

TOMORROW starts here.



Cisco *live!*

Communications Manager for Video Call Control (Unified Call Control)

BRKUCC-2665

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Abstract

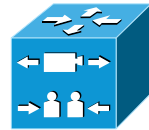
- This 90 minute session is aimed at video and telephony architects and administrators who are considering, or planning to deploy TelePresence and Video endpoints on Unified Communications Manager
- The first section provides background on the architectural evolution of the Cisco TelePresence and Unified Communications portfolios from the close of the TANDBERG acquisition in April 2010 until now, and reviews the network topologies, connectivity models and provisioning methods available today¹ for deploying TelePresence and Video endpoints and bridge resources on UC Manager, using Expressway for firewall traversal, TelePresence Management Suite (TMS) for scheduling and Prime Collaboration for provisioning and monitoring
- The second section focuses in on the fundamentals of administering these types of endpoints on UC Manager and enabling extended features and functionality (over and above basic registration and calling)

Icons Used In This Presentation

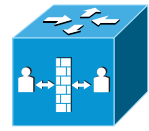
For Your Reference



Unified Communications Manager



Expressway Core (formerly VCS Control)



Expressway Edge or Unified Border Element (CUBE)



TelePresence Management Suite or Prime Collaboration



TelePresence Server or MCU



TelePresence Conductor



Directory Server or Phone Book



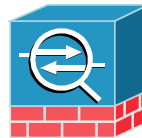
Generic DHCP Server



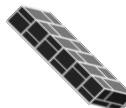
AnyConnect VPN Client



Cisco IOS Router with VPN Client



Advanced Security Appliance (ASA)



Generic Firewall / NAT



Immersive TelePresence System (CTS / TX Series)



Multipurpose TelePresence System (Profile, MX, SX, C Series)



Personal TelePresence System (EX Series)



Unified IP Video Phone (8900, 9900, DX 650 Series)



PC client (Jabber for Windows / Mac)



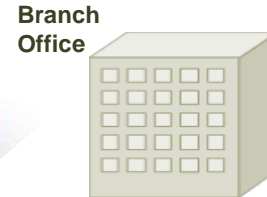
BYOD client (Jabber for iOS / Android)



Network



Home Office



Branch Office



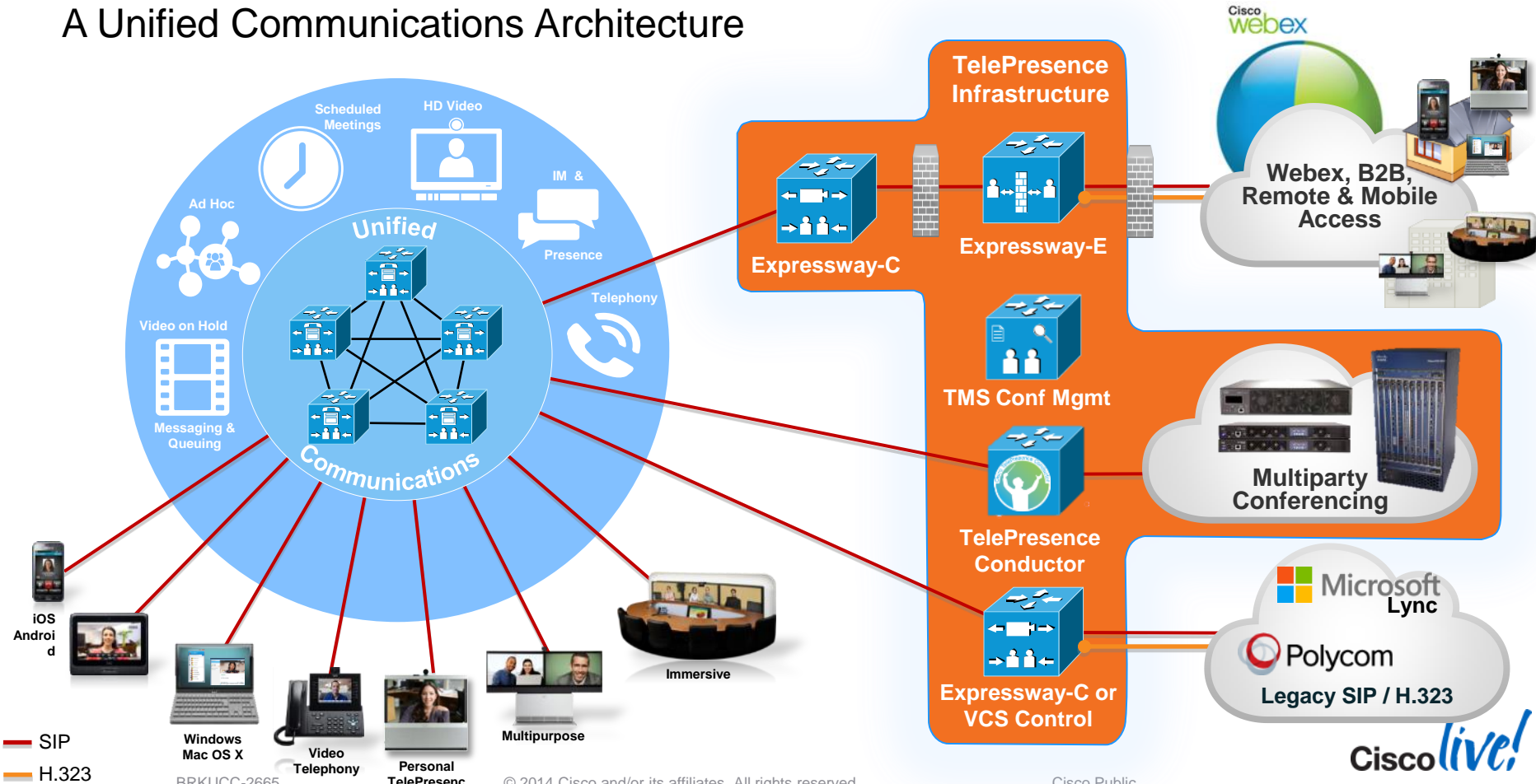
Large Office



Target Architecture and a Quick Historical Review 2010 – Today

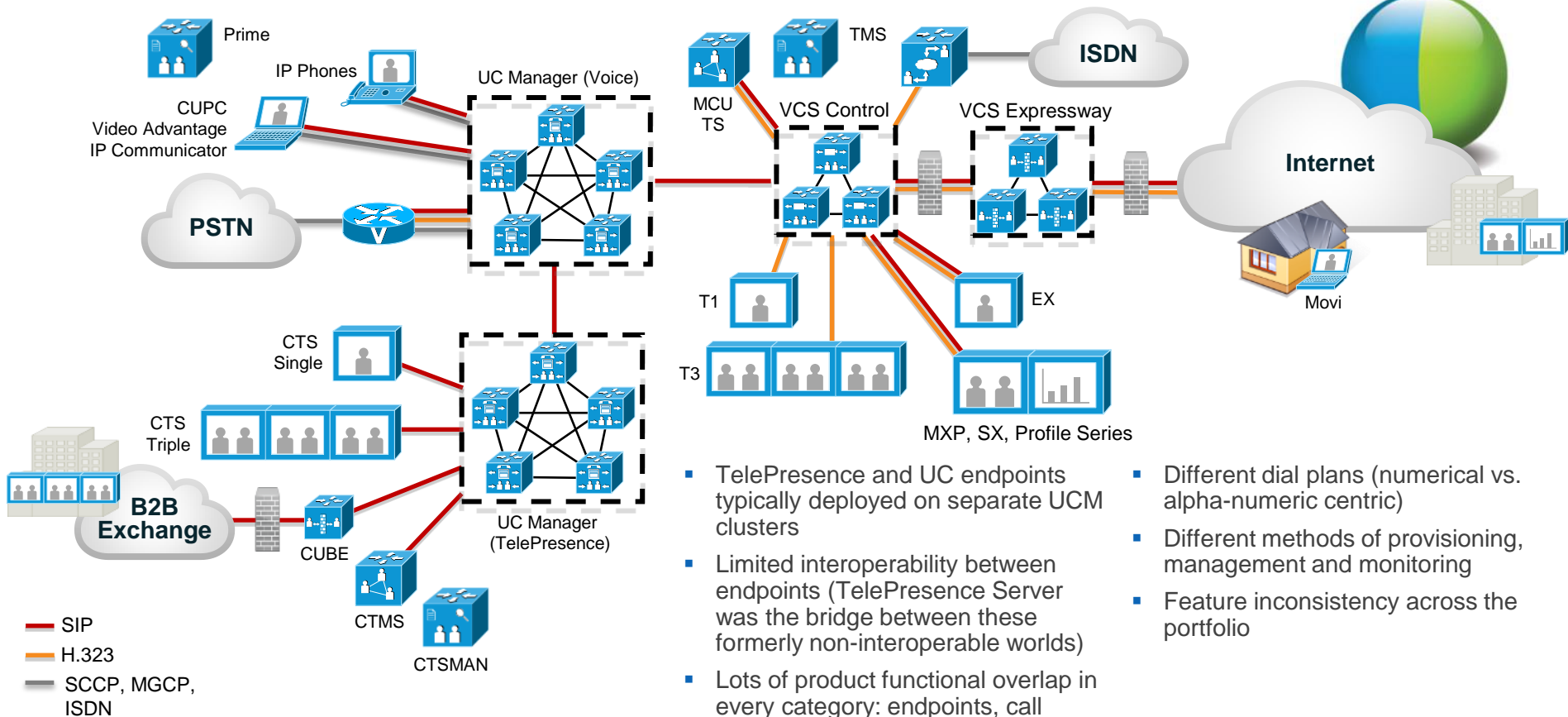
TelePresence, Video and UC

A Unified Communications Architecture



Architectural Evolution

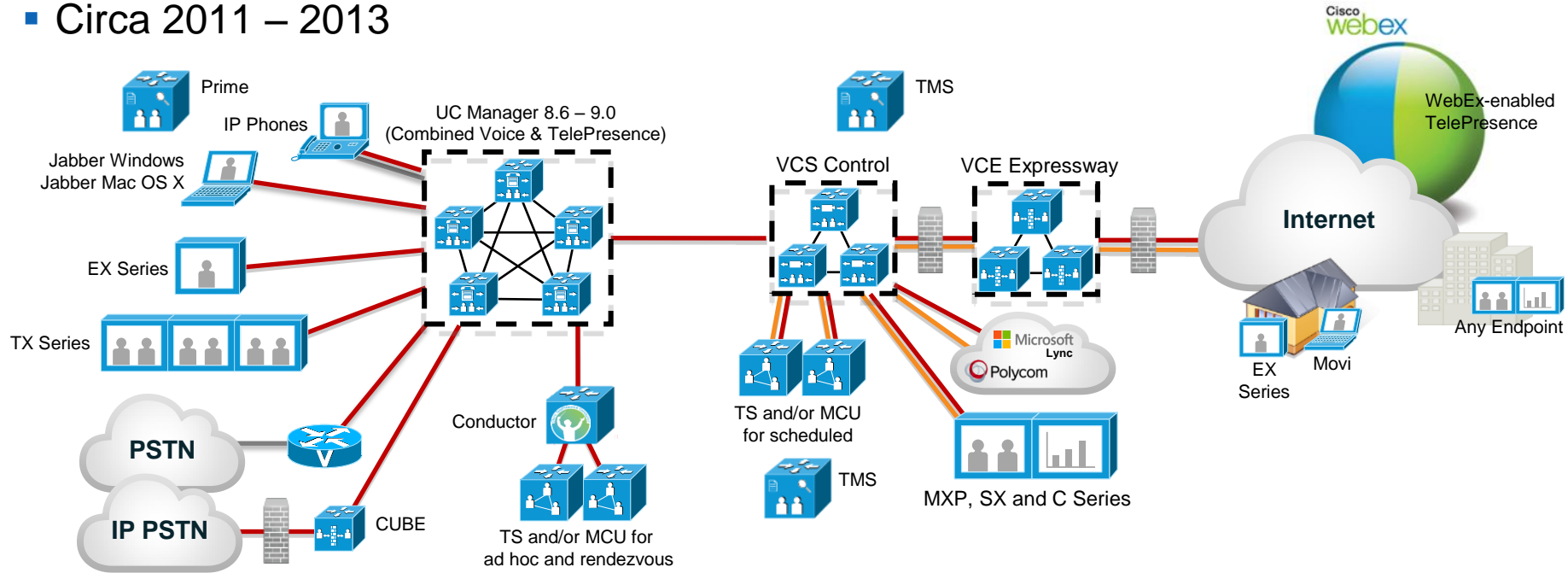
- Circa 2010 – At The Close Of The TANDBERG Acquisition



- TelePresence and UC endpoints typically deployed on separate UCM clusters
- Limited interoperability between endpoints (TelePresence Server was the bridge between these formerly non-interoperable worlds)
- Lots of product functional overlap in every category: endpoints, call control, B2B connectivity, bridging, scheduling, and management
- Different dial plans (numerical vs. alpha-numeric centric)
- Different methods of provisioning, management and monitoring
- Feature inconsistency across the portfolio

