



*TOMORROW  
starts here.*

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# Cisco Hosted Collaboration Solution

BRKCOL-2315

Jeff Wang, System Engineer Manager

#clmel

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# Agenda

- Collaboration Overview
- HCS Architecture
- Why HCS for Customers
- Choosing HCS Partners
- Design Considerations
- Adding FMC / Video / WebEx / Contact Centre Capabilities



A nighttime photograph of a city street. In the foreground, there are long, curved light trails from cars, primarily in shades of yellow and orange. In the middle ground, a pedestrian bridge with blue lighting spans across the street. In the background, there are several tall buildings with lit windows and some flags on poles. The overall scene is illuminated by city lights.

# Cisco Collaboration Overview

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# Technology and Market Transitions

## Mobility



## Video



## Cloud



# Cisco Collaboration Strategy



**Experience-  
Centric**



**Cloud  
Connected**

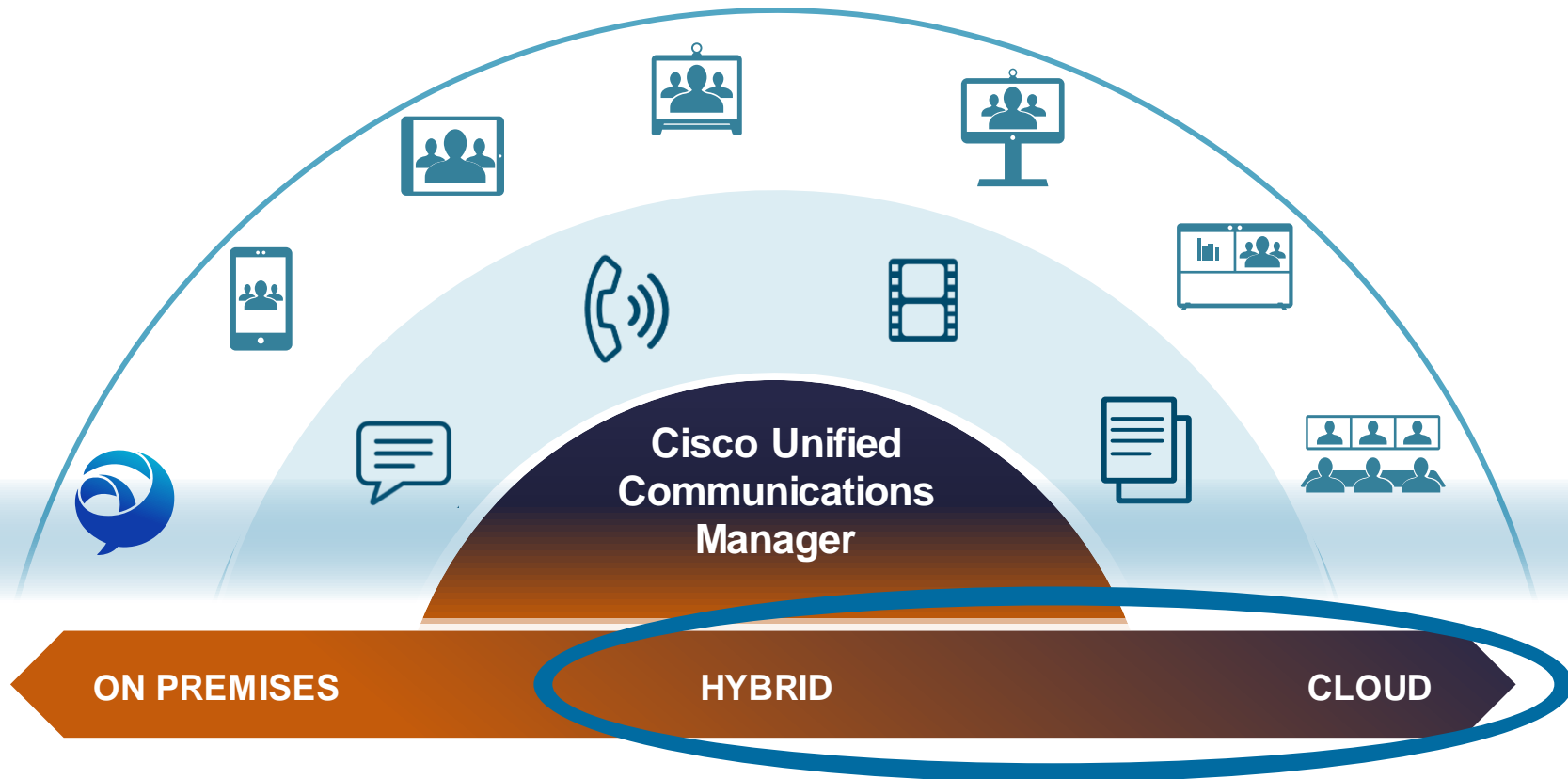


**Value  
Extended**

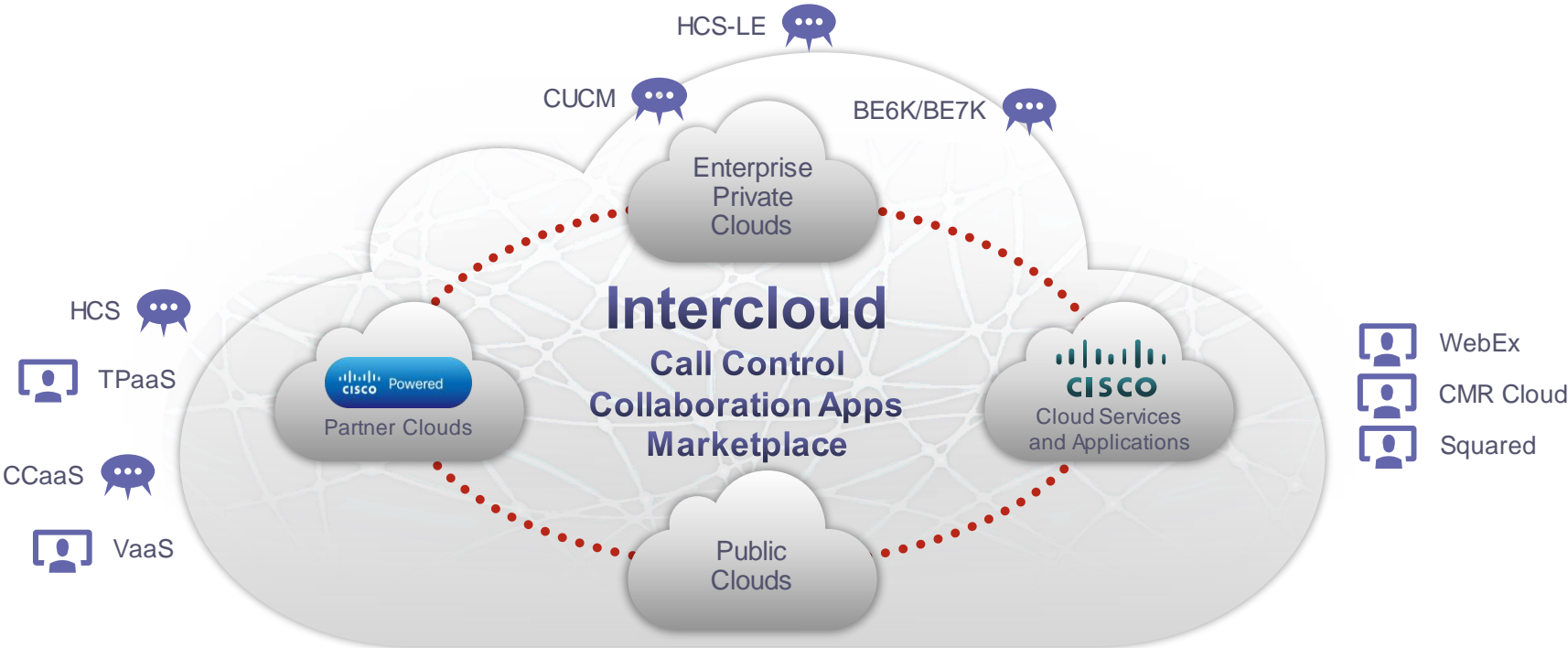


# Seamless User Experience:

Any Device, Any OS, Any Delivery Model



# InterCloud – A Collaboration Lens



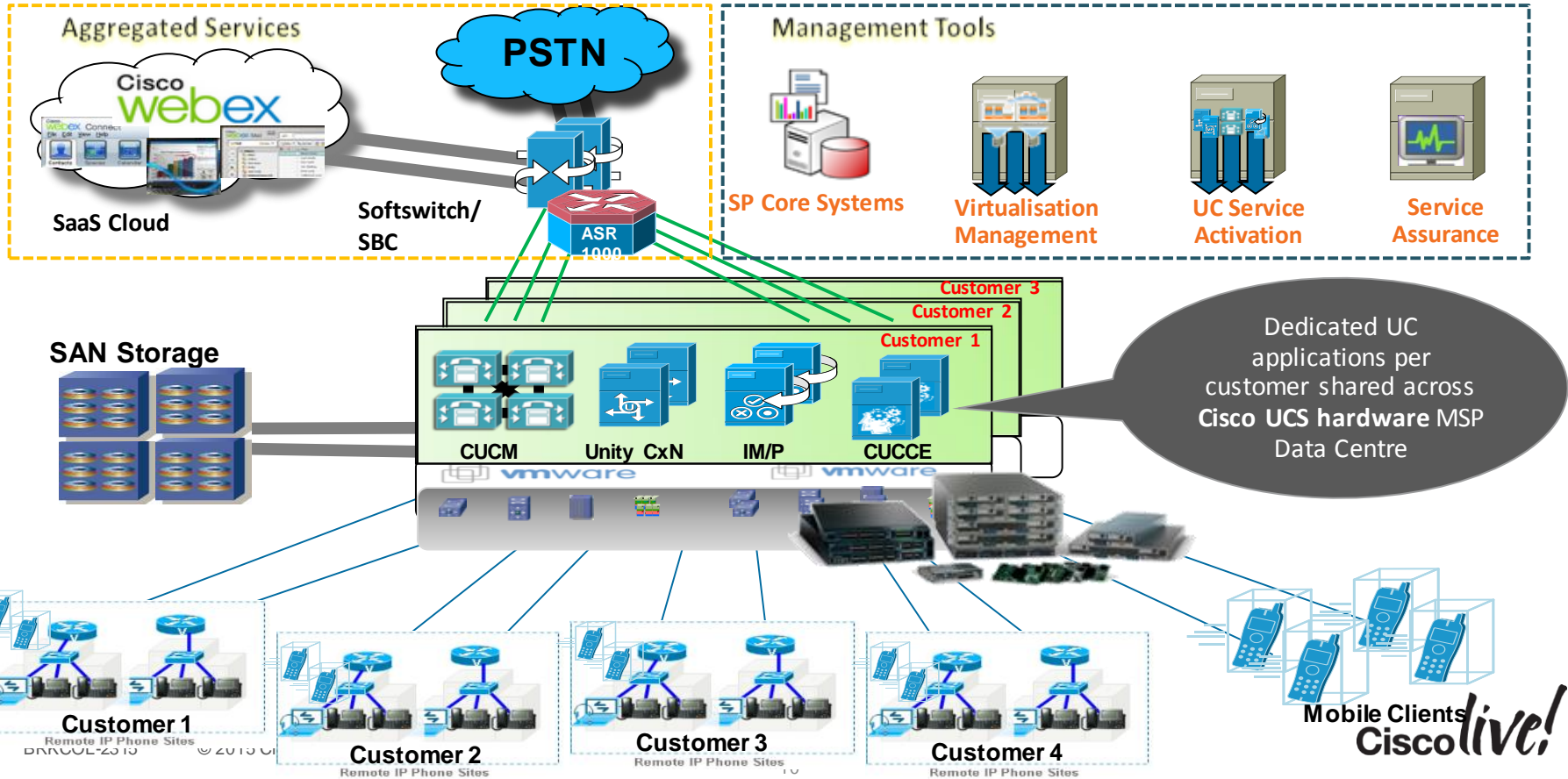


A long-exposure photograph of a city street at night. The foreground is dominated by vibrant, multi-colored light trails from moving vehicles, creating a sense of motion and energy. In the background, a modern pedestrian bridge with a glass railing spans across the street. Beyond the bridge, several tall buildings are visible, some with illuminated windows and facades. The overall scene is a dynamic urban environment.

