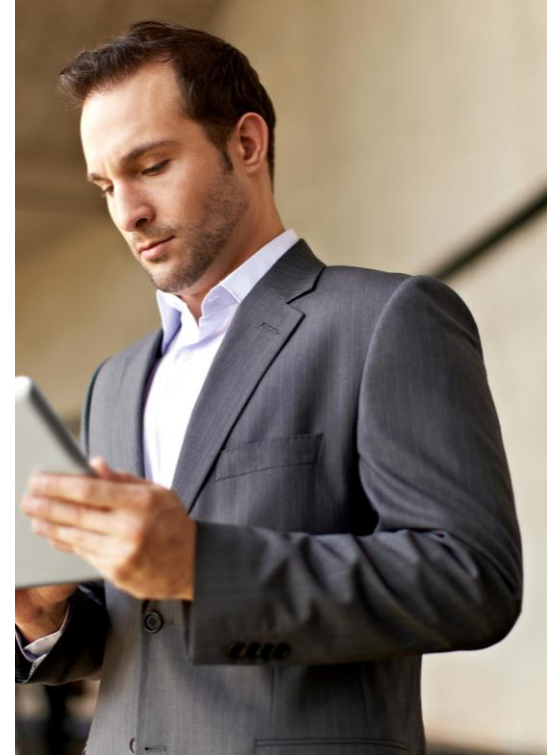# Cisco Connect

Toronto, Canada
May 30, 2013

Best Practices for Migrating Previous Versions of Cisco Unified Communications Manager

Johnny Jagroo. Ph.D.

Consulting System Engineer, Sales

Cisco Systems Canada.

Team's Intro

Shawn Cardinal
Consulting Systems Engineer, Sales
Cisco Systems Canada

Ovais Iqbal, CCIE Voice
Systems Engineer, Sales
Cisco Systems Canada

Agenda

- Why migrate to CUCM 9.x

- Unified Communications 9.x Licensing Overview

- Enterprise License Manager

- License Migration

- Migration to CUCM 9.x

Why Migrate to CUCM 9.x
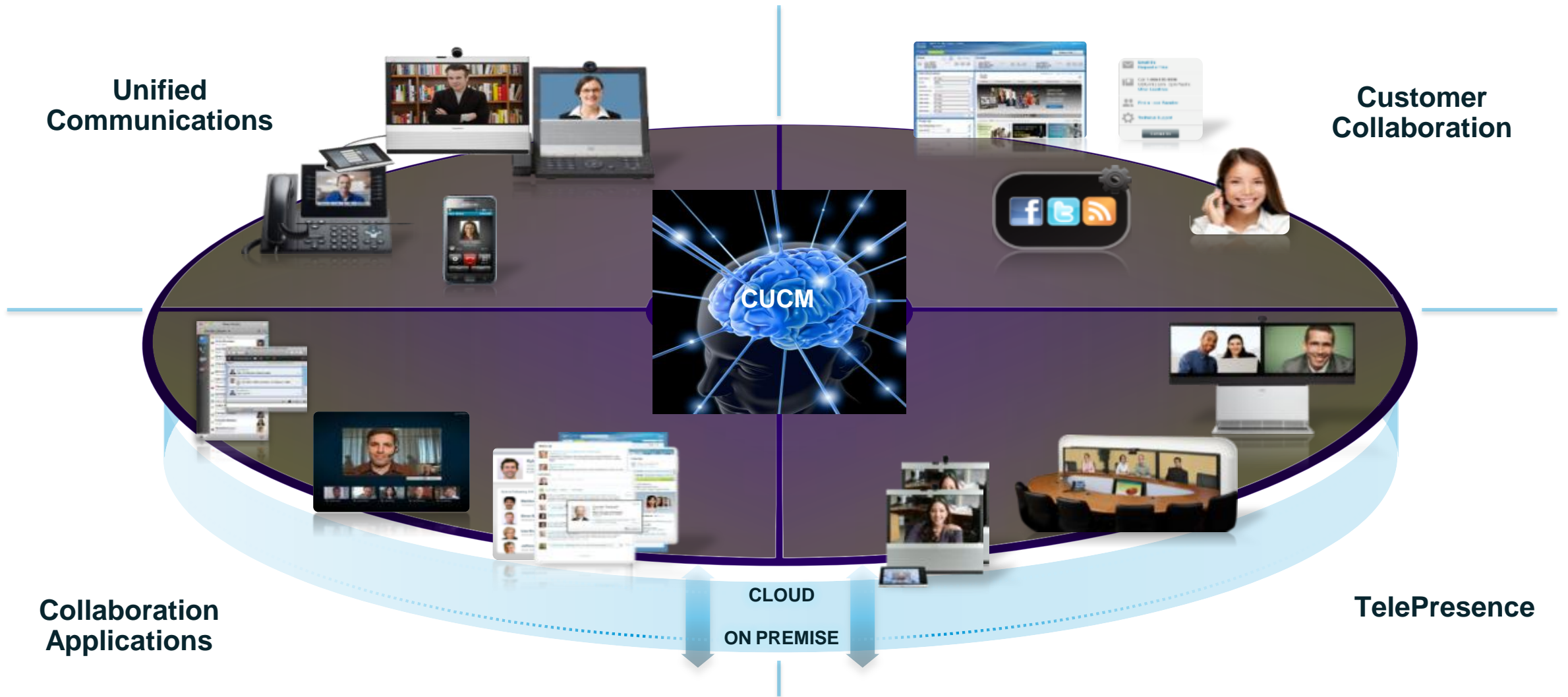
What's in it for the Customer?

New features & functionality
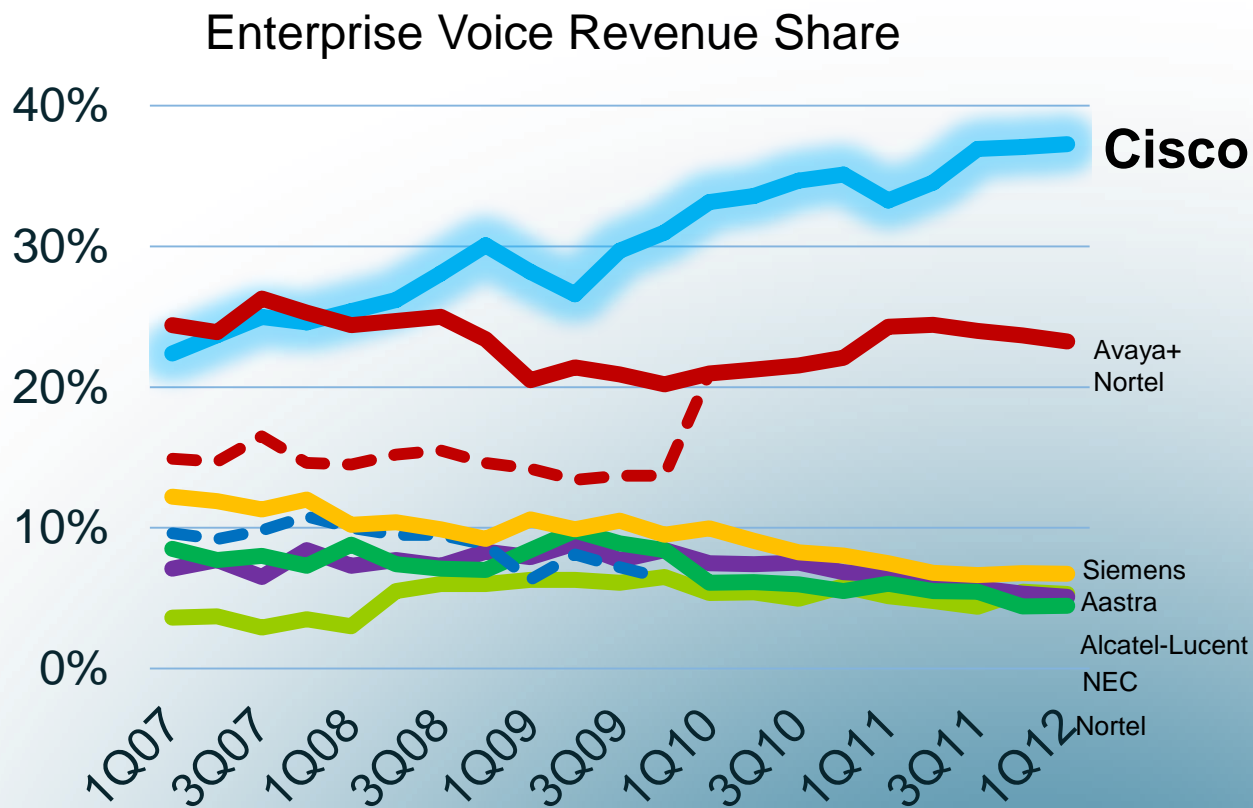
BYOD Mobility IM/Presence