Architectural Evolution

▪ Circa 2011 – 2013

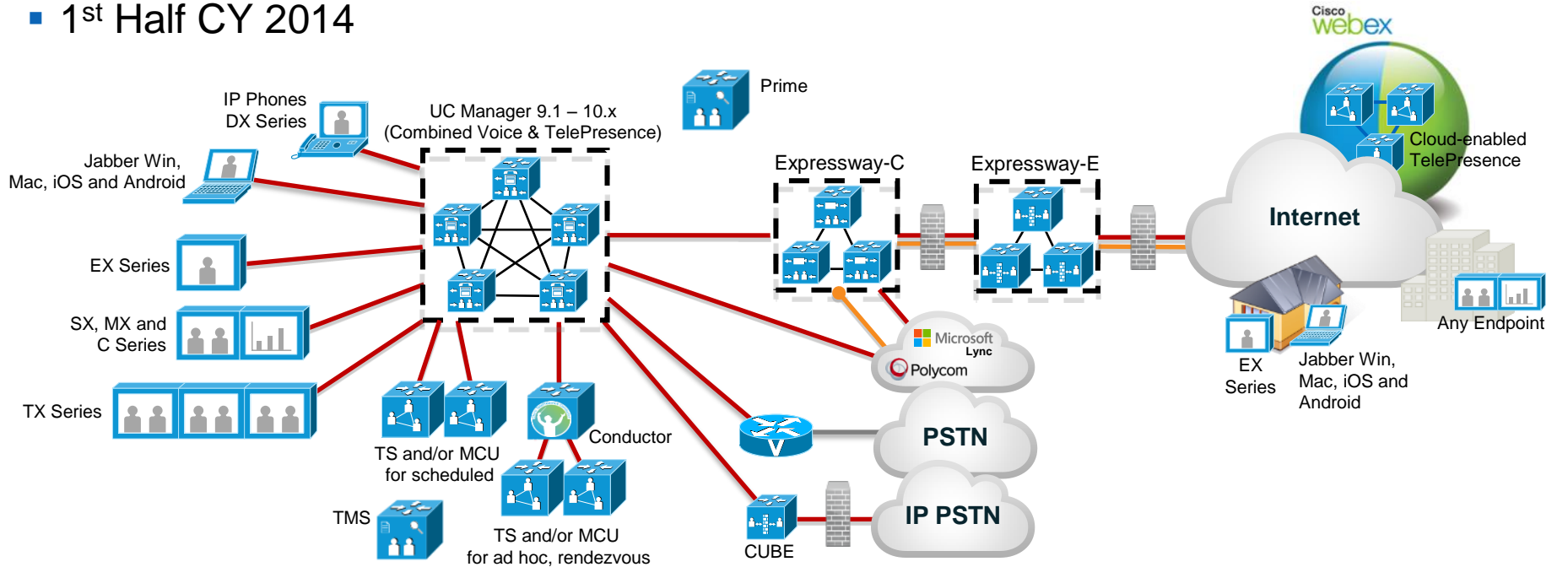


- TelePresence and traditional UC (telephony and SD video) all collapsed on a converged UC Manager cluster. Former TANDBERG endpoints predominantly still on VCS Control
- Full native any-to-any interoperability between all endpoints and bridges. Ad hoc bridges under Conductor on UCM, scheduled bridges still on VCS Control
- Product functional overlap diminished; roles clarified but not all consolidation fully realised yet
- Homogenised dial plans: both numeric and alphanumeric now fully supported across most of the portfolio
- Provisioning, management, monitoring Prime Collaboration growing in fun
- Feature and User Experience constantly getting better and better
- New compelling solutions like Web

— SIP
— H.323
— SCCP, MGCP, ISDN

Architectural Evolution

1st Half CY 2014

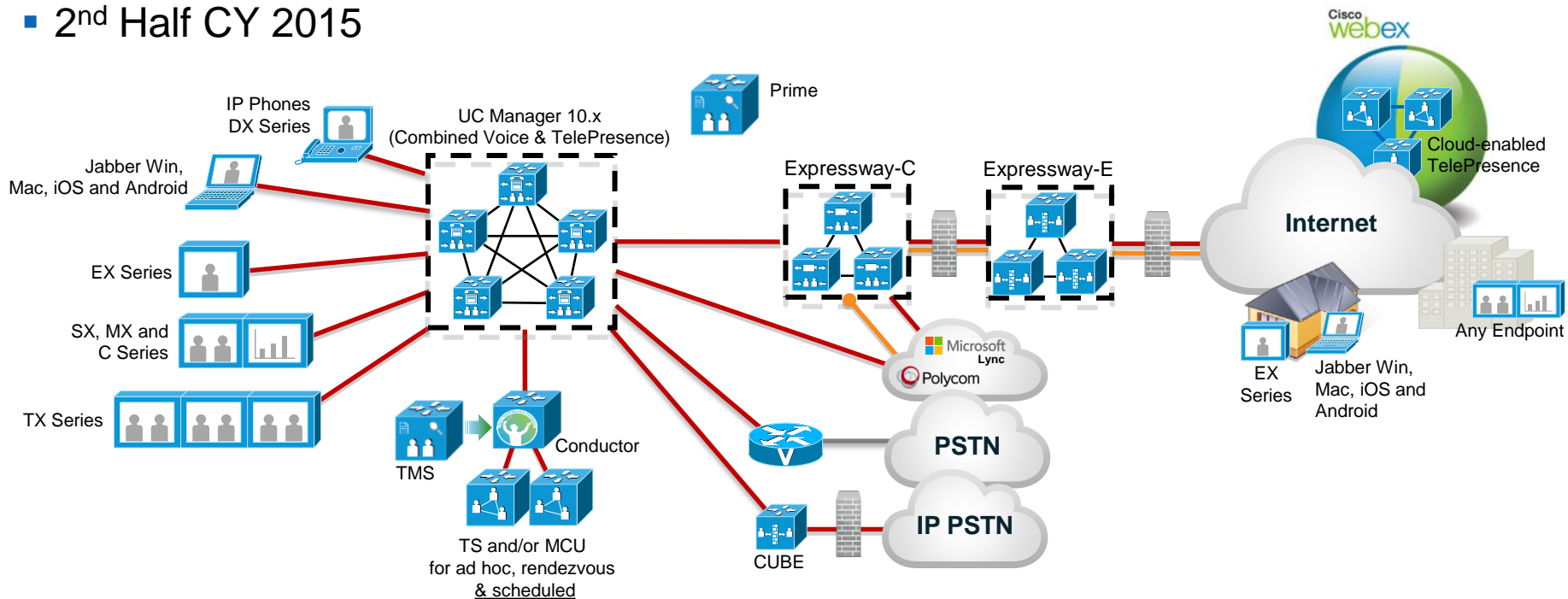


- SIP
- H.323
- SCCP, MGCP, ISDN

- All endpoints and infrastructure collapsed into a converged UC Manager call control with Expressway (C&E) for Remote & Mobile Access to UCM, B2B and WebEx/Cloud-enabled TelePresence connectivity and 3rd-party interworking
 - Multiparty bridging for audio and video, for all types of conferences now trunked through UC Manager (TMS scheduled resources still separate from Conductor ad hoc resources)
- Jabber now available on Windows, Mac, iOS and Android using Expressway for VPN-less access to UC Manager and related UC services (directories, presence, visual voicemail)
 - Video now a table-stakes feature: infused in a growing number of applications like Cloud-enabled TelePresence, Unity messaging, Contact Centre with new enabling technologies like Jabber Guest and WebRTC, H.265 and Scalable Video Coding (SVC)

Architectural Evolution

2nd Half CY 2015



- Multiparty bridging for audio and video, for all types of conferences now consolidated under Conductor with TMS for scheduling and meeting management

- Lots more exciting things in the pipeline but this isn't meant to be a roadmap presentation ☺

— SIP
— H.323
— SCCP, MGCP, ISDN



Enterprise Network Topologies and Associated Provisioning, Management and Firewall Traversal Methods

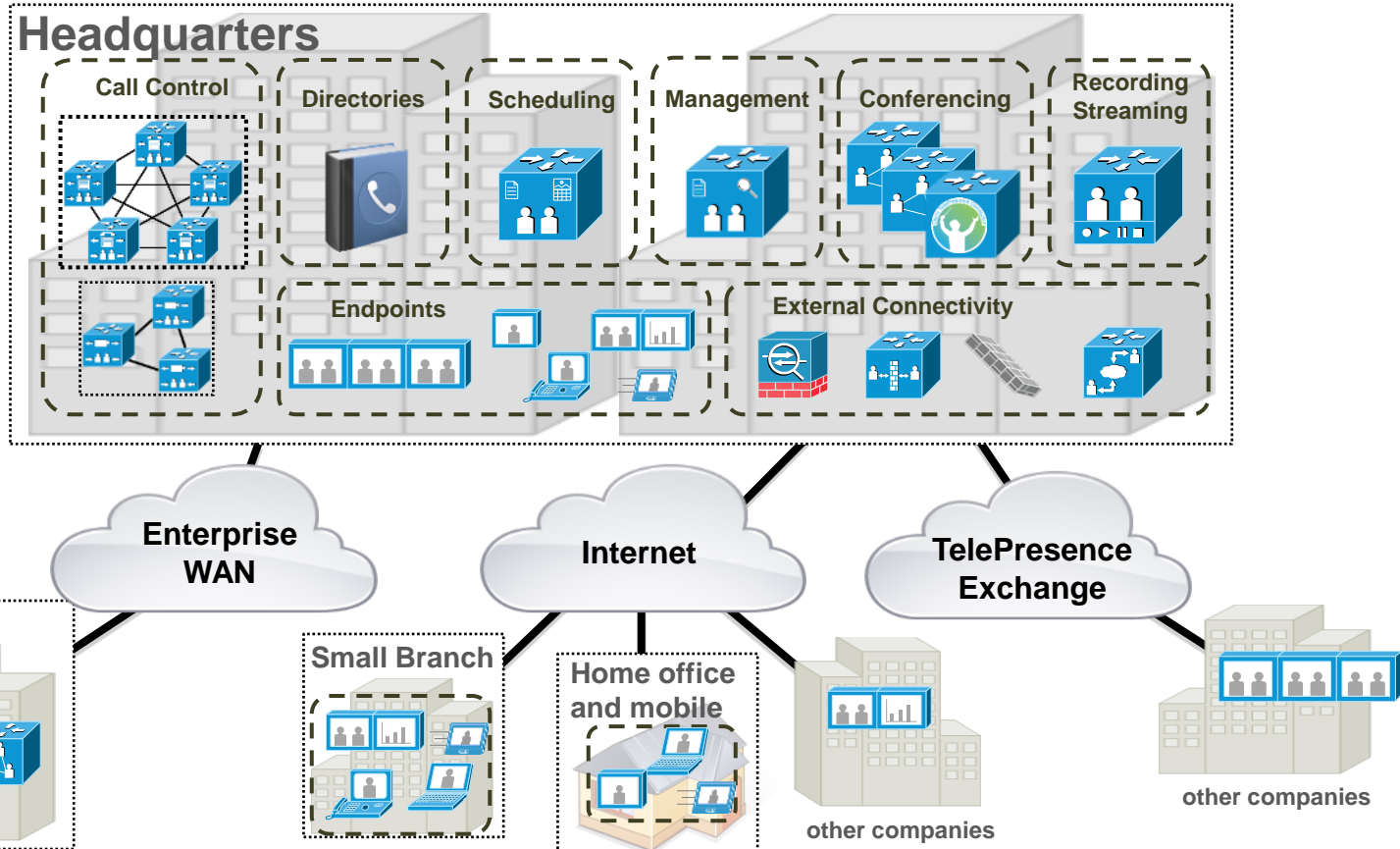
TelePresence Network Topologies

Endpoint Location and Connectivity Scenarios

Connectivity

Scenarios:

- Campus (LAN)
- Regional HQ and Branch (WAN)
- Branch (VPN)
- Home and Mobile (VPN or Expressway)
- B2B (MPLS or Over-the-Top)

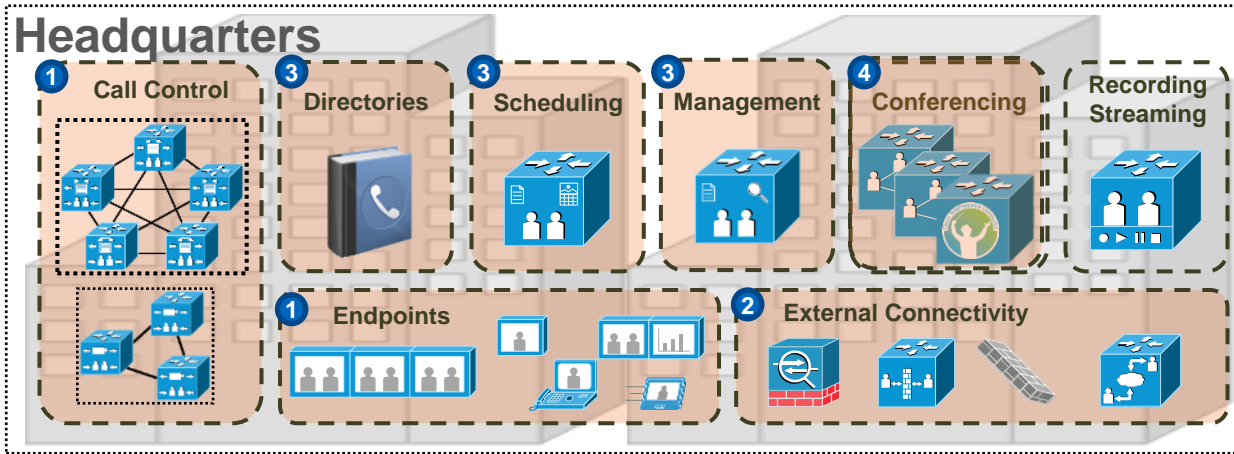


TelePresence Network Topologies

Endpoint Location and Connectivity Scenarios

Decisions:

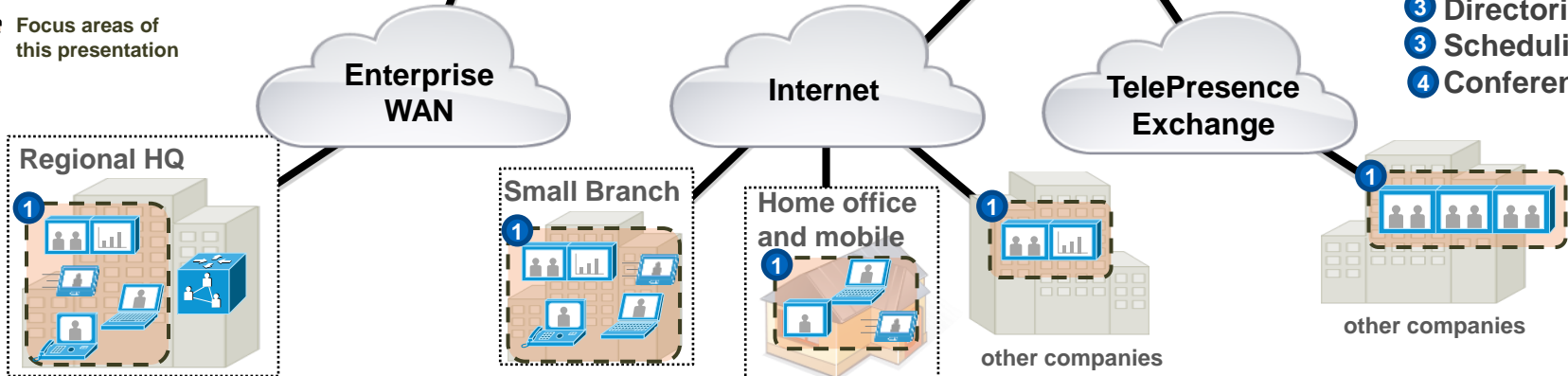
- 1 Which endpoint models to deploy
- 1 How to connect them back to UCM and other services
- 1 Which B2B scenarios you need to support



Factors that influence those decisions:

- 2 Layer-3 connectivity (WAN, VPN or Expressway)
- 3 Management (provisioning, monitoring, diagnostics)
- 3 Directories
- 3 Scheduling
- 4 Conferencing

Focus areas of this presentation



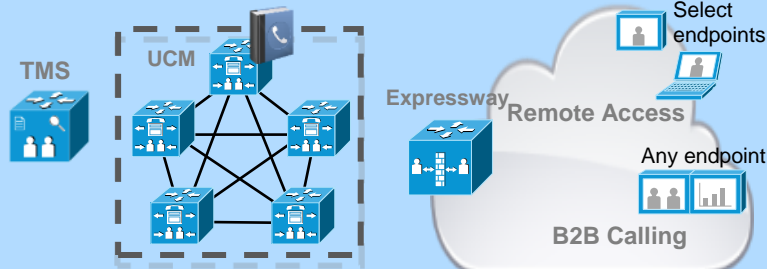
External Connectivity Scenarios

and Associated Provisioning, Management, Directories and Scheduling Methods

As of UC Manager 9.1, Expressway 8.1, Jabber 9.7, TC 7.1 and TMS 14.4

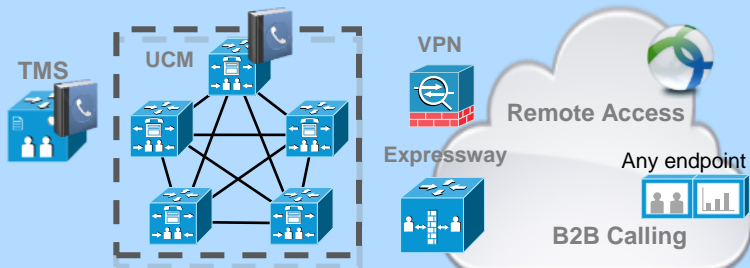
- Can now register through Expressway to UC Manager for remote access for home & mobile clients
- Can now use TMS phonebooks (only for TC-series endpoint models) registered to UC Manager (only for LAN, WAN or VPN endpoints. TMS phonebooks will not work through Expressway)
- Note: Remote management/diagnostics is not possible through Expressway. VPN recommended if remote management is required

Expressway



- ✓ UC Manager registration and call control
 - ✓ UC Manager directories
 - ~~X TMS phone books~~
 - ✓ Expressway B2B calling
 - ✓ VPN for remote access
 - ✓ Expressway remote & mobile access
 - ~~X TMS scheduling~~
 - ~~X Remote management~~
- New! in Expressway x8.1, Jabber 9.7 and TC7.1**

VPN

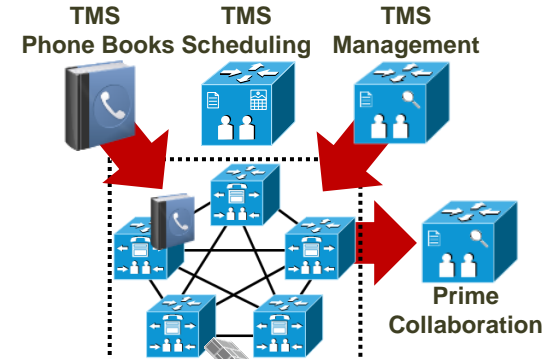
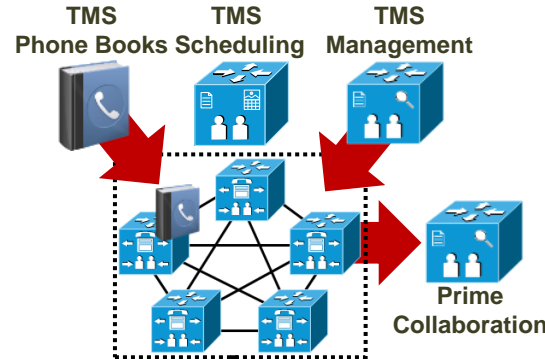
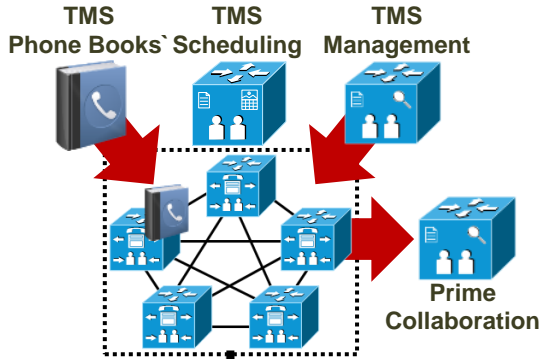


- ✓ UC Manager registration and call control
 - ✓ UC Manager directories
 - ✓ TMS phone books
 - ✓ Expressway B2B calling
 - ✓ VPN for remote access
 - ~~X Expressway remote & mobile access~~
 - ✓ TMS scheduling
 - ✓ Remote management
- New! in TMS 14.4 and TC 7.1**

Endpoint Registration Connectivity Models

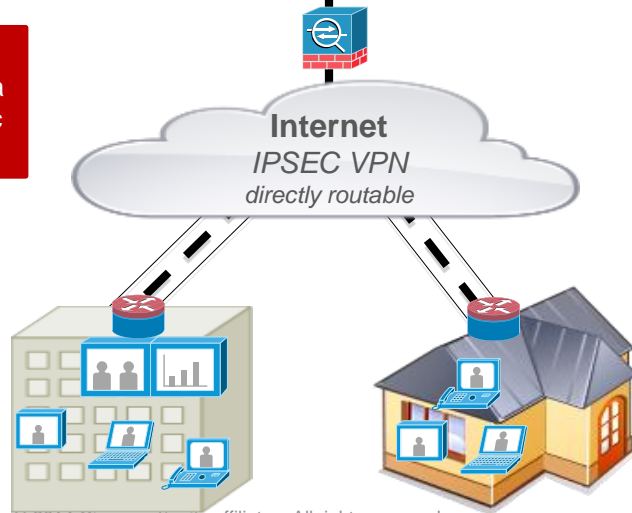
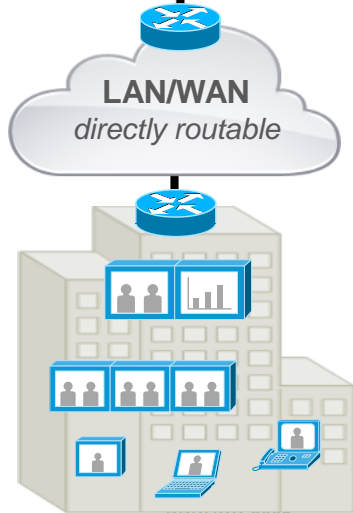
UC Manager Supported Network Topologies

(prior to Expressway x8.1)



TMS' role changes in a UCM-centric world

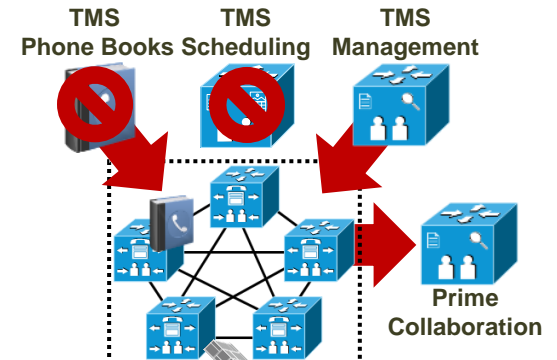
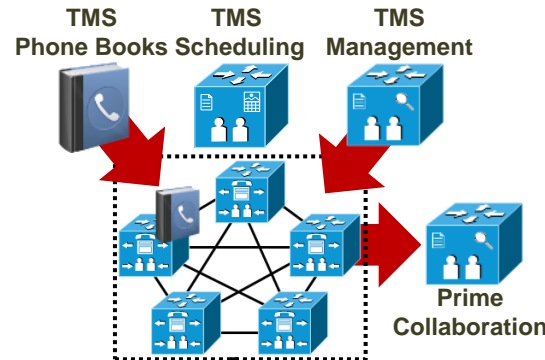
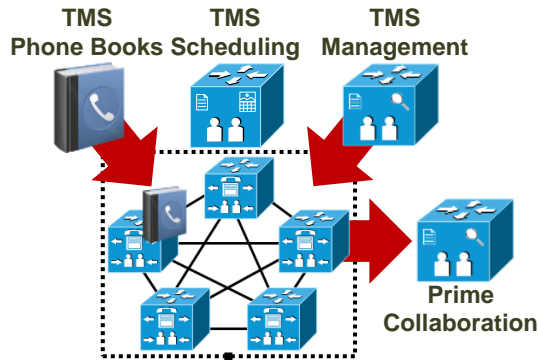
UC Manager supports all [current] endpoints, but didn't support Expressway for remote access, so must use a VPN method



Endpoint Registration Connectivity Models

UC Manager Supported Network Topologies

(now with Expressway x8.1)



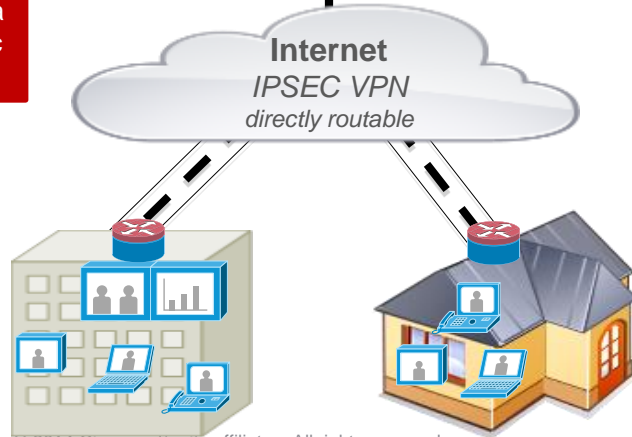
TMS' role changes in a UCM-centric world

Now supported in:

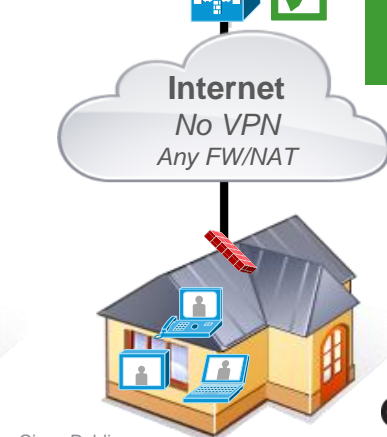
- Expressway x8.1
- Jabber 9.7
- TC 7.1



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Cisco Public

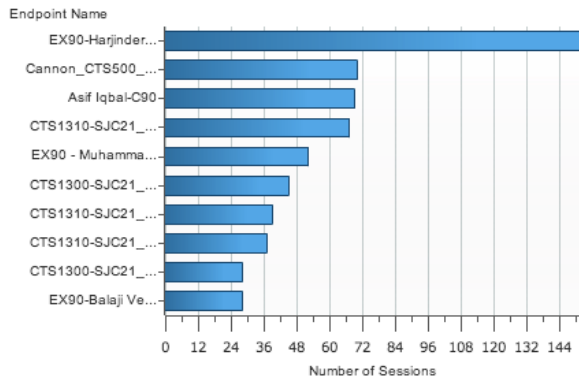
Cisco *live!*

Prime Collaboration Manager 10.0

BRKUCC-2670- Accelerate and Assure Collaboration deployments with Prime Collaboration

