusters
 - ESXi Hosts
 - SFTP Servers and Datastore

Node Name	IP Address	Type Application	Active Version	Functions	SFTP Server	Notes	Inventory Status	Actions
ecats-cups1a	172.18.107.119	IM&P	10.5.2.20000-1	Publisher	localhost		Successful	Edit... Refresh Node...
ecats-cups1b	172.18.107.120	IM&P	10.5.2.20000-1	localhost			Successful	Edit... Refresh Node...
vnt-cm1a.cisco.com	172.18.106.58	CUCM	11.0.1.10000-10	Publisher	172.18.106.18-ecats-uc...		Successful	Edit... Refresh Node...
vnt-cm1b.cisco.com	172.18.106.59	CUCM	11.0.1.10000-10		172.18.106.18-ecats-uc...		Successful	Edit... Refresh Node...
vnt-cm1c.cisco.com	172.18.106.60	CUCM	11.0.1.10000-10		172.18.106.18-ecats-uc...		Successful	Edit... Refresh Node...

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PCD Interactions with External Components Cont.

- PCD and CUCM communication
 - Remote SFTP Support for Upgrades or COP file Installs
 - Multi SFTP Server Support
 - Fresh Installs / Migrations must use PCD NFS Mount



Add SFTP Server

Address and access credentials

IP / Host Name *

Username *

Password *

Path to Datastore Directory on Server

Directory *

A valid directory should contain .iso datastore files for upgrades

Additional Information

Description

 **Cisco Prime**
Collaboration Deployment

Inventory | Administration

Inventory

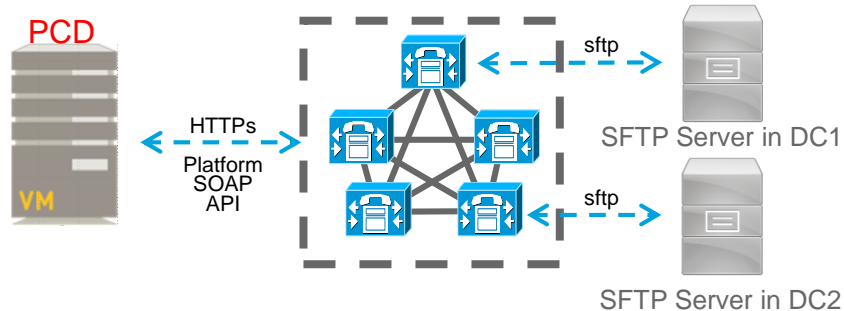
Clusters
ESXi Hosts
[SFTP Servers and Datastore](#)

SFTP Servers/Datastore



PCD Interactions with External Components Cont.

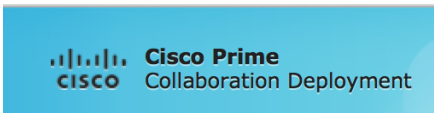
- PCD and CUCM communication
 - SFTP Server Details must be assigned to each CUCM Node 🤔
 - Default is localhost = PCD Local Folder /upgrade



Edit Node

Cluster **vnt-cm1**
 Host **vnt-cm1a.cisco.com**

Admin Username
 Password
 NAT IP(optional)
 SFTP Server

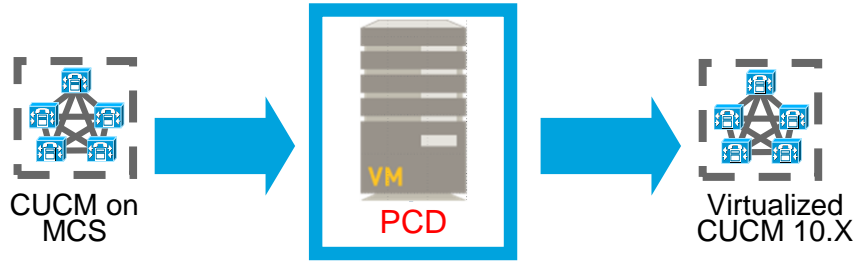


Node Name	IP Address	Type Application	Active Version	Functions	SFTP Server	Notes	Discovery Status	Actions
ecats-cups1a	172.18.107.119	IM&P	10.5.2.20000-1	Publisher	localhost		Successful	Edit... Refresh Node...
ecats-cups1b	172.18.107.120	IM&P	10.5.2.20000-1		localhost		Successful	Edit... Refresh Node...
vnt-cm1a.cisco.com	172.18.106.58	CUCM	11.0.1.10000-10	Publisher	172.18.106.18-ecats-uc-...		Successful	Edit... Refresh Node...
vnt-cm1b.cisco.com	172.18.106.59	CUCM	11.0.1.10000-10		172.18.106.18-ecats-uc-...		Successful	Edit... Refresh Node...
vnt-cm1c.cisco.com	172.18.106.60	CUCM	11.0.1.10000-10		172.18.106.18-ecats-uc-...		Successful	Edit... Refresh Node...

Cisco live!

Automated Platform Conversion with PCD

To
10.X+

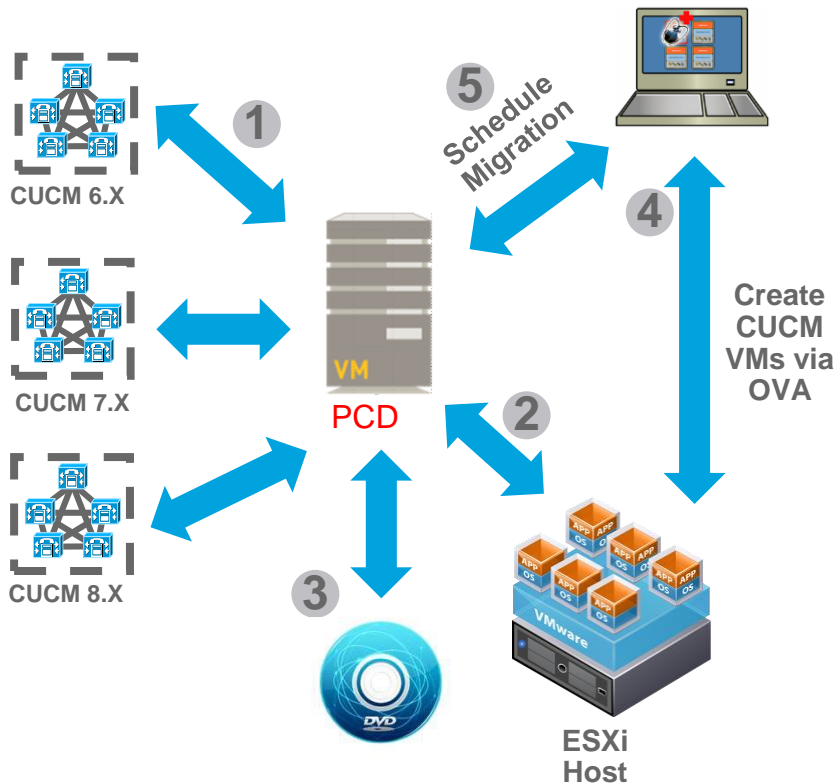


- Bare metal CUCM to virtualized CUCM (P2V)
 - Installs `ciscocm.ucmap_platformconfig.cop` & `ciscocm.migrate-export-vX.Y.cop` file to the source servers to export data
 - Builds a new migration cluster (Manual Task Required to deploy OVAs)
 - Exports and Imports data
- Same or different destination IP address and/or hostname
- Source or Destination Migration Cluster can be behind NAT
- Scheduled or immediate execution

Sample Powershell Script in Appendix**

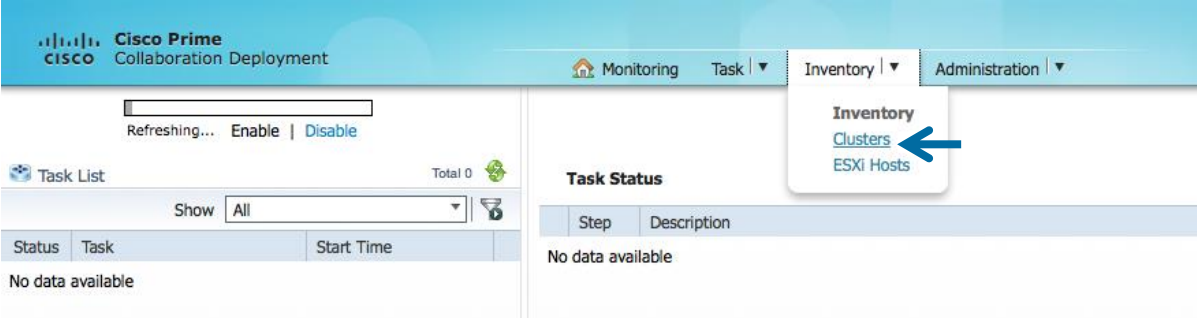
NEW
PCD
10.5(2)

Automated Platform Conversion with PCD



- CUCM Bootable ISO provided to ESXi Hosts via NFS service running on PCD
- Migration (M1) Steps
 1. Add Source CUCM Clusters to PCD Inventory
 2. Add ESXi Hosts to PCD Inventory
 3. Add CUCM Bootable ISOs to PCD SFTP Server (adminsftp user / fresh_install folder)
 4. Deploy Empty CUCM VM on ESXi Hosts via OVA
 5. Map Physical Nodes to Virtual VMs and Schedule Migration Tasks

PCD Inventory Source Cluster Discovery



- First we need to Discover the Source CUCM 7.1(5) Cluster



PCD Inventory Source Cluster Discovery – Step 1

Discover Cluster



Step 1 of 3

Cluster Access

Provide a unique cluster nickname and the network information for the cluster publisher. If a CUCM/IM&P cluster, use the CUCM Publisher. The node will be contacted to identify the other nodes in the cluster.

Choose a Nickname for this Cluster

Hostname/IP Address of Cluster Publisher

OS Admin Username

OS Admin Password

Enable NAT

Cluster Discovery Progress	✓
Cluster Settings	✓

PCD Inventory Source Cluster Discovery – Step 2

Discover Cluster

x

Step 2 of 3

Cluster Access ✔

Cluster Discovery Progress

During discovery, the list of cluster nodes will be retrieved, and each of the nodes contacted.

Cluster Name **My Source CUCM Cluster on MCS**

Contacting cluster nodes and updating cluster data The process could take several minutes to complete.

Cluster Nodes

Hostname	Contact Status	Product	Active Version	Inactive Version	Hardware
ucm06bcmoh1.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2
ucm06bcmoh2.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2
ucm06bcpub.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2
ucm06bcsub1.ecatsrtp.cisco.com	Discovering...				
ucm06bcsub2.ecatsrtp.cisco.com	Discovering...				
ucm06bcsub3.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2
ucm06bcsub4.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2
ucm06bcsub5.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2
ucm06bcsub6.ecatsrtp.cisco.com	Discovering...				
ucm06bcsub7.ecatsrtp.cisco.com	Successful	CUCM	7.1.5.32022-1		7845H2

Previous Next Finish Cancel

Installs these COP Files

- ciscocm.ucmap_platformconfig.cop
- ciscocm.migrate-export-v1.13.cop



PCD Inventory Source Cluster Discovery – Step 3

Discover Cluster

Step 3 of 3

- Cluster Access
- Cluster Discovery Progress

Cluster Settings

Optional - Assign the server role(s) to each cluster node to identify its functional role(s) in the cluster and to help determine the proper sequence of a task performed on the cluster.

Assign Functions Total 13

Show

Hostname	Product	Functions	Notes
ucm07bcpub.ecatsrtp.cisco.com	CUCM	Publisher	
ucm07bcsub8.ecatsrtp.cisco.com	CUCM		
ucm07bctftp1.ecatsrtp.cisco.com	CUCM		
ucm07bcmoh1.ecatsrtp.cisco.com	CUCM		
ucm07bcsub5.ecatsrtp.cisco.com	CUCM		
ucm07bcsub3.ecatsrtp.cisco.com	CUCM		
ucm07bcsub7.ecatsrtp.cisco.com	CUCM		
ucm07bcsub2.ecatsrtp.cisco.com	CUCM		
ucm07bcsub1.ecatsrtp.cisco.com	CUCM		
ucm07bcsub4.ecatsrtp.cisco.com	CUCM		

Previous Next **Finish** Cancel

- This Step can be skipped
- Not Required for Migration Job

PCD Inventory ESXi Hosts

The screenshot shows the Cisco Prime Collaboration Deployment interface. The top navigation bar includes 'Monitoring', 'Task', 'Inventory', and 'Administration'. The 'Inventory' menu is open, showing 'Inventory', 'Clusters', and 'ESXi Hosts'. A blue arrow points to the 'ESXi Hosts' option. On the left, there is a 'Task List' section with a 'Refreshing...' indicator and 'Enable | Disable' buttons. Below it is a table with columns 'Status', 'Task', and 'Start Time', containing the text 'No data available'. To the right, the 'Task Status' section has columns 'Step' and 'Description', also containing 'No data available'.

The screenshot shows the 'ESXi Hosts' page in the Cisco Prime Collaboration Deployment interface. The top navigation bar is the same as in the previous screenshot. Below the navigation bar, there is a 'Delete' button and an 'Add ESXi Host' button with a green plus icon. A blue arrow points to the 'Add ESXi Host' button. Below this is a table with columns 'Hostname' and 'IP Address'. The table contains one row with the following data:

Hostname	IP Address
<input type="checkbox"/> ecats-rtp-cc42-esxi-8.ecatsrtp.cisco.com	10.0.23.78

PCD Inventory Add ESXi Hosts

Add ESXi Host

Please provide network information and root credentials for a VMWare ESXi Host then click the "OK" button

Hostname/IP Address:

Username:

Password:

Description (optional):

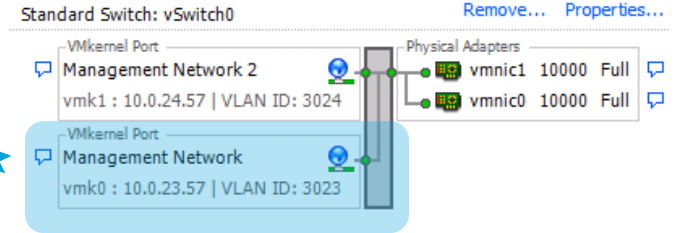


You have successfully added an ESXi host



View: vSphere Standard Switch vSphere Distributed Switch

Networking

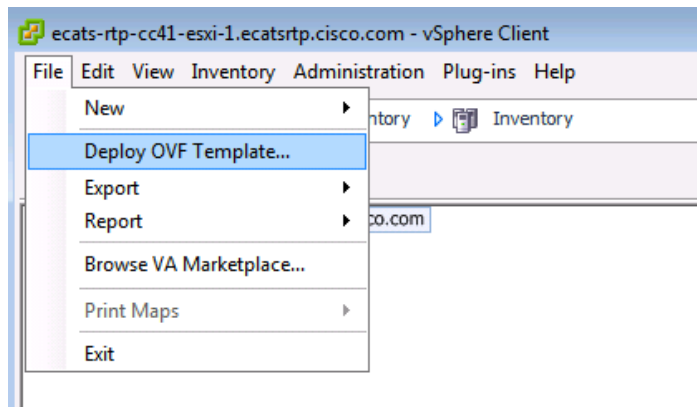


View: Datastores Devices

Datastores

Identification	Device
datastore1	Local LSI Disk (naa.60030130f09000001ae2452c...)
datastore2	Local LSI Disk (naa.60030130f09000001ae2452c...)
pcd-10-83-113-237_NFS(read only)	10.83.113.237:/common/adminsftp/fresh_install/

Deploy Destination CUCM Virtual Machines



Configuration:

CUCM 7500 user node

Cisco Unified Communications Manager (CUCM) configuration that supports up to 7500 users per node.

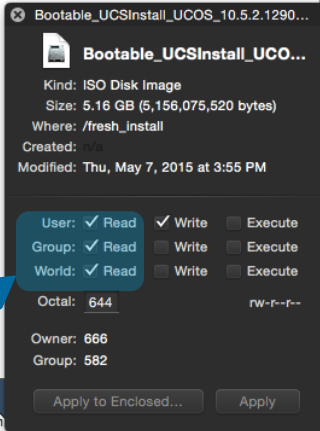
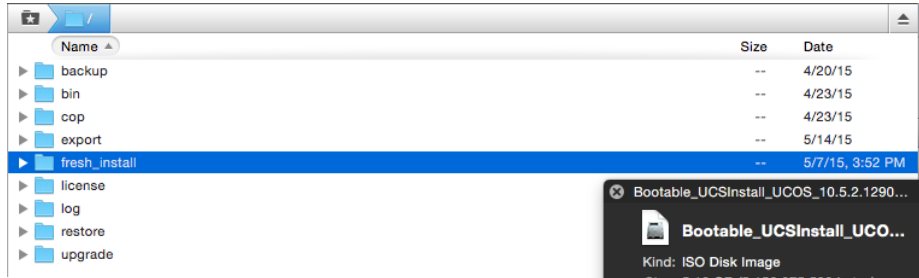
Details:

Red Hat Enterprise Linux 6 (64-bit)
CPU: 2 vCPU with 3600 MHz reservation
Memory: 6 GB with 6 GB reservation
Disk: 1 - 110 GB disk

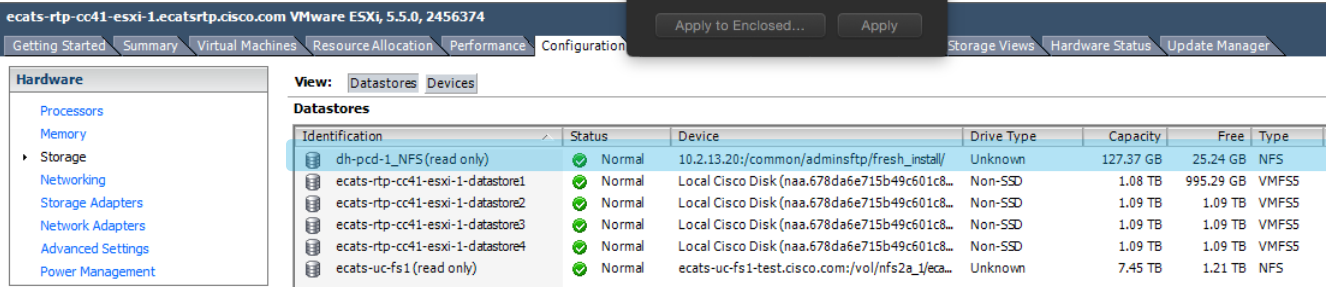
Cisco *live!*

- Deploy CUCM using CUCM 10.0/11.0 OVA
 - cucm_10.5_vmv8_v1.8.ova
 - cucm_11.0_vmv8_v1.0.ova
 - 7500 / 10k User Configuration
- Deploy CUCM VMs to their assigned ESXi Hosts following Hardware Sizing Guidelines
 - [Cisco Collaboration Virtual Machine Placement Tool](#)
- These Empty CUCM VMs will be assigned to the Destination Migration Cluster in the following steps

Upload CUCM Bootable ISO to PCD Datastore



- Upload Bootable CUCM ISO Files to PCD fresh_install folder
- Use SFTP to connect to PCD
 - Username adminstftp
 - Password OS Admin password
- Make sure the Uploaded file has Group + World Read Access
- ESXi Hosts will mount PCD fresh_install folder as NFS datastore



PCD Inventory Define Destination Cluster

The screenshot shows the Cisco Prime Collaboration Deployment interface. The top navigation bar includes 'Monitoring', 'Task', 'Inventory', and 'Administration'. The 'Inventory' dropdown menu is open, showing 'Clusters' and 'ESXI Hosts'. A blue arrow points to the 'Clusters' option. Below the navigation bar, there is a 'Task List' section with a 'Refreshing...' indicator and 'Enable | Disable' buttons. A table with columns 'Status', 'Task', and 'Start Time' is shown with 'No data available' below it. To the right, a 'Task Status' section with columns 'Step' and 'Description' also shows 'No data available'.

The screenshot shows the Cisco Prime Collaboration Deployment interface with the 'Inventory' dropdown menu closed. The 'Clusters' section is active, displaying a toolbar with four buttons: 'Delete', 'Discover Cluster', 'Define Migration Destination Cluster', and 'Define New UC Cluster'. A blue arrow points to the 'Define Migration Destination Cluster' button.

PCD Inventory Define Destination Cluster – Step 1

Define Migration Destination Cluster



Step 1 of 4

Specify Clusters

This wizard will step you through the process of configuring a Destination Cluster to be used in a migration task. Before you begin, you should have added the necessary ESXI hosts (see Inventory -> ESXi Hosts) and created the needed VMs on those hosts.

Source Cluster [View Nodes](#)

Active Versions CUCM - 7.1.5.32022-1

Destination Cluster Nickname

- Destination Network Settings
- Use the source node network settings for all destination nodes
 - Enter new network settings for one or more destination nodes

Assign Destination Cluster Nodes	
Configure NTP/SMTP Settings	
Configure DNS Settings	

PCD Inventory Define Destination Cluster – Step 2

Define Migration Destination Cluster

x

Step 2 of 4

Specify Clusters ✔

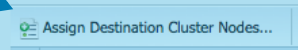

Assign Destination Cluster Nodes

Click on the "Assign Destination Cluster Nodes" button to associate Destination VMs with nodes in the source cluster.