Video

B2B/B2C

Next Generation Collaboration Experience

Virtualization

Customer

Cloud

CUCM 9.x Top Features to Know

Feature	Customer Benefits
IM and Presence service consolidated administration	Simplified Administration Integrated IM & Presence
Native Call Queuing	Option for non-Contact Center groups that require Queuing
Pause in Speed Dials	Simplified FAC and CMC dialing Easy access to remote Voicemail
Communications Manager Video enhancements	Email style end user dialing options Extended Mobility to Video endpoints
Extend & Connect	Enables migration to Cisco IP Devices over time
Enterprise License Manager	Simple, free (part of Unified CM 9.x) User centric licensing & management
Business Edition 6000 with UC 9.x	Unified Provisioning Manager, VCS, IM/Presence, Attendant Console
User Count Tool	Matches the new 9.x Licensing Model introduced in September 2012

Cisco Collaboration
Comprehensive Portfolio of Applications, Solutions, and Services

Unified Communications

Customer Collaboration

CUCM

Collaboration Applications

TelePresence

CLOUD

ON PREMISE

Cisco Leads the Market

Enterprise Voice Revenue Share

Cisco

Avaya+
Nortel

Siemens
Aastra
Alcatel-Lucent
NEC
Nortel

40%
30%
20%
10%
0%

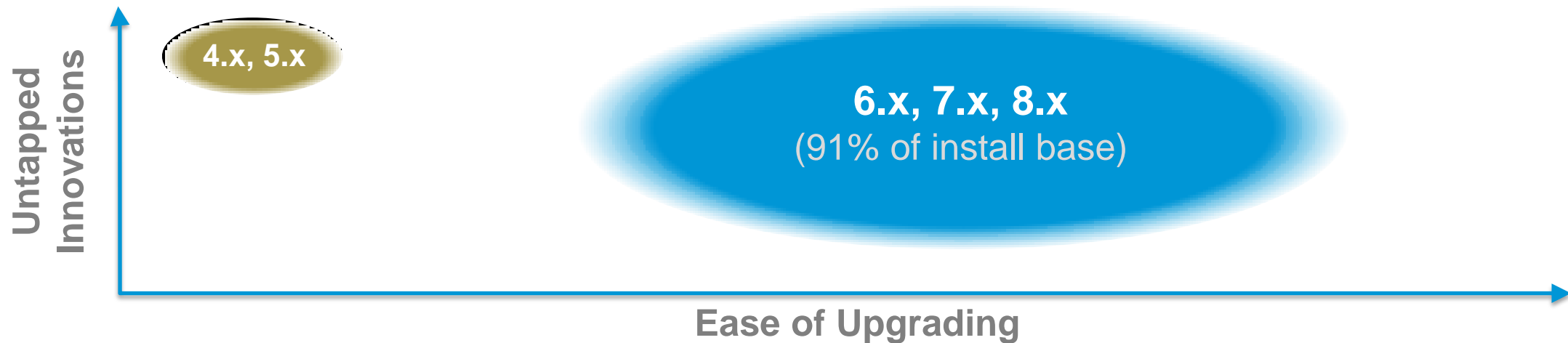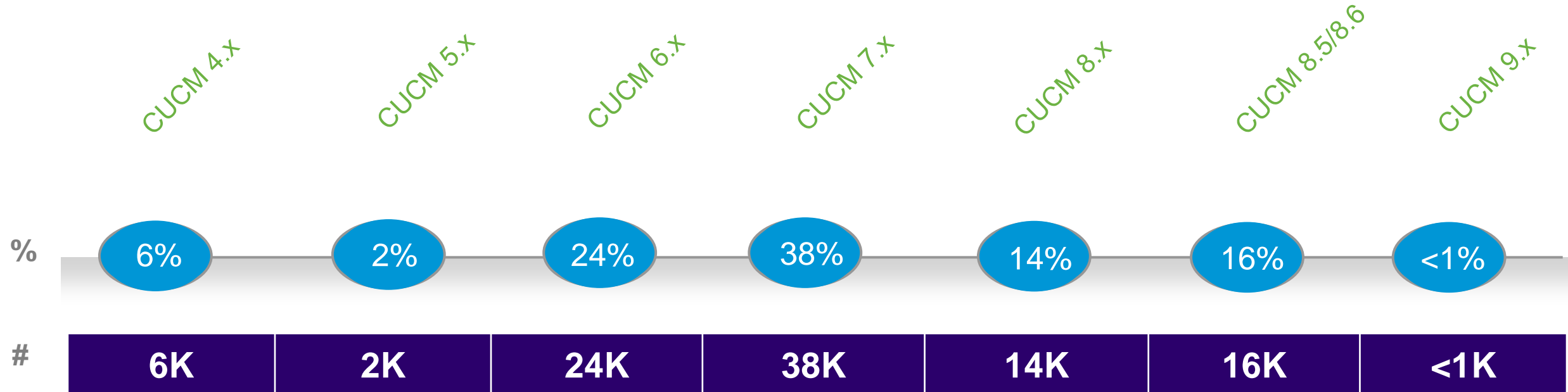1Q07 3Q07 1Q08 3Q08 1Q09 3Q09 1Q10 3Q10 1Q11 3Q11 1Q12

The Leader in Collaboration

- #1 in Enterprise Voice
- #1 in Telepresence/Video Conferencing
- #1 in Web Conferencing
- #1 in Unified Messaging
- #1 in Audio Conferencing
- #1 in Contact Center
- 100K+ Customers Worldwide

Sources: Synergy Research, Frost & Sullivan, Gartner, Intellicom Analytics, Cisco
Note: Enterprise Voice excludes low-end KTS category

Customer Install Base – Version Distribution

	CUCM 4.x	CUCM 5.x	CUCM 6.x	CUCM 7.x	CUCM 8.x	CUCM 8.5/8.6	CUCM 9.x
%	6%	2%	24%	38%	14%	16%	<1%
#	6K	2K	24K	38K	14K	16K	<1K

Untapped Innovations

4.x, 5.x

6.x, 7.x, 8.x
(91% of install base)

Ease of Upgrading

Source: CIBU PM

Drive to 9
CUCM Upgrade Program

Drive to 9 – Objective

Enable Customers to leverage next generation Collaboration Experiences by upgrading to Cisco Unified Communications Manager 9.1 or higher!

