TOMORROW
starts here.

Cisco live!

Deploying Enterprise Communications Control for Voice and Video

BRKUCC-2674

Brendon Pinniger
Consulting Systems Engineer
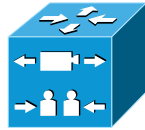
#clmel

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Agenda

- Cisco Evolution of Voice & Video

- Deployment challenges

- Making it work

- Wrap Up / Q&A

Icons Used In This Presentation

For Your Reference

Unified Communications Manager

Expressway Core (formerly VCS Control)

Expressway Edge (formerly VCS Expressway) or Unified Border Element (CUBE)

TelePresence Management Suite or Prime Collaboration

TelePresence Server or MCU

TelePresence Conductor
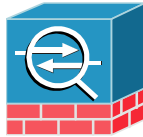
Directory Server or Phone Book

Cisco AnyConnect Software VPN Client

Advanced Security Appliance (ASA)

Network

Home Office

Generic DHCP Server

Cisco Virtual Office (IOS Router with VPN Client)

CVO

Generic Firewall / NAT

Branch Office

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 Series)

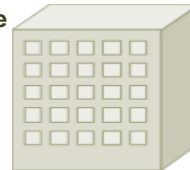PC client (Jabber for Windows / Mac)
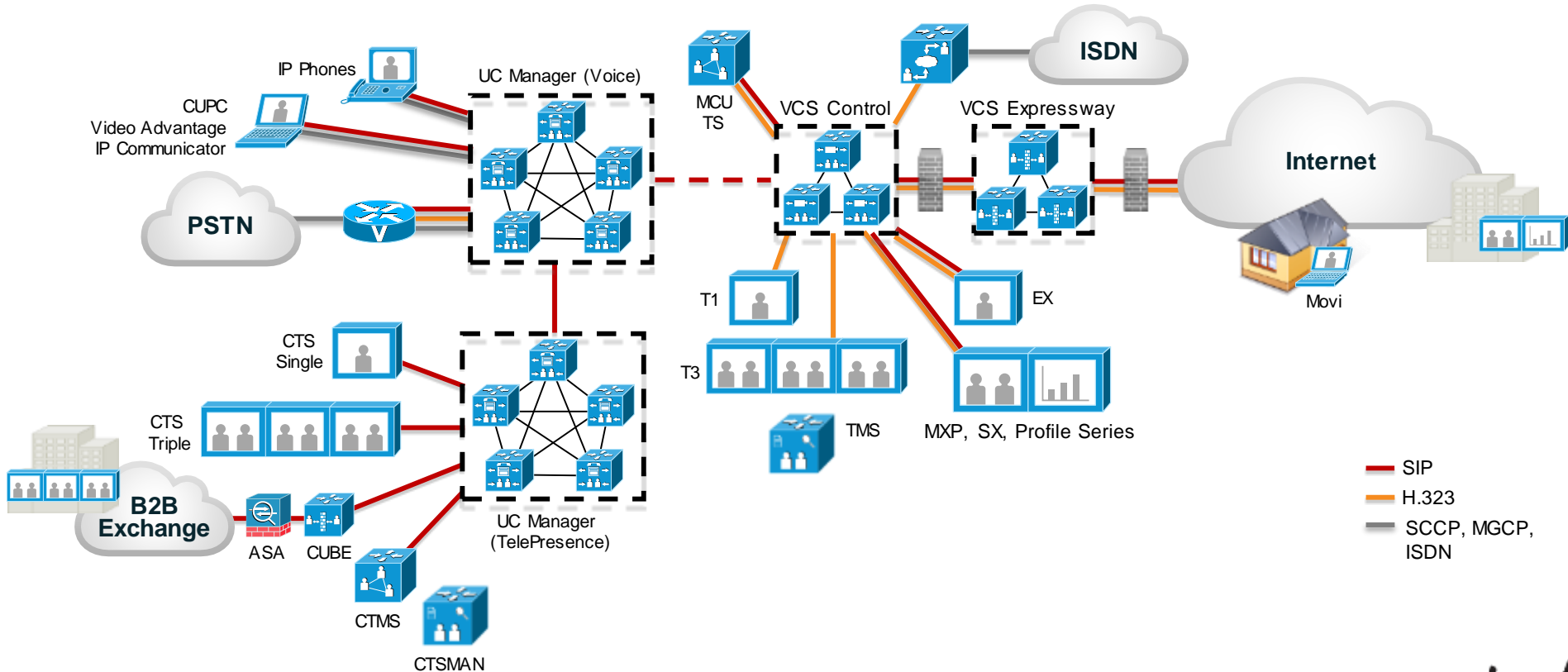
BYOD client (Jabber for IOS / Android)

Large Office

Cisco Public

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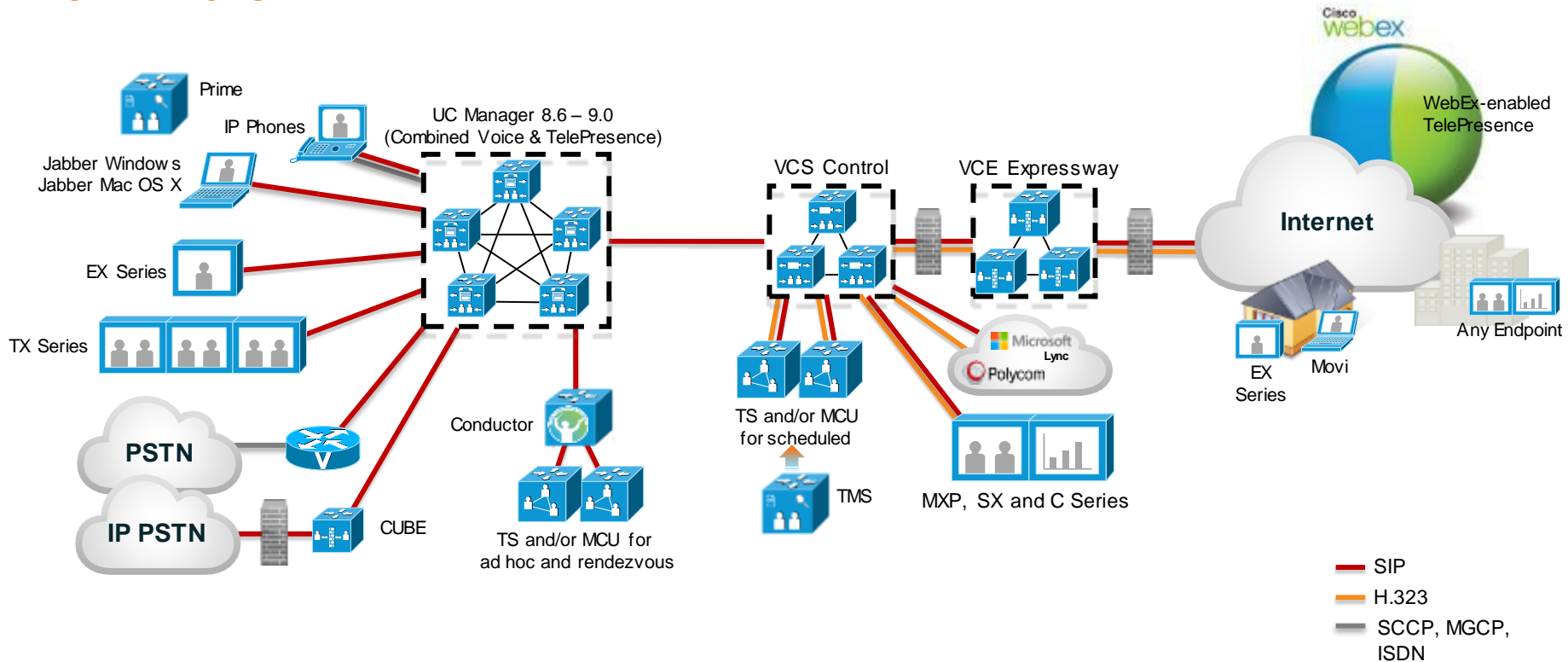# The Evolution of Cisco's Voice & Video Architecture