Source Cluster **My Source CUCM Cluster on MCS**

Destination Cluster **My Destination CUCM Cluster**

Total 13

 Assign Destination Cluster Nodes... Show 

Source Hostname	Product	Source N...	Dest. VM Name	Dest. Hostname	Dest. IP Address	Functions
▶ ucm06bcmoh1.ecatsrtp.cisco.com	CUCM			ucm06bcmoh1.ecatsrtp....	10.2.36.66	
▶ ucm06bcmoh2.ecatsrtp.cisco.com	CUCM			ucm06bcmoh2.ecatsrtp....	10.2.35.66	
▶ ucm06bcpub.ecatsrtp.cisco.com	CUCM			ucm06bcpub.ecatsrtp.ci...	10.2.35.60	
▶ ucm06bcsub1.ecatsrtp.cisco.com	CUCM			ucm06bcsub1.ecatsrtp.c...	10.2.36.61	
▶ ucm06bcsub2.ecatsrtp.cisco.com	CUCM			ucm06bcsub2.ecatsrtp.c...	10.2.35.61	
▶ ucm06bcsub3.ecatsrtp.cisco.com	CUCM			ucm06bcsub3.ecatsrtp.c...	10.2.36.62	

Configure NTP/SMTP Settings ✔

Configure DNS Settings ✔

PCD Inventory Configure Destination Cluster

Configure Destination Cluster

x

Retrieving Virtual Machines...

Source Node

Hostname **ucm06bcmoh1.ecatsrtp.cisco.com** Functions
Product **CUCM** Notes (optional)

Assign a VM by selecting one from the table below for the destination node. If you don't see the VM's you want, you might need to configure additional ESXi Hosts in Inventory > ESXi Hosts.

Destination Node

Virtual Machine **ucm06bcmoh1**
ESXi Host **ecats-rtp-cc41-esxi-5.ecatsrtp.cisco.com**
Notes (optional)

Network

Hostname
IP Address
Subnet Mask
Gateway
NAT IP(optional)

Virtual Machines Selected 1 | Total 13

Show

VM Name	ESXi Host	Power State	Assigned to Cluster Node
<input checked="" type="radio"/> ucm06bcmoh1	ecats-rtp-cc41-esxi-5.ecatsrtp.cisco.com	Off	<input type="text"/>
<input type="radio"/> ucm06bcmoh2	ecats-rtp-cc41-esxi-4.ecatsrtp.cisco.com	Off	<input type="text"/>
<input type="radio"/> ucm06bcpub	ecats-rtp-cc41-esxi-2.ecatsrtp.cisco.com	Off	<input type="text"/>
<input type="radio"/> ucm06bcsub1	ecats-rtp-cc41-esxi-6.ecatsrtp.cisco.com	Off	<input type="text"/>
<input type="radio"/> ucm06bcsub2	ecats-rtp-cc41-esxi-5.ecatsrtp.cisco.com	Off	<input type="text"/>

< Previous Node Node 1 of 13 Next Node >



PCD Inventory Configure Destination Cluster

Configure Destination Cluster

x

Source Node

Hostname **ucm06bctftp2.ecatsrtp.cisco.com**
 Product **CUCM**

Functions
 Notes (optional)

Assign a VM by selecting one from the table below for the destination node. If you don't see the VM's you want, you might need to configure additional ESXI Hosts in Inventory > ESXI Hosts.

Destination Node

Network

Virtual Machine **ucm06bctftp2**

ESXI Host **ecats-rtp-cc41-esxi-3.ecatsrtp.cisco.com**

Notes (optional)

Hostname

IP Address

Subnet Mask

Gateway

NAT IP(optional)

Virtual Machines

Selected 1 | Total 13

Show

VM Name	ESXI Host	Power State	Assigned to Cluster Node
<input type="text" value="ucm06"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> ucm06bcsub6	ecats-rtp-cc41-esxi-2.ecatsrtp.cisco.com	Off	ucm06bcsub6.ecatsrtp.cisco.com
<input type="radio"/> ucm06bcsub7	ecats-rtp-cc41-esxi-4.ecatsrtp.cisco.com	Off	ucm06bcsub7.ecatsrtp.cisco.com
<input type="radio"/> ucm06bcsub8	ecats-rtp-cc41-esxi-3.ecatsrtp.cisco.com	Off	ucm06bcsub8.ecatsrtp.cisco.com
<input type="radio"/> ucm06bctftp1	ecats-rtp-cc41-esxi-4.ecatsrtp.cisco.com	Off	ucm06bctftp1.ecatsrtp.cisco.com
<input checked="" type="radio"/> ucm06bctftp2	ecats-rtp-cc41-esxi-3.ecatsrtp.cisco.com	Off	

< Previous Node Node 13 of 13 Next Node >




PCD Inventory Define Destination Cluster

Define Migration Destination Cluster

x

Step 2 of 4

Specify Clusters 

Assign Destination Cluster Nodes



Click on the "Assign Destination Cluster Nodes" button to associate Destination VMs with nodes in the source cluster.

Source Cluster **My Source CUCM Cluster on MCS**
Destination Cluster **My Destination CUCM Cluster**

Total 13

Source Hostname	Product	Source N...	Dest. VM Name	Dest. Hostname	Dest. IP Address	Functions
ucm06bcmoh1.ecatsrtp.cisco.com	CUCM		ucm06bcmoh1	ucm06bcmoh1-ucs.ecat...	10.2.36.166	
ucm06bcmoh2.ecatsrtp.cisco.com	CUCM		ucm06bcmoh2	ucm06bcmoh2-ucs.ecat...	10.2.35.166	
ucm06bcpub.ecatsrtp.cisco.com	CUCM		ucm06bcpub	ucm06bcpub-ucs.ecatsr...	10.2.35.160	
ucm06bcsub1.ecatsrtp.cisco.com	CUCM		ucm06bcsub1	ucm06bcsub1-ucs.ecats...	10.2.36.161	
ucm06bcsub2.ecatsrtp.cisco.com	CUCM		ucm06bcsub2	ucm06bcsub2-ucs.ecats...	10.2.35.161	
ucm06bcsub3.ecatsrtp.cisco.com	CUCM		ucm06bcsub3	ucm06bcsub3-ucs.ecats...	10.2.36.162	

Buttons: Previous, **Next**, Finish, Cancel

Configure NTP/SMTP Settings 
Configure DNS Settings 



PCD Inventory Define Destination Cluster – Step 3

Define Migration Destination Cluster

x

Step 3 of 4

Specify Clusters	✓
Assign Destination Cluster Nodes	✓
Configure NTP/SMTP Settings	

Configure settings to be applied to the migration nodes when the migration task is run.

Network Time Protocol (NTP) Configuration

- * NTP Server 1
- NTP Server 2
- NTP Server 3
- NTP Server 4
- NTP Server 5

Simple Mail Transfer Protocol (SMTP) Settings

- SMTP Server

* = Required

Configure DNS Settings

PCD Inventory Define Destination Cluster – Step 4

Define Migration Destination Cluster

Step 4 of 4

Specify Clusters

Assign Destination Cluster Nodes

Configure NTP/SMTP Settings

Configure DNS Settings

Must Use DNS on destination if Source Cluster is Already Enabled to Use DNS

Assign DNS Settings

Primary DNS

Secondary DNS (optional)

Domain

Optionally configure DNS for the migration cluster nodes. Select nodes from table, and enter and apply the DNS setting.

Assign DNS Settings

Show All

Hostname	Functions	Primary DNS	Secondary DNS	Domain
<input checked="" type="checkbox"/> ucm06bcmoh1.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcmoh2.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcpub.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub1.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub2.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub3.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub4.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub5.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub6.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input checked="" type="checkbox"/> ucm06bcsub7.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com

Previous Next Finish Cancel

OK Cancel

No Option to Remove DNS on Destination

PCD Inventory Define Destination Cluster – Step 4

Define Migration Destination Cluster

x

Step 4 of 4

- Specify Clusters
- Assign Destination Cluster Nodes
- Configure NTP/SMTP Settings
- Configure DNS Settings**

Optionally configure DNS for the migration cluster nodes. Select nodes from table, and enter and apply the DNS setting.

Assign DNS Settings Show All

<input type="checkbox"/>	Hostname	Functions	Primary DNS	Secondary DNS	Domain
<input type="checkbox"/>	ucm06bcmoh1.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcmoh2.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcpub.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub1.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub2.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub3.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub4.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub5.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub6.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub7.ecatsrtp.cisco.com		172.18.106.25		ecatsrtp.cisco.com



PCD Inventory Define Destination Cluster

Cisco Prime
Cisco Collaboration Deployment

Monitoring Task | Inventory | Administration |

Clusters

Delete Discover Cluster **Define Migration Destination Cluster** Define New UC Cluster

<input type="checkbox"/>	Cluster Name	Product and Version	Nodes	Cluster Type	Discovery Status	Actions
<input type="checkbox"/>	▶ My Destination CUCM Cluster	CUCM - null	13	Migration		Edit... Delete...
<input type="checkbox"/>	▶ My Source CUCM Cluster on MCS	CUCM - 7.1.5.32022-1	13	Discovered	Successful	Edit... Delete...

PCD Add Migration Task

The screenshot shows the Cisco Prime Collaboration Deployment interface. At the top, there is a navigation bar with 'Monitoring', 'Task', 'Inventory', and 'Administration' tabs. The 'Task' tab is selected, and a dropdown menu is open, listing several task options: Upgrade, Switch Versions, Server Restart, Readdress, Install, and Migrate. A blue arrow points to the 'Migrate' option in the dropdown menu. Below the navigation bar, there is a 'Task List' section with a 'Show' dropdown set to 'All' and a 'Total 0' indicator. A table with columns 'Status', 'Task', and 'Start Time' is shown, but it contains no data, with the text 'No data available' below it. To the right of the table is a 'Task Status' section with columns 'Step' and 'Description', also showing 'No data available'.

The screenshot shows the 'Migrate' page in the Cisco Prime Collaboration Deployment interface. The navigation bar at the top has 'Monitoring', 'Task', 'Inventory', and 'Administration' tabs, with 'Task' selected. Below the navigation bar, the page title is 'Migrate'. There is a 'Migrate' section with a refresh icon. Below this, there is a table with two columns: 'Delete' (with a red 'X' icon) and 'Add Migration Task' (with a green plus icon). A blue arrow points to the 'Add Migration Task' button.

PCD Add Migration Task – Step 1

Add Migration Task



Step 1 of 5

Choose Source and Destination Clusters

This task will allow you to simultaneously upgrade and migrate a UC cluster to new virtual machines. The configuration data will be exported from the source nodes and then imported to the new, upgraded servers.

Source UC Cluster

Destination Cluster

Node Mapping from Source to Destination Clusters

Selected 13 | Total 13

<input checked="" type="checkbox"/>	Source Hostname	Product	Destination VM Name	Destination Hostname	Destination IP Address	Functions
<input checked="" type="checkbox"/>	▶ ucm06bcmoh1.ecatsrtp.cisco.com	CUCM	ucm06bcmoh1	ucm06bcmoh1.ecatsrtp...	10.2.36.166	
<input checked="" type="checkbox"/>	▶ ucm06bcmoh2.ecatsrtp.cisco.com	CUCM	ucm06bcmoh2	ucm06bcmoh2.ecatsrtp...	10.2.35.166	
<input checked="" type="checkbox"/>	▶ ucm06bcpub.ecatsrtp.cisco.com	CUCM	ucm06bcpub	ucm06bcpub.ecatsrtp.c...	10.2.35.160	
<input checked="" type="checkbox"/>	▶ ucm06bcsub1.ecatsrtp.cisco.com	CUCM	ucm06bcsub1	ucm06bcsub1.ecatsrtp.c...	10.2.36.161	
<input checked="" type="checkbox"/>	▶ ucm06bcsub2.ecatsrtp.cisco.com	CUCM	ucm06bcsub2	ucm06bcsub2.ecatsrtp.c...	10.2.35.161	

- Choose Migration Files
- Set Start Time
- Specify Migration Procedure
- Review

PCD Add Migration Task – Step 2

Add Migration Task



Step 2 of 5

Choose Source and Destination Clusters

Choose Migration Files

The .iso images must have been uploaded to the /fresh_install directory via the Cisco Prime Collaboration Deployment local SFTP server using the 'adminsftp' account.

CUCM Migration File



Set Start Time

Specify Migration Procedure

Review

Choose a Migration File



Select an ISO file here.

File Directory /fresh_install

Available Files

Selected 1 | Total 5

Show All

File Name	Kind	Version Validity
<input type="radio"/> Bootable_UCSInstall_UCOS_10.5.1.11900-13.sgn.iso	ISO	true
<input type="radio"/> Bootable_UCSInstall_UCOS_10.5.2.10000-5.sgn.iso	ISO	true
<input type="radio"/> Bootable_UCSInstall_UCOS_10.5.2.12900-13.sgn.iso	ISO	true
<input type="radio"/> Bootable_UCSInstall_UCOS_10.5.2.12900-14.sgn.iso	ISO	true
<input checked="" type="radio"/> Bootable_UCSInstall_UCOS_10.5.2.13900-12.sgn.iso	ISO	true

PCD Add Migration Task – Step 3

Add Migration Task



Step 3 of 5

- Choose Source and Destination Clusters ✓
- Choose Migration Files ✓
- Set Start Time**

Select a start time for the migration task.

The time zone shown here corresponds to the time zone of this Cisco Prime Collaboration Deployment server and not necessarily that of the target servers or cluster.

Start Time

- Schedule for a specific time **EDT**
- Start task manually
- Start task immediately upon completion of this wizard

- Specify Migration Procedure ✓
- Review ✓



PCD Add Migration Task – Step 4

Add Migration Task



Step 4 of 5

Choose Source and Destination Clusters ✓

Choose Migration Files ✓

Set Start Time ✓

Specify Migration Procedure

Select the sequence in which the version switch has to be processed on the servers. If there is an error during the process, the task will be stopped. You can optionally also pause the task when a step completes.

Step	Description	Upon Completion	Actions
▶ 1	Export configuration data from cluster nodes ucm06bcpub.ecatsrtp.cisco.com, ucm06bcmoh1.ecatsrtp.cisco.com, ucm06bcmoh2.ecatsr...	Continue	
▶ 2	Install destination CUCM publisher ucm06bcpub.ecatsrtp.cisco.com	Continue	
▶ 3	Install destination nodes with new network information ucm06bcmoh1.ecatsrtp.cisco.com	Continue	
▶ 4	Install destination nodes with new network information ucm06bcmoh2.ecatsrtp.cisco.com	Continue	
▶ 5	Install destination nodes with new network information ucm06bcsub1.ecatsrtp.cisco.com	Continue	
▶ 6	Install destination nodes with new network information	Continue	

Previous Next Finish Cancel

Review

- By Default Migration is Fully Serialized
- Delete Steps 6 - 14

PCD Add Migration Task – Step 4

Add Migration Task

x

Step 4 of 5

- Choose Source and Destination Clusters ✔
- Choose Migration Files ✔
- Set Start Time ✔
- Specify Migration Procedure**

Select the sequence in which the version switch has to be processed on the servers. If there is an error during the process, the task will be stopped. You can optionally also pause the task when a step completes.

Step	Description	Upon Completion	Actions
▶ 1	Export configuration data from cluster nodes ucm06bcpub.ecatsrtp.cisco.com, ucm06bcmoh1.ecatsrtp.cisco.com, ucm06bcmoh2.ecatsr...	Continue	
▶ 2	Install destination CUCM publisher ucm06bcpub.ecatsrtp.cisco.com	Continue	
▶ 3	Install destination nodes with new network information ucm06bcmoh1.ecatsrtp.cisco.com	Continue	
▶ 4	Install destination nodes with new network information ucm06bcmoh2.ecatsrtp.cisco.com	Continue	
▶ 5	Forced Pause No nodes assigned	Forced Pause	
	Shut down CUCM Publisher (optional)		

Previous **Next** Finish Cancel

Review ✔



PCD Add Migration Task – Step 4

Add Migration Task

Step 4 of 5

- Choose Source and Destination Clusters ✓
- Choose Migration Files ✓
- Set Start Time

Specify Migration Procedure

Select the sequence in which the version switch has to be processed on the servers. If there is an error during the process, the task will be stopped. You can optionally pause the task when a step completes.

Step	Description	Upon Completion	Actions
▶ 1	Export configuration data from cluster nodes ucm06bcpub.ecatsrtp.cisco.com, ucm06bcmoh1.ecatsrtp.cisco.com, ucm06bcmoh2.ecatsrtp.cisco.com	Continue	
▶ 2	Install destination CUCM publisher ucm06bcpub.ecatsrtp.cisco.com	Continue	
▶ 3	Install destination nodes with new network information ucm06bcmoh1.ecatsrtp.cisco.com	Continue	
▶ 4	Install destination nodes with new network information ucm06bcmoh2.ecatsrtp.cisco.com	Continue	
▶ 5	Force upgrade of destination nodes	Continue	

• Click the Pencil for Step 3
• Add the half the subscribers

Edit Step : 3 - Updated Network Information

The task will be stopped if an error occurs during processing of this step. If successful, the task can optionally be paused, else the next step will begin.

Available Nodes	
<input type="checkbox"/>	ucm06bcsub2.ecatsrtp.cisco.com (unassign..
<input type="checkbox"/>	ucm06bcsub4.ecatsrtp.cisco.com (unassign..
<input type="checkbox"/>	ucm06bcsub6.ecatsrtp.cisco.com (unassign..
<input type="checkbox"/>	ucm06bcsub8.ecatsrtp.cisco.com (unassign..
<input type="checkbox"/>	ucm06bctftp2.ecatsrtp.cisco.com (unassign..

Nodes In Step	
<input type="checkbox"/>	ucm06bcmoh1.ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub1.ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub3.ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub5.ecatsrtp.cisco.com
<input type="checkbox"/>	ucm06bcsub7.ecatsrtp.cisco.com

Pause task after step completes

Previous **Next** Finish Cancel

OK Cancel

PCD Add Migration Task – Step 4

Add Migration Task

Step 4 of 5

- Choose Source and Destination Clusters ✓
- Choose Migration Files ✓
- Set Start Time ✓

Specify Migration Procedure

Select the sequence in which the version switch has to be processed on the servers. If there is an error during the process, the task will be stopped. You can optionally pause the task when a step completes.

Step	Description	Upon Completion	Actions
▶ 1	Export configuration data from cluster nodes ucm06bcpub.ecatsrtp.cisco.com, ucm06bcmoh1.ecatsrtp.cisco.com, ucm06bcmoh2.ecatsrtp.cisco.com	Continue	
▶ 2	Install destination CUCM publisher ucm06bcpub.ecatsrtp.cisco.com	Continue	
▶ 3	Install destination nodes with new network information ucm06bcmoh1.ecatsrtp.cisco.com	Continue	
▶ 4	Install destination nodes with new network information ucm06bcmoh2.ecatsrtp.cisco.com	Continue	
▶ 5	For...	Continue	



Edit Step : 4 - Updated Network Information

The task will be stopped if an error occurs during processing of this step. If successful, the task can optionally be paused, else the next step will begin.

Available Nodes	
<input type="checkbox"/>	ucm06bcsub1.ecatsrtp.cisco.com (step 3)
<input type="checkbox"/>	ucm06bcsub3.ecatsrtp.cisco.com (step 3)
<input type="checkbox"/>	ucm06bcsub5.ecatsrtp.cisco.com (step 3)
<input type="checkbox"/>	ucm06bcsub7.ecatsrtp.cisco.com (step 3)
<input type="checkbox"/>	ucm06bctftp1.ecatsrtp.cisco.com (step 3)

Nodes In Step

- ucm06bcmoh2.ecatsrtp.cisco.com
- ucm06bcsub2.ecatsrtp.cisco.com
- ucm06bcsub4.ecatsrtp.cisco.com
- ucm06bcsub6.ecatsrtp.cisco.com
- ucm06bcsub8.ecatsrtp.cisco.com

Pause task after step completes

OK Cancel

Previous Next Finish Cancel

- Click the Pencil for Step 4
- Add the rest of the subscribers



PCD Add Migration Task – Step 5

Add Migration Task

x

Step 5 of 5

- Choose Source and Destination Clusters ✓
- Choose Migration Files ✓
- Set Start Time ✓
- Specify Migration Procedure ✓
- Review**

Review the settings summarized below, and click Finish to create the migration task.

