



You make **possible**



# Migration of On-prem (CUCM) video endpoints to the cloud (Webex) platform

Inside Cisco IT

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BRKCOC-2997

**CISCO** *Live!*

Barcelona | January 27-31, 2020



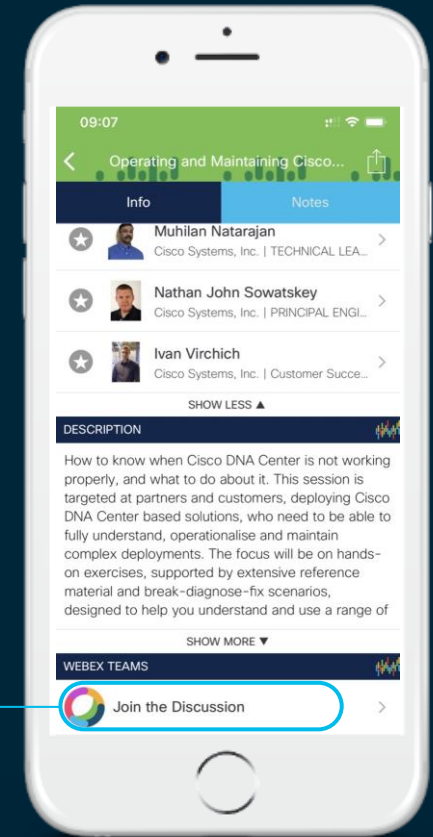
# Cisco Webex Teams

## Questions?

Use Cisco Webex Teams to chat with the speaker after the session

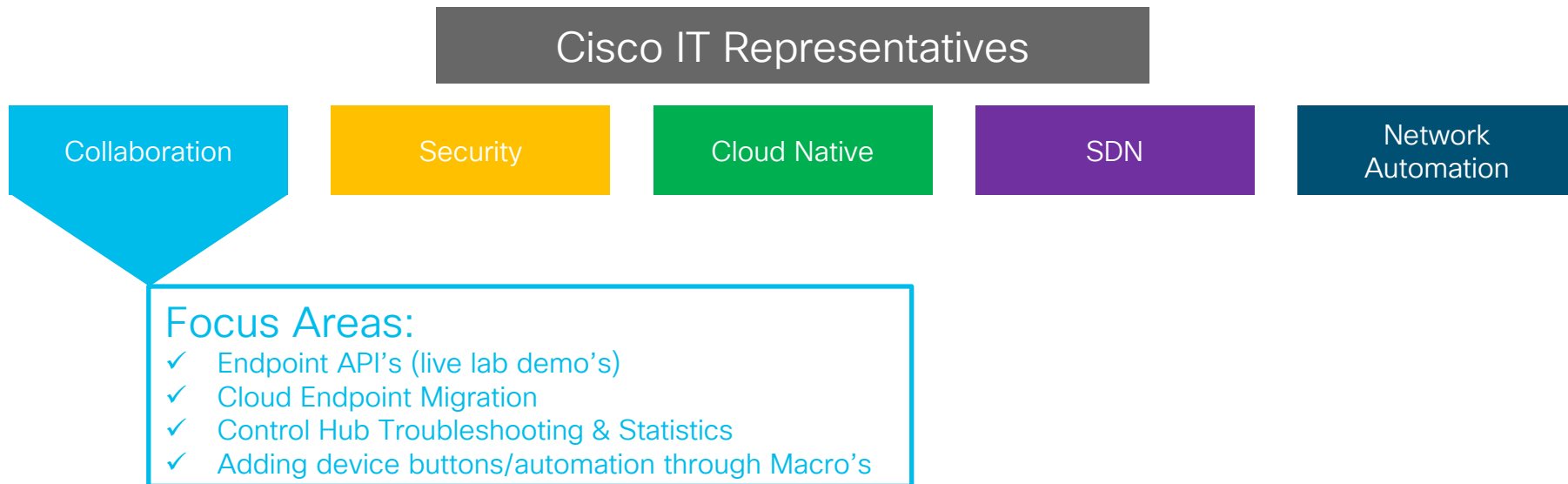
## How

- 1 Find this session in the Cisco Events Mobile App
- 2 Click “Join the Discussion”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space

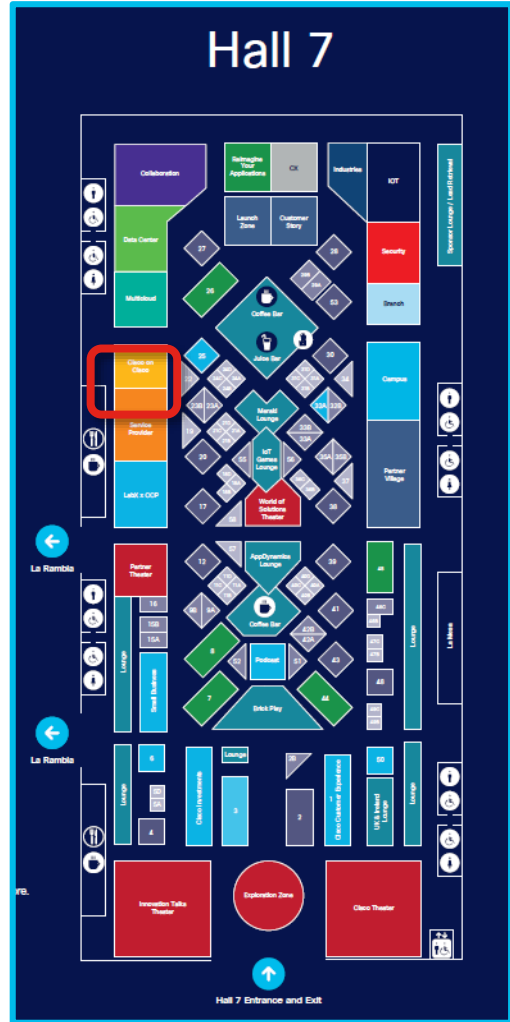
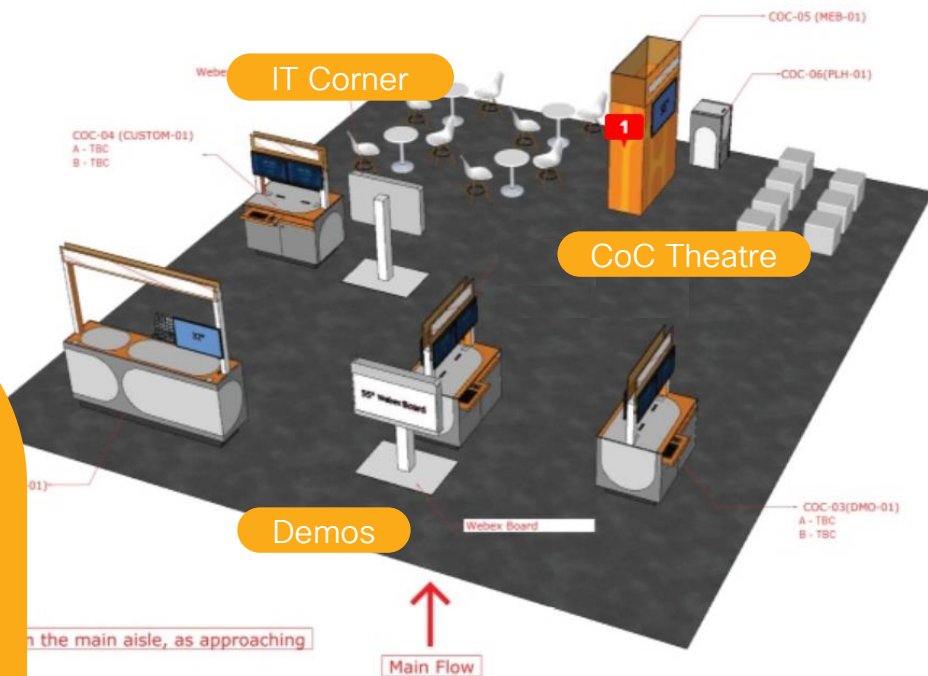


# Cisco on Cisco Booth – Stop By!

- Speak with various Cisco IT employees who are in the same shoes as you!
- We are here to tell you our story and how we are using and managing Cisco services within Cisco (drinking our own champagne)



