# cisco live!







## Journey to Cloud

Webex Edge for Devices

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@Webex\_se
BRKCOL-2029



## Cisco Webex App

#### Questions?

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

#### How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click "Join the Discussion"
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until June 17, 2022.



https://ciscolive.ciscoevents.com/ciscolivebot/#BRKCOL-2029



## Agenda

- Introduction.
- Reference Architecture.
- Journey to Cloud.
- Considerations and Caveats.
- Webex Edge for Devices.
- What does this all mean?
- Conclusion.



## Reference Architecture



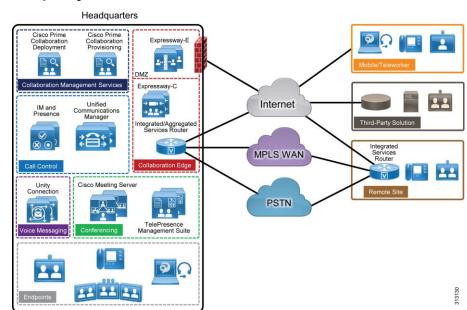
#### Reference Architecture

Cisco Collaboration for on-premises deployments

The Cisco Collaboration onpremises Preferred Architecture (PA) provided end-to-end collaboration targeted for a wide range of customers.

For the purpose of this session, the PA design shown to the right has been the starting point.

This particular PA is from the CVDG for Cisco Collaboration 12.x On-Premises deployments.



https://www.cisco.com/c/en/us/td/docs/solutions/PA/overview/12x/clbpa12x.html



#### Reference Architecture

#### Webex devices

For the purpose of this session, features, capabilities, services and user experiences that can be realized through a journey to cloud have been based on the most recent series of devices.

#### This includes:

- Webex Desk Series
- Webex Board Series
- Webex Room and Kit Series



#### Reference Architecture

#### Webex devices

The journey to cloud is also possible with the older generation of Webex devices.

Please note that the capabilities and features available with the older generation of Webex devices will differ to the recent generation.

#### This includes:

- DX70 and DX80
- MX200 G2, MX300 G2, MX700 & MX800
- SX10N, SX20 & SX80





#### Reference architecture

Webex device software requirements

Linking a Webex device to Control Hub for Webex Edge for Devices

- CE 9.15 or later
- Device must have encryption key

Migrating a Webex device from onpremises registration to cloud.

- CE 9.0 pre CE 9.8
  - Device needs to be factory reset but will upgrade to minimum version needed to start registration
- Post CE 9.8 introduction of xCommand for registration
- BoardOS Webex Board will convert to CE prior to registration
- Device must have encryption key



## Journey to Cloud





'Why should I look at moving to the cloud?'



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'What is being connected to the cloud going to give me over what I already have today?'



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Control Hub Webex Assistant Webex API's Hybrid Calendar ytics Intelligence Sensors Bulk Configuration Analytics Intelligence Device Alerts Vorkspaces Webex Calling Macro deployment Troubleshooting Integrations **Features** Status views Insights **Simplicity** Software Upgrades Optimized Experience Reporting





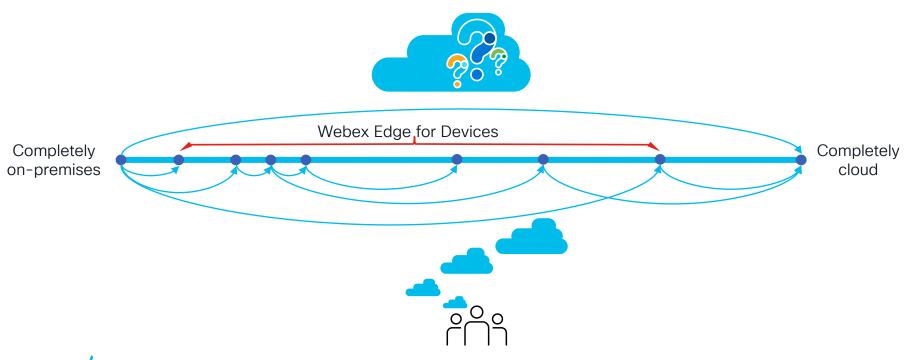
'How far do I need to go?'



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## Journey to Cloud

How far do I or can I go?







'How do I get started on this journey and what does it even look like?'



## Journey to Cloud for Webex devices



#### Calling strategy

- On-premises
- Hybrid
- Cloud
  - · Calling in Webex (free)
  - Webex Calling
- Directory



#### Meeting strategy

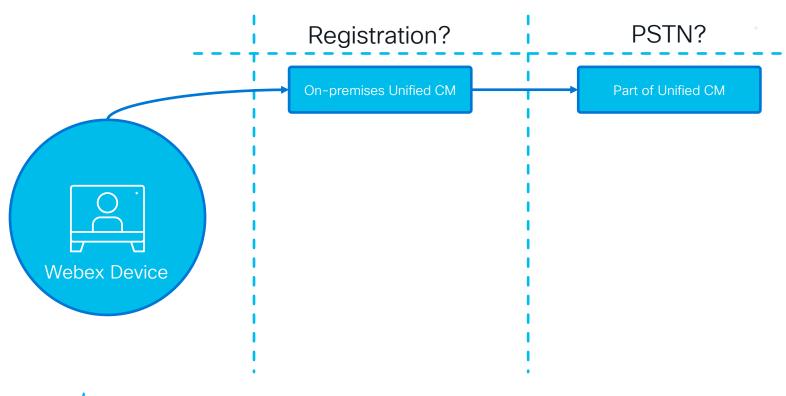
- Webex
- · 3<sup>rd</sup> Party
  - Microsoft
  - Google
  - Zoom
- On-premises (CMS)
- Scheduled meetings