Task Type	Migration
Source Cluster	My Source CUCM Cluster on MCS
Destination Cluster	My Destination CUCM Cluster
CUCM Migration File	Bootable_UCSInstall_UCOS_10.5.2.13900-12.sgn.iso
Cluster Nodes	<code>ucm06bcmoh1.ecatsrtp.cisco.com => ucm06bcmoh1.ecatsrtp.cisco.com ucm06bcmoh2.ecatsrtp.cisco.com => ucm06bcmoh2.ecatsrtp.cisco.com ucm06bcpub.ecatsrtp.cisco.com => ucm06bcpub.ecatsrtp.cisco.com ucm06bcsub1.ecatsrtp.cisco.com => ucm06bcsub1.ecatsrtp.cisco.com ucm06bcsub2.ecatsrtp.cisco.com => ucm06bcsub2.ecatsrtp.cisco.com ucm06bcsub3.ecatsrtp.cisco.com => ucm06bcsub3.ecatsrtp.cisco.com</code>
Start Time	Immediately
Notes (optional)	<input type="text"/>



PCD Considerations and Planning

- Cisco UC Virtualization Hypervisor with BE6K and BE7K
- Root access to ESXi Hosts
- ESXi Support for PCD itself (**Not supported with ESXi 6.0 yet**)
- Allow network traffic to and from PCD
 - Static NAT required, Inside to Outside ← → Outside to Inside
- For L2/RU upgrade does not automate COP file installation
 - ciscocm.version3-keys.cop.sgn
 - ciscocm.refresh_upgrade_v1.3.cop.sgn
- Might do a hybrid of manual and PCD upgrade due other applications
- Inspect PCD logs via activelog tomcat/logs/ucmap/log4j/ucmap*.log

Upgrade Path

Direct L2 Upgrade (Virtualized to Virtualized)



- The CUCM versions that will support a L2 upgrade to 11.X
- Short or minimal downtime
- Pre-upgrade RSA keys COP file (`ciscocm.version3-keys.cop.sgn`) not required

Direct RU Upgrade (Virtualized to Virtualized)



- Longer downtime
- Medium upgrade complexity
- Pre-upgrade RSA keys COP file (ciscocm.version3-keys.cop.sgn) is required for certain versions

* See “CUCM COP Files for Upgrade” slide for reference

Appliance to Virtualized CUCM 11.X (DRS)

Reference

Platform Number	Supported Normal Mode	Supported Bridge	Not Supported	Upgrade Strategy
1	6.1-7.1	8.0	8.5-9.1	Jump upgrade, upgrade to 11.X
2	6.1-7.1	8.0-8.5	8.6-9.1	Jump upgrade, upgrade to 11.X
3	6.1-8.0	NA	8.5-9.1	Jump upgrade or upgrade to 8.0 to change platform, upgrade to 11.X
4	6.1-8.0	8.5	8.6-9.1	Jump upgrade or upgrade to 8.0 to change platform, upgrade to 11.X
5	6.1-8.0	8.5-9.1	NA	Jump upgrade or upgrade to 8.0 to change platform, upgrade to 11.X
6	6.1-8.5	8.5-9.1	NA	Jump upgrade or upgrade to 8.0 to change platform, upgrade to 11.X
7	7.1-9.1	NA	NA	Jump upgrade or upgrade to 9.1 to change platform, upgrade to 11.X

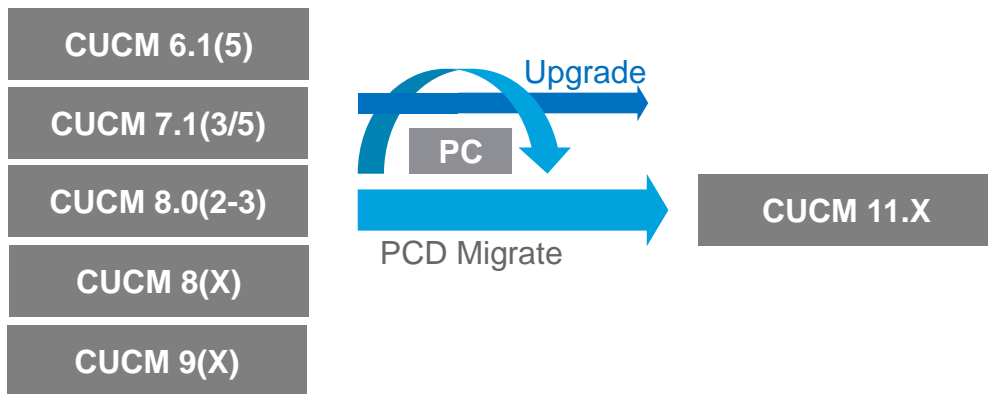
- Jump upgrade process is preferred due to licenses acquisition complexity and the many steps involved



Supported Cisco Unified Communications Manager Releases by Server:

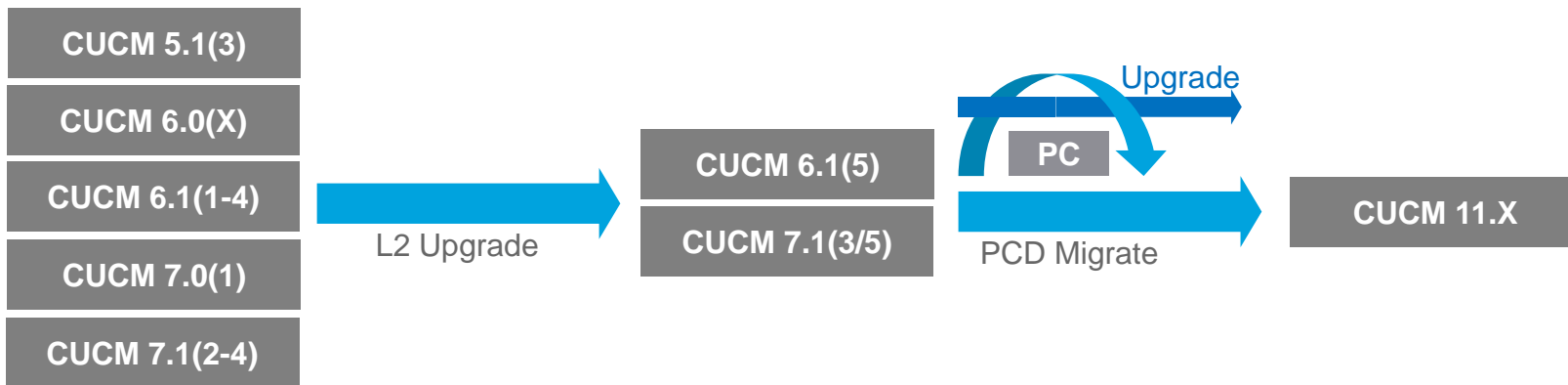
http://www.cisco.com/en/US/partner/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html

Appliance to Virtualized CUCM 11.X (PCD Migrate)



- Same or different IP addresses
- Same or different IP hostnames

Appliance to Virtualized CUCM 11.X (PCD Migrate)

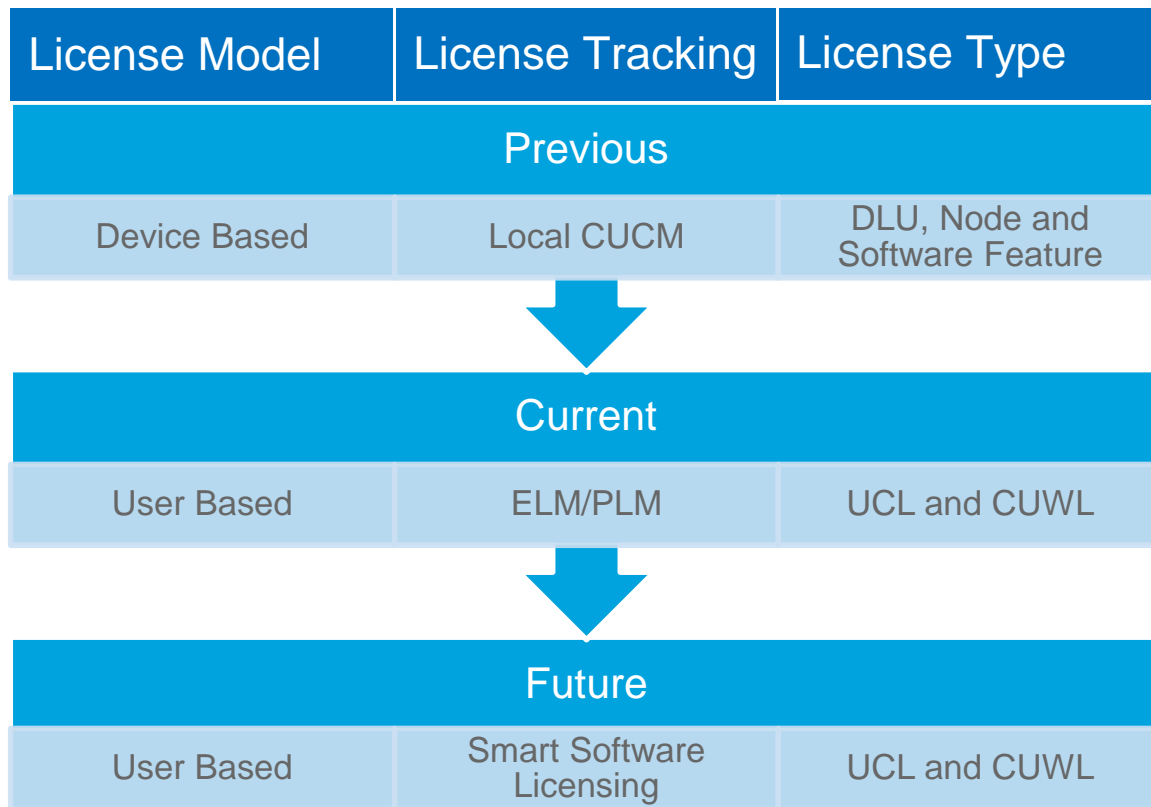


- Multiple hops
- Same or different IP addresses
- Same or different IP hostnames

CUCM License

3

CUCM License Evolution



- Overview of CUCM Licensing


Current CUCM 9.X and Later User Based License

Prime License Manager (PLM)

Cisco Prime License Manager (PLM)



PLM Implementation	Products
Standalone	PLM
Co-resident with CUCM	PLM + CUCM
Co-resident with CUCMBE 6K	PLM + CUCMBE 6K
Co-resident with CUC	PLM + CUC

- PLM is a centralized enterprise-wide license management solution for Cisco collaboration applications
 - CUCM, CUCM SME and CUCMBE 6K
 - Cisco Unity Connection (CUC)
 - Cisco Emergency Responder (CER) 
- PLM deployment can be standalone or co-resident with CUCM, CUCM-BE 6K or CUC
- In PLM 10.5(1)SU1, PLM can be removed from the product

License Manager Versions and Builds


License Manager

Enterprise License Manager (ELM)
9.0 – 9.1

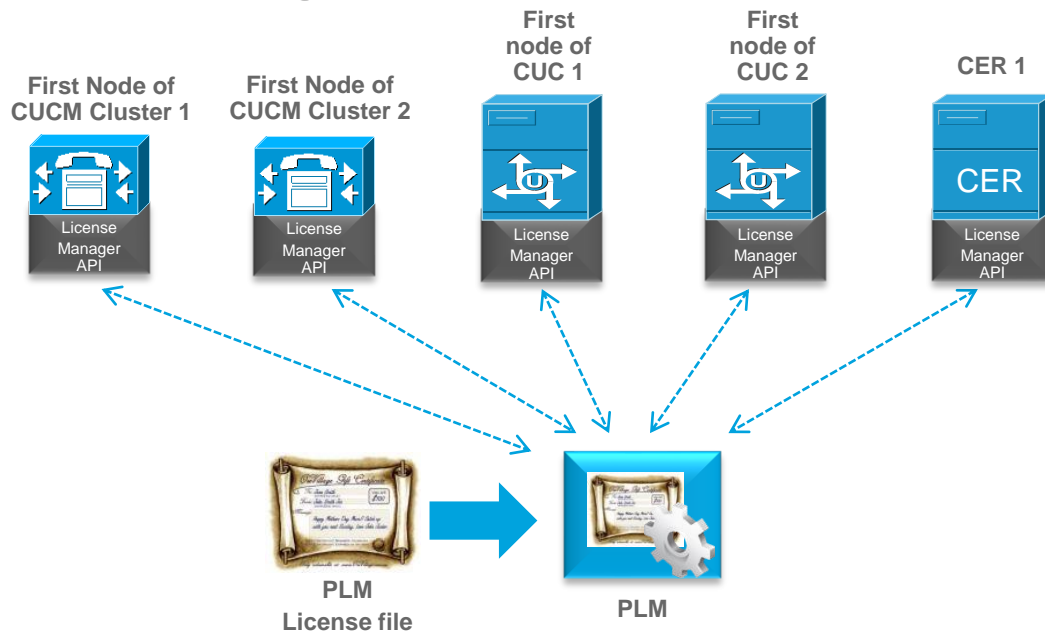
Prime License Manager (PLM)
10.X-11.X

- ELM is built into CUCM ISO
- PLM is built into CUCM ISO or as independent ISO with standalone deployment

Version	Build
Same as CUCM e.g. 9.1(2) SU3	Same as CUCM 9.1.2.13900-10

Version	Build
11.0(1) 	11.0.1.10000-2
10.5(2)	10.5.2.10000-6
10.5(1)	10.5.1.10000-9
10.0(1)	10.0.1.1000-19
Co-resident: same build as CUCM	Standalone: Different build as CUCM

License Manager Architecture 11.0

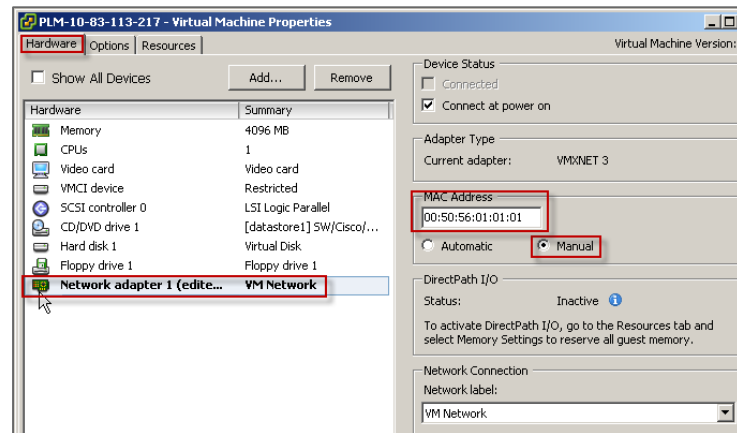


- License Manager API in CUCM 11.X, CUC 11.X and CER 11.X interacts with PLM for license request and approval
- License Manager API was added CUCM in version 9.0, CUC in version 9.0 and CER in version 10.0

License Manager Product Support and Usage

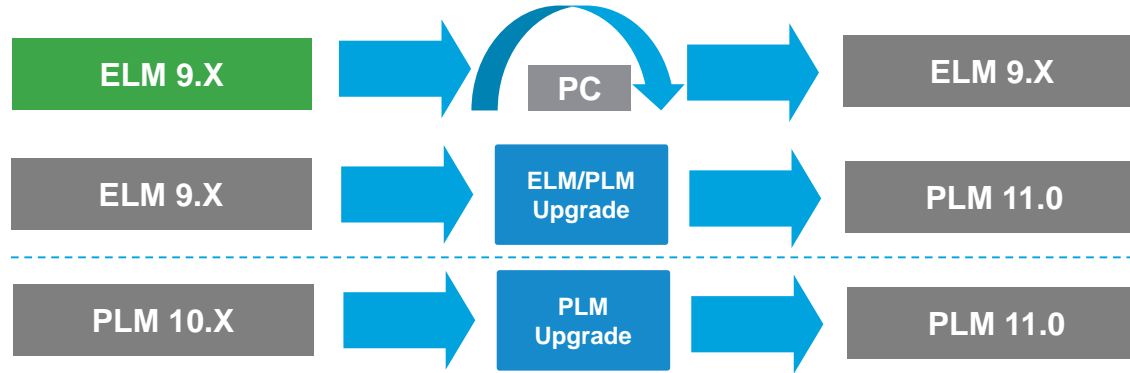
Product Version	ELM 9.X (Bare Metal or Virtualized)	PLM 10.X (Virtualized)	PLM 11.X (Virtualized)
CUCM 9.X / CUC 9.X	Yes	Yes	Yes
CUCM 10.X / CUC 10.X	Yes w/ License Definition (1 or 2)	Yes	Yes
CUCM 11.X / CUC 11.X	Yes w/ License Definition (2)	Yes w/ License Definition (3)	Yes
CER 10.X	No	Yes	Yes
CER 11.0	No	Yes w/ License Definition (3)	Yes

1. License Definition for 9.1 = elm_LicenseDef_9_1_v1.cop.sgn
2. License Definition for 9.1 = elm_LicenseDef_9_1_v2.cop.sgn
3. License Definition for 10.X = license-def-11-for-PLM-10x.def



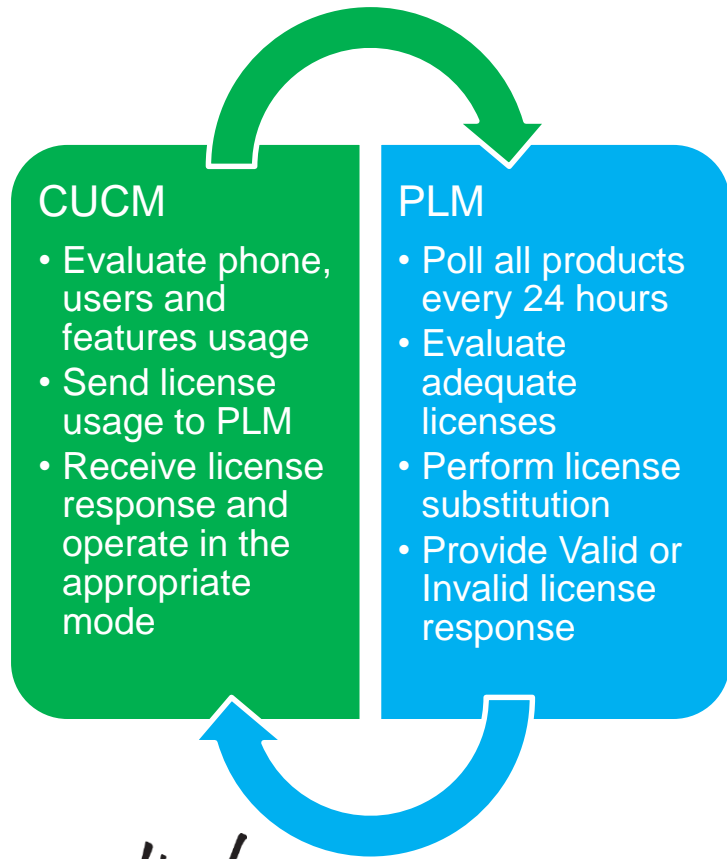
- For CER 10.X/11.X, use PLM
- Use license definition file to support the higher version of the products (CUCM, CUC and CER)
- For virtualized PLM and virtualized CUCM with co-resident PLM, **manually** set MAC address since license is partly based on MAC address (Edit virtual machine settings > Machine Network adapter > Manual) before requesting license file

ELM to PLM Upgrade



- Use “Replacing a Single Server for Cisco Unified Communications Manager” procedure to change from bare metal ELM to virtualized ELM. No PCD migration support.
- Use ELM/PLM upgrade COP file (elm_Elm_v9_1_1_PlmUpgrade.cop.sgn) to allow for ELM to PLM10.X/11.X upgrade
- Use pre-upgrade RSA keys COP file (ciscocm.version3-keys.cop.sgn) to upgrade to PLM 10.5 and later for 9.X
- Re-host license by using Product License Registration (www.cisco.com/go/license)

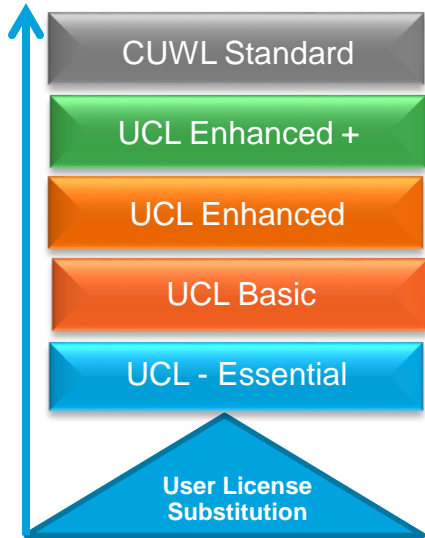
CUCM and PLM Interaction



- PLM polls all registered CUCM clusters
- CUCM cluster evaluates license usage and sends license usage back to PLM
- PLM evaluate all CUCM cluster responses to see if there is adequate licenses for the requested types
- PLM performs license substitution if does not have adequate license of the requested type
- PLM response back to with either valid or invalid (not enough licenses) to **all** CUCM clusters
- CUCM receives the response from PLM and function accordingly