# HCS Architecture

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# Cisco's Hosted Collaboration Solution





# HCS Major Elements

## Collaboration Applications



## HCS Management



## Cloud Ready Virtualisation Platform



## Scalable, Resilient Network



# Cisco HCS Applications

Services	Product	Support
Voice & Video 	Unified Communications Manager, Unified IP Phones, Jabber	Full
Voice Mail & Integrated Messaging 	Unity Connection	Full
Presence & Instant Messaging 	Instant Message and Presence Service, Jabber	Full
Mobility Services 	Unified Mobility, Mobile Clients	Full
Web Collaboration 	WebEx (SaaS)	Full
Attendant Console 	Cisco Unified Attendant Console (CUAC)	Full
Video Conference 	Cisco TelePresence (Point-to-Point)	<b>TPaaS</b>
Contact Centre 	HCS for Contact Centre (based on UCCE & CVP)	<b>CCaaS</b>



# HCS Major Elements

## Collaboration Applications



## HCS Management



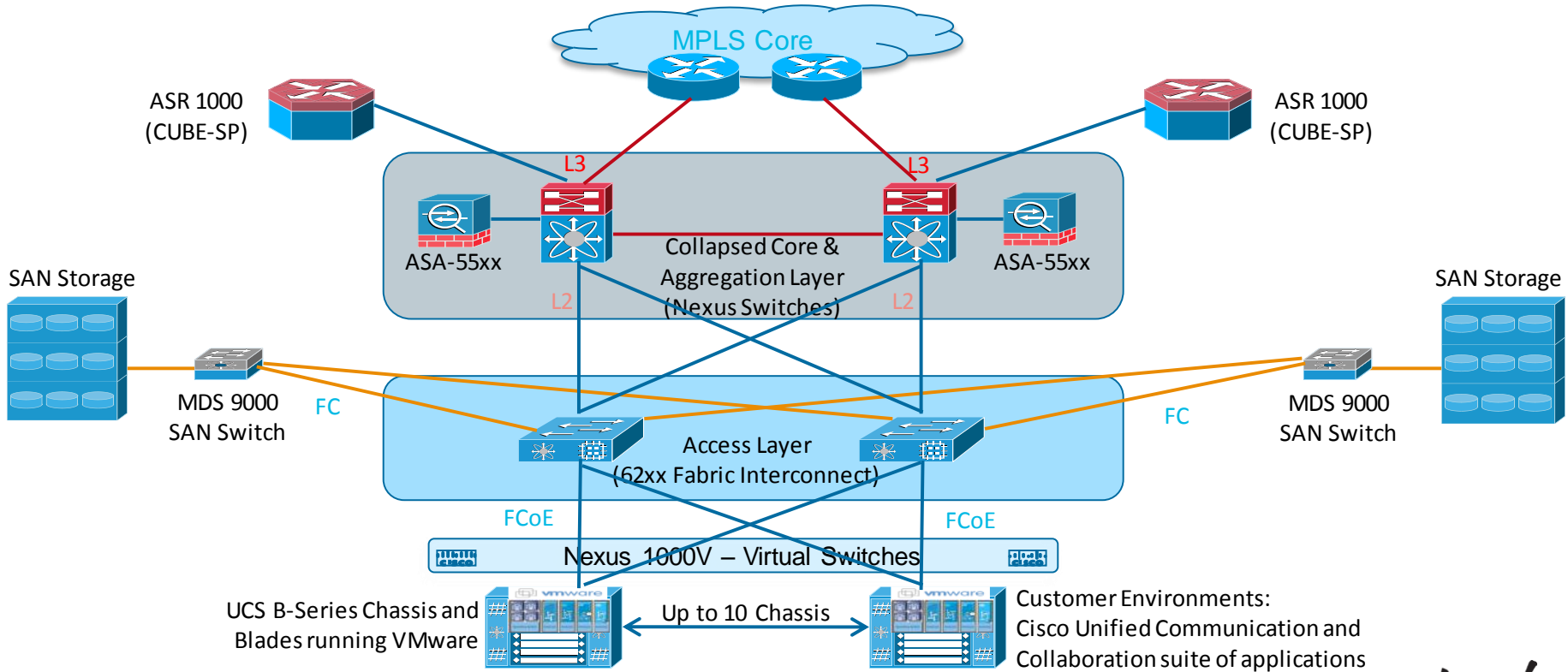
## Cloud Ready Virtualisation Platform



## Scalable, Resilient Network



# Typical HCS Data Centre Architecture





# HCS Data Centre Deployment Models

## More Flexible DC Deployment Options

	Large Pod	Small Pod	Micro Node
Number of Users	>100K	50K	20K
Number of Customers (# HCS Instances)	~940	~80	~20
Collapsed Core & Aggregation Layer	Nexus 7000	Nexus 5600	Nexus 5600
Firewall	ASA 5585-X	ASA 5555-X	ASA 5555-x
SBC/CUBE	Perimeta SBC	Perimeta SBC	C2921 CUBE(ENT)
IPSec/VPN Concentrator	ASR 1006	ASR 1002-X	ASR 1002-X
Access Layer	Nexus 5600	Collapsed	Collapsed
Distributed vSwitch / Nexus 1000v	Yes	Yes	No
Storage	SAN/NAS	SAN/NAS	DAS (local)
VMware HA	Full	Full	Limited
VMware vMotion	Yes	Yes	No
UCS Manager	Yes	Yes	No
UCS Compute	B-series	B-series	C-series
Vblock/Flexpod/VSPEX	Yes	No	No

# HCS Over-subscription

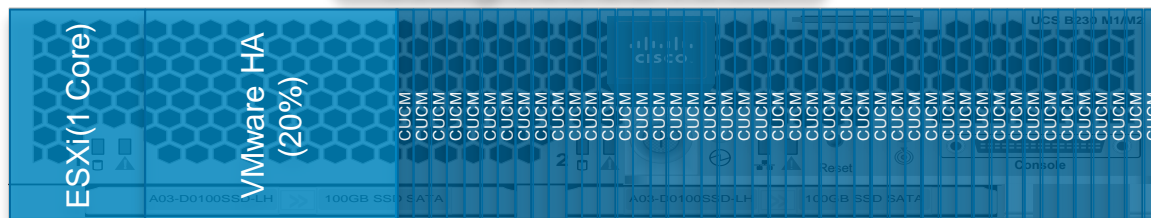
## Not Your Common UC on UCS

Application	CPU	RAM (GB)	HD(GB)
UC Manager – 600 Users (Limited)	2 x 800 MHz	2.4	40
UC Manager – 2,500 Users (Limited)	2 x 800 MHz	3	60
UC Manager – 2,500 Users	800 MHz	4	80
UC Manager – 7,500 Users	2 Cores	6	2 x 80
UC Manager – 10,000 Users	4 Cores	6	2 x 80
Unity Connection – 1000 Users	1 Core	4	160
Unity Connection – 5,000 Users	2 Cores	6	200
Unity Connection – 10,000 Users	4 Cores	6	2 x 146
Unity Connection – 20,000 Users	7 Cores	8	2 x 300
Instant Message / Presence – 500 Users	700 MHz	2	80
Instant Message / Presence – 2,000 Users	1 Core	4	80
Instant Message / Presence – 5,000 Users	2 Cores	4	2 x 80
Instant Message / Presence – 15,000 Users	4 Cores	6	2 x 80
CER – 20,000 Users	800 MHz	4	80
CER – 30,000 Users	2 Cores	6	2 x 80
Session Manager – 40 CPS	2 Cores	6	2 x 80
Session Manager – 50 CPS	4 Cores	6	2 x 80
Cisco UAC – 25 Consoles	1 Core	4	40

# Application Distribution Example

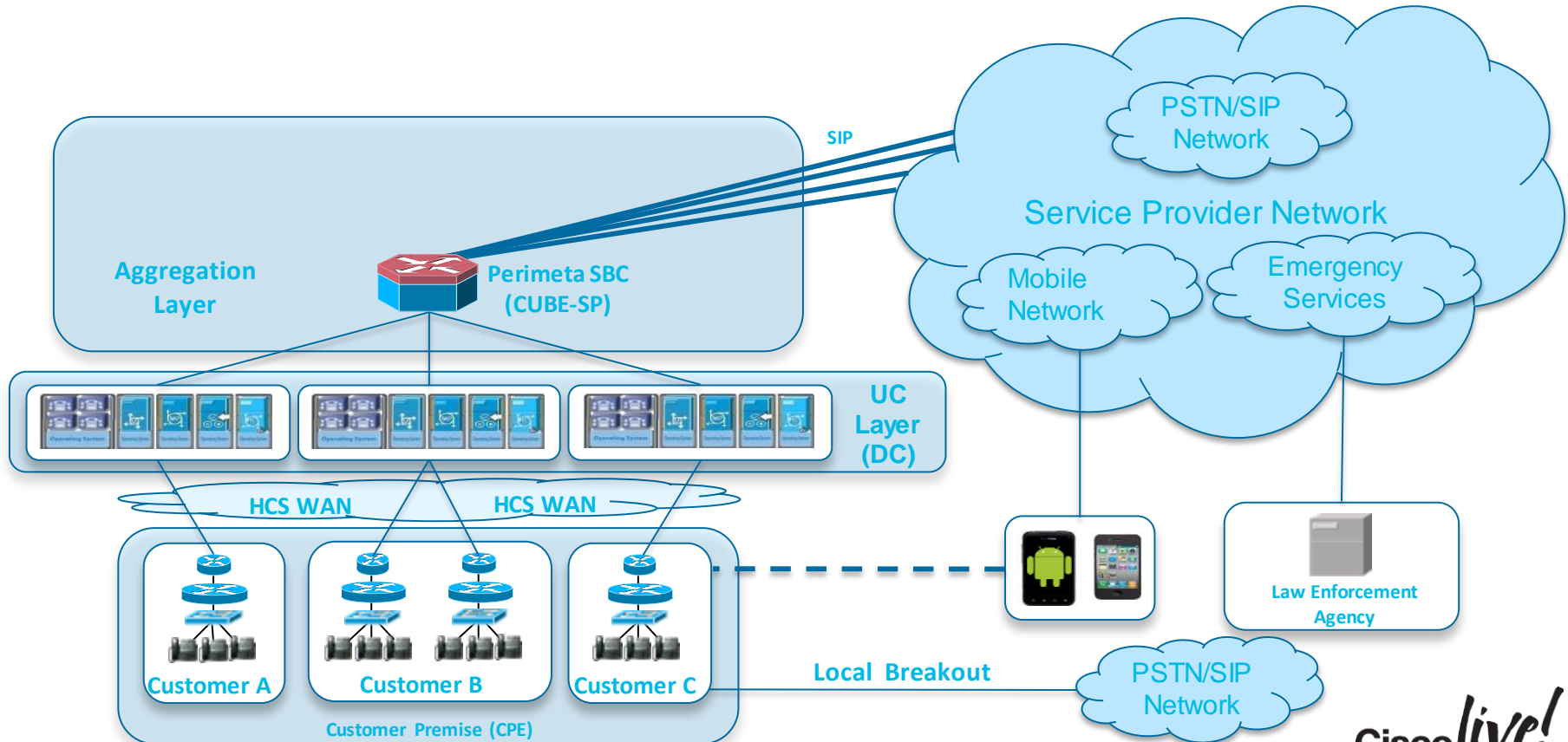
- B230 M2 Blade
  - 2 x 2.4GHz 10-Core Intel Xeon E7-2870 CPUs
  - 20 cores x 2400 MHz = 48000 MHz
  - 256GB of RAM
- CUCM 2500 User OVA
  - 1x vCPU with 800MHz Reservation
  - 4GB of Memory

