TOMORROW starts here.

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Best Practices for Upgrading your Unified Communications Environment to Version 10

BRKUCC-2668

Chris Hartley Network Consulting Engineer



Agenda

- 1. Session Objectives and Scope
- 2. CUCM License and Cisco Prime License Manager (PLM)
- 3. CUCM 10.X Upgrade Definition and Upgrade Path
- 4. Virtualised CUCM
- 5. Prime Collaboration Deployment
- 6. System Level Upgrade
- 7. Drive to Collab
- 8. Q&A
- * Cisco Unified Communications Manager = CUCM = Unified CM = CallManager
- * Cisco Prime License Manager = PLM = Cisco Enterprise License Manager = ELM



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Session Objectives and Scope

Session Highlights

| CUCM Migration | Traditional manual process Automated process with PCD |
|---|---|
| Licensing and License Migration | Manual processAutomated process |
| Prime Collaboration Deployment (PCD) | CUCM Orchestration tool for operational tasks Migrations, Upgrade, COP file installation, fresh installation or hostname/IP Address change |
| CUCM 10.X Virtualised only | Platform conversion via PCD |



Colour Code for Versions of CUCM





Session Scope



http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/10_x/CUCM_BK_CD1DB914_00_compat_matrix.pdf http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/ccmcompmatr1.pdf

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CUCM License and Cisco Prime License Manager (PLM)

Cisco Enterprise License Manager 9.X (ELM)



- CUCM 9.X installation DVD consisted of five products including Cisco Enterprise License Manager (ELM) bundled with two UC products or as stand alone deployment
- ELM is a centralised licensing product running on top of Cisco Voice OS (VOS)
- ELM supports Cisco Unified Communications Manager (CUCM) and Cisco Unity Connection (CUC)
- 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)



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Cisco Prime License Manager 10.0 (PLM)





Search for Cisco Prime License Manager

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License Manager Architecture



- ELM/PLM provides centralised license management, license pooling, minimise re-hosting of license files
- Electronic Fulfillment Supports License Feature and Version Upgrades
- License Manager API added to CUCM 9.0 and CUC 9.0 to interact with ELM for license request and approval
- License Manager API Added to PLM 10.0

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CUCM and License Manager Interaction



- Evaluate phone, users and features usage
- Send license usage to ELM
- Receive license response and operate in the appropriate mode

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- LM:
- Poll all products every 24 hours
- Evaluate adequate licenses
- Perform license substitution
- Provide Valid or Invalid license response

- License Manager polls all registered CUCM clusters
- CUCM evaluates license usage and sends license usage back to LM
- LM evaluates all CUCM reports to see if there is adequate licenses for the requested types
- LM performs license substitution when there is inadequate licenses for the requested type
- LM responds back with either valid or invalid (not enough) to all CUCM clusters
- CUCM receives the response and functions accordingly

Detailed CUCM and ELM interactions with signalling are in the appendix



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License Manager Deployment Models



- LM provides for both distributed and centralised license management model
 - Separate virtual machine for LM (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 LM
 - To avoid Re-Hosting Use MANUAL/STATIC MAC Address + Backup & Restore



Planning and Migrating Standalone ELM to PLM



- Changes to Cisco Enterprise License Manager (ELM)
 - Cisco Enterprise License Manager (ELM) 9.X becomes Cisco Collaboration Prime License Manager (PLM) 10.X
 - ELM 9.1.2 Supports CUCM/CUC/CER 10.X after License Definition COP file install
 - elm_LicenseDef_9_1_v1.cop.sgn

- Migrating ELM to PLM
 - PLM 10.X is Virtual ONLY
 - Upgrade ELM 9.1.2 to PLM 10.0(1) via Bootable ISO
 - Bootable_CiscoPrimeLM_64bitLnx_10.0.1.10000-19.sgn.iso
 - Upgrade ELM 9.1.1 to PLM 10.0(1) requires COP File
 - elm_Elm_v9_1_1_PlmUpgrade.cop.sgn
 - Migrate CUCM or CUC to 10.X.
 - Migrate CUCM or CUC license to 10.X



CUCM License Usage





Sample CUCM License Usage Sent to LM

| alialia Cisco Unified C | CM Administration | | Navigation Cisco Unified CM Administration + G |
|---------------------------------------|---|---|---|
| CISCO For Cisco Unified Comm | unications Solutions | | makman Search Documentation About Logo |
| system 👻 Call Routing 👻 Media Reso | ources - Advanced Features - Device - | Application - User Management - Bulk Administrat | tion 👻 Help 👻 |
| cense lisage Penort | | | |
| cense osage Report | | | |
| icense Usage Report | | | |
| Below is a summary of current li | cense usage on the system. Current usage | details for each type are available by pressing "Upda | ate Usage Details". Note that collecting these data is a resource |
| Intensive process and may take | several minutes to complete, depending on | the size of your deployment. | |
| View All License Type Descriptions An | d Device Classifications | | |
| | | | |
| Update Usage Details Usage Detail | ils Last Updated: 2014-01-15 07:15:37 | | |
| | | | |
| License Requirements by Type | | | |
| License Type | Current Usage | Report | |
| CUWL Standard | 461 | Users(461) Unassigned Devices(0) | |
| Enhanced Plus | 307 | <u>Users(307)</u> | |
| Enhanced | 763 | Users(622) Unassigned Devices(141) | |
| Basic | 892 | Users(892) Unassigned Devices(0) | |
| Essential | 18 | Users(0) Unassigned Devices(18) | |
| TelePresence Room | 53 | Users(22) Unassigned Devices(31) | |
| Users and Unassigned devices — | | | |
| Users | 2304 | View Usage Report | |
| Unassigned Devices | 190 | View Usage Report | |
| - | | | |
| Cisco Prime License Manager — | | | |
| The licenses for this system are man | aged by a Cisco Prime License Manager ser | ver. | |
| Server Hostname / IP Address: ecats | -uc-elm1.cisco.com | | |
| Last Successful Synchronization: 201 | 4-01-15 00:39:28 | | |
| | | | |

LM License Evaluation and License Substitution



- Two license types: User license and Feature license
- 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 Enhanced
 - I.E. UCL Enhanced can be covered by UCL Enhanced Plus (+)
- LM evaluates ALL systems license requirements on a per product (CUCM and CUC) basis and respond back with one consistent response to ALL registered systems
 - VALID: adequate license
 - INVALID: inadequate license
- Centralise and system level licensing view



Enterprise License Manager

http://www.cisco.com/en/US/partner/docs/voice_ip_comm/cucm/srnd/9x/callpros.html#wpxref61870

CUCM License States

- Demo: Warning displayed : The system is operating on demo licenses that will expire in <7> days. Add this
 system to an Enterprise License Manager and install sufficient licenses to cover its usage before expiration in
 order to avoid losing the ability to provision users and devices. Demo is 60 days.
- No Provisioning: Warning displayed: The system is operating without any valid licenses. Configure licenses on the system in order to restore the ability to provision users and devices.
- Overage: Warning displayed: The system is operating with an insufficient number of licenses. If additional
 licenses to cover the shortage are not configured in your Enterprise License Manager within <7> days, you will no
 longer be able to provision users and devices.
- Lost connection to ELM: Warning displayed: The system has not synchronised successfully with Enterprise License Manager for <7> days. If successful synchronisation does not occur within the next <60-7> days, you will no longer be able to provision users and devices.
- Security mismatch with ELM: Warning displayed: Due to a certificate mismatch, the system has not synchronised successfully with Enterprise License Manager for <7> days. If successful synchronisation does not occur within the next <60-7> days, you will no longer be unable to provision users and devices.
- Grace: Warning displayed: The system is operating under a licensing grace period that will expire in 1 day. Install sufficient licenses in the Enterprise License Manager for this system to cover its usage in order to avoid losing the ability to provision users and devices. If licenses for this system are not already being managed by an Enterprise License Manager server, the system must first be added to one.

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License Migration

License Migration

When migrating, customers can choose to:

- Keep the same quantity and type of licenses
- Decrease their license quantity and type (without refund)
- > Increase their quantity and select additional license types by converting DLUs, or
- Up level their license types using Drive to Collab Promotions
- After the upgrade, customer entitlement record will be locked in moving forward.
- At the time of the next renewal, the terms and price will be based on licenses issued during migration, plus any users purchased after migration. (Exception: Drive to Collab Promotions)



Common Migration Scenario #2

Migrating Unused DLUs or Existing UCL Licenses to 9.1 CUWL User Licenses



License Migration Process

 Policy – "Customers with UCSS will be assured the same licensing capability and capacity at no cost as they migrate to CUCM 9.1(2) and 10.0"



 GLO is your single point of contact for obtaining License Entitlement & Migration Licenses from pre-9.x (DLU based) to 9.1(2) or 10.0 (user based)

Process to Obtain Licenses (100% Manual Support)

Contact GLO (licensing@cisco.com) for all CUCM Migrations Response Time: 3-5 Business Days



License Migration Process

Before Upgrading to 9.1(2)/10.0 - Email Subject: Drive to Collab Pre-Migration Request

- 1. "CUCM Upgrade Central" iPad App License Usage or LCU Output (Run on the CUCM Publisher)
- 2. Mac Address of current Publisher (If available, include all previous Publisher or License Mac)
- 3. UCSS/ESW information Optional

After Upgrading to 9.1(2)/10.0 - Email Subject: **Drive to Collab Post-Migration Request**

- 1. "CUCM Upgrade Central" iPad App License Usage or LCU Output (Run on the CUCM Publisher)
- 2. Mac Address of the Publisher (If available, include all previous Publisher or License Mac)
- 3. ELM License Request file (in .txt as an attachment)
- 4. Site information (name-all name permutations, City, state, country) for contract update
- 5. UCSS/ESW, Email ID, Unused DLU Allocation Optional