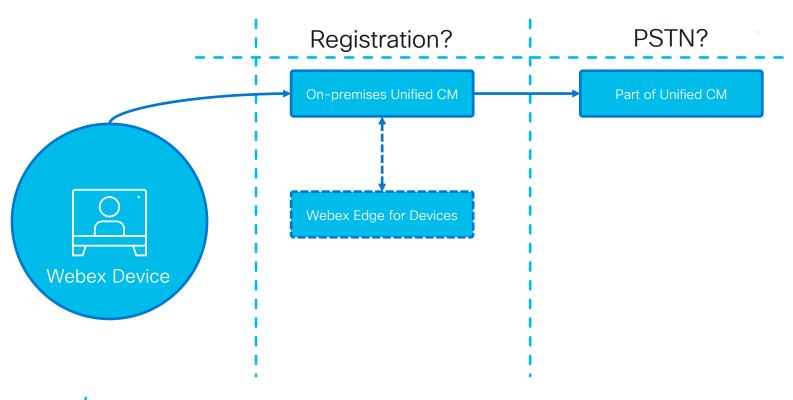
#### Management strategy

- Control Hub
- Programmatically (scripts/API)
- On-premises

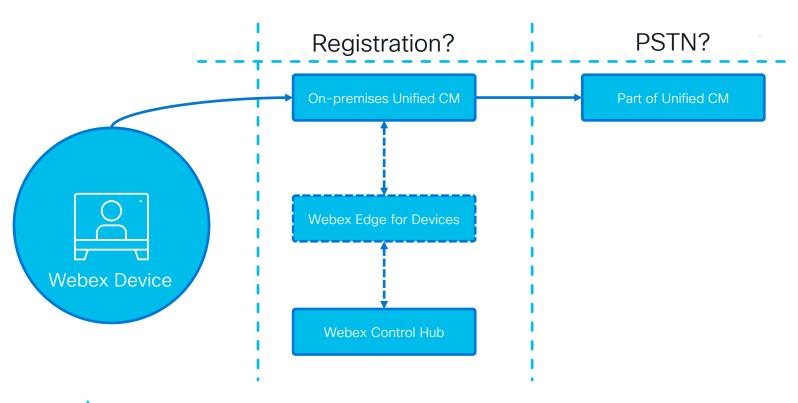




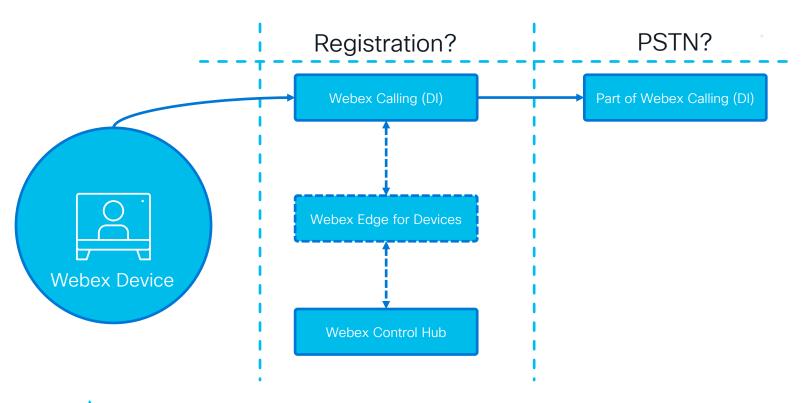




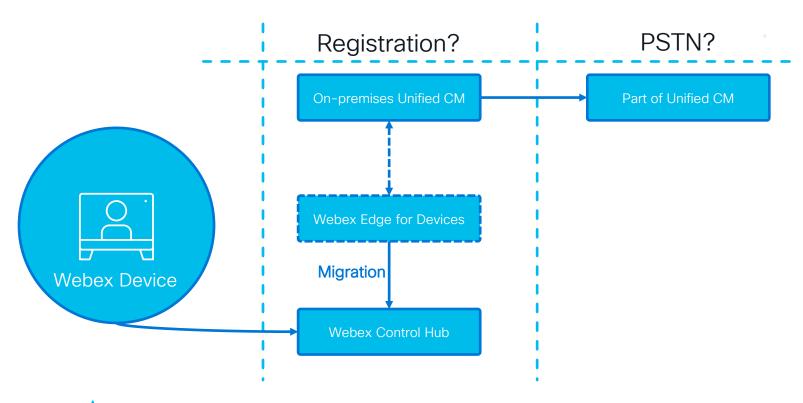




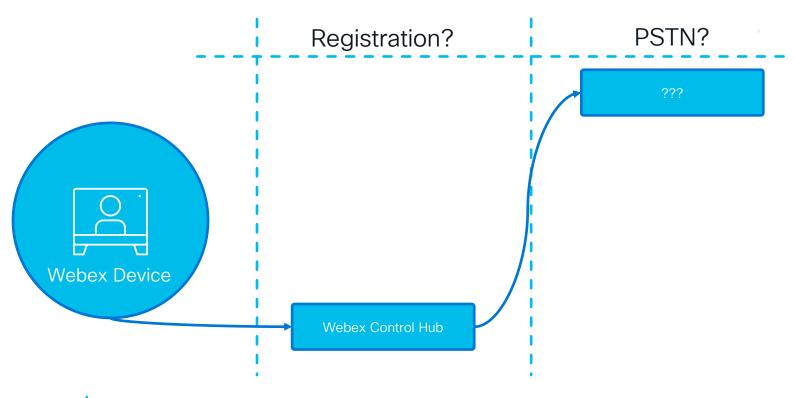




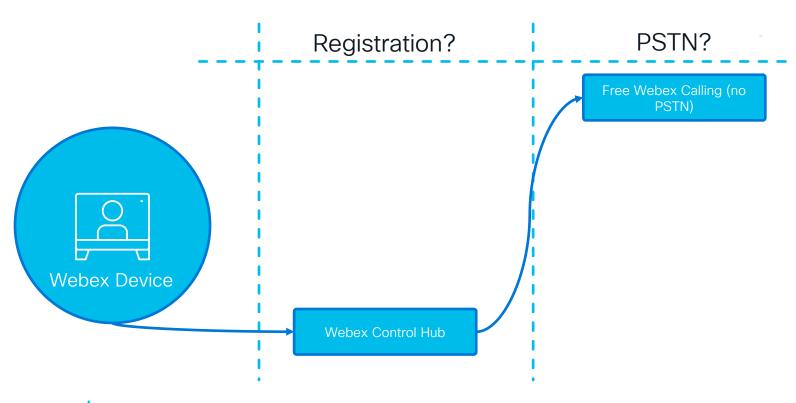




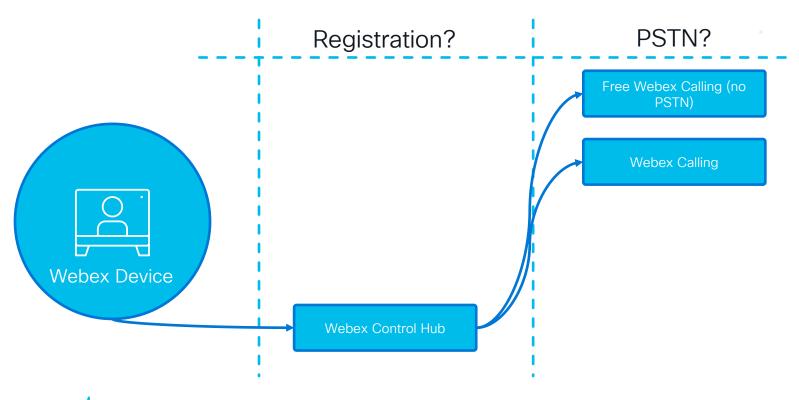




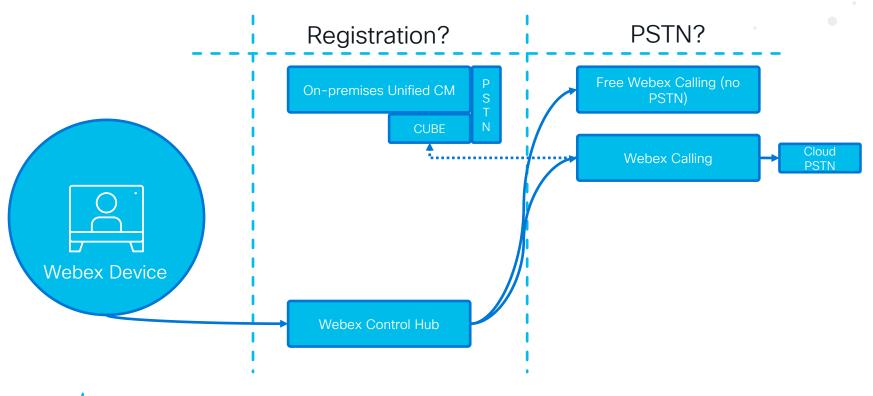




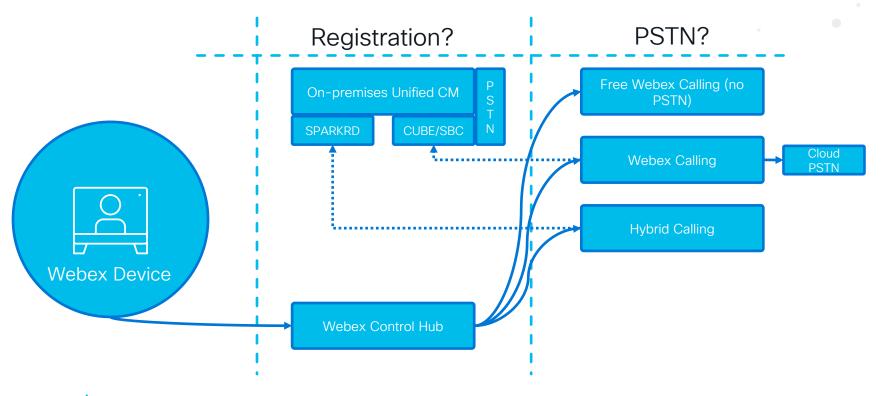












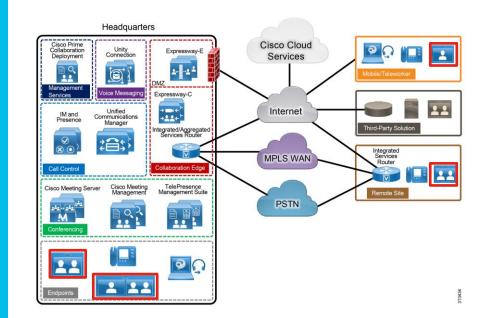


# Considerations and caveats



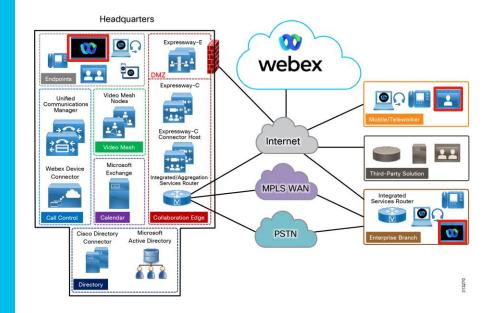
#### On-premises deployment

- Webex devices registered to
  - Unified CM
  - Expressway/VCS
- B2B calls via
  - Expressway
  - VCS
- Remote locations
  - Unified CM via MRA



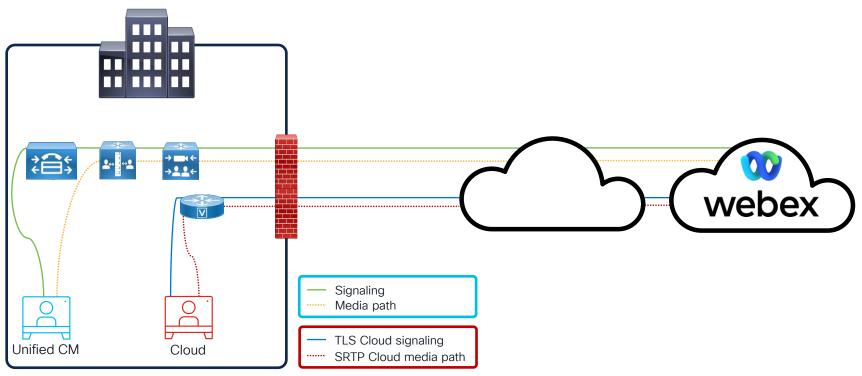
#### Cloud deployment

- Webex device registered to:
  - On-premises with Webex Edge for Devices
    - Unified CM/Expressway/VCS
    - Control Hub





On-premises vs Cloud





#### Cloud signaling - required component

#### Webex Services - Port numbers and Protocols - Signaling

Destination Port	Protocol	Description