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Architectural Evolution

In the beginning…

Architectural Evolution
2011 – 2013

Architectural Evolution
2014
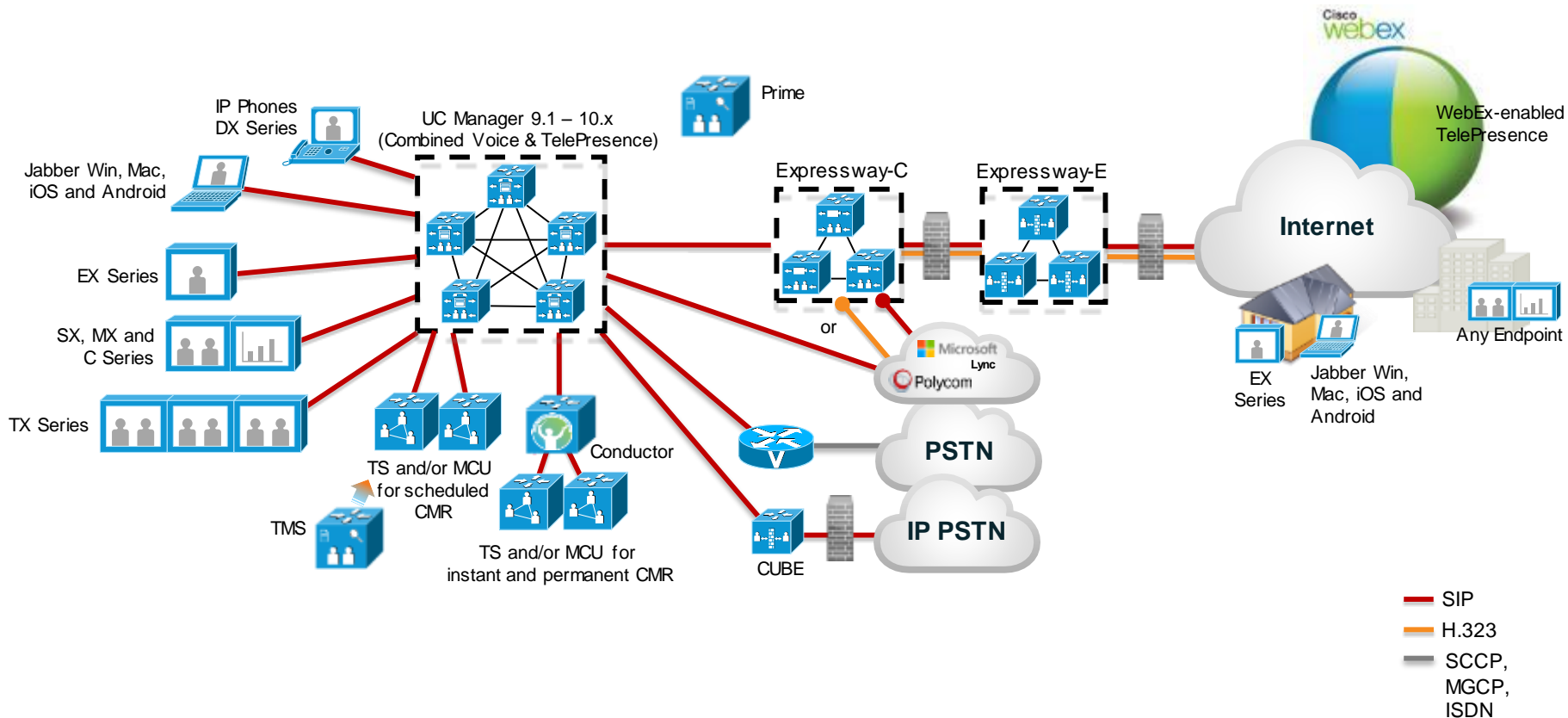
Architectural Evolution
Today…
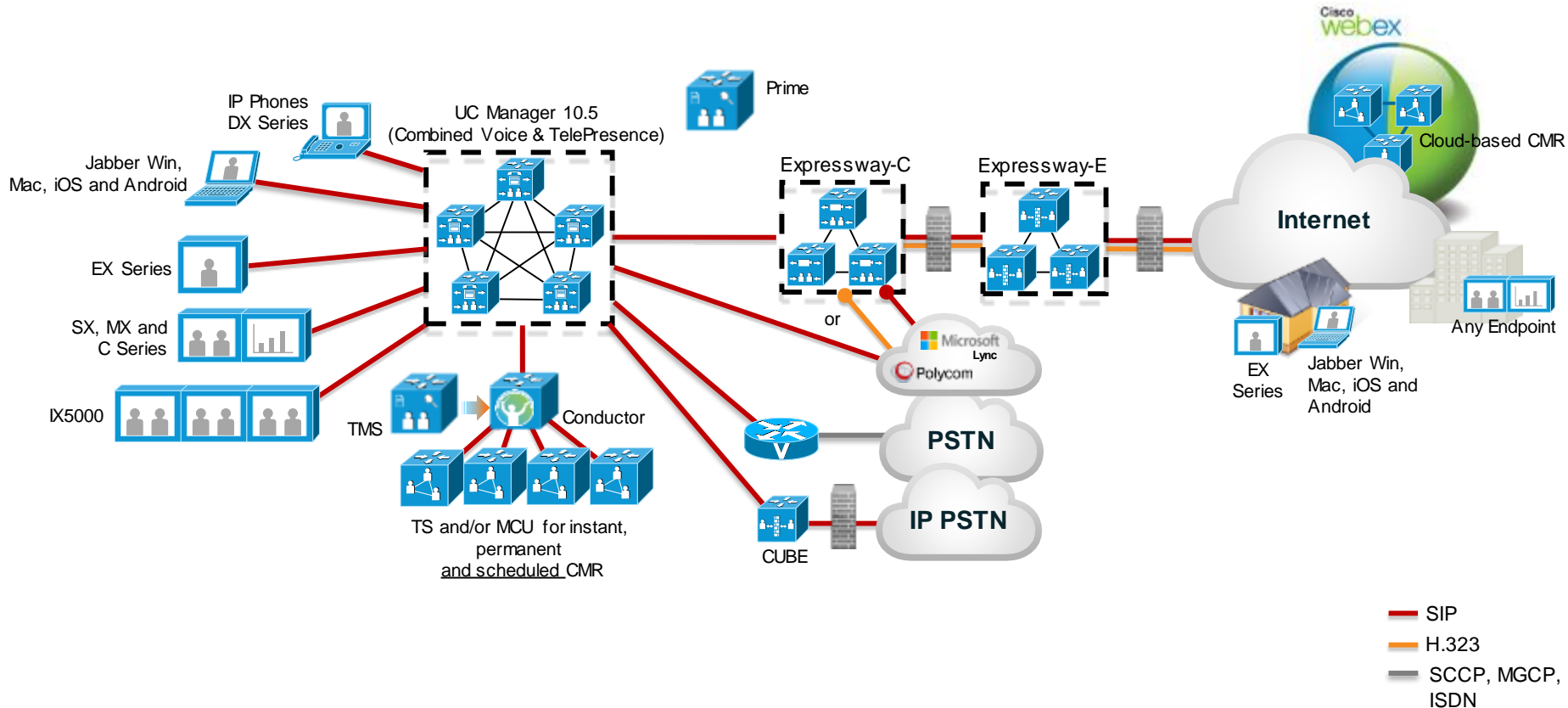
Challenges Faced When Deploying Video with Cisco UC

Deploying Endpoints

- Provisioning

- QoS

- Directories/Phone books

- Music/Video On Hold

- Other telephony features

- Video Messaging

- Dial Plans

- Legacy & 3rd party endpoints

Preferred Architecture

- Location & connectivity of endpoints

- Redundancy/Clustering

- Firewall traversal

- Monitoring/Troubleshooting/Reporting

- Security

- Bandwidth/CAC

Conferencing

- Scheduling

- Resource optimisation

- Cascading

- Collaboration Meeting Rooms (CMR)

- Calendar integration

 Cisco Public

Cisco Collaboration Endpoints Portfolio

Preferred Endpoints

Interaction Value

Collaboration Rooms

Desktop Collaboration

SX Series

MX Series

IX Series

Business Communication

Professional Collaboration

DX Series

7800 Series

8800 Series

Audio & Video Fidelity

Cisco Collaboration Endpoints Portfolio

Endpoint Registration

CUCM Only

DX

IX5000 (Immersive)

Focus here

CUCM or VCS

EX

SX

MX

16

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.
  - Alpha-Numeric URIs must be added manually after it auto-registers

- Use the Bulk Administration Tool to add/change/delete endpoints in bulk

- You may use Prime Collaboration Provisioning instead of UC Manager for add/change/delete operations

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Administering TC Series Endpoints on UC Manager
Firmware and Feature Files

- Device Packs introduce new endpoints by installing the firmware and configuration files needed on UC Manager.

- Device Packs are specific to UC Manager release trains (8.6.x, 9.1.x, 10.5.x etc.)

- Cisco Options Pack (.cop) files contain updated firmware files.

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

Administering TC Series Endpoints on UC Manager
Configuring the Endpoints

Media Resource Group List for MCU or TelePresence Server w/Conductor

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 >
Privacy*	Default
Device Mobility Mode*	Default View Current Device Mobility Settings
Owner	● User ○ Anonymous (Public/Shared Space)
Owner User ID*	bpinnige Find
Phone Load Name	

Specify firmware load here or in Device Defaults page.

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Administering TC Series Endpoints on UC Manager
Configuring the Endpoints

Enable TLS and sRTP
(as of TC 6.1 release)

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 EX60 - Standard SIP Non-Secu
Rerouting Calling Search Space	NthSydney Unlimited
SUBSCRIBE Calling Search Space	EAN Subscribe
SIP Profile*	Non Standard profile for EX/C series View Details
Digest User	< None > Find

☐ Media Termination Point Required
☐ Unattended Port
☐ Require DTMF Reception

Enable Fully Qualified Domain

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Administering TC Series Endpoints on UC Manager
Configuring the Endpoints

Upgrade/Install/Delete Locally Significant Certificate (LSC)

Certification Authority Proxy Function (CAPF) Information

Certificate Operation* | No Pending Operation

Authentication Mode* | By Null String

Authentication String | [   ]

[Generate String]

Key Size (Bits)* | 2048

Operation Completes By | 2015 1 29 12 (YYYY:MM:DD:HH)

Certificate Operation Status: None

Note: Security Profile Contains Addition CAPF Settings.

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Administering TC Series Endpoints on UC Manager

Configuring the Endpoints

Enable Web and SSH Access

Product Specific Configuration Layout

	Parameter Value	Override Common Settings
Room Name (from Exchange(R))		
Web Access*	Enabled	
SSH Access*	Enabled	
Default Call Protocol*	SIP	
Quality Improvement Server	crash-collector.cisco.com/ace	
Multipoint Mode*	Use Media Resource Group List	
Telnet Access*	On	
Microphone Unmute On Disconnect*	On	
Call Logging Mode*	On	
OSD Encryption Indicator*	Auto	
Alternate phone book server type*	UDS	
Alternate phone book server address		

Enable MRG List or Embedded Multisite for ad hoc escalation

Select UDS or TMS Phone Books

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Administering TC Series Endpoints on UC Manager

Configuring the line on the endpoint

Alpha-numeric URIs can be synced from LDAP or manually populated

Directory URIs

Primary	URI	Partition	Advertise Globally via ILS	Edit/Remove
✅	bpinnige@cisco.com	Directory URI	☑	Edit End User
		< None > Find	☑	➖

Add Row

Line 1 on Device SEP005060065DD7

	Value	Update Shared Device Settings
Display (Caller ID)	Brendon Pinniger — Display text for a line appearance is intended for displaying text such as a name instead of a directory number for calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.	☐
ASCII Display (Caller ID)	Brendon Pinniger	☐
External Phone Number Mask	284466612	☐
Monitoring Calling Search Space	< None >	

Propagate Selected

Display Name is displayed on top left corner of Touch interface

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Administering TC Series Endpoints on UC Manager

Configuring CUCM failover

Unified CM Group Page

Cisco Unified Communications Manager Group Information

Cisco Unified Communications Manager Group: APZ21-APZ22 (used by 8056 devices)

Cisco Unified Communications Manager Group Settings

Name* APZ21-APZ22

☐ Auto-registration Cisco Unified Communications Manager Group

Cisco Unified Communications Manager Group Members

Available Cisco Unified Communications Managers
ucm-apz31-sng
ucm-apz32-sng

Selected Cisco Unified Communications Managers*
ucm-apz21-sng
ucm-apz22-sng

- Configure CUCM failover/fallback
- Note: TC endpoints do **not** support SRST

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TelePresence Endpoint Management Enhancement
Bi-Directional Device-Specific Parameters on TC Endpoints

Update DB

SIP REFER

SIP NOTIFY

HTTP(s) SEP.CNF.XML config file

TC Series endpoints*
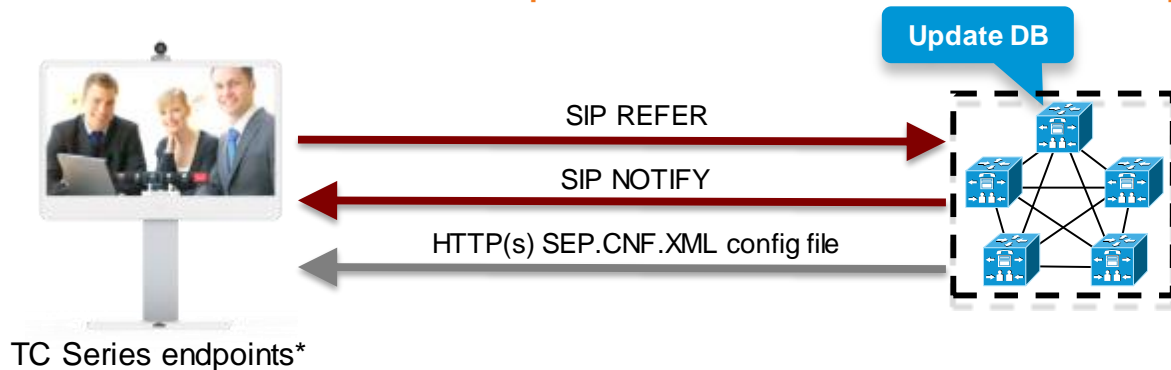
As of UC 10.5

- Allows configurations on endpoint and Unified CM to update each other

- Only applies to product specific configurations

Users or local endpoint administrator changes settings on endpoint

Configurations updated in Unified CM

Settings are updated on endpoint

Admin changes configurations in Unified CM

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Extension Mobility on TC Endpoints