Escalation Process: Call GLO and speak with License Duty Manager



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





- Available on CCO
 - LCUZIP-Ver9.1.2.zip
- Performs 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 generates report

| Sevent Coversted, 1 | | | | | | | | | | | | | |
|--|--|--|--|--|---|---|--|---|--|---|--|--|--|
| Report Generateu: 4 | 2013-Mar-11 1 | 4:10:30 | Refresh Re | eport | | | | | | | Save as | Print | |
| License Requireme | ents Based or | n Usage Da | ita | | | | | | | | | | |
| The table below contain | ns the minimum n | umber of 9.0 | licenses re | quired to cover a | l users and phones curr | ently configured on the | Unified CM server | s included i | in this repor | t. | | | |
| Hostname/ IPAddress | Description | Essential | | Basic | Enhanced | Enhanced Plus | CUWL Standard | CUWL Professio | onal | Telepresence Room | Unuse DLUs | d | |
| 10.94.171.171 | | | 50 | | 70 450 | 0 | 0 | i İ | 0 | | 50 | 7410 | ^ |
| | | | | | | | | | | | | | |
| | | | | | | | | _ | | | | | _ |
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Obtaining UCSS Entitlement Records

To obtain complete UCSS records, in cases where customer has purchased from other partners:

- Get Letter of Authorisation (LOA) signed by the customer
- Email <u>ucss-support@external.cisco.com</u> for customer's current UCSS Entitlement
- The UCSS team can release all past UCSS information to the current partner



LOA Template: https://communities.cisco.com/docs/DOC-38361



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CUCM 10.X Upgrade Definition and Upgrade Path

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Upgrade Definition

CUCM Major/Minor Version

| CUCM Major Version | CUCM Minor Version |
|-----------------------|-----------------------|
| 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 |

- Minor version upgrade requires active ESW contract
- Major version upgrade requires active UCSS contract
- * Unique Instance



Reference

Sample CUCM Versions and Builds

| CUCM Version | CUCM Build | Numbering Convention |
|---------------------|-----------------|--|
| 10.0(1) | 10.0.1.10000-24 | (A.B.C.XYzzz-x) |
| 9.1(2)su1 | 9.1.2.11900-12 | 8.6.2.20000-2 |
| 9.1(2) | 9.1.2.10000-X | (B) Minor version |
| 9.1(1a) | 9.1.1.20000-5 | 8. <mark>0</mark> .2.20000-2 (C) Maint. rel. |
| 9.1(1) | 9.1.1.10000-11 | 8.6 <mark>.2</mark> .20000-2 |
| 9.0(1) | 9.0.1.10000-37 | (X) FCS / Respin 8.6.2.10000-2 |
| 8.6(2a)su2 | 8.6.2.22900-9 | 8.6.2. <mark>2</mark> 0000-2 |
| 8.6(2a)su1 | 8.6.2.21900-5 | (Y) ES/SU Releases |
| 8.6(2a) | 8.6.2.20000-2 | 8.6.2.2 I zzz-1 8.6.2 2 <mark>29</mark> 00-1 |
| 8.5(1)su5 | 8.5.1.15900-4 | (ZZZ) FCS, ES, SU |
| 7.1(5b)su6 | 7.1.5.35900-7 | 8.6.2.2 <mark>0000</mark> -2 |
| 7.1(3b)su2 | 7.1.3.32900-4 | 8.6.2.2 <mark>1001</mark> -1 8.6.2 2 <mark>2900</mark> -1 |
| 6.1(5)su3 | 6.1.5.13900-4 | 0.0.2.22000 |



CUCM Upgrade Definitions

W1 W1 Upgrade: Windows to Appliance model

- High complexity with possible longest downtime
- (e.g. CUCM 4.1(3), 4.2(3), or 4.3(2) to 7.1(5b))
- L2 L2 Upgrade: Appliance to Appliance model
 - Low complexity with possible shortest downtime
 - Between CUCM versions with the same Major RHEL versions
 - (e.g. CUCM 7.1(5) to 8.5 or CUCM 8.6 to 9.1)

RU

- RU (Refresh Upgrade): Appliance to Appliance model with major RHEL version change (starting with RHEL 5)
 - Medium complexity with possible longer downtime
 - From CUCM versions 6.X, 7.X, 8.0 or 8.5 to 8.6, 9.X and 10.X
 - (e.g. CUCM 8.5 to 8.6 or CUCM 9.1 to 10.0)

Not covered in detail in this session. More detailed steps in the appendix



L2 versus RU Upgrade

L2 Upgrade

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

RU Upgrade

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

Detailed L2 and RU upgrade processes are in the appendix



L2 Upgrade: Appliance to Appliance model



- 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): Appliance to Appliance Model



L2 and RU Upgrade: Appliance to Appliance Decision Tree



| CUCM | RHEL Release | |
|-----------------|-----------------|----|
| 5.0(4) | RHEL 3 Update 6 | |
| 5.1(x) & 6.X | RHEL 3 Update 8 | |
| 7.0(1) | RHEL 4 Update 4 | |
| 7.1(2) | RHEL 4 Update 6 | |
| 7.1(3) & 8.0(1) | RHEL 4 Update 7 | RC |
| 8.5 | RHEL 4 Update 8 | |
| 8.6 | RHEL 5 Update 5 | |
| 9.X | RHEL 5 Update 7 | |
| 10.0 | RHEL 6 Update 2 | |
| Started with | | - |



CUCM 8.6 or

RHEL 5

Refresh Upgrade (RU) Recommendations

- Perform a DRS back up before upgrade
- Install the latest COP (ciscocm.refresh_upgrade_v1.3.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
- Track console to monitor progress of upgrade IP KVM, HP ILO, or IBM RSA for bare metal server or virtual machine console
- To minimise downtime, upgrade Publisher or first node until completion and then upgrade first set of Subscribers or secondary nodes while leaving some nodes performing call processing



Check Automatically switch to new version after successful upgrade



CUCM Migration Definitions

- 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 run newer version of CUCM)
- Jump Jump Upgrade: Physical to Virtualised model
 - CUCM 6.1(4), 6.1(5), 7.1(3) and 7.1(5) MCS to Virtual via lab (dead-net) upgrade
 - Minimal downtime due to lab upgrade
 - NO IP/Hostname Change
 - (e.g. Older servers that cannot upgrade to 8.0(3) or later to virtualized)
 - Platform Change: Physical to Virtualised model
 - Low complexity with minimal downtime
 - From CUCM 6.1(5), 7.1(3), 7.1(5), 8.0(1-3), 8.5(1), 8.6(1-2), 9.0.(1), 9.1(1), 9.1(2), 10.x
 - IP/Hostname Change ALLOWED
 - MCS to Virtual Automated via Prime Collaboration Deployment









PC

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Bridge Upgrade





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

Bridge Upgrade:



http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/cucos/8_0_2/cucos/iptpch7.html#wp1058411

Jump Upgrade



- 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)
 - Lab (Dead-Net/Isolated) migration ONLY (No IP/Hostname Change)
- Allows Physical (MCS) CUCM from 6.1(4), 6.1(5), 7.1(3) or 7.1(5) migration to Virtualised CUCM 9.1(2) in the lab.
 - Minimal down time
 - Database lockdown time NO MACD
 - No license required for interim upgrades

CUCM Upgrade Resource Central:

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http://communities.cisco.com/community/partner/collaboration/migration https://itunes.apple.com/us/app/id650114526?mt=8



Upgrade Definition Table

| 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 virtualised. Virtualised in lab to perform upgrade | | | | | |
| Platform Change | Changing servers platform. Typically from bare metal servers to virtualised environment | | | | | |



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Upgrade Path

One-Step L2 Upgrades (Appliance)



- The CUCM versions that will support a L2 upgrade to 9.X or 10.x
- Short or minimal downtime

Cisco Unified Communications Manager Software Compatibility Matrix http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/10_x/CUCM_BK_CD1DB914_00_compat_matrix.pdf http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/ccmcompmatr1.pdf



One-Step RU Upgrades (Appliance)



Cisco Unified Communications Manager Software Compatibility Matrix http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/10_x/CUCM_BK_CD1DB914_00_compat_matrix.pdf http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/ccmcompmatr1.pdf



One-Step RU Upgrades (Virtualised)



Cisco Unified Communications Manager Software Compatibility Matrix http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/10_x/CUCM_BK_CD1DB914_00_compat_matrix.pdf http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/ccmcompmatr1.pdf



Multi-Step Upgrade to CUCM 9.1: Source



- For end of support and appliance versions of CUCM
- Focus on the interim versions that can be upgraded to 9.X
- Sources for multi-steps upgrade path:
 - Cisco Unified Communications Manager Software Compatibility Matrix Supported upgrade paths to/from table - <u>http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/ccmcompmatr1.pdf</u>
 - CUCM Upgrade Resource Central -<u>https://communities.cisco.com/community/partner/collaboration/migration</u>



Multi-Step Upgrade to CUCM 9.1: Interim CUCM Version

- Interim CUCM version reference point:
 - Software Compatibility Matrix outlines all technical possible upgrade paths
 - Direct Upgrade Procedure and High Available Upgrade documents outline specific upgrade paths
- Interim CUCM version selection:
 - Interim CUCM version(s) to upgrade to which allows for eventually to upgrade to the targeted version
 - Minimise major version changes (I.E. 7.0 to 8.0) for features and license requests
 - CUCM versions has patch to provide for stability (latest SU or Security Update)
 - CUCM version that support current server
 - Impact by other UC applications due to dependency



CUCM-BE 5K to CUCM-BE 6K/7K or CUCM/CUC



- Upgrade CUCM-BE to version CUCM-BE 9.1
- Export data:
 - BAT for call control and COBRAS for messaging
- Build virtualised CUCM and CUC
- Import data:
 - BAT for CUCM and COBRAS for CUC