45 CUCM Instances  
using 180GB RAM



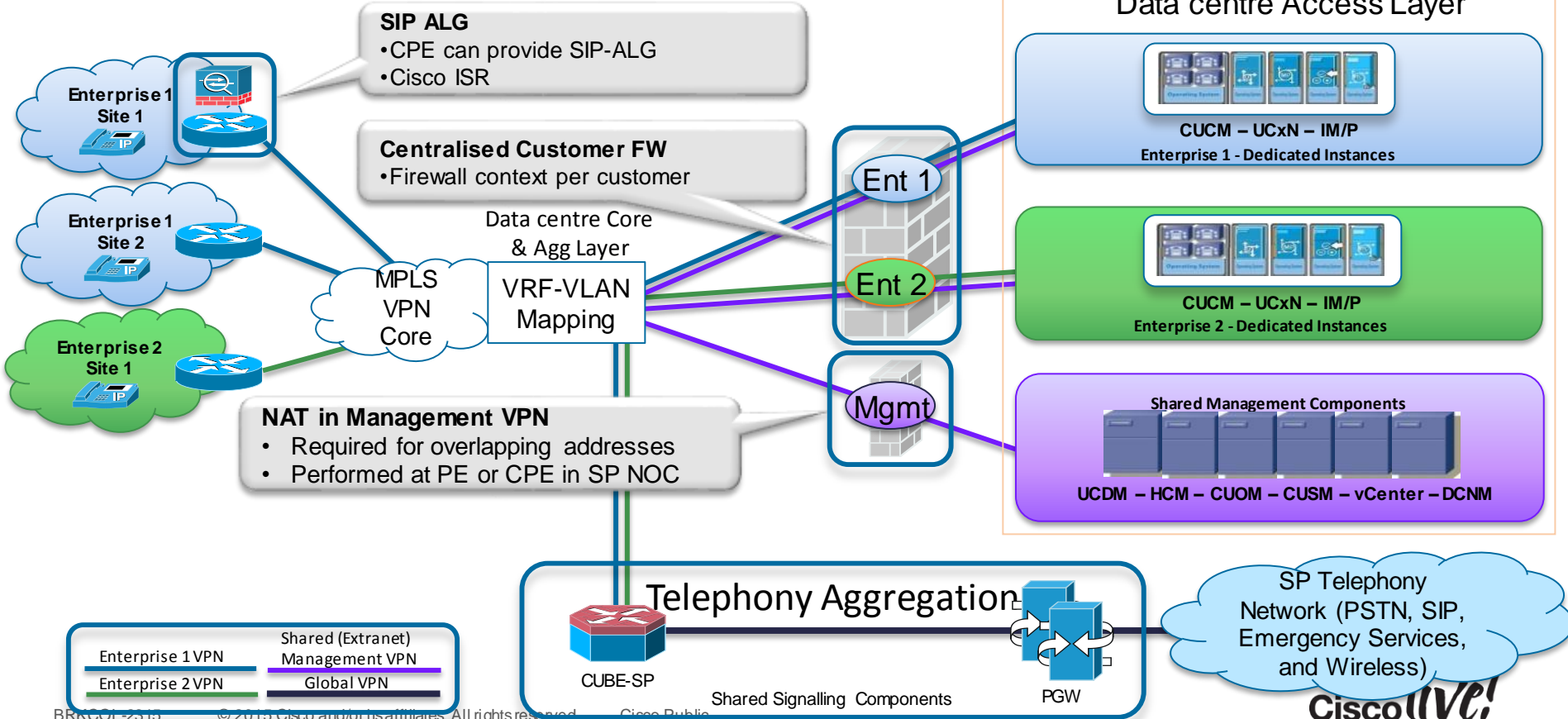


# HCS Telephony Architecture Model

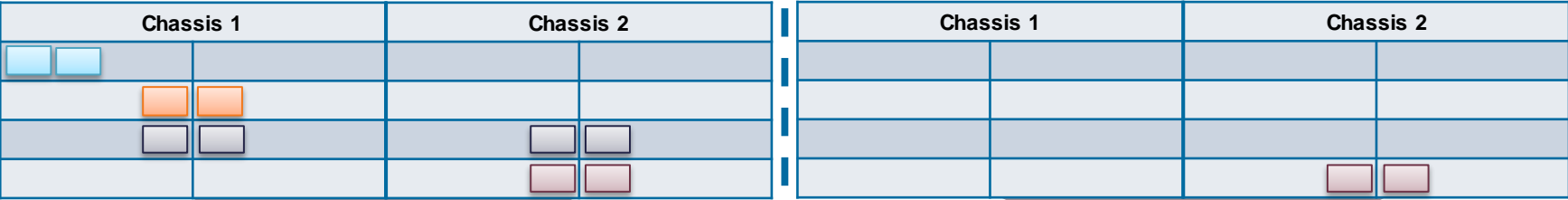


# HCS Security Model

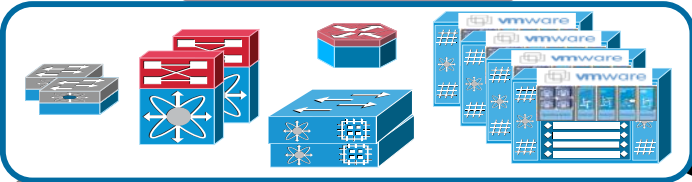
## PCI and FISMA



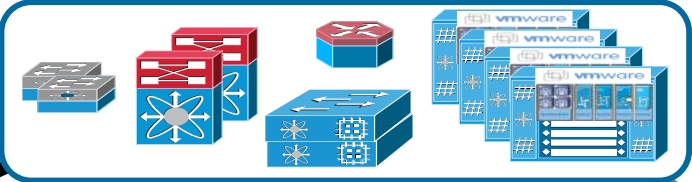
# HCS – Redundancy Throughout



DC1



DC2



SAN



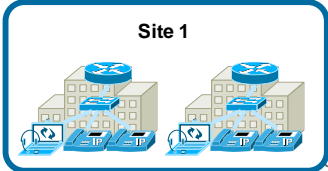
SAN



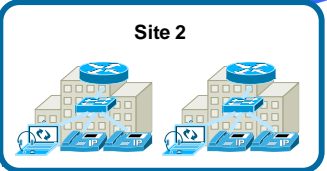
MPLS



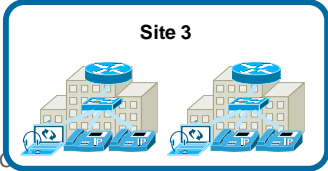
PSTN



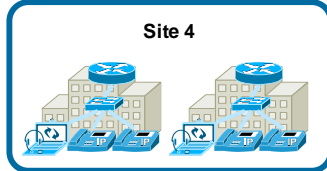
Site 1



Site 2



Site 3



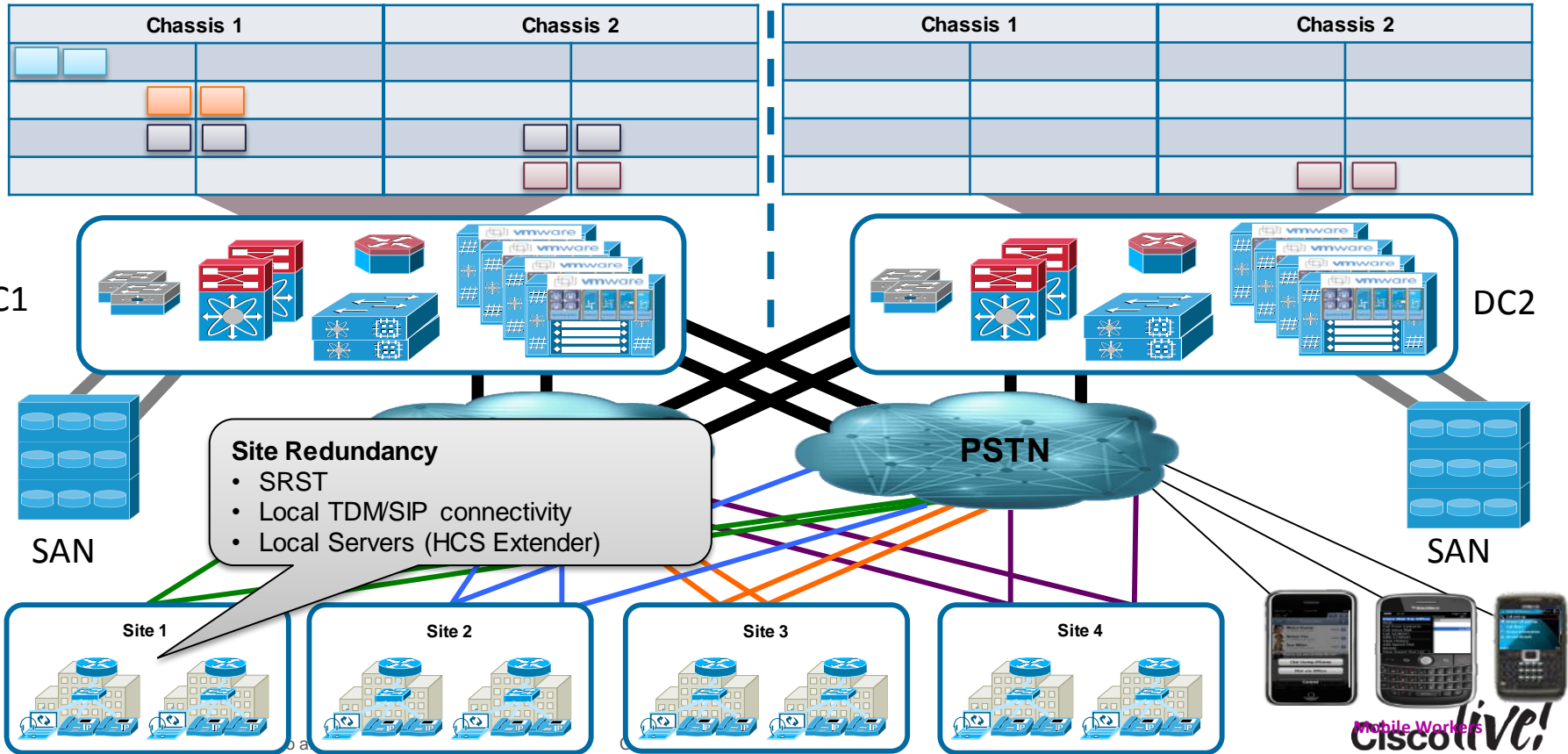
Site 4



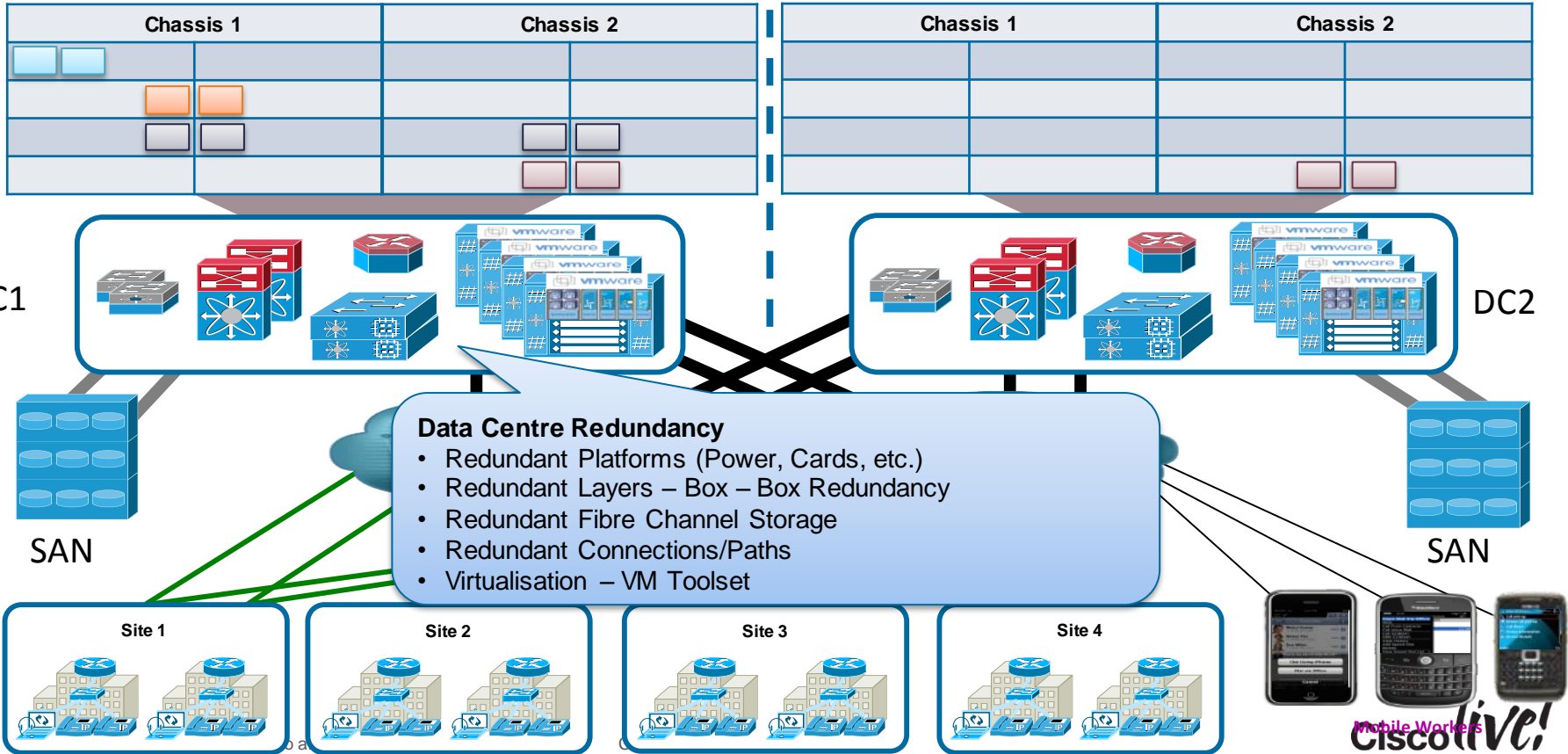
Mobile Workers  
CiscoLive!