443	TLS	Webex HTTPS signaling - session establishment to Webex services is based on defined URL's rather than IP addresses
123*	UDP	Network Time Protocol (NTP)
53*	UDP TCP	Domain Name System (DNS)

<sup>\*</sup> If the enterprise network is providing these services, these ports do not need to be opened through the firewall.



Always check the Network Requirements for Webex Services help article for the most up to date information. https://help.webex.com/en-US/article/WBX000028782/Network-Requirements-for-Webex-Services



#### Cloud media - required component

#### Webex Services - Port numbers and Protocols - Media

Destination Port	Protocol	Description
5004 and 9000	SRTP over UDP	Encrypted audio, video and content sharing from Webex devices.
5004	SRTP over TCP	Encrypted content sharing from Webex devices. TCP also serves as a fallback transport for encrypted audio and video if UDP cannot be used.
443	SRTP over TLS	Used as a fallback transport protocol for encrypted audio, video and content sharing if UDP and TCP cannot be used.  Media over TLS is <b>not</b> recommended in production environments.

For a list of destination IP subnets refer to the section "IP subnets for Webex media services" in the URL below



Always check the Network Requirements for Webex Services help article for the most up to date information. https://help.webex.com/en-US/article/WBX000028782/Network-Requirements-for-Webex-Services



#### Cloud service URL's - required component

#### Core Webex service URL's

Domain/URL	Description
*.wbx2.com *.ciscospark.com	Webex microservices - for example: Software upgrade service, Key management, Hybrid Calendar service.
*.webex.com *.cisco.com	Webex meeting service, Webex device onboarding services, authentication services.
*.webexcontent.com	Whiteboard content, device log files, branding logos.



Always check the Network Requirements for Webex Services help article for the most up to date information. https://help.webex.com/en-US/article/WBX000028782/Network-Requirements-for-Webex-Services



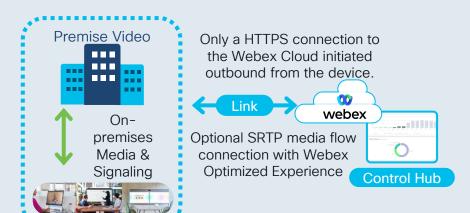
# Webex Edge for Devices



## Webex Edge for Devices

#### High level overview

Deliver insights and diagnostics for on-premises Webex devices by linking them to the Webex cloud.