- Extension Mobility supported on TC 6.3 and later

- Sign in using your UC Manager user id and your Extension Mobility PIN

- Manually sign out, or UC Manager can automatically sign you out after [Maximum Login Time]

Parameter Name	Parameter Value	Suggested Value
Clusterwide Parameters (Parameters that apply to all servers)		
Enforce Intra-cluster Maximum Login Time *	False	False
Intra-cluster Maximum Login Time *	12:00	8:00
Inter-cluster Maximum Login Time *	12:00	10:00
Intra-cluster Multiple Login Behavior *	Multiple Logins Not Allowed	Multiple Logins Not Allowed
Alphanumeric User ID *	True	True
Remember the Last User Logged In *	False	False
Clear Call Logs on Intra-Cluster EM *	False	False

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Shared Lines and Single Number Reach
Compared to FindMe

UC Manager

PSTN

SNR Remote Destination
+61 408 555 121

Mobility Profile

Shared Line
DN = +6184466123
URI = bpinnige@cisco.com

Appearances of
Shared Line

00:50:60:04:4D:84   30:37:A6:17:4A:5B

CSFBPINNIGE

VCS

ISDN

Additional FindMe entry
+61 408 555 121

FindMe Alias = bpinnige@cisco.com

Sip:bpinnige.ex90@cisco.com   Individual device addresses
H.323 E.164: 6184466123
Sip:bpinnige.jabber@cisco.com

— SIP
— H.323
— SCCP, MGCP, ISDN

Shared Lines and Single Number Reach

TC Series Endpoints on UC Manager
Functionality Supported / Not Supported (as of TC 7.3)

Functionality	Implementation Status		
Calling features	✓ Numeric dialing ✓ Alpha-numeric URI dialing ✓ +, * and # character dialing ✓ Hold / Resume ✓ Music on hold (unicast only) ✗ Blind Transfer ✓ Attended Transfer ✗ Early Attended Transfer ✓ Call Forward All	✗ Forced Auth Codes ✗ Client Matter Codes ✗ SIP Dial Rules ✗ Media forking ✗ UCM Speed Dials ✗ BLF in Speed Dials and Call History ✗ Programmable Softkeys ✗ Phone Button Templates	✓ Do Not Disturb ✗ Call Back (Camp on) ✗ Park, Pickup ✗ Private Line Auto Ringdown (PLAR) ✗ Intercom, Paging
Conferencing	✓ Multisite (embedded 4-party) ✓ Ad hoc escalation using MRGL ✗ Ad hoc escalation - Multiway	✗ Blind Conference ✓ Attended Conference ✗ Early Attended Conference	
CTI Support	✓ CTI Monitoring ✓ CTI Control (remote-cc) Limited as follows:	✓ Remote Expert ✗ Jabber Desk Phone Mode	✗ Attendant Console ✗ Recording, Silent Monitoring
Shared Lines	✓ Hold / Resume ✓ Barge (initiator only, not a target since no BiB)	✓ cBarge ✗ Privacy Softkey	✓ Hand-off from mobile to desk ✗ Hand-off from desk to mobile ("Go Mobile" softkey)

Not an exhaustive list of UC Manager / Phone features, but a few of the most commonly asked about, or "presumed to work" features

Functionality Supported / Not Supported (as of TC 7.3)

Functionality	Implementation Status		
Redundancy	✓Primary, Secondary, Tertiary UCM node failover/fallback	✓Fallback includes UDS directories	✗ SRST
Encryption	✓CAPF, CTL, LSC, TVS ✗ MIC	✓sRTP (audio, video, content) ✓Signed configuration files	✓Encrypted configuration files ✓Remote Support root access
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 (Expressway mode only)	✓Profile discovery ✗ Self-provisioning	
Voicemail	✓Message Waiting Indication (MWI)	✓Message softkey	✗ Visual Voicemail

Not an exhaustive list of UC Manager / Phone features, but a few of the most commonly asked about, or "presumed to work" features

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Administering TC Series Endpoints on UC Manager
User Localisation

User Locale 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.

Quality of Service
DiffServ Configuration on Cisco TelePresence Endpoints

- UC Manager has a "DSCP for TelePresence Calls" parameter to differentiate HD "TelePresence" calls from traditional (SD) "Video" calls.

- All TC, TX and IX series endpoints consider themselves TelePresence 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

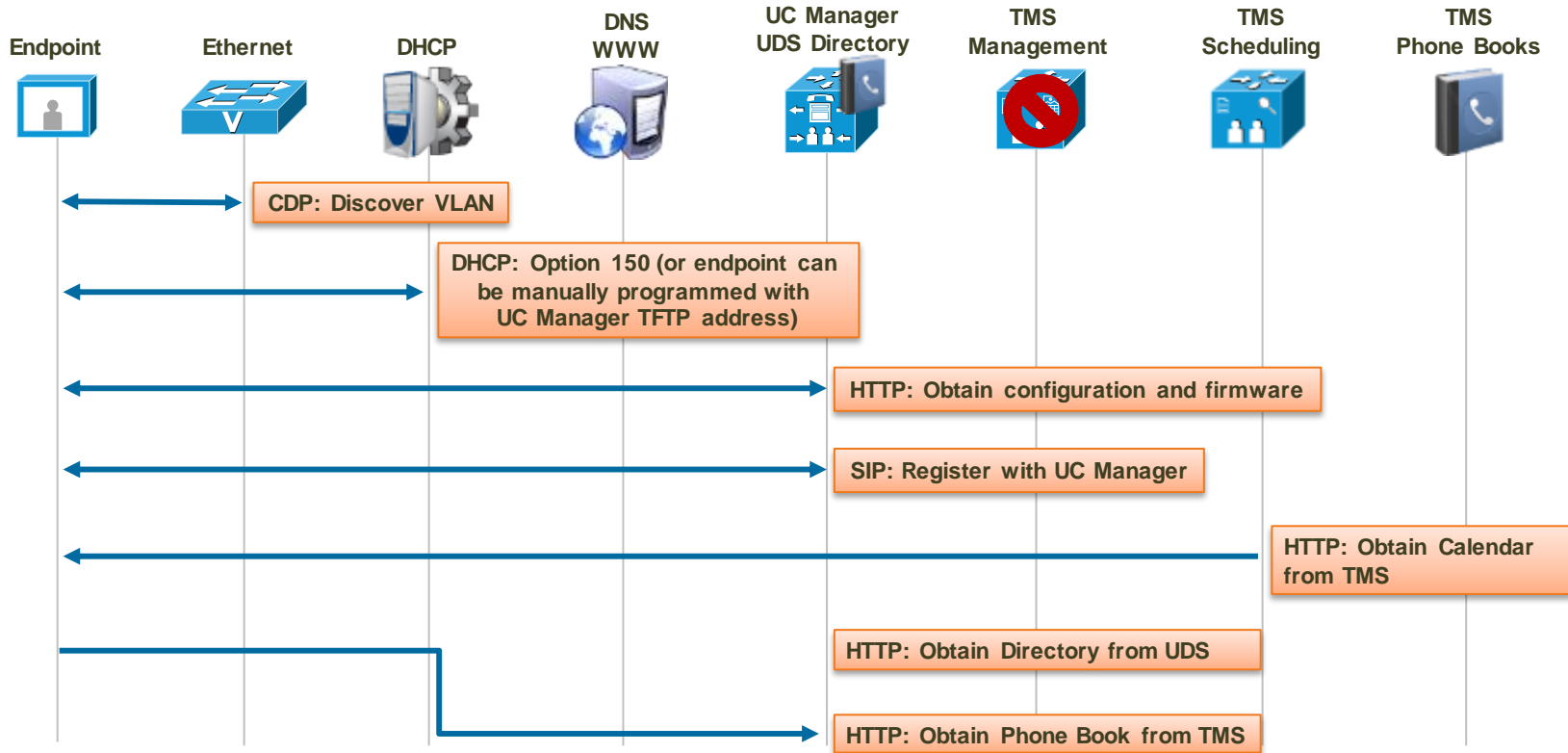|	
Auto Answer:	No
Maximum Call Length (mins):	0
DSCP For Audio:	EF DSCP (101110)
DSCP For TelePresence:	CS4(precedence 4) DSCP (100000)
Start Media Port:	16384
End Media Port:	32766

Note: Use Unified CM to change these settings.

QoS

Mode
Diffserv (ok)

Diffserv

Audio
32 (ok) (Valid from 0 to 63)

Data
32 (ok) (Valid from 0 to 63)

Signalling
24 (ok) (Valid from 0 to 63)

Video
32 (ok) (Valid from 0 to 63)

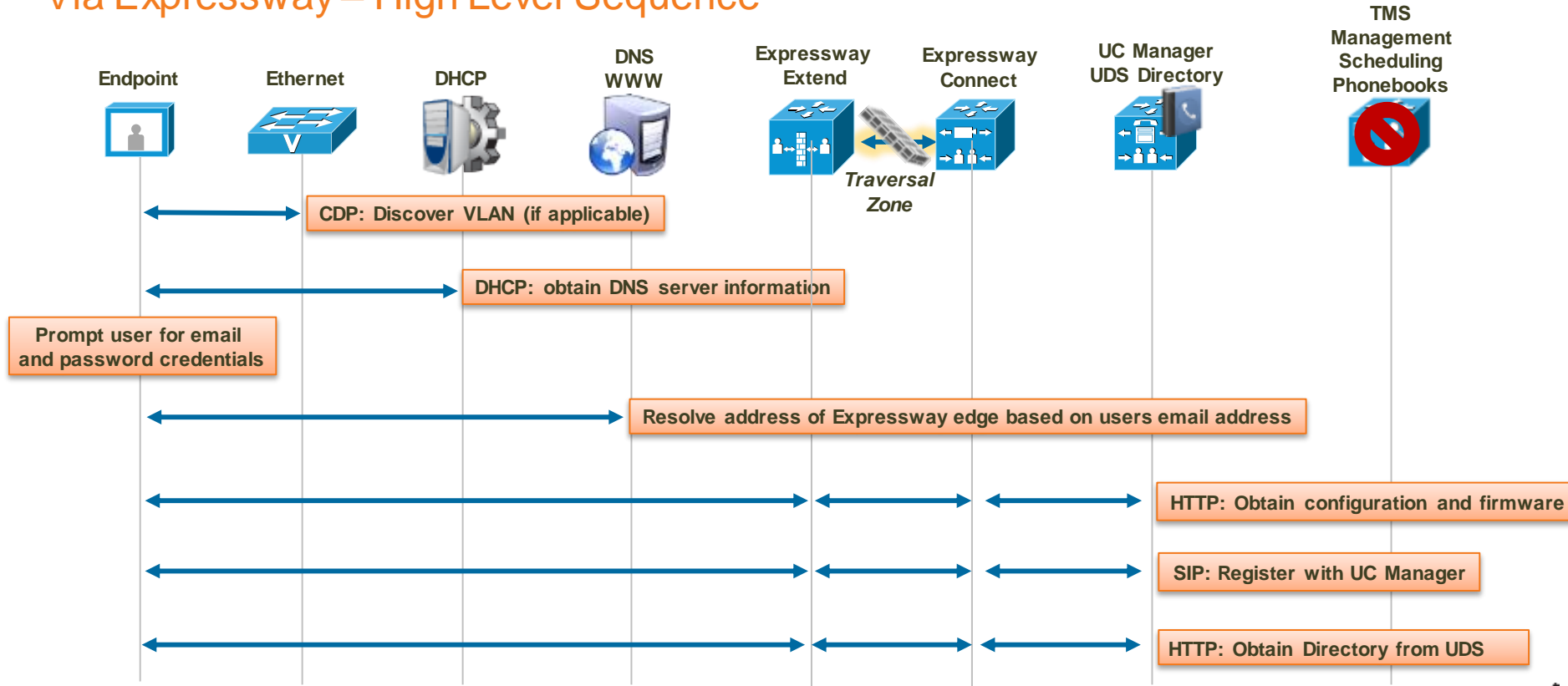Cisco live!