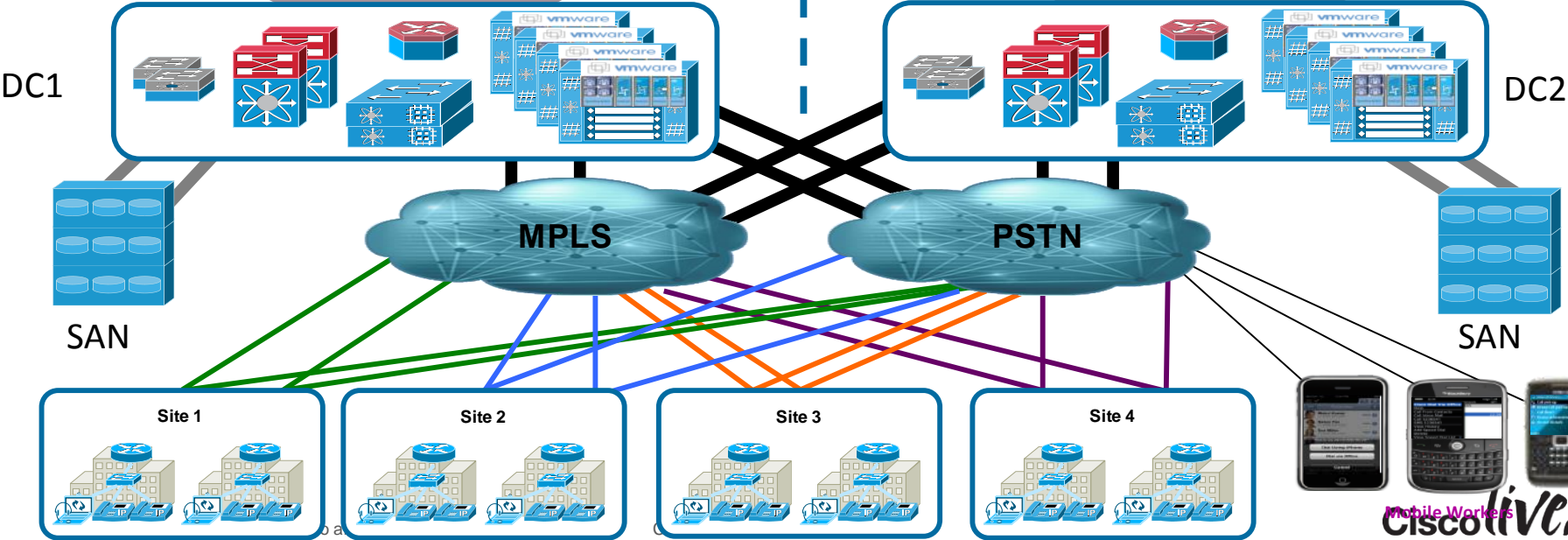
# HCS – Redundancy Throughout



# HCS – Redundancy Throughout

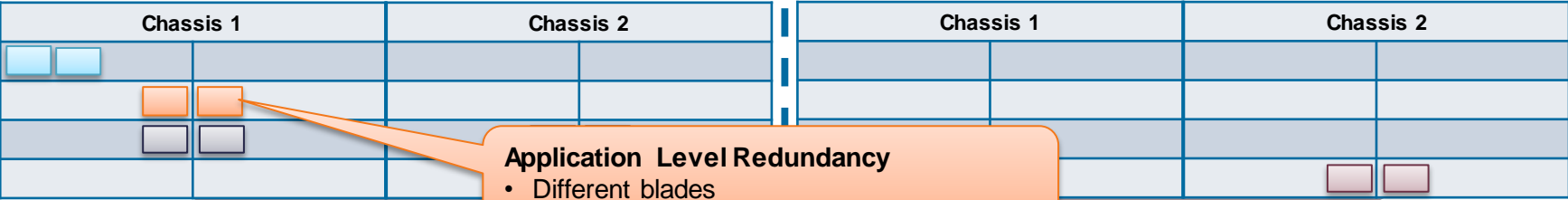


# HCS – Redundancy Throughout



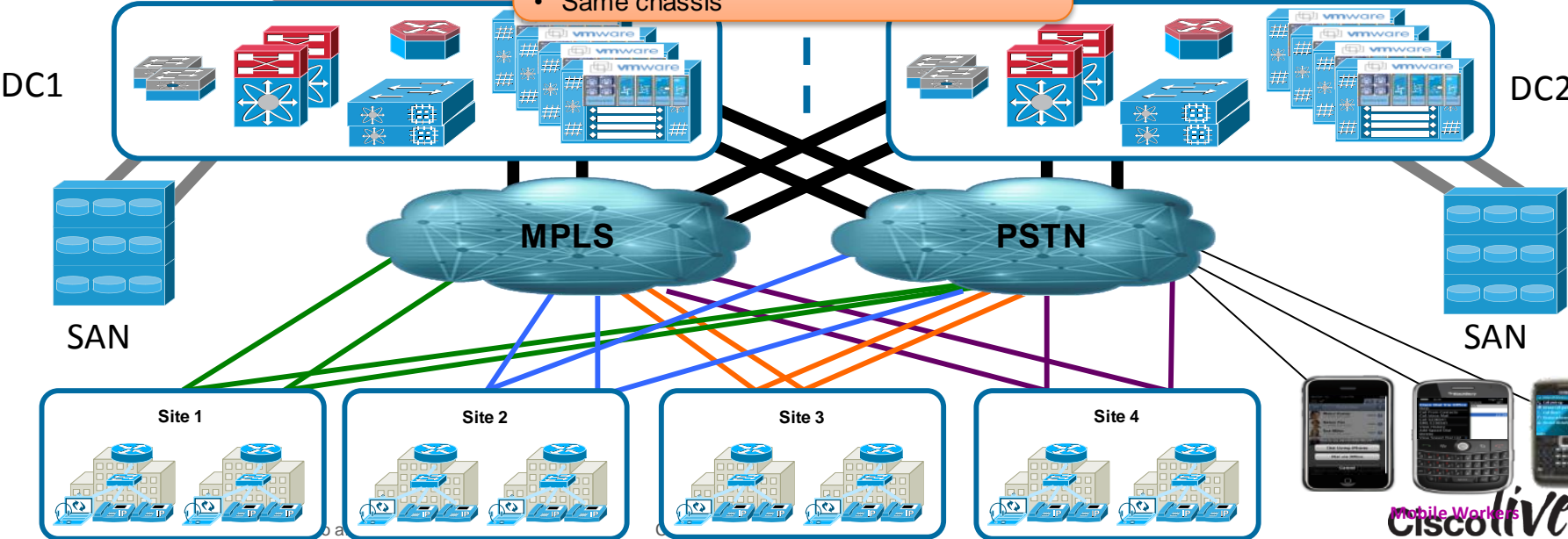


# HCS – Redundancy Throughout

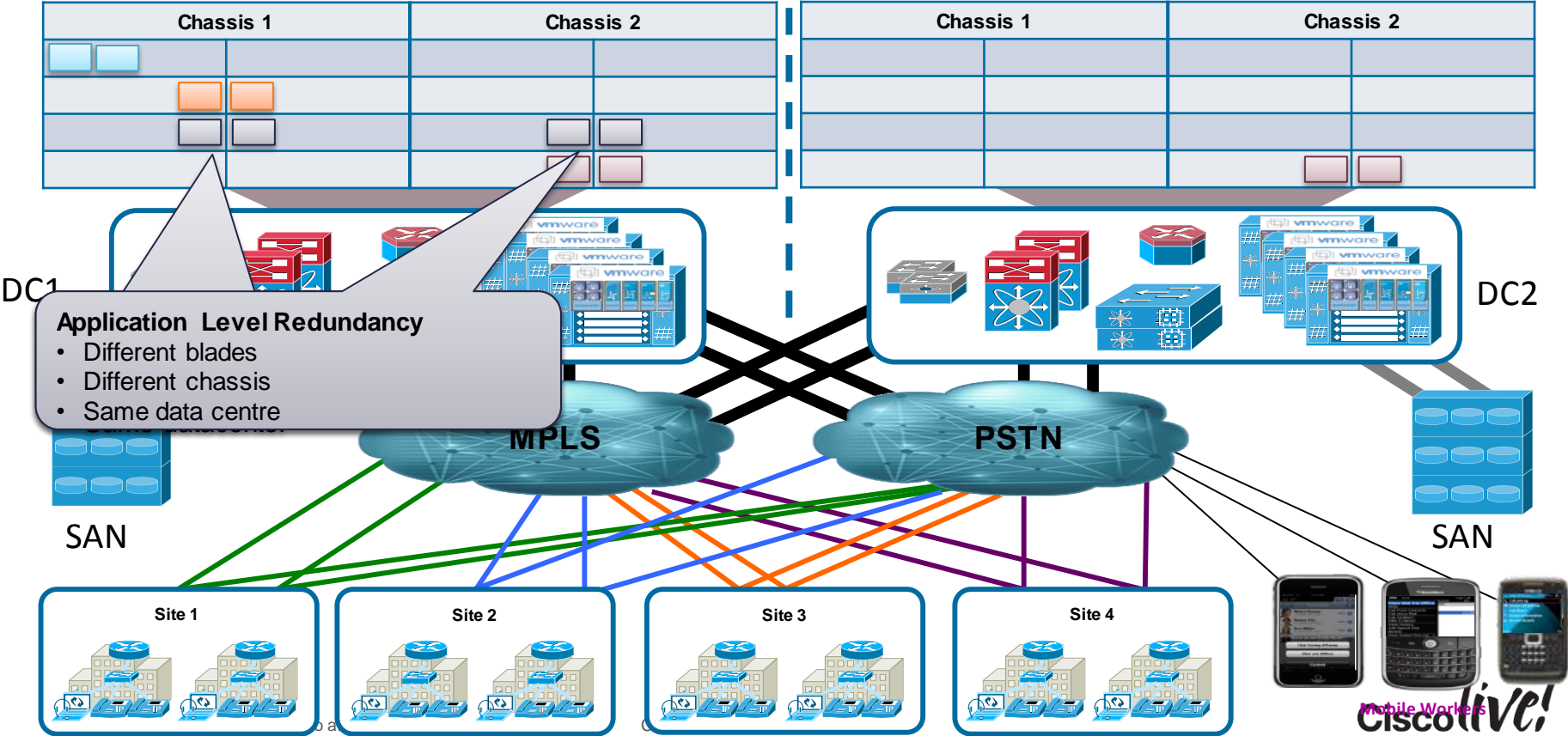


**Application Level Redundancy**

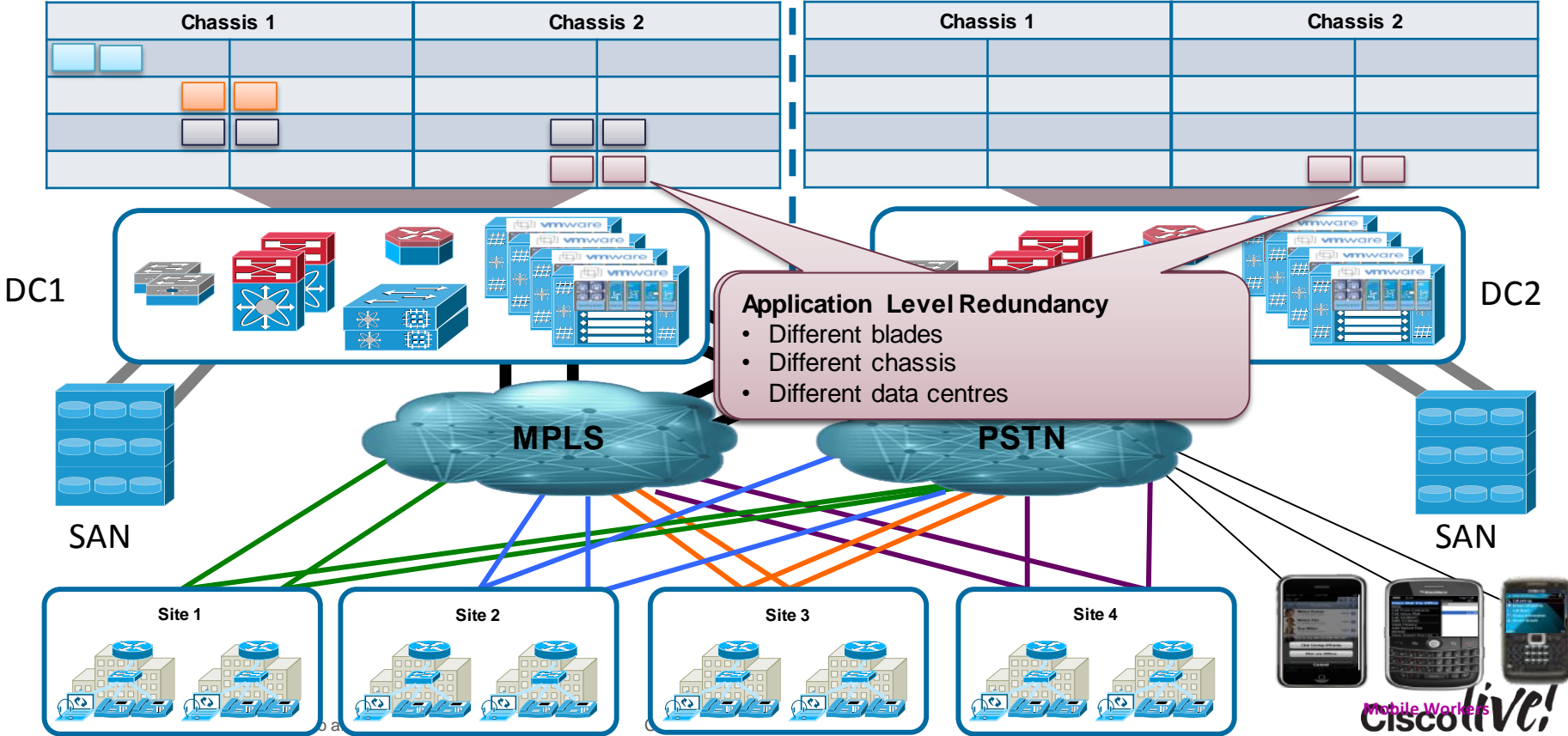
- Different blades
- Same chassis



# HCS – Redundancy Throughout



# HCS – Redundancy Throughout



# What's New in HCS 10.x?

- Delivered in 3 releases (HCS 10.0.1, 10.1.1 and 10.1.2 (Feb2015))
- UC 10 Applications (UC 10.5 introduced in HCS 10.1.2)
- **Mid-Market via Application Shared Instances (CUCM & Unity Connection)**
- 600 User OVA for CUCM – reduces storage footprint
- **Small Contact Centre**, MediaSense, Remote CVP, and 12,000-seat support
- **Easier Jabber deployments/access via Expressway (OTT)**
- Perimeta SBC (replaces CUBE-SP that went EoS on 12/29/14)
- **SSO/LDAP Architecture**
- **New Management Architecture**