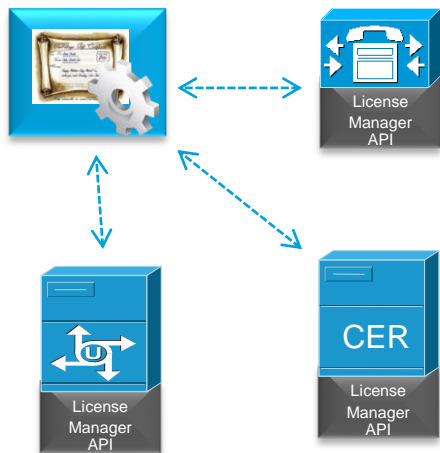
Detailed CUCM and ELM/PLM interactions with signaling are in the appendix

PLM License Substitution



- Licenses are based on hierarchical model where lower feature license can be covered by a higher feature license
 - I.E. UCL Basic can be covered by UCL Enhance
 - I.E. UCL Enhance can be covered by UCL Enhance Plus
- PLM evaluates ALL system license requirements on a per product (CUCM, CUC and CER) basis and respond back with one consistent response to ALL registered systems
 - VALID: adequate license
 - INVALID: inadequate license
- Centralize and enterprise-wide licensing view per product set

Grace Period and License Coverage

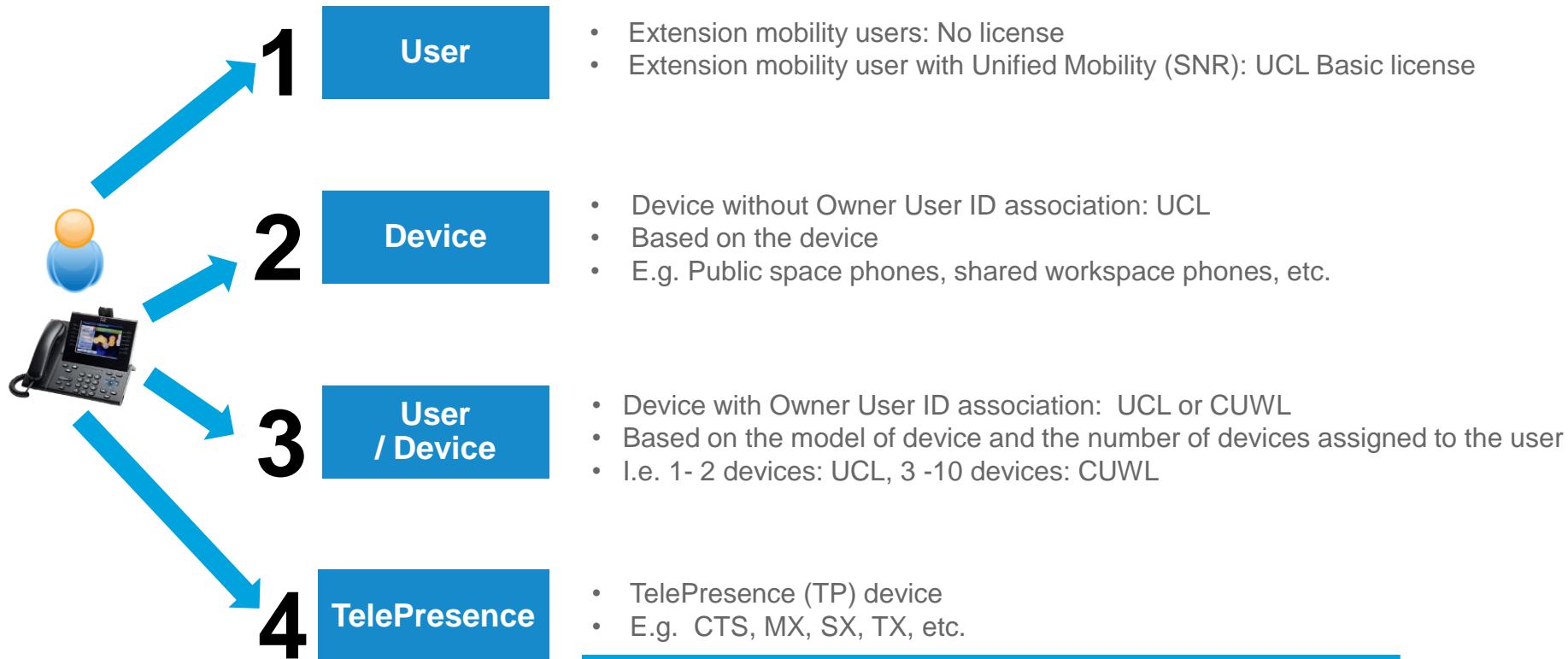


	Grace Period	Behavior when license is exceeded
CUCM 9.X-11.0	60	License Coverage: <ul style="list-style-type: none"> System function normally Existing phones cannot be de-provisioning Additional phones cannot be provisioned
CUC 9.X-10.5	60	Expire: <ul style="list-style-type: none"> System will not take calls Users cannot retrieve messages Additional users or mailboxes cannot be provisioned
CUC 11.0	60	Expire: <ul style="list-style-type: none"> System will take calls Send or receive voicemails Additional voicemail boxes can not be provisioned
CER 10.X-11.0	60	License Coverage: <ul style="list-style-type: none"> Responder system stops tracking and updating the phone Location



CUCM License Usage

CUCM License Usage



List of devices and associated license are in the appendix

Device and Owner User ID Association

Device > Phone > Device Name

Device Information

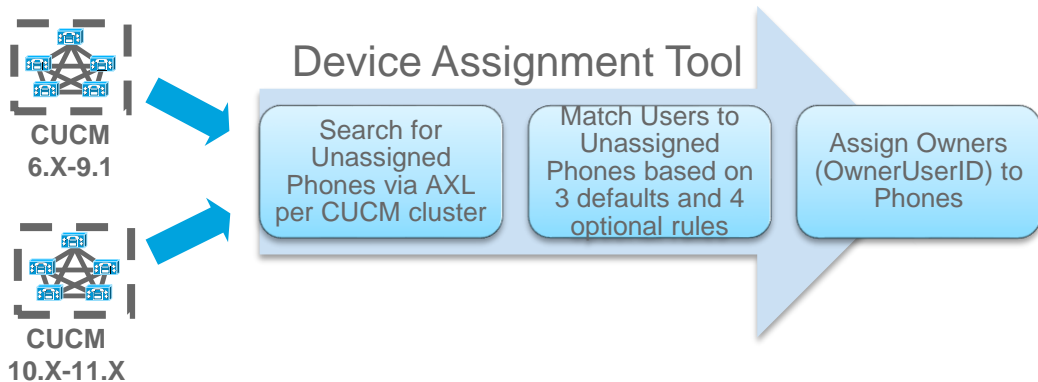
Registration	Unknown
IP Address	Unknown
<input checked="" type="checkbox"/> Device is Active	
<input checked="" type="checkbox"/> Device is trusted	
MAC Address*	123456789012
Description	SEP123456789012
Device Pool*	Default View Details
Common Device Configuration	< None > View Details
Phone Button Template*	Standard 9971 SIP
Softkey Template	Standard User
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold MOH Audio Source	< None >
Network Hold MOH Audio Source	< None >
Location*	Hub_None
AAR Group	< None >
User Locale	< None >
Network Locale	< None >
Built In Bridge*	Default
Privacy*	Default
Device Mobility Mode*	Default View Current
Owner	<input checked="" type="radio"/> User <input type="radio"/> Anonymous (Public/Shared Space)
Owner User ID*	bta

- Device with Owner User ID field configured potentially uses less licenses
 - I.E. Extension mobility user with Unified Mobility feature and a phone uses one license
 - I.E. Multiple phones with the same Owner ID field
- Owner User ID Field:
 - CUCM 9.1(1a) or earlier: User or None
 - CUCM 9.1(2) or later: User or Anonymous
- Previous Methods:
 - BAT, Run SQL via CLI, UDS and AXL
 - Links in the Appendix

Recommend to perform this task before upgrading to CUCM 9.X or later

Cisco Device Assignment Tool (DAT)

Cisco Device Assignment Tool (DAT)



- Pre-upgrade or post-upgrade of CUCM 9.0 and later releases
- Align OwnerUserID to IP Phones for User Based Licensing (CUCM 9.0 and later releases).
- Windows PC (7 and later) or Apple Mac (OSX 10.8 and later) Java application

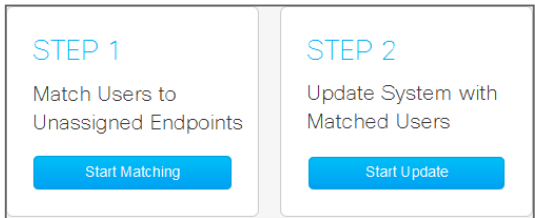
Device Name	OwnerUserID	CUCM Version
SEP123456789012	None	9.1(1a) or earlier
SEP098765432109	Anonymous	9.1(2) or later



Device Name	OwnerUserID
SEP123456789012	UserX
SEP098765432109	UserY

Cisco Device Assignment Tool (DAT)

DAT
(UdatApplication.jar)



- Based on sequence of 7 rules or manually edited xls file

Cisco Device Assignment Tool

Host Information

Enter the host and login information for your Unified CM that is running AXL services

Unified CM Version Before Version 10 Version 10+

Host Name/IP Address

User Name

Password

Cisco Device Assignment Tool

Match Users to Unassigned Endpoints

This step will attempt to match a single user to any unassigned devices based on the rules that you select and prioritize below. You can perform this step with the recommended settings or customize them to your needs.

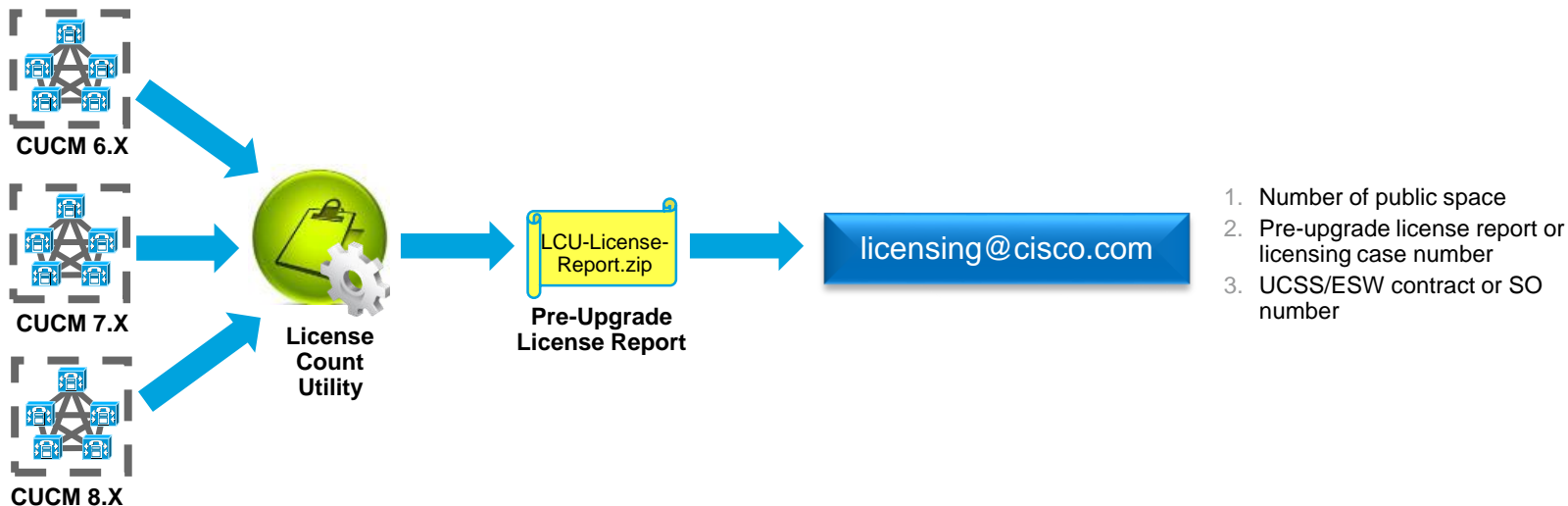
Unassigned Devices: 3 Host Name/IP Address : 10.83.113.129 Version : Unified CM 9.1.2

Available Rules	Rules To Run
<input type="checkbox"/> Match by Telephone Number and Partition Match Last 7 digits	<input checked="" type="checkbox"/> Match by Control Device
<input type="checkbox"/> Match to Alerting Name of Line User ID Last 7 digits, First name, Last name	<input checked="" type="checkbox"/> Match by Primary Extension and Partition
<input type="checkbox"/> Match to Line Display User ID Last 7 digits, First name, Last name	<input checked="" type="checkbox"/> Match to User Associated with Line
<input type="checkbox"/> Match to Device Description User ID Last 7 digits, First name, Last name	



License Migration from Device Based License to User Based License (9.X or later)

License Count Utility (UCT) for CUCM 6.X-8.X



- Perform AXL calls to existing CUCM (6.X, 7.X and 8.X) clusters for current license and license usage and generate pre-upgrade license report
- Report can be send to licensing@cisco.com
- Include number of public space, license case number / MAC address and UCSS/ESW or SO number, if send directly to licensing@cisco.com

Opening Licensing Case

Web

- <https://survey.opinionlab.com/survey/s?s=10422>
- Type of problem = Licensing

Email

- licensing@cisco.com

Phone

- 1-800-553-2447
- Option 3, License Support

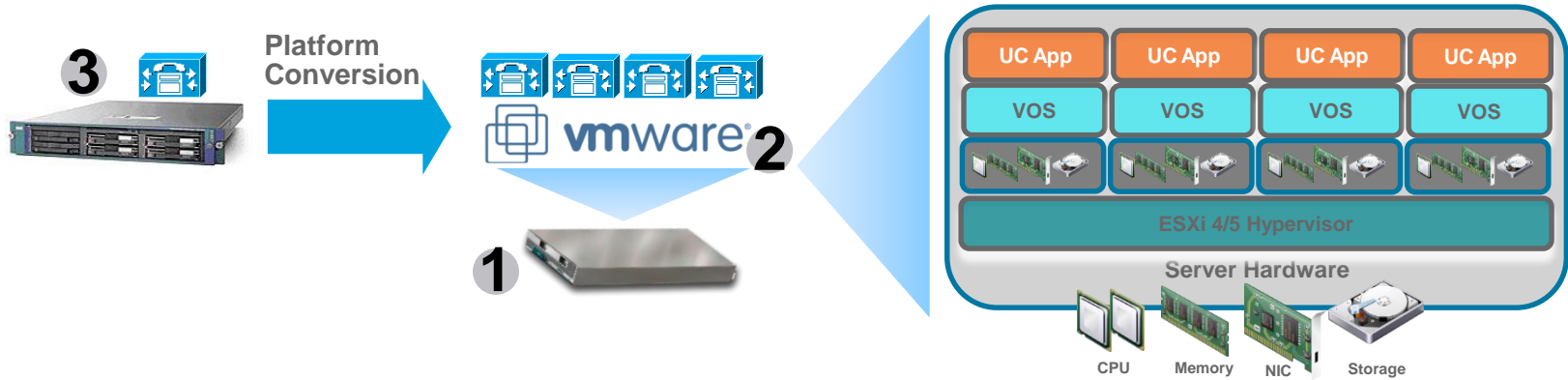
Virtualized CUCM

4

Appliance to Virtualized CUCM

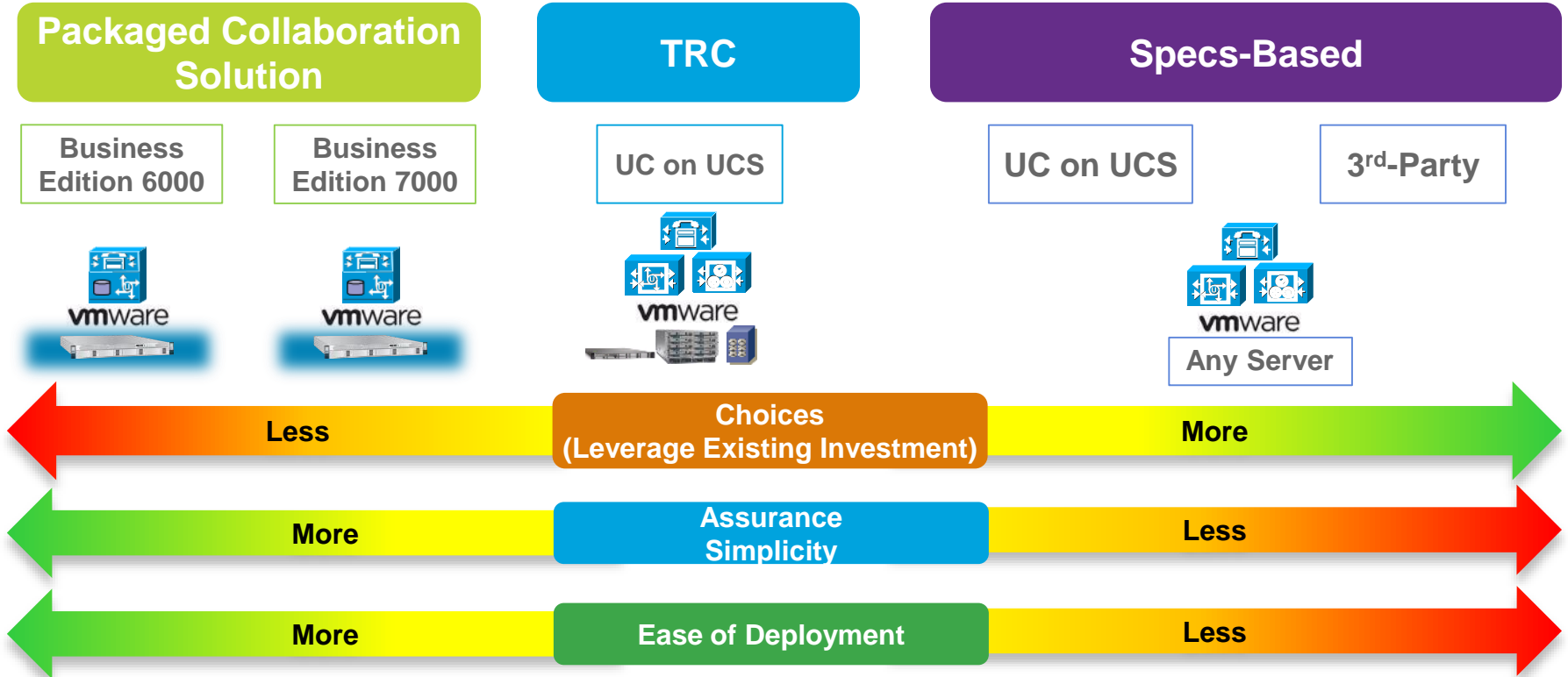
4

Appliance to Virtualization Conversion

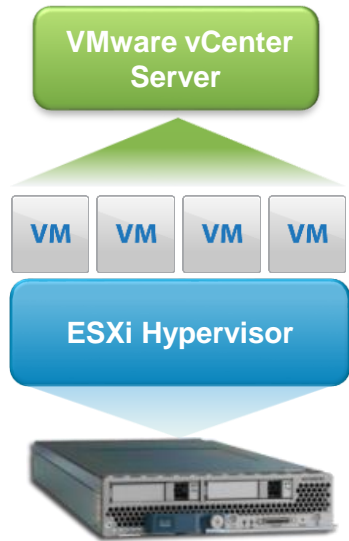



1. Server platform selection
2. VMware ESXi requirements
3. Conversion of appliance to virtual machine or OVA
4. Leverage “Unified Communications in a Virtualized Environment” on docwiki

1. Server Platform Selection

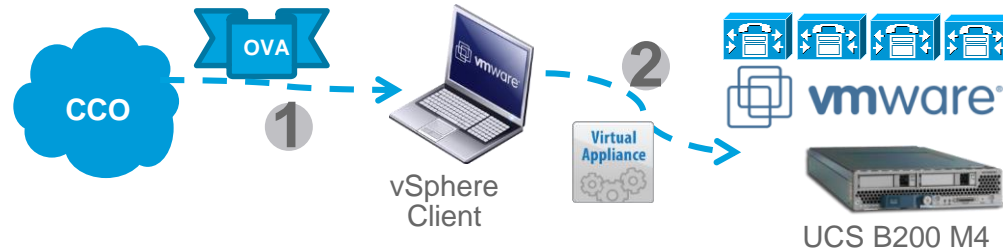


2. VMware ESXi Requirements



- ESXi Hypervisor: 4.0, 4.1, 5.0, 5.1, 5.5 and 6.0 
 - Check Specific UC Application VMware support on docwiki
- ESXi Edition: VMware vSphere Hypervisor, Cisco UC Virtualization Hypervisor, VMware vSphere Hypervisor Foundation, Cisco UC Virtualization Foundation, Standard, Enterprise or Enterprise Plus
- VMware vCenter: Essential, Foundation or Standard
 - Recommended for large deployment. centralize management, license management, etc.
 - Mandatory for Specs-Based deployment
- VMware acquisition: Cisco, Partner or VMware
 - https://www.vmware.com/files/pdf/vsphere_pricing.pdf