- Business-critical calling and media stays on-premises.
- Hybrid deployment and customer migration at their pace.
- Simplified single pane of glass with insights through Control Hub.
- This feature will enable more cloud services with time in phases.
- Optional Webex Optimized experience



## Webex Edge for Devices

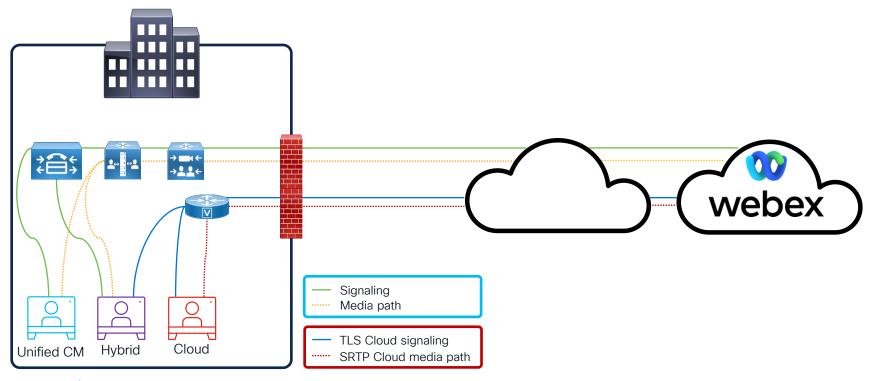
#### High level feature overview





#### Network considerations

Webex Edge for Devices

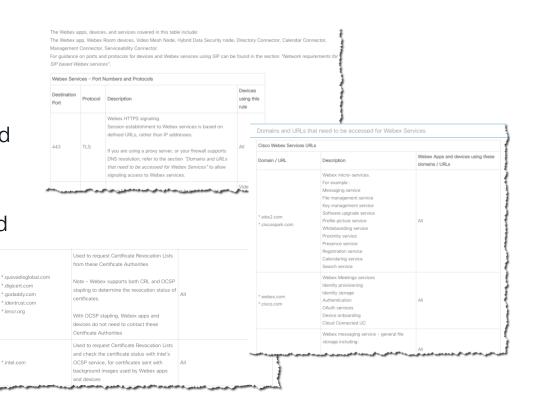




## Network considerations

#### Webex Edge for Devices

- Network requirements are 95% the same as if the device is fully cloud registered
  - Mandatory cloud signaling ports and protocols
  - · Mandatory Cloud service URL's
  - No media requirements to the cloud





Webex Optimized Meeting experience



## Webex Edge for Devices

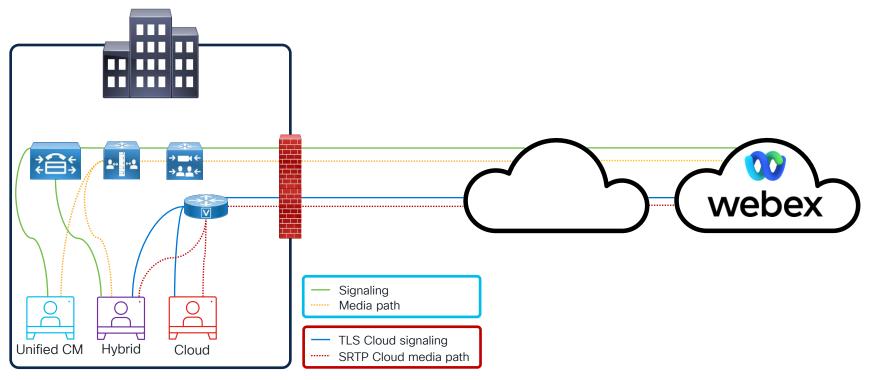
Webex Optimized Meeting experience

- Enriched user experience when calling into a Webex meeting
  - Advanced host controls for meeting management
  - Advanced in-meeting experience
- Cloud managed software
  - Cloud Upgrade mode is mandatory.
    - Advanced Software Management is optional
- Pairing and Sharing
  - Cloud Proximity
  - Guest Share



#### Network considerations

Webex Edge for Devices - Webex Optimized Meeting experience





What does this all mean?



## Core Webex Meeting Features

#### Host Meeting Control from Webex device

	Unified CM only	Webex Edge for Devices	Webex Edge for Devices with Optimized Experience	Cloud registration
Search for a users Webex PR	No	Yes	Yes	Yes
Start meeting from device	Yes, video IVR for meeting entry	Yes, video IVR for meeting entry	Yes - meeting number/PIN challenge interaction	Yes - meeting number/PIN challenge interaction
Lock/unlock meeting	Yes - DTMF or lock/unlock of ActiveControl is configured	Yes - DTMF or lock/unlock of ActiveControl is configured	Yes	Yes
Admit from lobby	Yes, unlock meeting and all waiting are admitted	Yes, unlock meeting and all waiting are admitted	Yes - admit one/all via participant list (Admit all only on RoomOS 10 and above devices)	Yes - admit one/all via participant list (Admit all only on RoomOS 10 and above devices)
Record	Yes - DTMF or record button if ActiveControl configured	Yes - DTMF or record button if ActiveControl configured	Yes	Yes
Webex Assistant (if configured) on/off	No	No	Yes	Yes
Change role	No	No	Yes	Yes
Drop participant	No	No	Yes	Yes



## Core Webex Meeting Features

#### In-meeting experience

	Unified CM only	Webex Edge for Devices	Webex Edge for Devices with Optimized Experience	Cloud registration
Raise/Lower hand	Yes - DTMF or raise/lower hand button if ActiveControl configured	Yes - DTMF or raise/lower hand button if ActiveControl configured	Yes	Yes
Reactions in meeting	No	No	Yes	Yes
Webex Device Assistant	No	Yes	Yes	Yes
Mute participants on entry	Yes - via DTMF	Yes, via DTMF	Yes - via participants list	Yes - via participants list
Moderated Mute	No - DTMF only allows for all to unmute	No - DTMF only allows for all to unmute	Yes - mute all, allow/deny attendee unmuting, request to unmute	Yes - mute all, allow/deny attendee unmuting, request to unmute
Webex Assistant (if configured)	No	No	Yes	Yes
Change role	No	No	Yes	Yes
Drop participant	No	No	Yes	Yes