Video, Mobility, BYOD, Cloud, & B2B

Drive to 9 Program

Enable Customers to leverage next generation Collaboration Experiences by upgrading to Cisco Unified Communications Manager 9.1 or higher!

Simplified Upgrade Process
- Customized Upgrade Collateral
- Simplified License Migration
- Readiness Assessment Tools
- VODs

Compelling Offers and Incentives
- Server Hardware offers
- Licensing & Services offers
- Video Accelerator Bundles
- Endpoints & Application Offers

Drive to 9

Focused Support
- Upgrade Resource Central
- Drive to 9 PDI and TAC help desk
- Licensing SWAT team
- Support Forums

| Video | BYOD | Cloud/B2B | Virtualization | Mobility |

Unified Communications 9.1 Licensing Overview

Unified Communications 9.1 Licensing Features

●	●	●	●	✓	**Webex Meetings**
●	●	●	●	✓	**Webex Social**
●	●	●	✓	✓	**Unity Connection**
N/A	N/A	✓	✓	✓	**Jabber Mobile**
N/A	N/A	✓	✓	✓	**Jabber Desktop**
✓	✓	✓	✓	✓	**Jabber IM/Presence**
Single	**Single**	**Single / Dual**	**Multiple**	**Multiple**	**# of Device Support**
Analog / Voice	**Voice**	**Video**	**Video**	**Video**	**Device Type Support**
1	**1**	**1**	**1**	**1**	**# of User Profile**
UCL Essential	**UCL Basic**	**UCL Enhanced / Enhanced Plus**	**CUWL Standard**	**CUWL Professional**	**License Type**

Software Centric
- SW only Option
- Competitive with Microsoft
- Multi-platform BYOD support

Simplified Model
- Easier to sell

✓ Included
● Optional

Unified Communications 9.1 Licensing Devices

Enhanced/Enhanced Plus UCL
CUWL Standard
CUWL Professional

Basic UCL

Essential UCL

Fax   **Analog**

3905   **6901**

6911

6921

EX60 / EX90

Jabber Desktop

Jabber Mobile

89xx   **99xx**   **7937**

79xx   **69xx**   **Third Party SIP**

TelePresence

CTS-3000/3200

CTS-500/1000/1100

CTS-1300

Profile Series

Solution Platforms

Cisco Unified Workspace Licensing Requirements

- 3-years UCSS (Unified Communications software Subscription) and ESW (Essential Operate Services) required

  Exception: 1 year term available for government and education

  When mixing User Connect Licensing with CUWL, all users must have 3-years UCSS

- Minimum order sizes

  Standard: 1

  Professional: 50 (add-on PRO users may be purchased for quantity one if conferencing is not required)

- UCSS and ESW is priced on per-user basis

- UC 8.x and UC 9.0 cannot be mixed in the same cluster

UCSS = Cisco Unified Communications Software Subscription

Enterprise Licensing Manager (ELM)

Enterprise Licensing Manager (ELM)

- Centralized user license (UCL/CUWL) management, reporting, compliance, and electronic fulfillment

- Introduced in Unified Communications 9.x release

- Software application part of Unified CM 9.x

- ELM can run on a separate server or co-resident with UC Applications

- ELM can manage multiple applications/clusters

- Unified CM, Unity Connection, IM and Presence

- ELM tracks the "feature usage" of each product registered for license management and then evaluates the overall license status of the features under use.

Enterprise License Manager (ELM)
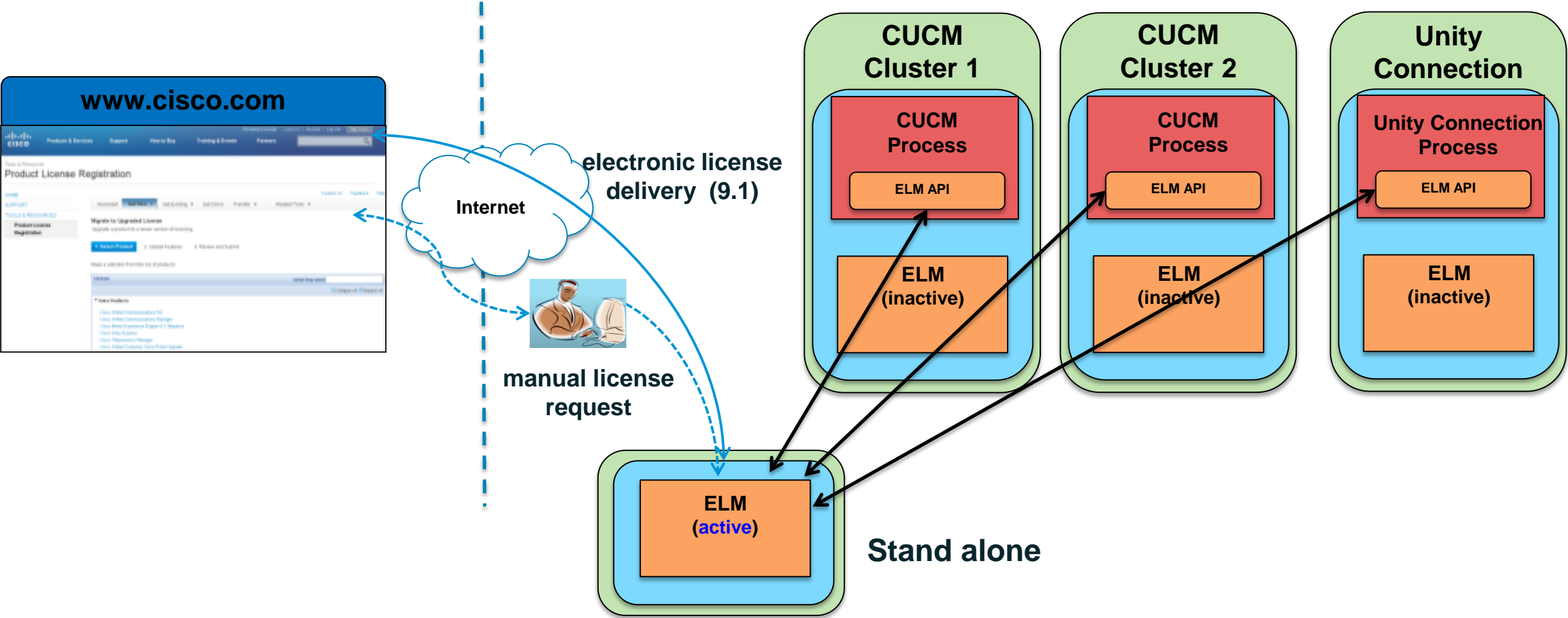
e-Fulfillment Overview

- Two options for fulfilling licenses: manual and electronic
    e-Fulfillment is enabled by default

- Electronic is much quicker and easier
    User simply enters a PAK ID and selects which license types to fulfill

- Requires HTTPS connectivity to Cisco Licensing back office

- Supports partial fulfillment
    Allows user to fulfill a subset of the entire PAK