# HCS Major Elements

## Collaboration Applications



## HCS Management



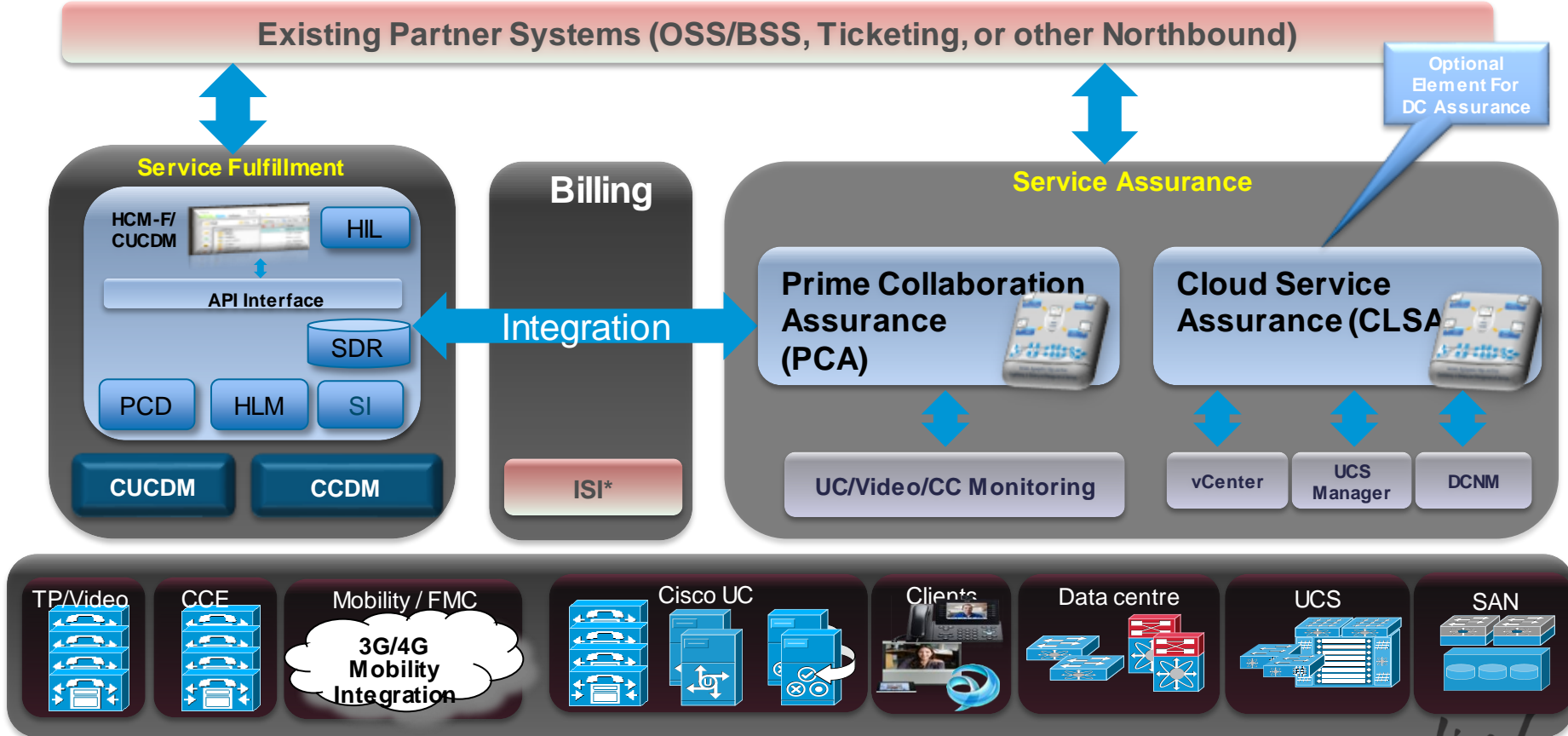
## Cloud Ready Virtualisation Platform



## Scalable, Resilient Network



# HCS Management Layer



# HCS Management Acronym Decoder Ring

- HCM-F – Hosted Collaboration Mediation – Fulfillment
  - PM – Platform Manager (used for upgrading UC applications)
  - SI – Service Inventory (file used for bundle-based billing)
  - SDR – Shared Data Repository (which customer in which virtual machine)
  - HLM – HCS License Manager (keeps track of which ELM serving which customers)
  - PCD – Prime Collaboration Deployment (used for upgrading UC applications such as CUCM)
  - HIL – HCS Intelligent Loader
- CCDM – Contact Centre Domain Manager (CC Apps provisioning)
- CUCDM – Cisco UC Domain Manager (UC Apps provisioning)
- PCA – Prime Collaboration Assurance
- DCNM – Data Centre Network Manager (Nexus/MDS assurance)
- UCSM – UCS Manager (UCS Blade Server assurance)





# HCS for End Customers Why HCS?



# Cloud:

If You Had Any Doubt...