CUCM Provisioning
High Level Sequence

As of TMS 14.4

| Endpoint | Ethernet | DHCP | DNS WWW | UC Manager UDS Directory | TMS Management | TMS Scheduling | TMS Phone Books |

CDP: Discover VLAN

DHCP: Option 150 (or endpoint can be manually programmed with UC Manager TFTP address)

HTTP: Obtain configuration and firmware

SIP: Register with UC Manager

HTTP: Obtain Calendar from TMS

HTTP: Obtain Directory from UDS

HTTP: Obtain Phone Book from TMS

CUCM Provisioning
Via Expressway – High Level Sequence

Endpoint **Ethernet** **DHCP** **DNS WWW** **Expressway Extend** **Expressway Connect** **UC Manager UDS Directory** **TMS Management Scheduling Phonebooks**

Traversal Zone

CDP: Discover VLAN (if applicable)

DHCP: obtain DNS server information

Prompt user for email and password credentials

Resolve address of Expressway edge based on users email address

HTTP: Obtain configuration and firmware

SIP: Register with UC Manager

HTTP: Obtain Directory from UDS

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Video on Hold

- MediaSense 10.0 and UCM 10.0 add Video on Hold functionality

- New Video on Hold server config in UCM
  - Add to MRG and MRGL just as MoH server
  - Prioritised VoH resource over MoH

- CUCM supports one VoH source per MS SIP Trunk

- Video is uploaded directly to MediaSense

- Verify resolution is compatible with all devices

- Simple SIP call to MediaSense

MediaSense

3 - VoH

2 - INVITE

1 - HOLD

CUCM
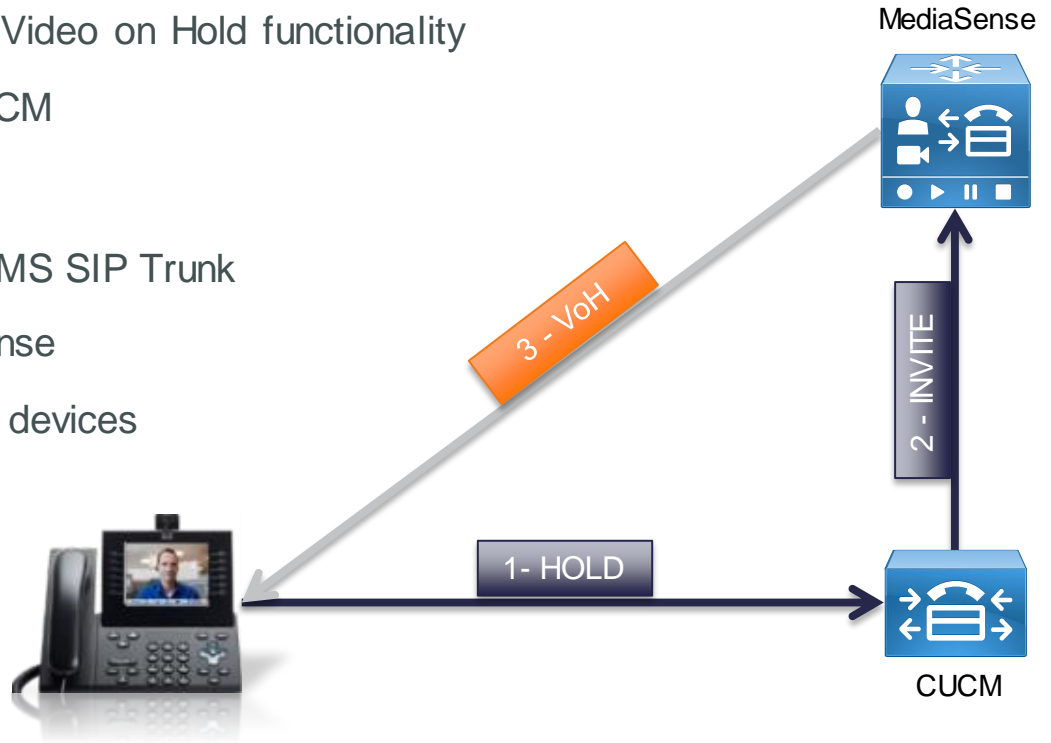
Video In Queue

- Play Video for callers while they wait for Video enabled Agent or Expert

- Available with Remote Expert Solution 1.9

- Video Upload via MediaSense System Admin GUI

- MP4 Video Format
  - Video codec H.264
  - Audio codec AAC-LC

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Video Greetings

- Video Greetings are supported at up to 640x360 (360p)
  - Ensures compatibility across Cisco endpoint portfolio
  - MediaSense is capable of recording 1080p
  - Resolution restricted using CUCM Region configurations

- Requires dedicated MediaSense server

- 35 video sessions per Unity Connection Server
  - 40 simultaneous video sessions in Active/Active HA pair

- MediaSense and Unity Connection must be in the same data centre

- Endpoint and Unity Connection can be separated over the WAN

MediaSense and TCS Integrations

VCS-E VCS-C

SIP/H323 – Recording/Playback

TCS

SIP – Calls/**Recording**

CUCM

SIP/SCCP – Calls/**Recording**

Endpoints

Legacy Endpoints

SIP/SCCP - Calls

Unity Connection

SIP - Calls

SIP – Recording and Playback/VoH

API – Video Greetings

CUBE

SIP - Recording

MediaSense

SIP – Video in Queue

Contact Centre/CVP

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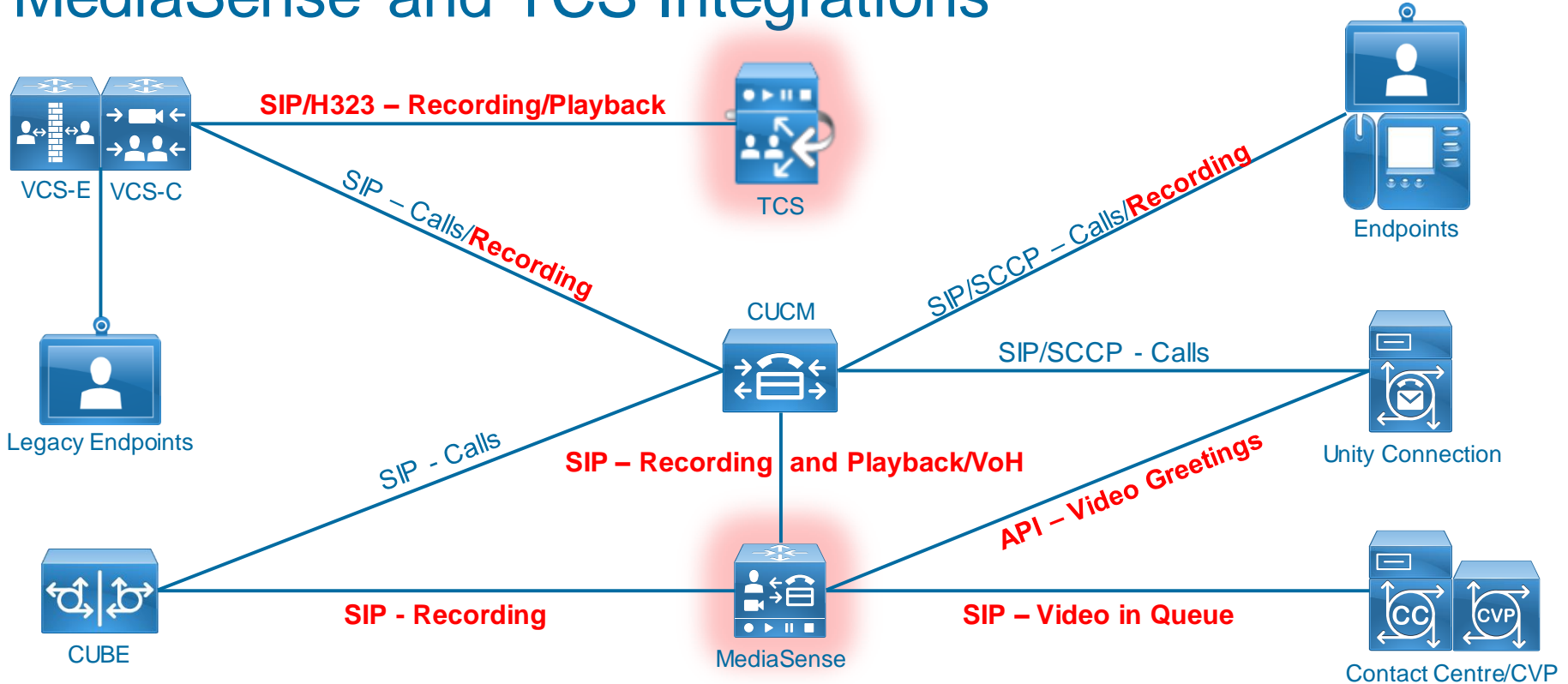
Choosing a Recording Solution

- Use MediaSense for…
  - Compliance or QA recording
  - Audio only recording (TCS requires video to record)
  - Cisco Customer Collaboration environments (Contact Centres)
  - Point-to-point calls
  - Enabling video features of other Cisco Collaboration products

- Use TCS…
  - For Education/Training/Broadcast purposes (Not compliance or QA recording)
  - Ad-hoc video recording
  - For VCS-only environments
  - For H.323-only environments
  - When transcoding is required for storage or playback
  - Based on certain legacy codec requirements (H.261, H.263, H.263+)

Dial Plan Recommendation

+ 1 408 555 1212

The '+' Plus Character   **Country Code**   Full National Phone Number / DID

- Globally Unique
- Guaranteed not to "clash" / overlap
- Consistent "Globally Accepted" Format
- Users can still dial however they like.