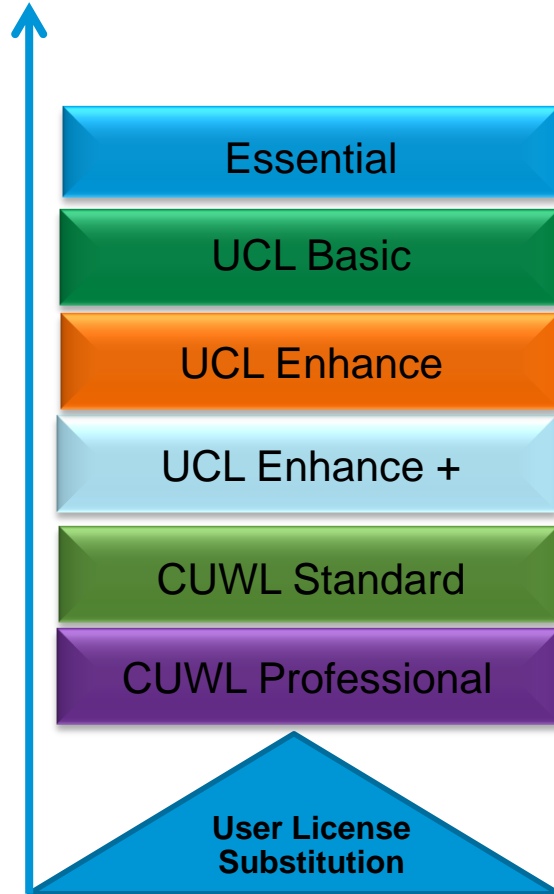- Manual fulfillment still required when migrating pre-9.0 licenses

ELM Deployment Options
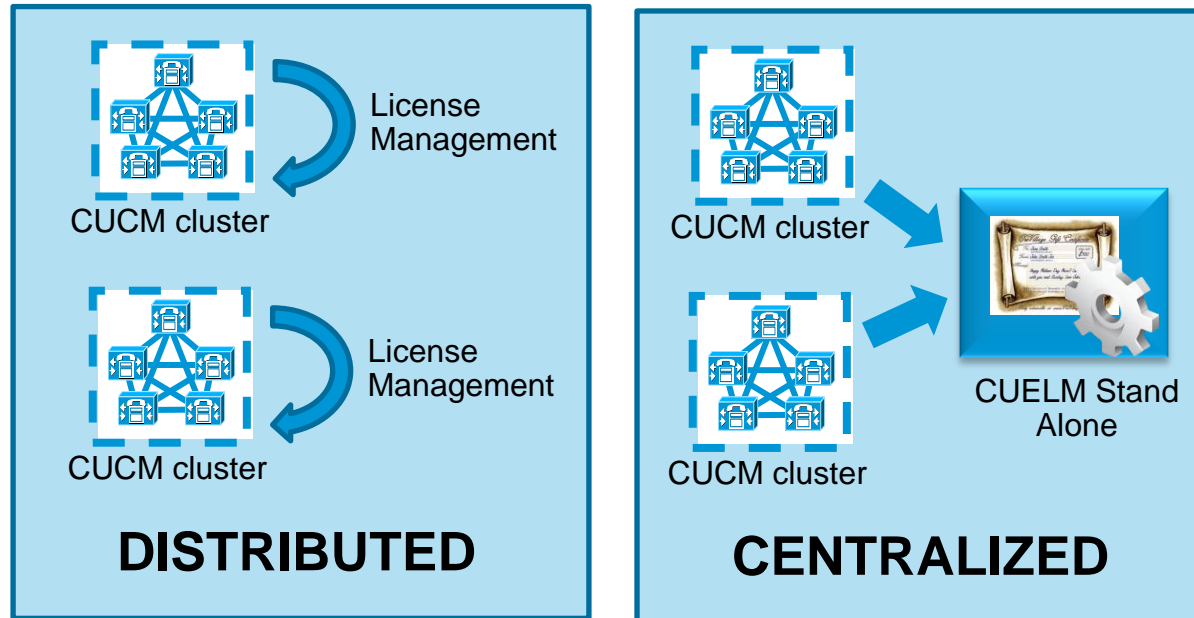
CUCM 9 and later provides for both distributed and centralized license management model of which centralized license model provides the following benefits:

- License pooling: Mobility of users and reduce TCO

- Future electronic license model: Reduce TCO

- Central license management: Reduce TCO

- 60 days overage and redundancy/re-host (registration ID and MAC) of ELM

ELM License Structure

Essential

UCL Basic

UCL Enhance

UCL Enhance +

CUWL Standard

CUWL Professional

User License Substitution

- Two license types: User license and Feature license

- Licenses are based on hierarchical model where lower feature license can borrowed a higher feature license

  - I.E. UCL Basic can borrow a UCL Enhance

  - I.E. CUWL Standard can borrow CUWL Professional

- ELM evaluates all systems license requirements on a per product (CUCM and CUC) basis and responds back with one consistent reply to all registered systems

ELM License Usage
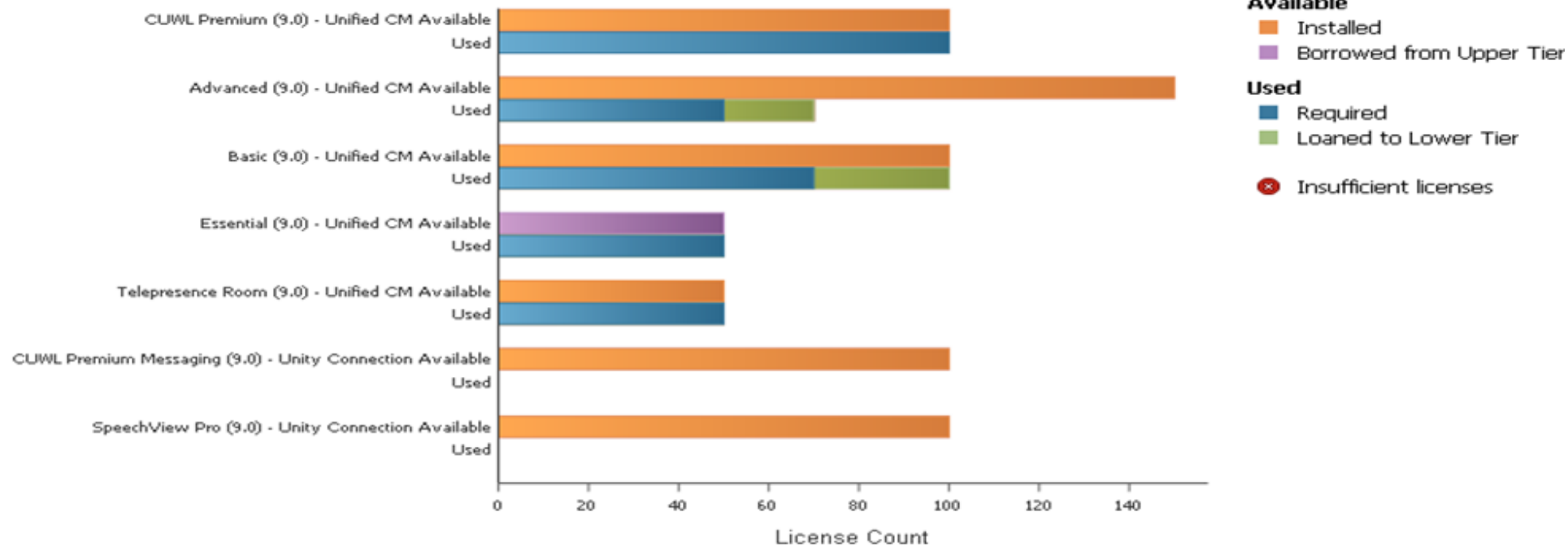
License Migration

CUCM License Evolution

CUCM License Evolution

Version 5.0 to 7.1(3)

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

Version 7.1(5) to 8.6

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

Version 9.x

TECHNICAL	ORDERING	Description
ELM	UCL/CUWL	Part of UCL/CUWL license order.
ELM	UCL/CUWL	Part of UCL/CUWL license order.
SW Feature	ESW/UCSS	Maintenance for minor and major version upgrade

DLU to UCL/CUWL Assessment

- Users with associated number of phones, model of phones and features are used as the basis for UCL/CUWL assessment

- Phone not assigned to a user will be deemed as a UCL user license with one phone based on the phone model

- Users with 11 or more phones will consume two or more CUWL Standard

- This is a good opportunity to assess phone associations in current system prior to conversion

User Count Tool (UCT)

- Software application

- Allows a customer to view CUCM license requirements for all CUCM devices and to plan for unused DLU allocation to UC 9.0 licenses.