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Virtualised CUCM

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Platform Support

Platform Options







Tested Reference Configurations (TRC)

- Customers with lower virtualisation proficiency
- Cisco prescribed hardware specifications
- Performance guarantee for UC applications
- Tradeoffs to hardware choices
- Chassis based:
 - B200 M3, B230 M2 and B440 M2
 - FC SAN only
 - Full width versus half width blade
- Rack-Mount:
 - C220 M3, C240 M3 and C260 M2
 - DAS only
 - 1 to 2 rack unit

UC Virtualisation Supported Hardware:

http://docwiki.cisco.com/wiki/UC_Virtualization_Supported_Hardware



TRC Based Platform Decision Tree



- FC SAN provides for higher redundancy in terms of storage redundancy and VMware redundancy
- Newer E5 processor for longevity
- Lower server distribution might have larger failure domain





Specs-Based Hardware

- Customers with extensive virtualisation proficiency
- Maximum hardware choices including Cisco, HP, IBM and any servers that are on the VMware Hardware Compatibility list
- Use Tested Reference Configurations (TRC) for guidance
- Cisco is not responsible for UC VM performance
- VMware vCenter is required
- CPU requirements
 - Intel Xeon 5600 or 7500 family with minimum physical core speed of 2.53 GHz

VMware

vCenter Server

- Intel Xeon E7-2800, E7-4800 or E7-8800 family with minimum physical core speed of 2.4 GHz
- Intel Xeon E5-2600 family with minimum physical core speed of 2.5 GHz
- Leverage TRC as a baseline for CPU model
- DAS only, DAS & FC SAN or FC SAN only





TRC or Specs-Based Decision Tree



- Evaluation criteria for platform decision between TRC and Specs-Based varies based on organisation priorities
 - Virtualisation proficiency
 - Performance guarantee
 - Platform and vendor choices
 - Differences in supported applications, noticeably
 - Contact Centre
 - TelePresence (CTMS, CTS Manager)
 - Cisco WebEx Meeting Server
- Solution should be consistent, but can be hybrid

Unified Communications Virtualisation Supported Applications:

http://docwiki.cisco.com/wiki/Virtualization_for_Cisco_Unified_Communications_Manager_(CUCM)

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Virtualisation Support

VMware Sphere Support for CUCM



VMware vCenter Server 5.0

mware[®]

- exceptions)
 VMware vSphere Hypervisor, Essential, Essential Plus, Acceleration Kit, Standard, Enterprise or Enterprise Plus
- ISO for Cisco UCS and third party for appropriate driver support is at:

ESXi 4.0, 4.1, 5.0, 5.1 and 5.5 (with some specific UC application)

- https://my.vmware.com/web/vmware/info/slug/datacenter_cloud_infrastructur e/vmware_vsphere/5_0#drivers_tools
- VMware vCenter (Essential, Foundation or Standard)
 - Recommended for large deployment. centralise management, license management, etc.
 - Mandatory for Specs-Based deployment
- VMware acquisition: Cisco, Partner or VMware
 - <u>https://www.vmware.com/files/pdf/vsphere_pricing.pdf</u>
- VMware Feature Support (vMotion, Snapshot, etc.)
 - Refer to DOCWIKI

Unified Communications VMware Requirements:

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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 on CCO for UC applications deployment
- VMware virtual machine hardware version (VMV)
 - VMV 7 = ESXi 4.0, 4.1 or 5.0 E.g cucm_10.0_vmv7_v1.6.ova
 - VMV 8 = ESXi 5.0 (To upgrade, right click and select upgrade virtual hardware). Cannot be downgraded to 7. E.g cucm_10.0_vmv8_v1.6.ova

OVA Files for UC on UCS Deployments:

http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization_Downloads_(including_OVA/OVF_Templates)

NOT Compatible w/

CUCM 10.0 OVA Migration Requirements

- DO NOT migrate from 2 x 80GB Disks to 1 x 110GB
 - Can use PCD for migration if you must
- CUCM must be Powered OFF
- Guest OS Change to Red Hat Enterprise Linux 6 (64-bit)
- Memory or CPU reservations dependent on User size (600 10k)
 - See cucm_10.0_vmv7_v1.7.ova README
- MUST CHANGE Network Adapter Type
 - Flexible to VMXNET3
 - Modify Options Depends on ESXi License
 - Easy Option via vSphere PowerCLI (http://www.vmware.com/support/developer/PowerCLI/)
 - VMware vSphere Standard Edition, Enterprise Edition, or Enterprise Plus Edition
 - Sample PowerCLI Script in Appendix
 - Manual Option
 - Easy if CUCM VM MAC Address is Manually assigned
 - Complex if CUCM VM MAC Address is Automatically assigned

OVA Files for UC on UCS Deployments:

http://docwiki.cisco.com/wiki/Unified_Communications_Virtualization_Downloads_(including_OVA/OVF_Templates)





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Prime Collaboration Deployment (PCD)

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Prime Collaboration Deployment (PCD)



VM

VM

VM

PCD

UCM 6.1(5) MCS 7825H-2.2 Pub + 2 Subs750 users total

Virtualised UCM 10.0(1)

VMware vSphere 5.1

UCS C220 M3S TRC#2

- PCD is a Virtual only Appliance vApp, OVA provided
- Cluster-wide Scheduling or Orchestrating Features
 - Software upgrades L2 or RU and Fresh Installs, Reboots or Switch Version, IP and/or hostname changes
- SFTP/NFS Storage for ISO, COP & Migration Data
 - Recommend increasing PCD vDisk Size (Default 80GB)
- EMAIL Notification system
 - (when tasks are done, with status, or when there's a problem)
- Direct Migration Support from CUCM versions to CUCM 10.0 +
 - 6.1(5), 7.1(3) / 7.1(5), 8.0(1-3), 8.6(1-2), 9.X

Migration support while

- ... keeping old IP/hostname for all cluster nodes
- ... changing IP/hostname for one or more nodes
- ... using temporary IP/hostname for "testing", the going back to old IP/hostname
 Source of the second sec



Prime Collaboration Deployment (PCD)

| 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 |
|-------------------------------|----------------|-----------------------|------------------|----------------|------------------|-------------|--------------|
| Migration to 10.X | Х | Х | Х | Х | Х | Х | Х |
| Fresh Install | | | | | | | Х |
| Upgrade/COP Install | | | | | Х | Х | Х |
| Switch Version | | | | | Х | Х | Х |
| Reboot | | | | | Х | Х | Х |
| Export Data | Х | Х | Х | Х | Х | Х | Х |
| Hostname/IP Address Change | | | | | | | Х |



CUCM Platform Conversion



2. Automated with Prime Collaboration Deployment



Automated Platform Conversion with PCD



- CUCM Software provided to ESXi Hosts via NFS services running on PCD
- Migration (M1) Steps
 - 1. Add CUCM Clusters to PCD Inventory
 - 2. Add ESXi Hosts to PCD Inventory
 - 3. Add CUCM 10.X ISOs to PCD SFTP Server
 - Deploy Empty CUCM VM on ESXi Hosts via OVA
 - 5. Map Physical Nodes to Virtual VMs and Schedule Migration Tasks



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PCD Migration Feature

Setup Process

- 1. Rack/Stack deploy hardware and install ESXi (Vmware)
- 2. Deploy PCD virtual machine (delivered as virtual appliance)
- 3. Configure PCD:
 - Download necessary OVA and .ISO images for target release
 - Add ESXi hosts to PCD inventory
- 4. "Discover Cluster" PCD connects to source cluster and retrieves cluster information.
- 5. Create target virtual machines using OVA
- 6. "Create Migration Cluster" define the mapping between MCS source nodes and target virtual machines.
- 7. "Create Migration Task" choose the iso to install on the new VMs, and choose time the migration will occur (set time, or manual start).



Initial Infrastructure Setup & Config





Cluster Discovery





Define Mapping





Export Data From Source Cluster





Shutdown Source, Install & Import Data





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PCD Migration Setup

Prerequisites Checklist

Tasks done outside of PCD – prior to configuring migration

Download CUCM 10.0.1 OVA file.

Download CUCM 10.0.1 ISO file.

More Add and setup ESXi host. (Know root credentials)

Deploy CUCM OVA to create VMs for new machines

- One VM is created for each destination cluster node. # of source cluster nodes (physical servers) must be equal to # of destination cluster nodes (VMs).
- Configure network settings of VM accordingly.
- ✤ VMs in power off state.
- Note the ESXi host the VMs are on, we will add that to PCD inventory later.

SFTP ISO file to UCMAP server (in fresh_install directory)

sftp adminsftp@<IP_of_PCD> put iso file in fresh_install directory



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Migration Setup

- Pre Rack/Stack deploy hardware and install ESXi (Vmware)
- Pre Deploy PCD virtual machine (delivered as virtual appliance)
- Pre Download necessary OVA and .ISO images for target release
- Pre Create target virtual machines using OVA (before step 6)

1. Discover Cluster – PCD connects to source cluster and retrieves cluster information.

2.Add ESXi hosts to PCD inventory

3. Create Migration Cluster – define the mapping between MCS source nodes and target virtual machines.

4.Create Migration Task – choose the iso to install on the new VMs, and choose the time the migration will occur (set time, or manual start).


Inventory – Clusters

| Cluster | 's | Joyment | Monitoring Task 1 | Inventory V | Administratio | Selected 0 Total 0 |
|---------|--------------------|----------------------|---------------------|---------------------|---------------|----------------------|
| Delete | 🖳 Discover Cluster | 👷 Add New UC Cluster | | <u>Clusters</u> All | | • |
| Clu | uster Name | 2 | Product and Version | ESXi Hosts | er Type | Discovery Status |
| | | | NO data | a available | | |
| | | | NO data | a available | | |
| | | | NO data | a available | | |

Clusters screen – holds the cluster inventory.

