



You make **possible**



Unified Collaboration Architecture

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TECCOL-2982

CISCO *Live!*

Barcelona | January 27-31, 2020



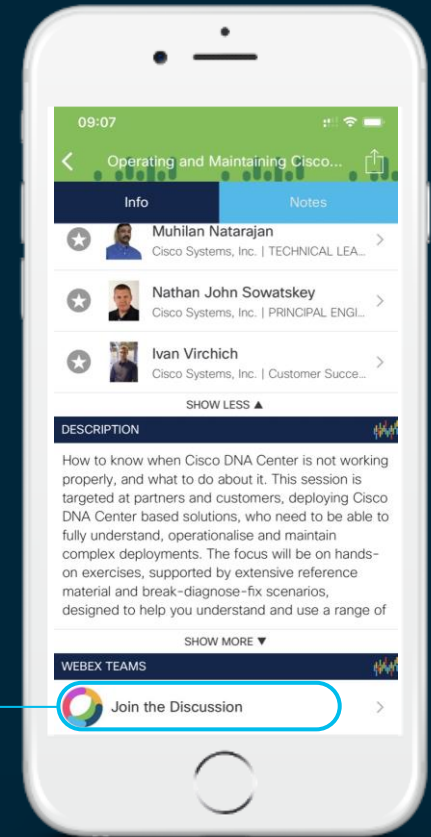
Cisco Webex Teams

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



Agenda

- Introduction
- Preferred Architecture
- Clients Strategy
- Identity and Collaboration Tools
- Premise Architecture
- Hybrid Architecture
- Cloud Architecture
- Conclusions and Q&A

Collaboration



Phones



Headsets



Preferred Architectures

Cisco Collaboration Architecture

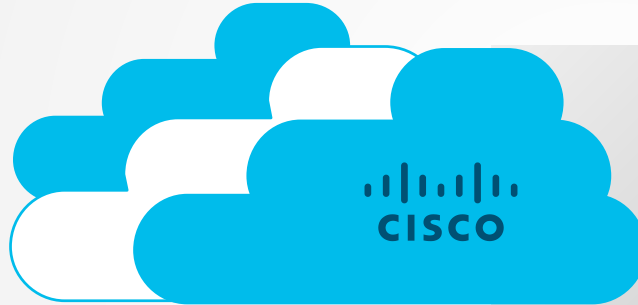
Complete Collaboration Solutions

Calling

Meetings

Team collaboration

Contact center



Unified Communications
Customer Care
Meetings

Cloud

Hybrid

On-premises

Mobility | Security | Reliability | APIs and SDKs | Integrations | Intelligence

What are Cisco Preferred Architectures?

- 30-40 page Documents
- Prescriptive design guidance
- Modular and scalable Design Base for Any Customer

What products to use to enable users for Unified Communications for simple deployments?

Prescriptive
recommendations

Concise
Documents

Tested best
practices

Existing Documentation

- Cisco Validated Design Guides (CVDs)

- Two types of CVDs:
 - Technology Guides
 - Solution Guides

- Solution Reference Network Design (SRND)

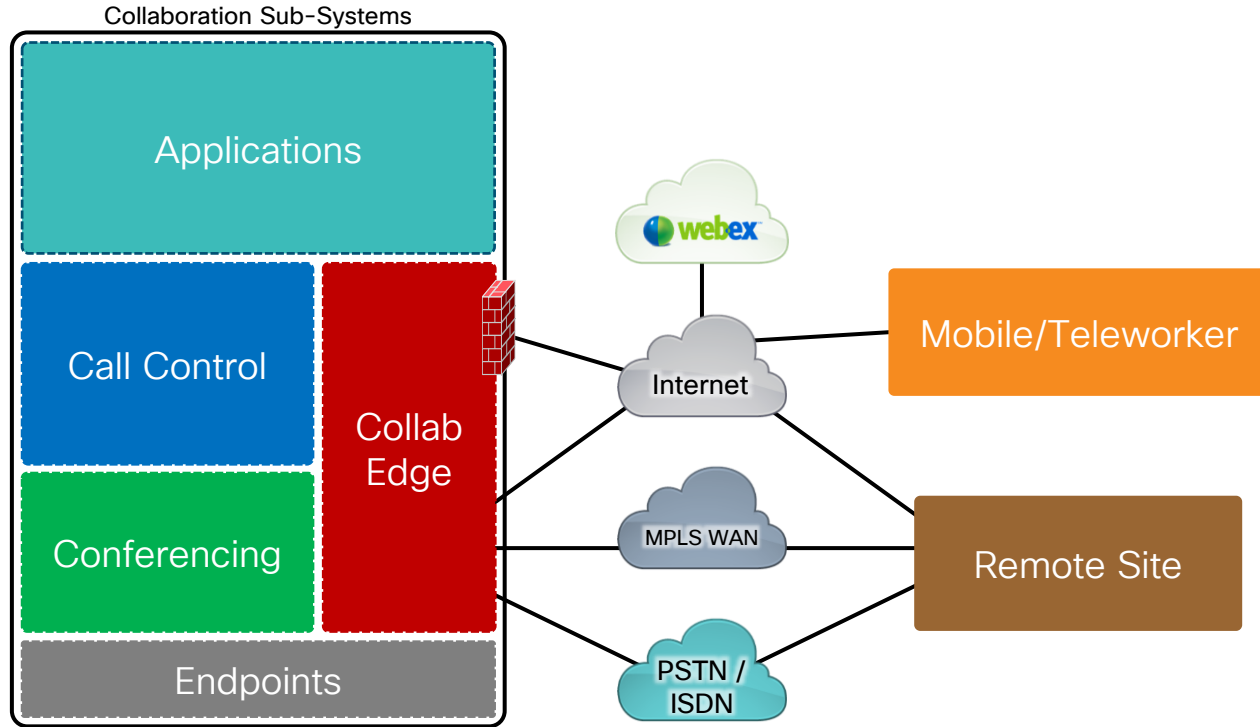
- 1,200 page comprehensive document covering network, endpoints, and all UC applications. Focus on design considerations and guidelines.

- Product Configuration and Deployment Guides

- Step by step instructions for deploying specific products or solutions. Updated with each software release.

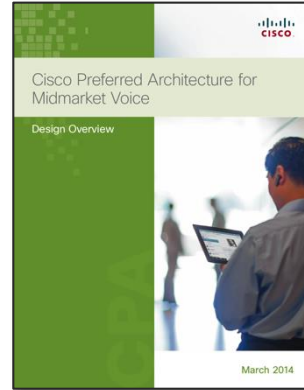
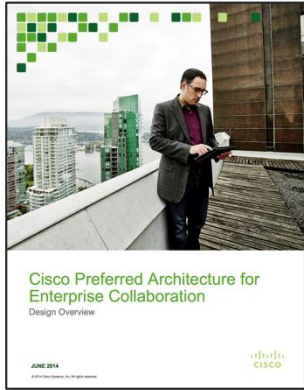


How are the Architectures Organized?

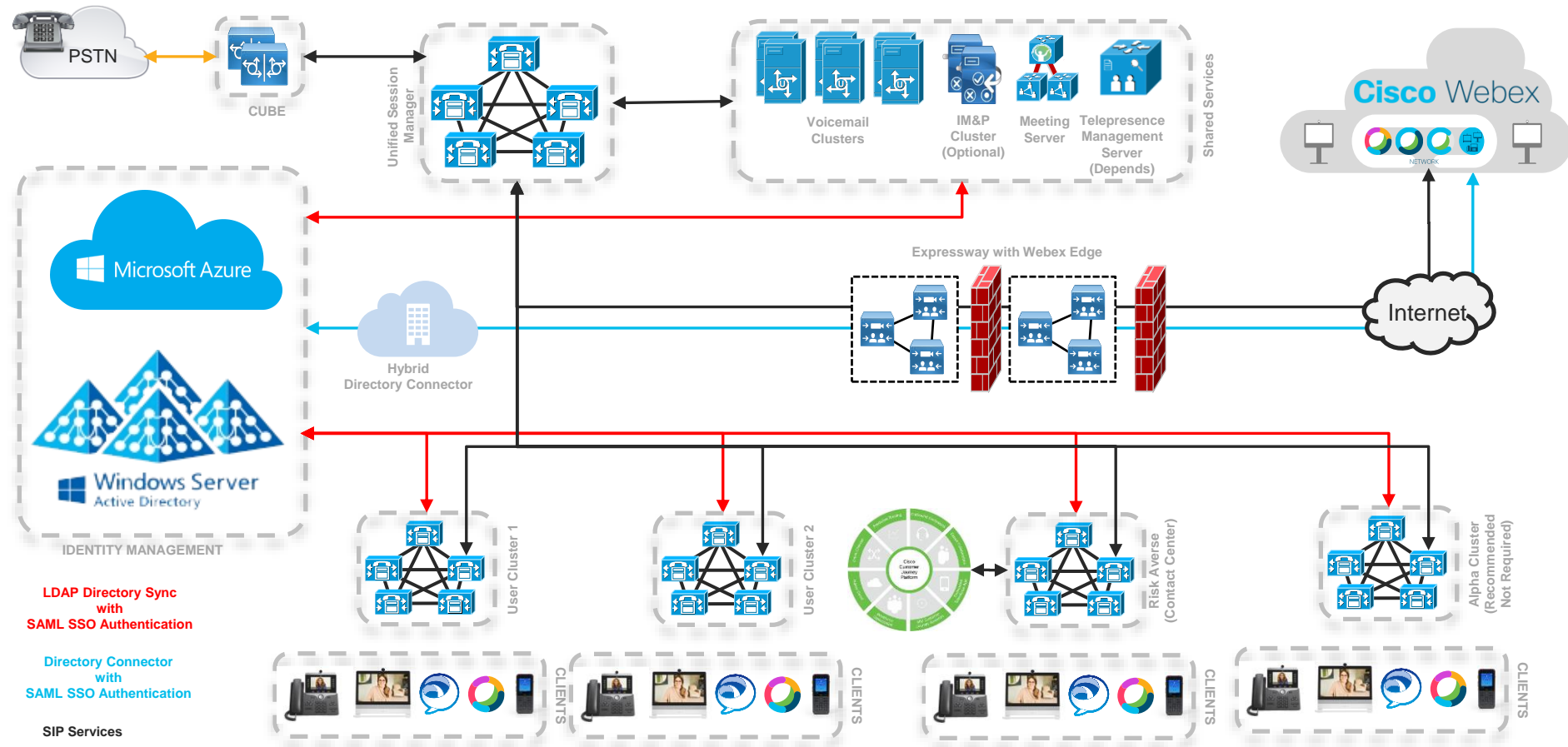


Cisco Preferred Architectures

- Cisco Preferred Architecture for Enterprise Collaboration
- Cisco Preferred Architecture for Mid-Market Collaboration
- Cisco Preferred Architecture for Mid-Market Voice
- Cisco Preferred Architecture for Video

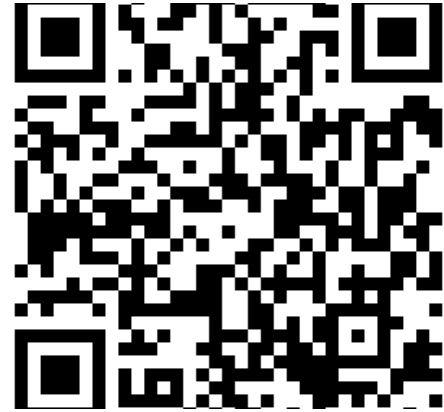


Preferred Architecture for Shared Services (Example)



Where can I get them?

- Official URL:
- <http://www.cisco.com/go/cvd/collaboration>
- Shortcut:
- <http://cs.co/pa4collab>



Clients

The Clients Problem

- Cisco has a clients problem, WHICH ONE



Clients Strategy

Choose Your Client

Premise

(with a chance of cloudy)

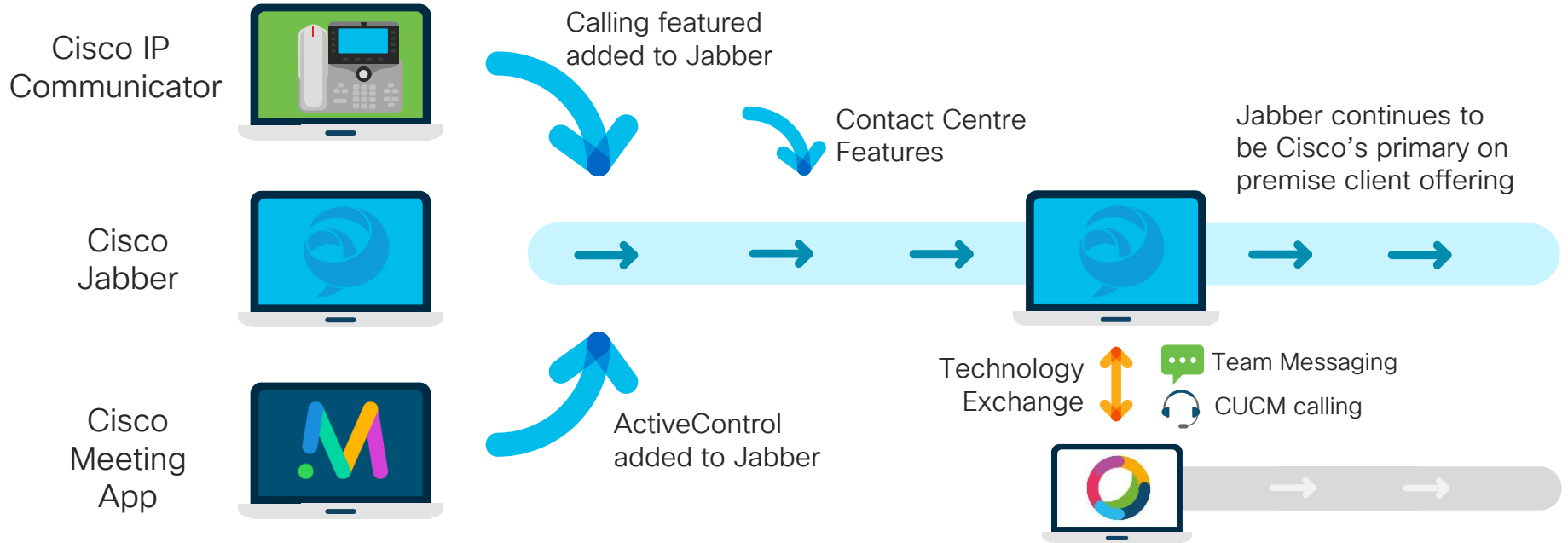


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Hybrid and Cloud



On Premise Client Rationalization



Jabber 12.x highlights so far....

12.0

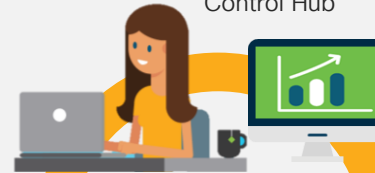
- Multi-line Calling
- Android Auto Support
- Jabber XMPP Botkit SDK
- Phone Mode with Contacts
- Google Calendar (+Mac)
- Chromebook support

12.6

- JVDI Enhancements
- 1080P @ 30fps
- Webex Meetings Controls
- On Premise Proximity
- High contrast mode

Telemetry

Control Hub



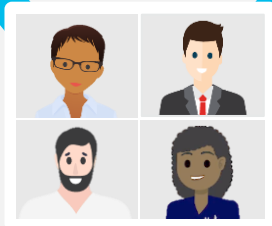
12.8

Q4 CY19

14

12.5

- Team messaging mode
- Active Control for meetings
- Meeting Layouts
- Enhanced Sharing
- Jabber Configuration tool
- SIP OAuth
- Cisco Headset integration



12.7

- Modern/Classic Design options
- New Colour Themes
- Ad-hoc Call Recording
- Voicemail Send/Reply
- Multiline partition support
- Call Pickup (Android)
- CTI Monitoring (Mobile)
- Multiline Calling (VDI)

12.7 feature summary



Application

- Modern/Classic Design options
- New Colour Themes inc Dark Mode



Calling & Meetings

- Ad-hoc Call Recording (Desktop)
- Voicemail Send/Reply (Desktop)
- Multiline partition support (Desktop)
- Call Pickup (Android)
- CTI Monitoring (Mobile)
- Multiline Calling (VDI)
- Audio Device selection policy (VDI)
- CMR Meeting Controls (Mobile)



Cognitive collaboration

- People Insights



Messaging

Team Messaging

- Safari View SSO Support
- Enterprise Content Management
- Control Hub Config
- Search/Add BOT Contacts
- Authenticated Proxy Support
- Quote Message
- DND Duration

XMPP

- Enhanced Security Labels



System/Devices

- Android 64bit Support
- OAuth/Logout Policy

Jabber operating modes

- Flexible operating modes means a organisation can configure the Jabber client for their needs...



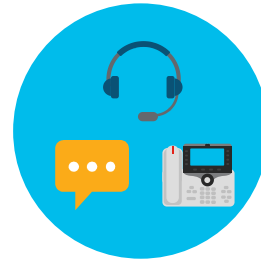
IM Only



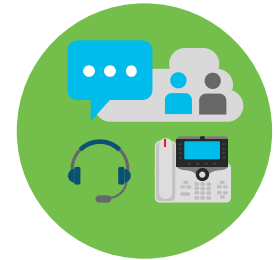
Desk phone



Soft Phone



Full UC



Team messaging

- Jabber 12.5 + provides a new operating mode optimized for “team messaging”

Why move to Jabber team messaging mode.....



Familiar User Experience

Limited retraining required to migrate to advanced messaging



UC Manager based Calling

Flexible calling options with strong feature set



Security and Encryption

Modern secure platform architecture



Persistent messaging

Persistent 1:1 and group messaging with search



Reduced Infrastructure

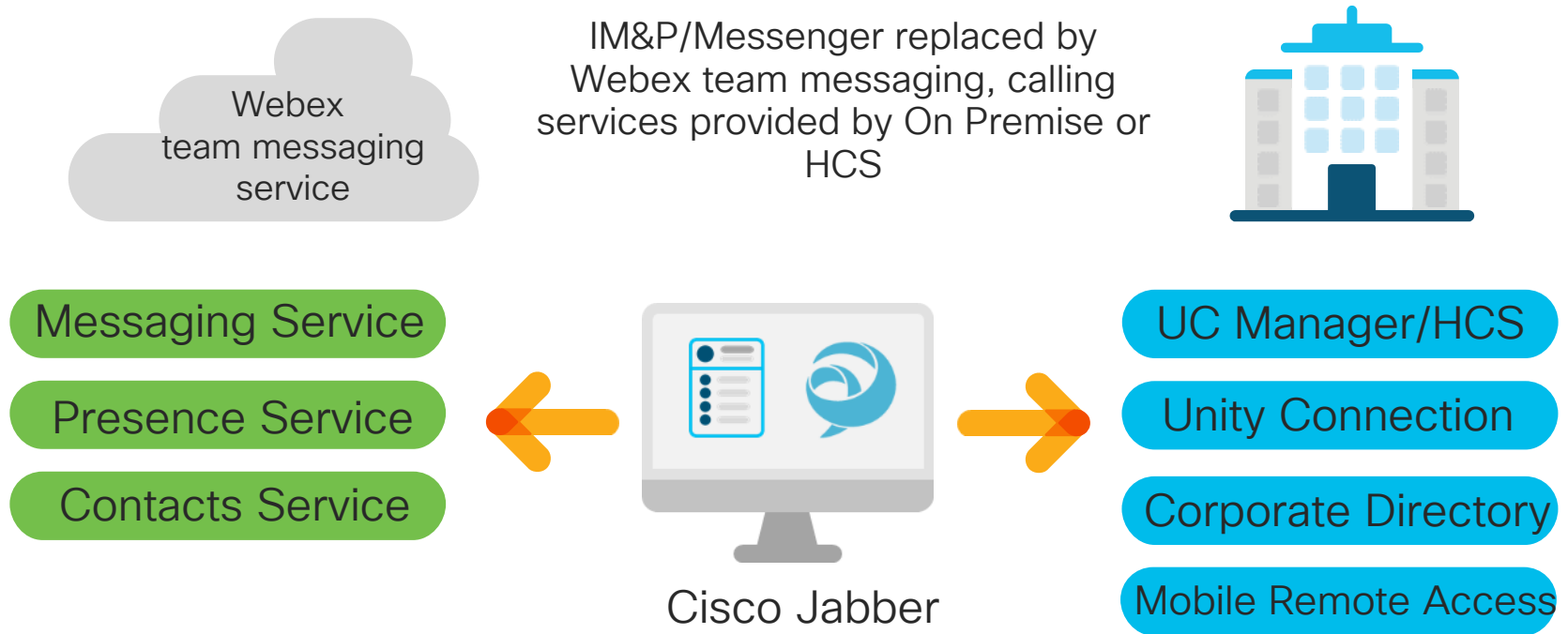
IM&P, P.Chat DB, MFT servers no longer required

What is Jabber team messaging mode

- New Jabber operating mode (single installer for all operating modes)
- A subset of Webex team messaging features are delivered by Jabber (XMPP not used)
 - Persistent 1:1 messaging
 - Space support
 - File support
- UC Manager / HCS rich call control features



Jabber team messaging mode Infrastructure



Team messaging: Control Hub

- Jabber support in Webex Control Hub
 - Service discovery
 - Contact Migration
 - UC manager profile

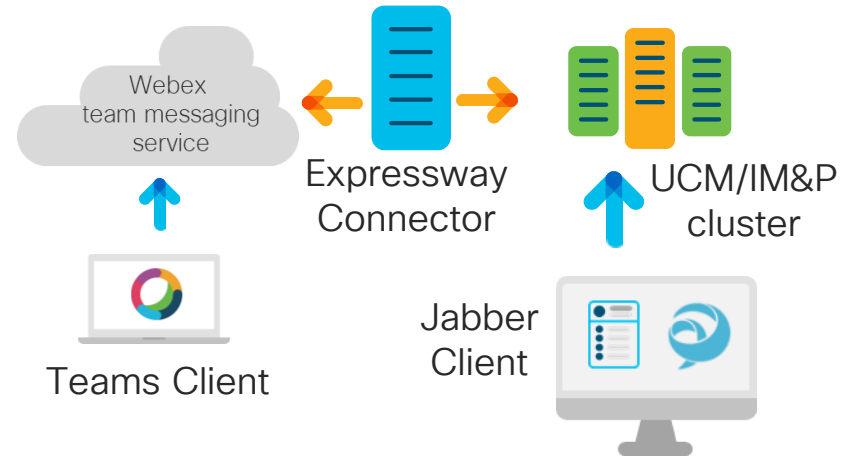
The screenshot displays the Cisco Webex Control Hub interface. On the left is a dark sidebar with navigation options: Overview, Users (selected), Places, Services, Devices, Analytics, Troubleshooting, Settings, and Development. Below these are two user profile cards: 'Atlas_Test_int-Ft-Spark-14176-Jabber-To-Webex-Teams' and 'mipark2test+spark-1...' (Full Admin, User). The main content area is titled 'Users' and shows a table with columns for First Name, Last Name, and Display Name. A search bar is at the top, and a user profile card for 'mipark2test+spark-1...' is highlighted. On the right, a settings panel for this user is open, showing 'Jabber team messaging mode' with three toggle switches (all turned on) for 'Enable Jabber team messaging mode', 'Contact Migration Required', and 'Enable Jabber calling'. Below this is the 'UC Manager Profile' section with a dropdown menu set to 'Auto Configure'.

Is this the same as Jabber/team messaging Interop....?



...Simple answer is NO,

team messaging mode is a Jabber native registration to Webex team messaging platform



- Jabber/Webex team messaging interop is a XMPP/team messaging gateway service provided on Expressway

In The Beginning!

There Was ONLY One Client



Webex Teams – Modular Client

Meet customer needs in a modular approach



Flexible Designs

- ✓ **Single app – Single or multiple workloads**
- ✓ **Address compliance/security issues with Microsoft or Slack**
- ✓ **Support 3rd party integration**
- ✓ **Single Admin experience, align to any workstyle via Control Hub**

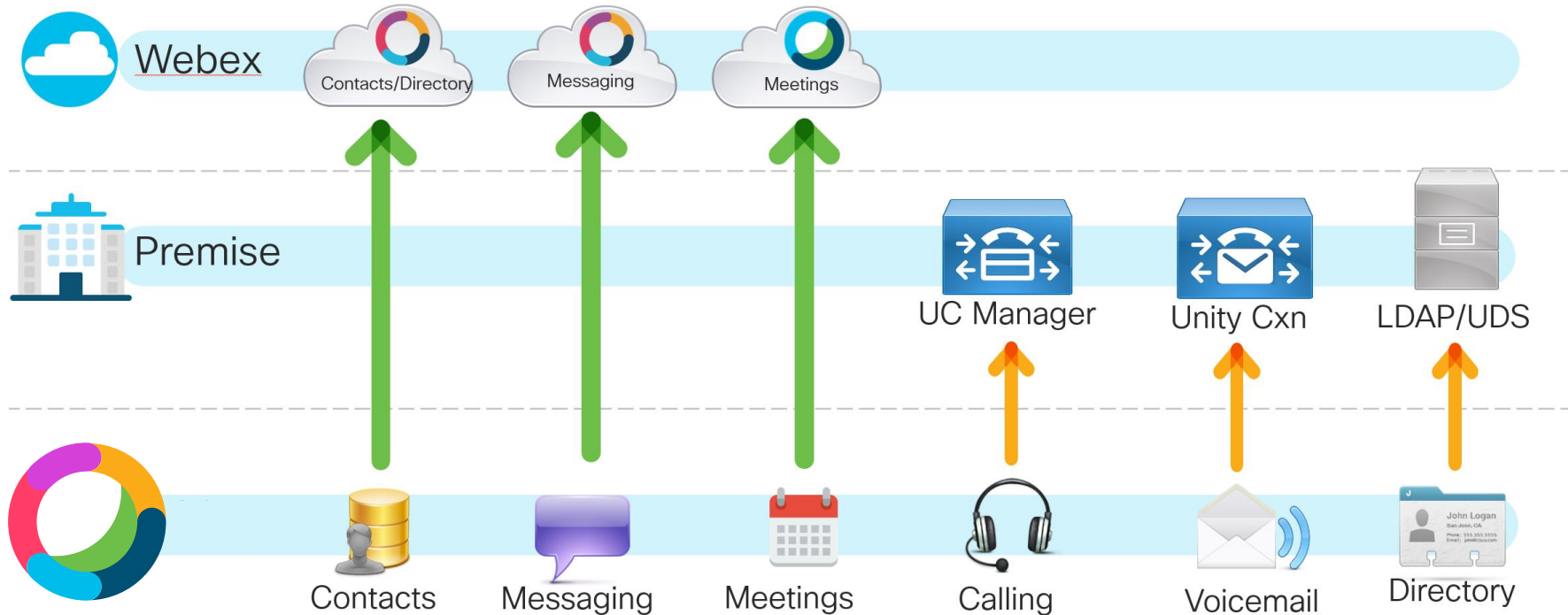


Cisco Webex Calling



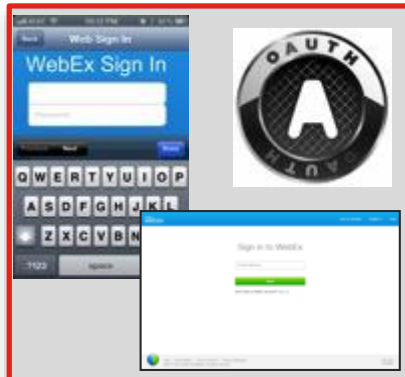
Unified CM (On Premise, HCS, UCM Cloud)

Webex Teams Client Architecture - Hybrid



Identity One Source To Rule Them All

Common Identity Overview



Access Management
(Authentication & Authorization)

The image shows a mobile device screen with a 'WebEx Sign In' form, a keyboard, and a circular 'AUTH' logo with a large letter 'A' in the center.



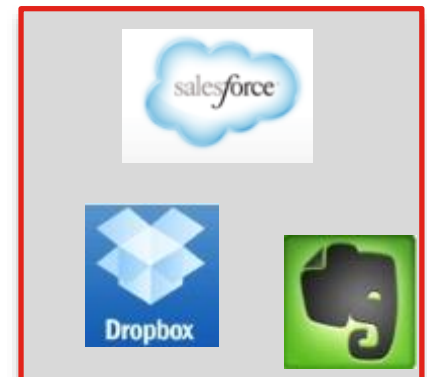
Provisioning
(Manual, Directory Sync, SCIM, SAML JIT)

The image features a red cloud containing a blue and green globe, with a red arrow pointing up to it from a 'Microsoft Active Directory' logo below.



Entitlements
(Enable & Disable Service for user, group or tenant)

The image shows the text 'Gimme Gimme' above a hand in a suit sleeve reaching out.



Secure Attribute Exchange

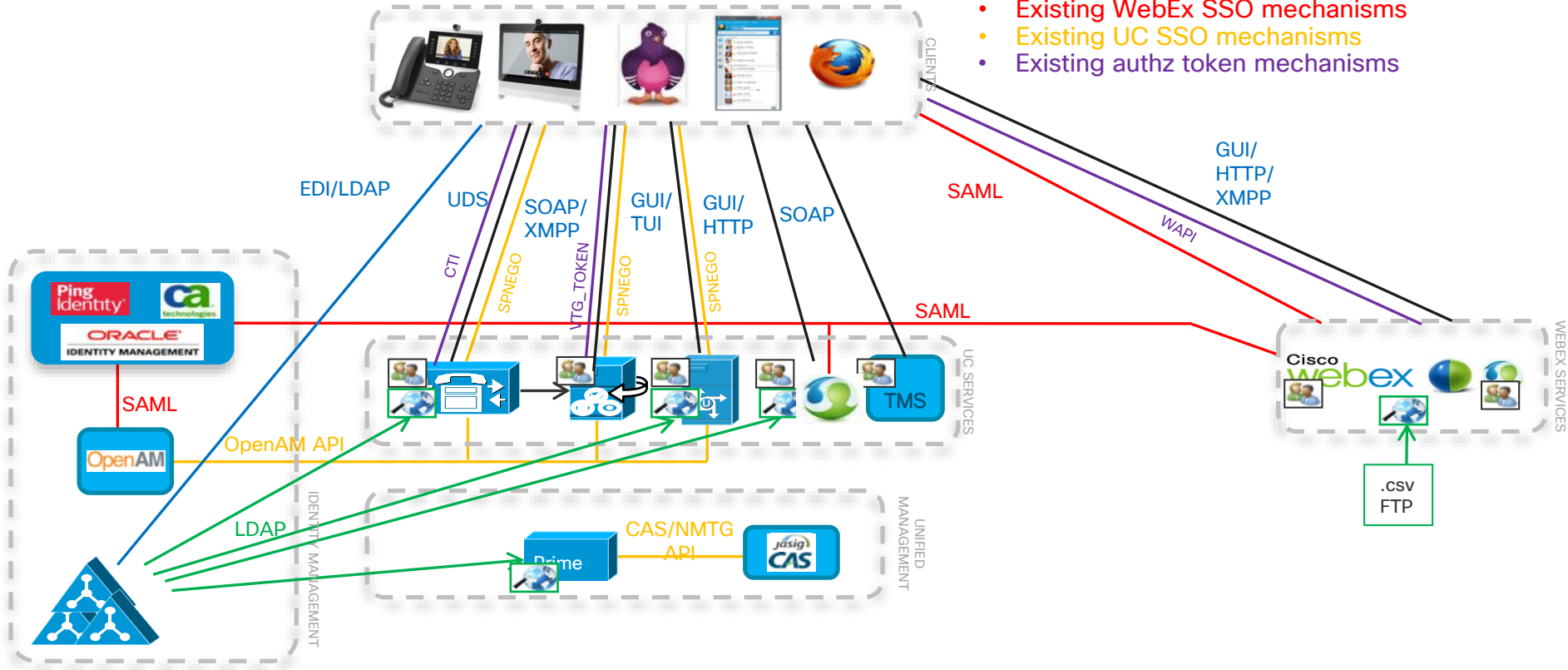
The image displays logos for Salesforce, Dropbox, and a green elephant icon.