**25%** of surveyed companies utilise hosted services; of non-users, **47%** are likely to use hosted services within the next 12 months

Frost and Sullivan

**56%** of survey respondents currently use or plan to use collaboration through a software as a service (SaaS) deployment model

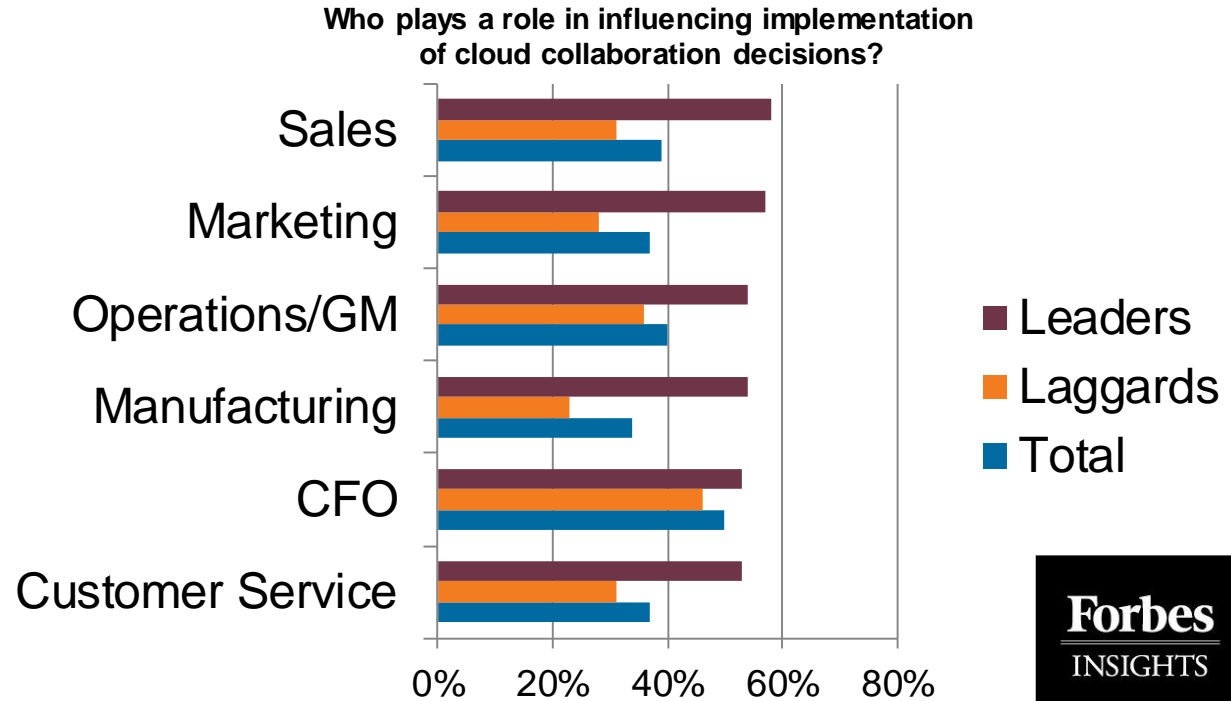
Forrester

By 2016, over **50%** of all net new deployments of video infrastructure will be delivered from the cloud or as software as a service (SaaS)

Gartner

# “Leaders” Say Cloud Collaboration Decisions are More Inclusive and Strategic

- **Not just an IT discussion – a broader business discussion**
- **Include department heads in decision making, today**



Base: all respondents; N = 532

Question: In choosing to implement cloud-resident applications, are the following executives most likely to exert influence, play a lead role, or play no role?

(Chart includes just 'influence' responses.)

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**Forbes**  
INSIGHTS

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A nighttime photograph of a city street. In the background, there are several tall buildings with lit windows. A pedestrian bridge with a blue light strip runs across the street. In the foreground, there are long, curved light trails from cars, primarily in shades of yellow and orange, suggesting motion blur. The overall scene is illuminated by city lights.

# HCS for End Customers Partner Selection and Offerings



# Lots of Partners – Which One Fits Your Business?

- Geographical Reach/Locations
- Current Relationship with Partner?
  - SIP Trunking / UC
  - WAN
- Application Requirements (UC, Video, CC, etc.)
- Unique Integrations (some partners may be more flexible than others)
- Pricing/Bundles Offered












# Cisco Sells HCS Licenses to the Partner.....

Functionality	Collaboration Apps	Essential	Basic	Foundation	Standard
Basic Call Control	3905, 6901, or Analog	✓	✓	✓	✓
Full Voice/Call Control	Enhanced UCL		✓	✓	✓
# of Devices		1	1	1	10
Mobility (SNR)	Cisco Unified Mobility		✓	✓	✓
Native Video	Video Endpoint(s)			✓	✓
Messaging	Unity Connection		○	○	✓
IM & Presence	Cisco Jabber IM		✓	✓	✓
Desktop Softphone	Cisco Jabber (Full UC)			✓	✓
Smartphone Client	Cisco Jabber (Full UC)			✓	✓
Immersive Video	Cisco TelePresence rooms			○	○
Web Conferencing	Cisco WebEx Meetings		○	○	○
Contact Centre Agent	Cisco Unified CC Enterprise		○	○	○

**HCS licenses allow a partner to move and reassign them from customer to customer as needed**

# Partners Create their own Services and Bundles

user profiles	IP telephony 	integrated messaging 	IM & presence 	Web conferencing 	mobility 	operator console 	contact center 
Basic	✓						
Standard	✓	✓					
Business	✓	✓	✓				option
Collaborative	✓	✓	✓	✓			option
Business attendant	✓	✓	✓			✓	
Business Contact Center	✓	✓	✓				✓

easily adjusted

# Price Comparisons – What Not To Do.....

## Premise-Based UC BOM



## HCS Service Offering



### Mow Your Own Lawn

- Mower - \$5000
- Running over dog chain - \$250.00
- Ongoing Gas & Oil
- Maintenance
- More Grass = More Time
- More Services = More Time
- More = \$\$\$\$

• Kids/Wife Angry

### Lawn Service \$200.00 Per Month

- Lawn mowed/trimmed every two weeks
- Everything included, no surprises
- Options to scale up/down
- Trade-in Options
- Focus on the important things in life



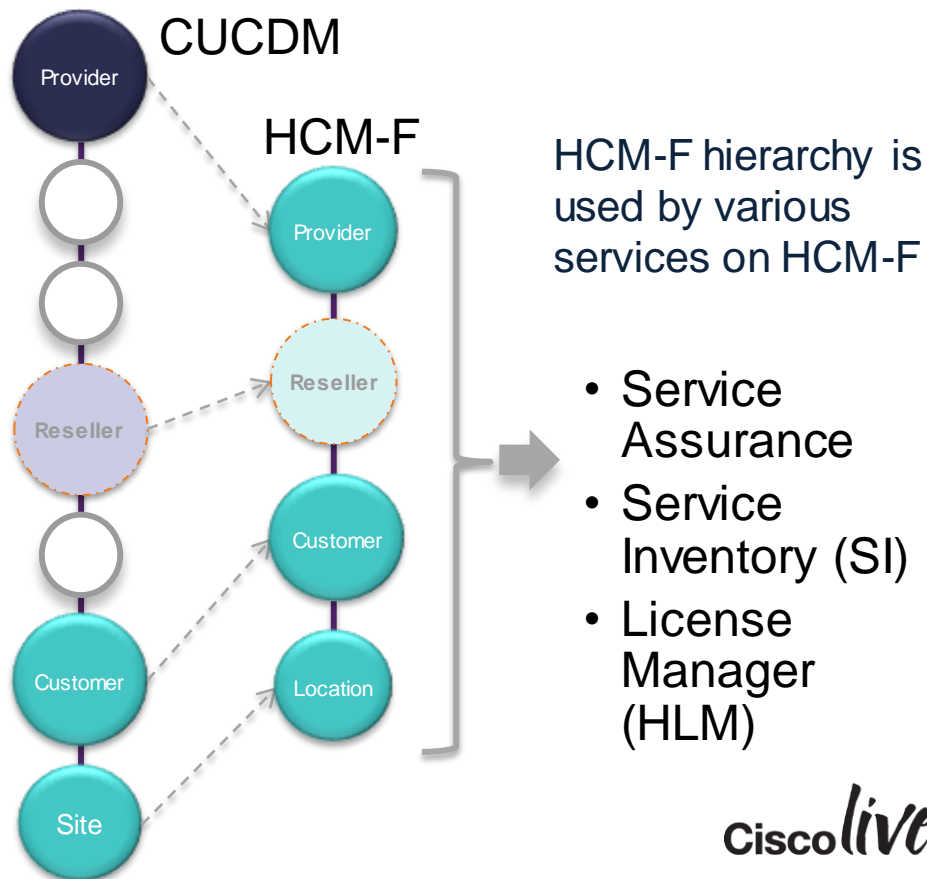
A nighttime photograph of a city street. In the foreground, there are long, curved light trails from cars, primarily in shades of yellow and orange. In the middle ground, a pedestrian bridge with blue lighting spans across the street. In the background, there are several tall buildings with lit windows and some flags on poles. The overall scene is illuminated by city lights.

# HCS for End Customers Portal Capabilities



# Extending Control to the Customer

- Well-known hierarchy types have special behaviour in both CUCDM and HCM-F:
  - Provider
  - Reseller
  - Customer
  - Site
- Reseller is optional in both CUCDM and HCM-F
- Additional hierarchy nodes can be created between the well-known nodes as needed




# Customer Administrator Portal Example

The screenshot displays the Cisco Customer Administrator Portal interface. The top navigation bar includes the Cisco logo, the word 'administration', and user information for 'hautohqAdmin' and 'hautohqSiteAdmin'. The left sidebar contains a menu with categories like 'Device Management', 'User Management', 'Dial Plan Management', and 'Subscriber Management'. Under 'Subscriber Management', the 'Phones' option is highlighted in blue. The main content area shows the configuration for a phone, with tabs for 'Basic Information', 'Lines', and 'Dual Mode Settings'. The 'Basic Information' tab is active, showing fields for Product (Cisco 9971), Protocol (SIP), Name (SEPAAAABBBB1000), Description (Created by default template), and Calling Search Space Name. A blue arrow points from the 'Phones' menu item to the 'Name' field.

Example showing admin MACD of user phone

# CUCDM Self Care Portal – GUI





## Self Service

- Home
- Star
- User
- Phone
- Up/Down
- Microphone
- Star
- Question
- Refresh





### Quick Menu

- My Information
- Phones
- Call Forwarding Inactive
- My Availability DND Inactive
- Speed Dials

### Your Company Phones





Device	Description	Line
	Created by default template	1000
	<span>Profile</span> Created by default template	1000

### Your Personal Phones

Description	Number	Simultaneous Ring	
91897348734-RD	91897348734	<input checked="" type="checkbox"/> Active	 
Home Phone	918937489374	<input checked="" type="checkbox"/> Active	 

[+ Add a Phone](#)

### Activity Feed

-  **Personal Phones**  
Personal phone added successfully  
Dec 2, 2014 10:25:30 AM
-  **Personal Phones**  
Simultaneous ring settings updated successfully  
Dec 2, 2014 10:25:13 AM
-  **Personal Phones**  
Simultaneous ring settings updated successfully  
Dec 2, 2014 10:25:04 AM
-  **Authenticated**  
You successfully logged in  
Dec 2, 2014 10:24:18 AM

A nighttime photograph of a city street. In the foreground, there are long, curved light trails from cars, primarily in shades of yellow and orange. In the middle ground, a pedestrian bridge with blue lighting spans across the street. In the background, there are several tall buildings with lit windows and some flags on poles. The overall scene is illuminated by city lights.