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Preferred Architecture

Preferred Architecture
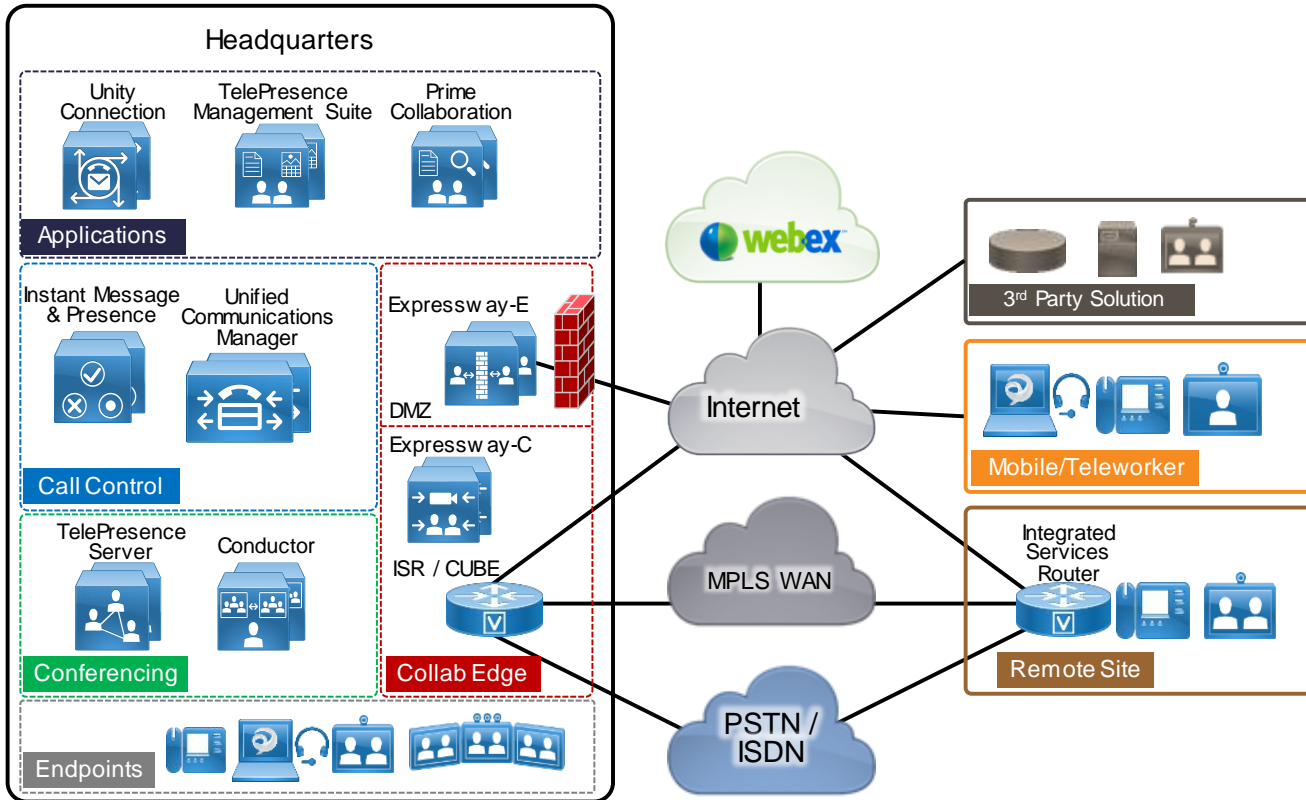
Multiple Call Processing Sites

Site 1

Site 2

Unified CM
Expressway-C Expressway-E
Internet
Expressway-E Expressway-C
Unified CM

TelePresence Conductor

Cisco TMS

webex

MPLS WAN

TelePresence Conductor

Personal Multiparty TS   General TS   Scheduled TS

Scheduled TS   General TS   Personal Multiparty TS

SIP   HTTP(s)
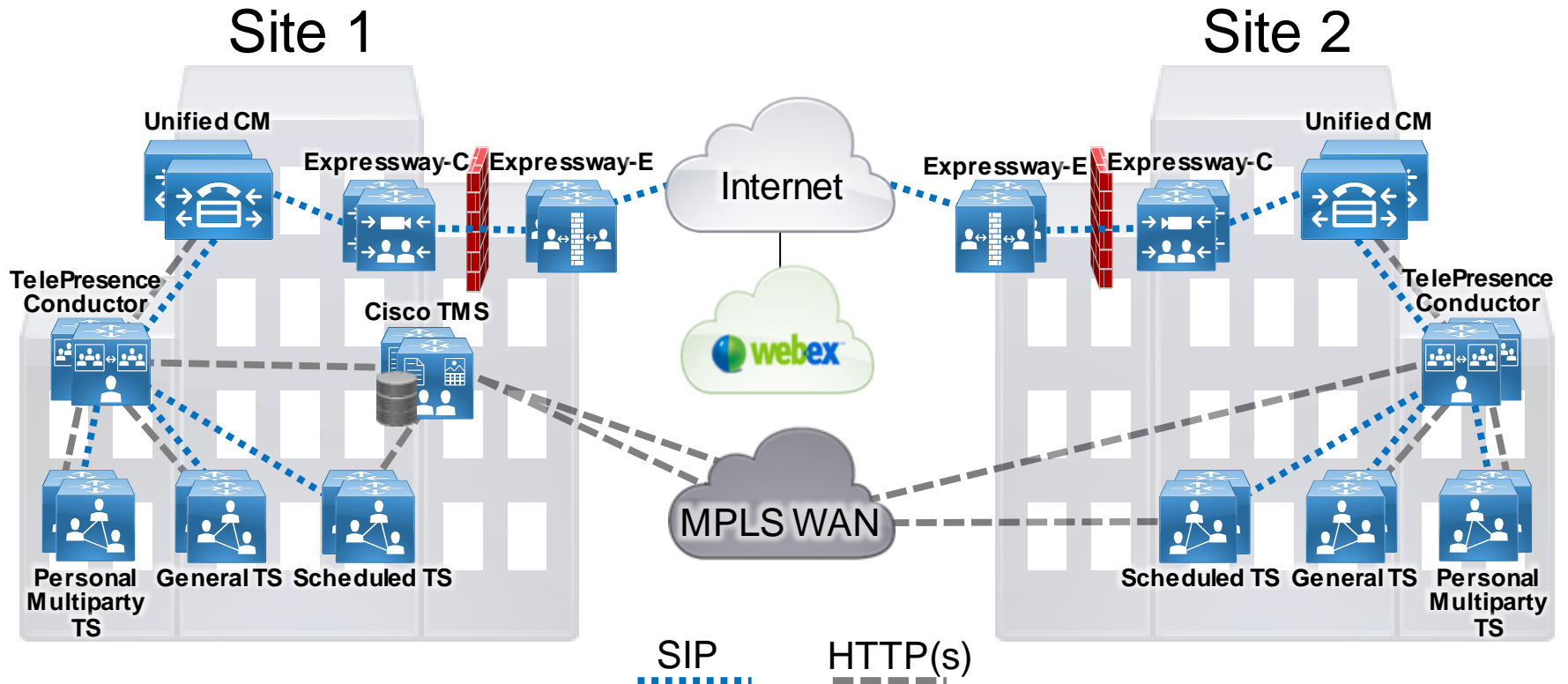
Multiple Sites - Conferencing

- Separate Conductor clusters
  - One at each UCM Cluster site
  - Preserves conferencing services in event of WAN failure between clusters

- TMS located at one site
  - Single place to manage
  - Scheduled conferencing
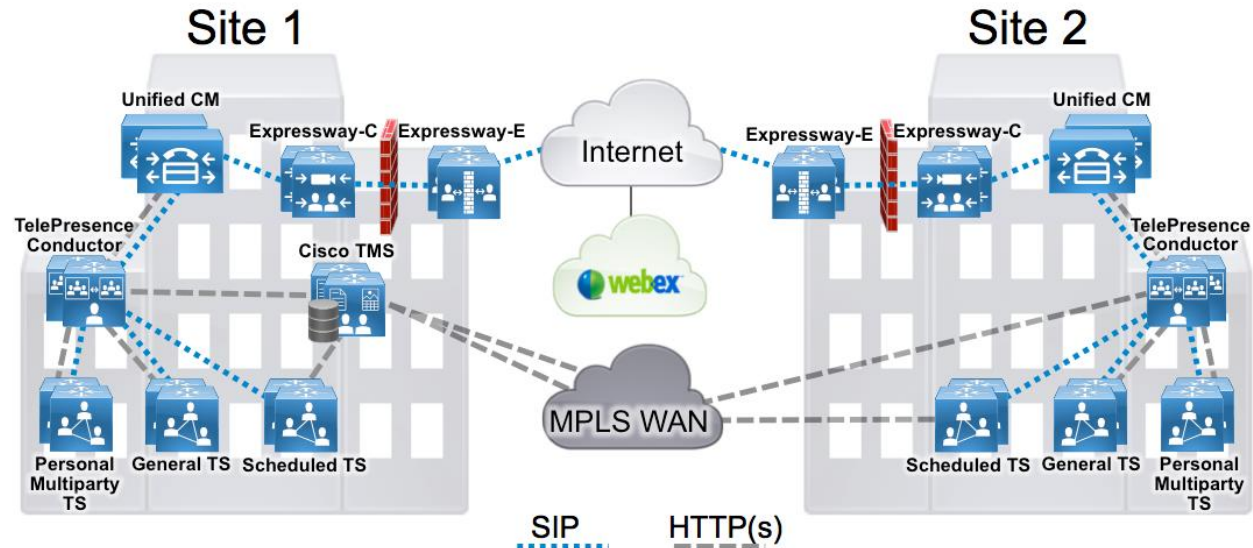
Applications in Preferred Architecture

Tools (Foundational)

- ## Prime Collaboration
  - Prime Collaboration Deployment
  - Prime Licensing Manager

Applications (Foundational)