# Come visit us!



# Agenda

- Cisco's Environment Overview
- Key Benefits of Cloud for Video
- Cloud Service Readiness Callouts/Strategy
- Migration Strategy & Steps
- Troubleshooting & Firmware Management
- Cloud xAPIs Capabilities – Monitoring | Signage | Tagging
- Vyopta Vendor SaaS

# Cisco IT Environment



**140,000**

Workforce

**467**

Buildings

**96**

Countries



**88,529**

IP Phones



**92,890**

Soft  
Clients



**45,351**

Mobile  
Devices



**17,933**

Personal



**5,851**

Multipurpose  
Rooms



**228**

Fully  
Immersive TP



**1366**

Webex  
Boards



**25,516**

Telepresence  
Endpoints



**438,756**

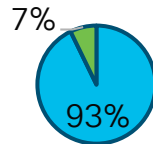
Webex  
Meetings  
Video Calls



**99,185**

Webex Teams  
Avg. Monthly  
Users

## Prod Shared Cloud Enablement



■ Cloud ■ On-prem

## Out of Scope

- LVCR (3d Party camera/AV)
- Legacy Models
- Events
- Bangalore

# Cloud Endpoint Benefits

## Software Optimization

Reduction in upgrade resource time and optimization of firmware management

## Current/Future Features

Enhance user experience (Pairing, Webex Assistant, Facial Recognition, People count)

## Interoperability

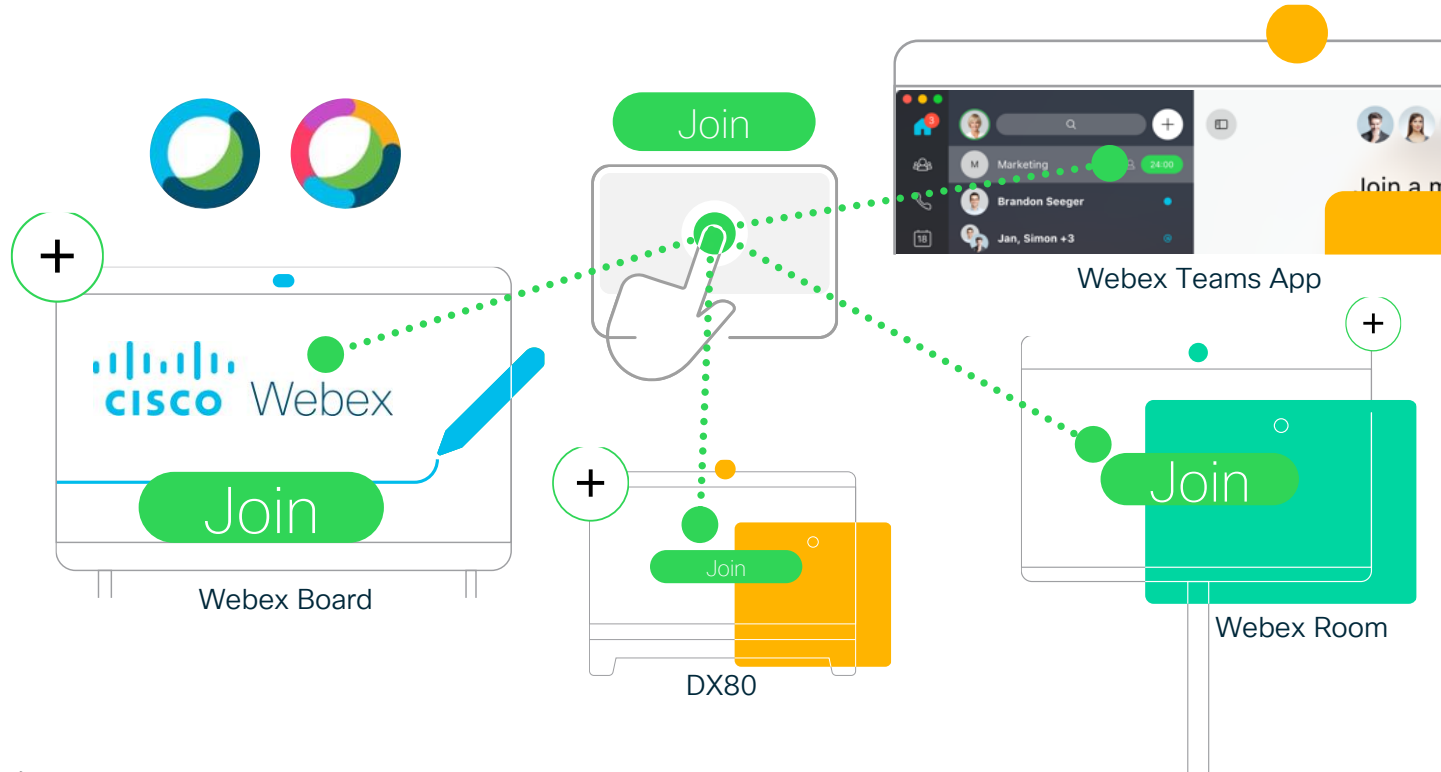
Meeting join enhancements and seamless meeting experience across all platforms

## Streamline Support & Manageability

Centralized device management for troubleshooting and managing devices



# Consistent Experience

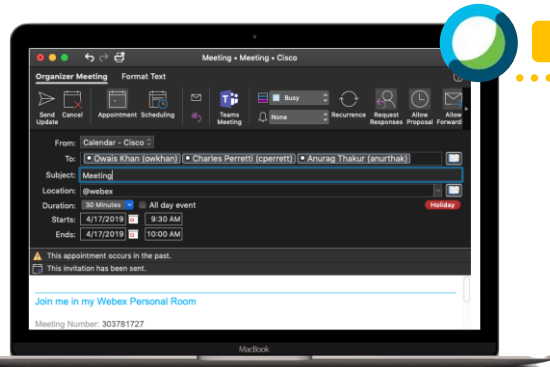


# New Join Experience

Today



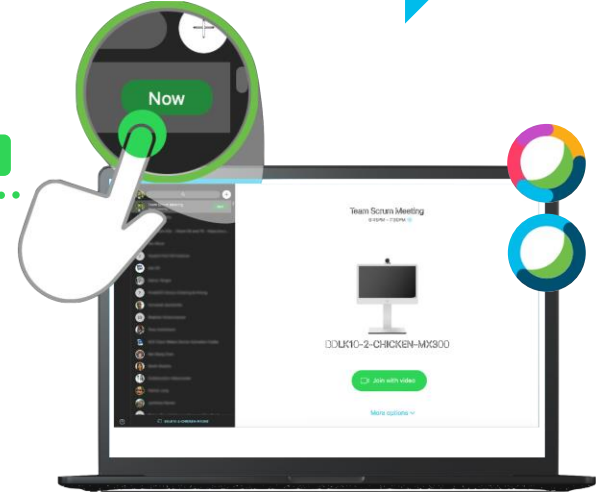
Tomorrow



58 sec



5 sec



Join Through Webex Teams



# Moving to Cloud Callouts

# Cloud Strategy



## Cloud Supported Models

Majority of endpoint fleet supports cloud platform for seamless experience to users

## Cloud vs Hybrid Cloud

Leverage existing CUCMs for PSTN dialing or Cloud only based registration with no PSTN support

## Support Training

Identify admin roles and training on managing and supporting the cloud based environment

## User Workflows

Understanding user workflows and driving change management where needed

## Personal Reg. Devices

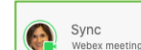
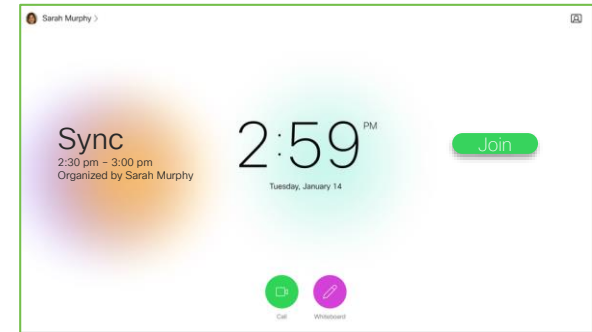
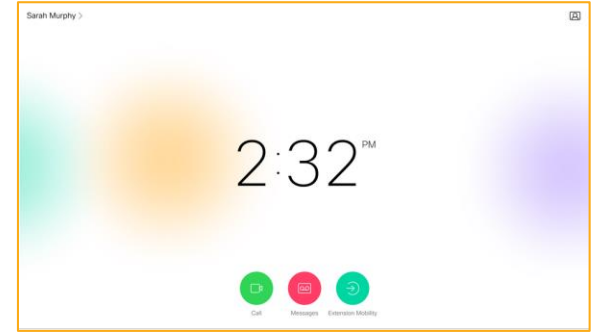
Pros and Cons for personal registered devices in a hybrid environment