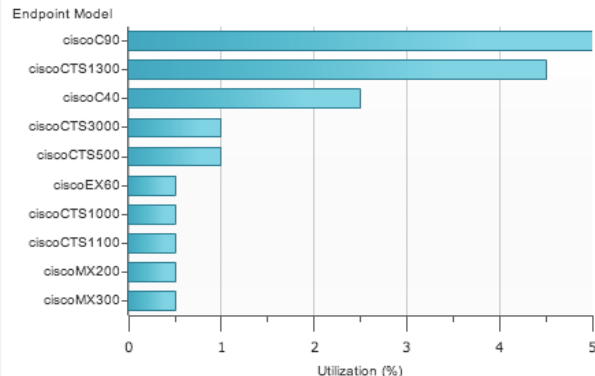
Top 10 Utilized Telepresence Endpoints

By Duration | By Sessions **1d** | 1w | 4w



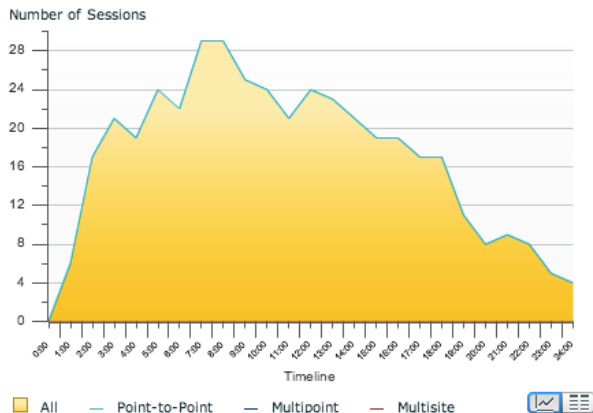
Top 10 Utilized Telepresence Endpoint Models

1d | 1w | 4w



Number of Telepresence Sessions

Session Structure | Session Type **1d** | 1w | 4w



Least 10 Utilized Telepresence Endpoints

By Duration | By Sessions **1d** | 1w | 4w

Endpoint Name	Usage (Hours)
Gregory Fujili (gfujil)-RV-EX90	0.00
EX90-Cynthia Lee (cynthlee)-Demo	0.00
Sandeep Singh (sansing3)-RV-EX90	0.00
Kevin McMenamy (kevinmcm) Office (tomprc)-RV-FX90	0.00

Least 10 Utilized Telepresence Endpoint Models

1d | 1w | 4w

Endpoint Model	Utilization (%)
ciscoEX90	0.00
ciscoMXP1700	0.00
ciscoProfile65	0.00
ciscoC60	0.00
ciscoProfile52-Dual	0.00

Top 10 No Show Telepresence Endpoints

1d | 1w | 4w

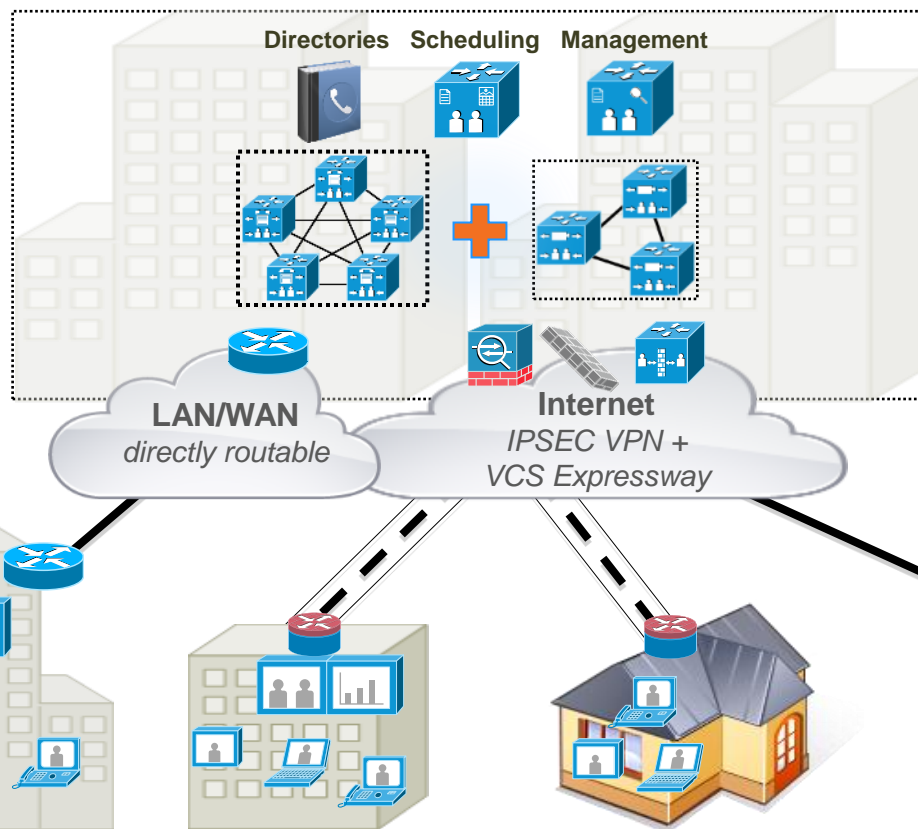
Endpoint Name	Number of No Show Sessions

Combined Models / Methods

Combine Techniques to Achieve Your Goals

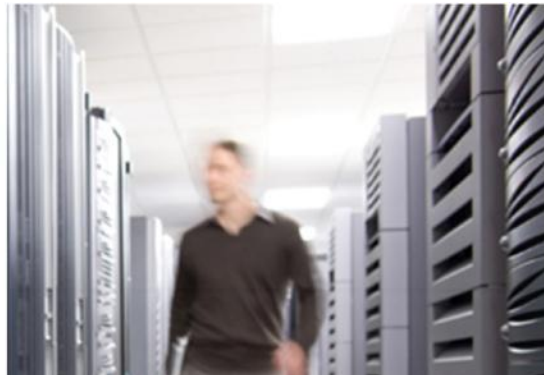
Use a combination of solutions to achieve your goals today:

- ✓ UCM and VCS Control and Expressway
- ✓ TMS and Prime Collaboration
- ✓ IP Phones, Jabber UC, Jabber Video (Movi), TC and TX series endpoints
- ✓ VPN-based and Expressway-based firewall traversal for Remote & Mobile Access.
- ✓ CUBE and/or Expressway for B2B calling
- ✓ CUBE for IP PSTN trunking



Plan your migration to:

- ✓ Migrate all endpoints to UCM 9.1 or higher (*10.0 recommended*)
- ✓ Prime Collaboration for endpoint provisioning and overall management, TMS for scheduling and conference management
- ✓ Migrate from Jabber Video (Movi) to Jabber UC 9.7
- ✓ Expressway x8.1 for Remote & Mobile Access and Expressway for B2B calling
- ✓ CUBE for IP PSTN trunking



Deploying TelePresence Endpoints on UC Manager – Best Practices

Deployment Best Practices – Topics Covered

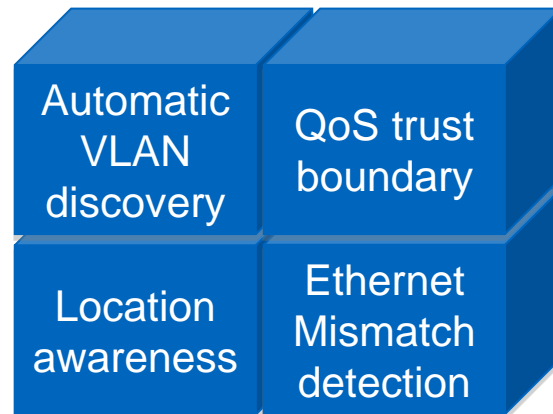
Basic layer-2/3 networking and boot up	UC Manager provisioning	Extended features
<ul style="list-style-type: none">▪ CDP and 802.1Q▪ DHCP Option 150 device-based provisioning or DNS SRV user-based provisioning▪ Auto-Registration or manual/bulk provisioning by MAC address▪ Quality of Service (essentials)	<ul style="list-style-type: none">▪ Firmware and Feature .cop files▪ Device-Specific Parameters and SIP Profile settings▪ Redundancy▪ Multipoint mode: Multisite or UCM MRGL▪ Encryption▪ Dial plan: Directory Numbers and Alphanumeric URIs▪ End user association	<ul style="list-style-type: none">▪ Directories / Phone Books▪ Shared Line Appearances▪ Single-Number Reach▪ Extension Mobility▪ Music / Video on Hold▪ Voicemail / Video Greetings▪ CTI applications▪ TMS scheduling

Cisco Discovery Protocol (CDP)

Automatic VLAN Discovery, Quality of Service and More...

- VLANs allow endpoints to be deployed without re-subnetting existing data VLANs
- Prior to CDP, TE and TC Series endpoints supported 802.1Q but had to be manually configured
- CDP introduced in TE release 4.1 and TC release 5.0. However, default is off to preserve legacy behavior for installed base customers
- CDP also allows for other benefits such as Quality of Service trust, detecting and alarming on ethernet speed/duplex misconfigurations, and location awareness

Previous Setting	New Setting	Definition
	Auto	Use VLAN ID provided by CDP
Tagged	Manual	Manually specify VLAN ID
Untagged (default)	Off (default)	Don't use VLAN tagging, even if CDP advertises one

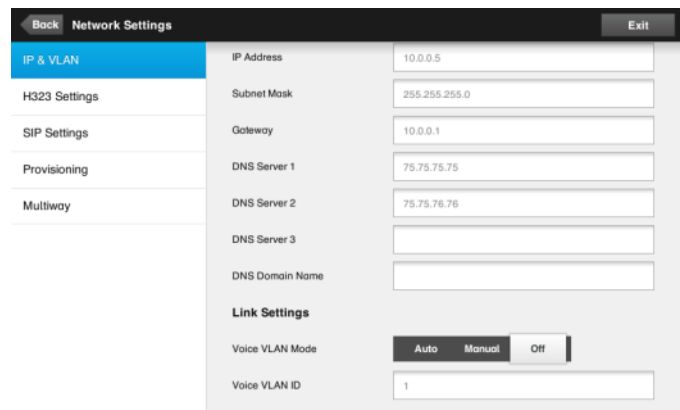
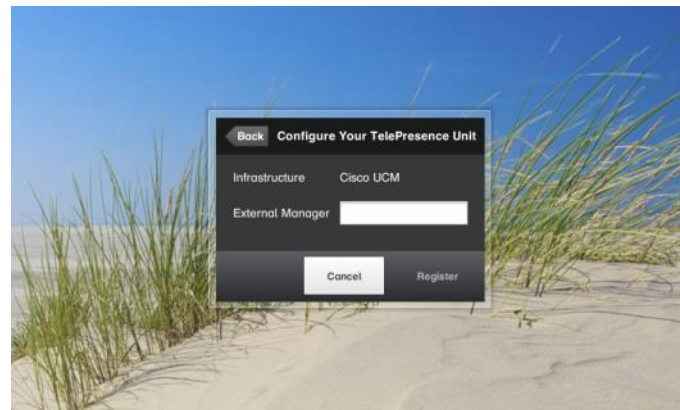


Cisco Discovery Protocol (CDP)

Enabling VLAN Discovery on TE and TC Series Endpoints

Upon bootup from factory default:
VLAN mode = Off

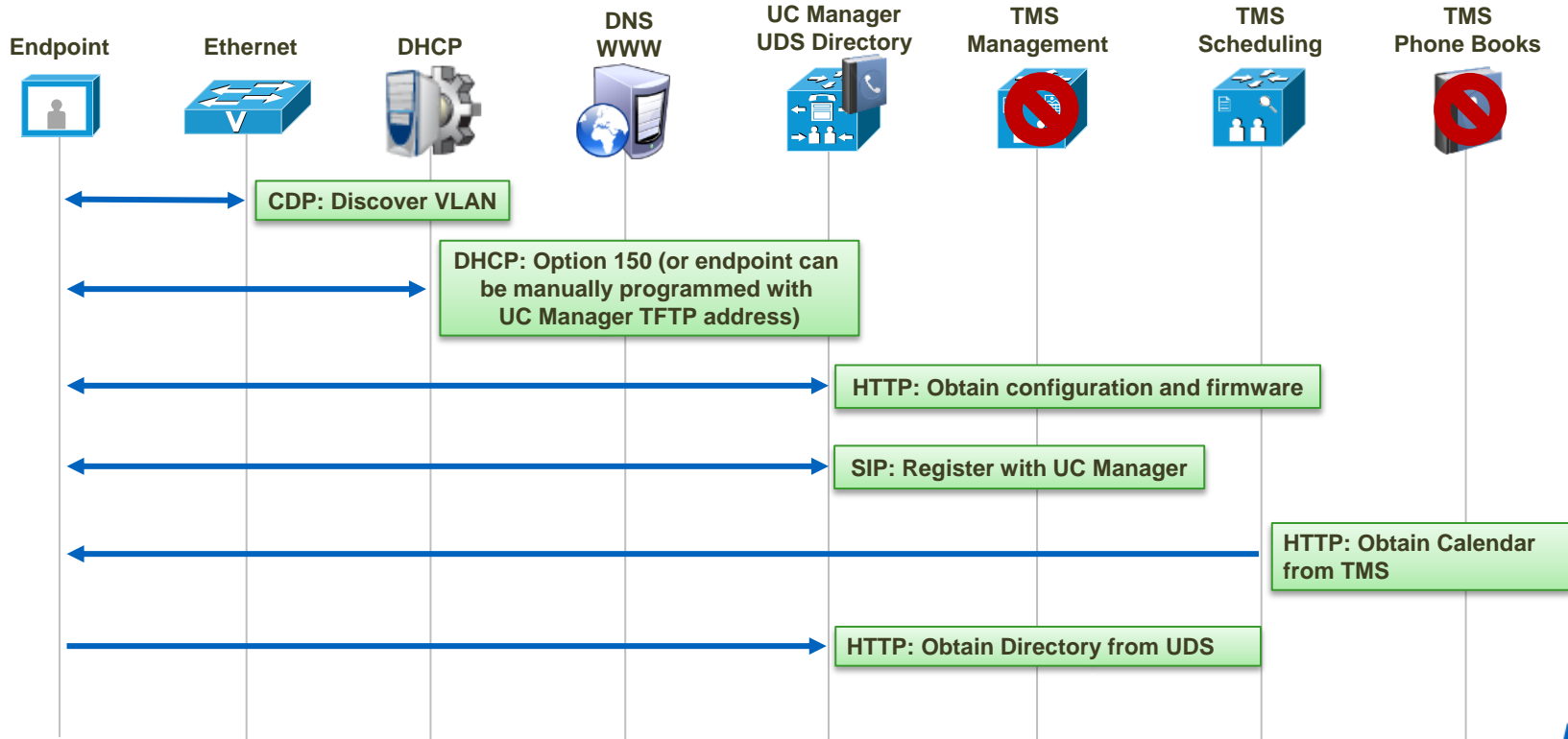
1. Do an untagged DHCP request¹, receive an address in the Native VLAN
2. Prompt the user for language choice and provisioning mode
3. If UCM mode selected, set VLAN mode = Auto, restart network stack, and do a tagged DHCP request with option 150¹ to receive a new address in the Auxiliary VLAN
4. Look for Option 150 in DHCP Offer¹. If present, proceed to step 5, otherwise prompt user for UC Manager address
5. Download configuration and firmware from UCM via HTTP port 6970, upgrade firmware and reboot if necessary, and proceed to register with UC Manager
6. VLAN mode can be changed anytime if desired