This includes existing clusters (that will be migrated or upgraded), Cluster definitions to be migrated to, or Cluster definitions to be fresh installed. To add an existing cluster to your inventory, click on "Discover Cluster" button.



| niji. Ci | sco Prime | | | |
|-----------|--|---|----------|--|
| | Discover Cluster | x | | |
| sters | * = Required | | id C | |
| Cluster I | Cluster Access | | y s | |
| | Provide a unique cluster nan cluster node below. The node | ne, the network information and the credentials of the publisher or a e will be contacted to identify the other nodes in the cluster. | | |
| | Cluster Name | Boulder Cluster 168 b7k-vma168 | | |
| | OS Admin Username | admin | | |
| | OS Admin Password | | | |
| | | Previous Next Finish Cancel | | |
| | | | Ciscoliv | |

| Cluster Name Boulder Clu | ster 168 s is complete. | | | 0 |
|--------------------------|----------------------------|---------|------------------|---|
| Hostname | ▲ Contact Status | Product | Active Version | |
| b7k-vma166.cisco.com | Successful | CUCM | 9.1.1.21019-1 Un | |
| b7k-vma168.cisco.com | Successful | CUCM | 9.1.1.21019-1 Un | n |
| | | | | |
| C | | |) 4 1 | |



| Role Call Processing Music On Hold Primary Node Primary VoiceMail PSTN Gateway Secondary Call Processing | Hostname b7k-vma166.cisco.com | < Previous Node | Next Node > | |
|--|-------------------------------|-----------------|-------------|-----------|
| Role Call Processing Music On Hold Primary Node Primary VoiceMail PSTN Gateway Secondary Call Processing | Roles | | | |
| Call Processing Music On Hold Primary Node Primary VoiceMail PSTN Gateway Secondary Call Processing | Role | | | |
| Music On Hold Primary Node Primary VoiceMail PSTN Gateway Secondary Call Processing | Call Processing | | | |
| Primary Node Primary VoiceMail PSTN Gateway Secondary Call Processing | Music On Hold | | | |
| Primary VoiceMail PSTN Gateway Secondary Call Processing Notes | Primary Node | | | |
| PSTN Gateway Secondary Call Processing | Primary VoiceMail | | | |
| Secondary Call Processing Notes | PSTN Gateway | | | |
| Notes | Secondary Call Processing | | | |
| | Secondary Call Processing | | | |
| | 0 | | |) 4 1 |
| 4 ►(| | | 6 | OK Cancel |

| ci: | Conception Collaboration Dep | ployment | 🏠 Mon | itoring Task 🛛 🔻 | Inventory V A | dministration 🔻 | | | × × |
|----------|------------------------------|---------------------|---|------------------|-------------------|-------------------|---------|------------------|-------------------|
| Clu | sters | | | | | | | | Selected 0 Tot |
| Dele | te 👷 Discover Cluster | e Add New UC Cluste | er | | | | | Show | All |
| | Cluster Name | | Product and Version | n Ne | odes Cluster Type | Discovery Status | Actions | | |
| V | Boulder Cluster 168 | | CUCM - 9.1.1.2101 | 9-1 Unrestrict | 2 Discovered | Successful | Delete | | |
| | 🥙 Cluster Nodes | | | | | | | | |
| 1 | HostName | ▲ IP Address | Type Applicati | Active Version | Roles | | Notes | Discovery Status | s Actions |
| | b7k-vma166.cisco.com | 10.94.12.166 | CUCM | 9.1.1.21019-1 | Call Processing | | | Successful | Edit Refresh No |
| | b7k-vma168.cisco.com | 10.94.12.168 | CUCM | 9.1.1.21019-1 | | | | Successful | Edit Refresh No |

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Migration Setup

- Pre Rack/Stack deploy hardware and install ESXi (Vmware)
- Pre Deploy PCD virtual machine (delivered as virtual appliance)
- Pre Download necessary OVA and .ISO images for target release
- Pre Create target virtual machines using OVA (before step 6)
- 1.Discover Cluster PCD connects to source cluster and retrieves cluster information.

2.Add ESXi hosts to PCD inventory

3.Create Migration Cluster – define the mapping between MCS source nodes and target virtual machines.

4.Create Migration Task – choose the iso to install on the new VMs, and choose the time the migration will occur (set time, or manual start).

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| ESXi Hosts | | | Selected 0 Total 2 |
|----------------------|--------------|-----------------|----------------------|
| Delete 🔁 Add ESXi Ho | ost | Show All | ۲ T |
| Hostname | ✓ IP Address | Description | Actions |
| b7k-bsa03.cisco.com | 10.94.8.103 | host on new lab | Edit Delete |
| b7k-bsa02.cisco.com | 10.94.8.102 | new host 2 | Edit Delete |
| | | | |
| | | | |







| | Monitoring Task ▼ Ir | Nventory V Administration V |
|-------------|---|---|
| | Show Al | |
| IP Address | Description | Actions |
| 10.94.8.105 | ESXi Host BSA05 | Edit Delete |
| 10.94.8.103 | host on new lab | Edit Delete |
| 10.94.8.102 | new host 2 | Edit Delete |
| | | |
| | | |
| | | |
| | IP Address 10.94.8.105 10.94.8.103 10.94.8.102 | IP Address Description 10.94.8.105 ESXi Host BSA05 10.94.8.103 host on new lab 10.94.8.102 new host 2 |



Migration Setup

- Pre Rack/Stack deploy hardware and install ESXi (Vmware)
- Pre Deploy PCD virtual machine (delivered as virtual appliance)
- Pre Download necessary OVA and .ISO images for target release
- Pre Create target virtual machines using OVA (before step 6)
- 1.Discover Cluster PCD connects to source cluster and retrieves cluster information.
- 2.Add ESXi hosts (for the VMs you will use) to the PCD inventory

3.Create Migration Cluster – define the mapping between MCS source nodes and target virtual machines.

4.Create Migration Task – choose the iso to install on the new VMs, and choose the time the migration will occur (set time, or manual start).



Create Migration Cluster (to Cluster)

- Inventory -> Clusters
- Click "Define Migration Destination Cluster"
- If Simple Migration choose "Use the source node network settings for all destination nodes" option when creating the migration cluster.
- If Migration with Network Migration, choose "Enter new network settings for one of more destination nodes". Then, on subsequent screens, you will be allowed to change hostname, IP, subnet mask, and gateway for the new server.



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 Go to Inventory -> Clusters page. Click "Define Migration Destination Cluster"

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| Configure Destination Cluster | | | | | × Selected 0 Total 1 🏀 |
| X Delete 9 Discover * = Required | | | | | - 8 |
| Cluster Name Boulder cluster Specify Clusters | | | | | |
| This wizard will step you through should have the virtual machines Source UC Cluster: Active Versions: | the process of configuring a Destination and hosts that you intend to use alreat Boulder cluster 168 View N CUCM - 9.1.1.21019-1 Unrestricted | on Cluster to be used dy registered in Inven odes | in a migration task. Befor proty > ESXi Hosts | e you begin, you | |
| Destination Cluster Name: | New VM cluster 168 | | | | |
| Destination Network Settings: | Use the source node network settings for all destination nodes | r | | | |
| | | | Previous | Finish Cancel | |
| Assign Destination Cluster Nodes | | | | V | <u> </u> |
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| Co | Configure Destination Cluster | r | | | | ×× | |
| Clusters | Virtual Machine Unassigned | | | | | Selected | 0 Total 1 🥵 |
| Delete 🖭 Discover | ESXi Host | | | | | | - 8 |
| Cluster Name | | | | | | | |
| Boulder cluster | Notes | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Virtual Machines | | | | Selected 0 Total 47 | | |
| | | | | Show All | - 8 | | |
| | VM Name | ESXi Host | | Power State | | | |
| | O b7k-vma016 | b7k-bsa02.cisco.com | 1 | Suspended | | | |
| | O b7k-vma018 | b7k-bsa02.cisco.com | 1 | Suspended | | | |
| | O b7k-vma019 | b7k-bsa02.cisco.com | 1 | Suspended | | | |
| | O b7k-vma023 | b7k-bsa03.cisco.com | 1 | Suspended | | | |
| | O b7k-vma031 | b7k-bsa03.cisco.com | 1 | Off | | | |
| | O b7k-vma050 | b7k-bsa03.cisco.com | 1 | Suspended | | | |
| | O b7k-vma066 | b7k-bsa03.cisco.com | 1 | Suspended | | - U | |
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| Clusters Clusters Cluster Name Cluster Name Boulder cluster | CS/DEFECT: Destination Cluster Source Node Hostname b7k-vma166.cisco.cc Product CUCM Assign a VM by selecting one frc additional ESXi Hosts in Invento Destination Node Virtual Machine dest2_vma166 ESXi Host b7k-bsa03.cisco Notes Virtual Machines | om m the table below fo ry > ESXI Hosts. | < Pre Roles Call Notes or the destination node. If yo | vious Node Processing | Next Node > g the VM's you want, you n Show Quick Filter | night need to configure Selected 1 Total 2 r OK Can | × | About Logout Hep |