- May be used for planning migration to UC 9.0 licenses for CUCM instances.

- Cisco License Count Utility may be downloaded from the www.cisco.com software download site:

    (Cisco Unified Communications Manager 8.6 utilities Unified Communications Manager / CallManager / Cisco Unity Connection Utilities)

License Count Utility (UCT)

Cisco License Count Utility — File Edit Help

Clusters | License Report

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.

Add... | Edit | Delete... | Generate Report

Hostname/IP address	Description	Version (Last Known)	Last Connection Status	Include in Report
bldr-vcm83		8.5.1	Successful	✓
bldr-vcm85		8.6.2	Successful	✓
bldr-vcm95		8.6.2	Successful	✓

Cisco License Count Utility — File Edit Help

Clusters | License Report

Report Generated: 2012-Aug-15 19:44:06 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
bldr-vcm83		50	70	200	50	0	0	0	50	8410
bldr-vcm85		0	0	0	0	0	0	0	0	150
bldr-vcm95		0	0	0	0	0	0	0	0	150
TOTAL		50	70	200	50	0	0	0	50	8710

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 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 UCL Licenses

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	0	0	0	11	0
Advanced	50	50	600	650	9	5400
Enhanced	200	200	301	501	6	1806
Basic	70	70	101	171	4	404
Essential	50	50	100	150	0	0
Telepresence Room	50	50	100	150	11	1100

TOTAL DLU USAGE CHANGE: 8710

Run Compliance Check | Reset Values

Unused DLU's Remaining: 0

License Count Utility (UCT)

Use for pre-purchase planning

1. Connect and generate license report

2. Review current license usage

3. Plan unused DLU license allocation

Pre-Migration Checklist

- ✓ Fulfill any unused license PAKs
- ✓ Install all licenses
- ✓ **Validate licensing installed and snapshot**
- ✓ Use Cisco License Count Utility (UCT) to plan UC 9.0 CUCM license requirements
- ✓ Order and install UC 9.0

*IMPORTANT NOTE: Unused PAKs and/or licenses from pre-9.0 versions cannot be fulfilled once migrated to version 9.0

UC 9.x License Migration

STEP 0: Pre-Migration Checklist
Validate all licenses are installed on pre-9.x system
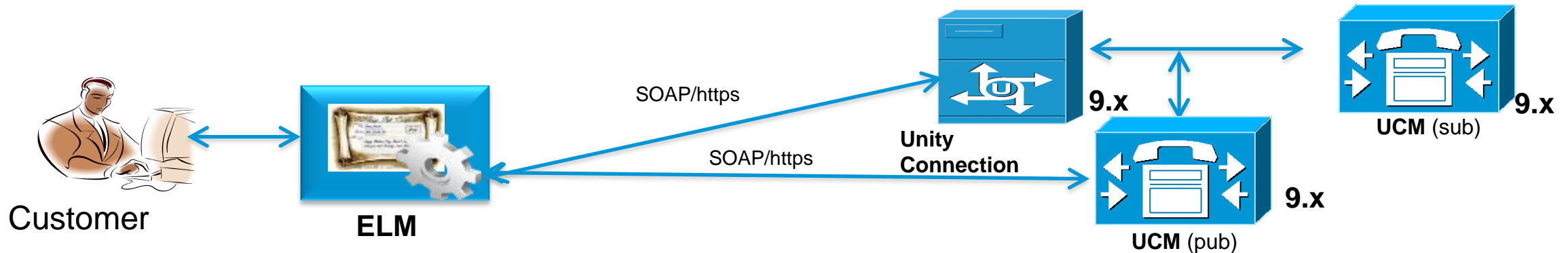
STEP 1: UC 9.x Migration
Upgrade UC Applications and CUCM to Version 9.x

STEP 2: Install ELM 9.x
ELM Version 9.x installed – co-resident or standalone

STEP 3: Connect ELM to UC 9.x products
Add CUCM (pub), BE6k/BE5k, Unity Connection Applications to ELM inventory

Customer   **ELM**   SOAP/https   **Unity Connection**   **9.x**   **UCM** (sub) **9.x**   SOAP/https   **UCM** (pub) **9.x**

UC 9.x License Migration (cont'd)

STEP 4: ELM Migration Utility
Use ELM Migration Utility to Plan then Order then Install migrated licenses

STEP 5: Generate Migration Request
Generate Migration Request creates the required information for license migration.

STEP 6: Request License Migration
From www.cisco.com Product License Registration portal – Get New – Migration License – Unified
Communications 9.x   www.cisco.com/go/license

STEP 7: Install License
Install UC 9.x License file (.bin) on ELM. Use License – Install License File

ELM   step 4   step 6
             step 5
             step 7

Customer   www.cisco.com

Additional Licensing Resources

Cisco Unified Communications System 9.x SRND - Section 6-7 Migration Licenses to Enterprise License Manager http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/9x/uc9x.html

Upgrade Guide for Cisco Unified Communications Manager Release 9.0: http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/upgrade/9_0_1/CUCM_BK_U8D523AB_00_upgrade-guide-cucm-90.html