Boot Strapping Process

CUCM Provisioning – High Level Sequence

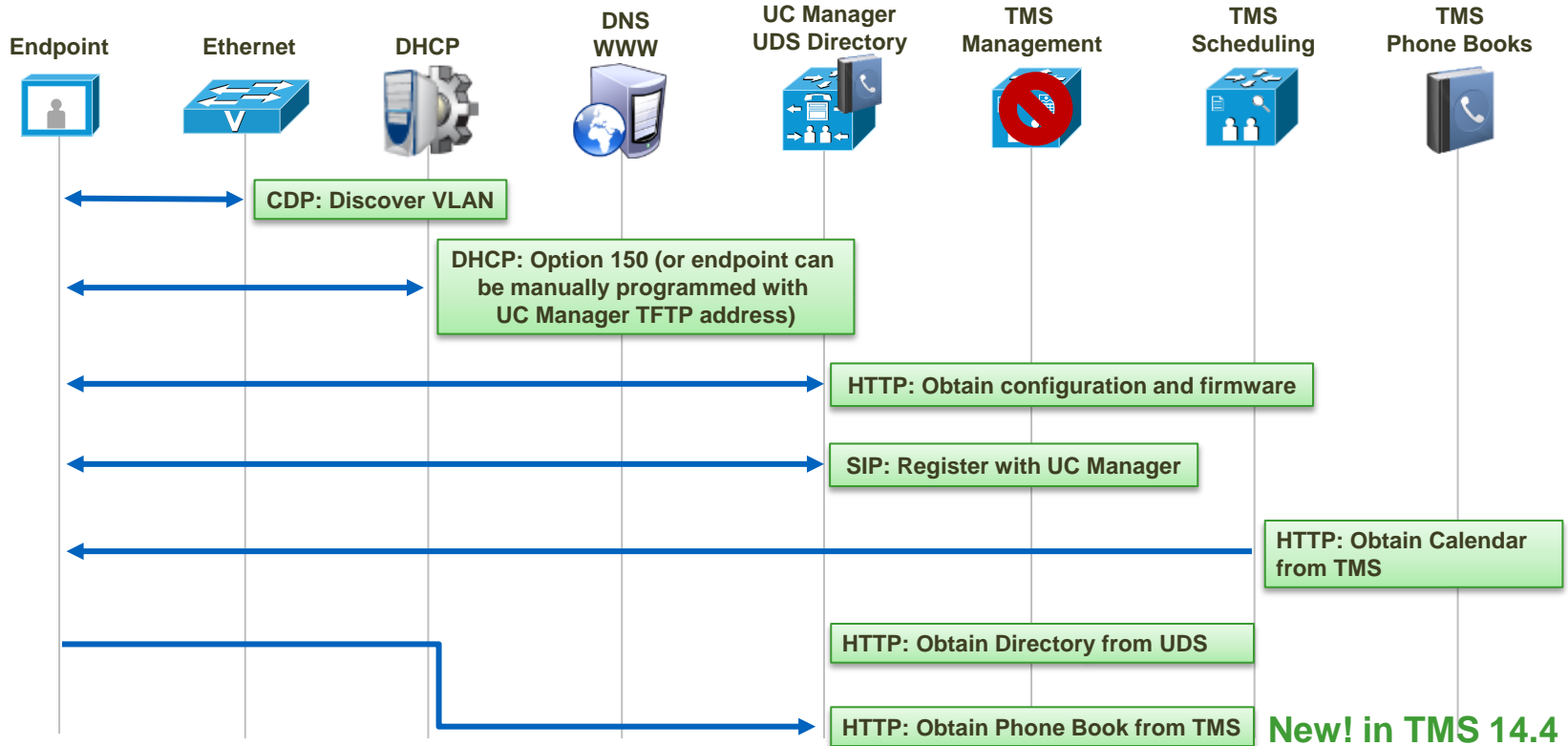
(prior to TMS 14.4)



Boot Strapping Process

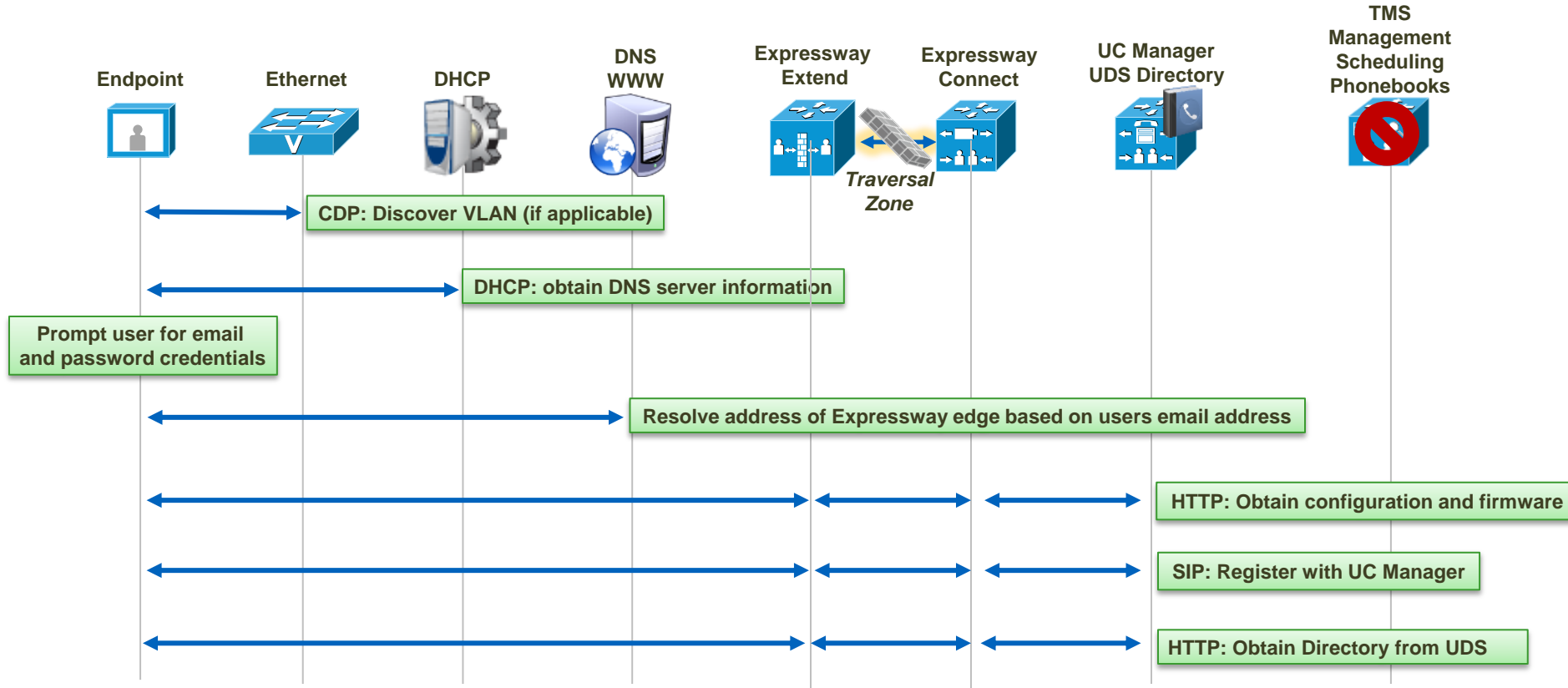
CUCM Provisioning – High Level Sequence

(now with TMS 14.4)



Boot Strapping Process

CUCM Provisioned – High Level Sequence (CUCM via Expressway Mode)



Administering TC Series Endpoints on UC Manager

Firmware and Feature .cop Files (a.k.a. Device Packs)

- Cisco Options Pack (.cop) files are installed on UC Manager and contain either firmware, new features / models, or both. COP files are specific to a UC Manager release train (e.g. 8.6.x, 9.0.x, 9.1.x, etc.)
- For TelePresence endpoints, new feature definitions COP files are not distributed directly, but instead rolled into the next regularly scheduled UC Manager release (device packs, service updates, minor and major releases). TelePresence endpoint firmware is not included in UC Manager releases and device packs, but rather posted separately to cisco.com for download

Not an exhaustive list, just a sample of some of the most recent enhancements so you get an idea of how device packs are used.

http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/compat/devpack_comp_mtx.html

UC Manager Device Pack / Release	New features introduced
9.1(2.11006-1) / September 2013 8.6(2.24097-1) / September 2013	Added Extension Mobility, Services and User Localisation support on the TC 6.2 series endpoints
8.6(2.24093-2) / August 2013	Added UCM failover/fallback, call preservation, config file encryption, and several device-specific parameters on the TC 6.2 series endpoints
9.1(1.21010-1) / March 2013 8.6(2.23071-1) / March 2013	Added “multipoint mode” device-specific parameter on TC 6.0 series endpoints
9.0(1.11013-1) / December 2012	Added alpha-numeric URI support and “Bandwidth Allocation Weights” device-specific parameter on CTS 1.10 and TX 6.0 series endpoints
9.0(1.11003-1) / September 2012	Added UCM encryption support (CAPF, CTL, ITL, TLV) and “multipoint mode” device-specific parameter on TC 6.0 series endpoints

Administering TC Series Endpoints on UC Manager

Auto, Manual and Bulk Provisioning

- TC Series endpoints support Auto-Registration as of TC 6.0
- Auto-Reg assigns a numeric Directory Number to the endpoint. For Alpha-Numeric URIs you must add those manually once the endpoint is defined in UC Manager (after manually defining it or after it auto-registers)
- Use the Bulk Administration Tool to add/change/delete endpoints in bulk and to take backups of endpoint configs (device > export)
- You may use Prime Collaboration Provisioning instead of UC Manager's native admin UI for add/change/delete operations

Administering TC Series Endpoints on UC Manager

Configuring the Endpoints

Association Information

1 7796 Line [1] - 89023434 in CORE 8Digit
7796

2 7796 Line [2] - Add a new DN
7796

Phone Type

Product Type: Cisco TelePresence EX90
Device Protocol: SIP

Device Information

Registration
Registered with Cisco Unified Communications Manager gigantic-7
IP Address 10.35.200.182
Active Load ID TE6.0.0.4c9c6d1
Download Status Unknown

MAC Address* 005060044DB4

Description Kevin McMenamy (kevinmcm)-RV-EX90

Device Pool* Audio-64k Video-4M 012-013

Common Device Configuration Alpha-All Features With MOH For Phones

Phone Button Template* Standard Cisco TelePresence EX90

Common Phone Profile* Standard Common Phone Profile

Calling Search Space CORE 8Digit

AAR Calling Search Space < None >

Media Resource Group List < None >

User Hold MOH Audio Source < None >

Network Hold MOH Audio Source < None >

Location* S3-Alpha

AAR Group < None >

Privacy* Default

Device Mobility Mode* Default

Owner User ID kevinmcm

Phone Load Name

Use Trusted Relay Point* Default

Always Use Prime Line* Default

Always Use Prime Line for Voice Message* Default

Geolocation < None >

Retry Video Call as Audio

Ignore Presentation Indicators (internal calls only)

Allow Control of Device from CTI

Logged Into Hunt Group

Remote Device

Device Page 1 of 3

- Browse to endpoint's web interface
- Current firmware load displayed
- Media Resource Group List for MCU or TelePresence Server w/Conductor
- Firmware loads distributed in .cop file format for installation on UCM. Set here or in Device Defaults page
- CTI control is limited and is only officially support for Contact Centre Remote Expert solution

Administering TC Series Endpoints on UC Manager

Configuring the Endpoints

Number Presentation Transformation

Caller ID For Calls From This Phone

Calling Party Transformation CSS < None >

Use Device Pool Calling Party Transformation CSS (Caller ID For Calls From This Phone)

Remote Number

Calling Party Transformation CSS < None >

Use Device Pool Calling Party Transformation CSS (Device Mobility Related Information)

Protocol Specific Information

Packet Capture Mode* None

Packet Capture Duration 0

BLF Presence Group* Standard Presence group

MTP Preferred Originating Codec* 711ulaw

Device Security Profile* Cisco TelePresence EX90 - Standard SIP Non-Secu

Rerouting Calling Search Space SJC DN Unlimited

SUBSCRIBE Calling Search Space SJC DN Unlimited

SIP Profile* TAA models BFCP and Media port

Digest User kevinmcm

Media Termination Point Required

Unattended Port

Require DTMF Reception

Certification Authority Proxy Function (CAPF) Information

Certificate Operation* No Pending Operation

Authentication Mode* By Null String

Authentication String

Key Size (Bits)* 1024

Operation Completes By 2013 1 23 12 (YYYY:MM:DD:HH)

Certificate Operation Status: None

Note: Security Profile Contains Addition CAPF Settings.