## Core Admin Features

#### Device management

	Unified CM only	Webex Edge for Devices	Webex Edge for Devices with Optimized Experience	Cloud registration
Inventory management	Yes - requires TMS	Yes - Control Hub	Yes - Control Hub	Yes - Control Hub
Device diagnostics	Limited - 3 <sup>rd</sup> party	Yes - Control Hub	Yes - Control Hub	Yes - Control Hub
Device proactive alerts	Limited – 3 <sup>rd</sup> party	Yes - configurable for one, some or all	Yes - configurable for one, some or all	Yes - configurable for one, some or all
Automatic crash log and reporting	No	Admin controlled - opt in per device	Admin controlled - opt in per device	Yes
Configuration management	Yes - Unified CM or TMS	Yes - Optional/Mandatory depending upon features configured - global setting	Yes - Mandatory global setting	Yes - Global setting
Automated Cloud software upgrade	No	Yes - Optional/Mandatory depending upon features configured - per device setting	Yes -Mandatory	Yes
Advanced Cloud software control	No	Yes (providing automated cloud upgrade is enabled	Yes	Yes



## OK, I'm all in. What's next?



## Device onboarding: On-premises to cloud

#### Webex Device Connector

- Simple conversion process
  - CSV file import of devices to be converted
- Device Connector will:
  - Create workspace in Control Hub
  - Request and receive a 16digit registration token which will be sent to device
- PC running the Device Connector app requires network access to the device being onboarded

#### Webex API/xAPI

- Programmatically
  - Create workspace in Control Hub
    - · Define capabilities:
      - Type, capacity, location, calendar
  - Create device registration token
  - Provide registration token to device to be onboarded
  - xCommand Webex
     Registration Start

#### Manually

- Control Hub
  - · Create workspace
    - · Define capabilities
      - Type, capacity, location, calendar, software channel
    - · Create device registration token
- Device
  - Onboard with token via:
    - xAPI
      - xCommand Webex Registration Start

#### Or

- Factory reset of device
  - Enter token during registration process



#### Create a workspace - example

- Workspace = displayName CL Demo
- OrgID = available from developer.webex.com or in Control Hub
- Bearer Token = available from developer.webex.com
- workspaceLocationId and floorId location and floor details already created in Control Hub (optional).
- capacity defined for Workspace analytics (optional)
- type defined for Workspace analytics (optional)
- calling freeCalling (this will be the default)
- calendar and type both optional but defined to create workspace with Hybrid Calendar service activated (requires Hybrid Calendar integration to have taken place in Control Hub and also resource mailbox configured in Exchange on-premises/Exchange on-line or Google environments)
- notes again optional but will populate notes field in the workspace



#### Create a workspace

```
Teams / Create workspace
                                                                                                                                                                       Save v •••
           https://webexapis.com/v1/workspaces
                                                                                                                                                                                          Send
POST
                                                                                                                                                                                              Cookies
        Authorization • Headers (9)
                                             Pre-request Script Tests Settings
       form-data x-www-form-urlencoded raw binary GraphQL JSON v
                                                                                                                                                                                              Beautify
                                                        This is the only mandatory field
        "displayName": "CL Demo",
        "orgId": "Y21zY29zcGFyazov
                                                                                                                        Y3MjE=",
        "workspaceLocationId":
         "Y21zY29zcGFyazov
                                                                                                                                            ijIzYy00Y2ExLWE0NjItZWU3ZWEy0WMxN2Uy",
        "floorId": "Y2lzY29
                                                                                                                                            YzI=",
        "capacity": 2,
        "type": · "desk",
        "calling": {
        · · "type": · "freeCalling"
 10
       3,
 11
        "calendar": {
 12
        · "type": "microsoft",
 13
        -- "emailAddress": - "sytme.desk@tmedemo.com"
 14
 15
        "notes": "this is a demo for Cisco Live"
 16
```



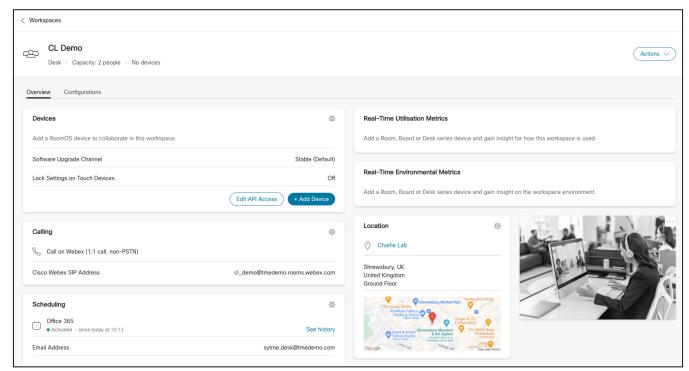
#### Create a workspace - results

```
Body Cookies Headers (12) Test Results
                                                                                                                                                Status: 201 Created Time: 1769 ms Size: 1.31 KB Save Response
  Pretty
                  Preview
                             Visualize
                                                                                                                                                   Copy this to notes
           "id": "Y21zY29zc
                                                                                                                                                   (only data between "")
           "orgId": "Y21zY2
                                                                                                                     /TFiYTk4NTY3MiE=".
           "workspaceLocationId":
               "Y21zY29zcGFvazovL3
                                                                                                                                                   tZjIzYy00Y2ExLWE0NjItZWU3ZWEy0WMxN2Uy",
   5
           "floorId": "Y21zY29zcGf
                                                                                                                                                   YzI=",
   6
           "displayName": "CL Demo",
   7
           "capacity": 2,
           "type": "desk",
   9
           "sipAddress": "cl demo@tmedemo.rooms.webex.com",
  10
           "created": "2022-05-26T14:13:46.401Z",
  11
           "calling": {
  12
               "type": "freeCalling"
  13
  14
           "calendar": {
  15
               "type": "microsoft",
  16
               "emailAddress": "sytme.desk@tmedemo.com"
  17
  18
            "notes": "this is a demo for Cisco Live"
  19
```