- ## Unity Connection
  - Voice Mail / Unified Messaging

Single instance within Organization

- TMS
- Prime

Instance per cluster
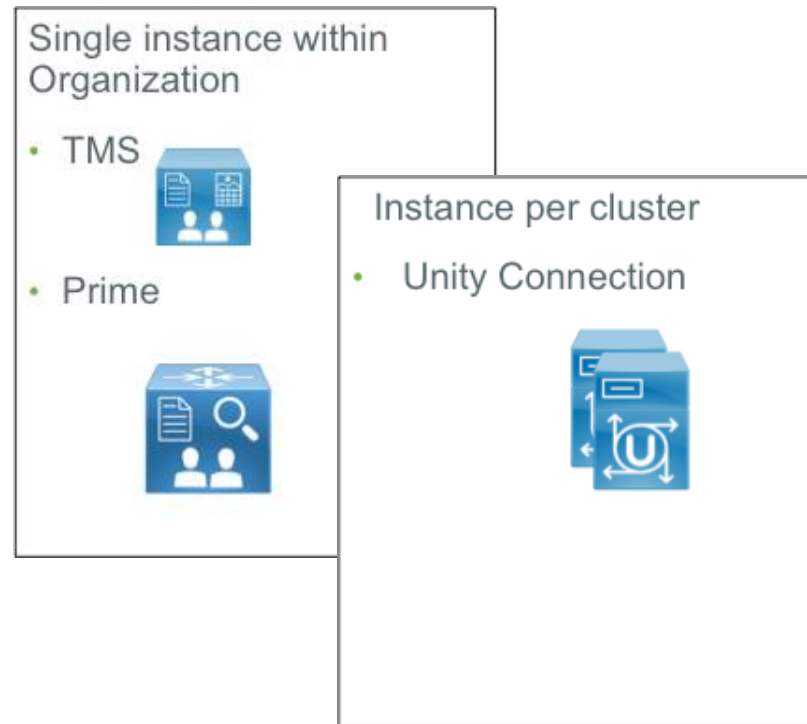
- Unity Connection

Collaboration Edge Solutions

- ## ASA / AnyConnect
  Client IP Connections

  Remote Site VPNs

- ## Expressway – Core & Edge
  VPN-less Remote Client/Endpoint Connectivity

  B2B / Internet Calling

  Jabber Guest Internet Calling

- ## ISR / CUBE
  Line-side Proxy – Remote IP Phones

  Internet SP SIP Trunking
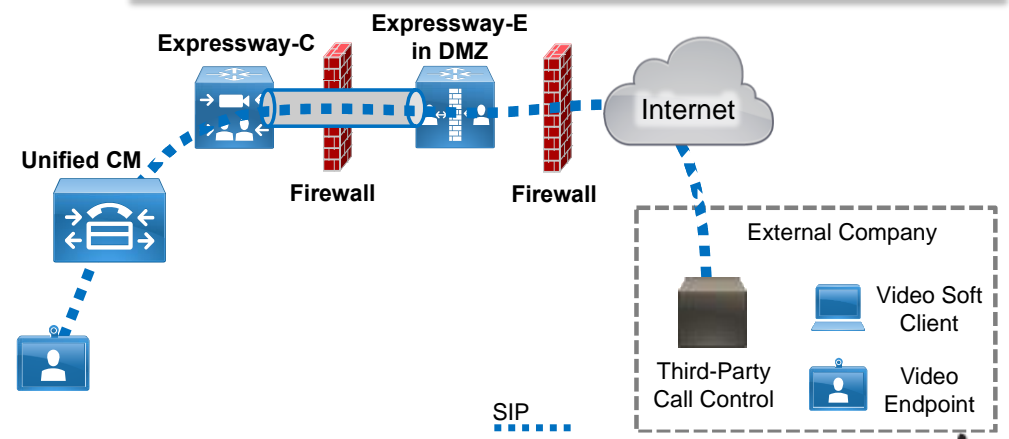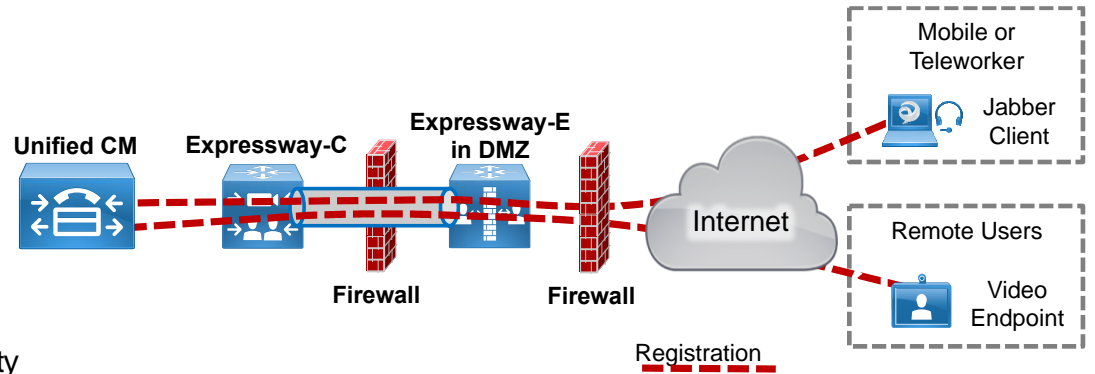
Expressway Limitations
For TC Endpoints

✓**UC Manager registration and call control**

✓**UC Manager directories**

✓**Expressway B2B calling**

✗~~**TMS scheduling**~~

✗~~**TMS phone books**~~

✗~~**Remote management**~~

 Cisco Public
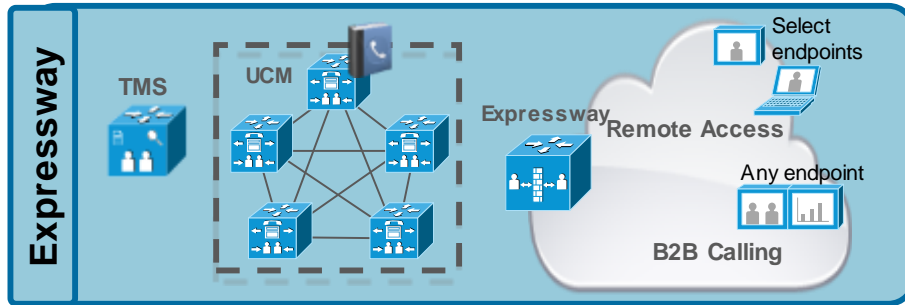
Prime Collaboration Manager 10.6
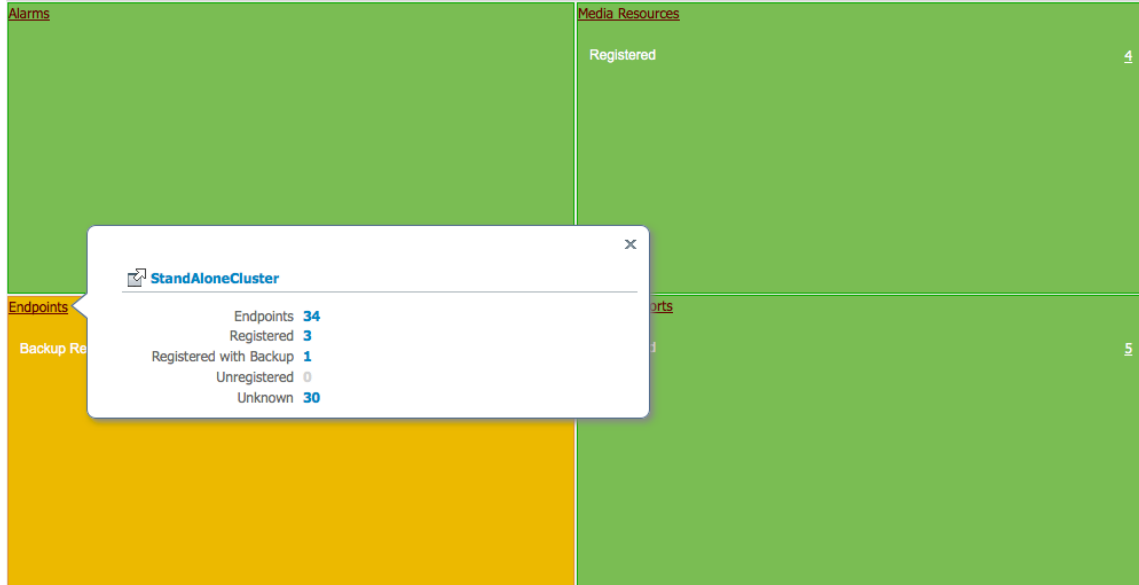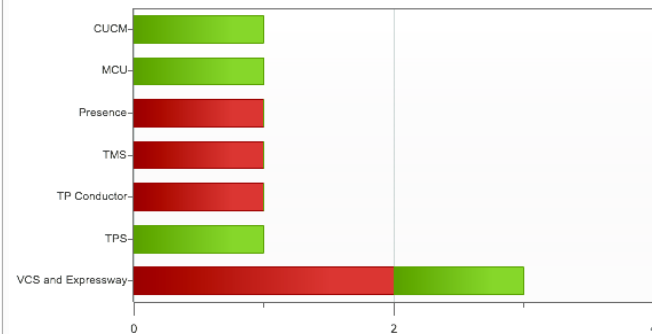
CUCM 9.X Security Updates

- Focus on securing **video** and **intercluster** features

- Securing Extension Mobility Cross Cluster: allows for secure phone (encrypted config, signalling, media) in EMCC deployments

- SIP URI Dialing: Intercluster Lookup Service (ILS) traffic secured with TLS (9.0)

- Enhanced Locations CAC: intercluster Location Bandwidth Manager (LBM) communications secured with TLS (9.1)

- SIP Profile: Expanded RTP/sRTP port ranges, 2048 to 65535 (9.1)

Location Bandwidth Manager
Communication and LBM Replication

- LBM Services Within a Cluster Are Always Fully Meshed and Replicate Bandwidth Allocations

- The CallManager Service Communicates with The LOCAL LBM Service (Default)

- **Recommendation:**
  - Run LBM on same node as Cisco CallManager Service

4 node Cluster

BW Req/Res

BW Req/Res

BW Req/Res

BW Req/Res

LBM Full Mesh Replication

BW Request / Response (XML/TCP) →
LBM Replication (XML/TCP) ┄┄►
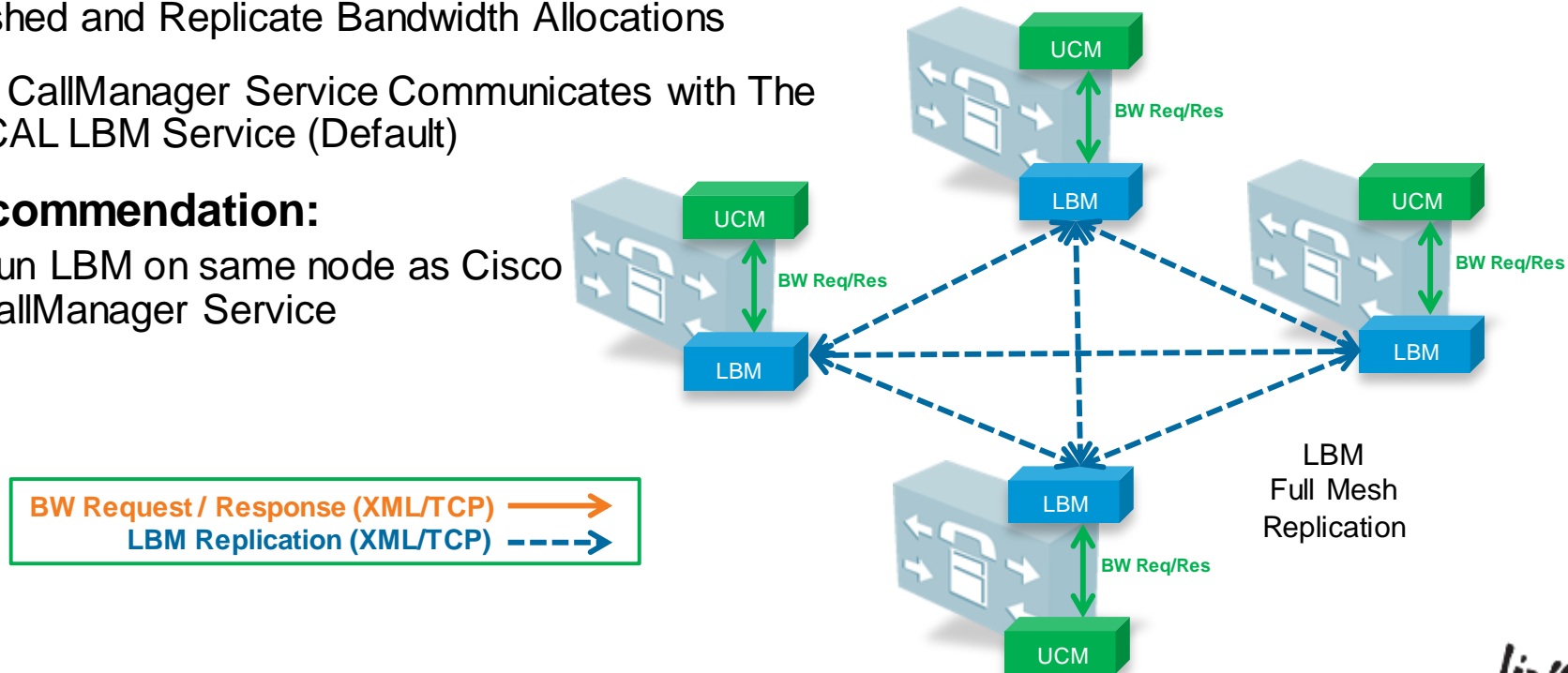
Inter-Cluster Enhanced Locations CAC