## Multiple Environments

CUCM per environment (Prod/ACE/Alpha/BU) -> Sharing one Webex Control Hub domain

# DX/Room Personal Registration

Capabilities & Features	On Prem	Webex Personal Mode
One Button to Push	✗	✓
Wireless Sharing (Webex Teams)	✗	✓
Dialing 911	✓	✗
Dial into meeting using URL	✓	✓
Whiteboarding (via Webex Teams meeting)	✗	✓
Cisco Proximity	✓	✗
Webex Teams Meetings	✓	✓
HDMI	✓	✓
PSTN/External Dialing	✓	✗



2.8

Share

**cisco** *Live!*



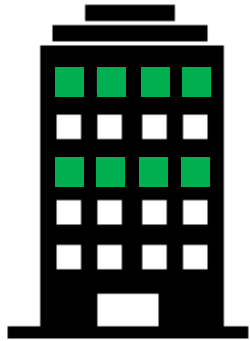
# Migration Rollout

# Naming Standards & Tagging

Device Type	Naming Convention	Display Name	Tag
Personal Device at Office	Building#-Floor#-UserID	My Personal Device is installed at SJC12 4th floor Display Name = SJC12-4-GECHEUNG	#PROD
Personal Device at Home	(DID-based)-HM-UserID	My Personal Device is installed at Home. My DID is SJC-based. Display Name = SJC-HM-GECHEUNG	#PROD
Conference Room Device	Building#-Floor#-Conference Room Name	<b>Assumption:</b> There is <b>only one</b> device in the room. e.g. SJC12-4-BOB DYLAN (14) Video (2-Screen)(Public)  Display Name = SJC12-4-BOB DYLAN Remark: All in capital letters.	#PROD
Shared Room Device	Building#-Floor#-[First letter of room name] [room number]	e.g. SJC12-1-QUIET ROOM 12 → SJC12-1-QR12 SJC12-1-SCRUM ROOM 12 → SJC12-1-SR12 SJC12-1-TEAM ROOM 12 → SJC12-1-TR12 SJC12-1-HUDDLE ROOM 12 → SJC12-1-HR12 SJC12-1-OPEN SPACE 12 → SJC12-1-OS12 SNG15-25-MEETING POD 23 → SNG15-25-MP23 Remark: All in capital letters, shorten the name to acronym, and remove space	#PROD

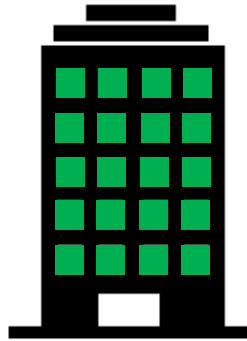
# Migration Rollout

- Floor-by-floor approach
- Entire floors migrated for seamless experience
- Local support engineer resources
- Entire building migrations
- Multiple high utilized buildings at Cisco
- Local support engineer resources
- Campus level migrations
- Migrate ~400 endpoints per month
- Remaining Cisco buildings
- Satellite sites
- Personal video endpoints



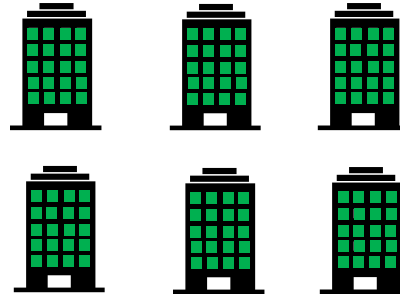
10%

Q2FY19



25%

Q3FY19



50%

Q4FY19

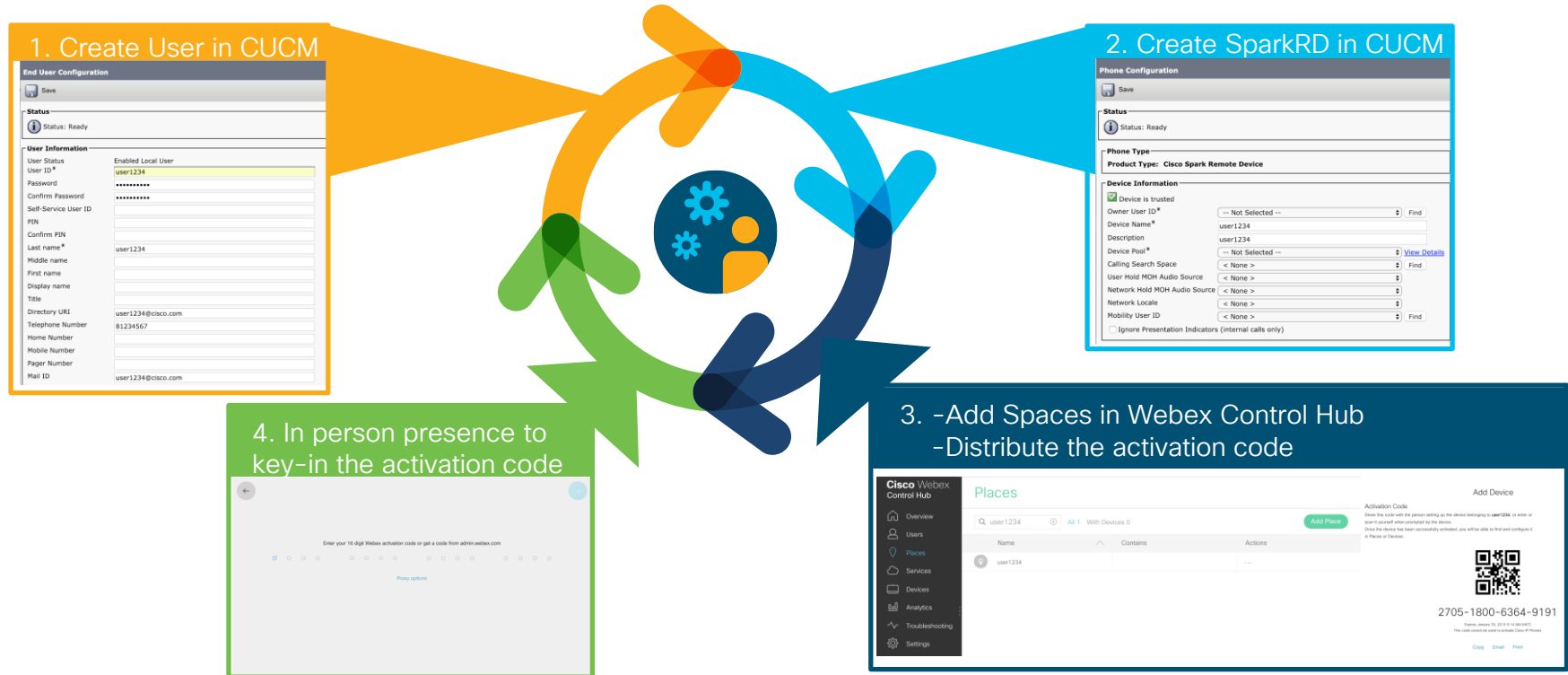


100%

Q1/2FY20



# Migration Steps Overview



# Zero touch Migration Script



Lab Demo  
Cisco on Cisco  
Booth!