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| Cluster Name | Specify Clusters | | | | | V | | |
| | Assign Destination Cluster Nodes | | | | | | | |
| | - | | | | | 1 | | |
| | Choose the destination nodes to | assiociate with e | ach of the nodes in | the source cluster. | | | | |
| | Source UC Cluster Boulder Destination Cluster New VI | cluster 168 1 cluster 168 | | | | Total 2 | | |
| | 👷 Assign Destination Cluster Nodes | | | | Show All | - 8 | Ŭ. | |
| | Source Hostname | Product | Roles | Dest | ination VM Name | Destination Hostname | | |
| | b7k-vma166.cisco.com | CUCM | Call Processir | ng dest | 2_vma166 | b7k-vma166.cisco.com | | |
| | b7k-vma168.cisco.com | CUCM | | dest | 3_vma168 | b7k-vma168.cisco.com | | |
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| Clusters Clusters Delete Cluster Cluster Name Cluster Name Boulder cluster | Assign Destination Cluster Assign Destination Cluster Nodes Configure NTP/SMTP Settings Configure settings to be applied to Network Time Pr * NTP Server 1 NTP Server 2 NTP Server 3 NTP Server 4 NTP Server 5 SMTP Server 5 SMTP Server (optional) | Monitoring Tack Towenter the migration nodes when the migra otocol (NTP) Configuration [clock2.cisco.com] [| ation task is run. | on T | ✓ | About Logout Heb |



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| 🔺 🕨 🕷 🕂 🕬 http | s://10.94.12.167/ucmap/ | | | | | | C Q- Google | e) |
| ↔ ဣ ⅲ Cisco.com (| CEC Linksys Scientific Atl | anta CEC Indexes▼ Common Too | ls≖ Inte | ernal Support 🔻 | Job Role Dashboards 🔻 | Theatres & Locations * Apple | Google Maps | >> |
| diala Directory: | C3/Defect: | Topic: | | EDCS: | | CEC: | | |
| cisco Prime cisco Collaboration De | ployment | Monitoring Task ▼ Inve | entory 🔻 | Administratio | on I 🔻 | | About Logout | Help |
| Clusters | | | | | | | Selected 0 Total | 2 🥵 |
| 💥 Delete 🛛 👷 Discover Cluster | Add New UC Cluster | | | | | Show All | * | 12 |
| Cluster Name | • | Product and Version | Nodes | Cluster Type | Discovery Status | Actions | | |
| □ ► Boulder cluster 168 | | CUCM - 9.1.1.21019-1 Unrestrict | 2 | Discovered | Successful | Delete | | |
| □ ► New VM cluster 168 | | CUCM - null | 2 | Migration | | Delete | | |
| | | | | | | | | |



Migration Setup

- Pre Rack/Stack deploy hardware and install ESXi (Vmware)
- Pre Deploy PCD virtual machine (delivered as virtual appliance)
- Pre Download necessary OVA and .ISO images for target release
- Pre Create target virtual machines using OVA (before step 6)
- 1.Discover Cluster PCD connects to source cluster and retrieves cluster information.
- 2.Add ESXi hosts to PCD inventory
- 3.Create Migration Cluster define the mapping between MCS source nodes and target virtual machines.

4.Create Migration Task – choose the iso to install on the new VMs, and choose the time the migration will occur (set time, or manual start).



Create Migration Task

| Custers | | Tasks | - | | | | |
|---------------------------------------|--------------------------------------|-----------------|---|--------------|------------------|---------|--------|
| X Delete 😤 Discover Cluster 😤 Add New | UC Cluster | Upgrade | F | | | | Show A |
| Cluster Name | Product and Vers | Switch Versions | | Cluster Type | Discovery Status | Actions | |
| Boulder cluster 168 | CUCM - 9.1.1.21 | Readdress | | Discovered | Successful | Delete | |
| New VM cluster 168 | CUCM - null | Install | | Migration | | Delete | |
| | | | | | | | |



Create Migration Task

| 00 | | Cisco Prim | e Collaboration Deplo | oyment | | |
|---|---|--|-------------------------------------|------------------------------|-------------------------------|---------------------|
| ◄ ► ※ + ### https://10.94.1 | 2.167/ucmap/ | | | | | ¢ Q. |
| 6-3 🌐 🇰 Cisco.com CEC Links | ys Scientific Atlanta CEC In | dexes • Common Too | ls 🔹 Internal Support | Job Role Dashboards 🔻 | Theatres & Locations * | Apple Google Maps V |
| diada Directory: C | 3/Defect: | Topic: | EDCS | i: 🗲 | CEC: | |
| cisco Prime Cisco Collaboration Deployment | n Monitor | ring Task 🔻 Inv | entory 🔽 Administra | ition • | | About Le |
| igrate | | | | | | Selected |
| Delete Add Migra Add Migration | Task | | | | | × |
| Status * = Required * Choose Sou This task from the * Source UC 0 * Destination | will allow you to simultaneously source nodes and then imported Cluster Boulder cluster 168 Cluster New VM cluster 168 | s y upgrade and migrate a d to the new, upgraded s | UC cluster to new virtua ervers. | I machines. The configuratio | on data will be exported | |
| 😁 Node Ma | apping from Source to Destina | tion Clusters | | | Selected 2 Total 2 | E . |
| Sou | irce Hostname | Product Rol | 25 | Destination VM Na | me Destina | tio |
| ✓ ► b7k | -vma166.cisco.com | CUCM Cal | Processing | dest2_vma166 | b7k-vm | al |
| ✓ ► b7k | -vma168.cisco.com | CUCM | | dest3_vma168 | b7k-vm | al |
| | | | | | | × |

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Create Migration Task – Choose iso file



94

. . . .

Create Migration Task – Choose Start Time

| 9 Add Mig | Add Migration Task |
|-----------|---|
| | |
| | * = Required |
| | |
| | * Choose Source and Destination Clusters |
| | * Choose Migration Files |
| | Set Start Time |
| | Select a start time for the task. Note: the time specified below is based on the Cisco Prime Collaboration Deployment server time and not the timezone of the selected cluster. • Schedule for a specific time 5/24/2013 6:37 • Start Task Immediately • Start Task Manually Previous Next Finish Cancel |
| | |
| | * Specify Migration Procedure |



Create Migration Task – Sequence

| 9 Add Migra | Add N | ligratio | on Task | | | |
|-------------|-------|-----------------------|--|---|---------|---|
| | | | | | | |
| | * = R | lequired | | | | |
| | * 0 | haase Si | nurce and Destination Clusters | | | А |
| | * 0 | hoose M | | | | J |
| | * 0 | ot Start | | | | 2 |
| | - | ce bruit | in the | | | ~ |
| | | | di Norma di | | | |
| | • s | pecify I | ligration Procedure | | | |
| | • • s | pecify I | ligration Procedure | | | |
| | > * S | pecify I Step | ligration Procedure Description | Upon Completion | Actions | |
| | > * S | pecify I Step 1 | Description Export configuration data from cluster nodes b7k-vma168.cisco.com, b7k-vma166.cisco.com | Upon Completion Continue | Actions | |
| | > * S | Step 1 2 | Description Export configuration data from cluster nodes b7k-vma168.clsco.com Shut down source CM publisher and install destination cluster publisher b7k-vma168.clsco.com | Upon Completion Continue Continue | Actions | |
| | * S | Step 1 2 3 | Description Export configuration data from cluster nodes b7k-vma168.cisco.com, b7k-vma166.cisco.com Shut down source CM publisher and install destination cluster publisher b7k-vma168.cisco.com Shut down source cM publisher and install destination cluster publisher b7k-vma168.cisco.com Shut down source nodes and install associated destination nodes b7k-vma166.cisco.com | Upon Completion Continue Continue Continue | Actions | |



Create Migration Task – Edit Sequence

| a | Add M | Migrati | on Task | | | | | |
|---|--------------|----------|--------------------------|--|--|----------------------|--------------------------------------|---|
| | * = P • C | Required | ource and Dest | Edit Step : 2 - Shut Down and Install The task will be stopped if an error occurs do optionally be paused, else the next step will | (CM Publishe uring processing begin. | e r) of th | is step. If successful, the task can | × |
| | • 0 | hoose M | igration Files | Available Nodes | | | Nodes In Step | 4 |
| | * S | et Start | Time | No data available | | | b7k-vma168.cisco.com | 4 |
| | * 4 S | ipecify | Migration Pro | | N V | | | |
| l | | Step | Description | | | | | |
| | * | 1 | Export conf b7k-vma16 | | | - | | |
| | | 2 | Shut down | - | | | | |
| l | + | 3 | Shut down b7k-vma16 | Pause task after step completes | | | | |
| | | | | | | | OK Cancel | |
| l | | | | | | | | |



Create Migration Task – Sequence

| Req | quired | | | | |
|--------------------|---------------------------|--|--|---------|----------|
| Cho | oose So | ource and Destination Clusters | | | V |
| Cho | oose Mi | gration Files | | | v |
| Set | t Start T | Time | | | V |
| Spe | ecify M | ligration Procedure | | | |
| Spe | ecify M | ligration Procedure | | | |
| Spe | ecify M Step | Description | Upon Completion | Actions | |
| Spe s | ecify M Step | Description Export configuration data from cluster nodes b7k-vma168.cisco.com | Upon Completion Continue | Actions | |
| Spe S J | ecify M Step 1 2 | Description Export configuration data from cluster nodes b7k-vma168.cisco.com Shut down source CM publisher and install destination cluster publisher b7k-vma168.cisco.com | Upon Completion Continue Pause | Actions | |
| Spc 2 2 3 | step 1 2 3 | Description Export configuration data from cluster nodes b7k-vma168.cisco.com Shut down source CM publisher and install destination cluster publisher b7k-vma168.cisco.com Shut down source nodes and install associated destination nodes b7k-vma168.cisco.com | Upon Completion Continue Pause Continue | Actions | |



Create Migration Task – Review

| Review | | | |
|---------------------------|---|----|--|
| | | | |
| Review the settings sur | marized below, and click Finish to create the migration task. | | |
| Task Type | Migration | | |
| Source Cluster | Boulder cluster 168 | | |
| Destination Cluster | New VM cluster 168 | | |
| Unified CM Migration File | UCSInstall_UCOS_UNRST_10.0.0.98000-31.iso | | |
| | b7k-vma166.cisco.com => b7k-vma166.cisco.com | | |
| Cluster Nodes | D/K-vina108.cisco.com => D/K-vina108.cisco.com | | |
| | | | |
| Start Time | Immediately | 16 | |
| | | | |
| Notes | | | |



Migration Setup

- Pre Rack/Stack deploy hardware and install ESXi (Vmware)
- Pre Deploy PCD virtual machine (delivered as virtual appliance)
- Pre Download necessary OVA and .ISO images for target release
- Pre Create target virtual machines using OVA (before step 6)
- 1.Discover Cluster PCD connects to source cluster and retrieves cluster information.
- 2.Add ESXi hosts to PCD inventory
- 3.Create Migration Cluster define the mapping between MCS source nodes and target virtual machines.
- 4.Create Migration Task choose the iso to install on the new VMs, and choose the time the migration will occur (set time, or manual start).