- Extends Enhanced Locations CAC Network Modelling Across Multiple Clusters

- Each Cluster Manages Its Own Topology

- Each Cluster Then Propagates Its Topology to Other Clusters

- Each Cluster Then Creates a Global Topology

Assembled / Global Topology

Hub_none

Loc_11   Loc_12   Loc_21   Loc_22   Loc_24   Loc_25

Cluster 1

Cluster 2

LBM Replication

Hub_none

Loc_11   Loc_12

Cluster 1 Configured Topo

Hub_none

Loc_21   Loc_22   Loc_24   Loc_25

Cluster 2 Configured Topo
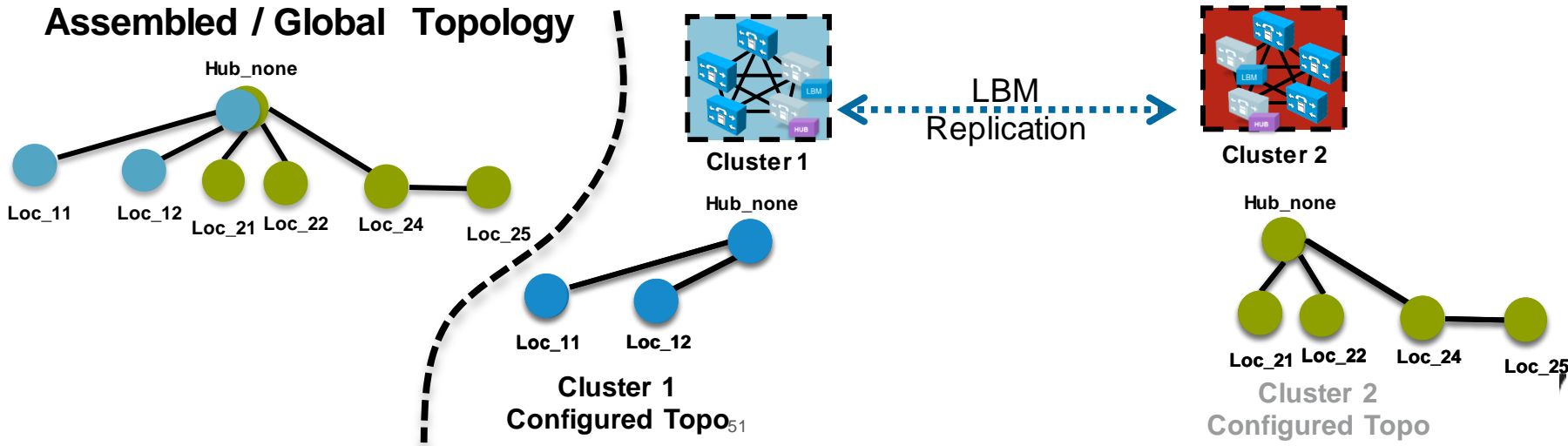
Audio and Video Admission Control
Considerations

No Admission Control

– Over-provision queues
– Rely on video rate adaptation and media resilience capabilities
– Audio is much easier to over-provision in pervasive video deployments
– QoS critical and rate adaption is highly beneficial for both managed/unmanaged networks
– Benefits: Simplicity

Admission Control

– Strict provisioning (Mapping CAC to Queuing)
– Mobility? Device Mobility feature (Adds OPEX)
– Jabber? Medianet Metadata is recommended to align QoS / CAC
– Benefits:
  • Manage lower bandwidth links, use Automated Alternate Routing (AAR) for PSTN redirect
  • Ensure quality audio during the busy hour by avoiding oversubscription and packet loss
  • Safe when over-provisioning is not an option

 Cisco Public

Conferencing

Cisco live!

On-Premises Conferencing
Single Deployment Model – "Before"
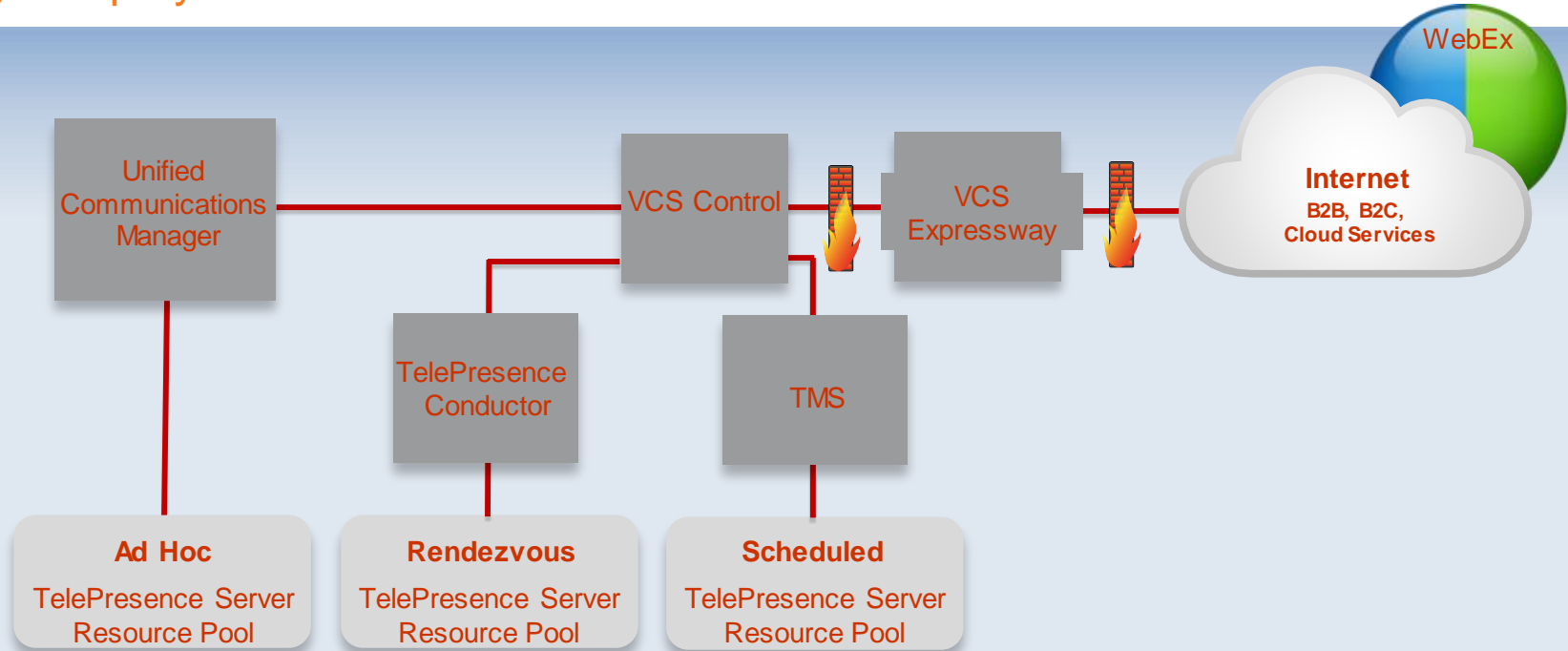
WebEx

Unified Communications Manager

VCS Control

VCS Expressway

Internet
B2B, B2C,
Cloud Services

TelePresence Conductor

TMS

Ad Hoc
TelePresence Server Resource Pool

Rendezvous
TelePresence Server Resource Pool

Scheduled
TelePresence Server Resource Pool

Instant ^{Ad Hoc}

Personal ^{Rendezvous}

Scheduled

Cisco *live!*

On-Premises Conferencing
Single Deployment Model – "After"

Integrated Endpoint Experiences

WebEx

Unified Communications Manager

Expressway-C

Expressway-E

Internet
B2B, B2C, Cloud Services

TelePresence Conductor

TMS

Ad Hoc, Rendezvous, Scheduled

One TelePresence Server Resource Pool

Instant $^{Ad\ Hoc}$

Personal ^{Rendezvous}

Scheduled

Cisco live!

TMS Support for UC Manager

- To add UC Manager registered endpoints to TMS…

  1. add UC Manager to TMS first,

  2. then discover the endpoints registered to it

10.66.120.47

Cisco Unified Communications Manager   Status: **Alive**   Address: 10.66.120.47   Connectivity: **Reachable on LAN**

| Summary | **Settings** | Managed Systems | Clustering | Connection | Permissions | Logs |

View Settings   Edit Settings   Extended Settings   Ticket Filters

General

Name:	10.66.120.47	Status:	Alive
System Type:	Cisco Unified Communications Manager	Your Access:	Book, Edit Settings, Manage Calls, Set
Manufacturer:	Cisco		Permissions, Read
Network Address:	10.66.120.47	System Contact:	Not Selected
System Connectivity:	Reachable on LAN	Description:	
Track System by:	IP Address	Folders with system:	Company Name
TMS System ID:	2		
Time Zone:	(UTC+10:00) Canberra, Melbourne, Sydney		
Username:	CCMAdministrator		
Password:	**********		

Configuration

Software Version:	10.5.2.10000(5)

Cisco live!