## Webex API

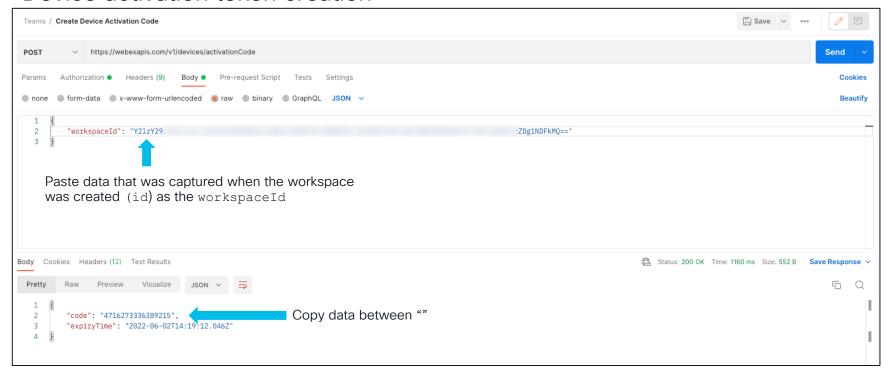
#### Workspace created





## Webex API

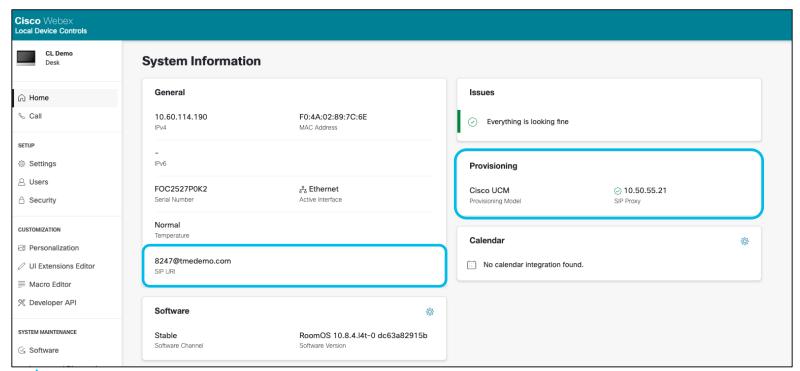
#### Device activation token creation





## Webex xAPI

#### Migrating device





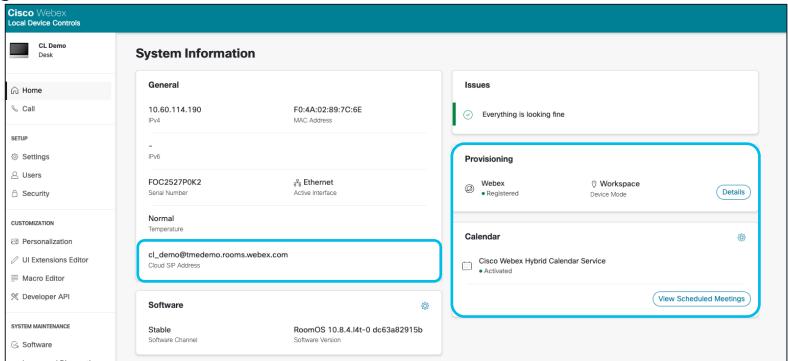
#### Migrating Webex device

```
Last login: Thu May 26 12:38:49 on ttys000
CHTHORPE-M-D9LJ:~ chthorpe$ ssh chthorpe@10.60.114.190
(chthorpe@10.60.114.190) Password:
Welcome to CL Demo
Cisco Codec Release RoomOS 10.8.4.14t-0 dc63a82915b
                                                                  Paste device activation token (code)
SW Release Date: 2022-04-23
*r Login successful
xcommand Webex Registration Start ActivationCode: 4716273336389215 SecurityAction: NoAction
*r RegistrationStartResult (status=0K):
                                                              SecurityAction: NoAction
*r RegistrationStartResult DisplayName: "CL Demo"
** end
                                                                   Retains local accounts
                                                                   Retains UI Extensions
                                                                   Retains Macros
```