Device Page 2 of 3

- Enable TLS and sRTP (as of TC 6.1 release)
- Enable Fully Qualified Domain, and customise Start/Stop Media Ports¹
- Upgrade/Install/Delete Locally Significant Certificate (LSC) (as of TC 6.1 release)

Administering TC Series Endpoints on UC Manager

Configuring the Endpoints

Product Specific Configuration Layout

Room Name (from Exchange(R))

Web Access*

SSH Access*

Default Call Protocol*

Quality Improvement Server

Multipoint Mode*

Admin username and password

Admin Username

Admin Password

Dial Plan

Site Access Code

Inter Site Access Code

Off-Net Access Code

National Dialing Digits

International Dialing Digits

Directory Number

Country Code

Area Code

Local Number

Device Page 3 of 3

- Enable Web and SSH Access
- SIP is the only supported protocol UC Manager
- Use Embedded Multisite or enable ad hoc escalation to MCU or TS w/Conductor
- Password synchronisation requires encrypted configuration files (as of TC 6.2 release)

Administering TC Series Endpoints on UC Manager

Configuring the line on the endpoint

The screenshot displays the Cisco Unified CM Administration interface for configuring a device. The main section is titled "Directory Number Configuration" and includes several sub-sections:

- Directory Number Settings:** Includes fields for Voice Mail Profile, Calling Search Space, BLF Presence Group, User Hold MOH Audio Source, and Network Hold MOH Audio Source. A blue arrow points to the "Voice Mail Profile" dropdown.
- Associated Remote Destinations:** A table listing destinations with columns for Name, Destination Number, and Owner. A blue arrow points to the "Destination Number" column.
- Directory URIs:** A table listing URIs with columns for Primary, URI, and Partition. A blue arrow points to the "URI" column.
- Line 1 on Device SEP005060044D84:** A table with columns for Display, Value, and Settings. A blue arrow points to the "Value" column.
- Multiple Call/Call Waiting Settings on Device SEP005060044D84:** Includes fields for Maximum Number of Calls and Busy Trigger.

Directory Number Page

- Voicemail and Message Waiting Indication (MWI) (on E20 and TC Series)
- Unified Mobility / Reach Me Anywhere
- Alpha-numeric URIs added in UC Manager 9.0
- Display Name is displayed on top left corner of endpoint Touch user interface and also is displayed as the participant name on multipoint meetings, caller ID on pt-to-pt calls, etc.

Administering TC Series Endpoints on UC Manager

Configuring SIP Profiles

[Standard SIP Profile For Cisco VCS](#)
[Standard SIP Profile For TelePresence Conferencing](#)
[Standard SIP Profile For TelePresence Endpoint](#)
[Standard SIP Profile for Mobile Device](#)

Add New | Select All | Clear All | Delete Selected

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

Navigation: Cisco Unified CM Administration | Go
readonly | Search Documentation | About | Logout

System | Call Routing | Media Resources | Advanced Features | Device | Application | User Management | Bulk Administration | Help

SIP Profile Configuration | Related Links: Back To Find/List | Go

Status
Status: Ready
All SIP devices using this profile must be restarted before any changes will take affect.

SIP Profile Information

Name*	TAA models BFCP and Media port
Description	BFCP and 2326-2486 media ports for TAA
Default MTP Telephony Event Payload Type*	101
Early Offer for G.Clear Calls*	Disabled
SDP Session-level Bandwidth Modifier for Early Offer and Re-invites*	TIAS and AS
User-Agent and Server header information*	Send Unified CM Version Information as User-Agen
Accept Audio Codec Preferences in Received Offer*	Default
Dial String Interpretation*	Phone number consists of characters 0-9, *, #, and

Redirect by Application
 Disable Early Media on 180
 Outgoing T.38 INVITE include audio mlne
 Enable ANAT
 Require SDP Inactive Exchange for Mid-Call Media Change
 Use Fully Qualified Domain Name in SIP Requests
 Assured Services SIP conformance

Parameters used in Phone

Timer Invite Expires (seconds)*	180
Timer Register Delta (seconds)*	5
Timer Register Expires (seconds)*	3600
Timer T1 (msec)*	500
Timer T2 (msec)*	4000
Retry INVITE*	6
Retry Non-INVITE*	10
Start Media Port*	2326
Stop Media Port*	2486

Default SIP Profile For Cisco Video Communication Server
Default SIP Profile For Cisco TelePresence Conferencing
Default SIP Profile For Cisco TelePresence Endpoint
Default SIP Profile for Mobile Device

SIP Profile Page

- Use the provided Standard SIP Profile for TelePresence Endpoints profile, or copy it and create your own customised profile
- Disambiguates alpha-numeric URIs that contain only numeric characters
- Enable Use FQDN for alpha-numeric URI support
- Adjust RTP ports to historical TANDBERG defaults of 2326-2486 if desired

Administering TC Series Endpoints on UC Manager

Configuring Which UCM The Endpoints Should Register To

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾ Help ▾

Cisco Unified CM Group Configuration

Status
Status: Ready

Cisco Unified Communications Manager Group Information
Cisco Unified Communications Manager Group: 012-013 (used by 9160 devices)

Cisco Unified Communications Manager Group Settings
Name* 012-013
 Auto-registration Cisco Unified Communications Manager Group

Cisco Unified Communications Manager Group Members
Available Cisco Unified Communications Managers
Selected Cisco Unified Communications Managers*
gigantic-7
gigantic-8

Unified CM Group Page

- TC support for UCM failover/fallback added in TC 6.2
- TelePresence endpoints do not support SRST

Quality of Service

BRKUCC-2667 – Call Admission Control and Quality of Service for Collaboration

DiffServ Configuration on Cisco TelePresence Endpoints

- Endpoints on UCM derive their QoS values from the SEP[MAC_addr].cnf.xml config file they download from UC Manager
- UC Manager 8.0 introduced a new “DSCP for TelePresence Calls” parameter to differentiate “TelePresence” calls from traditional (Standard Def) “Video” calls

Clusterwide Parameters (System - QoS)		
DSCP for Audio Calls *	46 (101110)	46 (101110)
DSCP for Video Calls *	34 (100010)	34 (100010)
DSCP for TelePresence Calls *	32 (100000)	32 (100000)

- You can verify QoS setting on the system’s web interface

Configuration > Telephony Settings	
Auto Answer:	No
Maximum Call Length (mins):	0
DSCP For Audio:	EF DSCP (101110)
DSCP For TelePresence:	CS4(precedence 4) DSCP (100000)
Start Media Port:	16384
End Media Port:	32766

Note: Use Unified CM to change these settings.

QoS

Mode
Diffserv

Diffserv

Audio
32 (Valid from 0 to 63)

Data
32 (Valid from 0 to 63)

Signalling
24 (Valid from 0 to 63)

Video
32 (Valid from 0 to 63)

Extension Mobility on TC Endpoints

- Extension Mobility now supported on TC 6.2 series endpoints
- Great for shared workspaces, hot-desking applications
- Sign in using your UC Manager userid and Extension Mobility PIN
- Manually sign out, or UC Manager can automatically sign you out after [Maximum Login Time]

Clusterwide Parameters (Parameters that apply to all servers)

Enforce Intra-cluster Maximum Login Time *	<input type="text" value="True"/>	False
Intra-cluster Maximum Login Time *	<input type="text" value="12:00"/>	8:00
Inter-cluster Maximum Login Time *	<input type="text" value="10:00"/>	10:00
Intra-cluster Multiple Login Behavior *	<input type="text" value="Auto Logout"/>	Multiple Logins Not Allowed
Alphanumeric User ID *	<input type="text" value="True"/>	True
Remember the Last User Logged In *	<input type="text" value="True"/>	False
Clear Call Logs on Intra-Cluster EM *	<input type="text" value="False"/>	False

There are hidden parameters in this group. Click on Advanced button to see hidden parameters.

Kevin McMenemy

kevin@cisco.com

Available

Do Not Disturb

Forward all calls >

Sign In

Settings

Standby

11:56 AM



Dial



Contacts



Meetings



Messages



Sign In

Administering TC Series Endpoints on UC Manager

User Localisation



For Your Reference

User Local can be configured on the device and on Extension Mobility user profiles

The CUCM supported languages are mapped to the languages on the Cisco TelePresence Touch 8, as follows:

- Arabic (Algeria, Bahrain, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, United Arab Emirates, Yemen) = Arabic
- Chinese (China) = ChineseTraditional
- Chinese (Taiwan) = ChineseSimplified
- Czech (Czech Republic) = Czech
- Danish (Denmark) = Danish
- Dutch (Netherlands) = Dutch
- Finnish (Finland) = Finnish
- French (France) = French
- German (Germany) = German
- Hebrew (Israel) = Hebrew
- Hungarian (Hungary) = Hungarian
- Italian (Italy) = Italian
- Japanese (Japan) = Japanese
- Korean (Korea Republic) = Korean
- Norwegian (Norway) = Norwegian
- Polish (Poland) = Polish
- Portuguese (Brazil) = PortugueseBrazilian
- Russian (Russia) = Russian
- Spanish (Colombia) = Spanish
- Spanish (Spain) = Spanish
- Swedish (Sweden) = Swedish
- Turkish (Turkey) = Turkish

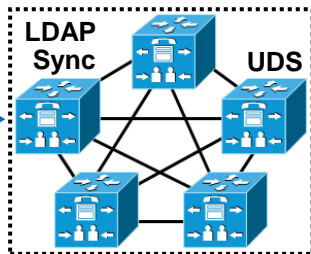
The CUCM languages not listed are mapped to English.

Note: User Localisation and Extension Mobility are not supported on CTS and TX series endpoints. Only on TC series

TelePresence Endpoints on UC Manager

Directory Lookups (a.k.a. Phone Books)

Microsoft AD / ADAM
Sun / Oracle
OpenLDAP



UDS Search Result

Dial'able contact methods

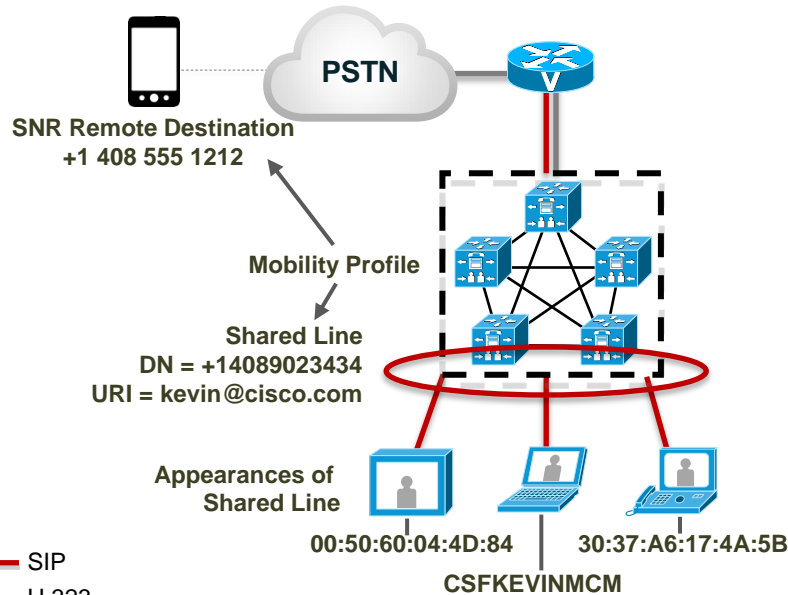
- Office number
- Mobile number
- Alpha-numeric URI
- UDS provides one flat searchable directory. No partition'able / hierachical phone books like TMS has

```
- <user uri="https://172.19.236.46:8443/cucm-uds/user/kevinmcm">
  <userName>kevinmcm</userName>
  <firstName>Kevin</firstName>
  <lastName>McMenamy</lastName>
  <middleName>R</middleName>
  <nickName />
  <phoneNumber>+1 408 902 3434</phoneNumber>
  <homeNumber />
  <mobileNumber>+1 408 835 8342</mobileNumber>
  <mobileConnect>>false</mobileConnect>
  <userLocale xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:nil="true" />
  <email>kevinmcm@cisco.com</email>
  <msUri>kevinmcm@cisco.com</msUri>
  <department>020042546</department>
  <manager>skaleem</manager>
  <title>PRINCIPAL ENGINEER.ENGINEERING</title>
  <pager />
  <directoryUri>kevinmcm@cisco.com</directoryUri>
</user>
```