Cisco Virtual Template (OVA) File



- Open Virtual Archive (OVA): Portable virtual appliance that defines configuration (memory, storage space, etc.) for a virtual machine and is a compressed version of OVF
- Cisco will provide OVA files with Virtual Machine Hardware Version (VMV) 7 and VMV8 on CCO for collaboration applications deployment
- Deploy the latest OVA version and the highest available VMV version that matches to ESXi version

3. Conversion of Appliance to Virtual Machine or OVA



MCS Server Model	Maximum Number of Phone	OVA Deployment Size	vCPU
7845-I3 or earlier	10000	10000	4
7845-I3 or earlier	7500	7500	2
7845-I2/H2 or earlier	7500	7500	2
7825-I5 or earlier	1000	2500	2
7825-I5 or earlier	1000	1000	2
7816-I5 or earlier	500	1000	2
7828-I5 or earlier	500	1000	2

- Smaller MCS server converts to a standard 2500 device OVA or restricted performance CPU OVA on CUCMBE 6K
- MCS and C series both has similar direct attached storage (DAS)
- Storage option for redundancy: FC SAN

 Restricted performance CPU (CUCMBE 6K)

ESXi and Collaboration OVA Version

ESXi Version	VMware Virtual Machine Hardware Version (VMV)	Recommended Cisco OVA VMV Version
4.0	7	7
4.1	7	7
5.0	8	8
5.1	9	8
5.5	10	8
6.0	11	8

Collaboration Application	Collaboration Application Version	VMV Version	Cisco OVA Version
cucm_11.0_vmv8_v1.0.ova			
CUCM	11.0	8	1.8

- Use matching collaboration application OVA file to correct corresponding ISO file
 - plm_11.0_vmv8_v1.1.ova → Bootable_CiscoPrimeLM_64bitLnx_11.0.1.11001-4.sgn.iso
 - cucm_11.0_vmv8_v1.0.ova → Bootable_UCSInstall_UCOS_11.0.1.20000-2.sgn.iso
- VM Version can be upgraded, but cannot be downgraded

Appliance versus Virtualization Support

Feature	Appliance	Virtual
Music on Hold (live source)	USB audio (unicast and multicast)	IOS or Barix (multicast only)
Install and upgrade error logs	USB	Virtual serial port
Answer file (platformConfig.xml)	USB	Virtual floppy
UPS via USB	APC UPS via USB	UPS on UCS/ESXi
Back up	Tape	Secure ftp
eToken encryption key	USB on client and not server	USB on client and not server
SMDI	Serial port	NA

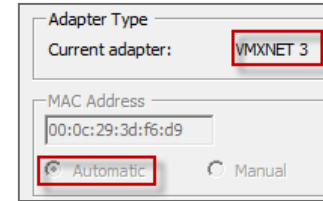
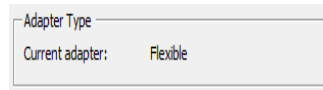
- Take these support considerations into account when virtualizing CUCM

Virtual to Virtualized CUCM

4

CUCM 9 to CUCM 10/11 OVA Change

Features	CUCM 9.X	CUCM 10.X/11.X
RHEL Guest OS	5 (32bit)	6 (64 bit)
Adapter Type	Flexible	VMXNet3



**NOT Compatible w/
RHEL 6 64-Bit**

- CUCM must be **Powered OFF**
- Change the Guest OS from RHEL 5 (32 bit) to Guest OS 6 (64 bit)
- Change Network adapter type from Flexible to VMXNET3
 - Automatic MAC: Edit VMX file in the VM machine directory. Instruction in link below
 - VMware vSphere PowerCLI for both automatic and manual MAC. Instruction in link below
 - **Sample Powershell Script in Appendix****

CUCM 11.X OVA vRAM Change



Product	Scale (users)	vCPU	vRAM (GB)	vDisk (GB)
CUCM 10.X	10,000	4	6	1 x 110
	7,500	2	6	1 x 110
	2,500	1	4	1 x 80
	1,000	2	4	1 x 80



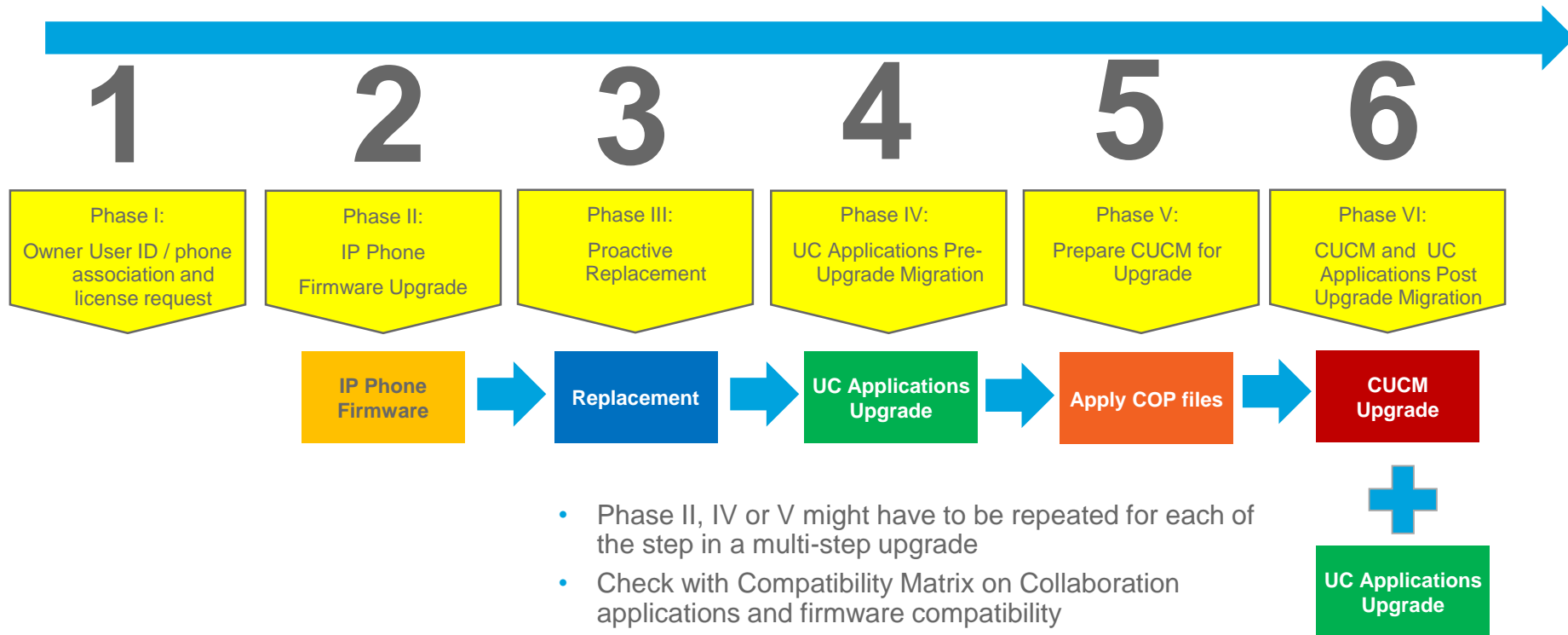
Product	Scale (users)	vCPU	vRAM (GB)	vDisk (GB)
CUCM 11.X	10,000	4	8	1 x 110
	7,500	2	8	1 x 110
	2,500	1	6	1 x 80
	1,000	2	6	1 x 80

- Shutdown CUCM
- Change vRAM for the virtual machine
- Power up
- Upgrade to 11.0
- Large deployment have seen memory usage being high with previous OVA settings (LowAvailableVirtualMemory Alert)

System Level Upgrade

5

Overall Upgrade Strategy to Minimizing Down Time



Migration Recommendations

- Develop a comprehensive plan for the migration
- Partners can use PDI Helpdesk for migration plan review
 - <http://www.cisco.com/web/partners/tools/pdihd.html>
- Break the upgrade into phases to minimize downtime
- Open a Global Licensing Operations (GLO) case with specific tags for fast results
 - <https://communities.cisco.com/community/partner/collaboration/migration/blog/2013/05/30/how-to-get-the-efficient-support-for-drive-to-9>
- Open a proactive TAC case for the upgrade
 - <http://cisco.com/tac/caseopen>
- Check Unified Communications Virtualization docwiki often due to frequent changes

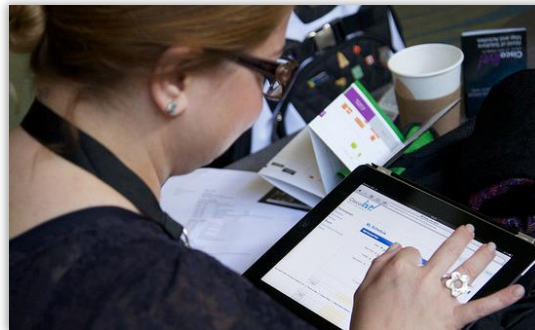
Questions ?

Call to Action

- Visit the World of Solutions for
 - Cisco Campus – Collaboration
 - Walk in Labs – Troubleshooting Cisco Jabber
 - Technical Solution Clinics
- Meet the Engineer
 - Available the rest of the day
- Lunch and Learn Topics
- DevNet zone related sessions

Complete Your Online Session Evaluation

- Please complete your online session evaluations after each session. Complete 4 session evaluations & the Overall Conference Evaluation (available from Thursday) to receive your Cisco Live T-shirt.
- All surveys can be completed via the Cisco Live Mobile App or the Communication Stations



Thank you

Appendix

- W1 Upgrade
- Bridge Upgrade
- Jump Upgrade
- License Acquisition
- L2 and RU Upgrade in Detail
- Detailed ELM/PLM License
- User Count Tool
- License Conversion
- Phone and License Usage

Appendix

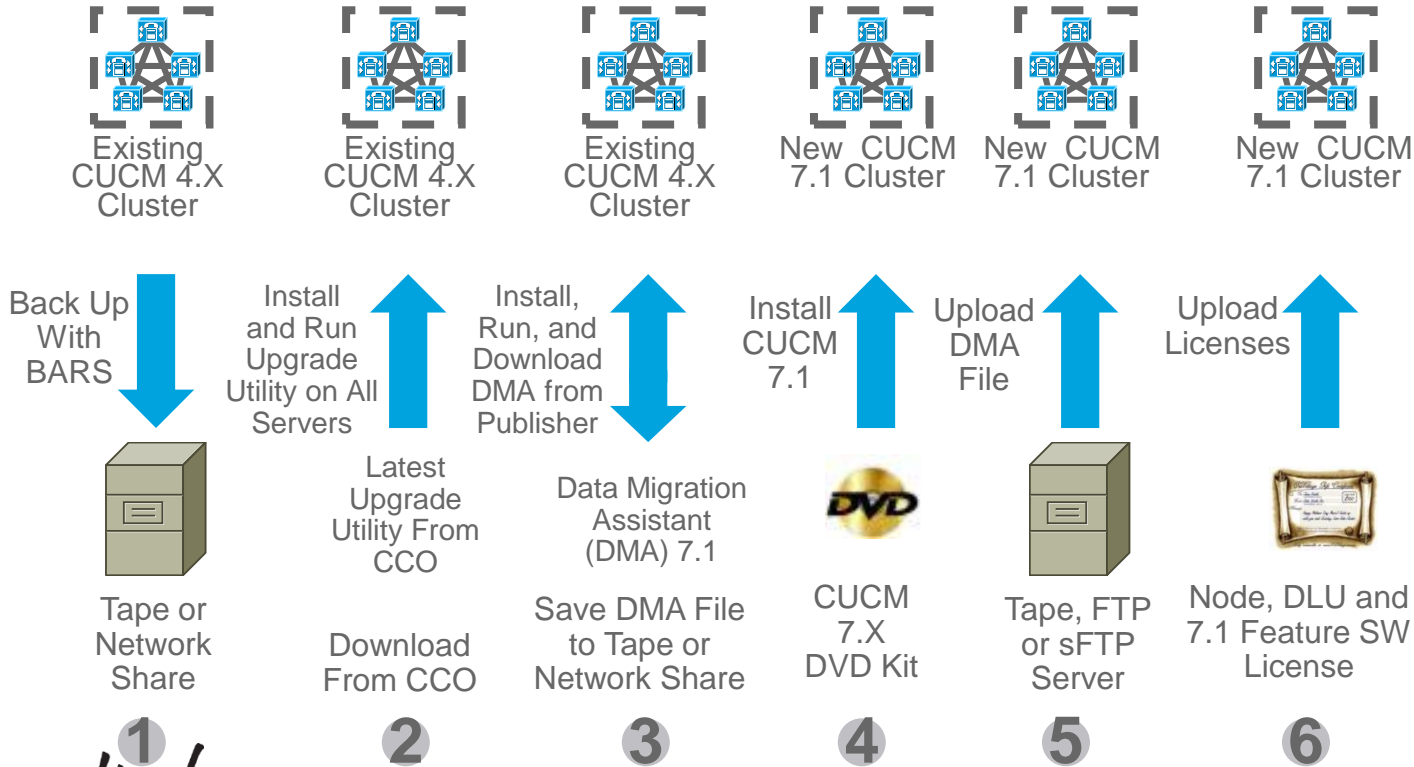
- ELM 9.1
- PLM 10.X
- Previous Methods for Owner User ID
- License Management Models with PLM
- Refresh Upgrade (RU) for MCS 7825 and MCS 7828
- L2 and RU Upgrades for CUCM 9.X and CUCM 10.X
- RU Upgrades for CUCM 11.X

Appendix

- RU COP File
- RSA COP File
- Detailed PCD
- CUCM-BE5K Migration
- Sample PowerShell Script to Update CUCM 10.X/11.X virtual machines

W1 Upgrade: Windows to Appliance Model

Not covered
in detail in
this session



- CUCM 7.1 software availability can be an issue since CUCM 7.1 has EOS (End of Sales)

CUCM Migration Definition

Bridge

Bridge Upgrade: Appliance to Appliance model

- Upgrade is allowed with Cisco CallManager service “Not Running”
- Long downtime due non-functional system and a platform change
- (e.g. Older servers that cannot newer version of CUCM)



Jump

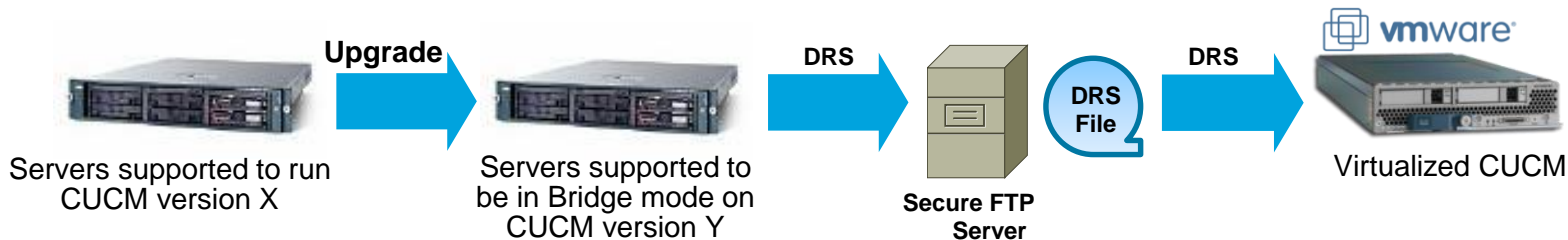
Jump Upgrade: Appliance to Virtualized model

- Virtualized CUCM with 6.1(4), 6.1(5), 7.1(3) and 7.1(5) for lab upgrade
- Minimal downtime due to lab upgrade
- (e.g. Older servers that cannot upgrade to 8.0(3) or later to virtualized)



Bridge Upgrade

To
8.0(2) -
9.1(2)

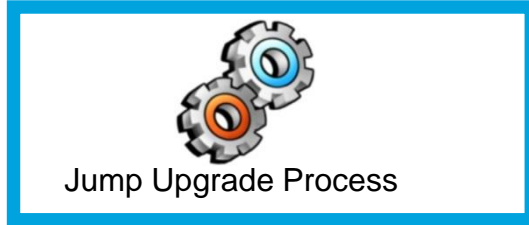


- Server platform change for discontinued servers that cannot run latest CUCM version
 - Allows for a successful upgrade with Cisco CallManager service in in “Not Running” state
 - Platform change is done with DRS backup and restore
 - Use case include appliance to appliance and appliance to virtualized
- Requires rehost of license file due to MAC or License MAC change caused by server change
 - For a virtualized environment, use Answer File Generator to proactively obtain license file

Jump Upgrade



Servers that cannot run CUCM 8.0(2) or later to virtualized



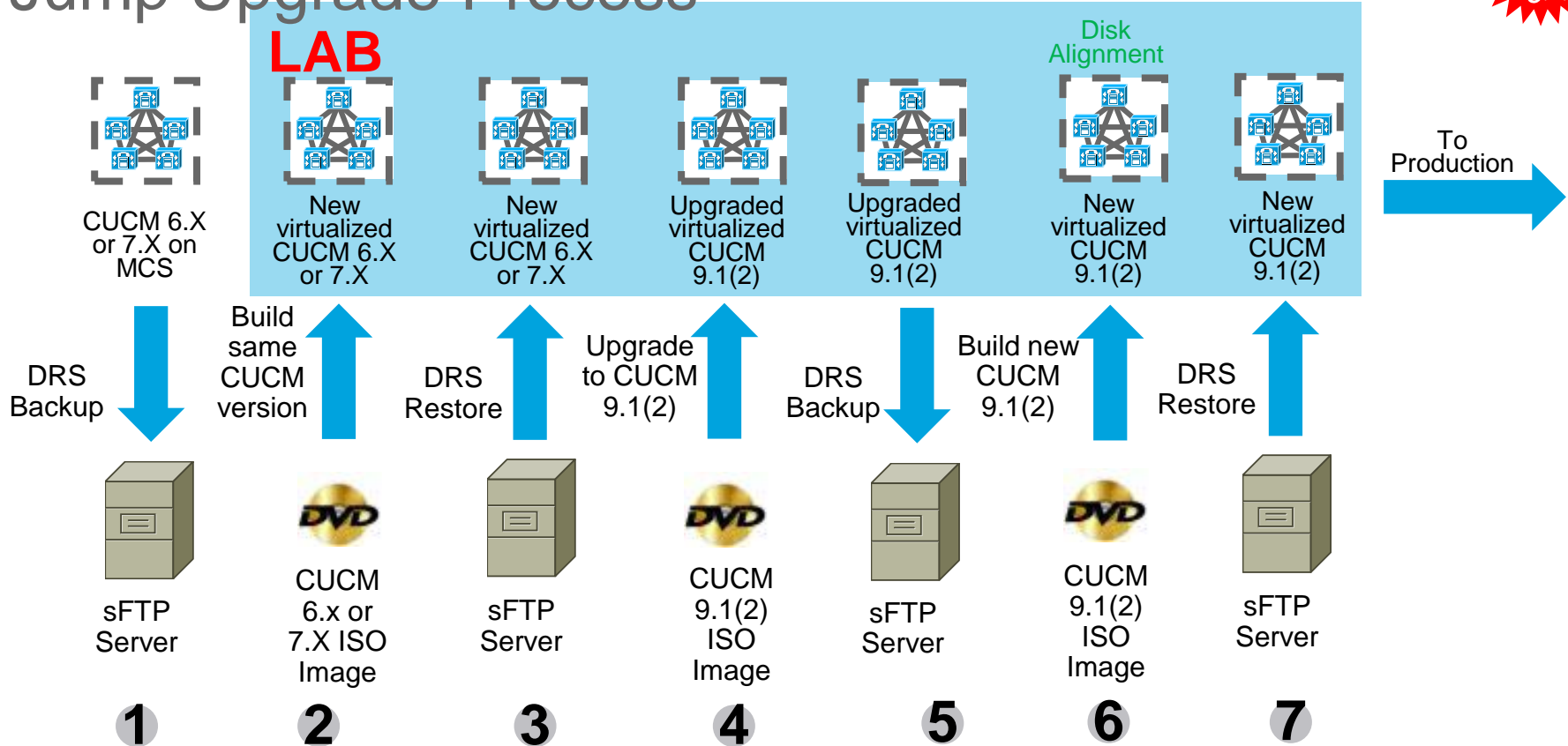
Virtualized CUCM 9.1(2)