Three Components of an Identity System

- Account
 - An individual's identifier: should be globally unique
 - Typically, this does not change
 - For example, Employee ID or User ID
- Authentication
 - Mechanism used to identify the user is who they say they are
 - Can be based on any attribute supported by the directory vendor or the Identity Management System (IdMS)
 - Examples:
 - Active Directory supports authentication using SAM Account, UPN, or user logon name
 - IdMS can support SAM Account, Employee ID, Email, etc.
- Authorization
 - A users ability, or permission, to access resources or services

Current Identity Challenge

- Existing identity stores/syncs 
- Existing contact stores 
- Existing contact/directory interfaces
- Existing WebEx SSO mechanisms
- Existing UC SSO mechanisms
- Existing authz token mechanisms



What Does All This Mean?

Identity Matters!

- Cisco Collaboration Solutions are not owners of identity, they are consumers
 - No password change or enforcement capabilities
- When considering multiple platforms (both premise and cloud) it is important that the primary email address matches across all platforms, including discovery addresses on Cisco cloud platforms!
- Single Sign-On and Edge solutions require unique Discovery ID's (BOB@CISCO.COM) across the entire portfolio that match in all systems if you want to use all of the auto provisioning and placement tools

Identity Considerations

Why the concern

- Communications Manager is capable of ingesting multiple domains, but can only point to two authentication source
 - All domains should be consolidated into a single digest system for authentication
- Communications Manager has a character limit on the domain field (255 characters)
 - May require multiple cluster depending on number and length of domains
- For multiple domain situations, Communications Manager 10.5.2 or later is required for Flexible JID
- Cloud integrations with Webex require the user primary email address match all discovery alias

Identity Breakdown

- All users have a globally unique identifier (GUID)
- All other attributes are defined as variables under the user account on the IDP
 - Account or Logon
 - Telephone Number
 - 10 or 11 digit
 - E.164
 - + Number ID
 - Email Address
 - IM Address
 - SIP Address



Identity Workflow



One Name to Rule Them All

Know The Rules

- If you want SSO to work across the board
- Globally unique user-id should be used (there can be only one bob!)
- Use a SAMLv2 IdP for all your local and cloud systems (Oasis Standard)
- Ensure all data is in your IdP, and ensure that it is correct
 - Unique discovery address
 - Telephone Numbers (E.164 or + Number format recommended)
 - Proper Group Access and Assignment
- IdP must be accessible locally as well as from the internet

Single Sign On, SSO

SSO – Cisco Premise and Cloud

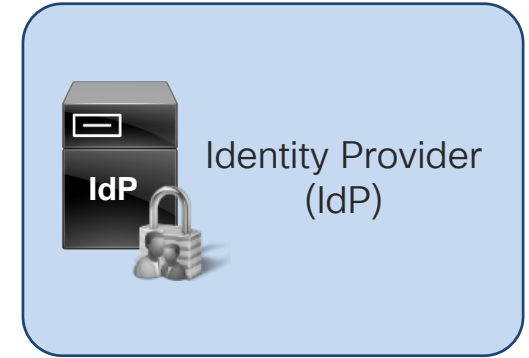
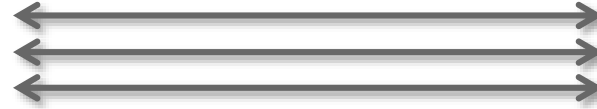
- Cloud based SSO integration is normally configured in Control Hub
- Supported SAML 2.0 requirements, but we do not need multiple ACS capabilities that we do need for premise based Cisco architectures.
- Due to the multiple ACS requirement of premise based Cisco applications (CUCM) we do not support many cloud based SSO platforms due to the fact they do not support true multiple ACS redirects (Google and Microsoft AzureAD)
- Other Cloud platforms are supported with premise based- OKTA, Shibboleth, Duo
- Control Hub and non-CI Webex Site admin sites support cloud to cloud SSO configurations.

SAML SSO Configuration for Webex in Control Hub

Steps to Enable Single Sign-on



SAML Agreements
Metadata Exchange



1

- Download SP Metadata

3

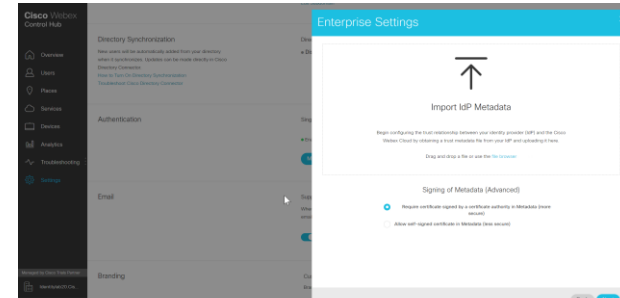
- Integrate With 3rd Party Identity Provider
- Choose Signed or not Signed Metadata
- Upload IdP Metadata
- Test SSO Connection

2

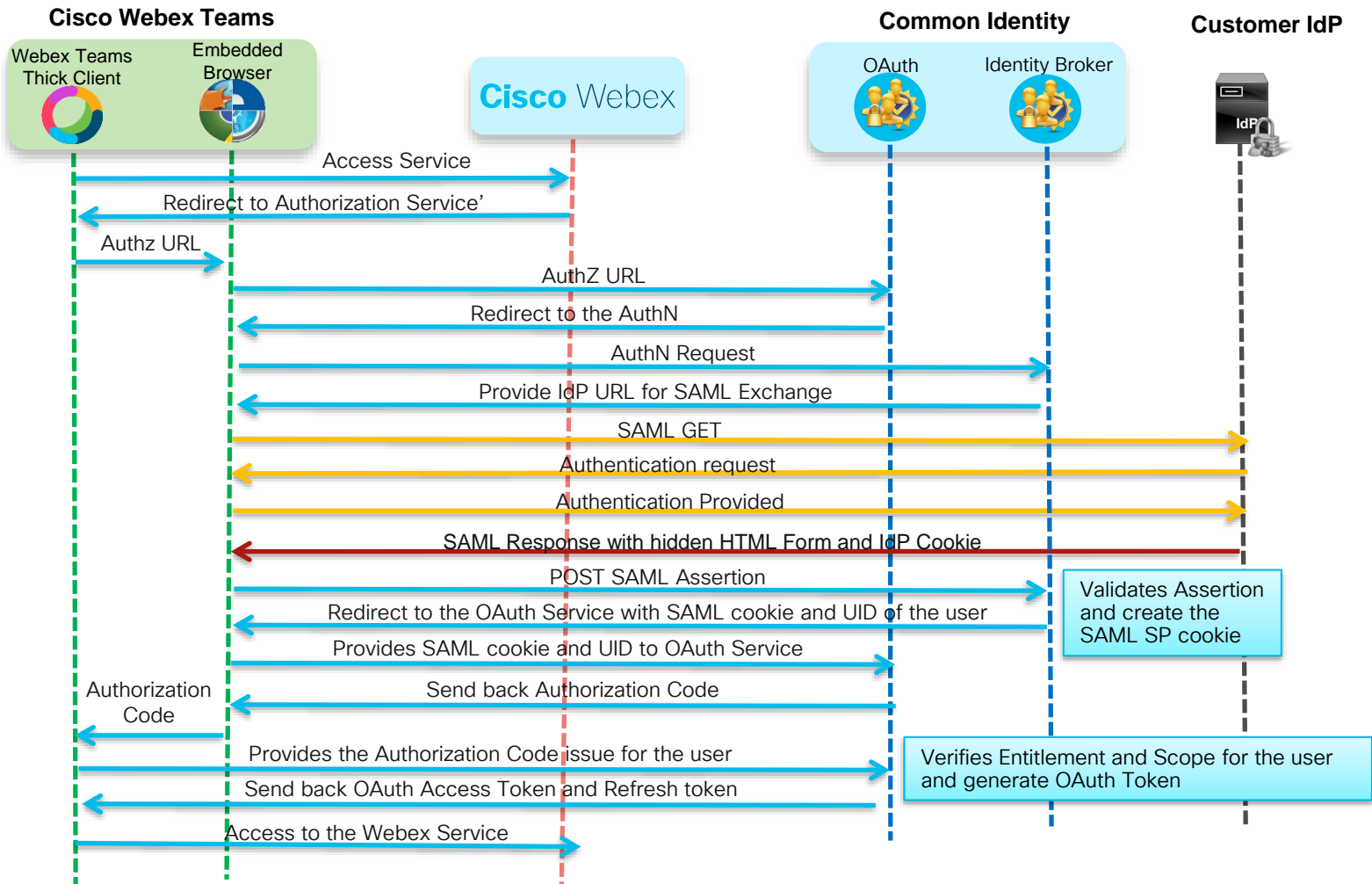
- Configure IdP
- Upload SP Metadata
- Download IdP Metadata



Collaboration Admin Identity Admin



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SAML Assertion from IdP to Webex in CH

```
<saml2p:Response
Destination="https://idbroker.webex.com/idb/Consumer/metaAlias/ea7c1420-
711d-4916-95f8-22de53230d1e/sp"
ID="_157561492b8068bb78f4cb242ad4f006"
```

```
InResponseTo="s2e747a3b284812b71ccd8ac1dce98d00cbfa7555b"
IssueInstant="2017-01-30T17:13:22.572Z"
Version="2.0"
xmlns:saml2p="urn:oasis:names:tc:SAML:2.0:protocol"
>
```

```
<saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity"
xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"
>https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
```

```
<saml2p:Status>
<saml2p:StatusCode Value="urn:oasis:names:tc:SAML:2.0:status:Success"/>
</saml2p:Status>
```

```
<saml2:Assertion ID="_574a68c9ba24935315c606a48902e50f"
IssueInstant="2017-01-30T17:13:22.572Z"
Version="2.0"
xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
>
```

```
<saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-
format:entity">https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
```

```
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
<ds:SignedInfo>
<ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-
c14n#" />
<ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
<ds:Reference URI="#_574a68c9ba24935315c606a48902e50f">
<ds:Transforms>
<ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-
signature" />
<ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
<ec:InclusiveNamespaces PrefixList="xs"
xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#"
/>
</ds:Transform>
</ds:Transforms>
<ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
<ds:DigestValue>f4B90sjgqWCRJaUycRL7XS2ncdw=</ds:DigestValue>
</ds:Reference>
</ds:SignedInfo>
<ds:SignatureValue>L0n0SdlaXFyL4Eg6.....</ds:SignatureValue>
<ds:KeyInfo>
<ds:X509Data>
<ds:X509Certificate>MIIDKzCCAhOgAwIBAgIUNXw.....<ds:X509Certificate>
</ds:X509Data>
</ds:KeyInfo>
</ds:Signature>
```

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  ID="_157561492b8068bb78f4cb242ad4f006"
  InResponseTo="s2e747a3b284812b71ccd8ac1dce98d00cbfa7555b"
  IssueInstant="2017-01-30T17:13:22.572Z"
  Version="2.0"
  xmlns:saml2p="urn:oasis:names:tc:SAML:2.0:protocol"
  >
  <saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity"
    xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"
    >https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
  <saml2p:Status>
    <saml2p:StatusCode Value="urn:oasis:names:tc:SAML:2.0:status:Success"/>
  </saml2p:Status>
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    Version="2.0"
    xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    >
    <saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity">https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
```

Same Relay state as the SAML request from the Webex

InResponseTo="s2e747a3b284812b71ccd8ac1dce98d00cbfa7555b" IssueInstant="2017-01-30T17:13:22.572Z"

```
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
  <ds:SignedInfo>
    <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
    <ds:Reference URI="#_574a68c9ba24935315c606a48902e50f">
      <ds:Transforms>
        <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature" />
        <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
          <ec:InclusiveNamespaces PrefixList="xs"
            xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#"
            />
        </ds:Transform>
      </ds:Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
      <ds:DigestValue>f4B90sjgqWCRJaUycRL7XS2ncdw=</ds:DigestValue>
    </ds:Reference>
  </ds:SignedInfo>
  <ds:SignatureValue>L0n0SdlaXFyL4Eg6.....</ds:SignatureValue>
  <ds:KeyInfo>
    <ds:X509Data>
      <ds:X509Certificate>MIIDKzCCAHOgAwIBAgIUNXw.....<ds:X509Certificate>
    </ds:X509Data>
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Version="2.0"  
xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"  
xmlns:xs="http://www.w3.org/2001/XMLSchema"  
>
```

Successful SAML Assertion

```
<saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity">https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
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<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">  
<ds:SignedInfo>  
<ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-  
c14n#" />  
<ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />  
<ds:Reference URI="#_574a68c9ba24935315c606a48902e50f">  
<ds:Transforms>  
<ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-  
signature" />  
<ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">  
<ec:InclusiveNamespaces PrefixList="xs"  
xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" />  
</ds:Transform>  
</ds:Transforms>  
<ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />  
<ds:DigestValue>f4B90sjqqWCRJaUycRL7XS2ncdw=</ds:DigestValue>  
</ds:Reference>  
</ds:SignedInfo>  
<ds:SignatureValue>L0n0SdlaXFyL4Eg6.....</ds:SignatureValue>  
<ds:KeyInfo>  
<ds:X509Data>  
<ds:X509Certificate>MIIDKzCCAhOgAwIBAgIUNXw.....<ds:X509Certificate>  
</ds:X509Data>  
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ID="_157561492b8068bb78f4cb242ad4f006"
```

Same Relay state as the SAML request from the Webex

```
InResponseTo="s2e747a3b284812b71ccd8ac1dce98d00cbfa7555b"  
IssueInstant="2017-01-30T17:13:22.572Z"  
Version="2.0"
```

```
<saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity"  
xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"  
>https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
```

```
<saml2p:Status  
<saml2p:StatusCode Value="urn:oasis:names:tc:SAML:2.0:status:Success"/>  
</saml2p:Status>
```

```
<saml2:Assertion ID="_574a68c9ba24935315c606a48902e50f"  
IssueInstant="2017-01-30T17:13:22.572Z"  
Version="2.0"  
xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"  
xmlns:xs="http://www.w3.org/2001/XMLSchema"  
>
```

Successful SAML Assertion

```
<saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity"  
>https://shib9a.cisco.net/idp/shibboleth</saml2:Issuer>
```