Shared Lines and Single Number Reach

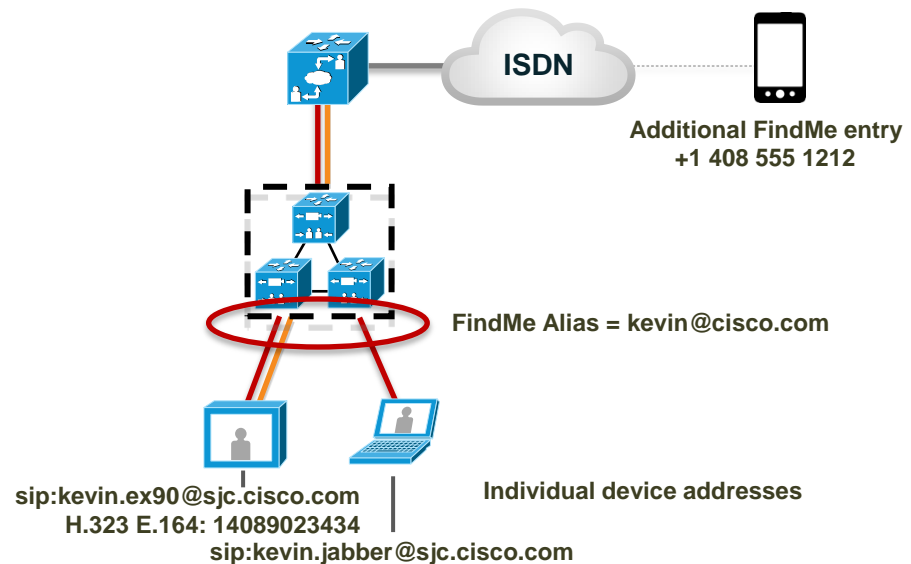
- A simple comparative view for VCS customers who are still getting familiar with UCM

UC Manager



- SIP
- H.323
- SCCP, MGCP, ISDN

VCS



Shared Lines and Single Number Reach

User Portal



For Your Reference

Unified Communications Self Care Portal kevinmcm

Phones IM & Availability General Settings About Help

My Phones
Phone Settings
Call Forwarding

Jabber Kevin McM...
89023434 kevinmcm@cisc...

iPhone Kevin McM...
89023434

Mobile
+14088258342

Additional Phones
Add other phones such as your home office phone...

Edit Additional Phone

Phone Number or URI* +14088258342
Description Mobile

Enable Single Number Reach
Ring this phone and my business phone at the same time when my business line(s) is dialed.

Incoming call (89023434) (+14088258342)

Enable Move To Mobile
If this is a mobile phone, transfer active calls to this Mobile Phone when the Mobility Button on your Cisco IP Phone is pressed.

*Required Advanced call timing Save Cancel

MediaSense

Video On Hold, Video in Queue and Video Greetings in Unity Connection Voicemail

Video on Hold (VoH)

- In UC Manager, MediaSense server(s) can be defined as Video on Hold resources and assigned to Media Resource Groups and used with Native Hunt Groups queuing

Video Greetings

- In Unity Connection, MediaSense server(s) can be defined as storage/playback servers
- When a call is forwarded (busy / no answer) to Unity voicemail caller will now “see” your voicemail greeting
- Recording of video messages is planned for a future release

Video in Queue (ViQ)

- In Contact Centre (Express and Enterprise editions), MediaSense server(s) can be defined as Video on Hold and Video in Queue servers and integrate into the Finesse agent desktop
- When a caller is in queue waiting for an agent
- When an agent places a customer on hold

Find out more at

http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/mediasense/10/srnd/CUMS_BK_MC36D963_00_mediasense-srnd.html

TC Series Endpoints on UC Manager

Functionality Supported / Not Supported

(as of TC 7.0)

1 of 2



For Your Reference

- TC 7.0 Series endpoints registered to UC Manager

Functionality	Status
Calling features	<ul style="list-style-type: none">✓ Alpha-numeric URI dialing✓ +, * and # character dialing✓ Hold / Resume✓ Transfer✓ Call Forwarding✓ Music on hold (unicast only)✓ BFCP (presentation sharing)
Encryption	<ul style="list-style-type: none">✓ CAPF, CTL, LSC✗ MIC✓ sRTP (audio + video)✓ Signed configuration files✓ Encrypted configuration files✓ TVS
Conferencing	<ul style="list-style-type: none">✓ Multisite (embedded)✓ Ad hoc conference escalation to MCU or Conductor with MCU or TS on UC Manager
CTI Support	<ul style="list-style-type: none">✓ CTI Monitoring of device availability✓ CTI Remote Call Control (remote-cc) limited to Remote Expert support✗ Jabber Desk Phone Control Mode✗ Attendant Console✗ Other CTI applications
Shared Lines	<ul style="list-style-type: none">✓ Hold / Resume✓ cBarge✓ Hand-off from mobile to desk✗ Hand-off from desk to mobile (“Go Mobile” softkey)

TC Series Endpoints on UC Manager

Functionality Supported / Not Supported

(as of TC 7.0)

2 of 2



For Your Reference




- TC 7.0 Series endpoints registered to UC Manager

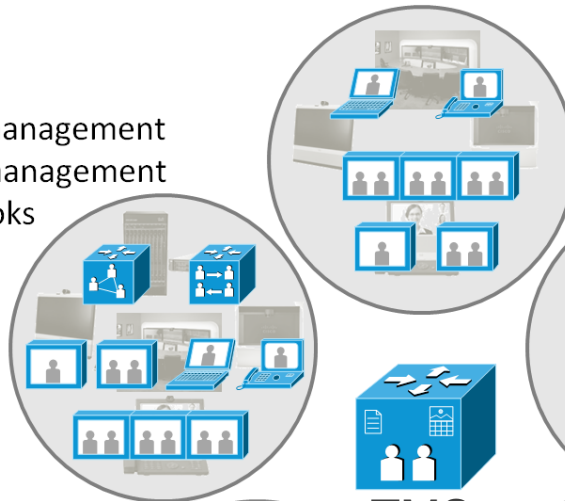
Functionality	Status
Redundancy	✓ Primary, Secondary, Tertiary UCM node failover/fallback ✓ Fallback includes UDS directories ✗ SRST
Extension Mobility	✓ Within a cluster ✓ Across clusters
Localisation	✓ on Device Profile ✓ on User Device Profile (used with Extension Mobility) ✗ Network Locals (tones)
UDS Service Discovery and Self Provisioning	✓ Cluster discovery ✓ Profile discovery ✗ Self-provisioning
Voicemail	✓ Message Waiting Indication (MWI) ✓ Message softkey ✗ Visual Voicemail

TMS Scheduling on UC Manager

BRKEVT-2664 – Implementing Video Scheduling and Webex Enabled Telepresence

TMS Features Available for Endpoints on UC Manager

 Endpoint management
 Resource management
New!  Phones books
in TMS 14.4 and TC 7.0



TMS

Scheduling 
Automated call launching 
Meeting management 

Diagnostics
Monitoring
Notification
Trouble management
Reporting



Prime
Collaboration




TMSXE

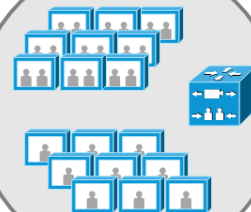


Scheduling
integrations



TMSPE

Provisioning 
Smart Scheduler 
User Portal 



TMS Conference Scheduling

TMS Scheduled Call Launch Methods

- **OBTP:** The user dials *in* from the endpoint by simply pressing a Start or Join button on the endpoint
- **Automatic Connect:** The main participant (also called video conferencing master) will automatically dial *out* to scheduled endpoints upon conference start time. The main participant is a scheduled endpoint for point-to-point conferences, and it is a conferencing platform (e.g. MCU) for multipoint conferences
- **Manual Connect:** The participants manually dial *in*
- **Reservation Only:** TMS only reserves the room(s) and will not reserve any multipoint resources nor will initiate any connections

TelePresence Management Suite

Portal Booking Monitoring Systems Phone Books

New Conference

Basic Settings

Title: Scheduled Meeting 1/4/2012 1:17 F

Type: One Button To Push

Owner: Automatic Connect

Advanced

Picture Mode: Continuous Presence

IP Bandwidth: 4096 kbps

ISDN Bandwidth: 6b / 384 kbps

Secure: If Possible



TMS Scheduling

TMS One Button to Push

- OBTP is available on the Cisco Touch 8", Touch 12", 797x IP phone MIDlet and the On Screen Display (OSD) with remote control.
- TC Series endpoints may be registered to UC Manager as of TMS 13.2
- Minimum release of firmware on the endpoints listed below



TC 5.0
TE 6.0



CTS 1.8































CTS 1.7



TC 5.0

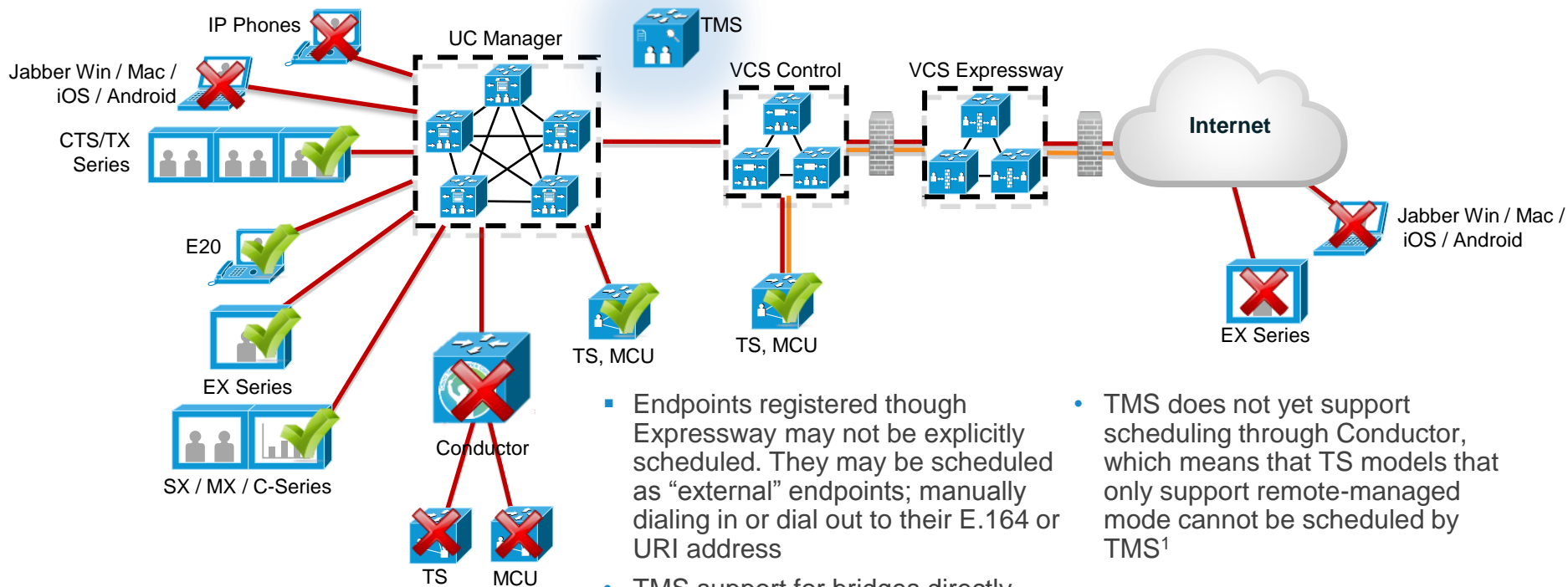
TMS Conference Scheduling Types

TMS Scheduled Call Launch Methods Supported by Endpoint Type

Endpoint Type	One Button to Push	Automatic Connect	Manual Dial In	External Dial In/Out	Notes
MXP Series					
E20					
TC Series					<ul style="list-style-type: none">▪ OBTP introduced in 13.1▪ Support for TC series on UC Manager introduced in 13.2
CTS and TX Series					<ul style="list-style-type: none">▪ Support for CTS series and OBTP introduced in 13.1▪ Support for TX series introduced in 13.2
Jabber					
IP Phones					
TMSPE and Expressway endpoints					<ul style="list-style-type: none">▪ TMSPE provisioned endpoints and endpoints registering through Expressway can only be scheduled as “external” dial in / dial out participants

TMS Conference Scheduling Scenarios

TMS Supported Connectivity Methods and Deployment Models



- Endpoints registered though Expressway may not be explicitly scheduled. They may be scheduled as “external” endpoints; manually dialing in or dial out to their E.164 or URI address
- TMS support for bridges directly trunked to UC Manager is **new in TMS 14.4**

- TMS does not yet support scheduling through Conductor, which means that TS models that only support remote-managed mode cannot be scheduled by TMS¹

— SIP
— H.323

TMS Scheduling on UC Manager

CTS / TX Series Endpoint Support in TMS

- TMS 13.1 added support for CTS Series endpoints and the One Button to Push call launch method. TMS 13.2 added support for TX Series endpoints and for CTS Native Interop Call Routing. For CTS and TX Series endpoints, which require the TelePresence Interoperability Protocol for triple-screen meetings, the following connectivity methods are applied by TMS:
 - CTS/TX to CTS/TX (direct TIP connection)
 - CTS/TX to non-TIP (standard SIP or H.323) systems will be assigned a TelePresence Server if Native Interop = No If = Yes then TMS will allow it to go direct point-to-point
 - CTS/TX in a call with more than one system will be assigned a TelePresence Server. If no TS is available, TMS will fallback to assigning an MCU
 - A TelePresence Server will always be preferred over an MCU for triple-screen systems, regardless of the **Preferred MCU Type in Routing** parameter

The screenshot shows the 'New Conference' configuration interface in the Cisco TelePresence Management Suite. The 'Type' dropdown menu is expanded, highlighting 'One Button To Push'. Other visible settings include the title 'Scheduled Meeting 1/4/2012 1:17 f', 'Automatic Connect' for the owner, 'Continuous Presence' for picture mode, '4096 kbps' for IP bandwidth, '6b / 384 kbps' for ISDN bandwidth, and 'If Possible' for secure connections.