Enterprise License Manager User Guide http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/elmuserguide/9_0_1/CUCM_BK_E596FD72_00_enterprise-license-manager-user-90.html
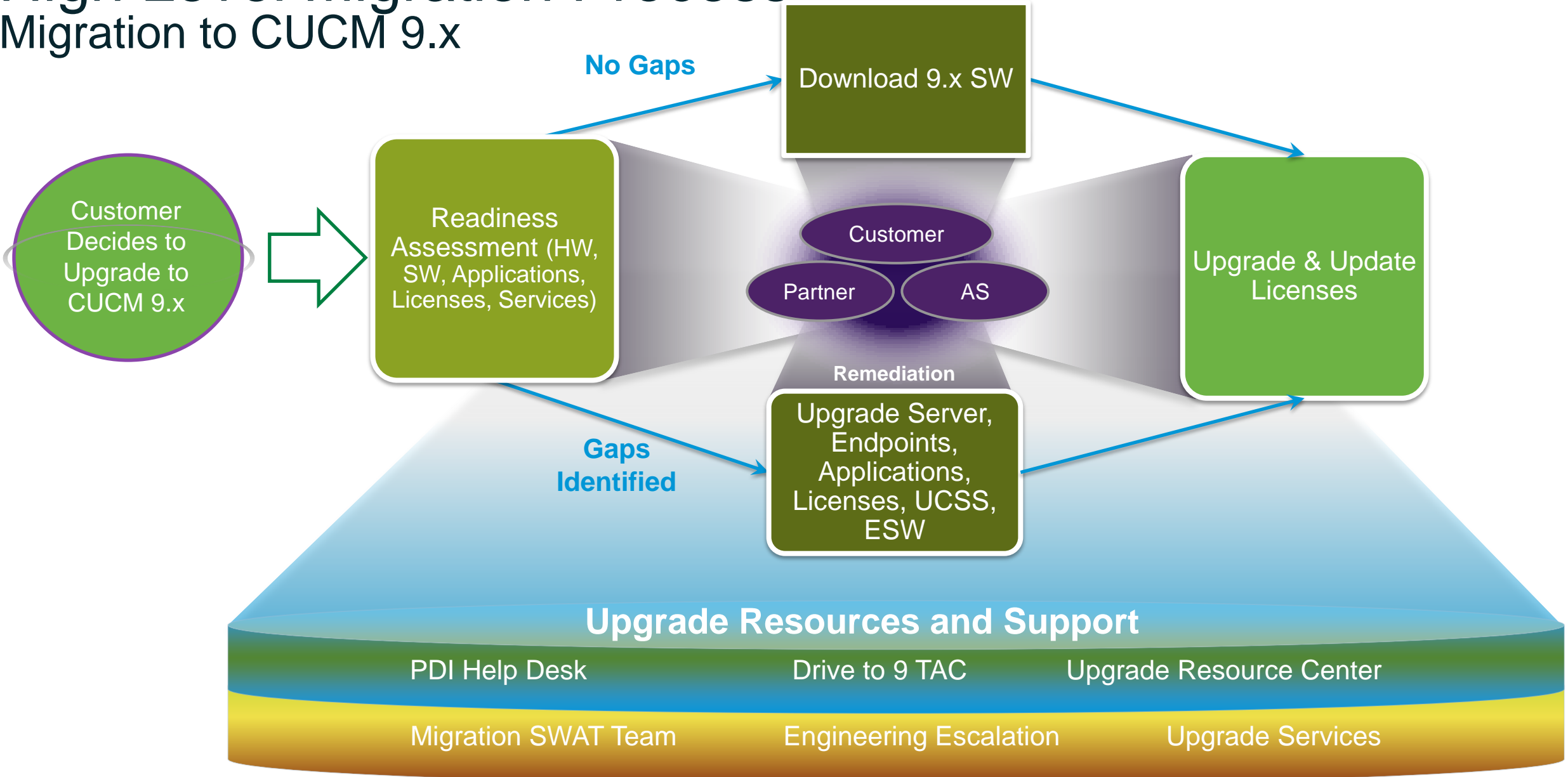
Cisco Unified Communications Manager License Count Utility http://www.cisco.com/en/US/partner/docs/voice_ip_comm/cucm/upgrade/uct/CUCM_BK_UCT_Admin_Guide_chapter_01.html

Migration to CUCM 9.x

High Level Migration Process
Migration to CUCM 9.x

Customer Decides to Upgrade to CUCM 9.x

Readiness Assessment (HW, SW, Applications, Licenses, Services)

No Gaps

Download 9.x SW

Customer

Partner

AS

Gaps Identified

Remediation

Upgrade Server, Endpoints, Applications, Licenses, UCSS, ESW

Upgrade & Update Licenses

Upgrade Resources and Support

PDI Help Desk	Drive to 9 TAC	Upgrade Resource Center
Migration SWAT Team	Engineering Escalation	Upgrade Services

Pre Migration

- Readiness Assessment

- Review software migration path

- Determine hardware requirements

- Refer to the SRND and Compatibility Matrix

- Consider all UC applications

- Consider all 3rd party applications

- Review impact to business processes

- Lab/Development testing

- Plan system migration

- Planning for end user training if required

- Decommissioning of Old HW/SW

Post Migration

- Complete assurance testing

- Implement new features / technology

- Update end user documentation / monitoring tools

- Provide end user training

Sample Unified CM Versions and Builds

Unified CM Version	Unified CM Build
9.1(1)	9.1.1.10000-11
9.0(1)	9.0.1.10000-37
8.6(2a)su2	8.6.2.22900-9
8.6(2a)	8.6.2.20000-2
8.6(1a)	8.6.1.20000-1
8.6(1)	8.6.1.10000-43
8.5(1)su3	8.5.1.13900-5
8.5(1)su2	8.5.1.12900-7
8.5(1)su1	8.5.1.11900-21
8.5(1)	8.5.1.10000-26
7.1(5b)su4	7.1.5.33900-10
6.1(5)su3	6.1.5.13900-4

Numbering Convention

(**A.B.C.XYzzz-x**)

(A) Major version

8.6.2.20000-2

(B) Minor version

8.**6**.2.20000-2

(C) Maint. rel.

8.6.**2**.20000-2

(X) FCS / Respin

8.6.2.**1**0000-2

8.6.2.**2**0000-2

(Y) ES/SU Releases

8.6.2.2**1**zzz-1

8.6.2.2**29**00-9

(ZZZ) FCS, ES, SU

8.6.2.2**0000**-2

8.6.2.2**2900**-1

CUCM - Upgrade Paths

Single Hop

60,000 Customers

CUCM 6.1.4 6.1.5 7.1.3 7.1.5 8.x

Multi-Hop

40,000 Customers

CUCM 4.X 5.1.2 5.1.3 → **CUCM 6.1.5**

CUCM 6.1.2 6.1.3 7.0.1 7.1.2 → **CUCM 8.0.3**

Cisco Unified Communications Manager 9.1

*Upgrade is HW Dependent, as some servers may not be supported

Unified CM Major/Minor Upgrade Definition

W1 W1 Upgrade: Windows to Appliance model

- High complexity with possible longest downtime
- I.E. Unified CM 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 Unified CM versions 5.X, 6.X, 7.X, 8.0 and 8.5
- Between Unified CM versions with the same Major RHEL versions
- I.E. Unified CM 7.1(5) to 8.5 or Unified CM 8.6 to 9.0