```
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">  
<ds:SignedInfo>  
<ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-  
c14n#" />  
<ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />  
<ds:Reference URI="#_574a68c9ba24935315c606a48902e50f">  
<ds:Transforms>  
<ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-  
signature" />  
<ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">  
<ec:InclusiveNamespaces PrefixList="xs"  
xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" />  
</ds:Transform>  
</ds:Transforms>  
<ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />  
<ds:DigestValue>f4B90sjqqWCRJaUycRL7XS2ncdw=</ds:DigestValue>  
</ds:Reference>  
</ds:SignedInfo>  
<ds:SignatureValue>L0n0SdlaXFyL4Eg6.....</ds:SignatureValue>  
<ds:KeyInfo>  
<ds:X509Data>  
<ds:X509Certificate>MIIDKzCCAhOgAwIBAgIUNXw.....<ds:X509Certificate>  
</ds:X509Data>  
</ds:KeyInfo>  
</ds:Signature>
```

IdP Signature and Certificate for Webex to validate

Cloud Collaboration SSO integration guides

Reference

The screenshot shows the Cisco Help Central interface. At the top, there is a blue header with the Cisco logo on the left, the text 'Help Central' in the center, and 'Site Support ?' on the right. Below the header, there are navigation links for 'Home' and 'Menu'. The main content area has a breadcrumb trail: 'All Places > Cisco Spark Control Hub > Documents'. A note indicates that users must log in to create and rate content. The main article title is 'Single Sign-On with Cisco Spark Services and your Organization's Identity Provider', with 'Like • 0' and 'Comment • 0' next to it. Below the title, it states 'Document created by Cisco Documentation Team on Jul 31, 2015 • Last modified by Cisco Documentation Team on Aug 29, 2017' and 'Version 26'. A list of related links includes 'Single Sign-On with Cisco Spark', 'Tested Single Sign-On Solutions with Cisco Spark Services', and 'Set up Single Sign-On Between Cisco Spark Services and Your Identity Provider'. The section title 'Single Sign-On with Cisco Spark' is followed by a paragraph: 'If you have your own identity provider (IdP) in your organization, you can integrate the IdP with Cisco Spark services and your users have a single, common credential for all their corporate applications.'

<https://help.webex.com/docs/DOC-1600>

Premise Architecture

with a chance of
Cloudy!

Cisco Collaboration Architecture

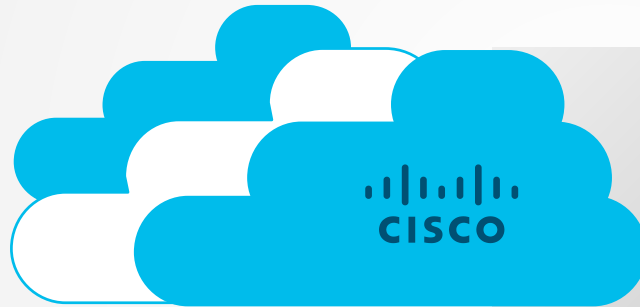
Complete Collaboration Solutions

Calling

Meetings

Team collaboration

Contact center



Cloud

Hybrid

On-premises

Mobility | Security | Reliability | APIs and SDKs | Integrations | Intelligence

Agenda

- Call Control and Core Services
- Conferencing
- Applications
- Remote Access

Call Control and Core Services

What is a Cluster

A CUCM cluster is the brains of the premise-based call control platform, made up of:

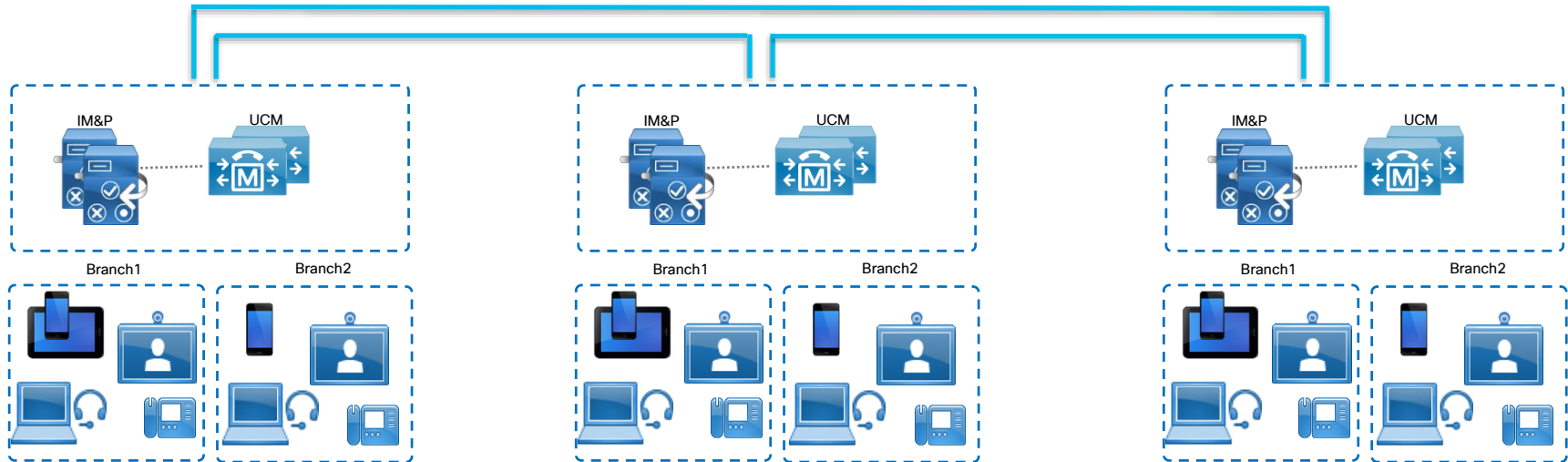
- 1 Publisher (only one publisher per cluster)
 - Standard Cluster - Up to 8 subscriber nodes supporting up to 40K (1:1) or 80K (No Redundancy) SIP/SCCP encrypted/non encrypted devices
 - Mega clusters of up to 16 subscriber nodes supporting up to 80K (1:1) or 16K (No Redundancy) SIP/SCCP encrypted/non encrypted devices (requires design review by support)
- Additional nodes for TFTP and media services can be added and recommended in clusters over 1250 devices

Clustering Behavior and Caveats

- Latency between campus deployed nodes should not exceed 15ms
- Latency between wan deployed cluster nodes should not exceed 80ms
- Latency between end user devices and centralized services should not exceed 150ms
 - Any device that exceeds more than 200ms can experience issues such as delay-to-dialtone or increased media cut-through delays

Call Control Architecture and Deployment Models: Simplification

- Recommendation: Centralized Call Processing Model (Single Call Processing Cluster)
- Full-Mesh Distributed Call Processing Deployment Model (Multiple Call Processing clusters) may be required. This model is based on multiple iterations of the Centralized Call Processing Deployment Model



Call Control Benefits

- Single call control for voice, video, IM&P
- Collaboration-friendly dial plan which makes easy to add video to voice, IM&P to voice and video
 - Simplified deployment model, design, dial-plan, video, IM&P integration, sizing, etc.
- Modular architectural approach which enables better scalability
- Add additional services avoiding re-configuration costs

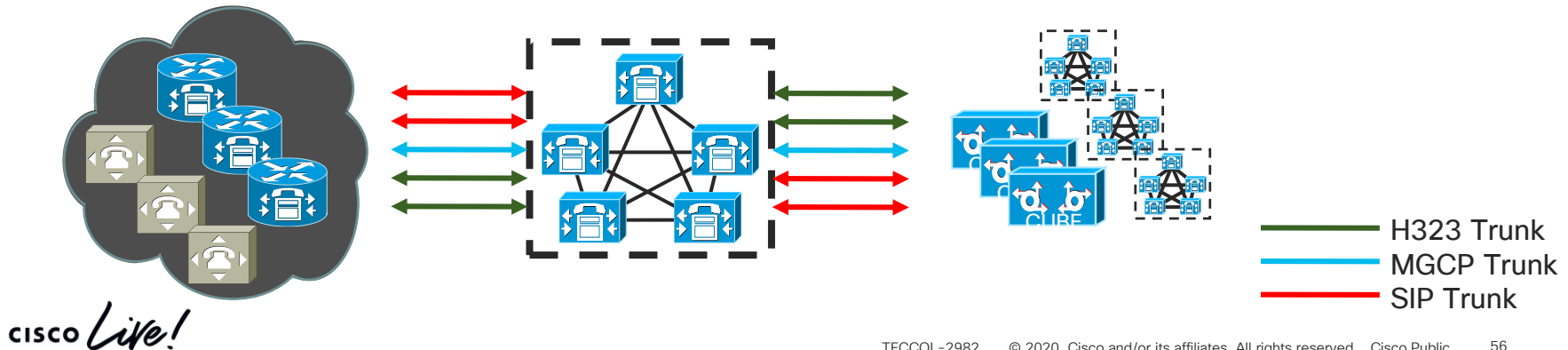
Single Cluster or Multi Cluster

When and why to consider

- Multiple Domains
 - Because many of the systems are not multi-domain capable for all functions and not all customers can deploy an IdP or consolidate domains
- Risk Averse Lines of Business
 - If you have critical business services that cause you to not upgrade on normal schedules because of fear of change or business impact
- International or High Latency Links
 - Any time latency between sites exceeds recommended deployment guidelines for real time communications or database replication
- Alpha clusters for user acceptance and testing – HIGHLY RECOMENDED

What is a Session Management Edition Cluster

- A CUCM cluster and a SME cluster use exactly the same software
- A CUCM cluster is typically used to register phones
- A SME cluster is typically used as a platform for Trunk and Dial Plan aggregation
- Both CUCM and SME support Voice, Video, and Encrypted calls



Reasons for Deploying a SME Cluster

Functions that a SME Cluster Offer

- Centralized Dial Plan

- Globalize and Normalize the called and calling numbers used by all leaf systems
- Manage overlapping number ranges in Leaf systems
- Configure “find me” call routing using Route List and Route Groups
- Re-route calls via PSTN when the device cannot be reached via IP path
- PSTN trunk consolidation and dynamic re-routing

- Mobility Features

- Offer Single Number Reach functionality to devices on 3rd Party UC systems
- Offer Extend and Connect functionality to devices on 3rd Party UC systems

- Normalization Scripting

- Allow you to modify inbound and outbound SIP message and SDP body content – simplifying interoperability with 3rd party UC systems

Features to Utilize in a SME Cluster Design

- Extension Mobility Cross Cluster (EMCC)
 - Public Space Phones
 - Contact Center Agents
 - Hoteling
- TFTP (proxy TFTP Server)
 - Allows all endpoints to point to a single TFTP server and be redirected to the correct “home server” for config and registration
- PSTN Access
 - PSTN Access for all cross cluster members
- Inter-Cluster Lookup Service (ILS)
 - Allows CUCM to learn about remote clusters without the need for an administrator to manually configure connections between each cluster
 - ILS URI Replication feature enables ILS to exchange directory URI catalogs with the other clusters in an ILS network. URI Replication provides support for intercluster URI dialing
- RSVP Agent
 - Allows local vs. home cluster media resources for EMCC devices
- Location Bandwidth Manager (LBM)
 - Allows for full-mesh replication of their cluster topology

Communications Manager Architecture

The center of the collaboration experience

- All current and capable shipping endpoints register to CUCM
 - Soft-clients, Personal Endpoints, and Room Systems register here!
- Single SIP domain (cluster wide setting)
- CUCM is first and always is a directory number-based system
- Always use FQDN
 - Put Hostnames, DNS servers, and Domains on systems when upgrading or installing
 - Install certificates on all internal and public facing systems (use a trusted CA, not self-signed or internal CA)
 - Turn ON Encryption on all UC infrastructure!!

Dial Plan Getting Started

- Best and most important tools for dial plan design:
 - Pencil
 - Paper
 - Whiteboard
- Dial plans are not a new concept
- IP did not change the fundamentals of dial plan design
- Dial Plan recommendations are not a monolith
 - Take what you need
- Keep it simple!



What Is a Dial Plan?

- Mapping from dialed destinations to connected endpoints
- Concepts that are part of dial plans
 - user input
 - mapping of user input to routable format (transformations)
 - routing / routing restrictions (class of service)
 - call presentation
 - numbering plans



User Input / Dialing Habits

- **Dialing habits** are the common ways a user dials a number
- Different formats for types of destinations
 - colleague next door – 4XXX four digit dialing
 - local, national, international – 9-7D, 91-10D, 9011-E.164, +E.164
 - Inter-office (abbreviated on-net, forced on-net) – 8-7D
 - Voicemail – 4000 special intra-site dialing
 - Emergency
 - other services
- Especially external dialing habits are country-specific
 - 9 or 0 for outside line
 - Format of national numbering plan (fixed/variable length etc.)



Enterprise Specific Dialing Habits

- Dialing habits for local, national, international calls are typically given/agreed upon based on a given domain/country
- In addition need to agree on how to dial:
 - Private numbers (on-net)
 - Intra-Site
 - Services (voicemail, meet-me, call park, pick-up ...); non-DIDs
- “+” dialing also needs to be supported!
 - application support
 - number portability

Dial Plan vs. Numbering Plan

- Dial Plan: from dialed digits (dialing habits) to destinations
- Numbering Plan: scheme to number entities (phones and services)
 - unique number per entity → e.g. (+)E.164, private numbering
allows for single numbering domain
 - overlapping numbering → e.g. unique per site
requires partitioned numbering domains
(and site-specific partitions/CSS, even w/ LRG)
- Recommendation: unique addresses
- Benefits of unique addresses
 - Maintain correct caller ID (think overlaps in forwarded inter-site calls)
 - Simplified VM integration (unique subscriber IDs)

Dial Plan vs. Numbering Plan (NANP Example)

- Dial plan might support various dialing habits
 - local call: 9 – number
 - national call: 91 – number
 - international call: 9011 – number
 - abbreviated on-net: 8<7-digits>
 - +E.164: +E.164 string
- Enterprise Numbering Plan might follow one of the above dialing habits (e.g. abbreviated on-net)

... but does not necessarily have to!

E.164 geographic numbers

CC 1-3 digits	NSN max 15-n digits (n=number of CC digits)	
	NDC Defined by nat. numbering plan	SN Defined by nat. numbering plan
max 15 digits		

ITU Recommendation E.164 describes the “Numbering Plan of the International telephone service”

- CC: Country Code
- NSN: National significant number
- NDC: National destination code
- SN: Subscriber number
- NDC+SN = NSN: National significant number

National numbering plan left to national authorities

- documented at <http://www.itu.int/oth/T0202.aspx?lang=en&parent=T0202>
- US: fixed length, NSN 10 digits
- DE: variable length, NSN 4-13 digits

+E.164 Notation and “Numbers”

- ITU Recommendation E.123 describes the “Notation for national and international telephone numbers, e-mail addresses and Web addresses”
 - “+” signifies the international prefix
 - Example: +14085551234
- Numbers in global directories should be in +E.164 format
 - global form including country code
 - leading “+”
 - no trunk access codes included: +44 (0) 208 1234 1243 is NOT a valid +E.164 number!
 - universal use
- Benefits of +E.164 “Numbers” in dial plans
 - unique by definition
 - no overlap with any other dialing habit (“+”)

+ Sign Support

What It Is: Concept

- +E.164 support includes the use of + to wildcard international access codes AND to avoid overlap between globalized numbers and other ranges (e.g.: calls to India (+91XXXXXXXXXX) and NANP toll calls (912125551234))
- Supporting the + sign allows UCM-based systems to route calls based on an universal non-site (country) specific format
- + can be used in all dialable patterns
 - DN
 - Route Pattern
 - Translation pattern
- Most phones support +-dialing: 7925/21 from day one, newer phones starting with phone firmware 9.1.1

+ Sign Support

Caveats

- 1st generation phones (e.g., 7940/60) do not support + dialing from phone directories
- Unity Connection 9.0 supports +E.164 subscribers
 - +E.164 alternate extensions, MWIs supported with 8.x
- Emergency responder 10.0 supports +E.164
- Contact Center Express
 - +E.164 CTI route points and CTI ports (UCCX 8.5(1)SU3)
 - +E.164 agent extensions (UCCX 10.0 Finesse only)

Directory and Onboarding

Directory, Where It All Starts!

Identity Matters!

- Cisco Collaboration Solutions are not owners of identity, they are consumers
- Supported LDAP Integrations
 - Microsoft Active Directory 2003/2008/2016
 - Microsoft Lightweight Directory Services (LDAP)
 - Sun ONE Directory
 - Open LDAP
 - Oracle Directory Server Enterprise Edition

Self-Provisioning

Administrative Improvements

User administration has been greatly simplified!

Makes use of Profiles and Templates

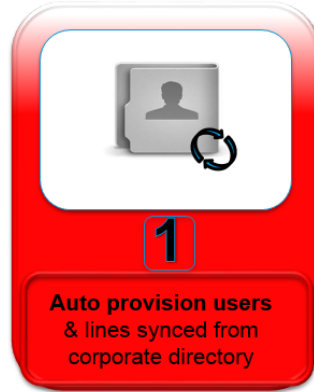
User Profile, Service Profile,
Device/Line Templates

Templates can now be applied at the LDAP
integration or at time of user provisioning.

Two provisioning mechanisms added

IVR-based Self Provisioning (No
Administration Required)

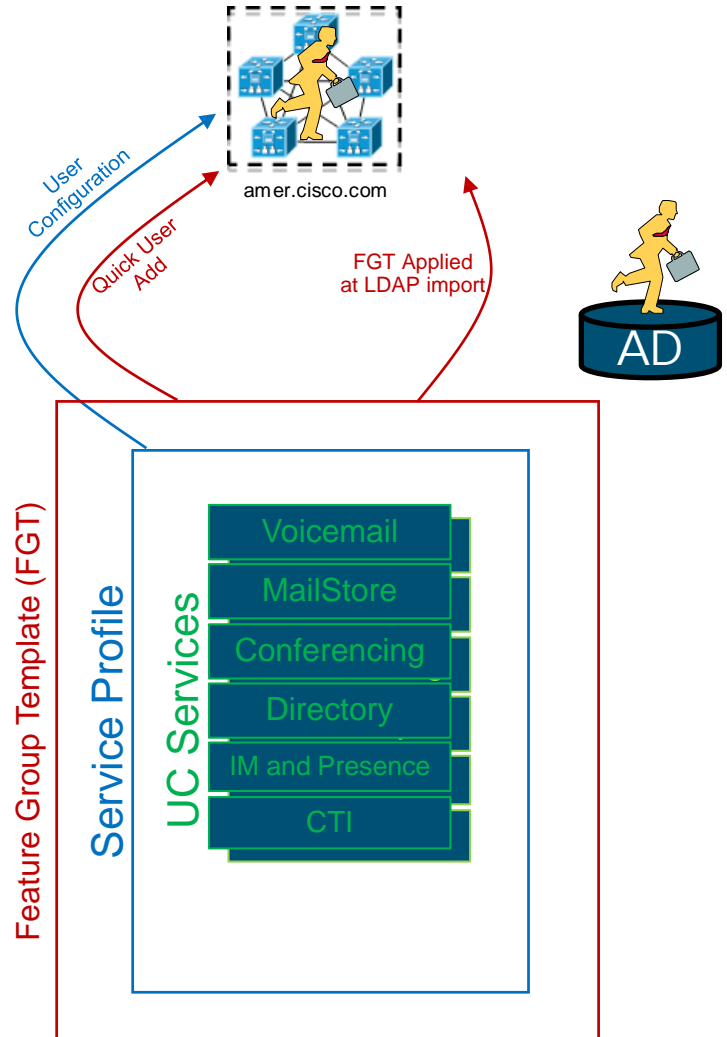
Quick User/Phone Add



Self-Provisioning Foundation

Service Profile Concept

- The **Service Profile** created to simplify Jabber registration and configuration
- A Service Profile is made up of **UC Services**. Each UC Service represents a Jabber workload:
 - **Voicemail**, HTTP connection for Jabber for visual voicemail
 - **Mail Store**, IMAP connection for Jabber to Unity Connection for voicemail retrieval
 - **Conferencing**, WebEx site information or Jabber to WebEx or CWMS
 - **Directory**, TCP connection for Jabber to AD for LDAP Contacts (as opposed to UDS)
 - **IM and Presence**, XMPP connection information for Jabber to CUCM IM/P
 - **CTI**, TCP connection for Jabber to CTI application server (CUCM phone control)
- For Redundancy, there can be more than one **UC Service** for a given Jabber workload (this depends on the workload application)
- The **UC Services** are assigned to one or more **Service Profiles**
 - Primary, and sometimes Secondary, and Tertiary **UC Services** are assigned to a **Service Profile**
- The **Service Profile** is assigned to the user by way of
 - The User's configuration page
 - Through a **Feature Group Template (FGT)** either...
 - directly (via Quick User Add)
 - or indirectly (via LDAP integration)



Self-Provisioning Foundation

Provisioning Configuration

Provisioning Configuration

“Deconstructed”:

Assign **Access Control Groups** to the LDAP Integration configuration

Can **Create and assign directory numbers** from LDAP (with mask) or from a pool of numbers. The DN's will not be assigned to a device until the device is provisioned

Assigned **Feature Group Templates (FGT)** to LDAP integration. Within FGT, we...

Assigned Home Cluster and enable IM and Presence. **Do not assign a single user to multiple clusters**

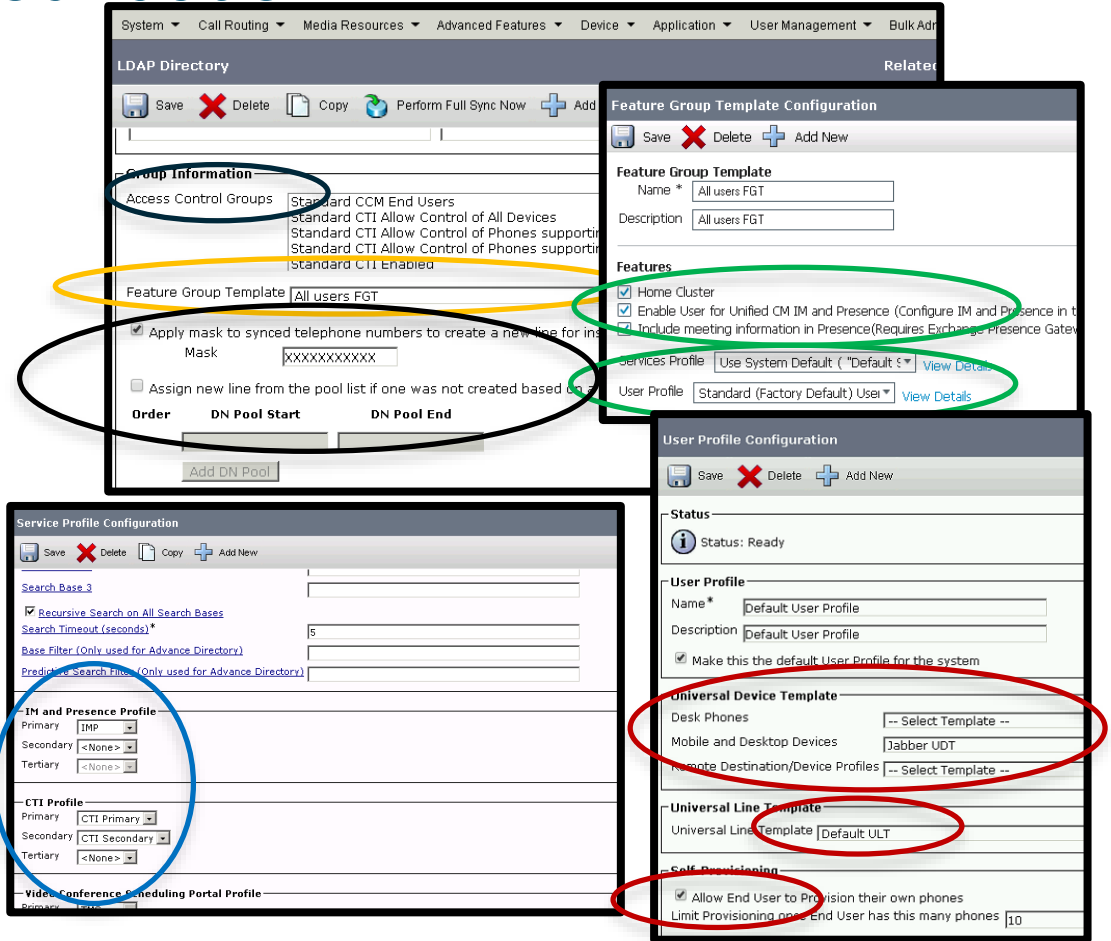