To
9.1(2)
Only

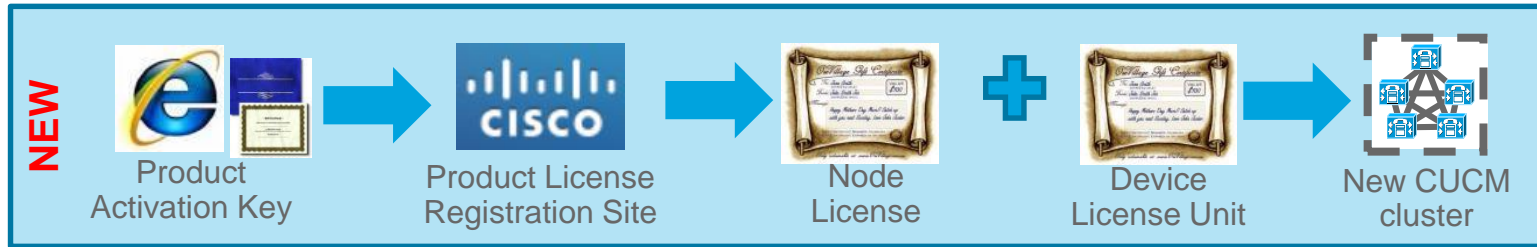
- Upgrade process of multiple steps:
 - Upgrade from CUCM 6.1(4), 6.1(5), 7.1(3) or 7.1(5) ONLY
 - Upgrade to CUCM 9.1(2) ONLY
 - Lab migration ONLY
- Allows bare metal CUCM at version 6.1(4), 6.1(5), 7.1(3) or 7.1(5) migrating to virtualized CUCM at version 9.1(2)
 - Minimal down time
 - Database lockdown time (i.e. No MACD)
 - No license required for interim upgrades

Jump Upgrade Process

To 9.1(2) Only

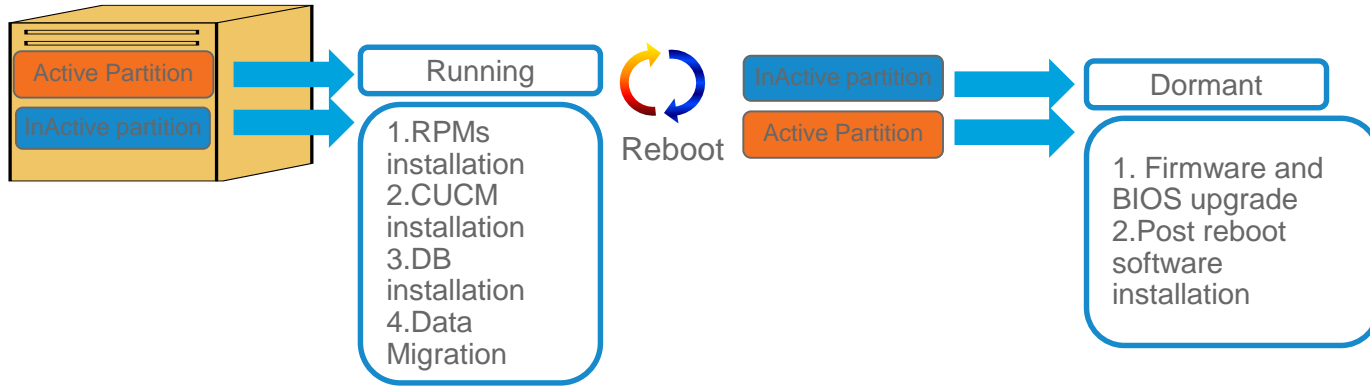


License Acquisition with CUCM 5.X to 8.X



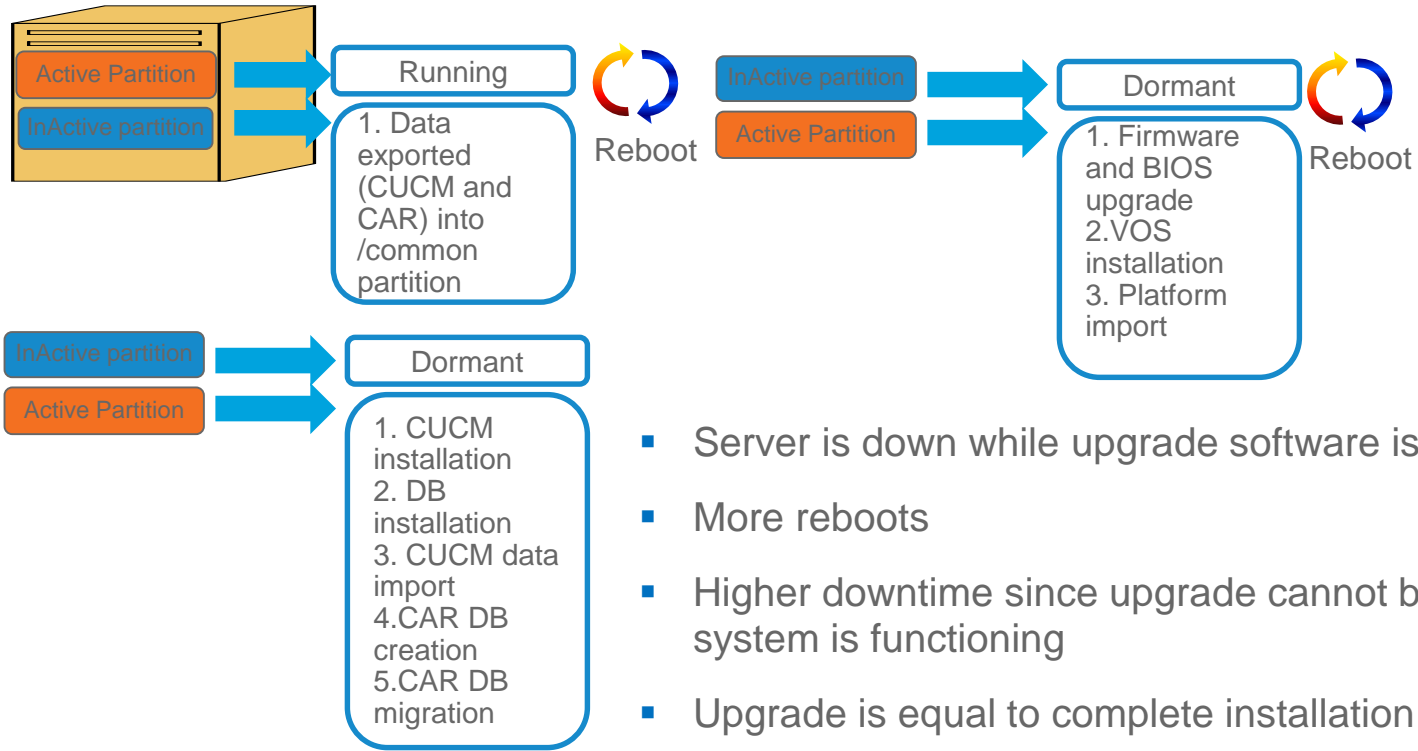
- Product Upgrade Tool site = <http://tools.cisco.com/gct/Upgrade/jsp/index.jsp>
- Product License Registration site = <https://tools.cisco.com/SWIFT/LicensingUI/Home>
- License files are uploaded and managed on the **first node or Publisher** of the cluster
- License files are locked to the **MAC address** of the first node or Publisher of the cluster
- License **enforcement** is performed on CUCM

L2 Upgrade: Appliance to Appliance Model



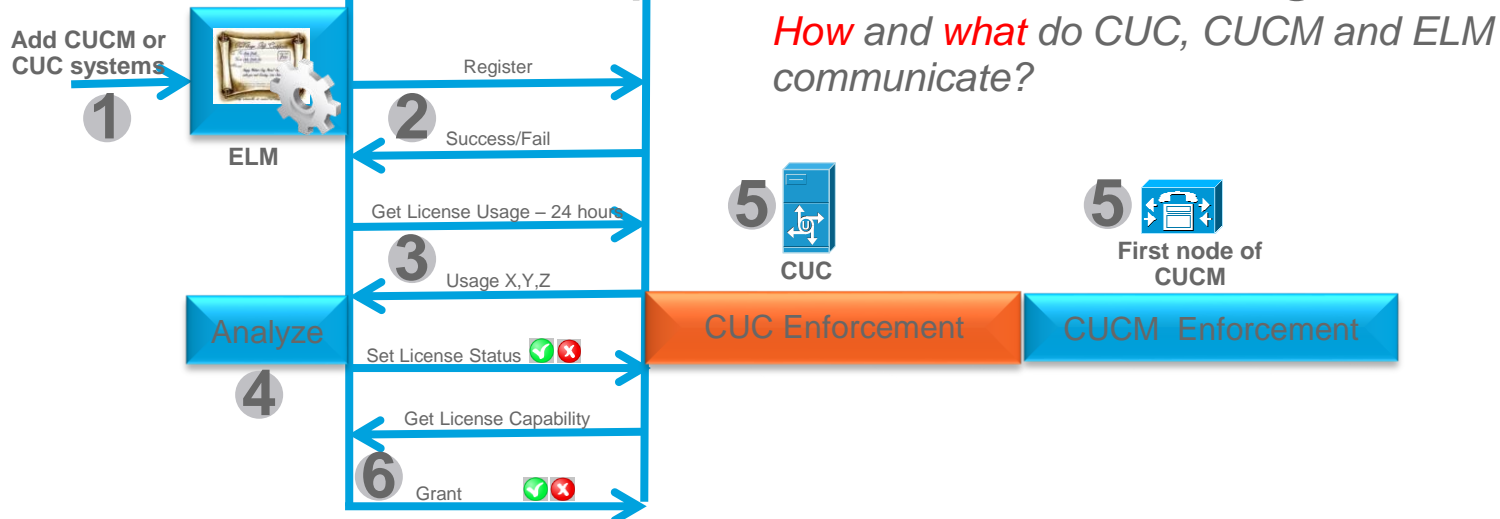
- Active partition is running while upgrade software is being install on inactive partition
- Low downtime since upgrade can be done while system is functioning

Refresh Upgrade (RU): Appliance to Appliance Model



- Server is down while upgrade software is being install
- More reboots
- Higher downtime since upgrade cannot be done while system is functioning
- Upgrade is equal to complete installation of CUCM

Cisco Unified Enterprise License Manager



- ELM can stand alone or bundle with CUCM or CUC. Interaction is a logical flow
- CUCM and CUC sends license usage to ELM
- ELM handles the license grant or revoke based licensing logic
- CUCM and CUC perform license enforcement based ELM response
- CUCM and CUC enforcement rules are different

Process of CUCM and ELM Communications

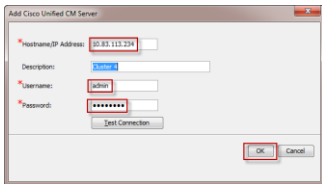


How does CUC, CUCM and ELM know what to communicate?

- 1. CUCM evaluates users to phones usage and feature usage to derives at UCL/CUWL usage
- 2. CUCM sends UCL/CUWL usage to ELM
- 3. ELM evaluates license request, perform evaluation and license substitution before sending a respond to CUCM (VALID or INVALID)
- Next slides will go over the HOW CUCM and ELM know how to evaluates license usage in details

Using User Count Tool as Planning Tool to Migrate

1



2

Welcome to the Cisco License Count Utility. This utility will connect to the Cisco Unified CM servers you define below and generate a report of license usage that can be viewed, printed or saved. Begin by adding servers-- if you have clusters, only add the publishers-- and then press Generate Report.

Hostname/IP address	Description	Version (Last Known)	Last Connection Status	Include in Report
10.83.113.231	Cluster 1	8.6.2	Successful	<input checked="" type="checkbox"/>
10.83.113.232	Cluster 2	9.0.0	Successful	<input checked="" type="checkbox"/>
10.83.113.233	Cluster 3	7.1.5	Successful	<input checked="" type="checkbox"/>
10.83.113.234	Cluster 4	6.1.5	Successful	<input checked="" type="checkbox"/>

- 1. Cluster > Add: Add system in User Count Tool (UCT) using IP/hostname of system and AXL credential
- 2. Cluster: Ensure that system connected successfully
- Check versions of CUCM that the tool detects

Using User Count Tool as Planning Tool to Migrate

Clusters License Report

Report Generated: 2012-Apr-05 13:53:21 Refresh Report Save as... Print...

License Requirements Based on Usage Data

The table below contains the minimum number of 9.0 licenses required to cover all users and phones currently configured on the Unified CM servers included in this report.

Hostname/IPAddress	Description	Essential	Basic	Enhanced	Advanced	CUWL Standard	CUWL Premium	CUWL Professional	Telepresence Room	Unused DLUs
10.83.113.231	Cluster 1	0	0	1	0	0	0	0	0	142
10.83.113.232	Cluster 2	0	0	1	0	0	0	0	0	150
10.83.113.233	Cluster 3	0	0	1	0	0	0	0	1	140
10.83.113.234	Cluster 4	0	0	0	0	0	0	0	0	50
TOTAL		0	0	3	0	0	0	0	1	482

License Conversion Worksheet

Use this section to calculate scenarios for upgrading and using available Device License Units (DLUs). Note that the license values reported below only include licenses consumed by Cisco Unified CM, and not other products that consume a CUWL license. If you will be using worksheet as a basis to place license order, it is important to note that software service (ESW) and subscription (ACS) rates are based on the number of licenses specified, so you should only include current license requirements plus additional licenses you anticipate needing. Use the drop down menu to select whether to display the recommended License Counts as User Connect Licenses (UCL) or Cisco Unified Workspace Licenses (CUWL).

Recommendation Mode: **CUWL Licenses** Public Space Phones: 0

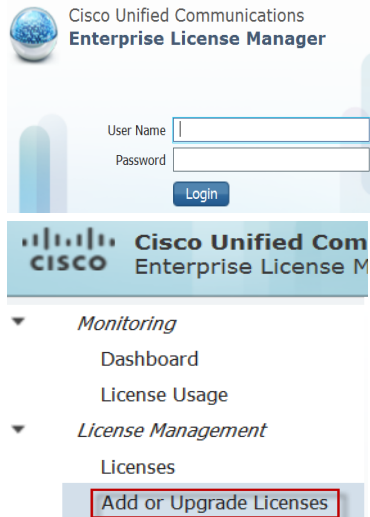
License Type	Current License Usage	Recommended License Count	Adjust Recommended Count(+/-)	New License Count	DLUs Per License	DLU Change(+/-)
CUWL Professional	0	0	0	0	17	0
CUWL Premium	0	0	0	0	17	0
CUWL Standard	0	3	0	3	11	0
Advanced	0	0	0	0	9	0
Enhanced	3	0	0	0	6	0
Basic	0	0	0	0	4	0
Essential	0	0	0	0	0	0
Telepresence Room	1	1	0	1	11	0
TOTAL DLU USAGE CHANGE:						482

Run Compliance Check Reset Values Unused DLUs Remaining: 482

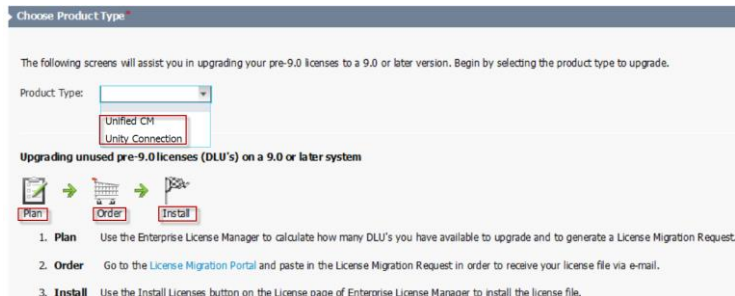
- The resulted UCL and CUWL will be the basis for ESW and UCSS renewal for next renewal cycle
- Use this planning tool to perform proactive license resolution prior to the actual upgrade
- Save the report(s) in csv format so that they can be use in the actual conversion in ELM during upgrades:
 - Per systems
 - Migration phase(s)

- Cluster > Generate Report: Generate report of ALL systems and the corresponding UCL/CUWL usage
- UCL and CUWL mode
- CUWL mode has Public Space Phones
- Adjustment can and should be perform to reflect the migrated systems entitled licenses
- Remain DLU does not need to be zero

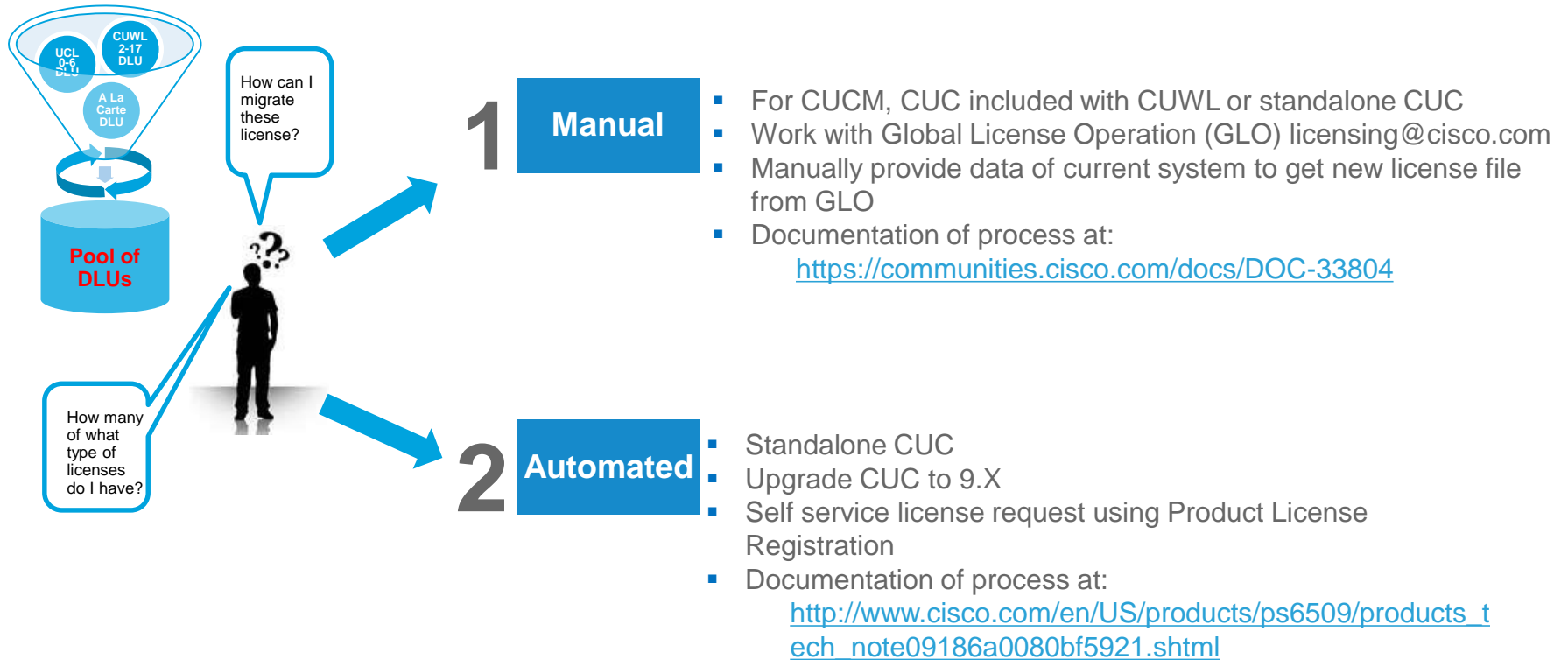
Use ELM Upgrade Wizard for License Upgrade



- Upgrade License Wizard: License Management > Add or Upgrade License > Upgrade License
 - Plan, Order and Install
- Plan:
 - Select CUCM or CUC for migration
 - Select what systems to migrate
 - Conversion is exactly like UCT so use saved UCT reports to adjust UCL/CUWL requirements
- Order allows for license acquisition by capturing text from ELM
- Install is to install the license file



License Conversion



License Count Utility (UCT) for CUCM 6.X-8.X

- Available on CCO
- Perform AXL calls to existing CUCM clusters for licensing information, recommends CUCM 9.X license usage, provides option for unused DLU to CUCM 9.X license and generate report.

Detailed screen capture of UCT are in the appendix



CUCM 6.X



CUCM 7.X



CUCM 8.X



License Count Tool

Cisco License Count Utility

Report Generated: 2013-Mar-11 14:10:30 Refresh Report Save as... Print...

License Requirements Based on Usage Data
The table below contains the minimum number of 9.0 licenses required to cover all users and phones currently configured on the Unified CM servers included in this report.

Hostname/ IPAddress	Description	Essential	Basic	Enhanced	Enhanced Plus	CUWL Standard	CUWL Professional	Telepresence Room	Unused DLUs
10.94.171.171		50	70	450	0	0	0	50	7410
TOTAL		50	70	450	0	0	0	50	7410

License Conversion Worksheet
Use this section to calculate scenarios for upgrading and using available Device License Units (DLUs). Note that the license values reported below only include licenses consumed by Cisco Unified CM, and not other products that can consume a CUWL license. If you will be using worksheet as a basis to place license order, it is important to note that software service (ESW) and subscription (UCSS) rates are based on the number of licenses specified, so you should only include current license requirements plus additional licenses you anticipate needing. Use the drop down menu to select together to display the recommended license counts as User Connect Licenses (UCL) or Cisco Unified Workspace Licenses (CUWL).