Enable Cisco CTS Native Interop Call Routing:

- Yes
- ✓ No

TMS Scheduling on UC Manager

TMS support for UC Manager

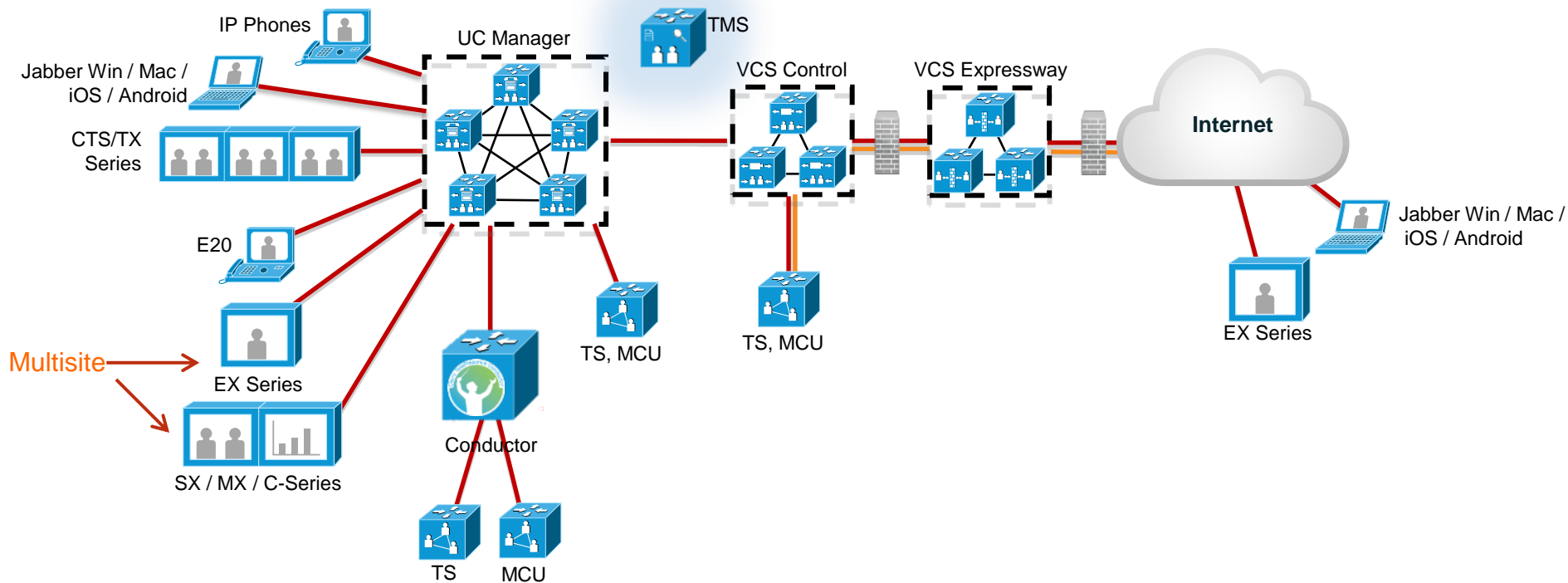
- To add UC Manager registered endpoints to TMS, add UC Manager to TMS first, and then discover the endpoints registered to it (*i.e. do **not** add the endpoints directly into TMS*)
- CUCM 8.6 or later is required. TMS will log into CUCM with AXL API Access permissions and return all endpoints associated with its Application User account
- CTS 1.7.0 or later is required for TMS scheduling
- When a CTS system is added to TMS, TMS can provide the following functions:
 - OBTP with TelePresence Server (or MCU if TIP is not required)
 - Schedule P2P calls
 - Read system information
 - Monitor response status and call status
 - OBTP or Auto Connect automated dial out from endpoint

The screenshot displays the TMS configuration page for a system named 'gigantic-6'. The system is identified as a Cisco Unified Communications Manager (CUCM) with a status of 'Alive'. The network address is 'gigantic-6.cisco.com' and it is reachable on the LAN. The interface shows various settings tabs: Summary, Settings (selected), Managed Systems, Connection, Permissions, and Logs. Under the 'View Settings' tab, there are sub-sections for 'General' and 'Configuration'. The 'General' section lists details such as Name, System Type, Manufacturer, Network Address, System Connectivity, Track System by, TMS System ID, Time Zone, Username, and Password. The 'Configuration' section shows the Software Version as 10.0.1.10000(24).

Field	Value	Field	Value
Name	gigantic-6	Status	Alive
System Type	Cisco Unified Communications Manager	Your Access	Book, Edit Settings, Manage Calls, Set Permissions, Read
Manufacturer	Cisco	System Contact	Not Selected
Network Address	gigantic-6.cisco.com (10.35.48.106)	Description	
System Connectivity	Reachable on LAN	Folders with system:	CUCM
Track System by	Hostname		
TMS System ID	2159		
Time Zone	(UTC-08:00) Pacific Time (US & Canada)		
Username	ctg-alpha-tms2		
Password	*****		

Section	Field	Value
Configuration	Software Version:	10.0.1.10000(24)

Ad Hoc / Rendezvous - Conference's



— SIP
— H.323

Optimised Conferencing

TelePresence Server 3.1 and Conductor XC2.2



UCM Configuration – Ad Hoc

1. Add Conference Bridge

MCU Conference Bridge Info

Conference Bridge Type* Cisco TelePresence MCU

Device is trusted

Conference Bridge Name* SJ_Conductor_Adhoc

Destination Address* 10.22.185.142

Description San Jose Conductor for adhoc calls

Device Pool* Default

Common Device Configuration < None >

Location* San Jose

Use Trusted Relay Point* Default

Conference Bridges (1 - 2 of 2)

Find Conference Bridges where Name begins with Find Clear Filter

Conference Bridge Name	Description	Device Pool	Status	IP Address
CFB_2	CFB_CUCM147	Default	Registered with 10.22.185.147	10.22.185.147
SJ_Conductor_Adhoc		Default	Registered with 10.22.185.147	10.22.185.142

2. Add Conference Bridge To MRG

Media Resource Group Information

Name* MRG_San_Jose_Bridges

Description Conductor controlled bridging resources

Devices for this Group

Available Media Resources**

- ANN_2
- CFB_2
- MOH_2
- MTP_2

Selected Media Resources* SJ_Conductor_Adhoc (CFB)

3. Add MRG to MRGL

Media Resource Group List Configuration

Save

Status

Status: Ready

Media Resource Group List Status

Media Resource Group List: New

Media Resource Group List Information

Name* MRGL_San_Jose

Media Resource Groups for this List

Available Media Resource Groups

Selected Media Resource Groups MRG_San_Jose_Bridges

4. Add MRGL to Device Pool

Device Pool Settings

Device Pool Name* DP_San_Jose

Cisco Unified Communications Manager Group* Default

Calling Search Space for Auto-registration < None >

Adjunct CSS < None >

Reverted Call Focus Priority Default

Local Route Group < None >

Intercompany Media Services Enrolled Group < None >

Roaming Sensitive Settings

Date/Time Group* CMLocal

Region* Default

Media Resource Group List MRGL_San_Jose

Location < None >

UCM Configuration – Rendezvous with Conductor

1. Add SIP trunk to the Bridge

Trunk Information

Trunk Type* SIP Trunk

Device Protocol* SIP

Trunk Service Type* None(Default)

Destination

Destination Address is an SRV

Destination Address 10.22.185.139

Destination Address IPv6

Destination Port 5060

MTP Preferred Originating Codec* 711ulaw

Presence Group* Standard Presence group

SIP Trunk Security Profile* Non Secure SIP Trunk Profile

Rerouting Calling Search Space < None >

Out-Of-Dialog Refer Calling Search Space < None >

SUBSCRIBE Calling Search Space < None >

SIP Profile* Standard SIP Profile

DTMF Signaling Method* No Preference

2. Add trunk to Route Group

Route Group Information

Route Group Name* RG_San_Jose_Conductors

Distribution Algorithm* Top Down

Route Group Member Information

Find Devices to Add to Route Group

Device Name contains Find

Available Devices** Trunk_Rendezvous_to_Conductor
Trunk_Rendezvous_to_Conductor_redundant

Port(s) None Available

Add to Route Group

BRKUCC-2665

3. Add Add Route Groups to Route List

Route List Information

Registration Registered with Cisco Unified Communications Manager 10.22.185.147

IP Address 10.22.185.147

Device is trusted

Name* RL_Conductor_Rendezvous

Description For Rendezvous meetings on Conductor

Cisco Unified Communications Manager Group* Default

Enable this Route List (change effective on Save; no reset required)

Run On All Active Unified CM Nodes

Route List Member Information

Selected Groups** RG_San_Jose_Conductors

Add Route Group

4. Add Route List for this Route Pattern

Pattern Definition

Route Pattern* 5XXX

Route Partition < None >

Description 5 and 3 digits matched for Rendezvous meetings

Numbering Plan -- Not Selected --

Route Filter < None >

MLPP Precedence* Default

Apply Call Blocking Percentage

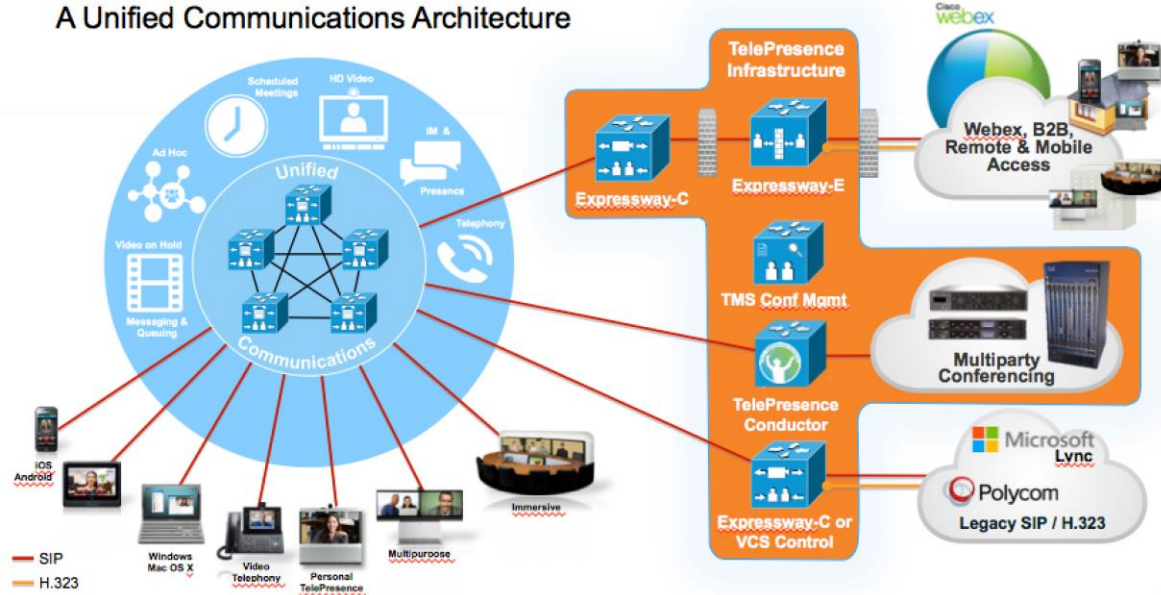
Resource Priority Namespace Network Domain < None >

Route Class* Default

Gateway/Route List* RL_Conductor_Rendezvous

Key Takeaways

A Unified Communications Architecture



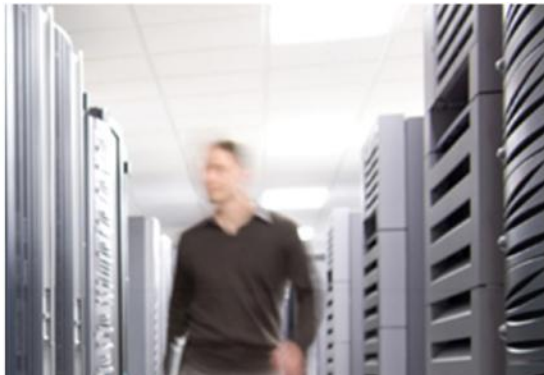
- UC Manager is Cisco's strategic call control platform for all UC, video and TelePresence endpoints and bridge resources moving forward, with Expressway providing firewall traversal and interoperability gateway functionality
- UC Manager release 8.6 is the minimum release required for most TelePresence-related features added since 2010. 9.1 or higher is strongly recommended
- VCS+TMS are still needed for older TANDBERG SIP and H.323 endpoints (such as the Classic and MXP series) and 3rd party video endpoint registration
- Different FW/NAT traversal and provisioning methods have an affect on what management and scheduling features are available. Use the right combination of methods to achieve your goals

- When using UC Manager, TMS' role is primarily for scheduling and conference coordination. Endpoint provisioning and management functionality is read only on TMS for UC Manager endpoints and TMS customers are encouraged to start using Prime Collaboration for management

Come see it in action



Many of concepts and features described in this session are being demonstrated in the **Collaboration Area** in the **World of Solutions**



Q & A

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