User Profiles and Service Profiles

User Profile (Universal Device and Line Templates not shown)

Turn On Self Provisioning

Add Services to the Service Profile

CISCO *Live!*

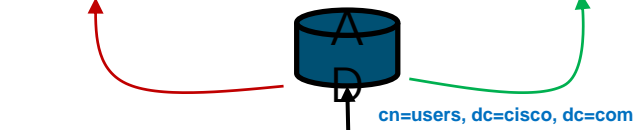
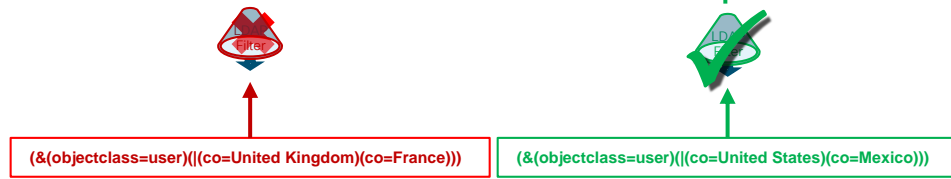
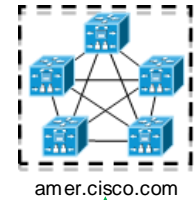
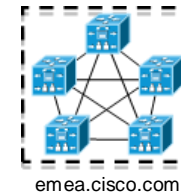


Self-Provisioning

LDAP and Provisioning with Multiple Clusters

Create the following using FGT
Directory Number +14085551212
Blended URI jdoe@cisco.com
Enterprise E.164 # w / ILS +14085551212
Enterprise Alt. # w/ ILS 85551212
Home Cluster Assigned

- User's must be provisioned on only 1 cluster, so provisioning users at LDAP import needs to grab only users that belong to it.
- This can be done in the following ways:
 - Direct integration's User Search Base at different OU's. This might require a somewhat geographical OU design, which is unlikely.
 - Standard LDAP filters.
- With Standard LDAP Filters, you must have attributes to filter on
 - LDAP filters can be nested and complex in order to zero in on the specific user LDAP attributes, but your AD must have the necessary user information in order.
- You can create a DN at import using Feature Group Templates. Phone number population in AD is important
 - If in full +E.164 from AD, then you just need to accept that as the DN
 - URI assigned from *mail* or *msRTCSIP-primaryuseraddress* AD attribute
 - Enable Routing (ILS) and globalized addressing. If imported phone number field not populated with full +E.164, might be much harder to create the Enterprise Alternate Number
- Assign Home Cluster on import
 - Home cluster required for IM/P server assignment and URI blended Identity creation
 - Jabber with IM/P up and running, zero touch
- In 10.x, we have increased the number of LDAP integrations (to single AD Forest) in a cluster to 30
 - Might be a trade off of # integrations vs. filter complexity



John Doe	John.Doe
Jane Smith	Jane.Smith
...	...

Attribute	Value
sAMAccountName	jdoe
co	United States
mail	jdoe@cisco.com
telephoneNumber	+14085551212
otherTelephone	85551212

Self-Provisioning

Creating the Device

Two Ways to Provision Device using CUCM 10 Provisioning

1. Self Service

Used in conjunction with Auto Registration

Phone must be auto registered before provisioned

TIP → add a speed dial to the Universal Line Template assigned to auto auto-registered devices

Self Service with CUCM IVR

Self Service IVR must be created first on Publisher

User follows prompts enters Self Service ID

Self Service User ID = form of user phone number

2. Quick User/Phone Add

Manually add device to local or AD user

Can apply User Info, FGT and auto-created DN automatically from LDAP import

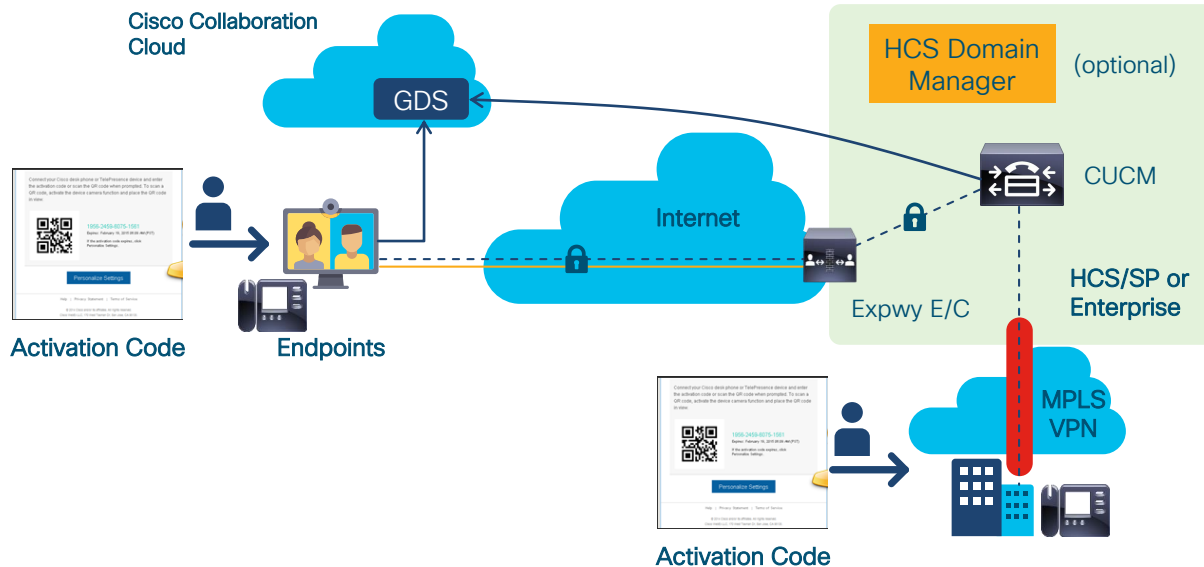
Provisioning might be limited to LDAP capabilities

UCM 10.x now supports 30 LDAP integrations

LDAP attributes and filtering extremely important in multi-cluster environment

The image displays three screenshots of the CUCM 10 provisioning interface. The top screenshot shows the 'Self-Provisioning' status page, where the 'Status' section indicates 'Auto-Registration feature is turned off.' This status is circled in red. The middle screenshot shows the 'Quick User/Phone Add' form, where the 'User Information' section includes fields for 'First Name', 'Middle Name', 'Last Name', and 'User ID', all of which are circled in red. The 'Feature Group Template' dropdown menu is also circled in red. The bottom screenshot shows the 'User Information' form, where the 'Self-Service User ID' field is circled in red and contains the value '14085555001'. Other fields in this form include 'User Status' (Active LDAP Synchronized User), 'User ID*', 'PIN', 'Confirm PIN', 'Last name*', 'Middle name', 'First name', and 'Title'.

Activation code-based device onboarding



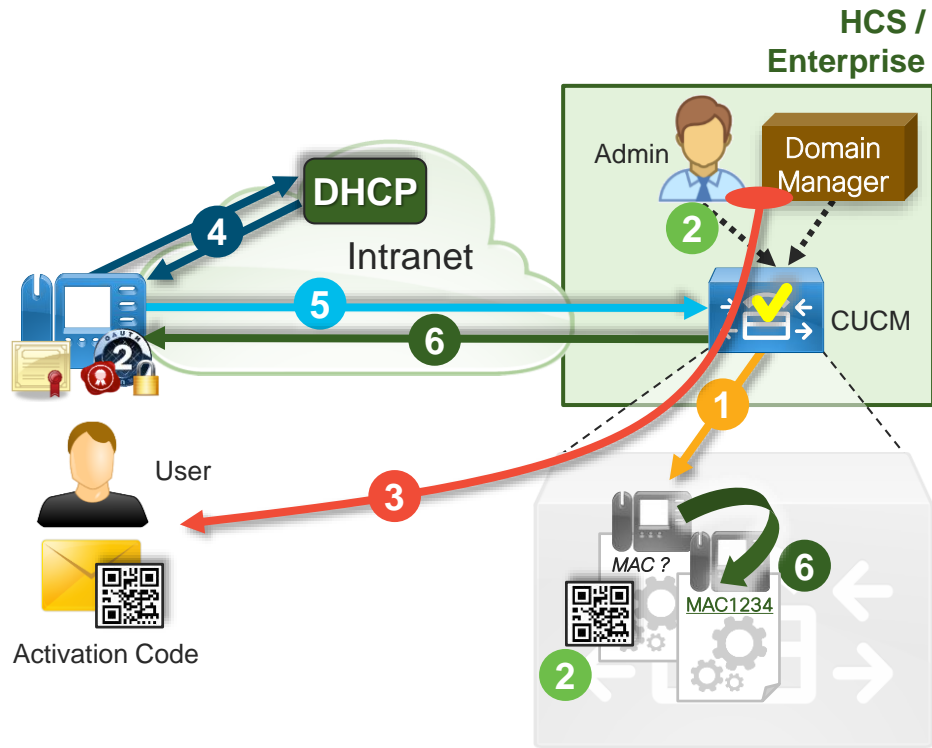
- Simplifies user experience for device onboarding
- Faster onboarding process reduces deployment costs
- Secures Internet access, allowing broader adoption for MRA

78xx and 88xx IP Phones – 7811, 7821, 7832, 7841, 7861, 8811, 8841, 8845, 8851, 8851NR, 8861, 8865, 8865NR

*Supports on-premises deployments with 12.5
Mobile and remote access using GDS requires 12.5 SU1

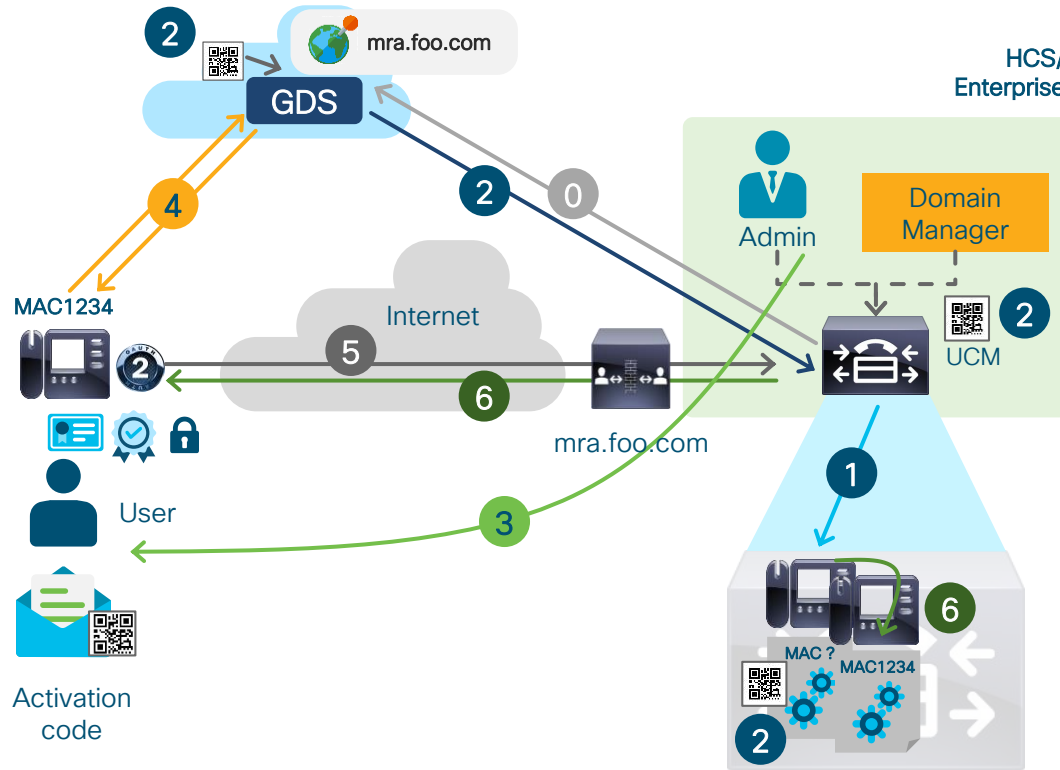
CISCO Live!

Activation code-based onboarding - On-premises Flow



- 1 Admin creates full device config without specifying MAC address
- 2 Admin requests activation code for this device (CUCM-generated)
- 3 Activation code sent to a user/admin
- 4 Phone gets CUCM target from DHCP opt 150/TFTP, user enters act. code
- 5 Phone authenticates to CUCM using MIC + activation code
- 6 CUCM updates device config with phone MAC, sends config (+tokens) to phone: phone can now register

Activation code-based onboarding – MRA flow

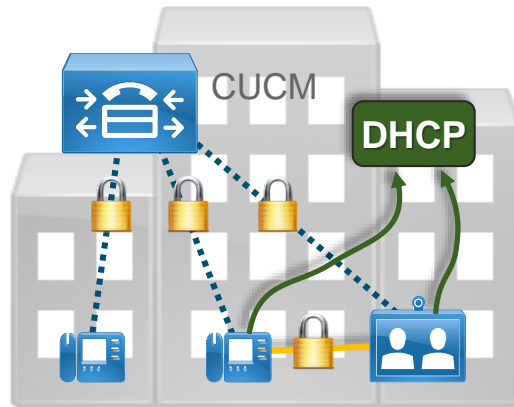


- 0 Cisco® UCM onboards with GDS, creates MRA target
- 1 Admin creates full device configuration without specifying MAC address
- 2 Admin requests activation code for this device - 50% GDS, 50% UCM
- 3 Activation code sent to a user/admin
- 4 User enters activation code, phone gets MRA target from GDS
- 5 Phone authenticates to MRA/UCM using MIC + activation code
- 6 UCM updates device config with phone MAC, sends tokens and config to phone; phone can now register

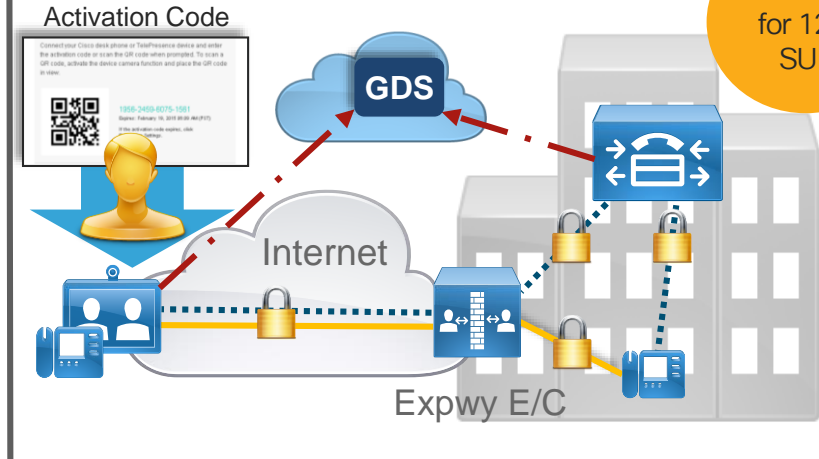
Activation code-based onboarding - Deploying Phones

Available with 12.5

On-premises



Over MRA



Planned for 12.5 SU1

Discovery	DHCP option 150	Activation Code
AuthN (bootstrap)	Certificate: MIC (optional)	MIC + Activation Code
AuthN (after)	Certificate: LSC (optional)	OAuth tokens
Provisioning	Auto-reg, Self prov, Manual (with MAC), Manual (without MAC)	Manual (with MAC), Manual (without MAC)

Conferencing

Cisco Meeting Server Capabilities

Video Conferencing

Interop

Customization

Audio Conferencing

Recording

Web Conferencing



Everyone is invited – audio, video, web

Enjoy One Consistent Meeting Experience From:

- Standards-based video endpoint
- Smartphone or laptop with Cisco Jabber
- Browser with WebRTC
- Cisco Meeting App for PC, Mac or mobile
- Skype for Business



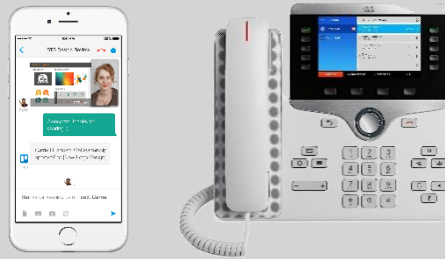
It's Just a Meeting

Video Conferencing



- Feel as though you are really there with high quality video experiences
- Make meetings more enjoyable with consistent experience on room, desktop, and mobile devices
- Make the experience work for you with flexible layouts and controls

Audio Conferencing



- Reduce complexity with a solution that integrates with your existing dial plan
- Give your users more flexibility with:
 - Multiple ways to join
 - Customizable DTMF controls
 - Interactive voice response (IVR)

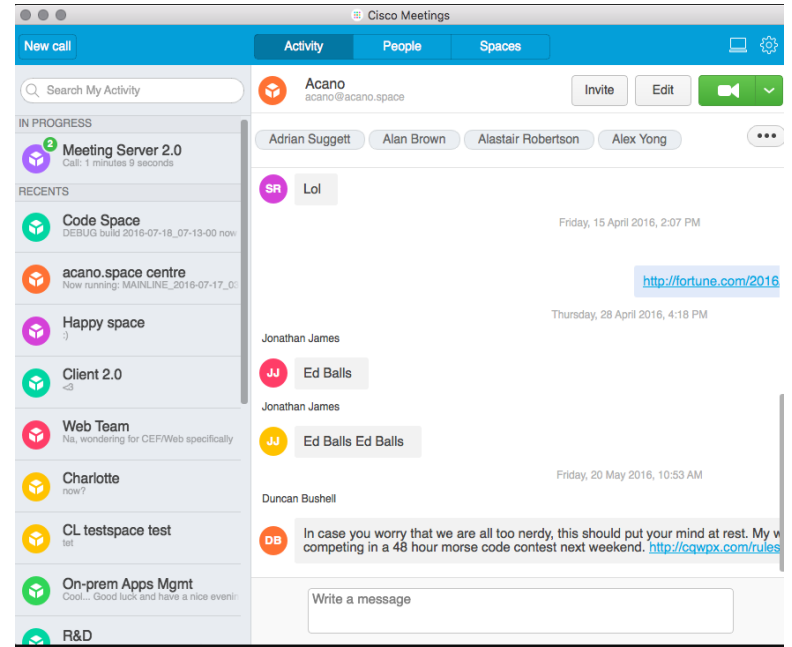
Web Conferencing



- Attend meetings on the move; join from your browser as user or guest
- Fully participate with audio, video, content sharing, and controls
- No plug-in with WebRTC compatible browsers
- Maintain security with guest access PIN or user login

Meetings

- Virtual rooms for audio, video, and web
- Unlimited spaces: as many as you want, for each project, and team
- Always available
- Follows your workflow
- Connect with any device



Personal, Scheduled or Ad-hoc Meetings

- Personal meetings:
 - Invite others to your personal meeting using your own join details
 - With Spaces – users are in control
- Schedule meetings:
 - Leverage Cisco TelePresence Management Suite (including Microsoft Outlook integration)
 - One-Button-to-Push support
- Ad hoc with UCM
 - Easily escalate your 1:1 calls to include more people



Meeting Scheduling

- Cisco TelePresence Management (TMS) Suite
- Scheduling using Outlook, HTML Smart Scheduler, by helpdesk, or booking API
- One Button to Push (OBTP) with Cisco video endpoints to easily join meetings
- OBTP with Skype for Business Outlook plug-in with Meeting Server Dual Home solution
- Co-exist with TelePresence Server & MCU

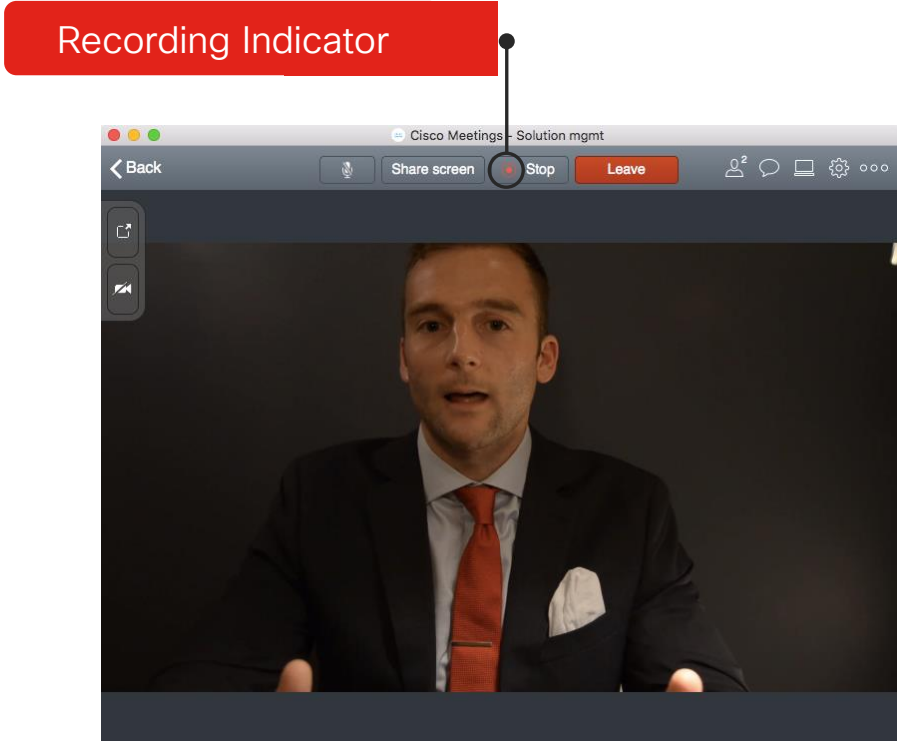
The screenshot displays the Cisco Meeting Server Primary web interface. At the top, it shows the server name 'Cisco Meeting Server Primary', status 'Idle', address '10.77.205.165', and connectivity 'Reachable on LAN'. Below this are tabs for 'Summary', 'Settings', 'Clustering', 'Connection', 'Permissions', and 'Logs'. The 'Tickets' section indicates 'System has no open or acknowledged tickets' with options to 'Add custom ticket', 'Open in Ticketing Service', and 'Edit settings'. The 'System Status' section shows 'Call Bridge Uptime: 0d, 00:14:26', 'CallLegs Active: 0', 'CallLegs Max Active: 0', and 'CallLegs'. The 'System Status' table is as follows:

System Status	Value	Value
Call Bridge Uptime:	0d, 00:14:26	Audio Bit Rate Outgoing:
CallLegs Active:	0	Audio Bit Rate Incoming:
CallLegs Max Active:	0	Video Bit Rate Outgoing:

The 'This View' section shows 'Conference Settings' with various configuration options. A dropdown menu is open, showing options: 'Cisco Meeting Server', 'Cisco TelePresence Server', 'Cisco TelePresence Conductor', 'Cisco TelePresence MCU', and 'Unmanaged Bridge'. The 'Advanced' section includes settings for 'External MCU Usage in Routing', 'Preferred MCU Type in Routing', 'Use Flat H.323 Dialing Plan When Routing Calls', 'Prefer H.323 ID over E.164 Alias', 'Send Warning When All Host Conferences Exceed This Duration (in hours): 0', 'Send Warning When Auto Attendee Conferences Exceed This Duration (in seconds): 120', 'Automatic MCU Failover: if conference start or MCU polling fails', and 'Automatic MCU Failover Threshold (seconds after first poll failure): 15'. The interface also includes a search bar and navigation links like 'Home' and 'Cancel'.

Meeting Recording

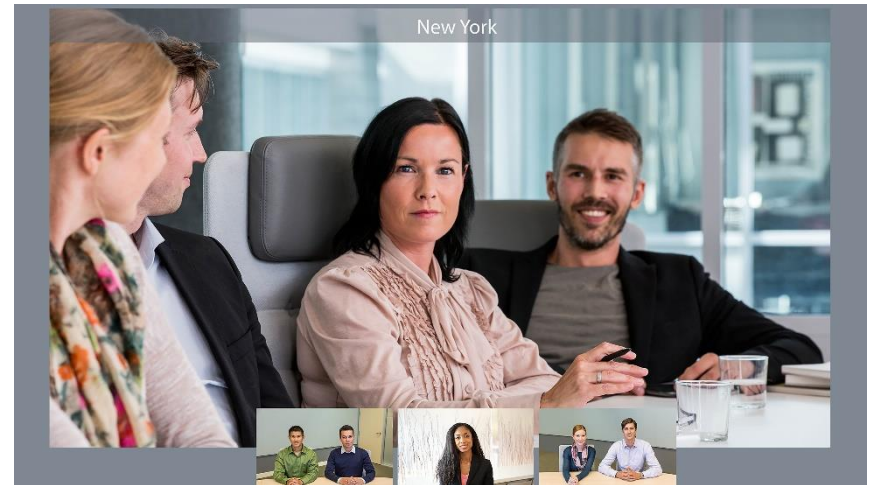
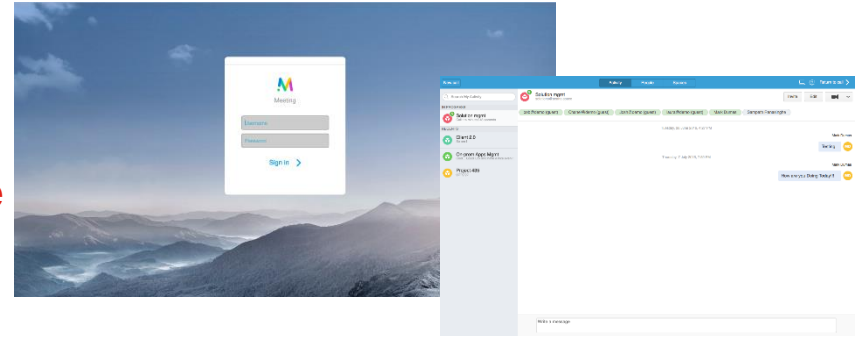
- Record your meetings for later viewing
- Integrated Record button, or automatic recording on meeting start, or triggered via DTMF; administrator defined
- Store on Network File System (NFS)
- MP4 file format
- Direct Integration with VBrick REV for portal playback, speech to text, and other playback options.



Cisco Meeting App

Enable anyone to join your meeting with the Cisco® Meeting App:

- Fully participate with the benefit of exceptional video quality
- Control your experience with
 - Layout controls
 - Ability to invite others
 - Easily create new Spaces
 - Device mobility and flexibility
 - Roster list and mute controls
- WebRTC enabled browser support
 - Easily invite guests to join



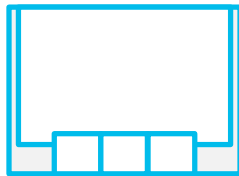
Meet the way you want

Flexible In Meeting layouts

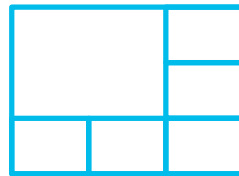
Layout Families



Active Speaker



Overlay



onePlusN



Equal NxN

onePlusN and Equal layouts dynamically scale as more participants join



onePlus5



onePlus7



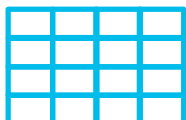
onePlus7



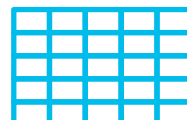
Equal 2x2



Equal 3x3



Equal 4x4



Equal 5x5

Customizable Branding



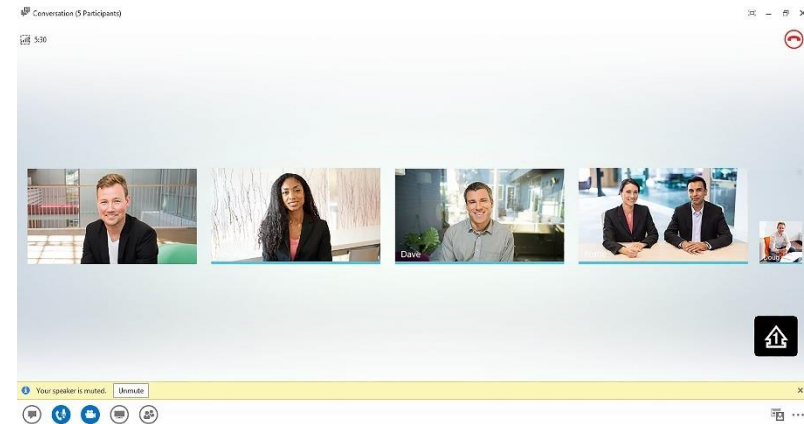
Customize

- Backdrop image
- On screen text
- Audio Prompts

Skype for Business Integration

Key Features:

- Seamlessly connects Skype for Business with other video systems
- Skype video, audio, and content sharing
- **NEW** - Schedule conferences from S4B with OBTP*
- Bidirectional content sharing (RDP)
- Direct Federation (including O365)
- Integration Modes
 - Gateway, Spaces, Dual Home



* Requires TMS and Dual Home configuration

Cisco Video Conferencing Management

New generation Meeting Management

TMS Conference Control Center

- Integrated in TMS
- MCU and TS only
- Windows and Java based

The screenshot shows the Cisco TelePresence Management Suite interface. The main window is titled "Conference Control Center" and displays a "Conference Overview (Video Conferences)" table. The table has columns for ID, Title, Owner, Date, Start, End, Time Left, and Num Participa... (Participants). The table lists several conferences, including "Permanent: Test", "Permanent: Contact Video Exchange Support", "Permanent: support@meet.me.telus.com", "Permanent: 1 - Wall Of America", "Permanent: 7 - Waiting Room", "Permanent: 2 - Focus", and "Permanent: 3 - Focus".

ID	Title	Owner	Date	Start	End	Time Left	Num Participa...
556	Permanent: Test	network service...	30/08/14	14:45			0
868	Permanent: test	network service...	08/01/16	11:00			0
869	Permanent: Contact Video Exchange Support	network service...	08/01/16	11:00			0
870	Permanent: support@meet.me.telus.com	network service...	08/01/16	11:00			0
1344	Permanent: 1 - Wall Of America	network service...	11/11/16	16:50			0
1345	Permanent: 7 - Waiting Room	network service...	11/11/16	16:50			0
1346	Permanent: 2 - Focus	network service...	11/11/16	16:50			0
1347	Permanent: 3 - Focus	network service...	11/11/16	16:50			0

Cisco Meeting Management

- Built on same platform as CMS
- Future proof for adding more services
- CMS only

The screenshot shows the Cisco Meeting Management interface. The main window is titled "Meetings" and displays a table of active meetings. The table has columns for Meeting title, Owner, Current activity, Participants, Start time, Duration, and End time. The table lists several meetings, including "Test", "Yet another meeting", "Distributed meeting", "Demo meeting", and "Another meeting".

Meeting title	Owner	Current activity	Participants	Start time	Duration	End time
Test	Organiser		4	3:00PM	4d 21:59:11	
Yet another meeting			1	6:20PM	20d 18:39:...	
Distributed meeting			5	6:19PM	20d 18:39:...	
Demo meeting			4	6:19PM	20d 18:39:...	
Another meeting			4	6:19PM	20d 18:40:...	

cisco Live!

Cisco Meeting Management 1.1

The screenshot displays the Cisco Meeting Management interface for an active meeting titled "Executive Sample Meeting". The interface includes a navigation sidebar on the left with options for Overview, Meetings, Servers, and Logs. The main content area shows meeting details such as Owner (Someone), Start time (3:58AM), and Duration (10d 06:29:55). Below this is a table of participants.

Participant	Start time	End time	Actions
✓ Jorunn Granholm Aarseth	5:59AM		
✓ 10.47.59.233	5:59AM		
✓ Colin Read	3:58AM		[Mute] [Unmute] [X]
✓ Sampath Ranasinghe	3:58AM		
✓ Martin Roos	3:58AM		
✓ Benjamin Swire	3:58AM		

- Manage active Cisco Meeting Server meetings for white glove operator services
- Future releases to include configuration services and CMS cluster dashboard
- Simplify the deployment with easy to use tools
- Use with Cisco TMS for scheduling and endpoint management
- CMM is included with existing CMS licensing

Cisco Meeting Management

Feature overview

Meeting Management

- See list of active or recent meetings
- Search by meeting title or individual participant
- Pin meeting at top of the list

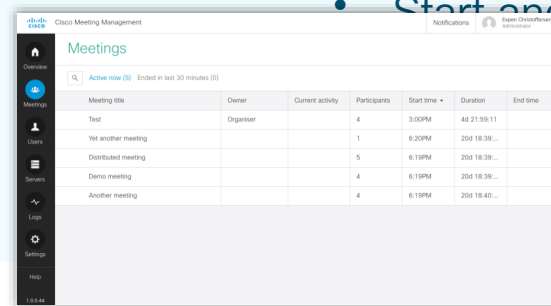
Cisco Meeting Server management

- See connected Cisco Meeting Servers
- Add and remove Call Bridge nodes or clusters

Notifications and logs

In-conference controls

- Meeting details
- List of participants in a meeting
- Change layout for all participants in a meeting