License Type	Current License Usage	Recommended License Count	Adjust Recommended Count(+/-)	New License Count	DLUs Per License	DLU Change(+/-)
CUWL Professional	0	0	0	0	12	0
CUWL Standard	0	0	0	0	11	0
Enhanced Plus	0	0	0	0	9	0
Enhanced	450	450	1,100	1550	6	6600
Basic	70	70	245	315	4	700
Essential	50	50	0	50	0	0
Telepresence Room	50	50	10	60	11	110
TOTAL DLU USAGE CHANGE:						7410
Unused DLUs Remaining:						0

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1. Data for Manual License Migration

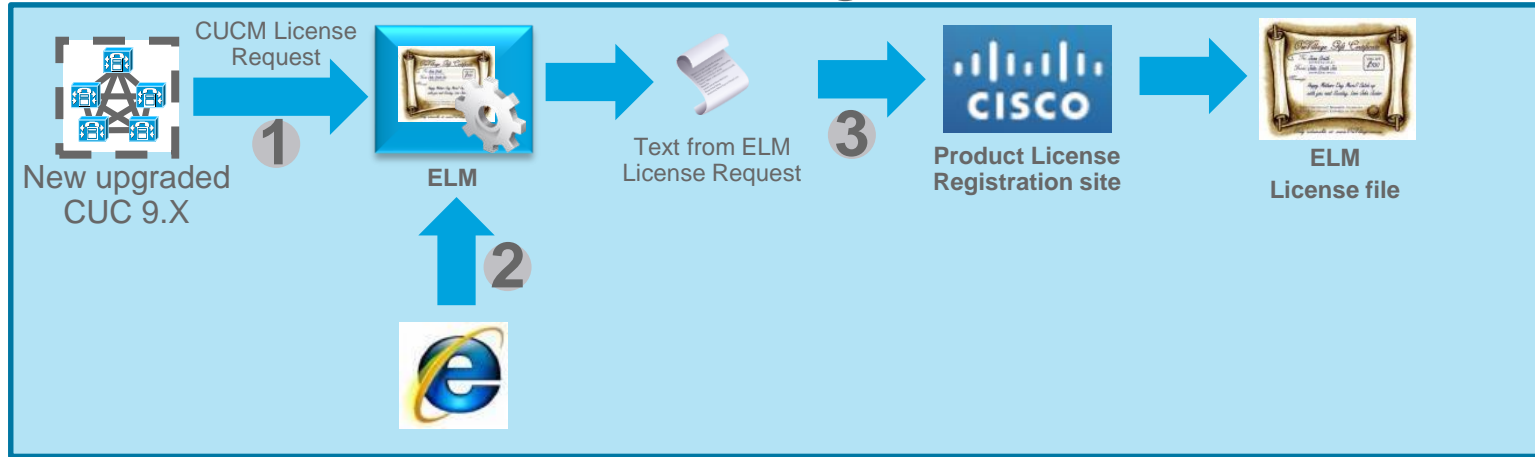
- Working with Global Licensing Operation (GLO) at licensing@cisco.com
- Provide current system usage
 - Migrated system(s): ELM Usage Report
 - CUCM 6.X to 8.X: License Report with License Count Utility (UCT)
 - CUCM 3.X to 5.X: Print screen of system usage
- Provide
 - Active ESW/UCSS contract number
 - Site information
 - Contact information for email and support contract
 - MAC Address/License MAC from current CUCM system
 - ELM generated license request
 - Email to send licenses or software with contact information
 - Intended CUCM 9.X user count and features for unused DLU

2. Automated License Migration with ELM



- Log into Product Upgrade Tool site = <http://tools.cisco.com/gct/Upgrade/jsp/index.jsp> to order upgrade kit
- Obtain upgrade software. There is an electronic version for download
- Upgrade CUCM cluster to 9.X and run licenses in Overage mode for 60 days before license is required for ELM

2. Automated License Migration with ELM



- 1. In ELM, add the new upgraded CUC 9.X and get upgrade license request
- 2. In ELM Upgrade wizard: License Management > Add or Upgrade Licenses > Upgrade Licenses
 - Go through license planning for UCL and CUWL request based on DLU
 - Capture license request text
- 3. Go to:
 - Product License Registration site = <https://tools.cisco.com/SWIFT/LicensingUI/Home>
 - Go to Migration License section and select Register for Upgrade/Migrate License

Overview of CUCM 9.1 Installation

CUCM
9.X DVD KIT



MCS-781X
MCS7825
MCS7828
MCS7835
MCS7845

INSTALLATION PROCESS (PROCEED)

1

Apply SR, ES or SU

Upgrade During
Installation
i.e., 9.1(1a) to 9.1(2)

2

Basic Install

New Installation, New
Server—Flash Cut or
New Server—Migration

Installation Logs

- To capture installation logs failure, a USB key is required for physical servers
 - Plug USB key into the physical server
 - Accept dumping of logs
- In a virtualized environment, dump logs is via serial port of VM
 - Add serial port when VM is off before CUCM 8.X installation
 - On failure, edit guest OS to connect to a temporary file to virtual serial port
 - Accept dumping of logs
 - Download 7zip from <http://www.7-zip.org/download.html> to unzip the tar file
 - Remove serial port after a successful installation of Unified CM 8.X

CUCM 9.X Phone License

License	Phone Type (2)	# of Devices (3)	Features (1)
Essential UCL	Analog, 3905, 6901, VGC Phone, ATA186, ATA187	1	EM
Basic UCL	6911, 6921, CUC-RTX, Analog, 3905, 6901, VGC Phone, ATA186, ATA187	1	EM, SNR
Enhance UCL	12S, 12SP, 12SP+, 30SP+, 30VIP, 3911, 3951, 6941, 6945, 6961, 7902, 7905, 7906, 7910, 7911, 7912, 7920, 7921, 7925, 7926, 7931, 7935, 7936, 7937, 7940, 7941, 7941G-GE, 7942, 7945, 7960, 7961, 7961G-GE, 7962, 7965, 7970, 7971, 7975, 7985, 8941, 8945, 8961, 9951, 9971, Cius, E20, ISDN BRI Phone, Third-party SIP Device, CIPC, CUPC, CIM, CSF, EX60, EX90, Jabber (Android/iPhone/iPpad), CUMC, IIM, Nokia S60, H.323 Client, VXC 6215, 6911, 6921, CUC-RTX, Analog, 3905, 6901, VGC Phone, ATA186, ATA187, Analog, 3905, 6901, VGC Phone, ATA186, ATA187	1	EM, SNR
Enhance UCL Plus	Same as Enhance UCL	2	EM, SNR

CUCM 9.X Phone License

License	Phone Type (2)	# of Devices (3)	Features (1)
CUWL Standard	12S, 12SP, 12SP+, 30SP+, 30VIP, 3911, 3951, 6941, 6945, 6961, 7902, 7905, 7906, 7910, 7911, 7912, 7920, 7921, 7925, 7926, 7931, 7935, 7936, 7937, 7940, 7941, 7941G-GE, 7942, 7945, 7960, 7961, 7961G-GE, 7962, 7965, 7970, 7971, 7975, 7985, 8941, 8945, 8961, 9951, 9971, Cius, E20, ISDN BRI Phone, Third-party SIP Device, CIPC, CUPC, CIM, CSF, EX60, EX90, Jabber (Android/iPhone/iPpad), CUMC, IIM, Nokia S60, H.323 Client, VXC 6215, 6911, 6921, CUC-RTX, Analog, 3905, 6901, VGC Phone, ATA186, ATA187, Analog, 3905, 6901, VGC Phone, ATA186, ATA187	10	EM, SNR
TelePresence	TelePresence	1	

CUCM 10.0 Licensing Summary Cont.

UCL Enhanced / Enhanced Plus
CUWL Standard
CUWL Professional

UCL Basic

UCL Essential



Fax



Analog



3905



6901



6911



6921



7821



69xx



78xx



79xx



792x



7937 / 8831



89xx



99xx



DX650



EX60 / EX90



Jabber Desktop



Jabber Mobile



Third Party
SIP

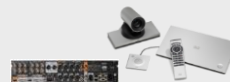
TelePresence
Room



TX / CTS / T Series

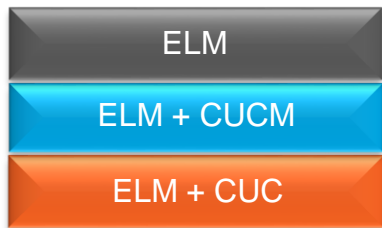
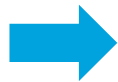
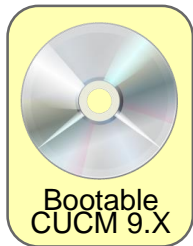


MX / Profile Series



System Codecs and
Quickset Platforms

Enterprise License Manager (ELM)

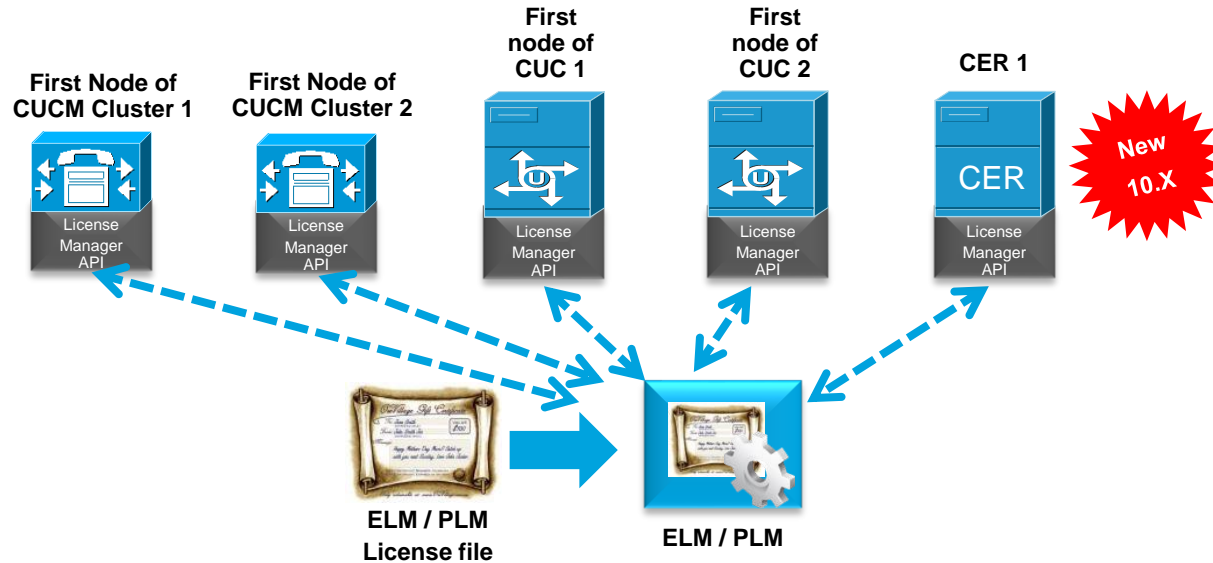


ELM Implementation	Products
Standalone	ELM
Co-resident with CUCM	ELM + CUCM
Co-resident with CUC	ELM + CUC



- ELM **IS** a centralized enterprise-wide license management solution for Cisco collaboration applications
 - CUCM
 - Cisco Unity Connection (CUC)
- ELM deployment can be standalone or co-resident with CUCM or CUC with the same ISO file
- License file is uploaded onto ELM instead of CUCM or CUC and is based on ELM MAC address and host ID
- License file is cumulative and is based on products (CUCM or CUC)

License Manager Architecture 9.X and 10.X

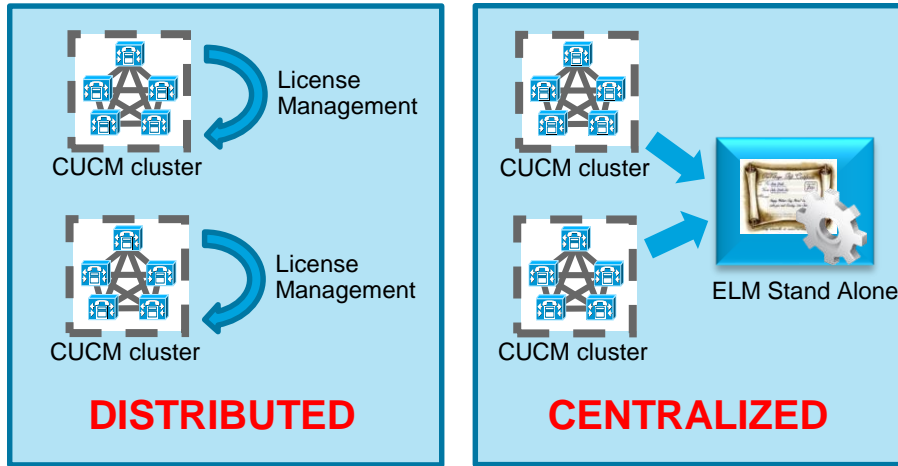


- License Manager API added to CUCM 9.X/10.X and CUC 9.X/10.X to interact with ELM / PLM for license request and approval
- License Manager API added to CER 10.X to interact with PLM for license request and approval
- Electronic fulfillment supports License Feature and Version Upgrades in PLM 10.X

Previous Methods for Owner User ID

- BAT: <http://www.cisco.com/c/en/us/support/docs/voice-unified-communications/bulk-administration-tool/110967-bat-00.html>
- CLI SQL on logged in users:
<https://crystalclearinsanity.wordpress.com/2014/03/07/cucm-set-device-owner-id-to-em-logged-in-user-id-via-sql/>
- CLI SQL: <http://pandaeatsbamboo.blogspot.com/2014/01/associate-existing-phones-to-users-with.html>
- UDS and AXL: <http://samiamsam.com/2014/06/24/cisco-api-series-the-uds-api-with-a-side-of-axl/>

License Management Models with PLM



- PLM provides for both distributed and centralized license management model
 - Separate virtual machine for ELM (recommended)
 - Separate virtual machines based on UC applications, site or line of business
 - Co-resident to CUCM or CUC corporate wide or based on UC applications, site or line of business
- Consideration when designing a licensing solution
 - 60 days overage and redundancy/re-host (registration ID and MAC) of ELM

Refresh Upgrade (RU) for MCS 7825 and MCS 7828 (CUCM 8.6 & 9.X Upgrade)



MCS-7825 H3/H4
MCS-7825-I3/I4/I5
MCS-7828-H3
MCS-7828-I3/I4/I5



RU



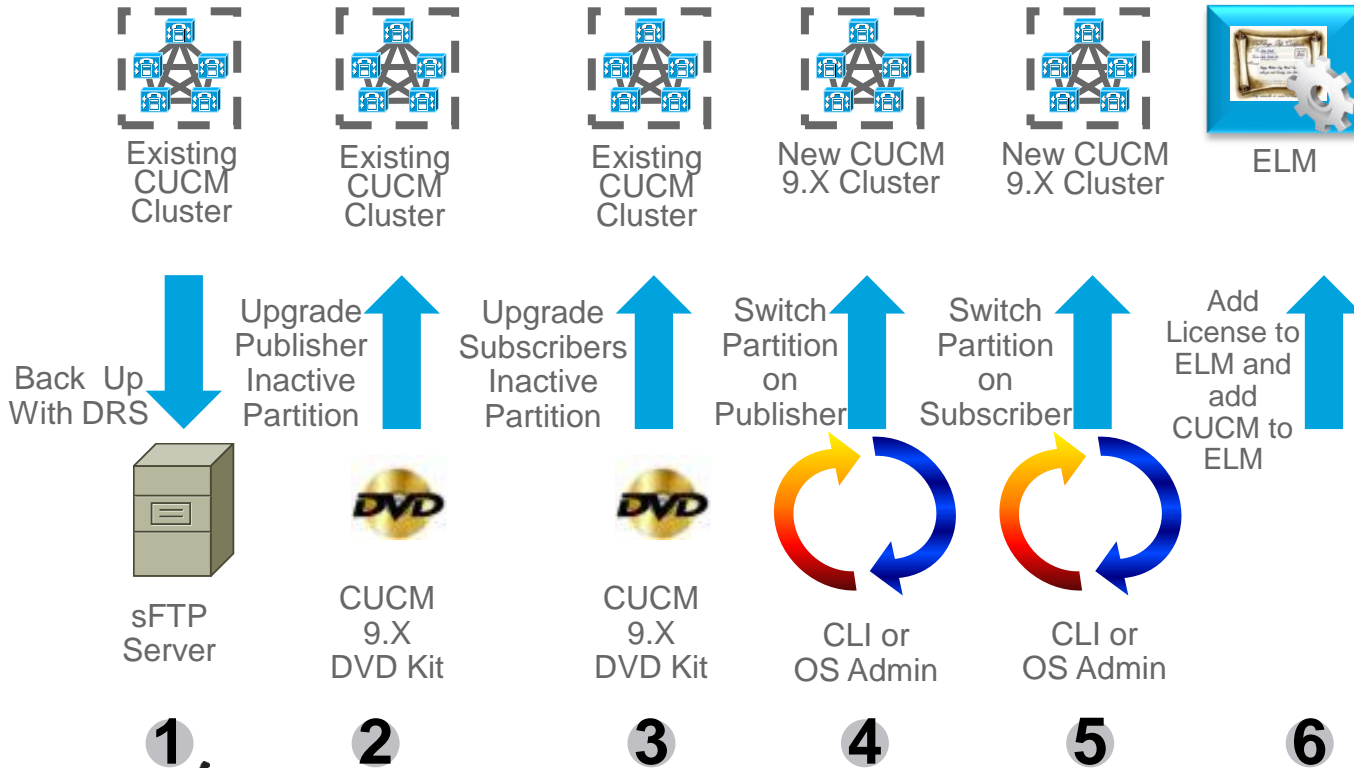
MCS-7825 H3/H4
MCS-7825-I3/I4/I5
MCS-7828-H3
MCS-7828-I3/I4/I5

- Software raid and OS reinstallation by RHEL 5 requires USB key
 - CUCM- 16 GB USB drive. CUC and CUCM BE 5000 – 128 GB USB drive
 - External power USB drive. One per server. Do not remove until upgrade completes
- DRS back up before upgrade. USB data cannot be restore from new installation
- Reinstallation and DRS restore as the only reversion method
- Check memory required per server (MCS7825 – 4GB, MCS7828 – 6GB) before upgrade
- Recommend to virtualize at this point if possible

Upgrade and Migration Caveats with Diskspace

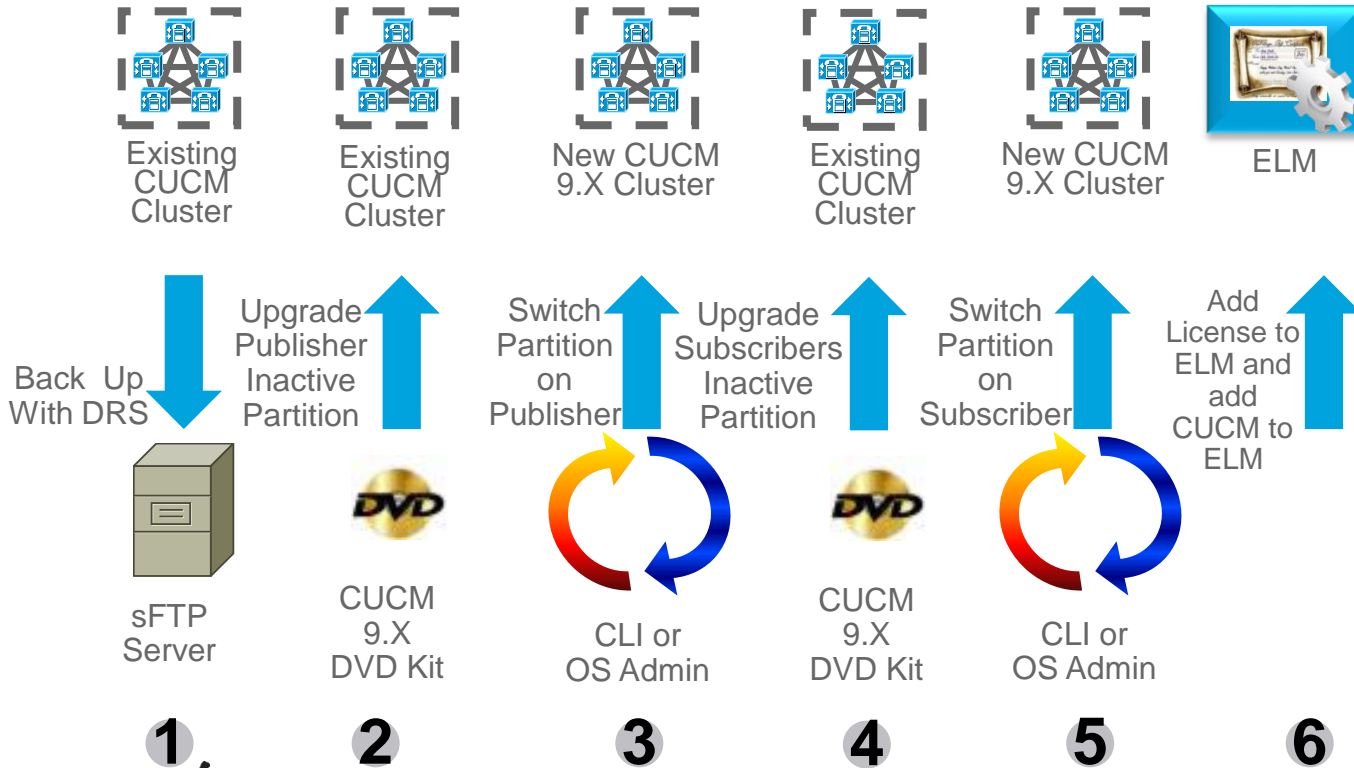
Upgrade Definition	Scenario
W1 Upgrade	Windows to appliance upgrade up to CUCM 7.1(5)
L2 Upgrade	Appliance to appliance upgrade within same major RHEL release (before CUCM 8.6)
RU Upgrade	Appliance to appliance upgrade between major RHEL releases (starting with CUCM 8.6)
Bridge Upgrade	Servers too old to run latest CUCM version. Use DRS file to change platform to continue upgrade
Jump Upgrade	Servers too old to run CUCM version 8.0(2) or later to virtualized. Virtualized in lab to perform upgrade
Manual Platform Change	Changing servers platform. Typically from bare metal servers to virtualized environment
Automated Platform Change w/ PCD	