#### Webex xAPI

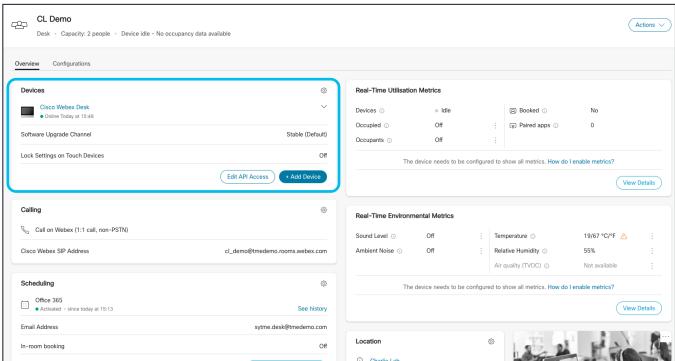
#### Migrated device





## Webex xAPI

#### Migrated device





## Device onboarding: Webex Edge for Devices

#### Webex Device Connector

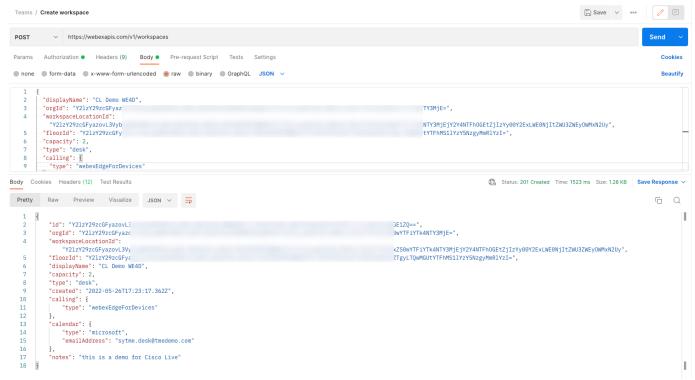
- Simple linking process to provide onpremises devices with access to cloud services and Control Hub.
  - Integration with Unified CM (AXL Application User) to identify devices for linking to the cloud
  - Alternative option is to use CSV file import
- Device Connector will:
  - · Create workspace in Control Hub
    - Calling type in the workspace will be 'Premises Calling'
  - Retrieve 16-digit registration token and pass on to device to begin onboarding process

#### Webex API/xAPI

- Programmatically
  - Create workspace POST command
    - · Define capabilities:
      - · Type, capacity, location, calendar
      - Calling type needs to be defined as webexEdgeForDevices
    - Create device registration token POST command
    - Provide registration token to the device to be onboarded
      - xCommand Webex Registration Start

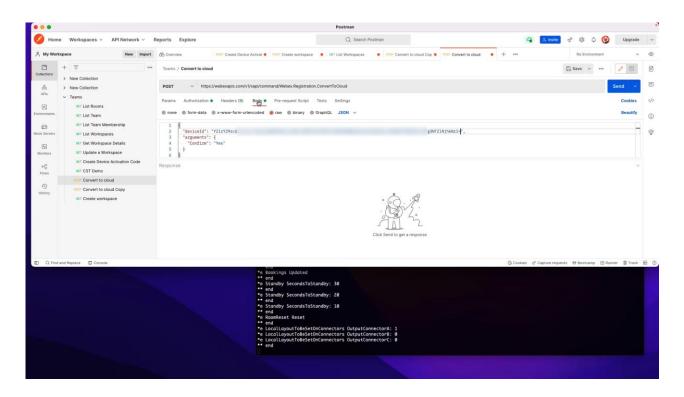


#### Create a workspace





## Webex API - Convert to Cloud





## Newly released (or soon to be released) features

#### Hot desking

- Turns shared mode Webex Desk Series into a Personal Mode device for a specified amount of time.
  - NFC (Desk Hub), USB-C (Desk Hub, Desk Mini, Desk, Desk Pro).
  - · QR code to go into Beta very soon.
  - Supported with Cloud registration, Webex Edge for Devices in Cloud Upgrade Mode and with the release of RoomOS 10.15 Webex Edge for Devices not in Cloud Upgrade mode.
  - Requires RoomOS11 UI to be enabled on the device.
  - Assigned DN (if applicable) does not currently change when logged in. This is a future enhancement



## Newly released (or soon to be released) features

- Webex Calling with Webex Devices (Target Q3CY22 availability)
  - Single activation code that will on-board the devices to both Webex as well as Webex Calling.
  - Native registration to call control with basic calling features:
    - Answer, hold/resume, transfer, conference and voicemail.
  - Support for Directories (contacts), presence and unified call history.
  - Supported with shared mode (workspace) and personal mode.
  - Supported with current RoomOS portfolio.
    - Webex Room series, Kit series, Desk series and Board series.
    - · Cloud registration only
  - Device in hot desk mode, when logged in does not change assigned number.
     This is a planned (road mapped) item.



## Conclusion

- Journey to Cloud can be taken at a pace that suits you. Whether that is:
  - Big bang and going straight to cloud
  - Gradual where you might 'test the water' to see what it means in your environment.
  - The current place you are stopped at might or might not be your final destination
    - For example, stopping at device configurations, logs and alerts might be enough for now. But a couple of months down the line you might choose to step back on the journey and continue further.
- Webex Edge for Devices is the key enabler for hybrid work.
  - Understanding the user experience in the given workspace is key (noise/temperature/air quality/humidity)
  - Deployment of new services (such as room capacity reached), Webex Assistant



## **Technical Session Surveys**

- Attendees who fill out a minimum of four session surveys and the overall event survey will get Cisco Live branded socks!
- Attendees will also earn 100 points in the Cisco Live Game for every survey completed.
- These points help you get on the leaderboard and increase your chances of winning daily and grand prizes.



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- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
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## Thank you



# cisco live!