- Access controls and see details for individual participants
- View and download event log for a meeting
- Start and stop recording and streaming



The screenshot shows the Cisco Meeting Management web interface. At the top, it says 'Cisco Meeting Management' and 'Meetings'. Below that, there's a search bar and a filter for 'Active now (5) Ended in last 30 minutes (5)'. The main content is a table with columns: Meeting title, Owner, Current activity, Participants, Start time, Duration, and End time. The table lists five meetings: 'Test', 'Yet another meeting', 'Distributed meeting', 'Demo meeting', and 'Another meeting'.

Meeting title	Owner	Current activity	Participants	Start time	Duration	End time
Test	Organiser		4	3:00PM	4d 21:59:11	
Yet another meeting			1	6:20PM	20d 18:39...	
Distributed meeting			5	6:19PM	20d 18:39...	
Demo meeting			4	6:19PM	20d 18:39...	
Another meeting			4	6:19PM	20d 18:40...	

Cisco Meeting Management Solution Architecture

Single Meeting Management deployment

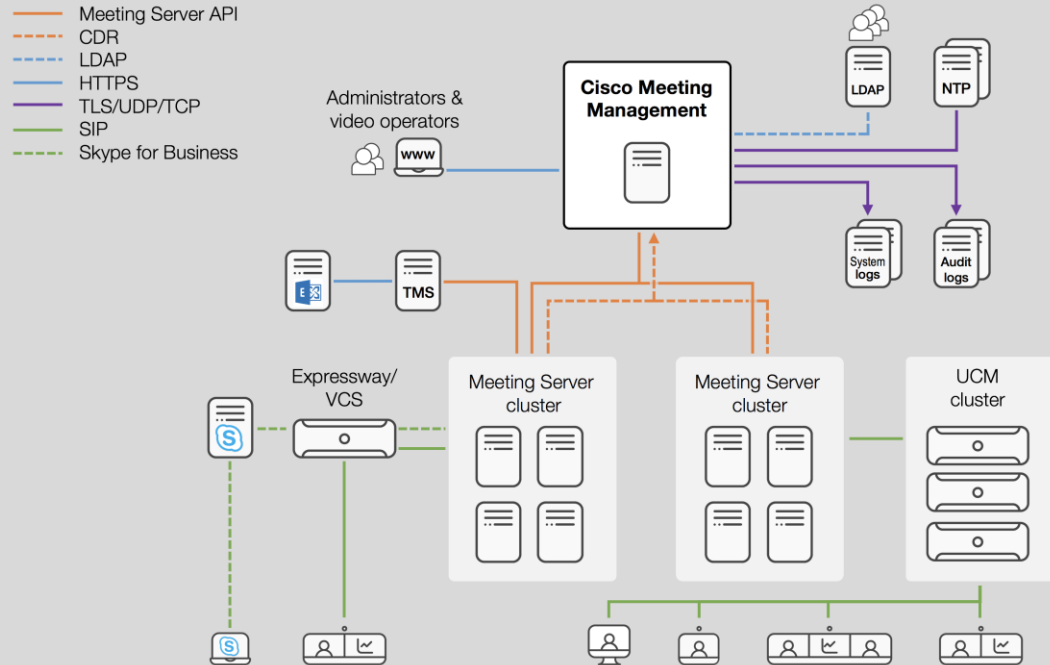
Single instance of Meeting Management can manage deployments from single Call Bridge to multiple Call Bridge Clusters

NTP servers synchronize Meeting Servers and Meeting Management instances

User access is authenticated via LDAP

External syslog server for system and audit logs

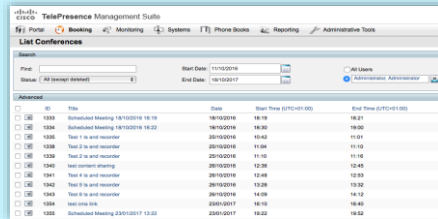
Meeting Manager does not require any specific configuration on UCM clusters or Expressway/VCS environment



Cisco Meeting Management and TMS

TMS

- Scheduling
- Endpoint Management



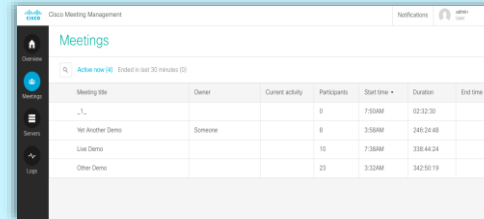
The screenshot shows the Cisco TelePresence Management Suite (TMS) interface. At the top, there are navigation tabs: Home, Booking, Monitoring, Systems, Phone Books, Reporting, and Administrative Tools. Below the tabs is a search bar and a 'List Conferences' section. The main area displays a table of conferences with columns for ID, Title, Time, Start Time (PTC+01:00), and End Time (PTC+01:00). The table contains several rows of data, including scheduled meetings and test calls.

ID	Title	Time	Start Time (PTC+01:00)	End Time (PTC+01:00)
1329	Scheduled Meeting 18/10/2016 18:18	18/10/2016	18:18	18:21
1334	Scheduled Meeting 18/10/2016 18:22	18/10/2016	18:20	18:30
1336	Test 1 to and receiver	20/10/2016	10:42	11:01
1338	Test 2 to and receiver	20/10/2016	11:04	11:10
1339	Test 2 to and receiver	25/10/2016	11:10	11:16
1340	Test center calling	20/10/2016	12:36	12:45
1341	Test 4 to and receiver	20/10/2016	12:48	12:53
1342	Test 5 to and receiver	20/10/2016	13:28	13:32
1343	Test 6 to and receiver	20/10/2016	14:08	14:12
1354	Test call 016	23/01/2017	18:10	18:40
1355	Scheduled Meeting 23/01/2017 18:20	23/01/2017	18:20	18:50

Schedule meetings using TMS. OBTP to endpoints.

CMM

- White glove tool (Meeting Manager)



The screenshot shows the Cisco Meeting Management (CMM) interface. At the top, there are navigation tabs: Home, Meetings, Reports, and Settings. Below the tabs is a search bar and a 'Meetings' section. The main area displays a table of meetings with columns for Meeting Title, Owner, Current activity, Participants, Start time, Duration, and End time. The table contains several rows of data, including scheduled meetings and test calls.

Meeting Title	Owner	Current activity	Participants	Start time	Duration	End time
Test 1	Someone		0	7:55AM	02:32:30	
Yet Another Demo	Someone		8	9:58AM	04:24:48	
Like Demo			10	7:38AM	33:44:24	
Other Demo			23	3:22AM	342:50:19	

Monitor and manage ongoing meetings using Meeting Management.

NOTE: Information is not exchanged between Meeting Management and TMS in CMM 1.0. Planned for future release.

Applications

Unity Connection

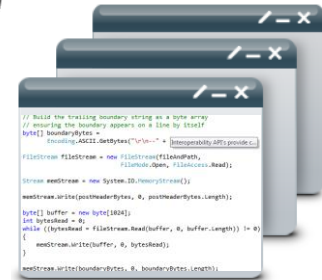
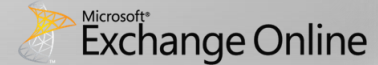
Security and Compliance

- Secure Messaging
 - No chance of forwarding a secure voice message
 - Securely streamed from Connection appliance (Message never leaves Connection)
- Secure Delete
- SE Linux enabled
- Disaster Recovery with Full data backup and restore
- Federal Information Processing Standards (FIPS)
 - Version 11.5(1) Incorporates FIPS Compliant Libraries
- Joint Interoperability Test Command (JITC) certification
 - Version 11.5 (1) JITC Certified and on APL



Interoperability

- LDAP user synchronization
- Single Inbox
- Partner-based Integrations
 - Google Mail, Domino, etc...
- PIMG/TIMG Integrations
- VPIM Support
- Multiple phone systems supported simultaneously
 - Cisco UCM-SME allows for centralized deployment
- Rest-Based APIs allow for custom development



Integrations

- Supports Exchange 2016, 2010, 2007 and 2003
- Microsoft BPOS-D and Office 365 (8000 supported 11.5.(1))
- Google Mail via Donoma Software
- Domino integrations
 - Intelligent Notifications (Unity Connection 9.0 and later)
 - Donoma Unify (Partner Solution)
 - Esnatech CloudLink (Partner Solution)



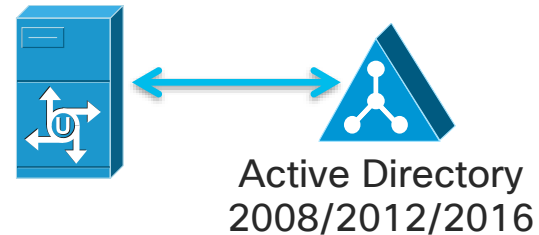
User Directory Synchronization/Authentication

- Synchronization with users in Active Directory 2008/2012/2016 11.5(1), 12.X
 - No schema extensions necessary
 - One-way synch of user data from LDAP (read only)
 - Distribution Lists and Contacts not supported
- Up to 20K users can be synchronized and authenticated per server/cluster
- Filters supported per synchronization agreement
- Directory integrated users, standalone users, and CUCM AXL users can co-exist on Unity Connection server
- Standalone and AXL users can be converted to directory integrated users
- **LDAP/AD Synchronization is NOT required**

Active/Active Cluster
Server Pair



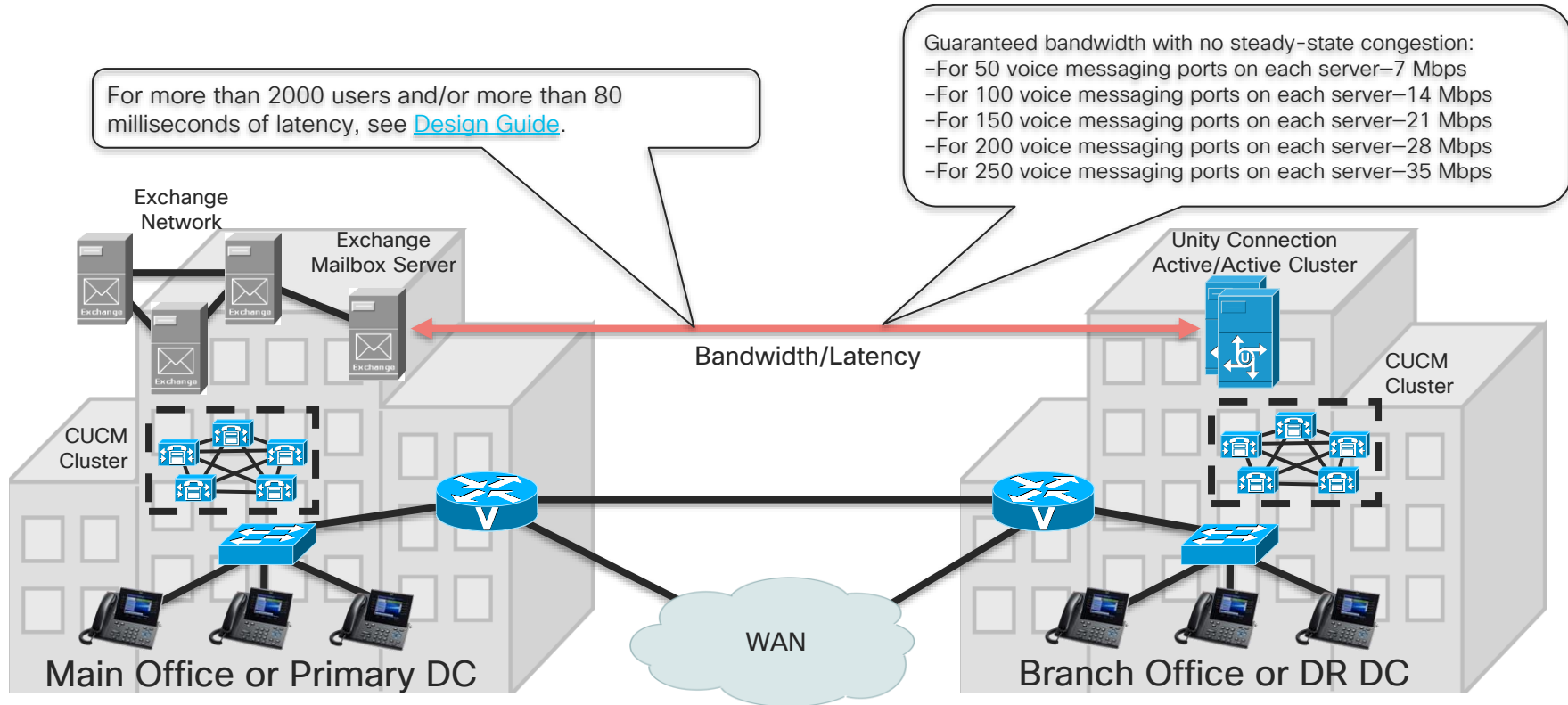
Stand-alone Server



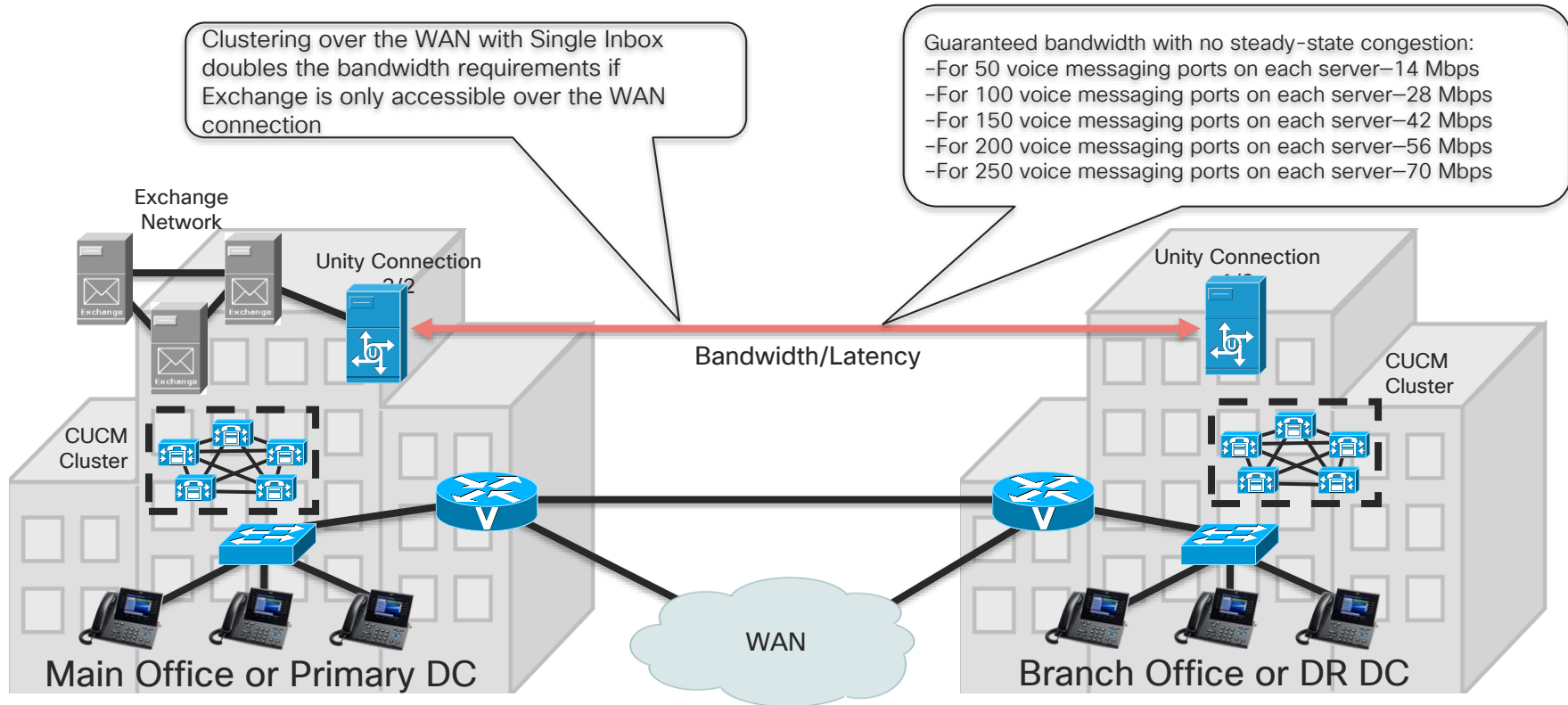
Unity Connection Scale

- Up to 20,000 users and 250 ports per server
- Active/Active Redundancy over LAN/MAN/WAN (up to 500 ports)
- 100,000 users across 20 digitally networked nodes
- VPIM Networking (100 locations, 100,000 users/contacts)
 - Blind addressing doesn't count against contacts

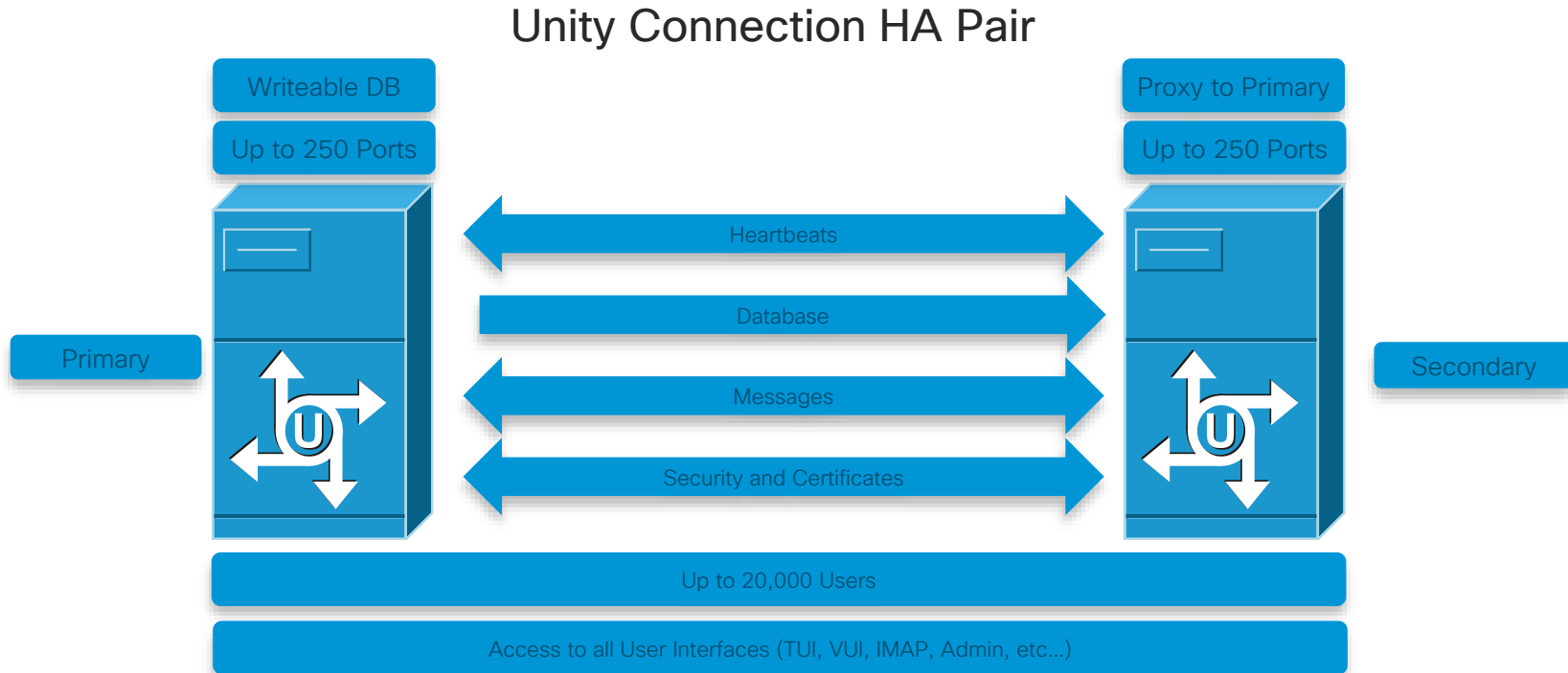
Single Inbox - Design Considerations



Single Inbox - Design Considerations

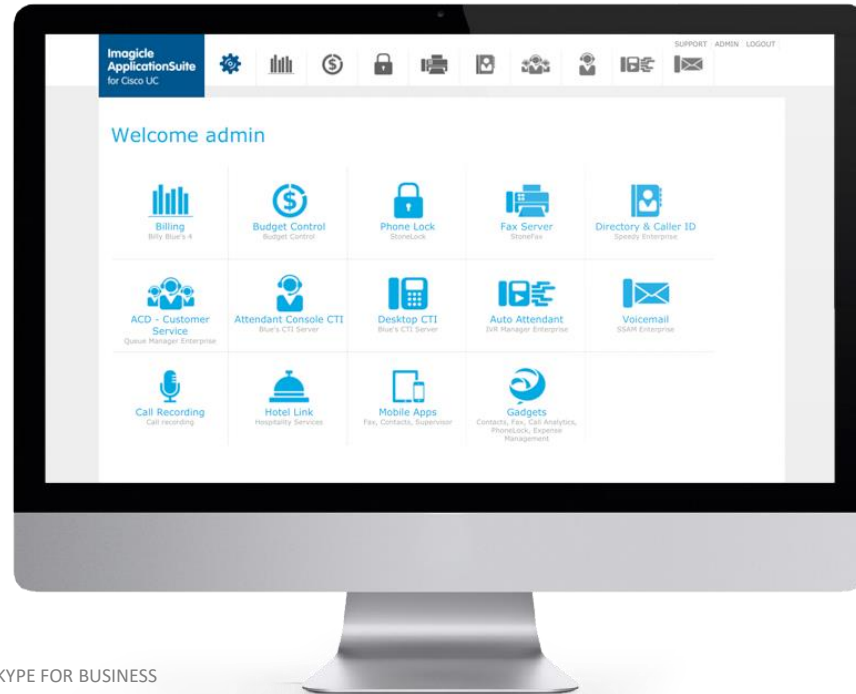


High Availability - Failure






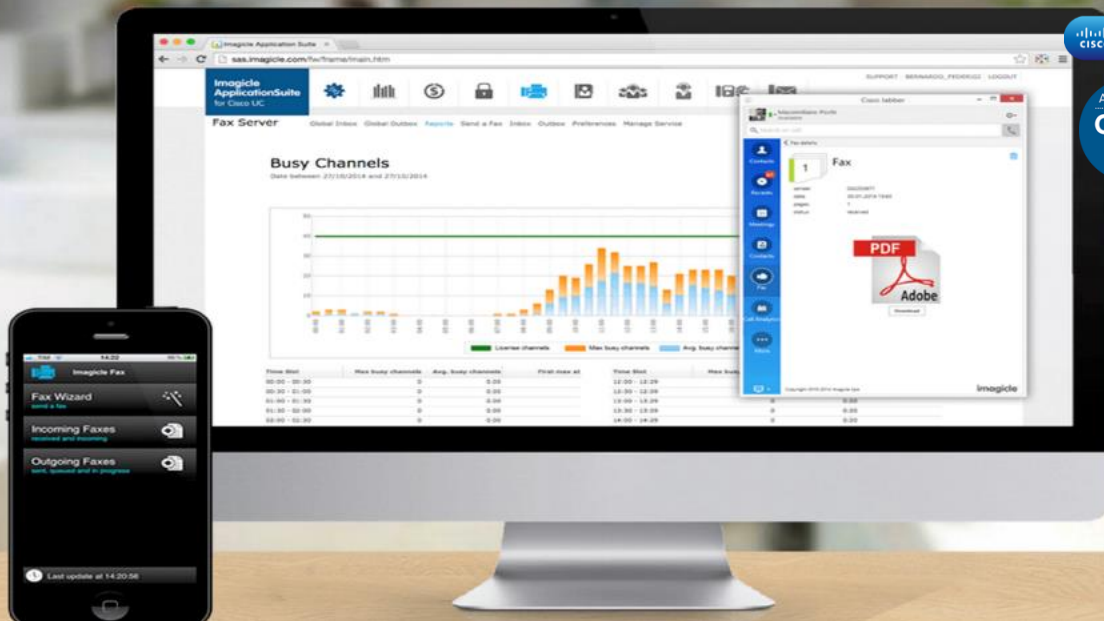
Solutions Plus

Imagicle



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-  CROSS PLATFORM
-  MICROSOFT LYNC/SKYPE FOR BUSINESS



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- Send and receive faxes anywhere

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- Access personal, reserved and secure.

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- Supports all formats: PDF, doc, xls, ppt, TIFF, JPG...

- Tidy and centralized faxes

- App for iOS and Android devices. Jabber gadget

Cisco Paging Server

What is Cisco Paging Server?

- With every new CUCM and BE6000/7000 starting with 9.1, the Informacast Paging Software OVA is included with all shipments.
- Existing customers on CUCM 8.X and newer will be able to download Informacast Paging Features from the CCO access with a valid ESW Contract.
- ISO includes OVA for VM Deployment and production documentation as well.
- Fully supported as a Co-Resident virtual server alongside other Cisco approved voice applications.
- Limited functionality included in the basic licensing model. Advanced notification licensing can be purchased to un-lock the full features of Informacast.
- 60-Day trial of Advanced notification is available to determine if it's a need for the environment.

What is the difference between Basic and Advanced?

Basic Paging – Free Not Licensed

- Point to Point and Group Live Audio Paging to/from Cisco Phones
- Unlimited Group/Zones of endpoints as configured by admin
- Maximum of 50 endpoint devices per group
- Paging between sites is supported (Multicast over WAN)

What is the difference between Basic and Advanced?

Advanced Notification- Optional and Licensed

- Pre-Recorded/Scheduled Broadcasts (bells, shift changes)
- Notification to Jabber (XMPP)
- Notification to Social Media
- Communication with mobile and remote users
- Triggered notification to/from other systems – M2M input/output (panic buttons, door locks, lights, etc.)
- Integration with existing overhead paging systems
- Text and Audio to Cisco IP Phones and other endpoints
- Broadcast to IP Speakers

What is the difference between Basic and Advanced?

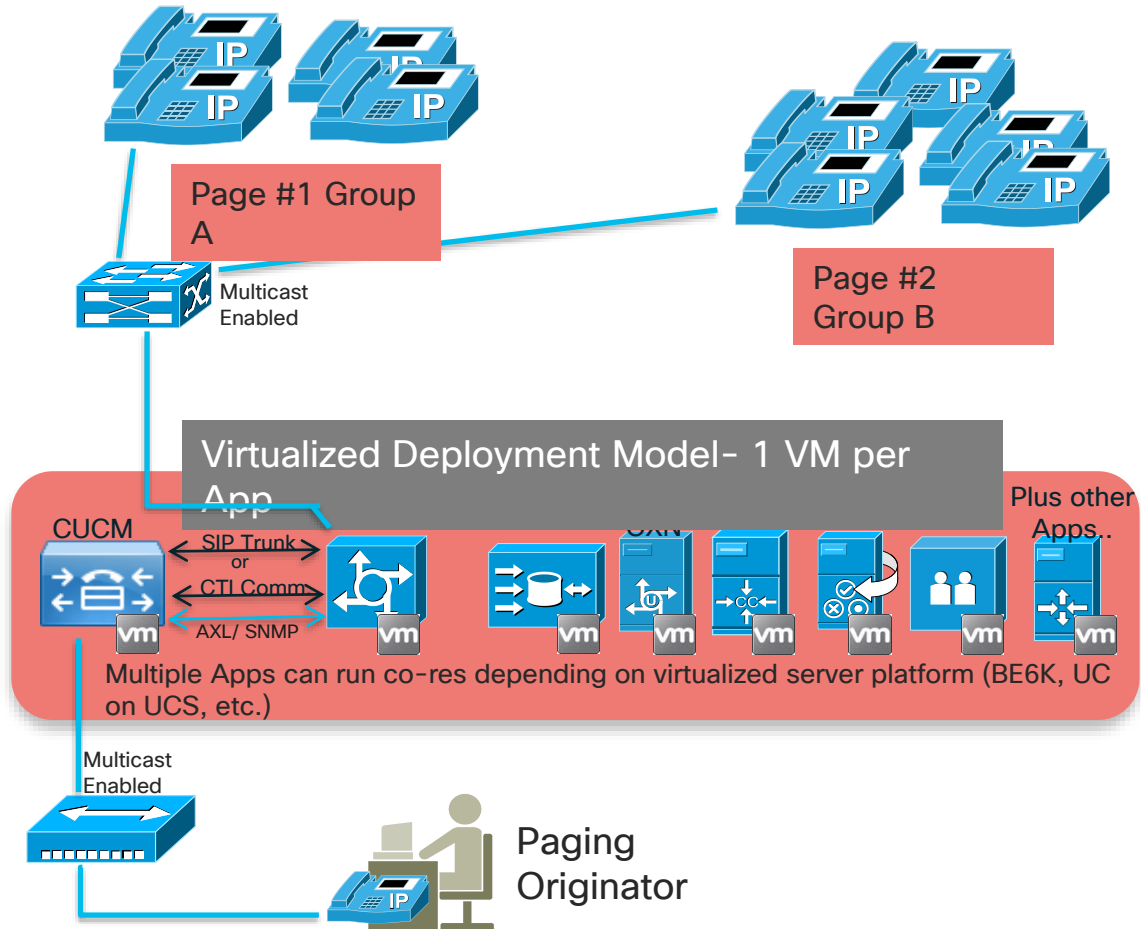
Advanced Notification- Additional Components

- Legacy paging integration with existing overhead paging systems
- 911/Emergency call monitoring/alerting/recording
- Weather and CAP Based Alerts
- Dynamically-triggered conference calls
- Notifications to desktop and Digital Signage

How does it work?

Integration with CUCM

- Two methods of communication – CTI and SIP
- Services required for backend connectivity – SNMP and AXL
- Phones require the following features – HTTP (web server) and RTP (Multicast)



Advanced Notification



On-Premise – IP Speakers

Direct Support in Informacast



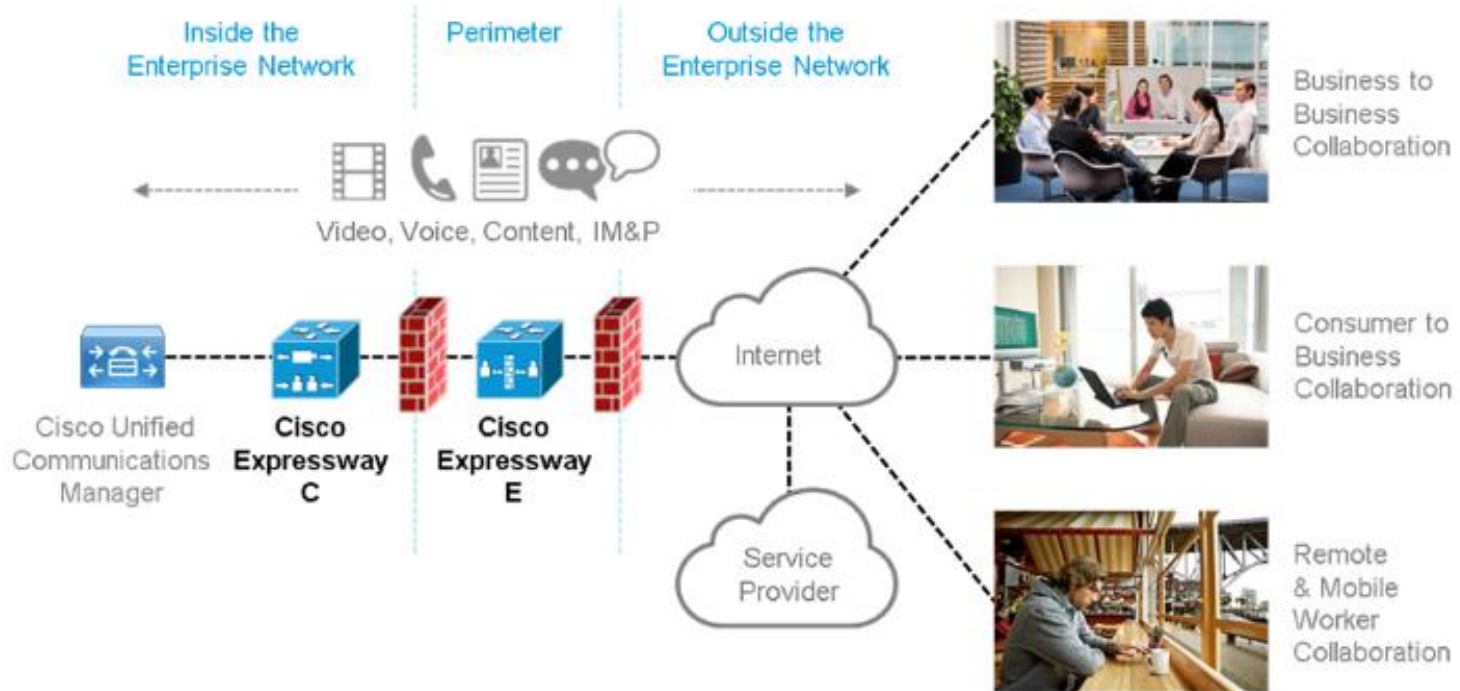
- Speakers must be supported in Informacast
 - Manufacturers included Atlas Sound, Advanced Network Devices, Cyberdata, and Valcom, Algo.
- There are many styles/models of Speakers
 - Most are POE based, Single connection and require Class 3 Power over Ethernet
 - Some are One-Way, Some are Two-Way and some support dual registration with CUCM as a SIP endpoint for direct calling (Enhanced User connect license needed)
 - Outdoor, Indoor, Indoor with Display, Indoor with Display and Strobe, Ceiling Tile
 - More Information: [IP Speaker Information](#)
- Connect to existing Amplifiers with a Zone controller, which provides a line level output to existing over head speakers.

Remote Access

Expressway Solution Overview

The Collaboration Landscape

Enabling Connection of Any Users to Any Services Through Any Network



Cisco Expressway



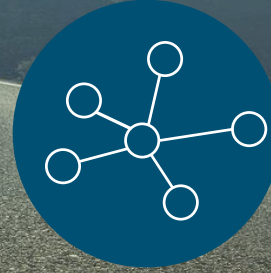
Mobile &
Remote
Access



B2B



Cisco Webex
Cloud Services



WebRTC
Guest Video



Video Call
Control &
Interop

Expressway Compute Platform Options

Specs Based Virtual Machine Support

OVA Size	vCPU	Reserved RAM	Disk Space	NIC(s)
Small	2 x 1.8 GHz	4GB	132GB	1Gb
Medium	2 x 2.4 GHz	6GB	132GB	1Gb
Large	8 x 3.2 GHz	8GB	132GB	1Gb

CE1200 Appliance



Product Line

-C

-E

Expressway	EXPWY-1200-K9	EXPWY-1200-K9
VCS	No Support	No Support

- Bare metal - no hypervisor
- UCS C220
- Solution for customers with security policies that do not allow VMware in the DMZ

Expressway 12.5 Scalability

	Server			Cluster		
Platform	Registrations	Video Calls	Audio Only Calls	Registrations	Video Calls	Audio Only Calls
CE1200	5,000	500	1000	20,000	2,000	4,000
Large OVA, CE1100	2,500	500	1,000	10,000	2,000	4,000
Medium OVA	2,500	100	200	10,000	400	800
Small OVA (BE6000 M5)	2,000	75	150	2,000	75	150

X8.10 introduces large-scale capacity on Large OVA and EXPWY1200 with only 1Gbps NIC

Service Setup Wizard

Welcome to Cisco Collaboration services [? Help](#) [Logout](#)

Select Series

Expressway series ⓘ

VCS series

Select Type

Expressway-C ⓘ

Expressway-E

Select Services

After you select services, you get a simplified menu that is relevant to your selection. ⓘ

Cisco Webex Hybrid Services

Mobile and Remote Access including Meeting Server Web Proxy

Jabber Guest services

Microsoft gateway service

Registrar


Collaboration Meeting Rooms (CMR) Cloud

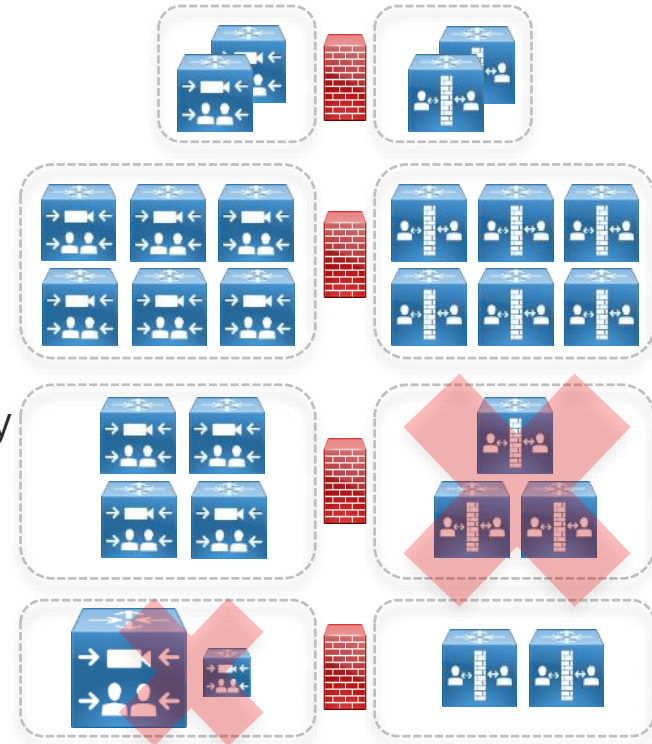
Business to business calls

If you proceed without selecting services, you will get the full menu.

Proceed without selecting services

Expressway Clustering, 4+2

- Cluster up to 6 Expressways for scale and redundancy
- Clustering latency up to 80ms RTT 
- Expressway E and C node types cannot be mixed in the same cluster
- Deploy equal number of peers in Expressway C and E clusters (this applies to most Expressway deployments but is not critical if Expressway is handling local registrations)
- Deploy same OVA sizes or appliances throughout cluster
- Customers can deploy multiple clusters for the same domain



Expressway Licensing

Business to Business Calls

Firewall Traversal Calls consume 1 x RMS on Expressway E (includes MSFT B2B calls)

Interoperability Gateway Calls

i.e. intradomain MSFT interop calls, consume 1 RMS on Expressway C Gateway

Device Registration

Desktop and Room registrations provided by UCL

Registered Calls (no RMS required)

Calls between endpoints registered to Cisco Call control services
Calls to Cisco conferencing infrastructure or cloud services
Cisco Meeting Server WebRTC

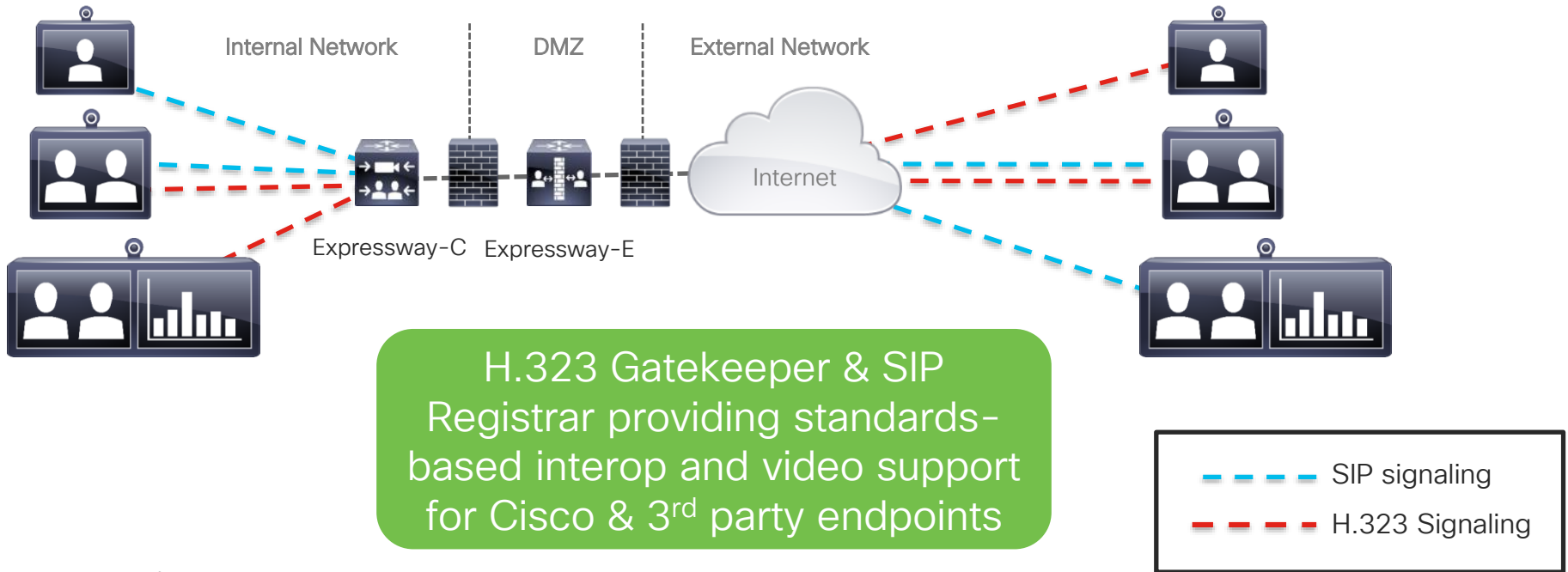
Expressway License & Resource Usage

- Calls from MRA endpoints or endpoints registered locally to Expressway are classified as **Registered calls**
- Calls to/from Webex cloud are classified as **CMR Cloud calls**
- “Registered” & “Cloud” calls do not consume Rich Media Session licenses, but do count against the overall system capacity

		Total	10.9.8.107	10.9.8.106
<u>Registered calls</u>	Current video	1	1	0
	Current audio (SIP)	1	0	1
	Peak video	5	3	2
	Peak audio (SIP)	5	3	2
	Since last restart video	120	88	32
	Since last restart audio (SIP)	43	30	13
<u>CMR Cloud calls</u>	Current video	0	0	0
	Current audio (SIP)	0	0	0
	Peak video	1	1	0
	Peak audio (SIP)	0	0	0
	Since last restart video	1	1	0
	Since last restart audio (SIP)	0	0	0
<u>Rich media session calls</u>	Current video	0	0	0
	Current audio (SIP)	0	0	0
	Peak video	0	0	0
	Peak audio (SIP)	0	0	0
	Since last restart video	0	0	0
	Since last restart audio (SIP)	0	0	0
Monitored resource usage	Current		1%	1%

Expressway Local Registration Support

SIP & H.323 Video Call Control

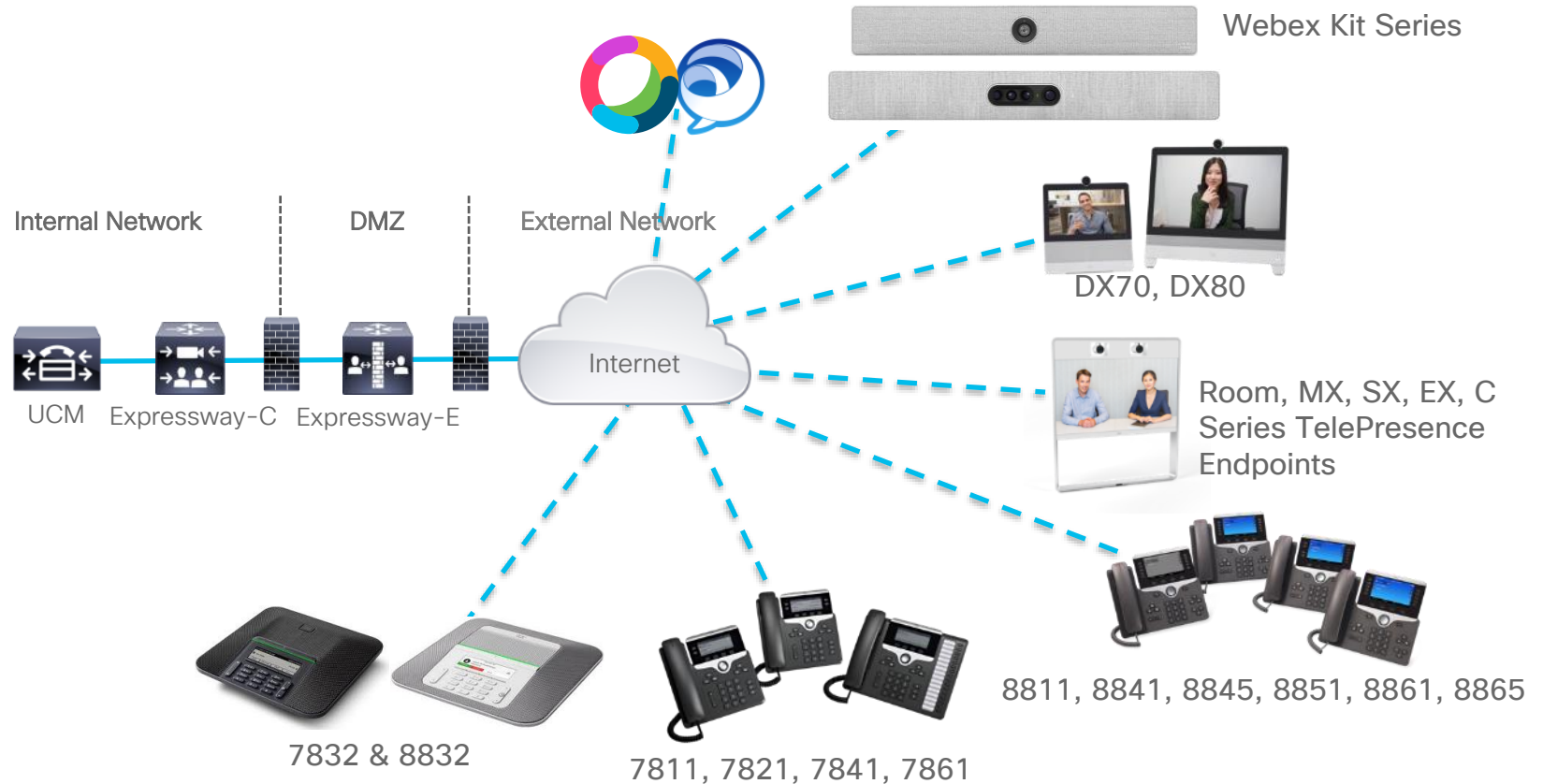


Expressway-E Local Registration Support

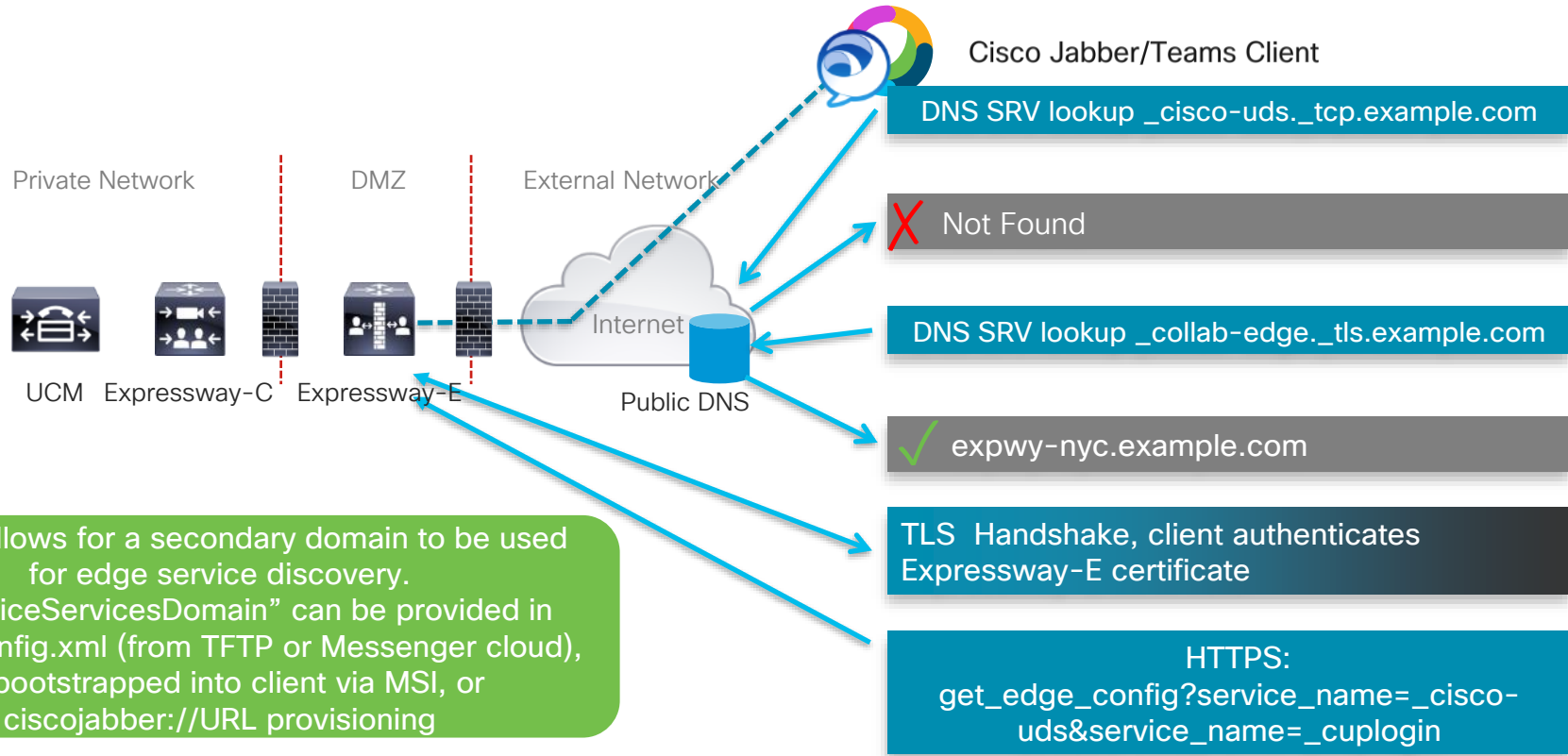
- Beginning with X8.11 Expressway-E will support local SIP and H.323 video registration
 - Expressway-E no longer required to proxy SIP registrations
 - Allows for remote H.323 registrations
- Local SIP and H.323 registrations allowed on Expressway-C since X8.9
- UCL Enhanced License enables SIP Desktop Endpoints (DX70/80, EX60/90)
- TP Room System License required for all other systems including 3rd party and H.323
- Same option keys (Room System, Desktop System) used on both Expressway C & E

Expressway Mobile Remote Access (MRA)

MRA Client & Endpoint Support



Expressway & Service Discovery



Jabber allows for a secondary domain to be used for edge service discovery. The "VoiceServicesDomain" can be provided in `jabber-config.xml` (from TFTP or Messenger cloud), or bootstrapped into client via MSI, or `ciscojabber://URL` provisioning

Split DNS SRV Record Requirements

- `collab-edge` record needs to be available in **public DNS**
- Multiple SRV records (and Expressway-E hosts) should be deployed for clusters
- `cisco-uds` record needs to be available only in **internal DNS**

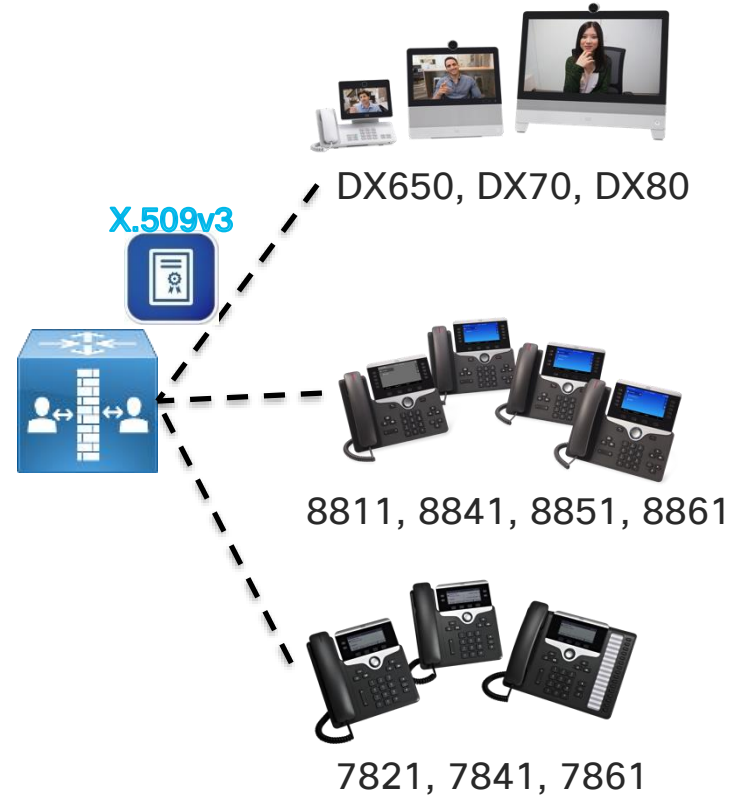
```
_collab-edge._tls.example.com. SRV 10 10 8443 expwy1.example.com.  
_collab-edge._tls.example.com. SRV 10 10 8443 expwy2.example.com.
```