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

- Medium complexity with possible longer downtime
- From Unified CM versions 6.X, 7.X, 8.0 or 8.5 to 8.6 or 9.X
- I.E. Unified CM 8.5 to 8.6 or Unified CM 8.5 to 9.0
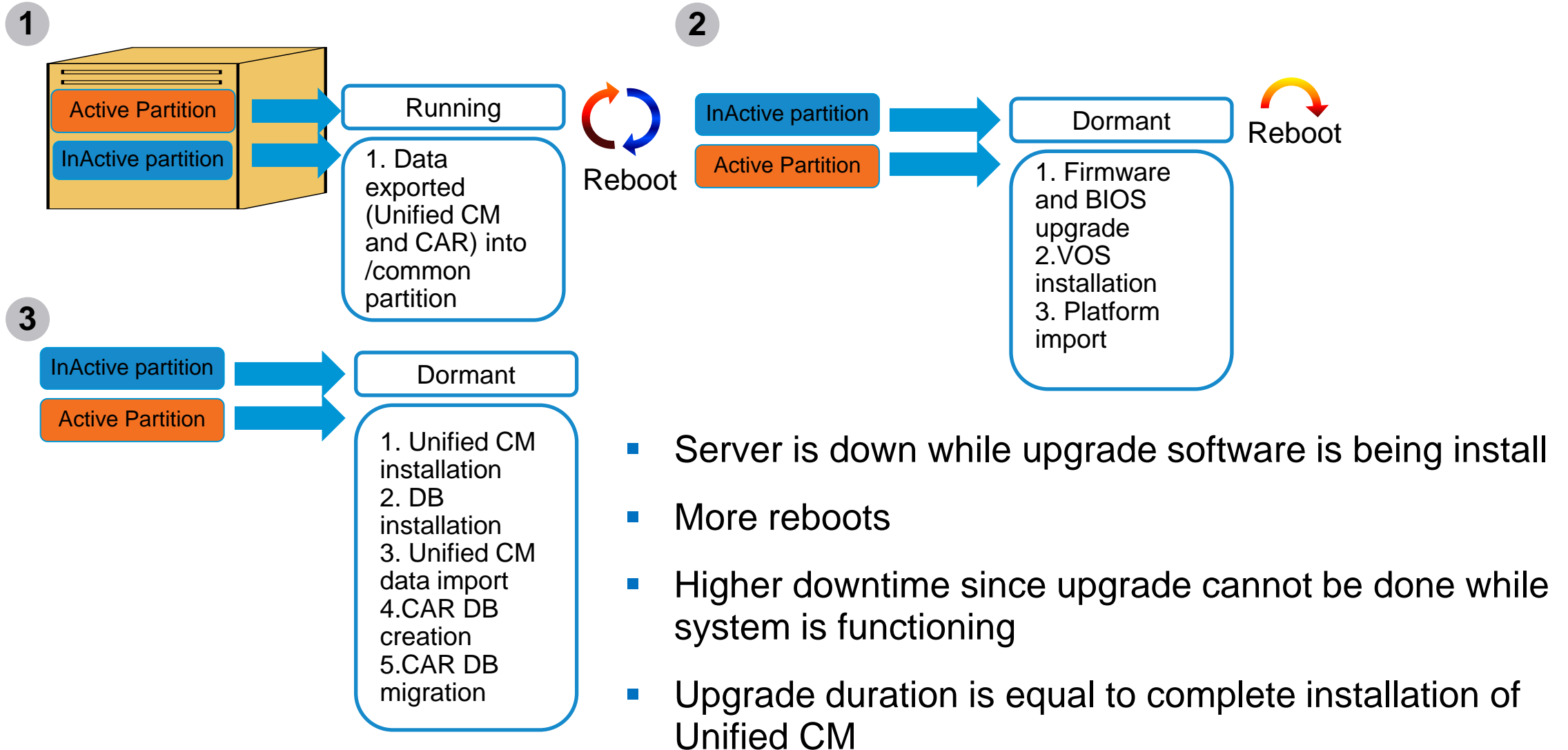
W1 Upgrade: Windows to Appliance model

Existing Unified CM 4.X Cluster

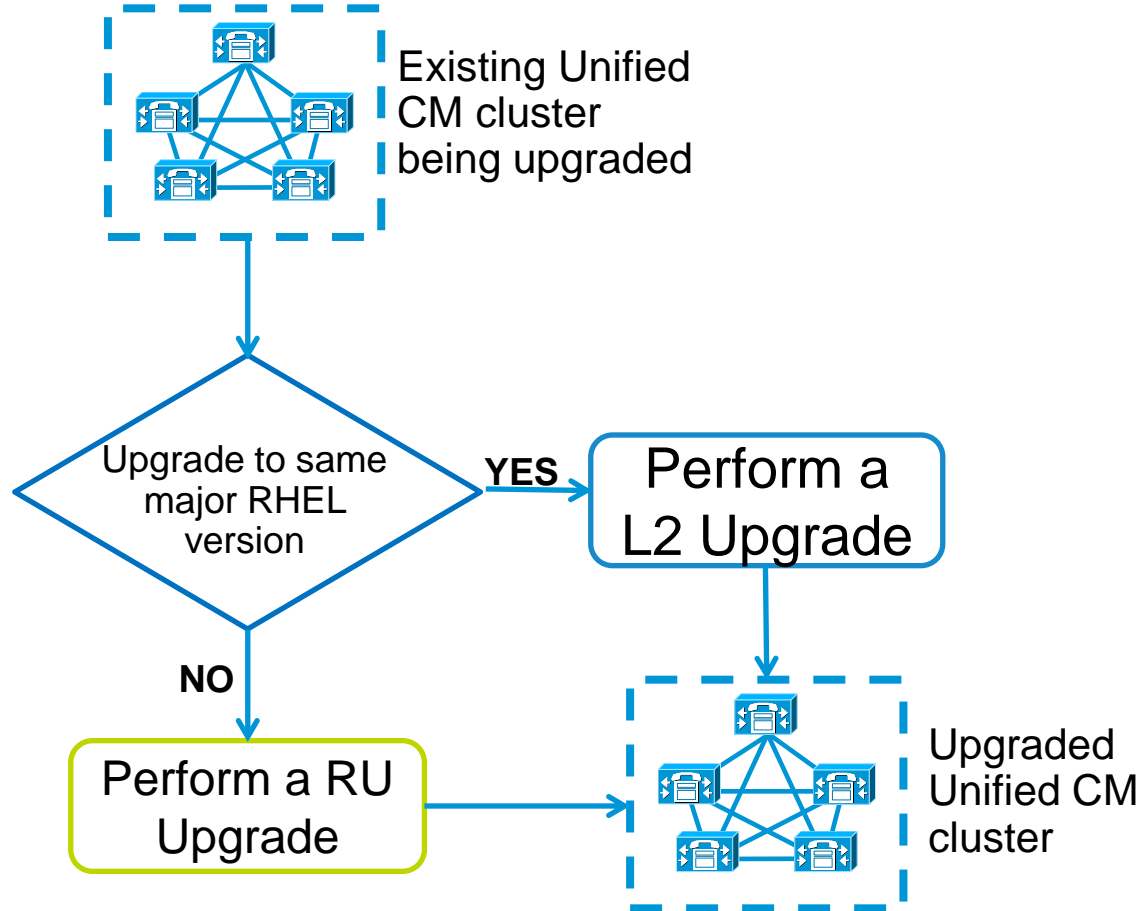Existing Unified CM 4.X Cluster

Existing Unified CM 4.X Cluster

New Unified CM 7.1 Cluster

New Unified CM 7.1 Cluster

New Unified CM 7.1 Cluster

Back Up With BARS

Install and Run Upgrade Utility on All Servers

Install, Run, and Download DMA from Publisher

Install Unified CM 7.1

Upload DMA File

Upload Licenses

Tape or Network Share

Latest Upgrade Utility From CCO

Download From CCO

Data Migration Assistant (DMA) 7.1

Save DMA File to Tape or Network Share

Unified CM 7.X DVD Kit

Tape, FTP or sFTP Server

Node, DLU and 7.1 Feature SW License

1 2 3 4 5 6

L2 Upgrade: Appliance to Appliance model

| Active Partition | → Running |
| InActive partition | → |

Running
1. RPMs installation
2. Unified CM installation
3. DB installation
4. Data Migration

Reboot

| InActive partition | → Dormant |
| Active Partition | → |

Dormant
1. Firmware and BIOS upgrade
2. Post reboot software installation

- Active partition is running while upgrade software is being install on inactive partition