The Scrip leverages the following APIs:






1. Cisco Unified Call Manager (CUCM): Cisco Administrative XML (AXL)
  - Obtain device information: MAC, Line, and description
  - Configured the End user and SparkRD using the obtained information
2. CSDM API mainframe
  - Uses obtained information to create place and apply hybrid calling services
  - Generated activation code and store it for use on the codec
  - Note: Only internal cisco engineers have access to this mainframe it is not available to customers. However, the official APIs are now available to customers: Places API, and Devices API
3. CE xAPI
  - Available for CE9.8 and above use commands to apply activation code remotely to codec.
  - xcommand Webex Registration Start ActivationCode: xxxxxxxxxxxxxxxxxxxxxx SecurityAction: NoAction
  - Requires device to have an IP and be online the network

# Customer Available APIs

## Places

Places represent where people work, such as conference rooms, meeting spaces, lobbies, and lunch rooms. [Devices](#) may be associated with places.

Viewing details for places you have access to requires an auth token with a scope of `spark:places_read`. Updating or deleting your places requires an auth token with the `spark:places_write` scope. Viewing the list of all places in an organization requires an administrator auth token with the `spark-admin:places_read` scope. Adding, updating, or deleting all places in an organization requires an administrator auth token with the `spark-admin:places_write` scope.





Method	Description
 <a href="https://api.ciscospark.com/v1/places">https://api.ciscospark.com/v1/places</a>	List Places
 <a href="https://api.ciscospark.com/v1/places">https://api.ciscospark.com/v1/places</a>	Create a Place
 <a href="https://api.ciscospark.com/v1/places/{placeId}">https://api.ciscospark.com/v1/places/{placeId}</a>	Get Place Details
 <a href="https://api.ciscospark.com/v1/places/{placeId}">https://api.ciscospark.com/v1/places/{placeId}</a>	Update a Place
 <a href="https://api.ciscospark.com/v1/places/{placeId}">https://api.ciscospark.com/v1/places/{placeId}</a>	Delete a Place

<https://developer.webex.com/docs/api/v1/places>

## Devices

Devices represent cloud-registered Webex RoomOS devices, as well as actively-connected Webex soft clients on mobile or desktop. Devices may be associated with [Places](#).

Searching and viewing details for your devices requires an auth token with the `spark:devices_read` scope. Updating or deleting your devices requires an auth token with the `spark:devices_write` scope. Viewing the list of all devices in an organization requires an administrator auth token with the `spark-admin:devices_read` scope. Adding, updating, or deleting all devices in an organization requires an administrator auth token with the `spark-admin:devices_write` scope.

Method	Description
 <a href="https://api.ciscospark.com/v1/devices">https://api.ciscospark.com/v1/devices</a>	List Devices
 <a href="https://api.ciscospark.com/v1/devices/{deviceId}">https://api.ciscospark.com/v1/devices/{deviceId}</a>	Get Device Details
 <a href="https://api.ciscospark.com/v1/devices/{deviceId}">https://api.ciscospark.com/v1/devices/{deviceId}</a>	Delete a Device
 <a href="https://api.ciscospark.com/v1/devices/activationCode">https://api.ciscospark.com/v1/devices/activationCode</a>	Create a Device Activation Code

<https://developer.webex.com/docs/api/v1/devices>

## xAPI for Cisco collaboration devices

<https://developer.cisco.com/learning/lab/collab-xapi-intro/step/1>



# IT Device Support & Management

Support Roles

Firmware Management

Troubleshooting

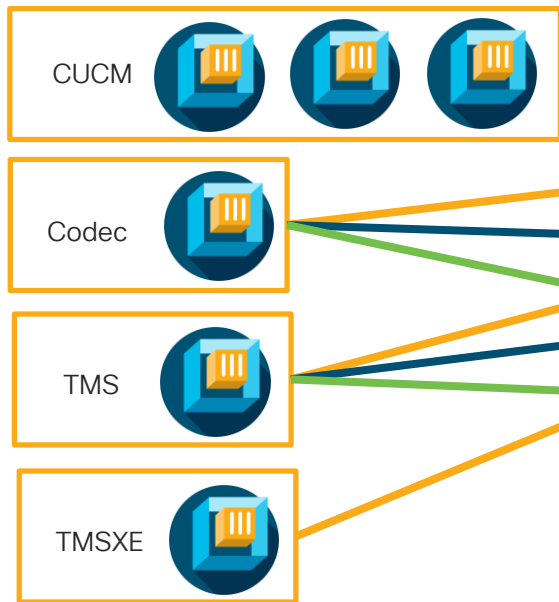
Proactive Monitoring

Signage through Control Hub Management

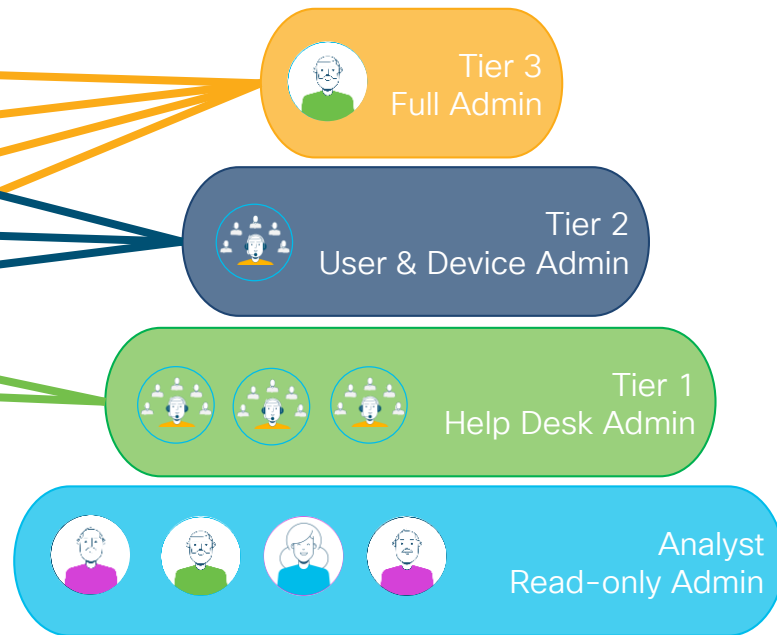
# Support – Setting Admin Roles

Webex Control Hub Support Management

On-premise



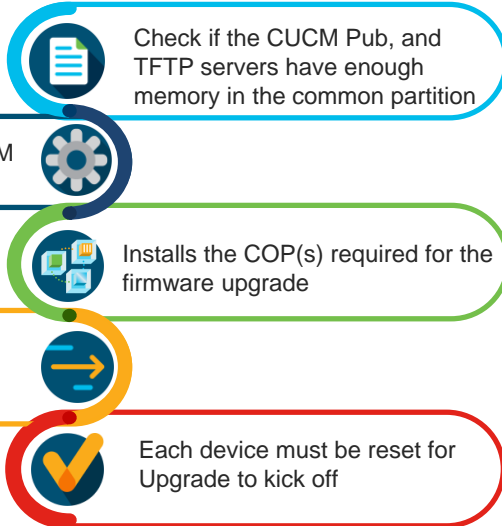
Cloud



# Firmware/Upgrade Management

*Ops Upgrade Process from CUCM to Cloud*

CUCM



Webex  
Control Hub



Upgrades per device local time



Seamless switch between Software channels (Alpha, Beta, Stable)