```
_cisco-uds._tcp.example.com. SRV 10 10 8443 ucm1.example.com.  
_cisco-uds._tcp.example.com. SRV 10 10 8443 ucm2.example.com.
```

Expressway-E certificate requirements

DX, 78XX, 88XX specific requirements

- Trust model based on broadly trusted Public Certificate Authorities
- Endpoint firmware includes 135 trusted public root CA certificates
- No option to import and trust other root CA certificates on these endpoints
- Expressway-E certificate needs to be signed by trusted public CA

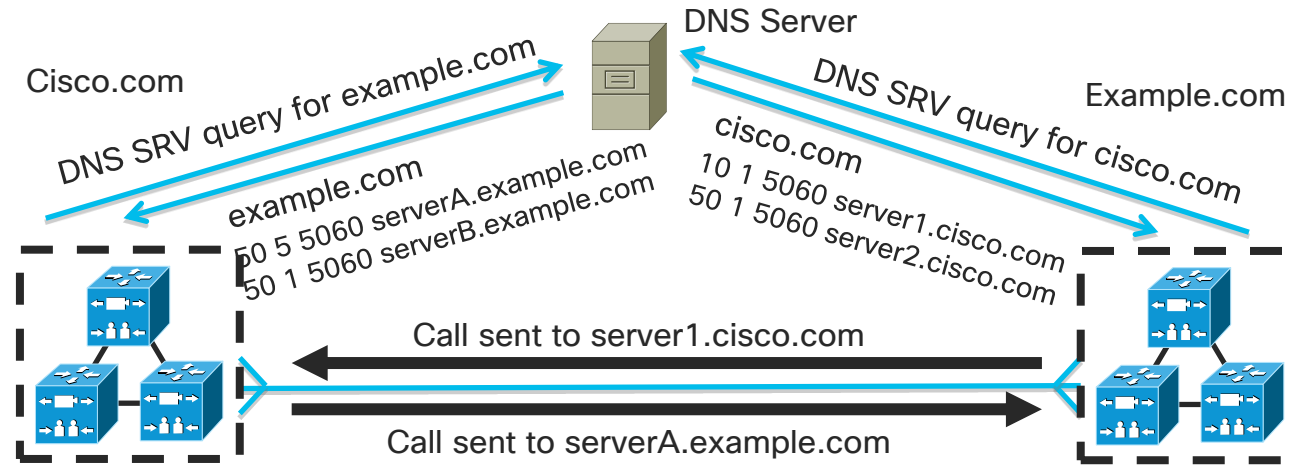


Expressway 12.5: Let's Encrypt

- Let's Encrypt is a free, automated, and open Certificate Authority
- Providing X.509 certificates for TLS encryption at no charge
- Includes an automated process designed to overcome manual creation, validation, signing, installation, and renewal of certificate
- ACME protocol (Automated Certificate Management Environment)
- More details at www.letsencrypt.org
- Let's Encrypt signed certs are compatible with all MRA endpoints
- Compatible with both Expressway server and domain certificates

Expressway Business to Business (B2B)

DNS Based Domain Services

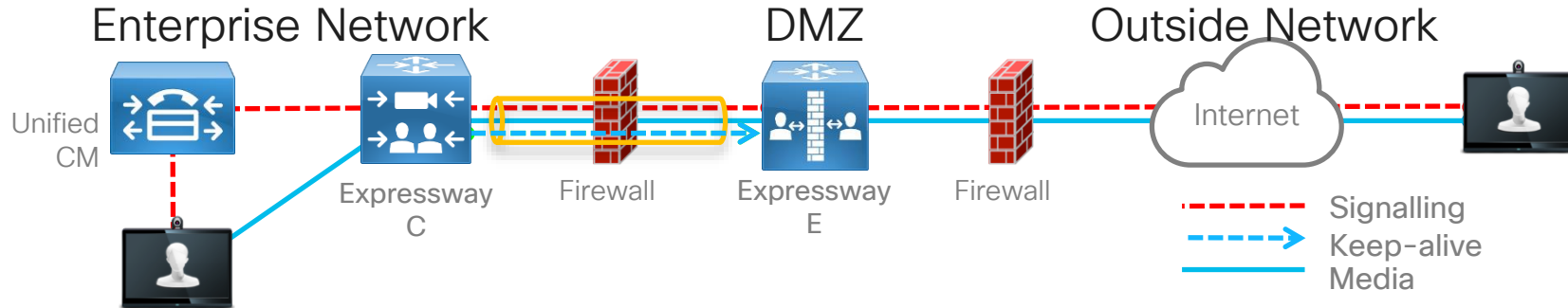


- SIP, H.323 service
- TCP or UDP protocol
- Multiple servers in record provide redundancy
- DNS SRV records use priority, weight for load balancing
- DNS server needs to be highly available
- SIP Options ping for reachability

_sip._tcp.cisco.com	IN SRV 10 1 5060 server1.cisco.com
	IN SRV 50 1 5060
server2.cisco.com	
_sip._udp.cisco.com	IN SRV 10 5 5060 server1.cisco.com
	IN SRV 10 1 5060
server2.cisco.com	
server1.cisco.com	IN 10.10.10.1
server2.cisco.com	0.10.10.2

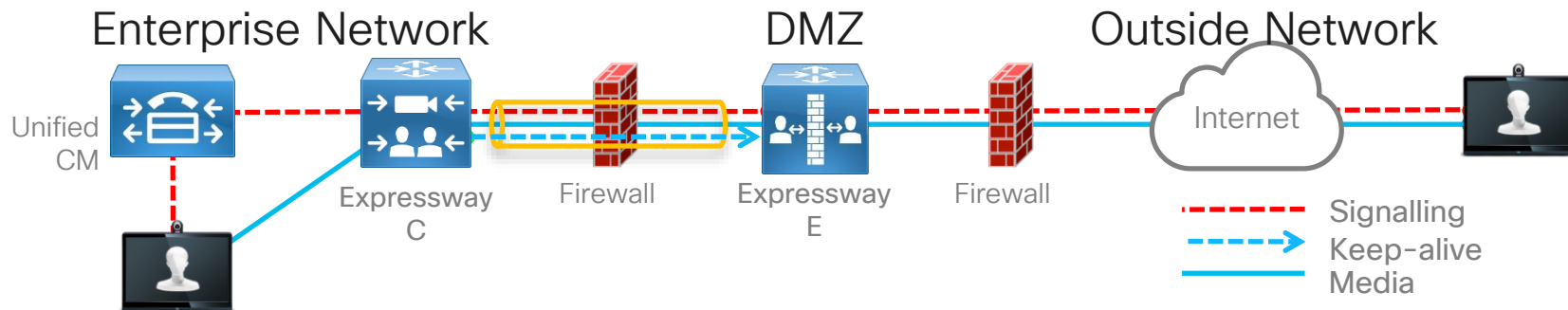
Priority (points to 10) Weight (points to 1)

Expressway Firewall Traversal Basics (Inbound)



1. **Expressway-E** is the traversal server installed in DMZ. **Expressway-C** is the traversal client installed inside the enterprise network
2. **Expressway-C** initiates traversal connections outbound through the firewall to specific ports on **Expressway-E** with secure login credentials
3. Once the connection has been established, **Expressway-C** sends keep-alive packets to **Expressway-E** to maintain the connection
4. When **Expressway-E** receives an incoming call, it issues an incoming call request to **Expressway-C**
5. **Expressway-C** then routes the call to **Unified CM** to reach the called user or endpoint
The call is established and media traverses the firewall securely over an existing traversal connection

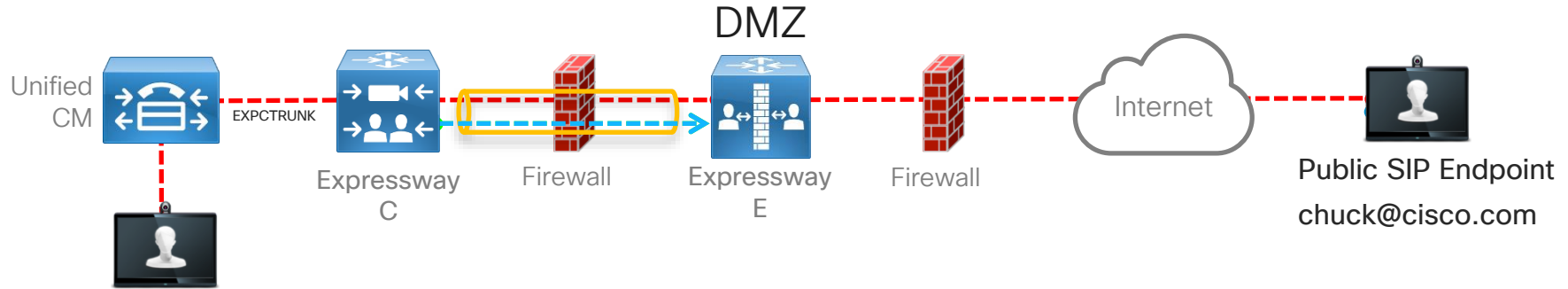
Expressway Firewall Traversal Basics (Outbound)



1. **Expressway-E** is the traversal server installed in DMZ. **Expressway-C** is the traversal client installed inside the enterprise network
2. **Expressway-C** initiates traversal connections outbound through the firewall to specific ports on **Expressway-E** with secure login credentials
3. Once the connection has been established, **Expressway-C** sends keep-alive packets to **Expressway-E** to maintain the connection
4. When an endpoint behind **Unified CM** places a SIP URI call to a domain unknown by the **Unified CM** dial plan, the call is routed to the **Expressway-C**
5. **Expressway-C** then routes the call to **Expressway-E** to reach the called user or endpoint
The call is established and media traverses the firewall securely over an existing traversal connection

SIP URI Dialing

user @ example.org
left-hand-side (LHS) right-hand-side (RHS)

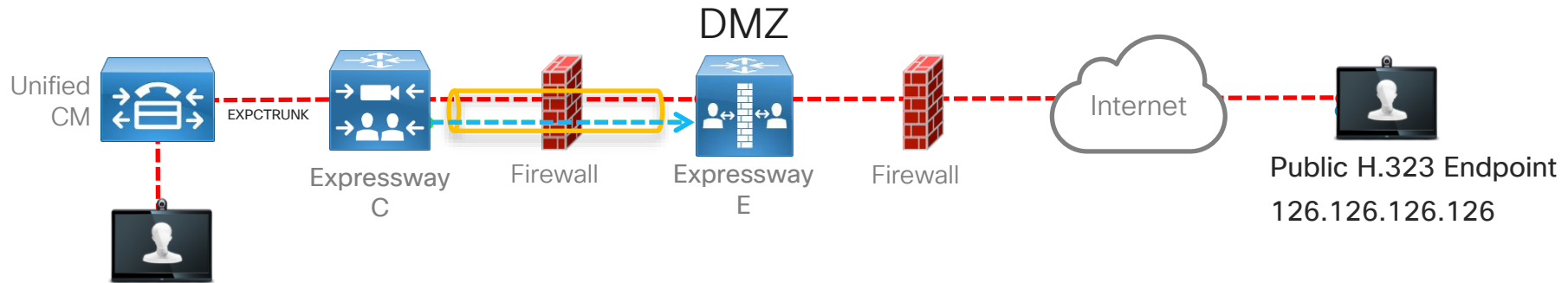


DN:\+14085552001
srogers@videolab.com

1. User srogers dials the SIP URI chuck@cisco.com
 - a. Is the LHS numeric? - NO
 - b. Does the URI match a pattern in the CSS or URI table or one in ILS? - NO
 - c. Does the RHS match a specific SIP Route Pattern? - NO
2. Route the call based on RHS to Expressway C.
3. Expressway C searches its zones for anything that matches chuck@cisco.com, finds nothing, and routes the call over the Traversal Zone to the Expressway E.
4. Expressway E searches its zones for anything that matches chuck@cisco.com, finds nothing, and routes the call out the DNS zone.

IP Address Dialing

Use Case: Business to Business

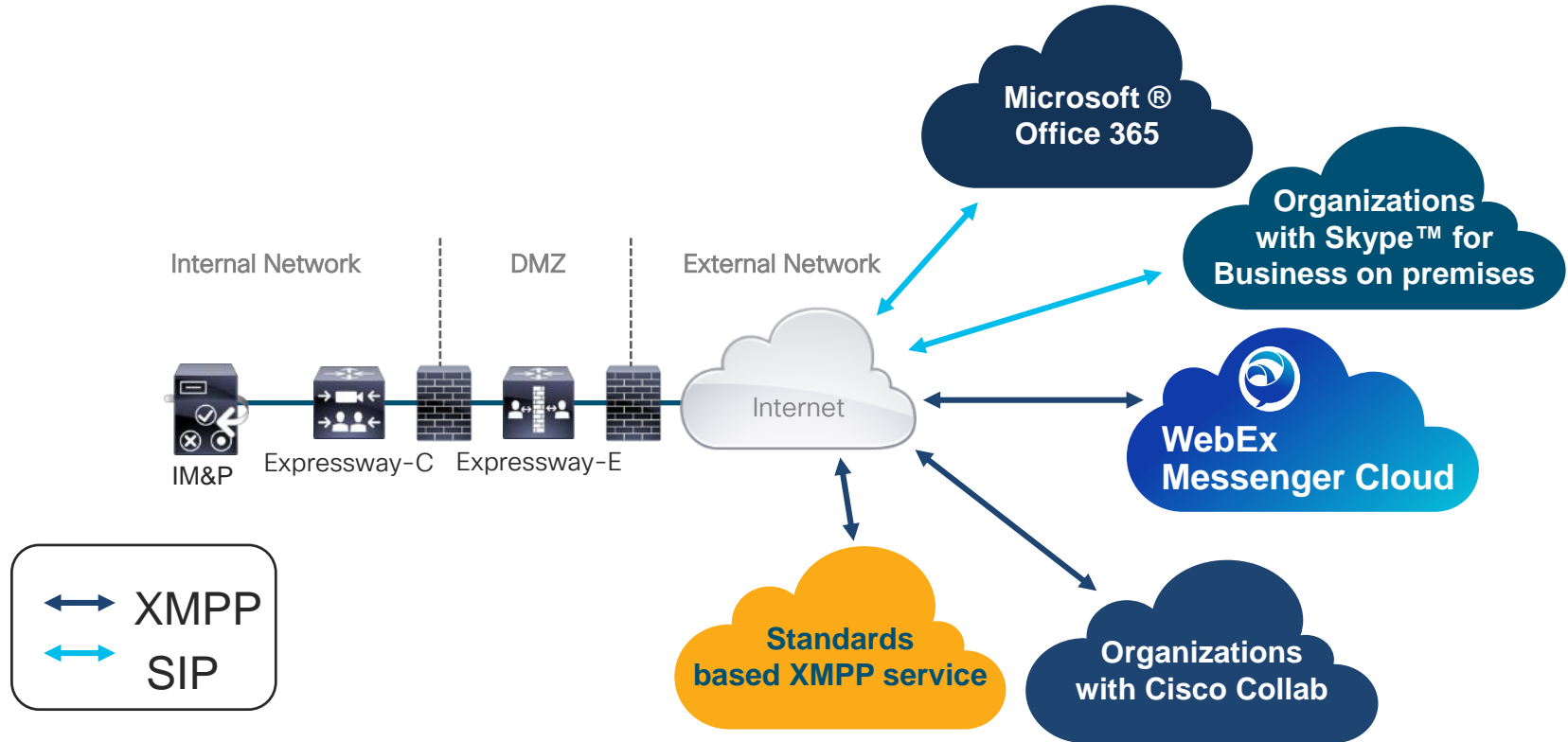


DN:\+14085552001
srogers@videolab.com

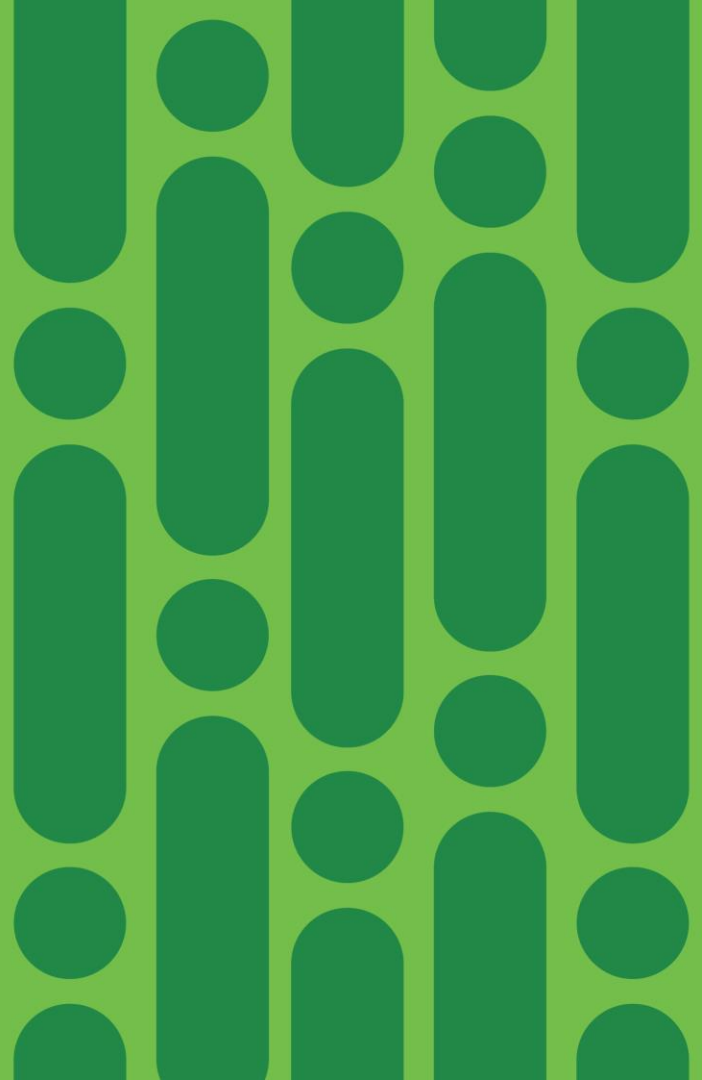
1. User srogers dials the SIP URI [126.126.126.126@ip](tel:126.126.126.126@ip) (RHS can be any keyword)
2. Matches Unified CM SIP Route Pattern of * and routes to EXPCTRUNK device.
3. Expressway C matches the URI with pre-search transform that strips the RHS @ip and forwards the call to Expressway E.
4. Expressway E matches identifies the destination as an IP address and forwards to the IP Address Zone and sends the call to the destination IP of 126.126.126.126.

Jabber IM&P Federation with Expressway

Now extending to organizations using Microsoft

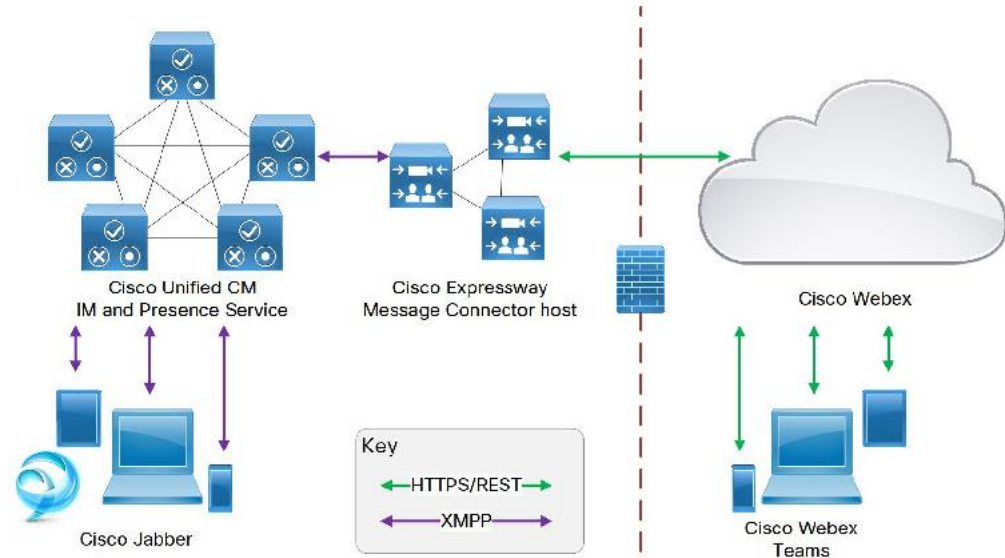


Hybrid Messaging with Webex Teams



Cisco Webex Teams and IMP Hybrid Messaging

- Hybrid Service to enable Messaging between on premise IMP server and Webex Teams Cloud Messaging.
- Allows Jabber users to message with Teams Users in a one-to-one option.
- Meant as a bridge solution for migration, not really meant for a long term deployment (feature gaps)
- With Jabber Teams mode and the Webex client, long term use or need for premise is not needed
- You will lose your XMPP federation functionality



Prime
Collaboration
and
Telepresence
Management Suite

Cisco Prime Collaboration

- Cisco Prime Collaboration Provisioning
 - Single point of Move/Add/Change Mechanism
 - LDAP is Required
 - Single pane of Glass and Multi-Levels of Administration (Help-Desk)
 - Template and Service Area Based
 - Start with Prime Provisioning, overlay on existing system can take more time
 - Auto-Provisioning from LDAP, User Portal
 - Virtual Server, with multiple sizing based. Linux based deployments

Cisco Prime Collaboration

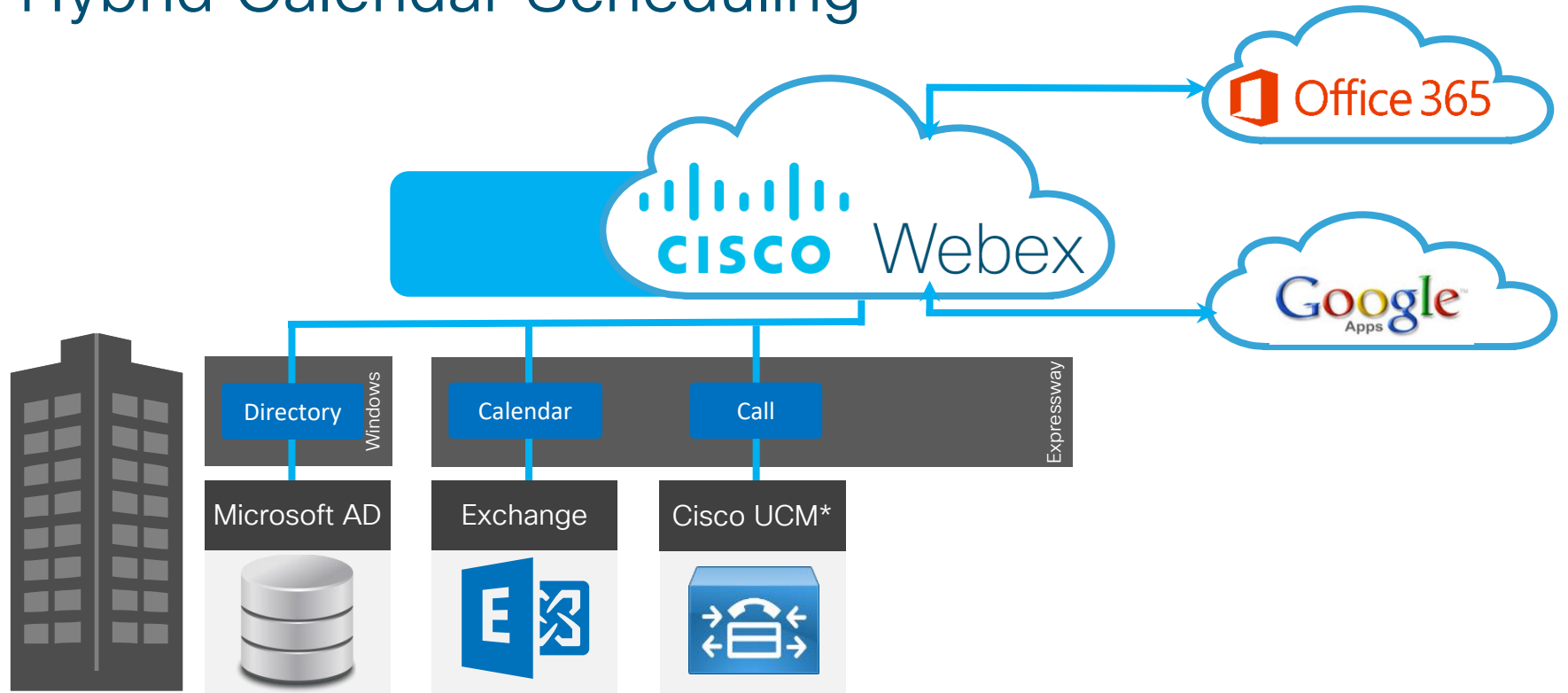
- Cisco Prime Collaboration Assurance and Analytics
- Prime Collaboration Assurance
 - The former “Operations Manager and Service Monitor”
 - Assurance for one Cluster is included with all CUCM 10.X and above deployments
 - Analytics is a cost per “device”
 - Red light/Green light view of the voice and network portion
 - Great intermediary between the CUCM and a overall management platform.
- Prime Collaboration Analytics
 - Call quality and MOS score tool
 - Can actively provide analytics during call (1040 probe required)

Telepresence Management Suite

- Cisco TMS
 - Video Management and booking engine
 - Manage VCS/Expressway Health, Call Records, Issue management
 - Manage Endpoints, booking of Endpoints, booking of Bridging resources
 - Live View of conferencing resources, ability to add/remove users in a live conference
 - Multiple Extensions to enable Exchange resources booking, API integration, Provisioning for Endpoints/Jabber for Telepresence (MOVI). Third party bridging and endpoint support available as well (check the compatibility matrix)
 - Start with Prime Provisioning, overlay on existing system can take more time
 - Auto-Provisioning from LDAP, User Portal for simple scheduling.
 - WebEx CMR and CMR-Hybrid booking mechanism

Hybrid Architecture

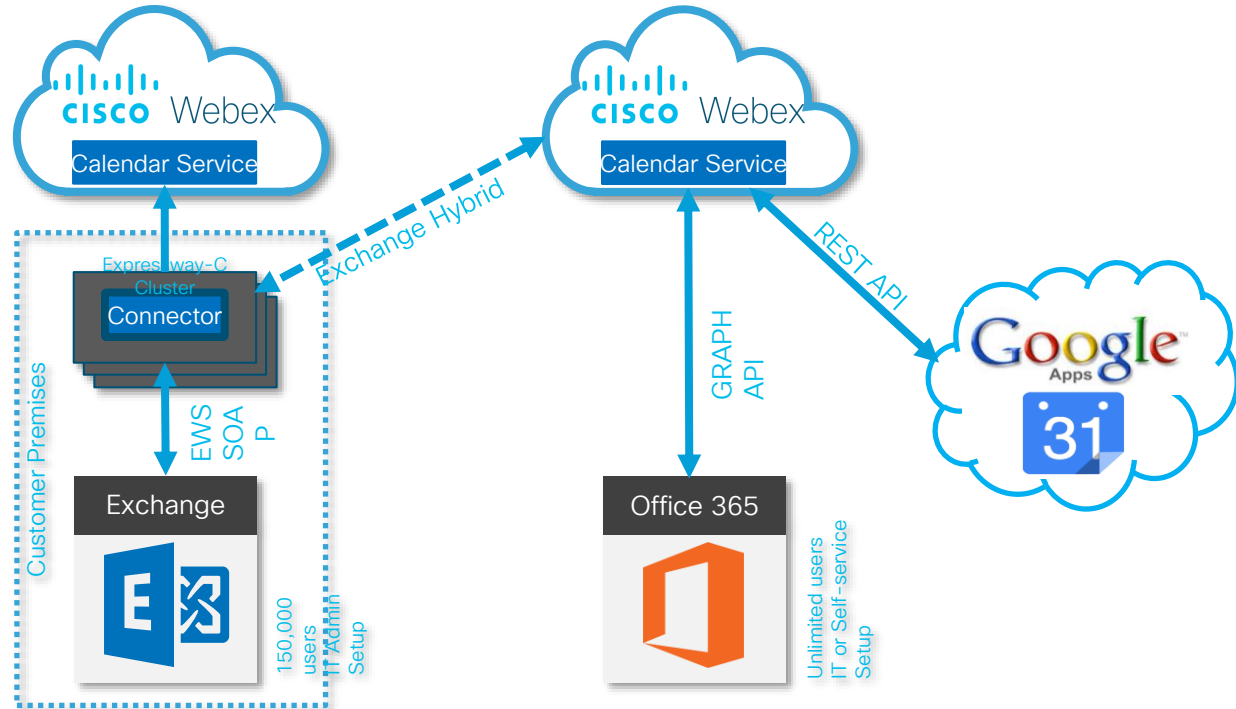
Hybrid Calendar Scheduling



*Includes Business Edition or HCS

Calendar Integrations

- @webex or @space in a calendar invite
- @webex backfills the users PMR information into the invite
- @meet will utilize the Cisco Webex Teams space information when populating the invite, or create a new space



O365 – Cloud Calendar Connector

The screenshot displays the Microsoft Outlook interface for creating a meeting. The top bar shows 'Office 365' and 'Outlook' with various utility icons. The main area is divided into three sections: 'Details', 'People', and 'Schedule'.

Details: The meeting title is 'Alta or Snowbird'. The location is '@webex' with a 'dsc' user icon. The start time is 'Sat 1/19/2019' at '3:00 PM' with an 'All day' checkbox. The end time is 'Sat 1/19/2019' at '7:00 PM' with a 'Private' checkbox. The repeat setting is 'Never', and the reminder is '15 minutes'. The 'Save to calendar' dropdown is set to 'Calendar', and 'Show as' is set to 'Busy'.

People: The 'Required' field is empty. The 'Attendees' list includes 'Admin User' (Busy - Alta or Snowbird), 'ECM User' (Accepted), and 'dsc' (Accepted).

Schedule: The view is for 'Sat 1/19' with a '4 hours' duration. A blue block representing the meeting is visible from 3:00 PM to 7:00 PM, with a checkmark in the center.

Body: The meeting body contains the following text:
[Join me in my Webex Personal Room](#)
Meeting Number: 649436235
Join by video system or application
<sip:dclouduseradmin@cb13201.webex.com>
Join by phone
+1-240-454-0887 | United States: Toll (San Jose)

Google G-Suite – Calendar Service Scheduling

The screenshot displays the Google Calendar event creation interface. The event is titled "Ski Conditions" and is scheduled for Saturday, April 20, from 10:00 to 11:00 AM. The location is "@webex, SJC 10-2-Analyst Day DX80 (3) [Webex Room]". The event is organized by nromanoff@dclouddemo.com. The interface includes a "Save" button, a "G Suite" header, and a sidebar with event details. The event details sidebar shows the event title, date, time, location, and a list of guests: nromanoff@dclouddemo.com (Organizer), djohnson@ebc.cisco.com, and Pepper Potts. The sidebar also includes a "Join me in my Webex Personal Room" link and a "Join by video system or application" link. The main event creation form includes fields for date, time, all-day status, event details, find a time, add conferencing, notification settings, add notification, busy status, default visibility, and a description field. The "Add guests" section shows a list of guests and a "SUGGESTED TIMES" section. The "Guests can:" section includes options for "Modify event", "Invite others", and "See guest list".

Event Details: Feb 25, 2019, 10:00am to 11:00am, Feb 25, 2019, Time zone

All day Does not repeat

Event Details Find a Time

@webex, SJC 10-2-Analyst Day DX80 (3) [Webex Room]

Add conferencing

Notification 10 minutes

Add notification

nromanoff@dclouddemo.com

Busy Default visibility

Add description

Save

G Suite

Ski Conditions
Saturday, April 20 · 10:00 – 11:00am

@webex

SJC 10-2-Analyst Day DX80 (3) [Webex Room]

3 guests
1 yes, 2 awaiting

nromanoff@dclouddemo.com
Organizer

djohnson@ebc.cisco.com

Pepper Potts

Join me in my Webex Personal Room
<https://cxcamer.webex.com/join/nromanoff>

Join by video system or application
Dial [sip:nromanoff@cxcamer.webex.com](tel:sip:nromanoff@cxcamer.webex.com)

Join by phone
1-844-740-1264 USA Toll Free
+1-240-454-0879 USA Toll

Meeting Number: 647695157

Going? Yes No Maybe

Guests Rooms

Add guests

nromanoff@dclouddemo.com
Organizer

djohnson@ebc.cisco.com *

Pepper Potts *

SJC 10-2-Analyst Day DX80 (3) [Webex Room]

* Calendar cannot be shown

SUGGESTED TIMES

Guests can:

Modify event

Invite others

See guest list

Google G-Suite – Webex Meetings Scheduling

× Ski Patrol Update Save ☰ 🔔 G Suite

Feb 24, 2019 10:00am to 11:00am Feb 24, 2019 Time zone

All day Does not repeat ▾

Event Details Find a Time

📍 SJC 10-2-Analyst Day DX80 (3) [Webex Room]

📅 Add conferencing ▾

- 🗨 Hangouts Meet
- 🗨 Webex meeting**
- 🗨 Webex Personal Room meeting
- 🗨 No conferencing

📎 📄 📧 📧 📧 📧 📧 📧

Add description

Guests Rooms

Add guests

- 👤 nromanoff@dclouddemo.com Organizer
- 👤 djohnson@ebc.cisco.com *
- 👤 Pepper Potts *
- 📅 SJC 10-2-Analyst Day DX80 (3) [Webex Room]

* Calendar cannot be shown ?

SUGGESTED TIMES

Guests can:

- Modify event
- Invite others
- See guest list

Google G-Suite – Webex Meetings Scheduled