In-Place L2 Upgrade Process



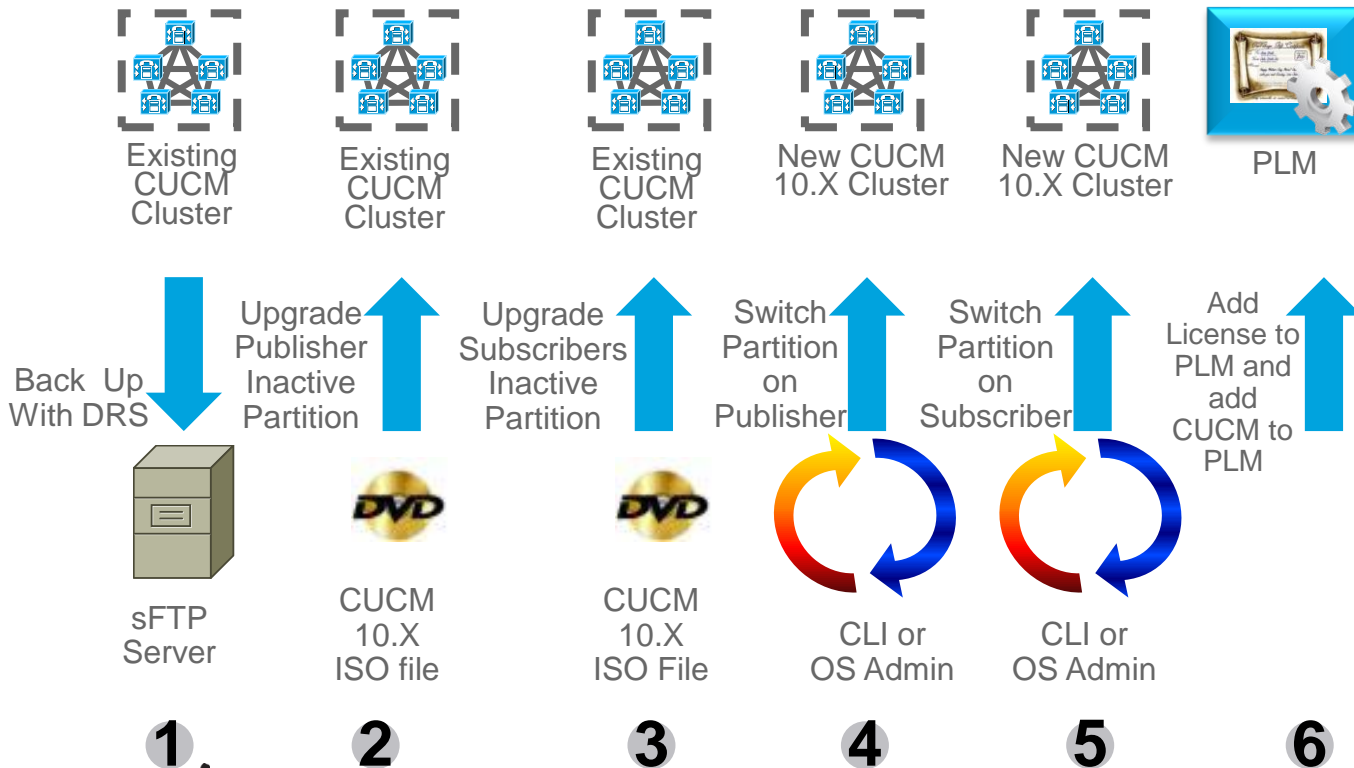
- Version 9 of license manager is Enterprise License Manager (ELM)
- ELM license is required only when going from 8.X or earlier to 9.X
- This scenario applies to both bare metal and virtualized CUCM

In-Place RU Upgrade Process



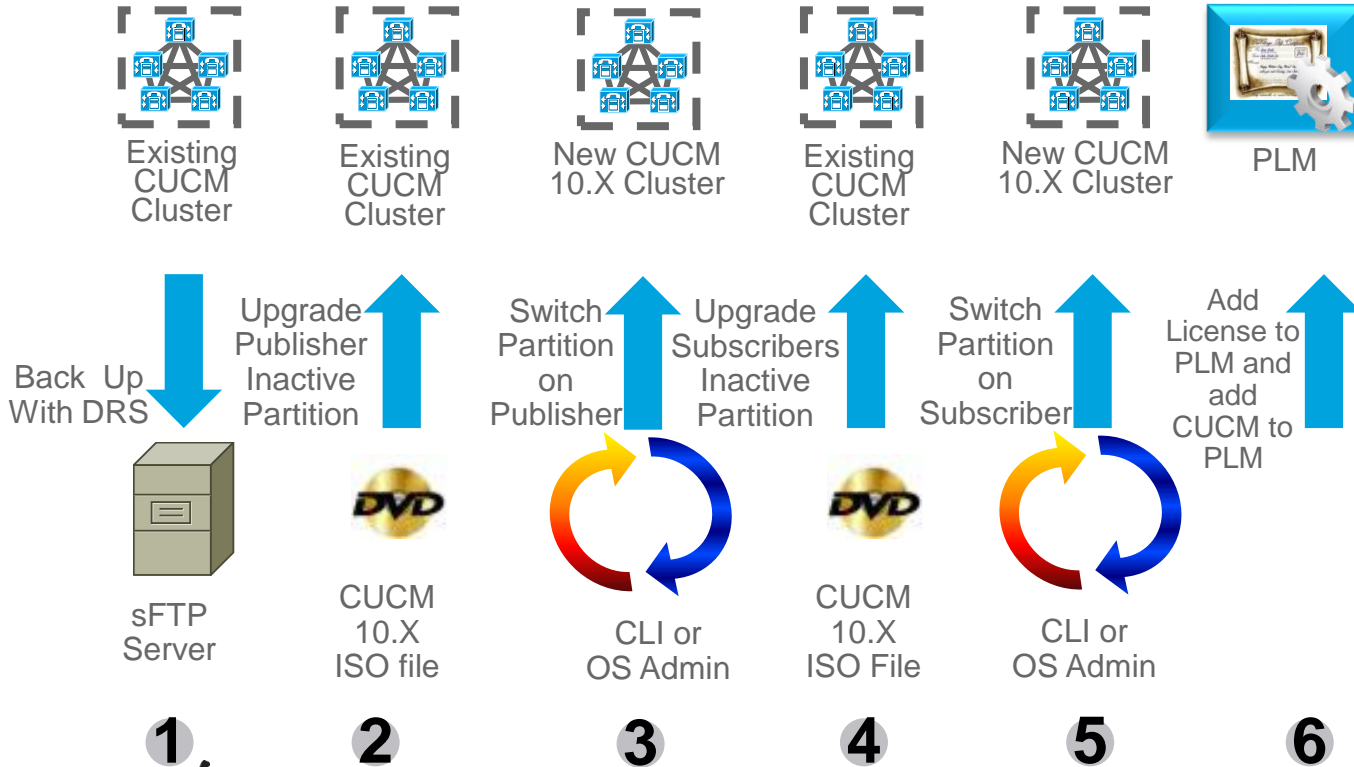
- Version 9 of license manager is Enterprise License Manager (ELM)
- ELM license is required only when going from 8.X or earlier to 9.X
- This scenario applies to both bare metal and virtualized CUCM

In-Place L2 Upgrade Process



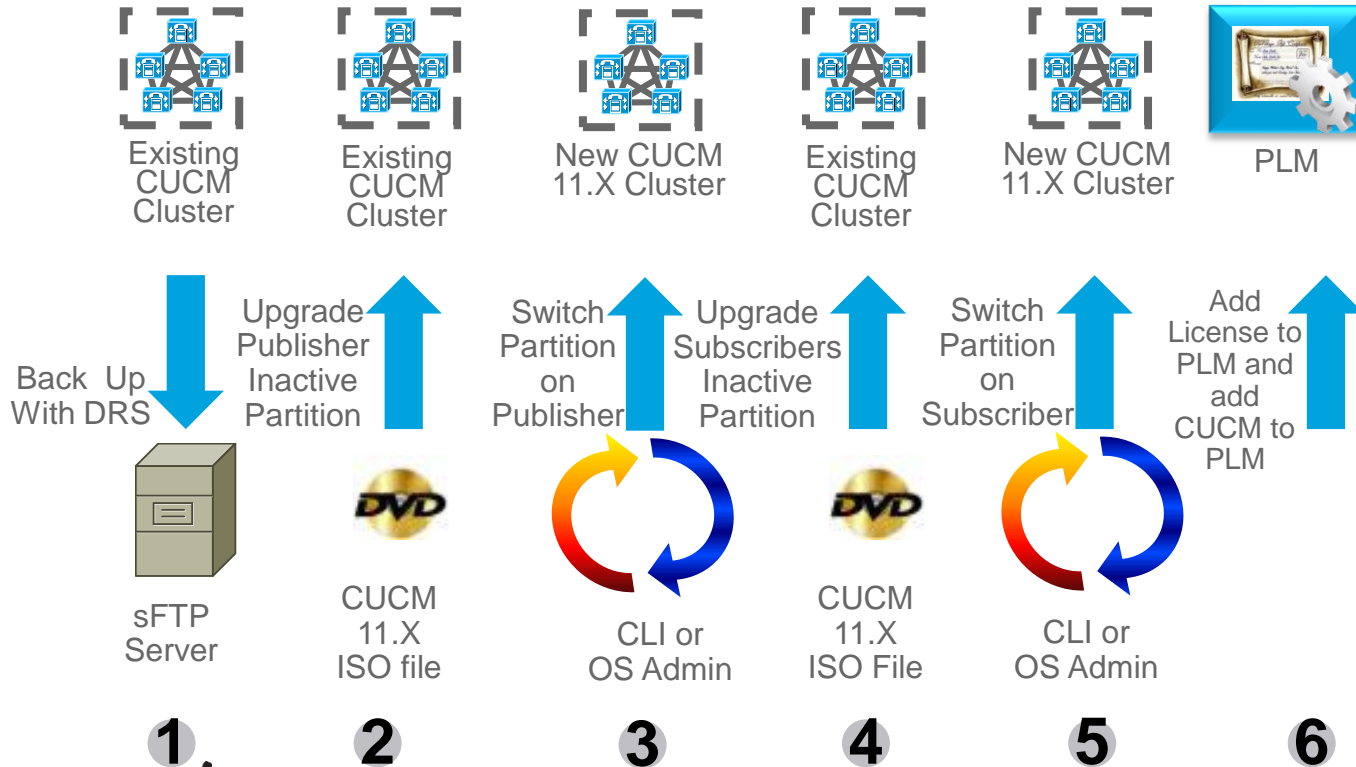
- Version 10 of license manager is Prime License Manager (PLM)
- PLM license is required only when going from 9.X or earlier to 10.X
- This scenario applies to virtualized CUCM only
- For 10.X to 10.5, upgrade IM&P after CUCM cluster is upgraded

In-Place RU Upgrade Process



- Version 10 of license manager is Prime License Manager (PLM)
- PLM license is required only when going from 9.X or earlier to 10.X
- This scenario applies to virtualized CUCM only
- For 9.X to 10.X, upgrade IM&P after CUCM cluster is upgraded

In-Place RU Upgrade Process



- Add version 11 of license for the appropriate ELM or PLM
- For 9.X to 11.X, upgrade IM&P after CUCM cluster is upgraded
- This scenario applies to virtualized CUCM only

Refresh Upgrade (RU) and COP File



- Perform a DRS back up before upgrade
- Install Refresh Upgrade COP file v1.5 (ciscocm.refresh_upgrade_v1.5.cop.sgn) file on all CUCM servers. Also for CUC, CUCM-BE 5K and IME
 - Active version is CUCM 8.5 or earlier (i.e. No need for CUCM 8.6, 9.X or 10.X)
 - Upgrade to CUCM version 8.6 or later (e.g. Required for upgrade from CUCM version 8.5 to 10.5)
 - No reboot is required
 - Installation fails if changes are already in CUCM code (e.g. ES that already have this code change)
 - CLI: “show version active” or OS Admin: “Show > Software” to see installed COP file(s)
- Track console of server to monitor progress of upgrade – IP KVM, HP ILO, or IBM RSA for bare metal server or virtual machine console for virtual machine
- CUCM RU COP file is for CUCM version 8.5 or earlier. Other collaboration solutions RU might be at a different release (e.g. CUP 8.6(1) to CUP 8.6(4) requires CUP RU COP file v1.01)
- * RU COP file might be use once for older releases while RU can occur several times due to change in RHEL version

CUCM 10.5 Pre-Upgrade COP File



Software Installation/Upgrade

Install Another

Installation Status

File `ciscocm.version3-keys.cop.sgn`

Start Time Tue May 13 23:39:41 EDT 2014

Status Locale /common/download//ciscocm.version3-keys.cop Successfully installed

Installation Log

```
installdb Success[-x]

(3429) Tue May 13 23:41:34 EDT 2014
Successful final run of installdb

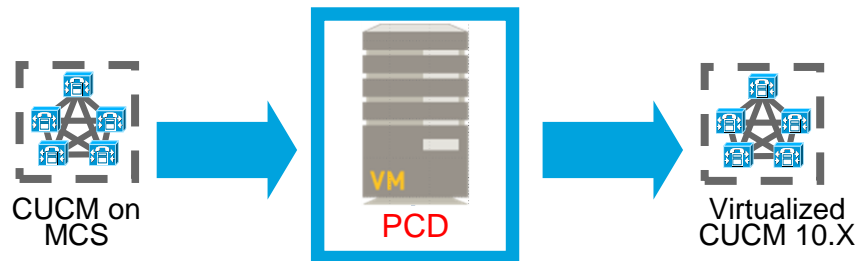
(3429) Tue May 13 23:41:34 EDT 2014
Successful running of copstart for option /common/download//ciscocm.version3-keys.cop.

(3429) Tue May 13 23:41:34 EDT 2014
Locale /common/download//ciscocm.version3-keys.cop Successfully installed
```

Install Another

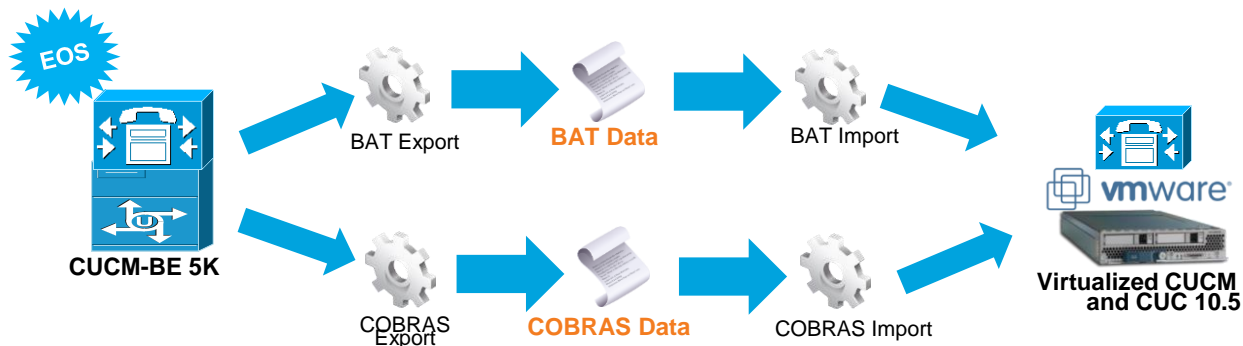
- Pre-Upgrade RSA keys Cisco Options Package (COP) file (`ciscocm.version3-keys.cop.sgn`) for software integrity protection
- Install Pre-Upgrade COP file (`ciscocm.version3-keys.cop.sgn`) file on all CUCM servers. Also for IM&P 10.5 and PLM 10.5
 - Active version is 9.1(2) or earlier (i.e. No need for CUCM 10.0)
 - Upgrade to CUCM version 10.5 or later (e.g. Required for upgrade from CUCM version 8.6 to 10.5)
 - No reboot is required
 - CLI: “show version active” or OS Admin: “Show > Software” to see installed COP file(s)
- PCD does not automate this COP file installation
- Install RU COP file prior to the Pre-Upgrade COP file

2. Automated Platform Conversion with PCD



- Bare metal CUCM to virtualized CUCM (P2V)
 - Install ciscocm.ucmap_platformconfig.cop file to the source servers to export data
 - Build new cluster
 - Import data
- Same or different destination IP address and/or hostname
- Scheduled or immediate execution

CUCM-BE 5K to CUCM-BE 6K or CUCM/CUC



- Upgrade CUCM-BE to version CUCM-BE 10.5
- Export data:
 - BAT for call control and COBRAS for messaging
- Build virtualized CUCM and CUC
- Import data:
 - BAT for CUCM and COBRAS for CUC

Sample PowerShell Script to update CUCM 10.0 Virtual Machines

```
### Remember to Shutdown your CUCMs first ###
```

```
$vCenter = "vcenter1.cisco.com"
```

```
$vFolder = "UCM10"
```

```
Get-vc -server $vCenter
```

```
Get-Folder $vFolder | get-vm | Set-VM -GuestID "rhel6_64Guest" -confirm:$false
```

```
Get-Folder $vFolder | get-vm | get-networkadapter | set-networkadapter -type "vmxnet3" -confirm:$false
```

```
$folder = Get-Folder $vFolder | Get-View
```

```
Get-View -SearchRoot $folder.MoRef -ViewType VirtualMachine | %{$_.reload() }
```

```
## Alernatively one CUCM VM at a time
```

```
Get-VM -Name "cucm1" | Set-VM -GuestID "rhel6_64Guest" -confirm:$false
```

```
Get-VM -Name "cucm1" | get-networkadapter | set-networkadapter -type "vmxnet3" -confirm:$false
```

```
Get-View -ViewType VirtualMachine -Filter @{"Name" = "cucm1"} | %{$_.reload() }
```

Sample PowerShell Script to Deploy CUCM VMs in Bulk to use as PCD Migration Destination

```
### Deploy a Blank CUCM choosing the Deployment Size and convert to Template First###
$VCenter = "vcenter1.cisco.com"
$VFolder = "UCMDestination-Folder"

$Template = "cucm_10.5_vmv8_v1.8.ova_7.5k"
$vmNames = @{}

$vmNames["ucmdestpub"] = @("ecats-rtp-cc42-esxi-1.ecatsrtp.cisco.com","ecats-rtp-cc42-esxi-1-
datastore1","Vlan123")
$vmNames["ucmdestsub1"] = @("ecats-rtp-cc42-esxi-1.ecatsrtp.cisco.com","ecats-rtp-cc42-esxi-2-
datastore1","Vlan124")

Get-vc -server $VCenter
foreach ($vmName in $vmNames.keys)
{
$vm = New-VM -Name $vmName -Location $VFolder -Template $Template -Host $vmNames[$vmName][0] -Datastore
$vmNames[$vmName][1] -Confirm:$false
##### Deploy CUCM with Local Vswitch Example
# get-NetworkAdapter -VM $vm | Set-NetworkAdapter -NetworkName $vmNames[$vmName][2] -Confirm:$false
##### Deploy CUCM with Distributed VSwitch Example
$myNetworkAdapter = Get-NetworkAdapter -VM $vm
$myVirtualPortGroup = Get-VirtualPortGroup -VirtualSwitch "uc-cseries" -name $vmNames[$vmName][2]
Set-NetworkAdapter -NetworkAdapter $myNetworkAdapter -Portgroup $myVirtualPortGroup -Confirm:$false
}

Echo Done
```



We're ready. Are you?