# HCS for End Customers Design Considerations



# Key is to Listen to Customer, Document and Agree Before Starting Deployments



Listen



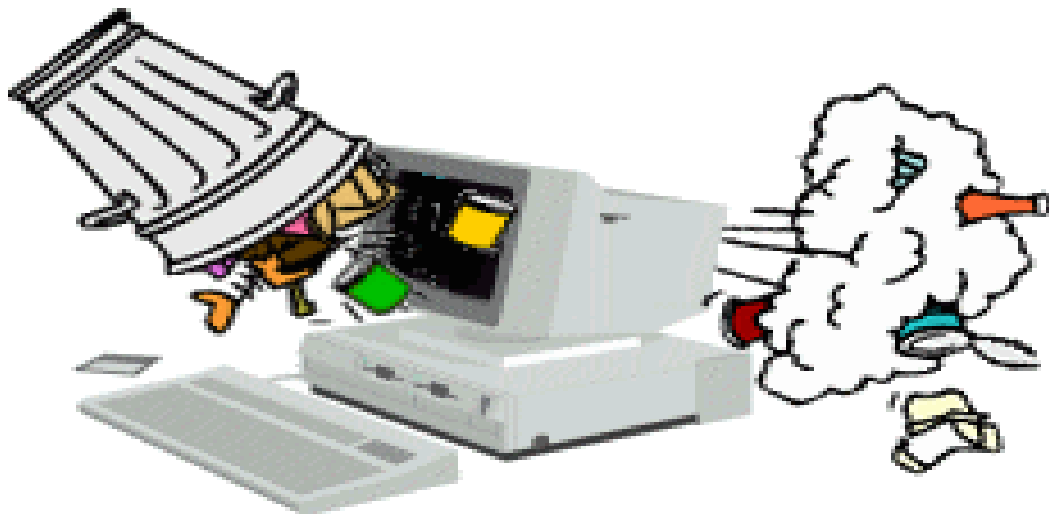
Document



Agreement



# If You Don't.....



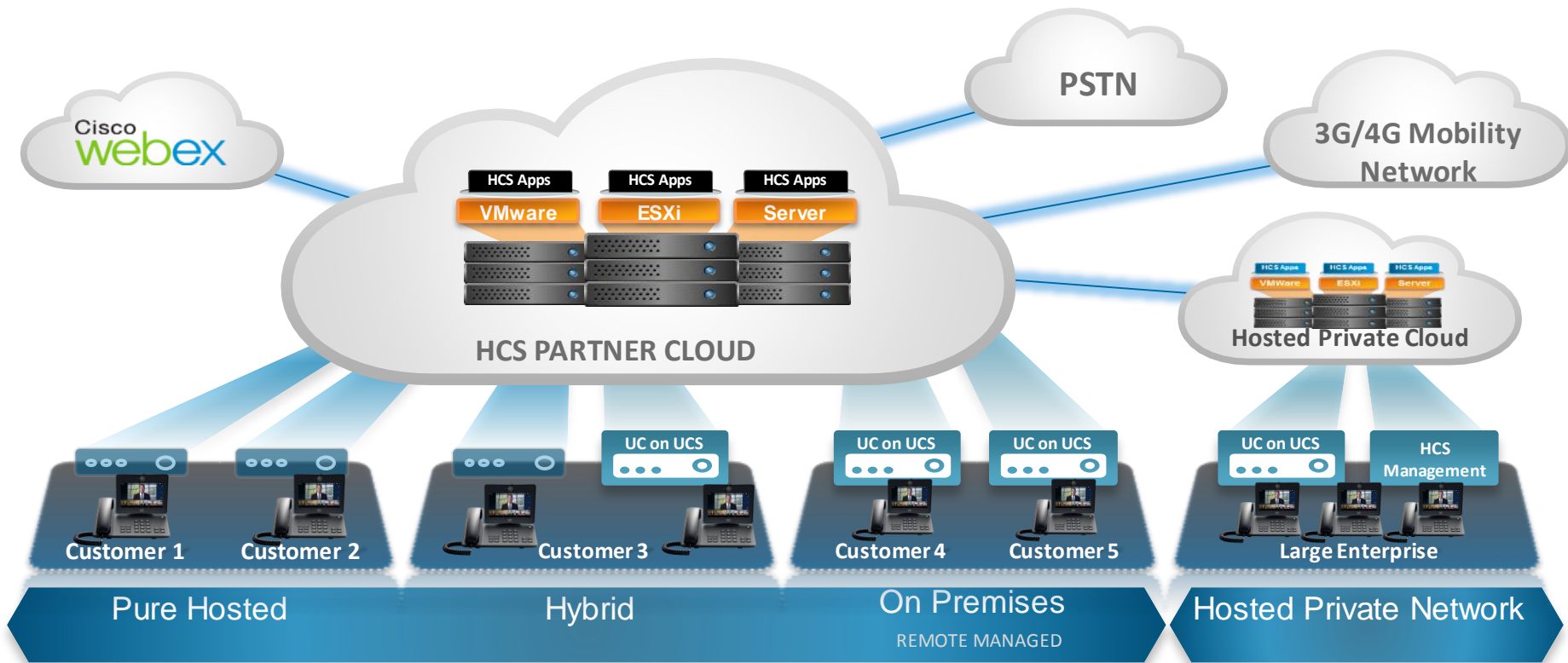
Stuck Deployments

Confused Users

Unhappy Customers

Unhappy Partners

# What Deployment Model Fits Your Business?



# Deployment Model Drives Bandwidth Calculation

- From the HCS SRND on CCO ([http://docwiki.cisco.com/wiki/Cisco\\_Hosted\\_Collaboration\\_Solution](http://docwiki.cisco.com/wiki/Cisco_Hosted_Collaboration_Solution))
- 1,000 users = 19.1 Mbps    10,000 users = 191 Mbps

**Table 2: Bandwidth usage for UC applications on UCS hardware**

<b>Numbers of phones (subscribers)</b>	<b>BHCA (calls per phone per hour)</b>	<b>Bandwidth SP Control Traffic with Encryption</b>	<b>Total bandwidth</b>
1000 phones	10	619 bps (includes register type messages and call-specific data)	619 kbps Approximately 0.62 Mbps
10% phones using voicemail	2	91.56 Kbps (6.711 codec)	9156 Kbps Approximately 9.2 Mbps
10% phones using MOH service (software base)	1	91.56 Kbps (6.711 codec)	9156 Kbps Approximately 9.2 Mbps
5 contact center phones	30	1.53 Kbps	7.695 Kbps
10% phones using shared line	4	343 bps	34.3 Kbps

# Dial Plan Considerations

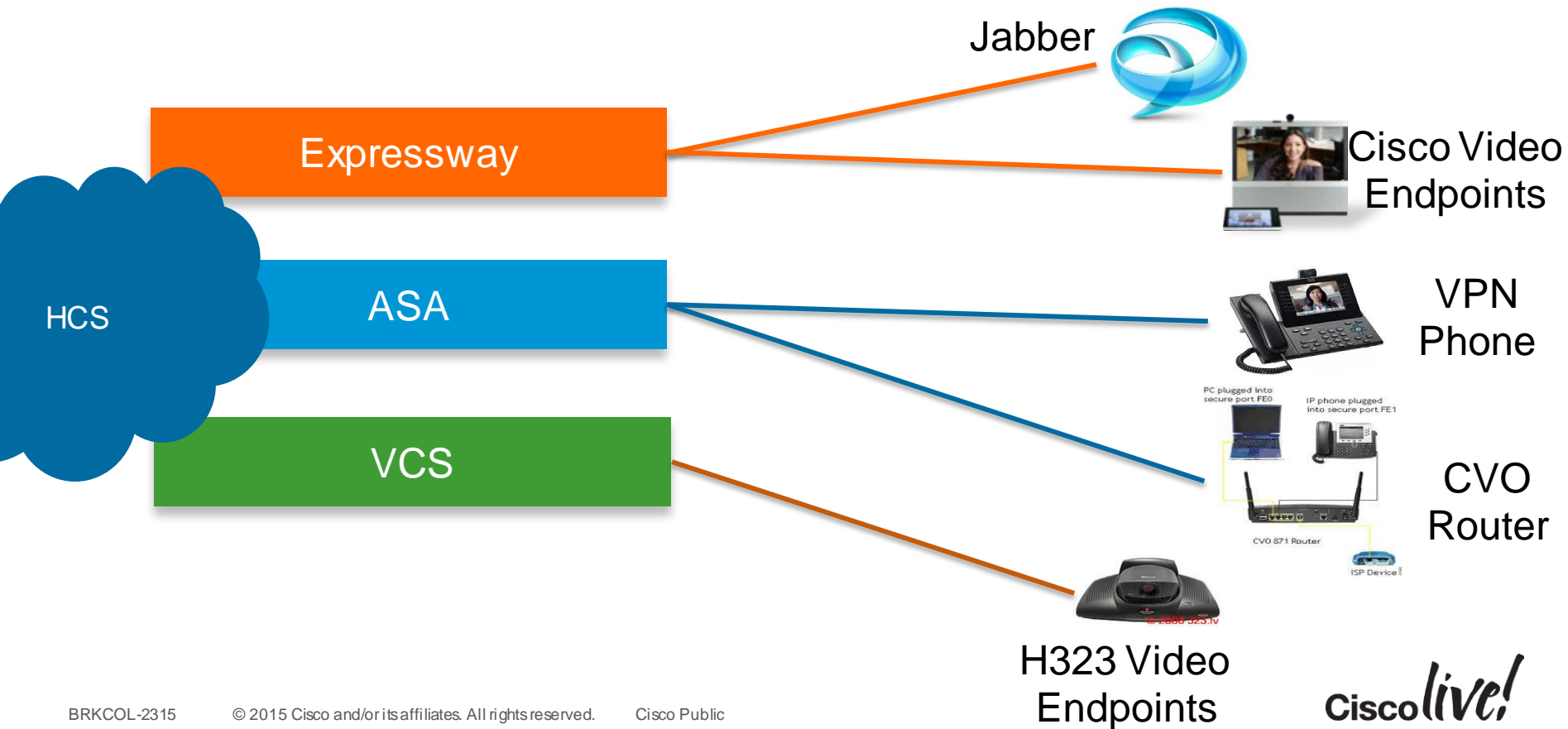
- Different digit extension lengths at different sites vs. structured (E.164)
- Hunt groups vs. smarter schemes (SNR<sup>^</sup> or ToD\* routing, etc.)
- Country specific dial plan needs
- Clean up call forwarding scenarios
- Simpler the dial plan, the simpler it is to add new things and keep current
- Where and how do I route calls to PSTN? Local breakout or SIP Trunking

<sup>^</sup>SNR (Single Number Reach)

\*ToD (Time of Day)



# Remote Access – Hosted? Or Customer Controlled?



# Third Party Application Integrations Considerations



Existing Phone System



CDN Solutions



Microsoft®  
Exchange

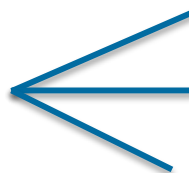
Directory Integrations



Google Apps /  
Gmail



Microsoft®  
Lync™



Direct SIP? CUCI?

Remote Access?

Office365 vs On-Premise

# HCS Other SLA Considerations

- Upgrades
  - Notification/Communication of available upgrades
  - Frequency of upgrade (e.g. must be within 1 release within a specified time frame)
  - Change window
  - Any 3rd-Party Integrations that need coordinated upgrade
- Security
  - Voice Signalling and/or RTP Encryption & Type Required
  - Security Updates/Patches – Methods and Procedures
  - Messaging and/or IM Retention & Security Requirements
- Portals
  - Administrator and User Provisioning Portal Requirements
  - Visibility of Assurance and Performance Reporting & Metrics
  - Billing

A nighttime city street scene with a pedestrian bridge in the background. The foreground is dominated by long-exposure light trails from vehicles, creating a sense of motion and energy. The background shows modern buildings and streetlights.