The screenshot shows a Google Calendar event titled "Ski Patrol Update" scheduled for February 24, 2019, from 10:00am to 11:00am. The event is located at "SJC 10-2-Analyst Day DX80 (3) [Webex Room]". It is a Webex meeting with the ID 644135626 and password JN25diac. The meeting can be joined via phone at (844) 740-1264 or (US) +1 240-454-0879. The organizer is nromanoff@dclouddemo.com. The event is set to notify 10 minutes before and has a default visibility. The guest list includes nromanoff@dclouddemo.com (Organizer), djohnson@ebc.cisco.com, and Pepper Potts. The event permissions allow for inviting others and viewing the guest list.

× Ski Patrol Update Save

Feb 24, 2019 10:00am to 11:00am Feb 24, 2019 Time zone

All day Does not repeat

Event Details Find a Time

📍 SJC 10-2-Analyst Day DX80 (3) [Webex Room]

📄 Webex meeting ×

🌐 Join Webex meeting
ID: 644135626
Password: JN25diac

📞 (US) (844) 740-1264 (toll free)
Access code: 644 135 626

📞 (US) +1 240-454-0879 (toll)
Access code: 644 135 626

📧 644135626@xcamer.webex.com

📄 If you are a host, [go here](#) to view host information.

📄 Joining instructions

🔔 Notification 10 minutes ×

Add notification

📅 nromanoff@dclouddemo.com

📄 Busy Default visibility

📄

Guests Rooms

Add guests

- 👤 nromanoff@dclouddemo.com Organizer
- 👤 djohnson@ebc.cisco.com *
- 👤 Pepper Potts *
- 📄 SJC 10-2-Analyst Day DX80 (3) [Webex Room]

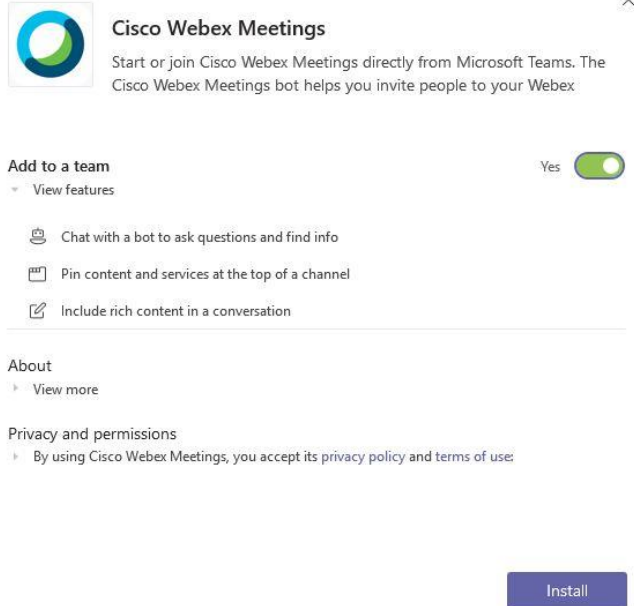
* Calendar cannot be shown

SUGGESTED TIMES

Guests can:

- Modify event
- Invite others
- See guest list

Microsoft Teams – Webex Meetings Bot



Cisco Webex Meetings

Start or join Cisco Webex Meetings directly from Microsoft Teams. The Cisco Webex Meetings bot helps you invite people to your Webex.

Add to a team Yes

- View features
- Chat with a bot to ask questions and find info
- Pin content and services at the top of a channel
- Include rich content in a conversation

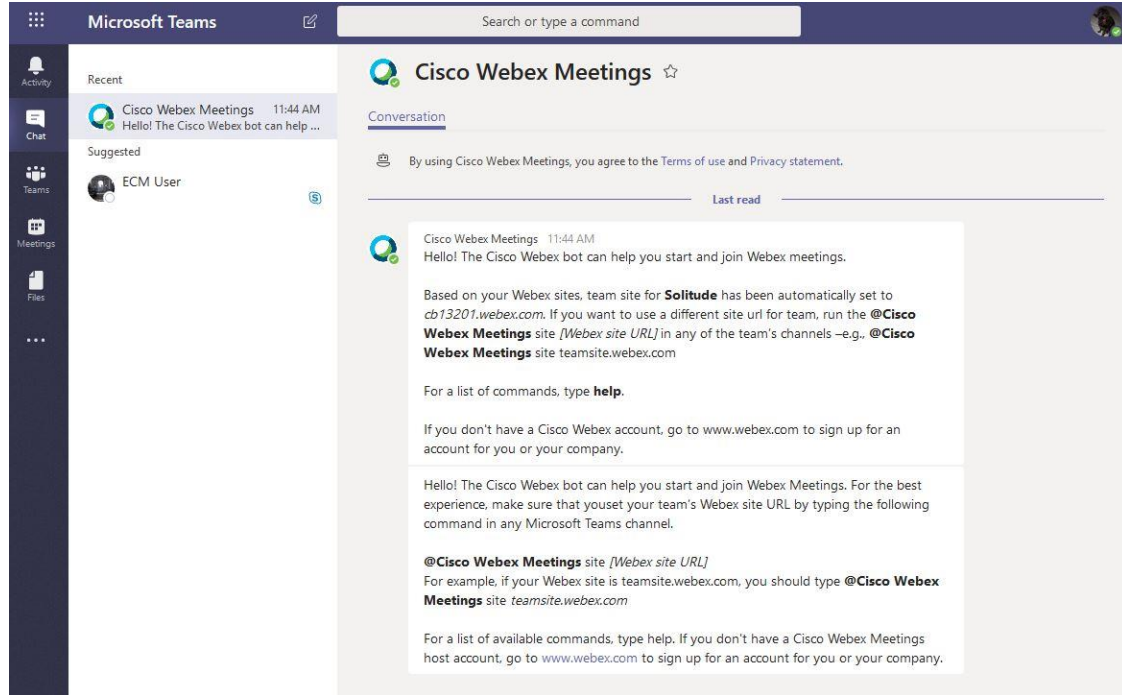
About

- View more

Privacy and permissions

- By using Cisco Webex Meetings, you accept its privacy policy and terms of use:

[Install](#)



Microsoft Teams Search or type a command

Cisco Webex Meetings ☆

Conversation

By using Cisco Webex Meetings, you agree to the [Terms of use](#) and [Privacy statement](#).

Cisco Webex Meetings 11:44 AM
Hello! The Cisco Webex bot can help you start and join Webex meetings.

Based on your Webex sites, team site for **Solitude** has been automatically set to `cb13201.webex.com`. If you want to use a different site url for team, run the **@Cisco Webex Meetings** site `[Webex site URL]` in any of the team's channels –e.g., **@Cisco Webex Meetings** site `teamsite.webex.com`

For a list of commands, type **help**.

If you don't have a Cisco Webex account, go to www.webex.com to sign up for an account for you or your company.

Hello! The Cisco Webex bot can help you start and join Webex Meetings. For the best experience, make sure that you set your team's Webex site URL by typing the following command in any Microsoft Teams channel.

@Cisco Webex Meetings site `[Webex site URL]`
For example, if your Webex site is `teamsite.webex.com`, you should type **@Cisco Webex Meetings** site `teamsite.webex.com`

For a list of available commands, type `help`. If you don't have a Cisco Webex Meetings host account, go to www.webex.com to sign up for an account for you or your company.

Microsoft Teams – Webex Meetings Tab Install

Add a tab ✕

Turn your favorite apps and files into tabs at the top of the channel.

Search

Tabs for your team

Document ...	Excel	Forms	OneNote	PDF	Planner	Power BI

All Tabs

PowerPoint	SharePoint	Stream	Website	Wiki	Word

All Tabs

Trello	Flow	Azure Dev...	Polly	Freehand b...	Jira Cloud	PowerApps

Asana	Calendar BOT	MindMeister	Smartsheet	Tasks in a B...	SurveyMon...	Wrike

MeisterTask	Evernote	GitHub	Dynamics 3...	Cisco Webe...	Decisions	Adobe Crea...

More apps

Add a tab ✕

Turn your favorite apps and files into tabs at the top of the channel.

Search

All Tabs

Cisco Webe...

Cisco Webex Meetings About ✕

Cisco Webex Meetings

Simple, modern video meetings for the global workforce. Join from anywhere, including your desktop, browser, mobile device, or video system

Post to the channel about this tab



Microsoft Teams – Webex Meetings Scheduling

Schedule a Webex Meeting ✕

*Meeting topic

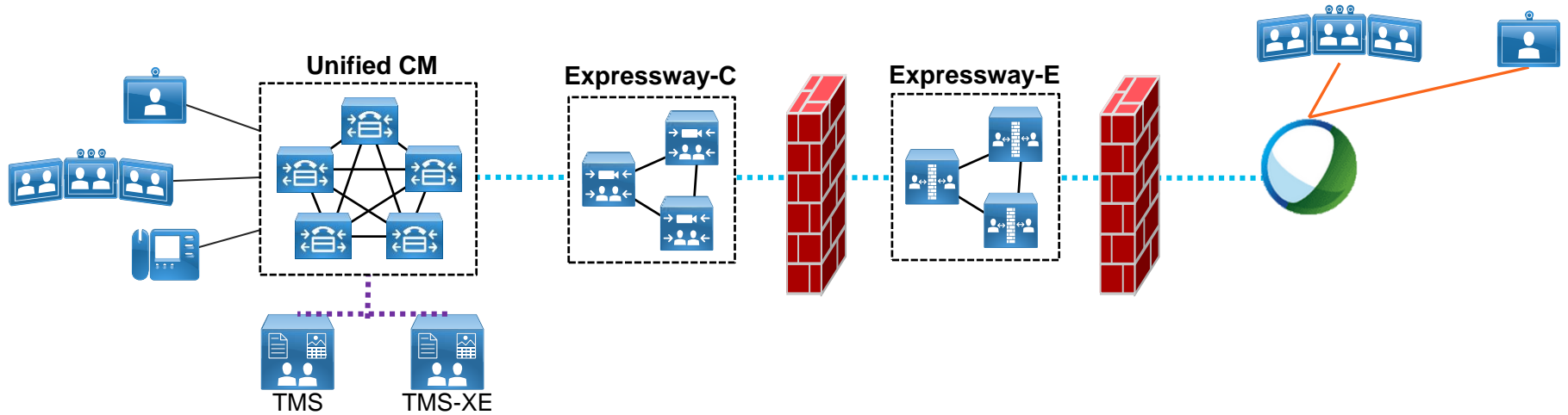
*Meeting password

Date and time

Recurrence

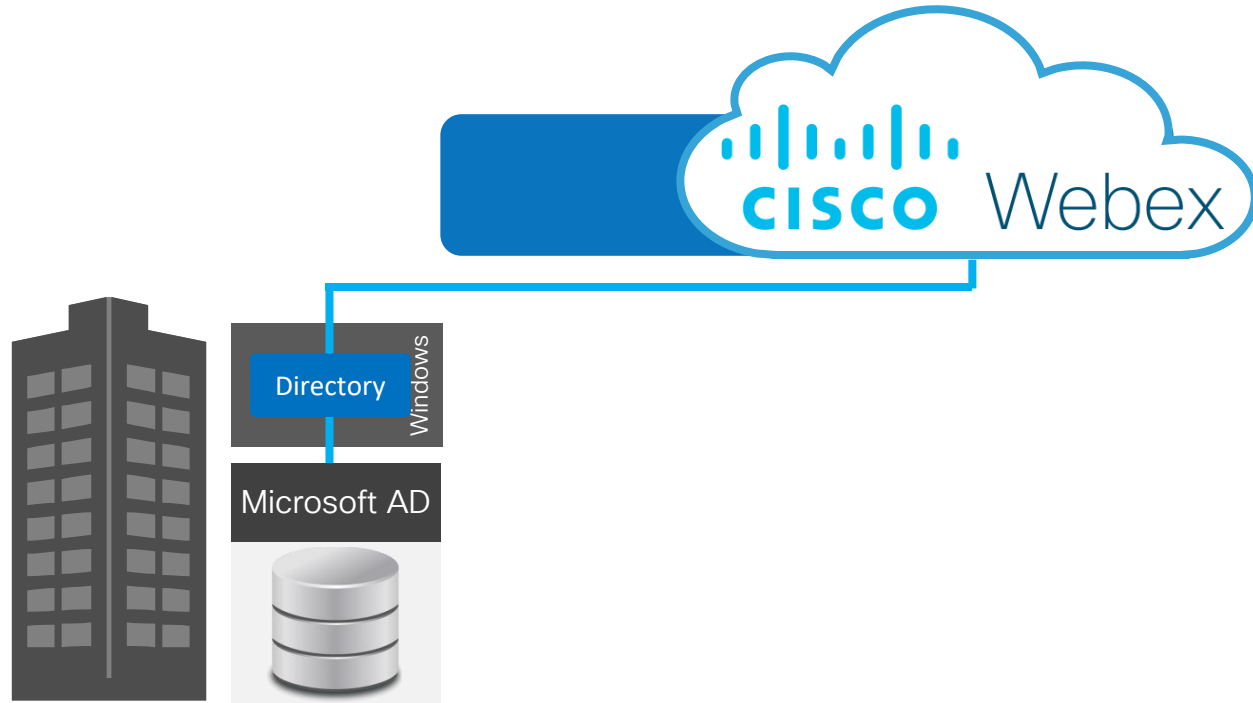
Attendees

Hybrid Scheduling

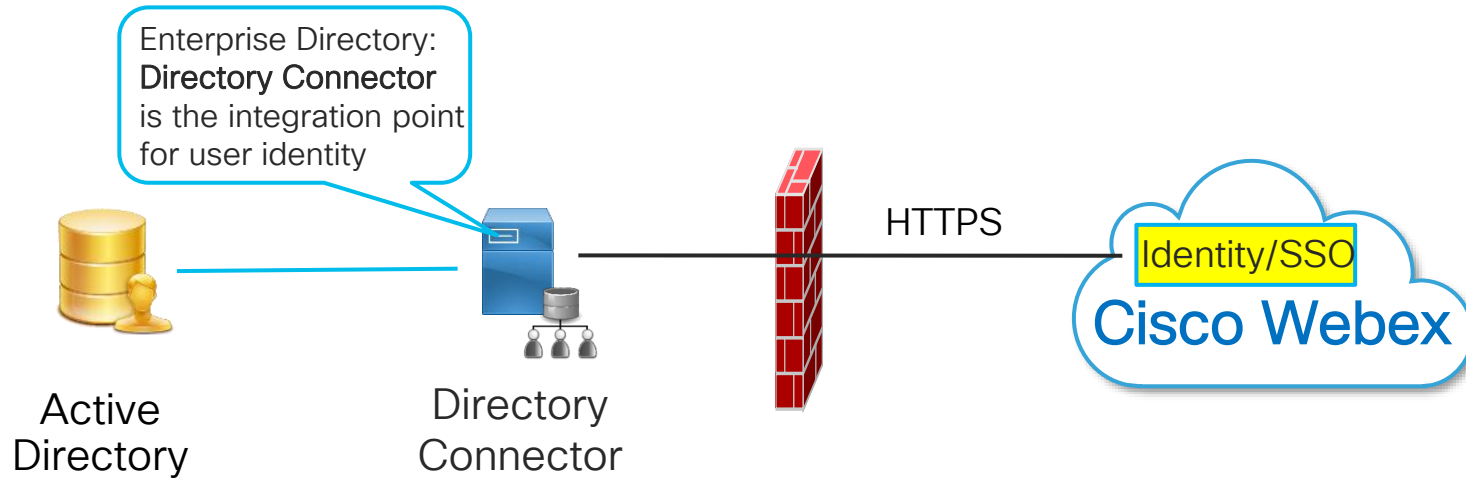


- Device must be managed by Cisco TelePresence Management Suite:
 - Set up Cisco TMS 15.0 and Cisco TMSXE 5.0 or higher with Microsoft Exchange integration - [Cisco Collaboration Meeting Rooms \(CMR\) Hybrid Configuration Guide \(TMS 15.0 - WebEx Meeting Center WBS30\)](#)
- To make conference rooms schedulable in Microsoft Outlook/Exchange, configure them in XE as if you were using on-premises conferencing - [Cisco TelePresence Management Suite Extension for Microsoft Exchange Administration Guide](#).

On-Premises Directory Synchronization



Identity integration for Users & Devices



- Directory connector integrates with AD to retrieve user information to sync with the identity service, and specifies the Active Directory synchronization agreement and attribute mappings
- Customer installs Directory Connector in its network on a Windows Domain server (Windows Server 2003, 2008 R2, 2012, 2012 R2, 2016) with administrative user privilege
- Directory Connector supports Single Forest, Multi-Domain and Multi-Forest, Multi-Domain

Custom Attribute Mapping

Requires Directory Connector 3.0

Active Directory Attribute Names → Cisco Cloud Attribute Names

Active Directory Attribute Names	Cisco Cloud Attribute Names
manager	manager
mobile	mobile
o	o
ou	ou
physicalDeliveryOfficeName	physicalDeliveryOfficeName
postalCode	postalCode
preferredLanguage	preferredLanguage
ipPhone	sipAddresses;type-enterprise
sn	sn
st	st
streetAddress	street
telephoneNumber	telephoneNumber
	timezone
title	title
mail	* uid

Apply Cancel

ipPhone ▼ sipAddresses;type-enterprise

Collab Summit 3

- general
 - booking delegates
 - booking options
 - contact information
 - email address
 - MailTip
 - mailbox delegation

*Room name:

Email address:

Capacity:

Organizational unit:

Mailbox database:

*Alias:

Hide from address lists

Department:

Collab Summit 3

- general
 - booking delegates
 - booking options
 - contact information
- email address
 - MailTip
 - mailbox delegation

Each email address type has one default reply address. The default reply address is displayed in bold. To change the default reply address, select the email address that you want to set as the default, and then double-click to edit it.

Email address:

+ ✎ -

TYPE	EMAIL ADDRESS
SMTP	5915@ucdemolab.com

Cisco Directory (DirSync) Connector



Cisco Directory Connector Logon

Cisco Directory Connector

Enter your credentials

Enter your email address

Next

By using Webex Teams you accept the Terms of Service & Privacy Statement. Learn more about Webex Teams

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Cisco Directory Connector

Welcome, cholland@cb122-dc-03.com | Sign Out

Dashboard Configuration

Actions Help

Start Incremental Sync Sync Dry Run Launch Event Viewer Refresh [F5]

Cloud Organization: cb122-dc-03.com dcloud-webex- Active Directory Domain dcloud.cisco.com

Current Synchronization

Status	Stopped
Mode	Automatic
Connector	
Type	
Started	

Last Synchronization

Status	None
Connector	None
Type	Incremental
Started	
Finished	

Connectors

Connector	Last Connection
VAKST1	Unavailable

Cloud Statistics

Users	
Groups	
Rooms	

Next Synchronization

Full	Not Scheduled
Incremental	Not Scheduled

Current Synchronization Status

Status	
--------	--

Synchronization Schedule

Full	Disabled
Incremental	Every 30 minutes

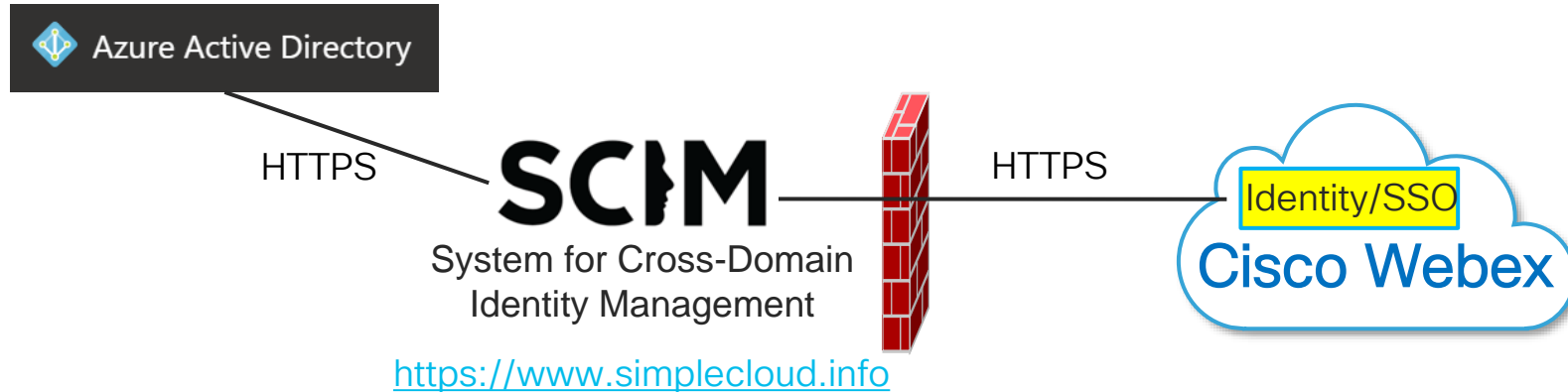
Configuration Summary

All objects will be synchronized.
Delete threshold has been set to 20 objects.
Log level is Info.

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Cloud Identity integration for Users & Devices



- Simplified user provisioning and lifecycle management
- Enterprise Authentication via enterprise standard SAML IDP or industry leading IDaaS vendors
- API Security - OAuth 2.0 provides API security for integration with third party SaaS providers

Cloud Architecture

Cisco cloud collaboration strategy



One cloud platform



One core experience



One brand name

Cisco Webex

Cloud Architecture Components

- Control Hub
- Messaging
- Meetings
- Security
- Calling

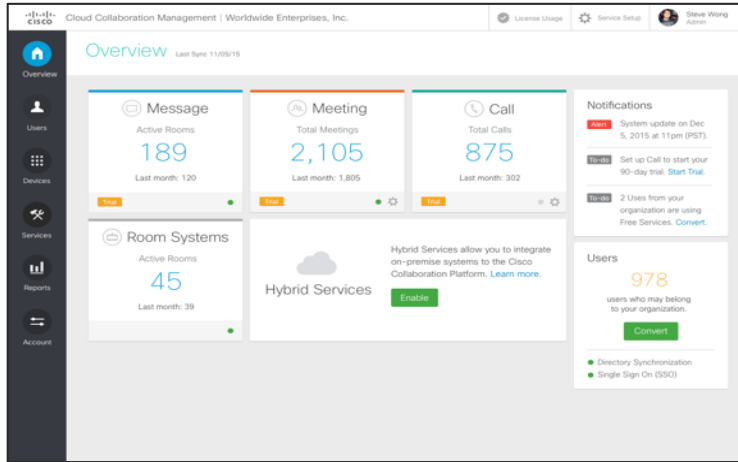
Control Hub

Management Portal - evolution



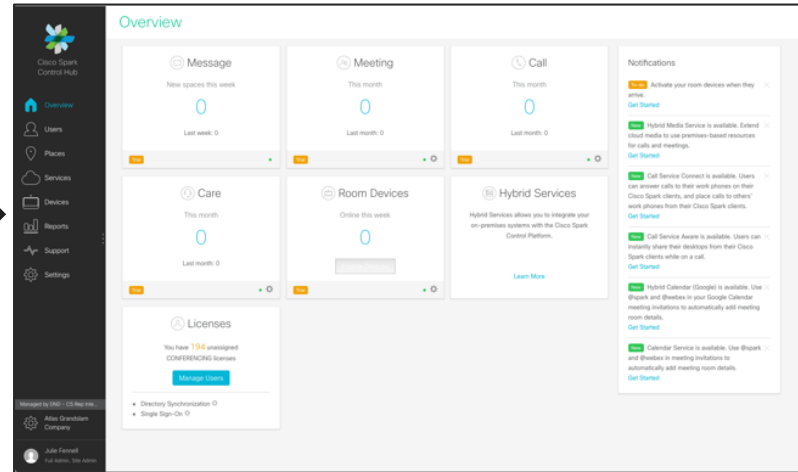
Circa 2015

Cisco Cloud Collaboration Management



Aug 2017

 Cisco Spark Control Hub



April 2018



Webex Control Hub

Cisco Webex Control Hub

Oh the wonderful things Control Hub can do!

Search Compliance Data

Search

Choose to search for specific users or spaces. Add more than one by separating with commas.

Email Address e.g. john.smith@email.com, jane.doe@email.com

Date Range to

Where Messages contains e.g. project, manager

Configure Webex Meetings Site

Common Settings
These settings apply across centers.

- Site System
- Branding
- Collaboration Meeting Room (CMR)
- External Address
- Webex Application
- Webhooks
- Edge Audio
- Brand Presence
- Mobile
- Navigator Customization
- Security
- Session Types
- Site Information
- User Privileges

Webex Meeting Center

- Site System
- Default System
- Navigator Customization
- Scheduling Templates

Support Center

- CMR Function
- Branding
- Default System
- Default System
- Event
- Navigator Customization
- Productivity

WebACD

- Settings
- Agents
- Queue

Remote Access

- Settings
- Group

Overview

Message: 599
Meeting: 1,099
Calling: 500

Care: 0
Room Devices: 10

Hybrid Services

Licenses

Notifications

- 100 Application is available in Cisco Webex
- 100 New Licenses are available in Cisco Webex
- 100 New Licenses are available in Cisco Webex
- 100 New Licenses are available in Cisco Webex
- 100 New Licenses are available in Cisco Webex

Compliance Officer

Webex site

Customer IT Admin

Support

Partner Admin

Help desk

Order Admin



Customers

Customer Name	Services	Account Status	Total Licenses	Notes
Account No. 1234	Webex Meetings	Active	100	Account No. 1234
Account No. 5678	Webex Meetings	Active	100	Account No. 5678
Account No. 9012	Webex Meetings	Active	100	Account No. 9012
Account No. 3456	Webex Meetings	Active	100	Account No. 3456

Support

Email Address	Locus ID	Call Start Time	Client Logs	Feedback ID	Correlation ID	Metadata
msmith@bisco.com	04821727-4609-3d8e-9ea...	2018-04-30T18:49:27.874Z	↓	168506ba-3448-400c-wd2...	3549584-3581-4332-963b...	🔴
msmith@bisco.com	04821727-4609-3d8e-9ea...	2018-04-30T18:49:27.874Z	↓	886050ba-1d3f-4284-04a...	3549584-3581-4332-963b...	🔴
msmith@bisco.com	49586109-0339-3268-8e...	2018-04-27T14:55:09.922Z	↓	7230c29b-a403-4939-9f1...	0435049-8441-4949-8d7...	🔴
msmith@bisco.com	49586109-0339-3268-8e...	2018-04-27T14:55:09.922Z	↓	2961f43e-6756-45c1-81...	0435049-8441-4949-8d7...	🔴
msmith@bisco.com	49586109-0339-3268-8e...	2018-04-27T14:55:09.922Z	↓	02058c36-8237-4801-86a...	0435049-8441-4949-8d7...	🔴
msmith@bisco.com	3e11714d-495e-3a19-9ab...	2018-04-23T16:36:30.488Z	↓	803d105b-9689-442d-5a2...	c1a835a-9080-4069-90a...	🔴
msmith@bisco.com	9808031-6695-3070-85a...	2018-04-05T12:48:59.648Z	↓	9137388b-698e-440c-8c1...	503352d-0481-4034-0c...	🔴
msmith@bisco.com	9808031-6695-3070-85a...	2018-04-05T12:48:59.648Z	↓	d59a7d7f-0264-4208-9ab...	503352d-0481-4034-0c...	🔴
msmith@bisco.com	9808031-6695-3070-85a...	2018-04-05T12:48:59.648Z	↓	7d3d3d3d-3d3d-3d3d-3d...	503352d-0481-4034-0c...	🔴

Help Desk Support

Search Help

hisham@ucdemolab.com

Users

- Hisham Abdelhamid
UC Demo Lab
hisham@ucdemolab.com