- Low downtime (20-30) min since upgrade can be done while system is functioning

Refresh Upgrade (RU): Appliance to Appliance model

1

Active Partition

InActive partition

→ Running

→ 1. Data exported (Unified CM and CAR) into /common partition

Reboot

2

InActive partition

Active Partition

→ Dormant

→ 1. Firmware and BIOS upgrade
2.VOS installation
3. Platform import

Reboot

3

InActive partition

Active Partition

→ Dormant

→ 1. Unified CM installation
2. DB installation
3. Unified CM data import
4.CAR DB creation
5.CAR DB migration

- Server is down while upgrade software is being install

- 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 to Appliance model

Existing Unified CM cluster being upgraded

Upgrade to same major RHEL version

YES → Perform a L2 Upgrade

NO → Perform a RU Upgrade

Upgraded Unified CM cluster

Unified CM	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
8.5	RHEL 4 Update 8
8.6	RHEL 5 Update 5
9.0 & 9.1	RHEL 5 Update 7

Starting with Unified CM 8.6 or RHEL 5

RED HAT ENTERPRISE LINUX 5

Cisco Collaboration – Virtualized Premise Offers
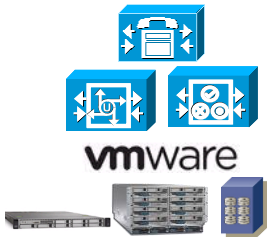
Platform Options

What should I deploy?

Premise

Ops Strategy

Managed or **Cloud**
Premise
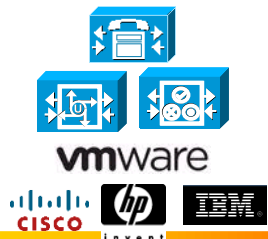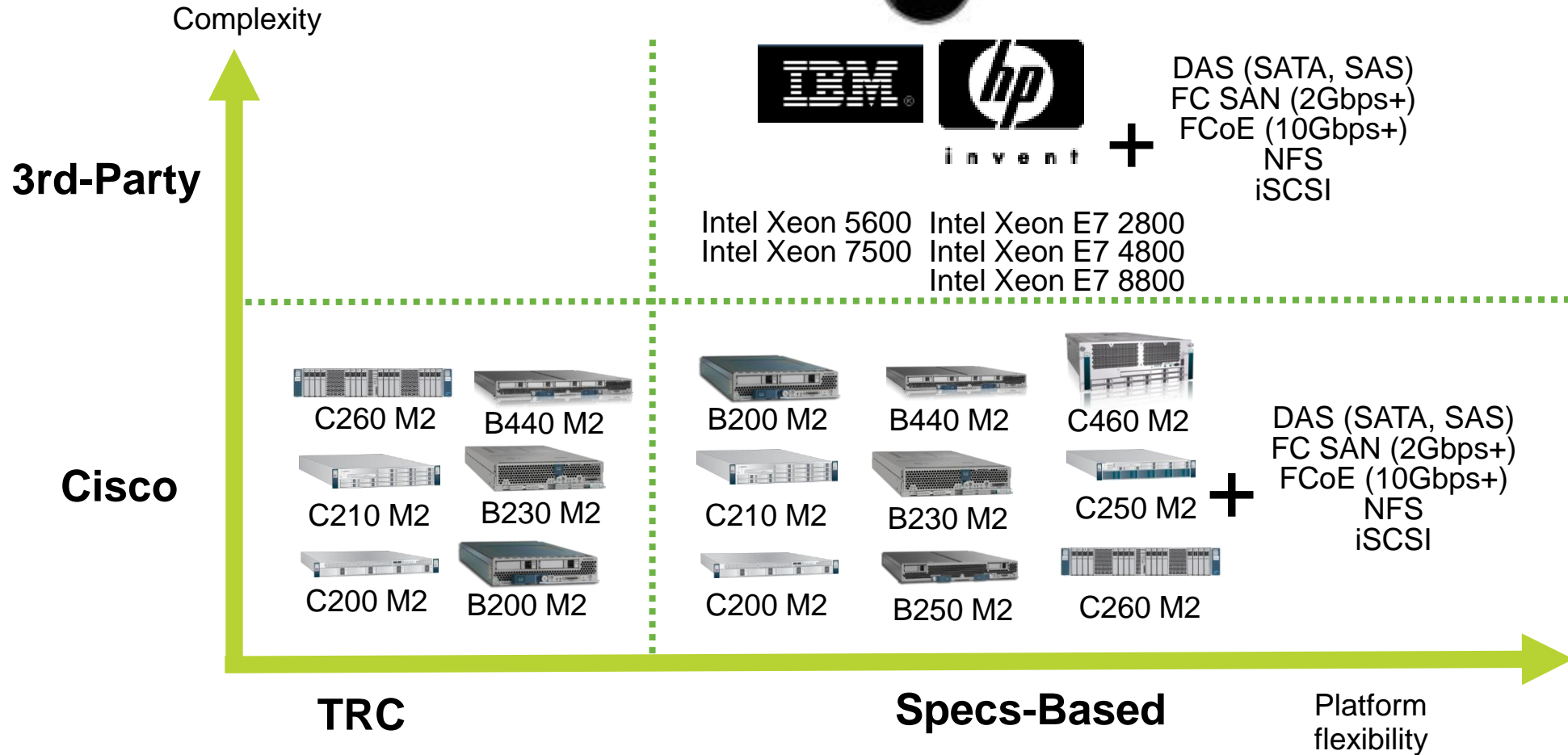
- Prefers "in-house" ops

- "Ready, willing, able" to support servers, VMware, storage

- Ready to move off appliance-oriented operations

- Prefer outsourced ops

- Not "ready, willing, able" to take on servers / VMware / storage

- Prefers OPEX service to CAPEX products

UCS C-Series

Deployment Scenario

UCS B-Series

- Smaller - less users or VMs

- Geographically distributed

- UC-centric, DAS preference

- Optimize for CAPEX or UC-only

- Less partner certs required
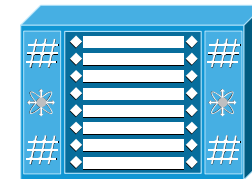
- Larger – more users or VMs

- Geographically centralized

- DC-centric, NAS/SAN preference

- Optimize for OPEX or "all apps"

- OK if more partner certs required

Before & After Example: MCS 7800 ➔ UC on UCS

Example:
- 5K users with Dial tone, voicemail, IM & Presence
- 10% are Contact Center Agents
- All applications redundant

11x MCS 7800 required
High Hardware Bloat & Sprawl
- 22 RU of space
- Lotta energy (700W+ / svr)
- 55 cables (network, power)
- 33 LAN ports

Shrink to 3x virtualized UCS C220
Lean Hardware Footprint
- 80+% server count reduction (includes disks)
- 80+% space reduction
- Energy reduction thru UCS cooling efficiency + less servers
- 60+% cabling reduction
- 60+% LAN port reduction
- Reduced maintenance & support costs

Or if you prefer…
    2x virtualized UCS C240/C260
- If it makes more sense for your business

Additional Compute Resources

CUCM 9.x SRND: http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/srnd/9x/uc9x.html

CUCM supported server matrix:
http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/prod_brochure0900aecd8062a4f9.html

UC Virtualization Doc Wiki:
http://docwiki.cisco.com/wiki/UC_Virtualization_Supported_Hardware

Summary

- Benefits of migrating to CUCM 9.x

- Reviewed Unified Communications (UC) 9.x Licensing Model

- Reviewed Enterprise License Manager (ELM)

- License Migration Steps

- Steps for Migrating to CUCM 9.x

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Q/A

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