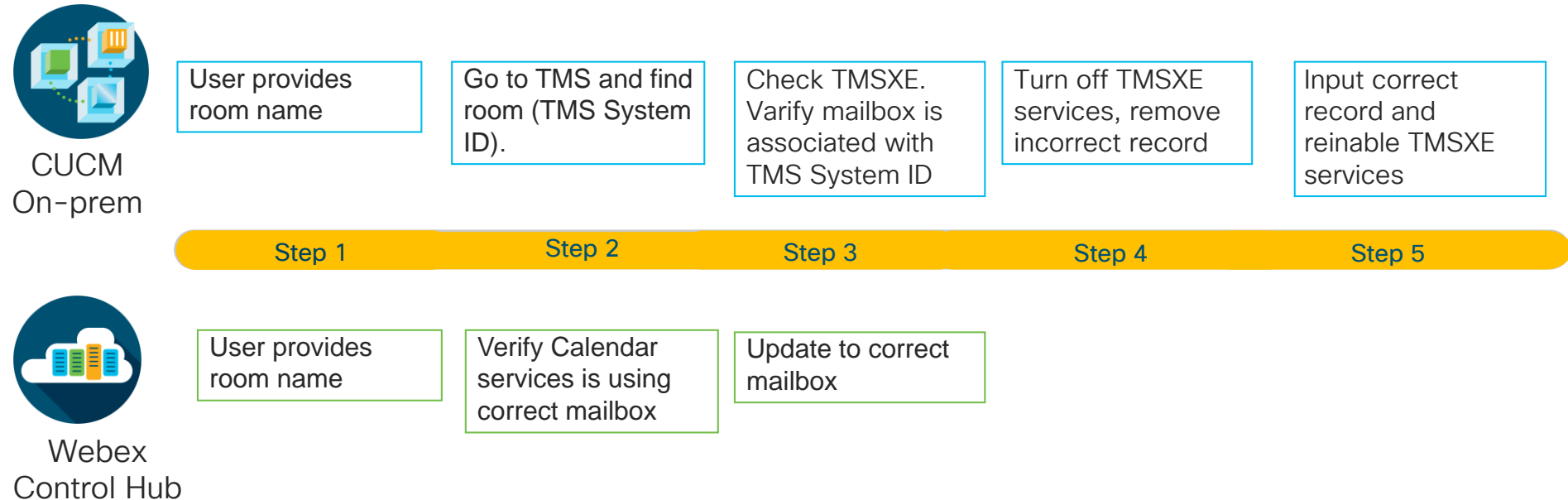
Option to delay firmware upgrades  
*Preview channel (beta with Stable feature toggles)*

**cisco** *Live!*

# Troubleshooting Examples

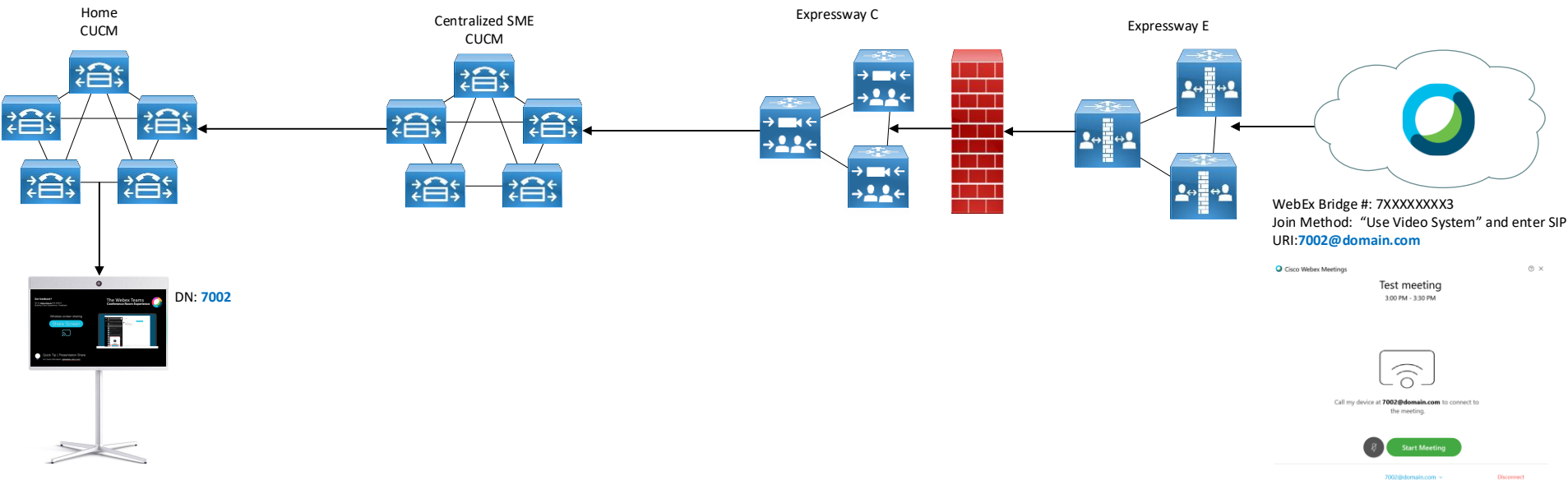
- OBTP Troubleshooting Example On-prem vs Cloud
- WebEx Callback drop Issue On-prem vs Cloud

# OBTP Troubleshooting Example On-prem vs Cloud





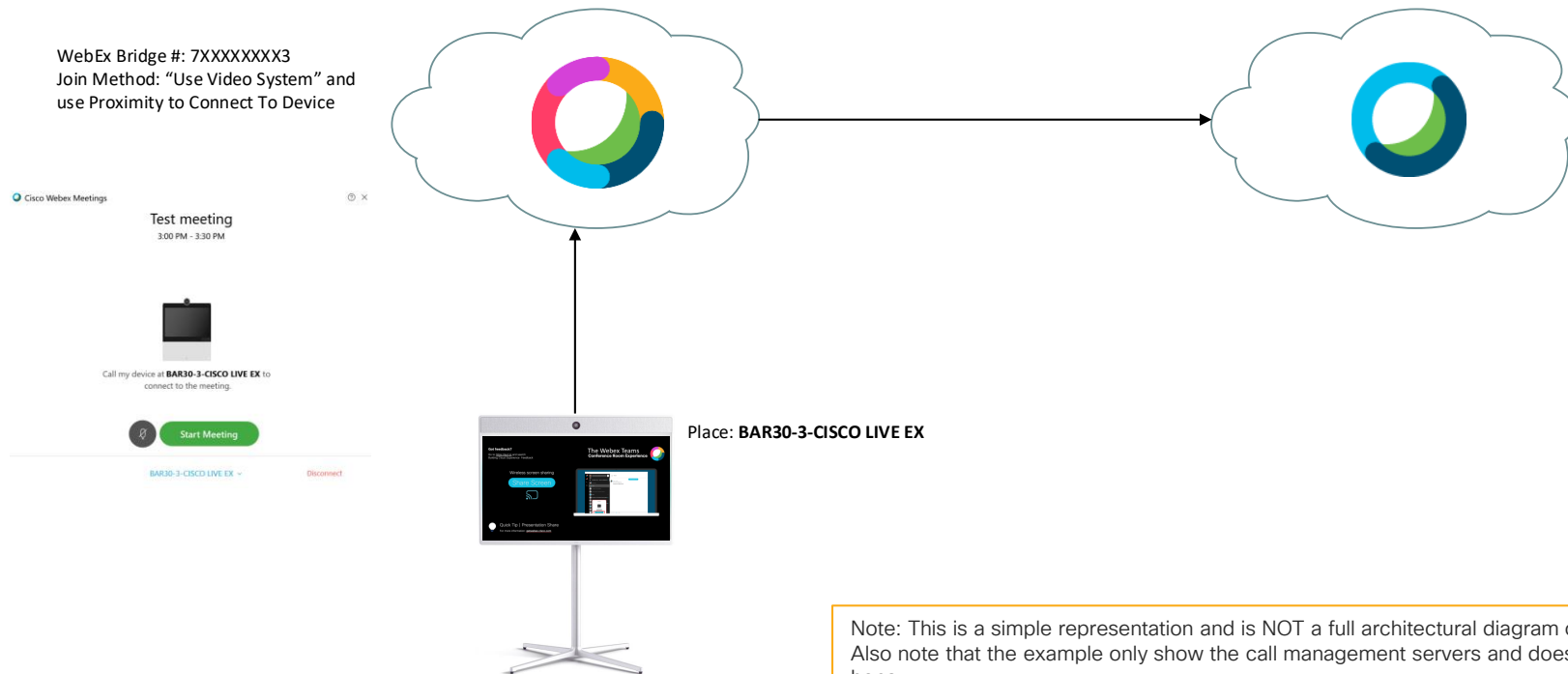
# WebEx Call Back Call Flow for On-prem Enterprise



Note: This is a simple representation and is NOT a full architectural diagram of a Enterprise Design.  
Also note that the example only show the call management servers and does NOT show media hops.

# WebEx Call Back Call Flow for Cloud Enterprise

WebEx Bridge #: 7XXXXXXX3  
Join Method: "Use Video System" and  
use Proximity to Connect To Device



Note: This is a simple representation and is NOT a full architectural diagram of a Enterprise Design. Also note that the example only show the call management servers and does NOT show media hops.