Create Migration Task – Task list

| Migrate | | | | | | |
|---------|----------------------|----------------------|-----|---------------------|-------|------------------------|
| Delete | 2 Add Migration Task | | | | | |
| Status | | Start Time | - | Cluster | Notes | Actions |
| Started | | May 24, 2013 06:39 M | IDT | Boulder cluster 168 | | Cancel View Details. |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



Dashboard Screen

| 000 | Cisco Prime Collaboration Deployment | | | |
|---|---|---|--|--------------------|
| + 1000 https://10.94.12.167/ucmap/ | | | | 🖒 🔍 Google |
| & 🌐 🗰 Cisco.com CEC Linksys Scientific Atlanta CEC In | dexes 🔻 Common Tools 🔻 Internal Support 🔻 Job Role Dashboards 🔻 🤉 | Theatres & Locations * | Apple Google Maps | Wikipedia YouTube |
| dialo Directory: C3/Defect: | Topic: EDCS: | CEC: | | |
| cisco Prime Cisco Collaboration Deployment | Monitoring Task ▼ Inventory ▼ Administration ▼ | | | About Logout |
| Task Queue Total 1 🍪 | | | | |
| Show All | Migrate Boulder cluster 168 | | Cancel | |
| Migrate Boulder cluster 168 | Status Started View Log Start Time May 24, 2013 06:39 MDT | Source Cluster Destination Cluster Unified CM Migration File | Boulder cluster 168 New VM cluster 168 UCSInstall_UCOS_U 31.iso | NRST_10.0.0.98000- |
| | Step Description | | | Upon Status |
| | | | | |



Dashboard Screen – View Task Log

| C3/Defect: | Topic: | EDCS: | CEC: |
|------------|---------------|---|------------------------|
| Deployment | View Task Log | | × |
| | | Show All | - 8 |
| Show All | INFO | Export job for node b7k-vma166.cisco.com compl | eted successfully. |
| | INFO | Export task action ID #593 completed successfully | L |
| or 169 | INFO | User-facing Features (UFF) Export task action ID # | 594 with 1 node(s) sc |
| 3 100 | INFO | User-facing Features (UFF) Export task action ID # | 594 with 1 node(s) sta |
| | INFO | User-facing Features (UFF) Export job for node b7 | k-vma168.cisco.com st |
| | INFO | User-facing Features (UFF) Export job for node b7 | k-vma168.cisco.com c |
| | INFO | User-facing Features (UFF) Export task action ID # | 594 completed success |
| | INFO | Shutdown task action ID #595 with 1 node(s) sch | eduled. |
| | INFO | Shutdown task action ID #595 with 1 node(s) star | ted. |
| | INFO | Shutdown job for node b7k-vma168.cisco.com sta | inted. |
| | INFO | Shutdown job for node b7k-vma168.cisco.com co | mpleted successfully. |
| | INFO | Shutdown task action ID #595 completed success | fully. |
| | INFO | Install task action ID #596 with 1 node(s) schedul | ed. |
| | INFO | Install task action ID #596 with 1 node(s) started. | U |
| | INFO | Install job for node b7k-vma168.cisco.com started | |
| | (| | 4 + |

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Cisco Public

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System Level Upgrade

Upgrade Readiness Assessment Web Tool

| Input Mode | CUCM | Gateway | Unity/Unity Connection |
|------------|--------------------------------|-----------------|---------------------------|
| Automated | CURT Reports | NA | NA |
| Manual | Version and server model | Router model | Version and server model |
| | | | |

Upgrade Readiness Assessment Web Tool

- Hardware for potential server replacement
- Baseline for upgrade path with detailed steps
- Does not check with compatibility matrix
- Send results for proactive TAC case
- CUCM Upgrade Central iPad application

| Output | CUCM | Gateway | Unity/Unity Connection |
|-------------------------------------|---|--|---|
| Readiness Summary | Software and hardware compatibility | Software and hardware compatibility | Software and hardware compatibility |
| Customised Upgrade Procedures | Upgrade guide | NA | Upgrade guide |



UC Application Upgrade / Migration Definition

Upgrade Time Increases with Various Dependencies

UC Applications

Migration Strategy



Replacing a Cisco Unified Communications Manager Software Compatibility Matrix: http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/ccmcompmatr.html



Developing Upgrade Path

Existing CUCM version



Target CUCM version

- Interim versions for multi-hop upgrades
 - Supported upgrade paths in compatibility matrix
 - Customise Upgrade Procedures from Upgrade Readiness Assessment Web Tool
 - UC applications dependencies
- Selecting an upgrade method
 - Jump upgrade
 - Manual method with L2 and RU
 - Migration



Overall Upgrade Strategy to Minimising Down Time



Cisco IP Phone Firmware by CUCM Releases: http://www.cisco.com/en/US/docs/voice ip comm/cucm/compat/ccmcompmatr.html

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- Peer-to-Peer Image Distribution (PPID):
 - Configurable via AXL script with Unified 4.1 and later using CCMPPID.exe. (Readme in notes section)
 - Configurable via CM Administration or BAT from version 5.0 and later
 - Default is PPID disabled on all phones models
- Change TFTP service parameter on dedicated TFTP servers:
 - System > Service Parameter > Cisco TFTP (Advanced)
 - Maximum Serving Count: *
 - Default Maximum Serving Count is 500
 - Can be increased up to 5000 on Dedicated TFTP servers



Peer-to-Peer Image Distribution (PPID):

http://www.cisco.com/en/US/docs/voice_ip_comm/cucmbe/admin/8_5_1/ccmsys/a08ipph.html#wp1141991

Phase II: Phone Upgrade Caveat

- If possible, choose final CUCM version default or recommended firmware. Avoid multiple upgrade and downgrades
- Some third-generation IP phones (7971G-GE, 7970G, 7961G-GE, 7961G, 7941G-GE, 7941G, 7911G, and 7906G):
 - Firmware release 6.0(1) or earlier needs to upgrade to 7.0(3)
 - CUCM 4.1(2) or earlier
- All third-generation IP phones:
 - Firmware release 8.3(2)SR1 or earlier must upgrade to 8.5(2) before upgrading to 8.5(2)SR1 or later
 - Factory phones or phones taken off another CUCM cluster



Firmware Release Notes 8.5(2)SR1:

http://www.cisco.com/en/US/docs/voice_ip_comm/cuipph/firmware/8_5_2/english/release/notes/7900_852SR1.html

Phase II: CUCM Upgrade

- Clear out logs in /common partition for upgrade
- Minimise or if possible disable extension mobility
- Minimise CAR Database to reduce upgrade time
- Starts secondary nodes or Subscribers when Publisher logs indicate that upgrade can start on secondary nodes or Subscribers
- Upgrade secondary nodes or Subscribers at the same time (15 minutes delay in between nodes)
- For large high availability upgrade, increase "maximum number of registered devices to 7500 or 10000"
- Check for DB replication via "utils dbreplication runtimestate" before and after upgrade



Phase III: CUCM Upgrade Consideration





- Clustering over the WAN (COW) can increase time for installation, upgrade and database (DB) replication by 40%–50%
 - With CUCM 9.1+ Use
 - "utils dbreplication setprocess 40"
- Firewall between Unified CM servers
- After upgrade, check for the following using CLI, RTMT and Unified Reporting
 - DB replication state

CUCM SRND: www.cisco.com/go/ucsrnd



Attendant Console Considerations for CUCM 9.1 / 10.0



- No embedded Cisco Attendant Console (CAC) with CUCM 8.0 or later
- Migrate to one of the two attendant console solutions prior to CUCM migration



End-of-Sale and End-of-Life Announcement for the Cisco Unified Attendant Console:: http://www.cisco.com/en/US/prod/collateral/voicesw/ps6789/ps7046/ps7282/end_of_life_notice_c51-499091.html

Jump Upgrade Process



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In-Place L2 or RU Upgrade Process



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Migration Option with L2, RU or Jump Upgrade



Automated Migration with PCD



- CUCM Software provided to ESXi Hosts via NFS services running on PCD
- Migration (M1) Steps
 - 1. Add CUCM Clusters to PCD Inventory
 - 2. Add ESXi Hosts to PCD Inventory
 - 3. Add CUCM 10.X ISOs to PCD SFTP Server
 - Deploy Empty CUCM VM on ESXi Hosts via OVA
 - 5. Map Physical Nodes to Virtual VMs and Schedule Migration Tasks



Migration Recommendations for CUCM Upgrade

- 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 minimise downtime
- Open a Global Licensing Operations (GLO) case with specific tags for fast results
 - <u>https://communities.cisco.com/community/partner/collaboration/migration/blog/2013/0</u>
 <u>5/30/how-to-get-the-efficient-support-for-drive-to-9</u>
- Open a proactive TAC case for the upgrade
 - http://cisco.com/tac/caseopen
- Check Unified Communications Virtualisation docwiki often due to frequent changes

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Drive to Collab

"Drive to 9" is now "Drive to Collab"...