TMS Support for UC Manager
UC Manager Clustering in TMS 14.4

TS, MCU

EX / DX
Series

Cluster 1

SX / MX /
C-Series

CTS/TX
Series

TMS

SX / MX /
C-Series

Cluster 2

EX / DX
Series

TS, MCU
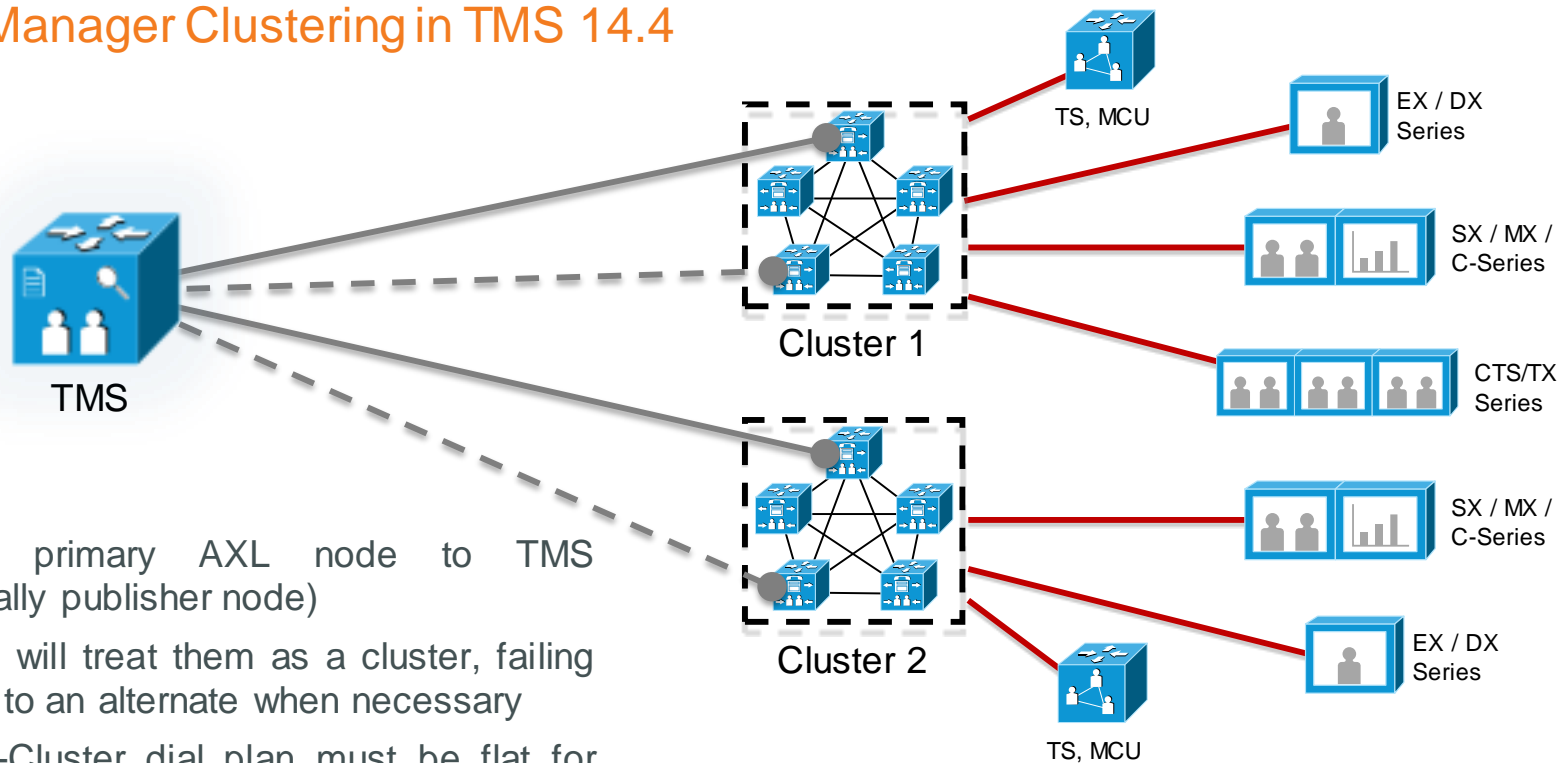
- Add primary AXL node to TMS (usually publisher node)

- TMS will treat them as a cluster, failing over to an alternate when necessary

- Inter-Cluster dial plan must be flat for OBTP and Auto Connect dialing to work.

TMS Conference Scheduling
TMS Scheduled Call Launch Methods

- **OBTP:** The user dials *in* from the endpoint by simply pressing a Join button on the endpoint.

- **Automatic Connect:** The system will automatically dial *out* to scheduled endpoints upon conference start time.

- **Manual Connect:** The participants manually dial *in.*

- **Reservation Only:** TMS only reserves the room(s) and will not reserve any multipoint resources.

Title:	Scheduled Meeting 1/21/2015 8:17
Type:	Automatic Connect ▼
Owner:	**Automatic Connect**
	One Button To Push
Language:	Manual Connect
	No Connect
	Reservation

TMS Conference Scheduling Types

TMS Scheduled Call Launch Methods Supported by Endpoint Type

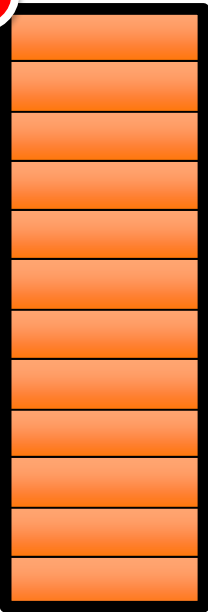| Endpoint Type	One Button to Push	Automatic Connect	Manual Dial In	External Dial In/Out	Notes
MXP Series	✖	✔	✔	✔	
E20	✖	✔	✔	✔	
TC Series	✔	✔	✔	✔	▪ OBTP introduced in 13.1 ▪ Support for TC series on UC Manager introduced in 13.2
CTS/TX/IX Series	✔	✔	✔	✔	▪ Support for CTS series and OBTP introduced in 13.1 ▪ Support for TX series introduced in 13.2
Jabber	✖	✖	✖	✔	
IP Phones/DX Series	✖	✖	✖	✔	
TMSPE and Expressway endpoints	✖	✖	✖	✔	▪ TMSPE provisioned endpoints and endpoints registering through Expressway can only be scheduled as "external" dial in / dial out participants

TelePresence Server

Resource Optimisation

Locally Managed mode

Without Conductor

12

Once full, additional endpoints cannot join

TS 3.X

Operation mode   You are here: ▸ Configuration ▸ Operation mode

ℹ This system is remotely managed

Operation mode

Operation mode   Remotely managed ▾

Conductor 2.X

With Conductor

19

EXTRA

Full HD (1080p30)   **SD** (480p30)

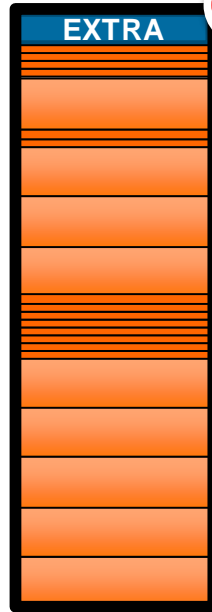Cisco *live!*

TelePresence Server Cascading

- Came with TS 4.0 & XC 2.4

TelePresence Conductor

Scales to:
30 TelePresence Servers
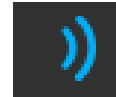2000+ Participants

Ideal for:
All-Hands
Town Hall Meetings

TelePresence Server 4.1 Experience

Transparent name labels

Active Speaker Indicator

Overflow indicator

Audio participant avatar

Recording Indicator

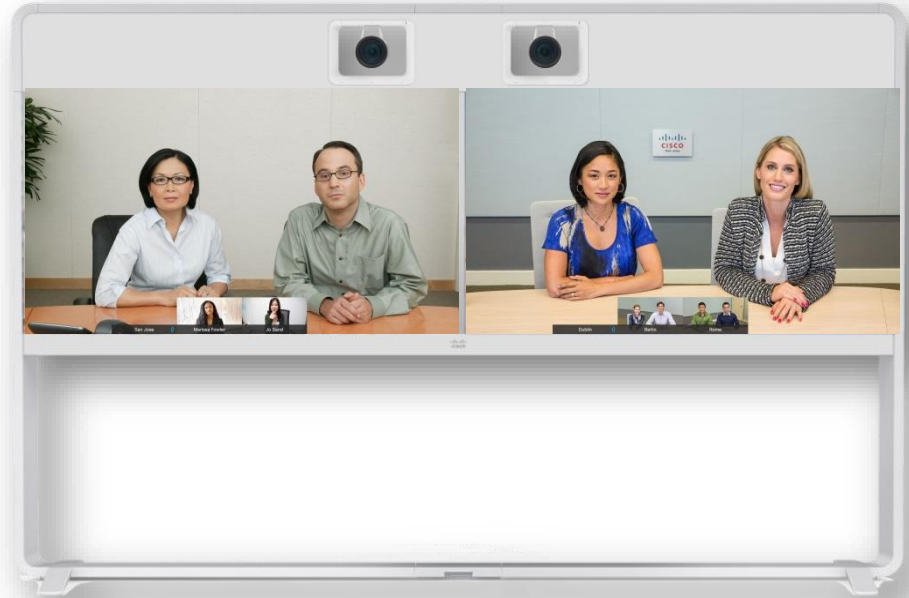Marissa Fowler   London   Dublin   Berlin   Rome   Jo Sand   +12
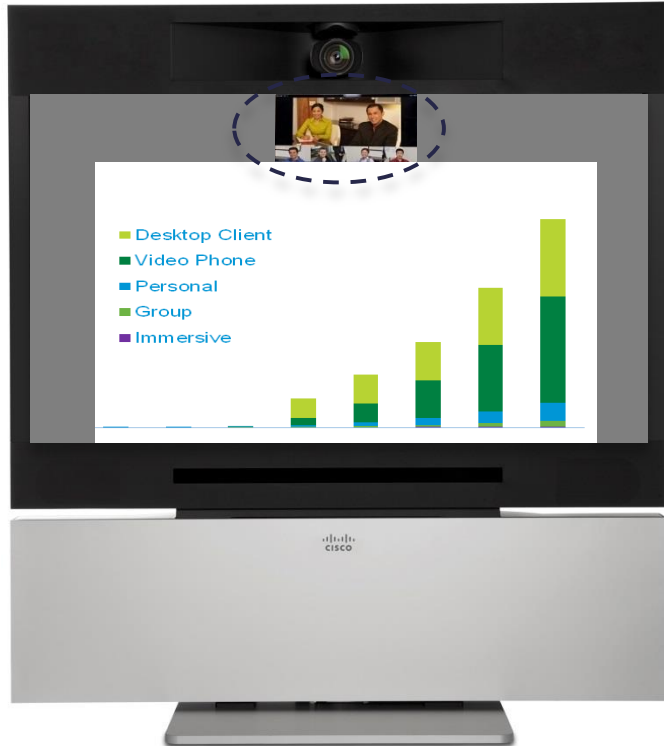
Jo Sand

The Best Dual Screen Experience

Turns this experience ………… into …………….. this experience

The Best Single Screen Experience

Turns this experience ………… into …………….. this experience

Crisp content and intuitive video layout

Collaboration Meeting Rooms

Benefits:

- Meet the way you want

- Scale meetings

- Choice of deployment

Meet Your Way

Connected

Delightful Experience

Scalable

Secure

Flexibility for Any Use Case
Common In-Meeting Experiences
Cloud Elasticity & Premises Control

Quick Enablement

Cisco webex

CMR Cloud   **CMR Hybrid**   **CMR Premises**

PRODUCT OVERVIEW

+

=

CMR

Cisco live!

CMR Premises

TelePresence infrastructure @ Customer Data Centre

Available Now

CMR Hybrid

TelePresence on-premises plus Cisco WebEx

Available Now

CMR Cloud

Hosted by Cisco WebEx

Launched Mar 2015

◀ **BROWSER** | | | | | | | | **BOARDROOM** ▶

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Q&A

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