# WebEx Callback drop Issue On-prem vs Cloud



CUCM  
On-prem

1. Check Endpoint health
2. If issue is not found with device Check Endpoint call Logs and Identify call end cause code

1. Login to Home CUCM cluster and identify call using calling Bridge number or SIP URI.
2. Determine if call teardown was initiated by sub in home cluster or the next call leg (SME)
3. If issue not found on home cluster move on to next leg.

1. Login to SME CUCM cluster and identify call using calling Bridge number or SIP URI.
2. Determine if call teardown was initiated by SME or the next call Expressway C
3. If issue not found on SME cluster move on to next leg

1. Login to Expressway C and identify call using calling Bridge number or SIP URI.
2. Determine if there is any issues with the Zones to SME or Traversal Zone to Expressway E.
3. If issue not found on Expressway C check Expressway E

1. Login to Expressway E and identify call using calling Bridge number or SIP URI.
2. Check if there is any issues with the DNS zone.
3. If no issue found on the Expressway E collect meeting information and open WebEx TAC for investigation.



Webex  
Control Hub

## Step 1

1. Check Endpoint health
2. Collect Endpoint Logs

## Step 2

1. If no Issue found on device collect meeting information and open WebEx TAC case for investigation.
2. Upload endpoint logs to case

## Step 3

## Step 4

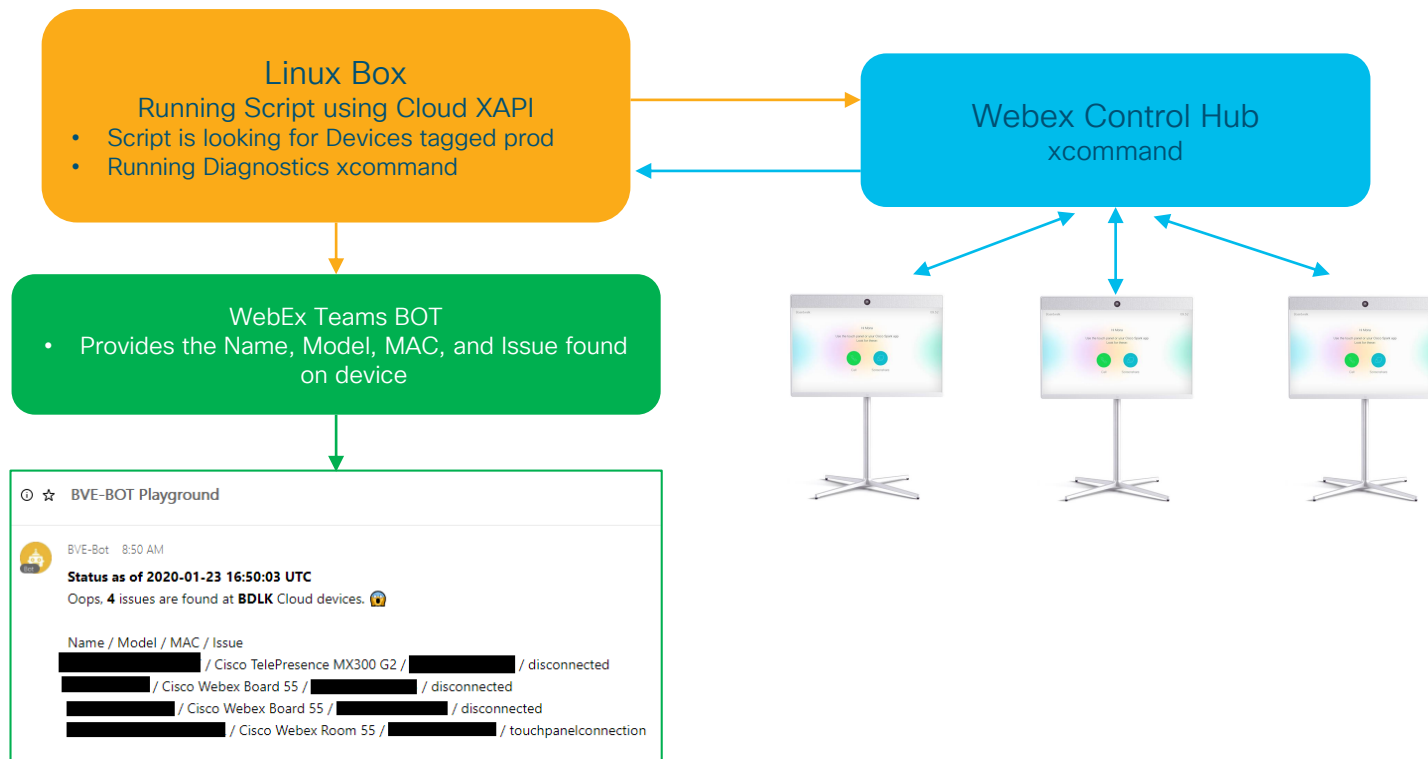
## Step 5

Note: This is a much simpler version of the troubleshooting process required to diagnose a Root Cause for a on prem call drop.

# Cloud Based xAPI's

- [Cloud Migration](#) – Migration automation through available API
- [Proactive Peripheral Monitoring](#) – Control Hub xcommand for proactive monitoring
- [Signage API](#) – Apply signage link in bulk via tags/Linux boxes
- [Bulk Tagging API](#) – Improve device management at scale
- [Bulk Local Admin API](#) – To support and scale Vyohta across our endpoints on cloud

# Proactive Device Peripheral Monitoring



# Leveraging Signage on Cloud Endpoints



Lab Demo  
Cisco on Cisco  
Booth!

Content Management  
share.cisco.com  
Push content to Web Engines

Webex Control Hub  
Push signage config and ESL URL to  
selected group of devices.

AMER  
Web Engine  
Internal Linux Box

EMEAR  
Web Engine  
Internal Linux box

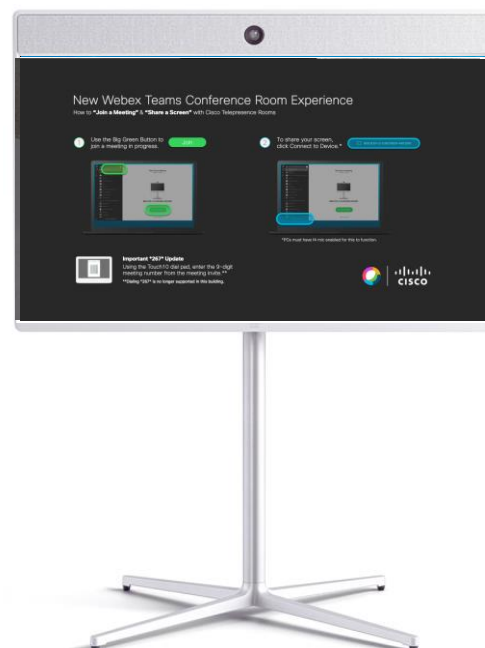
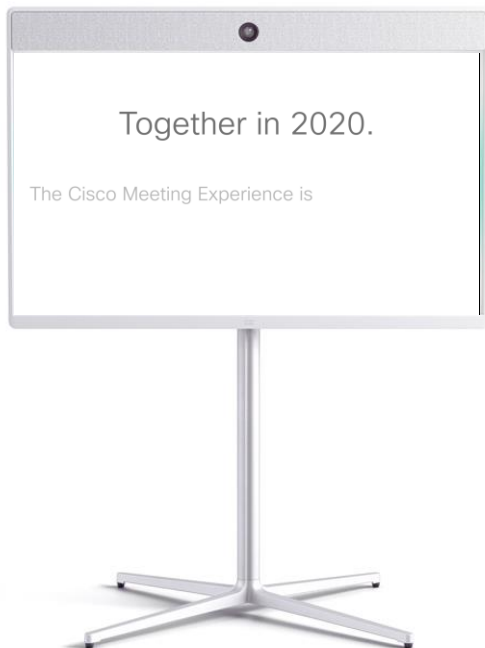
APJC  
Web Engine  
Internal Linux Box



ESL (Enterprise Service Locator) service name.  
Example URL: <https://example.esl.domain.com:8080/directory>

# Signage - Control Hub

Quick Tips  
Corporate Marketing  
Support Information  
Change Management  
Promotional  
Informational  
Tooltips  
Endpoint Down Alert