✓ Rebranded Expanded **Drive to Collab Displace**ment Migration **Adoption** Competitive Displacement in Accelerate Consumption of **On-Prem Upgrades & Cloud** Migrations to CUCM 9.1 or 10.0 **Focused Markets Collaboration Solution**



Drive to Collab: Migration Program Includes CUCM 9.1 & 10.0

Simplified Upgrade Process

- Readiness Assessment Tools
- License Migration Process
- Jump Upgrade, PCD & Collateral

Comprehensive Support

- Drive to Collab TAC (24x7)
- Global Licensing Operations (24x7)
- PDI Help Desk

Drive to Collab Migration

Compelling Offers

- Licensing & Services
- Servers, Endpoints & Application
- Video Velocity Bundles

Focused Enablement

- Training & workshops
- e-Learning modules

VODs



Drive to Collab - Resources

Landing Page for All Drive to Collab Resources:

Customer Landing Page: <u>http://www.cisco.com/go/cucmupgrade</u> Partner Landing Page: <u>http://cisco.com/go/driveto9</u>

Support Alias for Drive to Collab Questions

Drive to Collab Program Team: <u>ask-drive-to-9@cisco.com</u> Licensing Support: <u>licensing@cisco.com</u> & <u>vtglicensingops@external.cisco.com</u> Collaboration Breakaway Plus Team: <u>cbplus@cisco.com</u> Software Services (UCSS) Support Team: <u>ucss-support@external.cisco.com</u>



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Appendix

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Foundational Knowledge of CUCM 8.X and Earlier License

CUCM 5.0 to 7.1(3) License Types

| TECHNICAL | ORDERING | Description |
|------------|----------|---|
| Node | Node | Number nodes per cluster |
| DLU | DLU | Number of phones, type of phones, mobility feature and presence users |
| SW Feature | ESW/UCSS | Maintenance for minor and major version upgrade |

- Three license types: Node, Device License Unit (DLU) and Software Feature license
- Node license is enforced based on the number of node running CM service. TFTP and MOH also requires node licenses
- DLU is enforced based on provisioned phones, type of phones, mobility and presence features
- Major version upgrade requires Software Feature license
- License files are locked to MAC address of the first node or Publisher of the cluster
- License enforcement is done on CUCM

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CUCM 7.1(5) to 8.6 License Types

| TECHNICAL | ORDERING | Description |
|------------|----------|---|
| Node | UCL/CUWL | Number nodes per cluster |
| DLU | UCL/CUWL | Number of phones, type of phones, mobility feature and presence users |
| SW Feature | ESW/UCSS | Maintenance for minor and major version upgrade |

- Technical license enforcement is the same as before: Node, DLU and Software Feature license. Device based
- Ordering is based on User based
- For bare metal servers (MCS), licenses are locked to MAC address of the first node or Publisher of the cluster
- In virtualised environment, licenses are locked to the license MAC address of the first node or Publisher of the cluster
- License enforcement is done on CUCM





License MAC with CUCM 8.X in Virtualised Environment

- License MAC is 12 digits HEX values based on the hash of these 10 Unified CM settings
- 1. Certificate Information (Organisation, Unit, Location, State, Country)
- 2. Hostname
- 3. IP Address or dhcp

- 4. IP Mask or dhcp
- 5. Gateway Address or dhcp
- 6. NIC speed auto
- 7. NTP server 1

- 8. Primary DNS
- 9. SMTP server or none
- 10. Time zone
- Changes in any of the 10 values will start the 30 days grace period on the existing valid license file which require rehosting to the new license MAC. Login will alert the amount of days left before expiring
- To reset the 30 days timer, change back to original settings and then back to the desired settings
- If grace period is expired, then CM service still stop and license file is invalidated for good
- Use Cisco Unified Communications Answer File Generator proactively
- Cisco Unified OS Administration: Show > Status or Show > Network
- CLI: show status



License Type and DLU (CUCM 8.6 and earlier)

| LICENSE TYPE | DLU | Comments |
|--------------------------------|-------|---|
| CUWL Pro | 17/12 | Prior to January 2668/After January 2668 |
| CUWL Standard | 11/8 | Prior to January 2668/After January 2668 |
| CUWL Entry | 9 | Migrate to UCL Enhance Plus in CUCM 9.X and later |
| CUWL Analog | 2 | Migrate to UCL Essential in CUCM 9.X and later |
| CUWL Public Space | 5 | Migrate to UCL Enhance in CUCM 9.X and later |
| UCL Enhance | 6 | |
| UCL Basic | 4 | |
| UCL Essential | 0 | |
| UCL Public Space | 5 | Migrate to UCL Enhance in CUCM 9.X and later |
| UCL Adjunct | 5 | Migrate to UCL Enhance in CUCM 9.X and later |
| UCL TP Single/Multi- screen | 6 | Migrate to TP Room in CUCM 9.X and later |



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 |
| | | | Cisc |

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 | |



Phones and Owner User ID Association

Device > Phone > Device Name

| Device Information | | |
|-------------------------------|--|----|
| Device is Active | | |
| Device is trusted | | |
| MAC Address* | D0C7891411E6 | |
| Description | makman-DX650 | |
| Device Pool* | RTP BC Unicast Telepresence | \$ |
| Common Device Configuration | VNT Standard User | \$ |
| Phone Button Template* | SEPD0C7891411E6-SIP-Individual Template | \$ |
| Common Phone Profile* | Standard Common Phone Profile | \$ |
| Calling Search Space | RTP Unrestricted | \$ |
| 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 | \$ |
| Wireless LAN Profile Group | < None > | \$ |
| Owner | Our Oser Oser Oser Oser Oser Oser Oser Ose | |
| Owner User ID* | makman | \$ |
| | | |

makman

Mobility User ID

- Phones 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

| Number of Phones | Type of License |
|------------------|-----------------------------|
| 1 | Based on the model of phone |
| 2 | Enhanced UCL Plus |
| 3-10 | CUWL Standard |

Recommend to perform before upgrading to CUCM 9.X



License Conversion



License Count Tool (UCT):

http://software.cisco.com/download/release.html?mdfid=283782839&softwareid=282204704&release=UCT&relind=AVAILABLE&rellifecycle=&reltype=latest

W1 Upgrade: Windows to Appliance Model



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License Acquisition with CUCM 5.X to 8.X



- Product Upgrade Tool site = <u>http://tools.cisco.com/gct/Upgrade/jsp/index.jsp</u>
- Product License Registration site = <u>https://tools.cisco.com/SWIFT/LicensingUI/Home</u>
- 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 perform on CUCM © 2014 Cisco and/or its affiliates. All rights reserved.

NEV

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





Cisco Unified Enterprise License Manager



- ELM can be 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

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Ciscolive;

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



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Using User Count Tool as Planning Tool to Migrate

| 1 | Add Cisco Unified CM Server | y. This utility will connect to the Cisco Unified | d CM servers you define below and generat | e a report of license usage that can be viewed | d, printed or saved. Begin by adding servers- |
|---|-----------------------------|---|---|--|---|
| | Add Edit Delete | Generate Report | 1 | | |
| | Hostname/IP address | Description | Version (Last Known) | Last Connection Status | Include in Report |
| | 10.83.113.231 | Cluster 1 | 8.6.2 | Successful | |
| | 10.83.113.232 | Cliuster 2 | 9.0.0 | Successful | |
| | 10.83.113.233 | Cluster 3 | 7.1.5 | Successful | |
| | 10.83.113.234 | Cluster 4 | 6.1.5 | Successful | |
| | | | | | |

- 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

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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 | 2 |
| 10.83.113.232 | Cliuster 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 | 7– |
| | | | | | | | | | | | - |
| 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 produ that can consume a CLWL 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 urrent 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 (LCQ) or Cisco Unified Workspace Licenses (CUWL).

| Recommendation Mode | CUWL Licenses | blic Space Phones: | 0 🐳 | | | |
|---|--------------------------|------------------------------|----------------------------------|----------------------|---------------------|--------------------|
| License Type | Current License Usage | Recommended License Count | Adjust Recommended Count(+/-) | lew 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 D | LU USAGE CHANGE: | 0 |
| Run Compliance Check Reset Values Unused DLU's Remaining: 482 | | | | | | |

- 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
- 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)
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Use ELM Upgrade Wizard for License Upgrade

| | Cisco Unified Communications Enterprise License Manager |
|------------|--|
| | User Name Password Login |
| ili Cis | Cisco Unified Com Enterprise License M |

Monitoring

hoose Product Type

Dashboard

License Usage

License Management

Licenses Add or Upgrade Licenses

- 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

| The follo | ving screens will assist you in upgrading your pre-9.0 licenses to a 9.0 or later version. Begin by selecting the product type to upgrade. |
|-----------|--|
| Product | vpe: |
| | Unified CM |
| Upgrad | ig unused pre-9.0 licenses (DLU's) on a 9.0 or later system |
| | → 📄 → 🛤 |
| Plan | Order Instal |
| 1. 1 | an Use the Enterprise License Manager to calculate how many DLU's you have available to upgrade and to generate a License Migration I |
| 2. (| rder Go to the License Migration Portal and paste in the License Migration Request in order to receive your license file via e-mail. |
| 3. 1 | Istall Use the Install Licenses button on the License page of Enterprise License Manager to install the license file. |