# HCS for End Customers FMC / WebEx / Video / CC Integration



# HCS and Fixed Mobile Convergence (FMC) Options

**Existing Jabber and WebEx clients & CUCM Unified Mobility**

HCS

Jabber  
WebEx

**Client-less Office Extension to ANY 3G mobile device (requires advanced mobile VPN)**

HCS

SIP  
IMS  
NNI

3G Cellular with Mobile VPN

ANY Mobile (client-less)

**Office Extension & Mid-Call Features on VoLTE**

HCS

IMS ISC

S-CSCF

HSS

P-CSCF

VoLTE

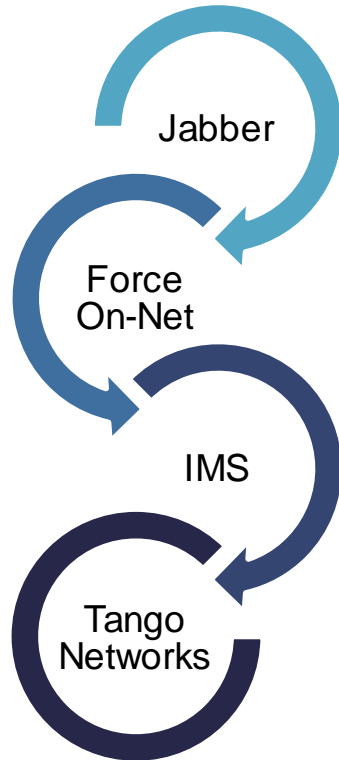
LTE

PGW

EPC

LTE VoLTE

# Cisco Collaboration Mobile Integration/Positioning



## Collaboration for client-based mobile devices

- Best end user experience
- No special integration required at network level to co-ordinate between Wireless and Enterprise network
- Support a comprehensive set of mobile platforms/devices

## Clientless mobile devices (feature phones)

- Partner has IN deployed in wireless network and willing to do special routing and configuration in network to route mobile originating/terminating sessions to HCS

## IMS compliance device mobile devices

- IMS Core responsible for routing mobile session to HCS via ISC interface.
- UCM acts as Application Server (AS) in IMS network for mobile devices
- Support IR.92 Voice Supplementary Services

## Clientless mobile devices (any phones)

- Partner does not have existing IN in wireless network but need FMC for clientless devices
- E.g. EMEA region continue to have a demand on clientless FMC
- Enterprise defined network enforced business routing policy
- Additional flexibility on user based identity based routing

# WebEx Integration Options



## Over the Top (OTT) WebEx SaaS Integration into HCS

- Video and web via customer's existing Internet gateway
- Voice via CUBE-SP into PSTN or VoIP

## WebEx Cloud Connected Audio for SP

- Dedicated MPLS connection from HCS partner to WebEx DC
- Can offer flat rate audio

## Cisco WebEx Meeting Server (CWMS)

- Dedicate CWMS per HCS customer
- Not integrated into HCS management layer



Cisco *live!*

# Video in HCS

## Point to Point Video

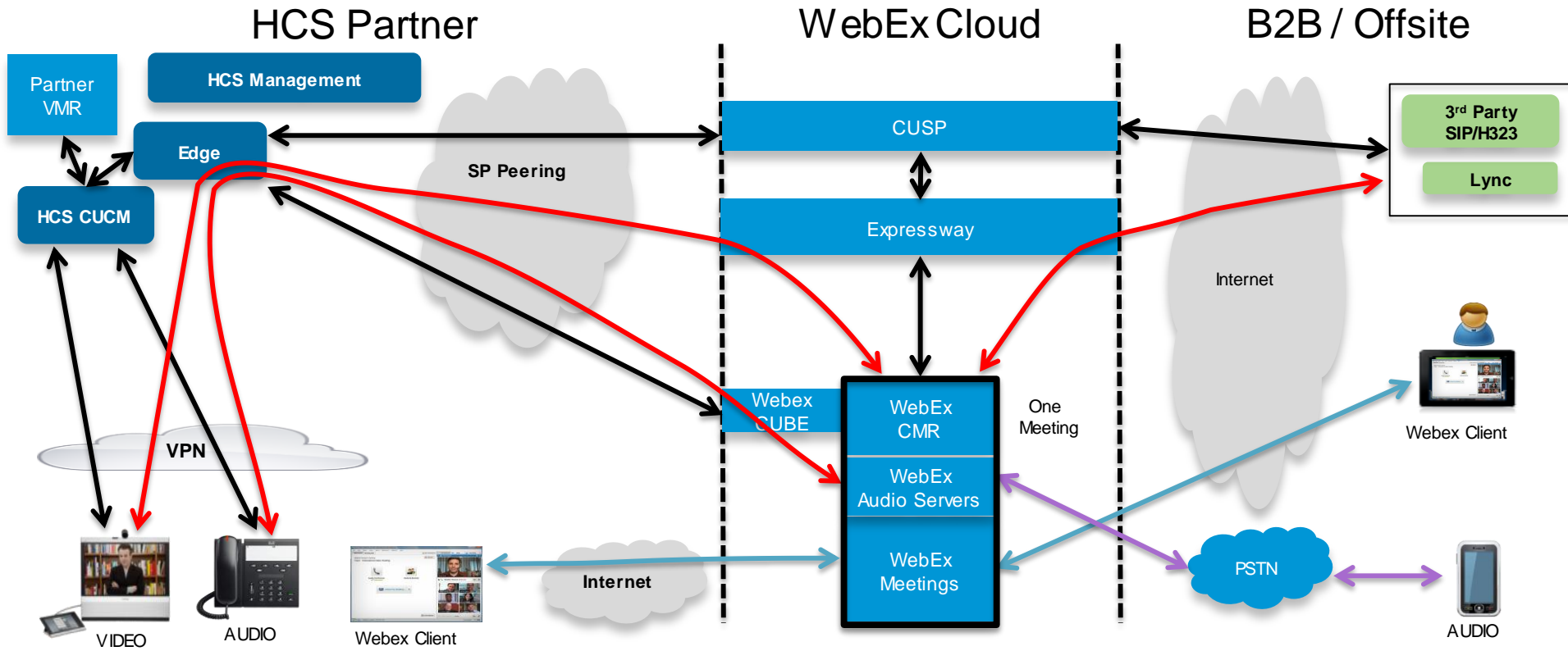
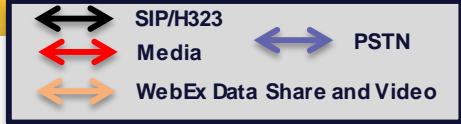
- Handled by each customers' CUCM. Works like any CUCM deployment

Multi-Point Video there are several options depending on what is needed.

- Dedicated video gear per customer (Conductor, TP Server, TMS, etc.)
- HCS partner deploys Cisco VMR deployment (shared TP Servers, etc)
- Collaboration Meeting Rooms (CMR) – hosted and served by WebEx Cloud



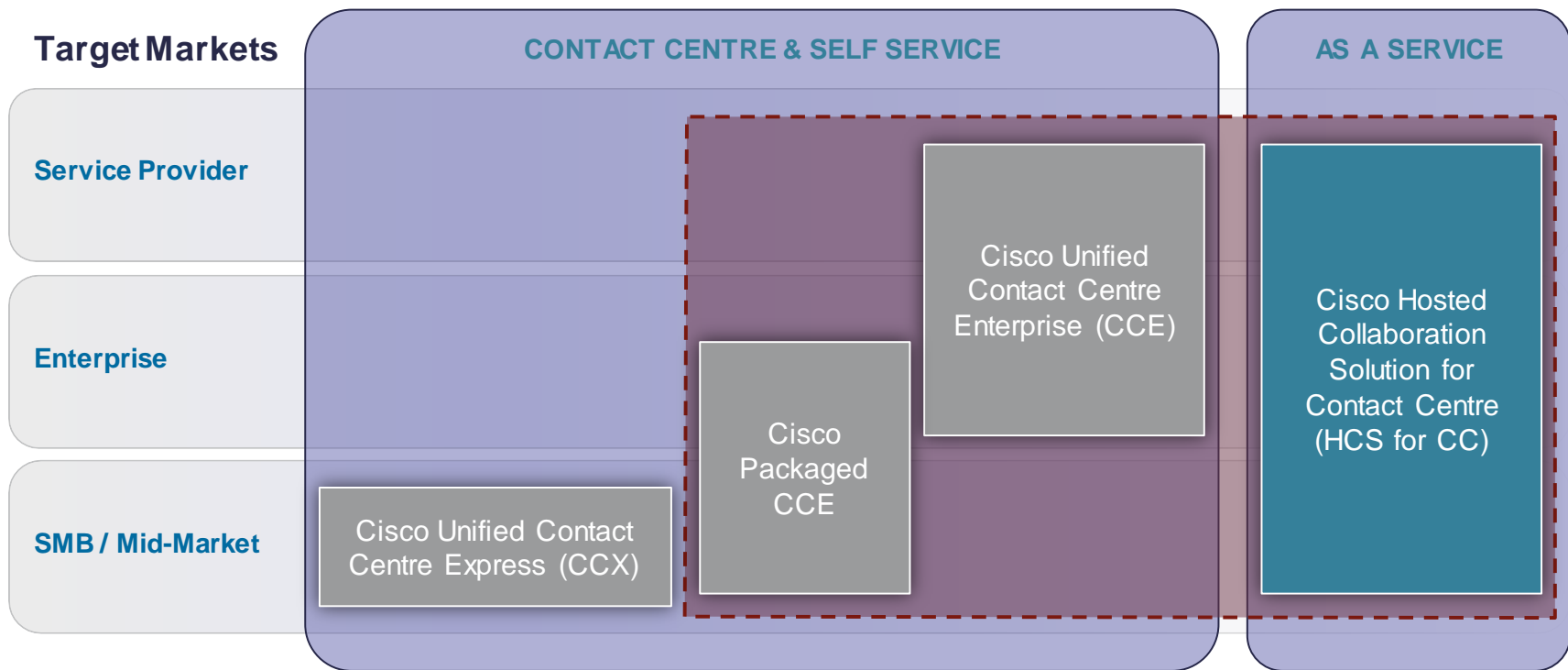
# HCS and Webex CCA-SP + CMR



**Enterprise**



# Contact Centre and HCS



# HCS for Customer Collaboration (HCS-CC)

## Partner Deploys a Hardware Model to Match Concurrent Agent Size

- 500 Agent Model
- 1000 Agent Model
- 4000 Agent Model
- 12000 Agent Model
- Small Contact Centre – Based on 4000 Agent Model

Partner buys agent software on a per concurrent agent basis

Additional items can be bought in same manner

- Web and Email for Multi-Channel (EIM/WIM)
- Extra IVR Ports
- MediaSense, etc.

This all gets wrapped up in a per agent per month price to the end customer

# Key HCS-CC Features and Capabilities

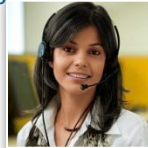
## Agent and Supervisor

- CTIOS or Finesse desktop
- Outbound
- Multi-Channel (EIMWIM) support
  - **Small HW footprint\***
- Agent Greeting
- Whisper Announcement
- Silent Monitoring
  - Remote or Call Manager based
- CUIC Premium Reporting
- Mobile Agent



## Solution

- **Recording (MediaSense) support\***
- CUCM-based Silent Monitoring
- **Enhanced Service Assurance\***
- **Customer partitioning\***
  - Economical model for up to 100 agents
  - Enables multiple customers to reside in one instance
- **Remote CVP support\***
- Cisco Unified SIP Proxy support\*
  - Centralised dial plan
  - Health monitoring via server group



## Third-Party Integration

- Recording
- Wallboards
- Workforce Management
- Database Integration
- CRM Integration



## IVR / Carrier Integration

- Queuing
- Self-Service
- ASR/TTS
- Report Server
- DTMF
- Carrier Integration
  - G.711 ulaw
  - G.711 alaw (native)
  - G.729a Codec







Q & A

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Thank you.

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