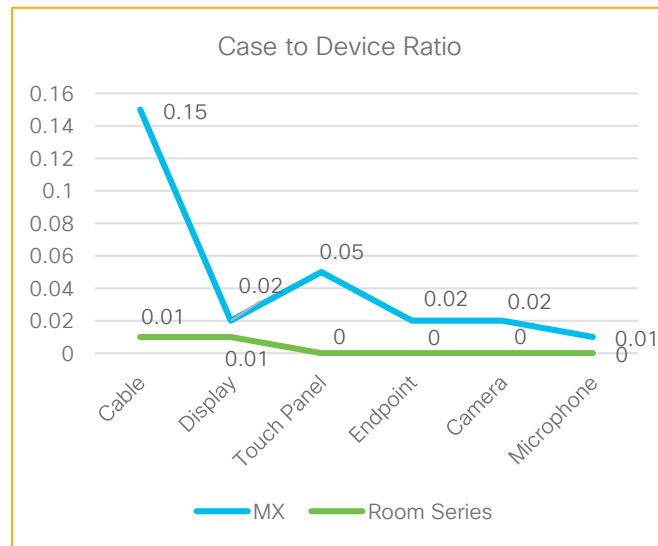
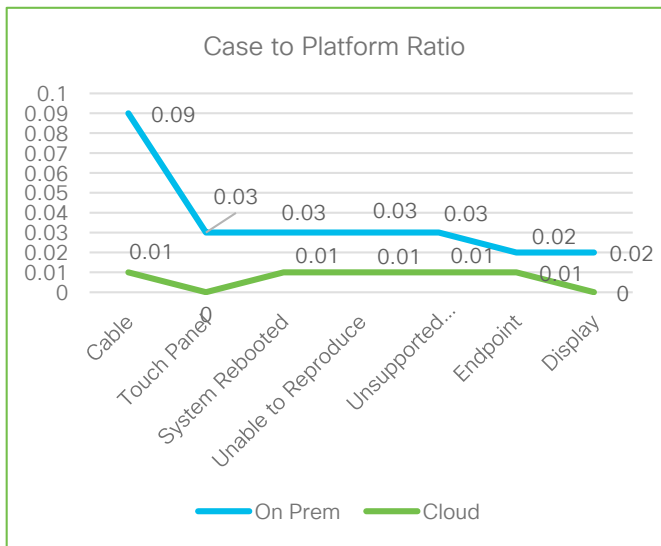
cisco *Live!*

# Metrics

Troubleshooting  
50% less complex

Join Experience  
80% Faster Meeting Join

Firmware Management  
75% Resource time savings



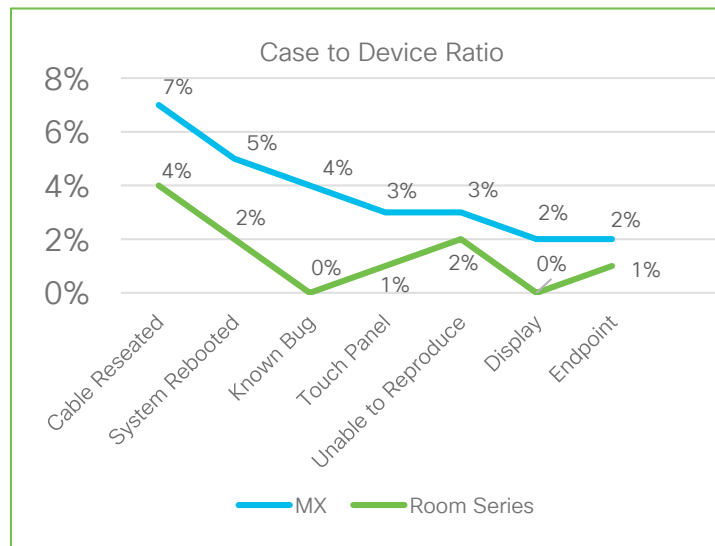
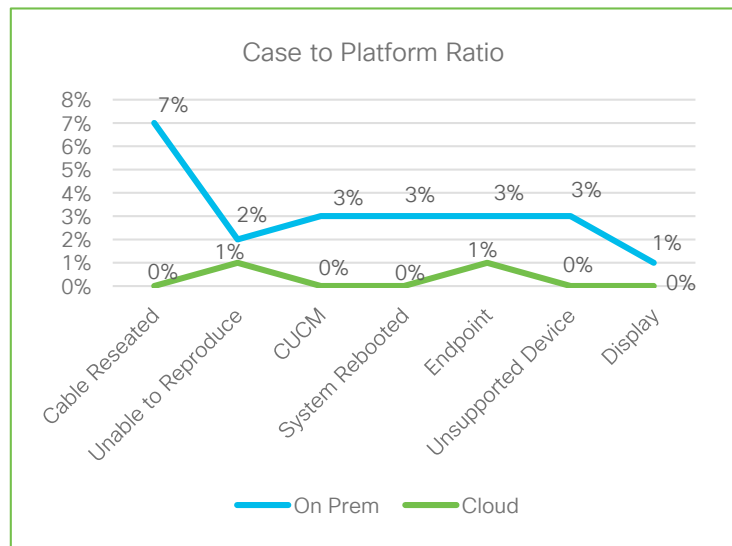


# Metrics - Sarah

Troubleshooting  
50% less complex

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80% Faster Meeting Join

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75% Resource time savings

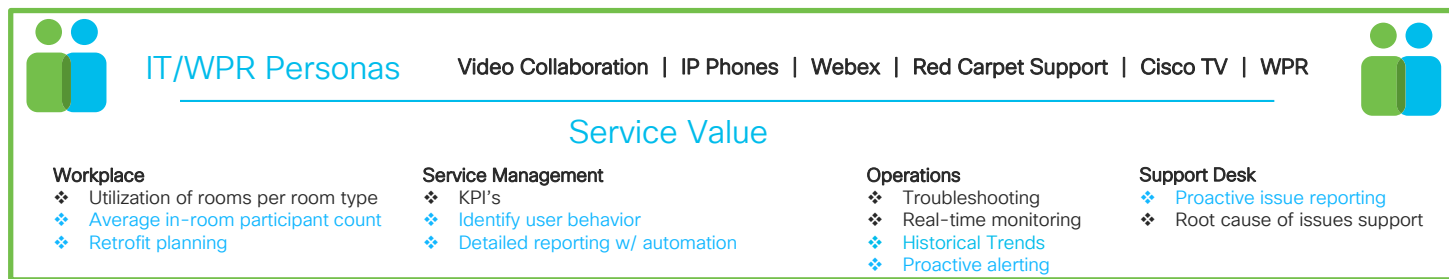
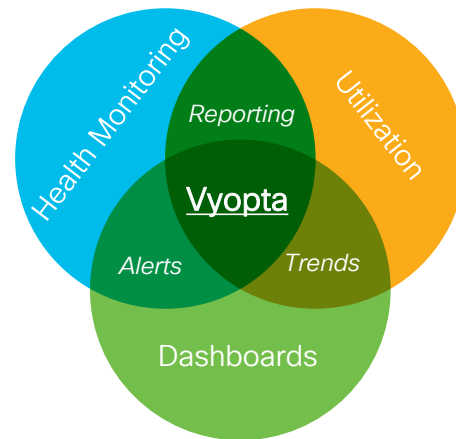