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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

| | 2013-Mar-11 14:10:30 | Refresh R | eport | | | | | | s | ave as | Print. |
|---|---|----------------------|--|--|--|--|--|------------------|---|---|---|
| License Requireme The table below contair | ents Based on Usage D ins the minimum number of 9.4 | ata D licenses re | quired to cover a | II users and phones curr | ently configured on th | e Unified ⊂M serv | ers included | in this report | t. | | |
| Hostname/ IPAddress | Description Essentia | I | Basic | Enhanced | Enhanced Plus | CUWL Standard | CUWL Professi | onal | Telepresence Room | Unused | |
| 10.94.171.171 | | 50 | | 70 450 | 0 | | 0 | 0 | | 50 | 7410 |
| | | | | | | | | | | _ | |
| | | | | | | | | | | | |
| TOTAL | | 50 | | 70 450 | 0 | | 0 | 0 | 5 | 50 | 7410 |
| should only include cur Jhould only include cur Jhified Workspace Lice Recommendation Mode License Type | se. If you will be using works! rent license requirements plu snses (CUWL). e UCL Licenses - Current License Usage | Recomme License C | nded | e order, it is important t ipate needing. Use the Adjust Recommended Count(+/-) | o note that software s drop down menu to se New License Count | DLUs Per License | subscription splay the rec | DLU Change(+, | /-) | Jnified CM, and i lice User Connect Lic | not oth inses si censes |
| Should only include curr Unified Workspace Lice Recommendation Mode | se. If you will be using works! rent license requirements plu anses (CUWL), e UCL Licenses + Current License Usage | Recomme License C | nded ount | e order, it is important t ipate needing. Use the adjust Recommended Count(+/-) | o note that software s drop down menu to se New License Count | DLUs Per License | subscription splay the rec | DLU Change(+, | /-) | Jnified CM, and i ne number of lice User Connect Lic | not oth Inses si censes |
| Cluve Standard | se. If you will be using works! rent license requirements plu meses (CUWL). UCL Licenses + USage 0 0 | Recomme License C | nded out o | e order, it is important t ipate needing. Use the Adjust Recommended Count(+/-) | o note that software s drop down menu to se New License Count | DLUs Per License | subscription splay the rec | DLU Change(+, | /-) 0 | Jnified CM, and I ie number of lice User Connect Lic | not oth enses si tenses |
| should only include cur Unified Workspace Lice Recommendation Mode License Type CUWL Professional CUWL Standard Enhanced Plus | se. If you will be using works! rent license requirements plu mess (CUWL). UCL Licenses USage 0 0 0 0 0 | Recomme License C | nded ount 0 | e order, it is important t ipate needing. Use the Adjust Recommended Count(+/-) 0 | o note that software s drop down menu to se New License Count | DLUs Per License 0 | subscription splay the rec 12 11 | DLU Change(+, | /-) 0 0 0 | Jnified CM, and I In number of lice User Connect Lic | not oth anses si censes |
| should only include cur Unified Workspace Lice Recommendation Mode License Type CUWL Professional CUWL Standard Enhanced Plus Erhanced | se. If you will be using works! mress (CUWL). a UCL Licenses - Usage 0 0 0 450 | Recomme License C | nded ount 0 450 | e order, it is important t ipate needing. Use the Count(+/-) 0 0 0 0 1,100 | o note that software is drop down menu to se New License Count | DLUs Per License 0 550 | 12 12 12 12 12 11 | DLU Change(+, | /-) | Jmified CM, and I e number of lice User Connect Lik | not oth anses si censes |
| should only include cur Unified Workspace Lice Recommendation Mode License Type CUWL Professional CUWL Standard Enhanced Plus Enhanced Basic | se. If you will be using works! rent license requirements plu nees (CUWL). e UCLLICENSE - Current License Usage 0 0 0 0 0 0 0 0 0 0 0 0 0 | Recomme License C | nded ount o lace licenses you anticonses you anticonses of the second of | te order, it is important t ipate needing. Use the Count(+/-) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | io note that software is drop down menu to se New License Count | DLUS Per License 0 0 550 245 | subscription splay the rec 12 11 9 6 | DLU Change(+, | /-) | Jmified CM, and i e number of lice User Connect Lk | not oth |
| should only include cur Unified Workspace Lice Recommendation Mode License Type CLWL Professional CLWL Standard Enhanced Plus Enhanced Basic Essential | se. If you will be using works? Interest license lequirements plut interest (CUMU). UCL Licenses • Usage 0 0 0 0 0 0 0 0 0 0 0 0 0 | Recomme License C | nded ount of the license you antional of the license of the licens | djust Recommended out(+/-) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | o note that software a drop down menu to se New License Count | DLUs Per License 0 0 550 | subscription splay the rec 12 11 9 6 4 0 | DLU Change(+, | /-) 0 6600 700 0 | Jmified CM, and i e number of lice User Connect Lk | not oth snses s censes |
| should only include cur Unified Workspace Lice Recommendation Mode License Type CUWL Professional CUWL Professional CUWL Standard Enhanced Plus Enhanced Plus Essential Telepresence Room | se. If you will be using works! mress (CLWL). UCL Licenses • UCL License 0 Current License 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Recomme License C | nded ount o 450 70 50 50 | Adjust Recommended Count(+/-) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | o note that software s drop down menu to se New License Count | DLUS Per License 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 12 subscription splay the red 11 9 6 4 0 11 | DLU Change(+, | /-) 0 66000 700 700 100 100 100 100 100 | Jmified CM, and i e number of lice | not oth enses si censes |
| should only include cur Unified Workspace Lice Recommendation Mode License Type CUWL Professional CUWL Professional CUWL Standard Enhanced Plus Enhanced Plus Essential Telepresence Room Run Compliance Chr | se. If you will be using works! Inness (CUM). UCL Licenses Current License Usage 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Recomme License C | nded double licenses you anti- licenses you anti- ount double dou | te order, it is important t ipate needing. Use the Count(+/-) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | New License Count 11 TOTAL DL | DLUS Per License 0 0 0 245 50 60 0 UUSAGE CHA | 2 ubscription splay the red 12 11 9 6 4 0 11 NGE: Unused I | DLU'S Re | /-) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Juriffed (CM, and J e number of lice Jaer Connect Lic | not oth enses s _j censes |

1. Data for Manual License Migration (recommended)

- 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 pertinence license information:
 - 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



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



2. Automated License Migration with ELM



- Log into Product Upgrade Tool site = <u>http://tools.cisco.com/gct/Upgrade/jsp/index.jsp</u> 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 = <u>https://tools.cisco.com/SWIFT/LicensingUI/Home</u>
 - Go to Migration License section and select Register for Upgrade/Migrate License
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 Cisco Public



CUCM 10.0 Licensing Summary

| Personal Multiparty | | | | | | |
|--|-------------------------|----------------------------------|-------------------|------------------------------------|--------------|------------------|
| Allows for up to 4 parties in a video conference; included in CUWL Pro | Personal Multiparty | ✓ | + | + | + | + |
| WebEx Conferencing | WebEx Conferencing | ~ | + | + | + | + |
| One Named User license for both WebEx Meeting Centre (1 year) AND WebEx Meetings Server; included in CUWL Pro | Unity Connection | ~ | ~ | + | + | + |
| Expresswav Remote Worker/ | Expressway | \checkmark | \checkmark | ~ | N/A | N/A |
| Firewall traversal for voice and video; included in UCL Enhanced & above | Jabber UC | CPE & 🗸 Hosted | CPE & 🗸 Hosted | ~ | N/A | N/A |
| Firewall traversal for IM&P included with all UCM licenses | Jabber IM/P | ~ | ~ | ~ | \checkmark | ✓ |
| Prime Collaboration | Prime Collaboration | ~ | ~ | ~ | ~ | ✓ |
| CISCO Prime Collaboration Standard; included with CUCM | # of Devices Supported | Multiple | Multiple | One / Two | One | One |
| ✓ = included w/ license + = optional add-on N/A = not available w/ license | | CUWL Professional | CUWL Standard | UCL Enhanced Plus / Enhanced | UCL Basic | UCL Essential |
| BRKUCC-2668 | © 2014 Cisco and/or its | affiliates. All rights reserved. | | Cisco Public | | 15 |

CUCM 10.0 Licensing Summary Cont.

UCL Enhanced / Enhanced Plus **TelePresence CUWL Standard** Room **CUWL Professional** 69xx 89xx UCL Basic Jabber Desktop TX / CTS / T Series 78xx **UCL Essential** 99xx 6911 79xx MX / Profile Series DX650 Fax Analog Jabber Mobile 6921 792x System Codecs and Quickset Platforms Third Party 7821 3905 6901 EX60 / EX90 SIP 7937 / 8831 Cisc

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Overview of CUCM 9.1 Installation







Platform Migration to Virtualised CUCM 9.1(2)

| Platform Number | Supported Normal Mode | Supported Bridge | Not Supported | Upgrade Strategy | | | |
|---|--------------------------|---------------------|------------------|---|--|--|--|
| 1 | 6.1-7.1 | 8.0 | 8.5-9.1 | Jump upgrade | | | |
| 2 | 6.1-7.1 | 8.0-8.5 | 8.6-9.1 | Jump upgrade | | | |
| 3 | 6.1-8.0 | NA | 8.5-9.1 | Jump upgrade or upgrade to 8.0 to change platform | | | |
| 4 | 6.1-8.0 | 8.5 | 8.6-9.1 | Jump upgrade or upgrade to 8.0 to change platform | | | |
| 5 | 6.1-8.0 | 8.5-9.1 | NA | Jump upgrade or upgrade to 8.0 to change platform | | | |
| 6 | 6.1-8.5 | 8.5-9.1 | NA | Jump upgrade or upgrade to 8.0 to change platform | | | |
| 7 | 7.1-9.1 | NA | NA | Jump upgrade or upgrade to 9.1 to change platform | | | |
| Supported Cisco Unified Communications Manager Releases by Server: http://www.cisco.com/en/US/partner/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html | | | | | | | |

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

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 virtualised 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 <u>http://www.7-zip.org/download.html</u> to unzip the tar file
 - Remove serial port after a successful installation of Unified CM 8.X



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Virtualisation CUCM Implications

- Serial support for SMDI
- USB for UPS
- Alternative to USB live audio source as music on hold (MOH):
 - Enable multicast on network
 - Leverage Land Mobile Radio (LMR) to the multicast audio source
 - Enable multicast MOH on CUCM



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\$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()}



#