# Vyopta

## Endpoint Monitoring/Analytics

# Service Strategy

## Buy before build



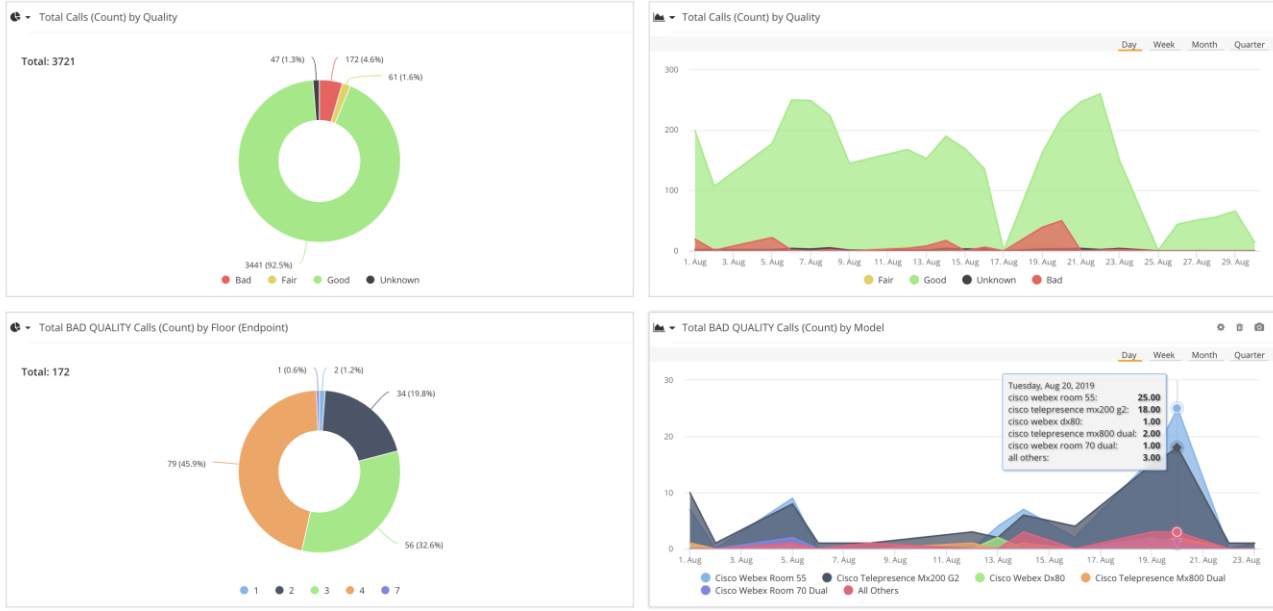
# Call Quality Analytics

Total Quality Count  
98.5% Good

Historical Trend  
Quality Count

Call Quality by  
Floor

Call Quality by  
Model



# Room Insights – People Count Analytics

- Metrics and People Count metrics at your fingertips
- Drive planning efforts & understanding of workplace environment

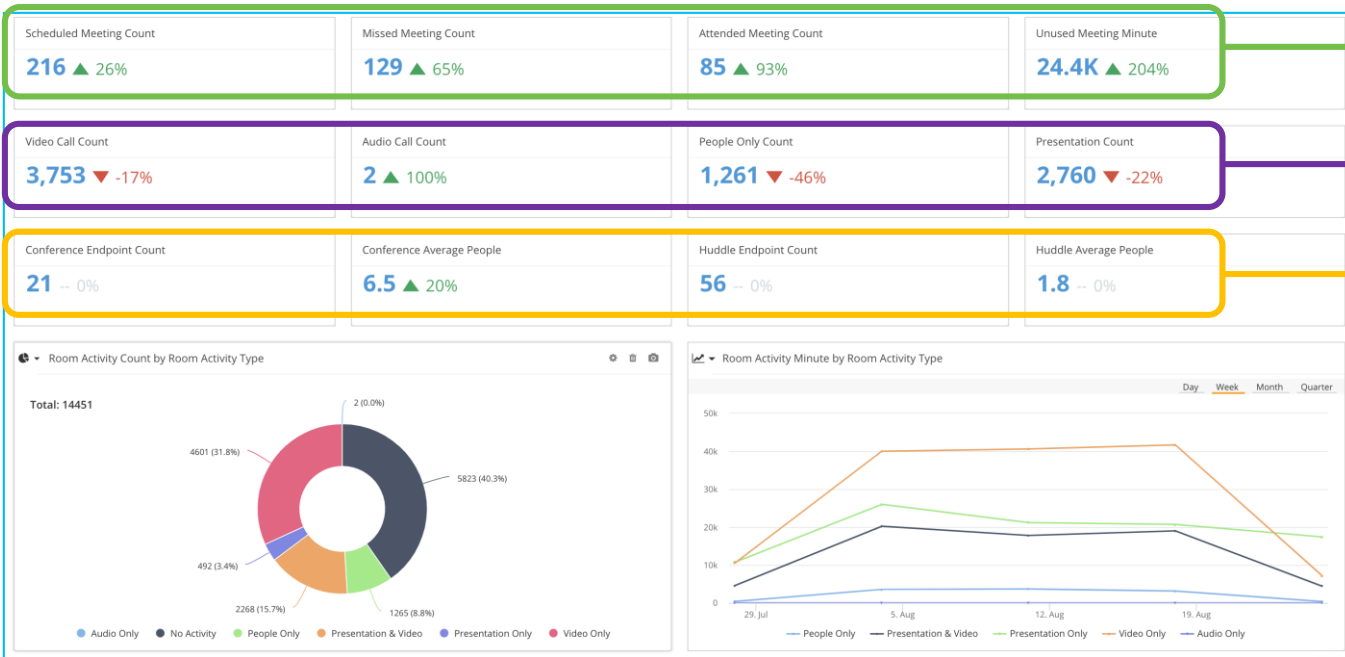
78	0.7	23	18	9.4	11	2,273			
Rooms	Average Total People Count	Largest Measured People Count	Average Occupancy Utilization %	Average Total Room Capacity %	Average Occupied Room Capacit...	Total People Only Count			
Room Name	Model	Max. Room Capacity	Occupied Room %	Average Total People Count	Max. People Count ▼	Occupancy Utilization %	Average Total Capacity %	Average Occupied Capacit...	People Only Count
SNG15-26-MT, KINABALU (...)	Webex Codec Pro	24	5.94	1.86	23	27.78	7.75	8.32	20
SNG15-26-MT, FANSIPAN (2...	Webex Codec Pro	24	2.35	1.13	17	11	4.71	6.16	28
SNG15-25-CONEY ISLAND (...)	Webex Room 70 Single G2	12	7.08	2.17	15	33.11	18.04	20.11	79
SNG15-25-CHOCOLATE HIL...	Webex Room 70 Dual G2	16	6.38	2.77	14	29.85	17.29	18.86	52
SNG15-26-SENTOSA (12) VI...	Webex Room 70 Dual G2	12	8.21	2.42	13	38.37	20.15	22.36	56

Average people count at one time

Max number of people in a room at one time

Room Utilization

# Analytics and KPIs



Meeting Booking Analytics

In Room Utilization Analytics

Room Type Inventory & People Count Analytics

# Raw Data & Future Automations



## Raw Data of Users & Room Booking

- Historical room bookings per user
- Missed meeting totals

marielli@cisco.com	RTP7V-1-AUSTRALIA (PVT) (4) Video (1-Screen)(Restricted Use)	Reserved for Janet Ramey	1
	RTP7V-1-AUSTRALIA (PVT) (4) Video (1-Screen)(Restricted Use) Total		1
	RTP7V-1-LISA (10) Video (2-Screen)(Restricted Use)	Reserved for Janet Ramey	3
		Reserved for Janet Ramey (Marisa Elliott)	1
		Reserved for Janet Ramey team meeting	2
	RTP7V-1-LISA (10) Video (2-Screen)(Restricted Use) Total		6
marielli@cisco.com Total			7
mathlove@cisco.com	RTP7V-1-LISA (10) Video (2-Screen)(Restricted Use)	1 on 1 - NK	1
		AFT Audit Prep Review	1
		BAM Infrastructure	1
		Benchmark Action Item Closeout	1
		Benchmarking Update - GC & Carpet	1
		CWP Process - Clarification and Path forward	1
		KPI/SLA Month 3 Q4 FY19 Deck Review	1
		Sourcing Review	1
		Unknown	1
	RTP7V-1-LISA (10) Video (2-Screen)(Restricted Use) Total		9
mathlove@cisco.com Total			9

## Future integrations and automating through Vyopta APIs

- Warn and delete recurring meetings missed consecutive times
- User historical room bookings
- Identify user behavior based on booking types (i.e 1:1 meetings, All Hands, Scrums, etc)
- Digesting data through external tools and automation efforts using Vyopta APIs

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Cisco Live sessions will be available for viewing on demand after the event at [ciscolive.com](https://ciscolive.com).





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Cisco Showcase



Walk-In Labs



Meet the Engineer  
1:1 meetings



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