5007 (work)

Customers

No matches found. Try a different search.

Provisioning Console

Order Number | Customer Name | Customer Email | Manual C... | Site UI | Status | Queue Received | Queue Comple... | Completed By | Notes

Order: 1234 | Customer: John Doe | Status: Pending



User roles in Control Hub



Access	Full Admin	Read-only Admin	Support Admin	User & Device Admin	Device Admin	Compliance Officer
Activity reports						
Analytics and Diagnostics						
Device Management		Read-only				
User Management		Read-only				
Assign Roles		Read-only				
Support metrics & Notifications		Read-only				
Licenses & Upgrades		Read-only				
Company Policy & Templates		Read-only				

Hisham Abdelhamid
hisham@ucdemolab.com

User > Roles and Security

Administrator Roles

No administrator privileges

Full administrator privileges ⓘ

Read-only administrator privileges ⓘ

Some administrator privileges

Support Administrator ⓘ

User and Device Administrator ⓘ

Device Administrator ⓘ

Compliance

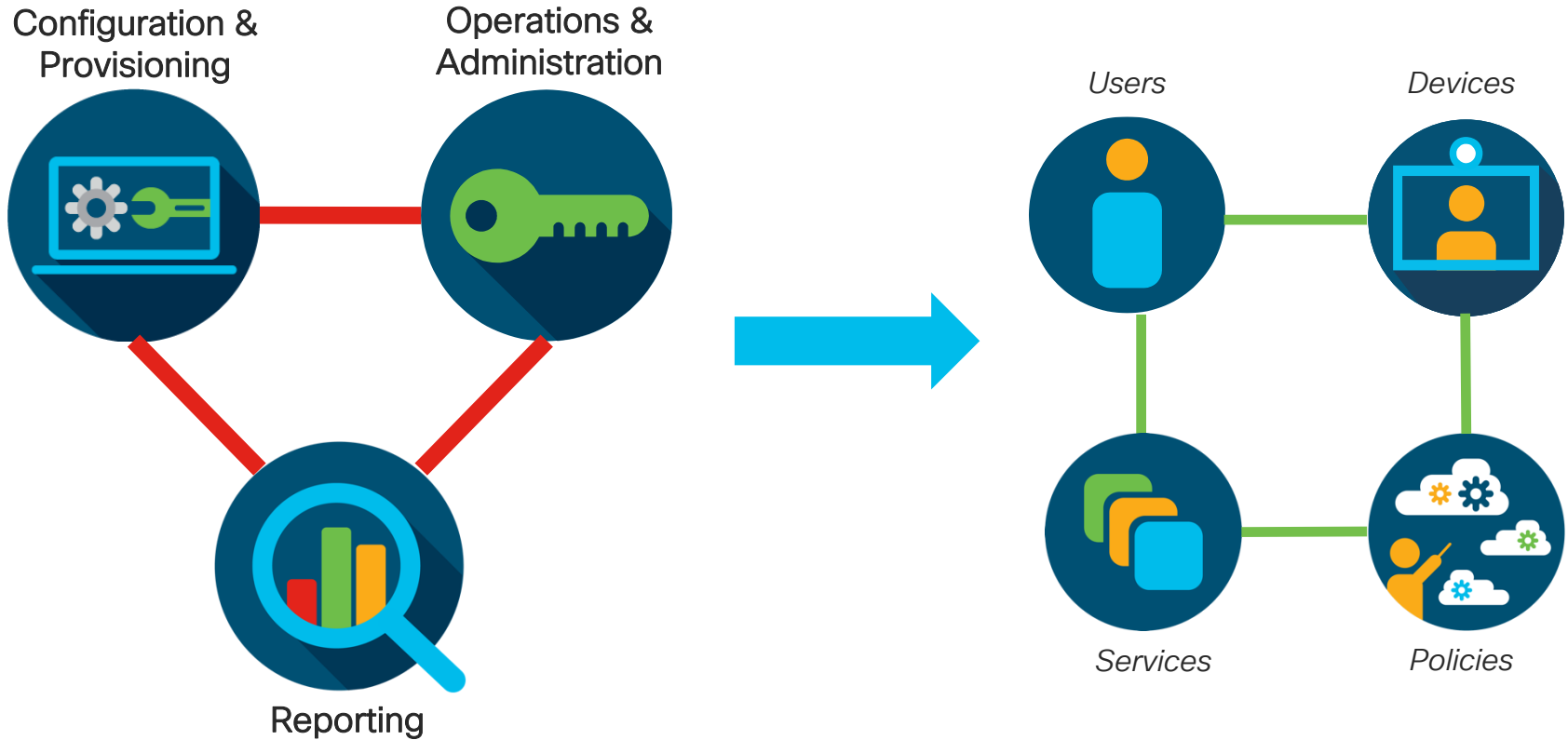
Compliance Officer ⓘ

- ✓ User Management
- ✓ Company Policy & Templates
- ✓ Analytics & Reports
- ✓ Support Metrics & Notifications
- ✓ Licenses & Upgrades
- ✓ Assign Roles

https://collaborationhelp.cisco.com/article/en-us/fs78p5#CMGT_TK_T904D062_00



Webex Control Hub basic functions



Overview page, Customer Admin



Overview

Message: 599 Total User Licenses

Meeting: 1,099 Total User Licenses

Calling: 500 Total User Licenses

Care: This month 0 Last month: 0

Room Devices: 10 Total Licenses

Hybrid Services: Calendar (Exchange), Call, Message, Video Mesh

Licenses: 383 Total users onboarded Reports; 956 unassigned CONFERENCING licenses Manage Users; Directory Synchronization, Single Sign-On, Auto-Assign Licenses

Notifications: Your Organization is enabled for Cisco Care. Setup Care Service; Link your accounts to Cisco Webex Teams - A new way to experience Webex Meetings. Get Started; Cisco Cloudlock is integrated with Webex Teams to protect sensitive data by applying DLP policies, detecting violations, notifying admins, educating users and removing the content if necessary. Cloudlock is an industry leading Cloud Access Security Broker (CASB) that helps to secure identities, data and apps. Request a Demo; Hybrid Call Service is configured, but one or more clusters only has a single node running Call Connector. Your deployment does not meet the requirements for high availability. Open Documentation; Hybrid Calendar is available. Use @webex or @meet in a meeting location to insert join details, show upcoming meetings in the Cisco Webex Teams app, and provide One Button to Push (OBTP) to join. Use it with Google Calendar or Office 365. Get Started; Create an on-premises security realm with Hybrid Data Security. Get Started; Hybrid Calendar (Google) is available. Use @webex or @meet in a meeting location to insert join details, show upcoming meetings in the Cisco Webex Teams app, and provide One Button to Push (OBTP) to join. Get Started

View all tasks

© We're making it easier for you to view your subscriptions. Coming soon on Jan 29th, 2019. [Learn more.](#)

Cisco Webex Control Hub

Overview

Users

Places

Services

Devices

Analytics

Troubleshooting

Settings

TME Demo

Hisham Abdella... Compliance Officer, ...



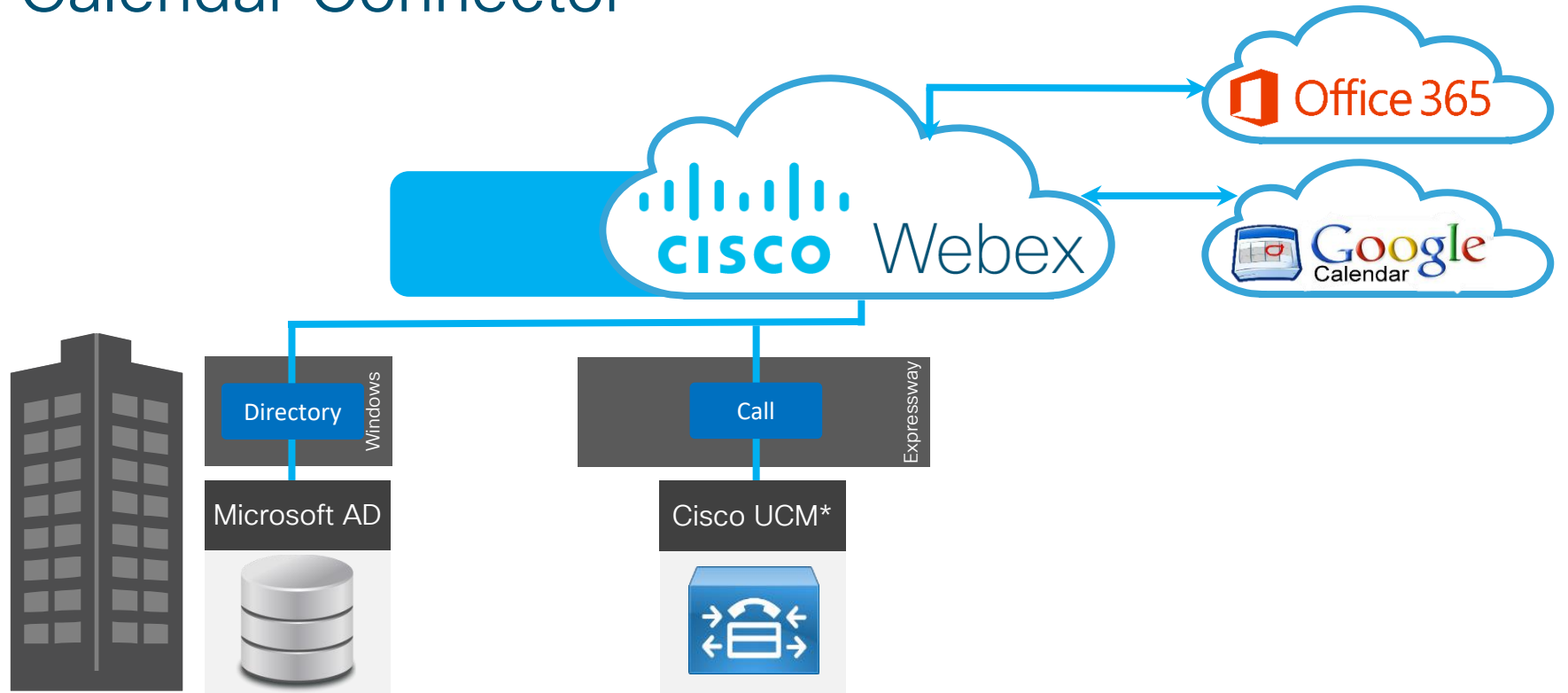
Control Hub "Overview" landing page

- This is the first menu an admin encounters upon login to Control Hub
 - Viewable by full and read-only admins
- Provides a summary of the Webex Services provisioned for this organization
 - Cards for each Service: Message, Meeting, Calling, Care, Room Devices, and hybrid services
 - Hybrid Services configured and a quick summary of their status
 - License consumption/overage, on-boarded users summary
 - Notifications of actions required
 - Tasks



Cloud Connectors

Calendar Connector



Calendar Scheduling Integration with @webex

SEND DISCARD SCHEDULING ASSISTANT
some recipients are outside your organization. [show details](#) | [remove all](#)

Event: Calendar Service with OWA

Location: @webex

Attendees: lpratt@ucdemolab.com tmelpratt@gmail.com

Start: Thu 4/20/2017 8:00 AM Duration: 30 minutes

Show as: Busy Reminder: None

Calendar: Calendar

Repeat: Never

Mark as private Request responses

Calibri 12 B I U

Join me in my Personal Room:

<https://go.webex.com/join/lpratt>

Join from a video conferencing system or application:

Dial [sip:lpratt@go.webex.com](tel:sip:lpratt@go.webex.com)

Join by phone:

1-877-668-4488 US Toll Free

+1-415-655-0000 US Toll

Access code: 341706488

[Global call-in numbers](#) | [Toll-free calling restrictions](#)

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<https://collaborationhelp.cisco.com/article/en-us/nwtulzs>

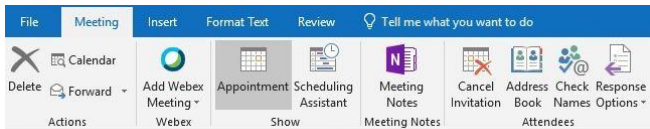
Users can use either @webex or @meet in a calendar scheduling invite, not both.

@webex will backfill the users personal room information into the calendar invite (seen here)

@meet or will utilize the Cisco Webex Teams space information when populating a calendar invite, or create a new space (next page).

There are also modifiers :space and :myroom

Calendaring Scheduling Integration with @meet



These recipients are outside your organization: TME Ipratt X Louis Pratt X
You haven't sent this meeting invitation yet.
This appointment is next to another one on your calendar.

From: Ipratt@cisco.com
To: TME Ipratt ; Louis Pratt
Subject: Finance Guy Personalities
Location: @webex:space
Start time: Mon 12/3/2018 11:00 AM
End time: Mon 12/3/2018 11:30 AM

[Join Webex Teams meeting](#)

Join by Video system

641402337@ucdemolab.webex.com

Join by Phone

+1-240-454-0887 Toll Free

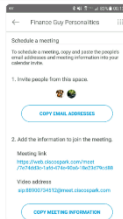
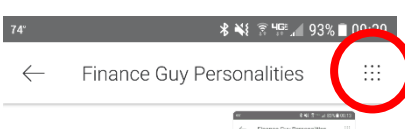
+1-240-454-0887 Toll

Meeting Number: 641402337

Join using Microsoft Skype for Business

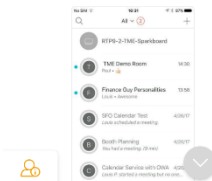
641402337.ucdemolab@lync.webex.com

[Global call-in numbers](#) | [Toll-free calling restrictions](#)

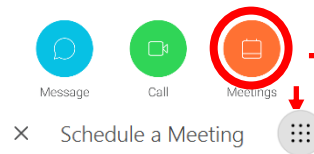


Awesome

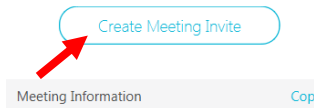
Awesome



Message the space



Up to 75 people can join a meeting in this space.
[Learn more.](#)



Meeting link
<https://ucdemolab.webex.com/m/c7df0816-...>

Join by video system
647048177@ucdemolab.webex.com

Join by phone
+1-240-454-0887 Toll Free
+1-240-454-0887 Toll

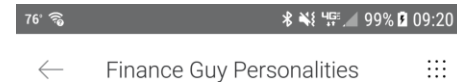
Meeting number 647048177

[Global call-in numbers](#)
[Toll-free calling restrictions](#)

People [Copy](#)



Desktop



Schedule a meeting
To schedule a meeting, copy and paste the people's email addresses and meeting information into your calendar invite.

1. Invite people from this space.



2. Add the information to join the meeting.



Meeting link
<https://ucdemolab.webex.com/m/c7df0816-1333-4f39-97bf-3028f28e5c5c>

Video address
sip:647048177@ucdemolab.webex.com

Mobile

OBTP User Meeting Scheduling Experience

The screenshot shows the Outlook Web App interface for scheduling a meeting. The event is titled "Cisco Live OBTP Session" and is set for Thursday, November 29, 2018, from 8:30 AM to 10:00 AM. The location is "@meet". The attendees list includes Zachary Kent, Frances Roth, lpratt@cisco.com, and RTP-9 Room Kit. The meeting duration is 90 minutes, and the reminder is set to 15 minutes. The start time is Thu 11/29/2018 at 8:30 AM. The calendar is set to "Calendar" and the repeat option is "Never". There are checkboxes for "Mark as private" (unchecked) and "Request responses" (checked). A blue arrow points to the "RTP-9 Room Kit" attendee entry.

Cloud Registered
Room Device
Bookable Resource

Cisco Live OBTP Session

Cisco Live OBTP Session



Meetings

Thursday, November 29, 2018

08:30 AM - 10:00 AM

@meet

Meeting link

<https://ucdemolab.webex.com/m/f19ce9c8-1...> Copy

Meeting description

Join Cisco Webex Teams meeting <https://ucdemolab.webex.com/m/f19ce9c8-1b3f-4cdb-881d-9fe632aaa2d0>

Join by video system

sip:642676714@ucdemolab.webex.com

Join by phone

+1-240-454-0887 US Toll

+1-240-454-0887 US Toll

Message

Join

cisco *Live!*

OBTP User Meeting Join Experience

Desktop Before Meeting

Webex Teams

Cisco Live OBTP Session In 2 min

Cisco Live OBTP Session

This starts the "Cisco Live OBTP Ses

You 8:15 AM

Nov 29, 2018 8:30 AM - 10:00 AM Cisco Live OBTP Session

Cisco Live OBTP Session

Thursday, November 29, 2018
08:30 AM - 10:00 AM
@meet

Meeting link

Meeting description

People (5)

- Louis Pratt Organizer
- Frances Roth Tentative
- Louis Pratt Waiting for response
- RTP-HS-RoomKit Accepted

Message Join

Desktop During Meeting

RTP-HS-RoomKit >

08:25

Touch 10

Starting in 5 minutes

Cisco Live OBTP Session

08:30 - 10:00

Organized by Louis Pratt

Join

No more meetings today

Cloud Registered Room Device

RTP-HS-RoomKit

08:30

On-Screen Display

Just started

Cisco Live OBTP Session

08:30 - 10:00

Join

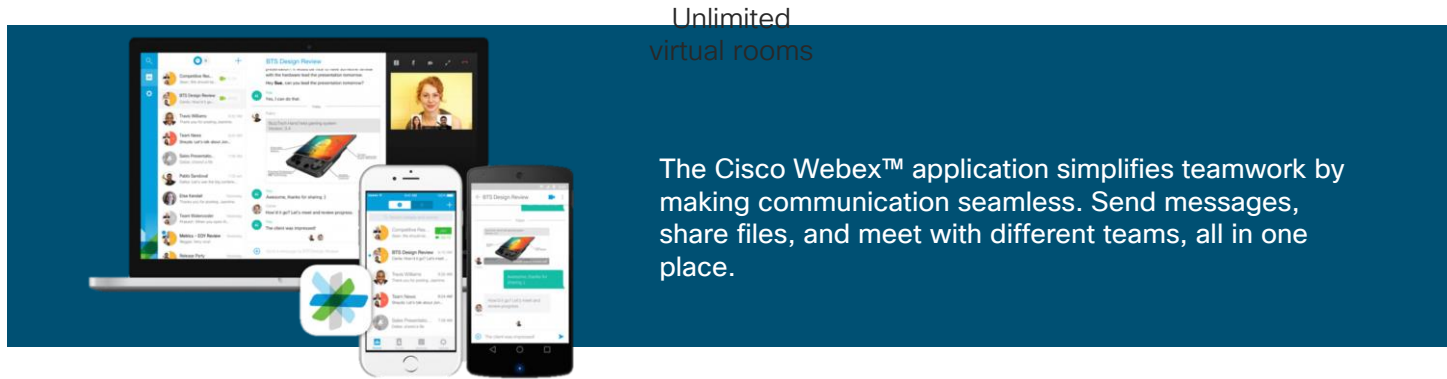
No more meetings today

Say "OK Webex, join meeting" or join from the touch panel

cisco Live!

Messaging

Webex Teams Messaging



Unlimited
virtual rooms

The Cisco Webex™ application simplifies teamwork by making communication seamless. Send messages, share files, and meet with different teams, all in one place.

Making Teamwork Simpler.



Persistent and secure
messaging and file sharing



Face-to-face meetings
with screen sharing



Superior business-class
experience

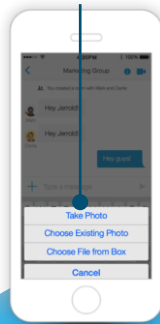
Security and Compliance Differentiators

- 1 Data Privacy with End to End Encryption
- 2 Hybrid Data Service (HDS)
- 3 Man in the Middle Attack Protection
- 4 External Collaboration + DLP Policy Enforcement
- 5 Legal Hold
- 6 Mobile Security
- 7 One Drive/Sharepoint Online Integration

Webex Teams: Get It Done Faster

Add Files
Even While Mobile

Share a photo or add a file directly into your rooms



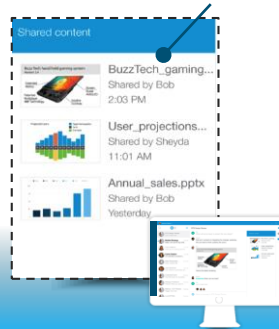
Quickly Scan
Shared Files

See files instantly without a download to get to the important information fast



Get Caught Up
Quickly

Review previously shared messages and files at any time



Consistent and Easy-
to-Use Experience on
Every Device

Cisco Webex for:

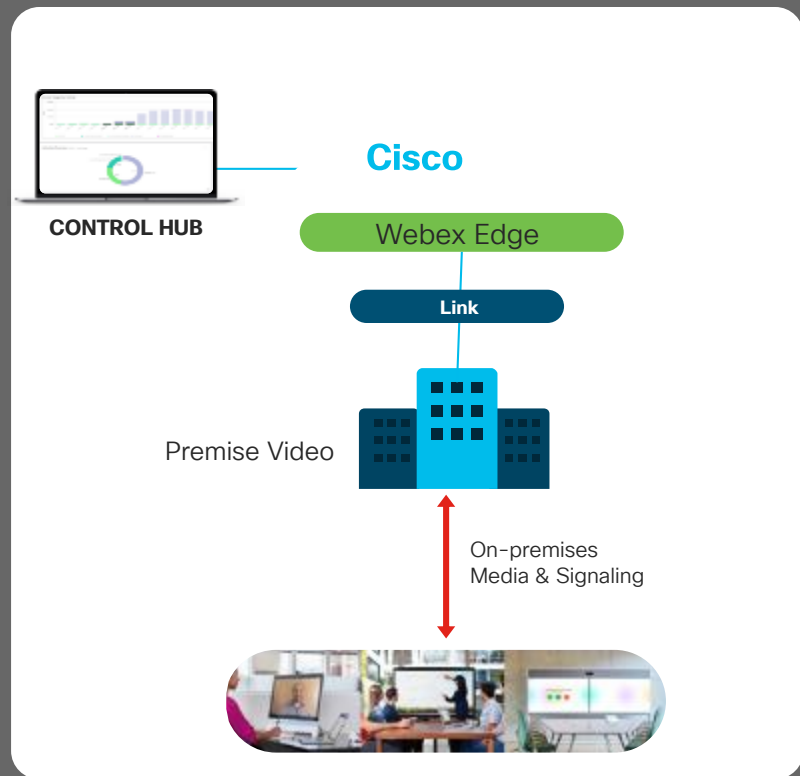
- iPad and iPhone
- Android
- Web
- Windows
- Mac



Single Platform Advantage: New Webex Edge for Devices

Webex Control Hub Tools for Any Device Deployment Model

GA:
Dec 2019



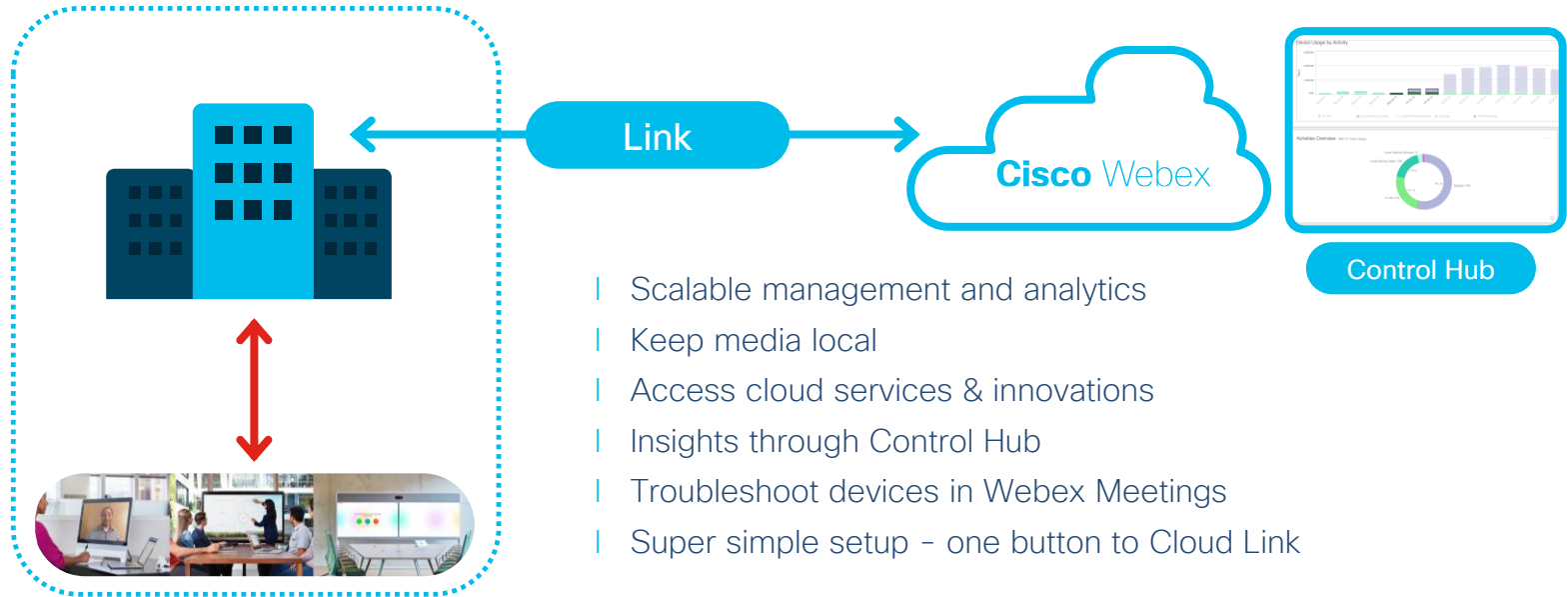
Video innovation

- Extend cloud experiences to on-prem registered devices
- Keep media local, while gaining access to cloud services

Single Platform Advantage

- Control Hub: Management, analytics & diagnostics
 - Simple setup - one button to link to Webex Cloud
 - Troubleshoot devices in Webex Meetings
- Enhanced Security
- Advanced cognitive intelligence services - Access cloud services & innovations

Introducing Webex Edge For Devices Cloud Experiences to our Premise Customers



- | Scalable management and analytics
- | Keep media local
- | Access cloud services & innovations
- | Insights through Control Hub
- | Troubleshoot devices in Webex Meetings
- | Super simple setup - one button to Cloud Link

Webex Edge for Devices

Business-critical calling stays on-prem

Hybrid deployment and customer migration at their pace

«One-click Migration»

Simplified Single Plane Of Glass

CISCO *Live!*





Powered by Webex

Meetings



Webex Meetings



Designed to deliver the best meeting experience in the industry

Video-first user interface

New desktop, mobile and web apps

Integrations

The Cisco Webex Meetings experience

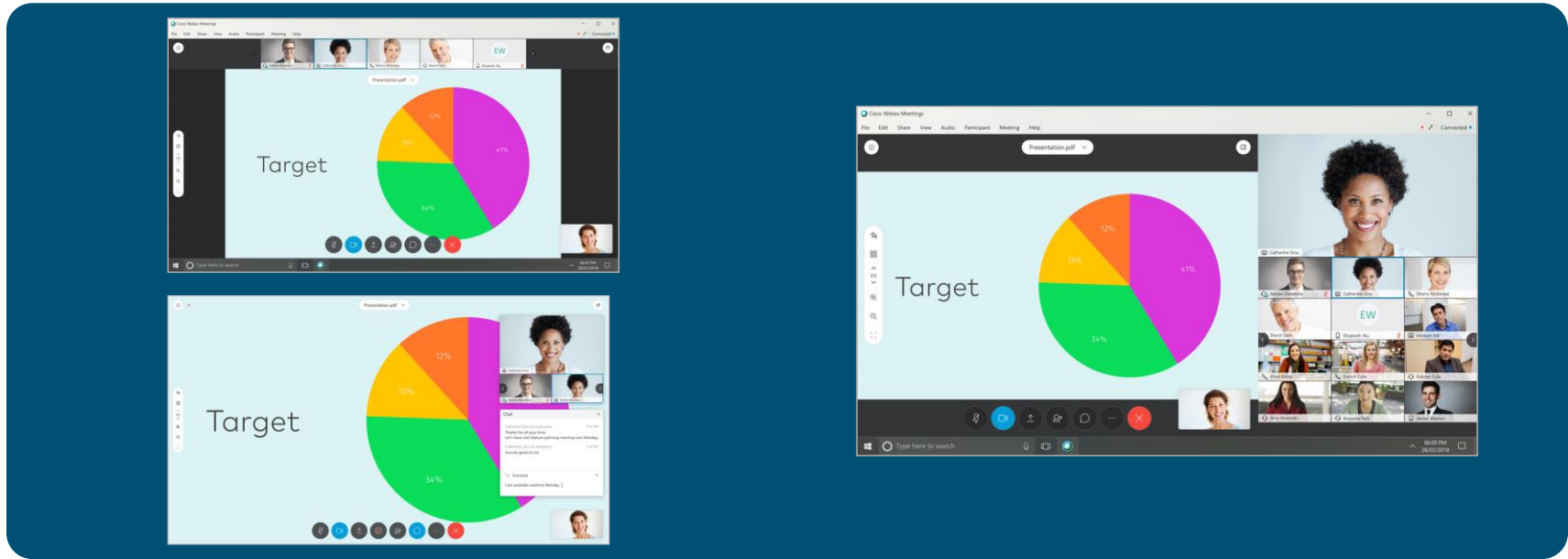
Video-first



Autonomy to customize video layout

The Cisco Webex Meetings experience

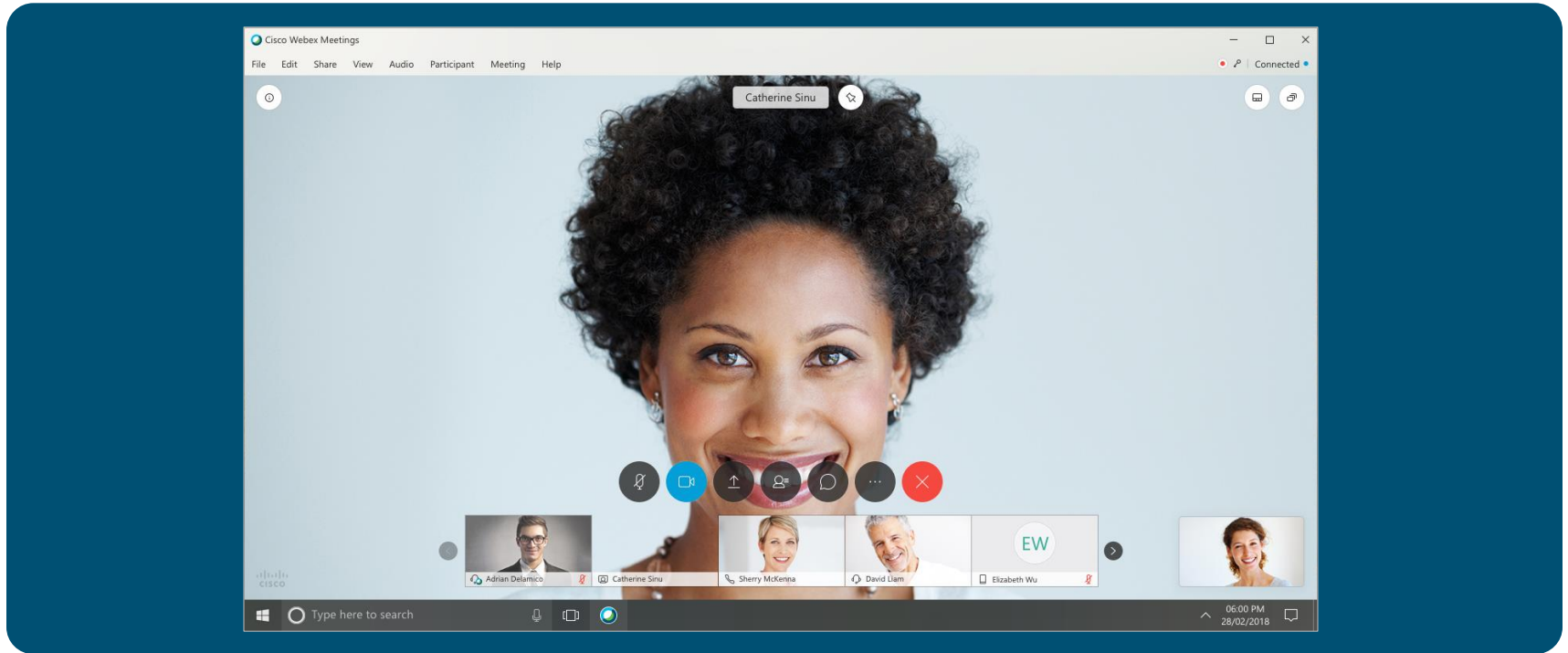
Content sharing



Autonomy to customize video and content layout

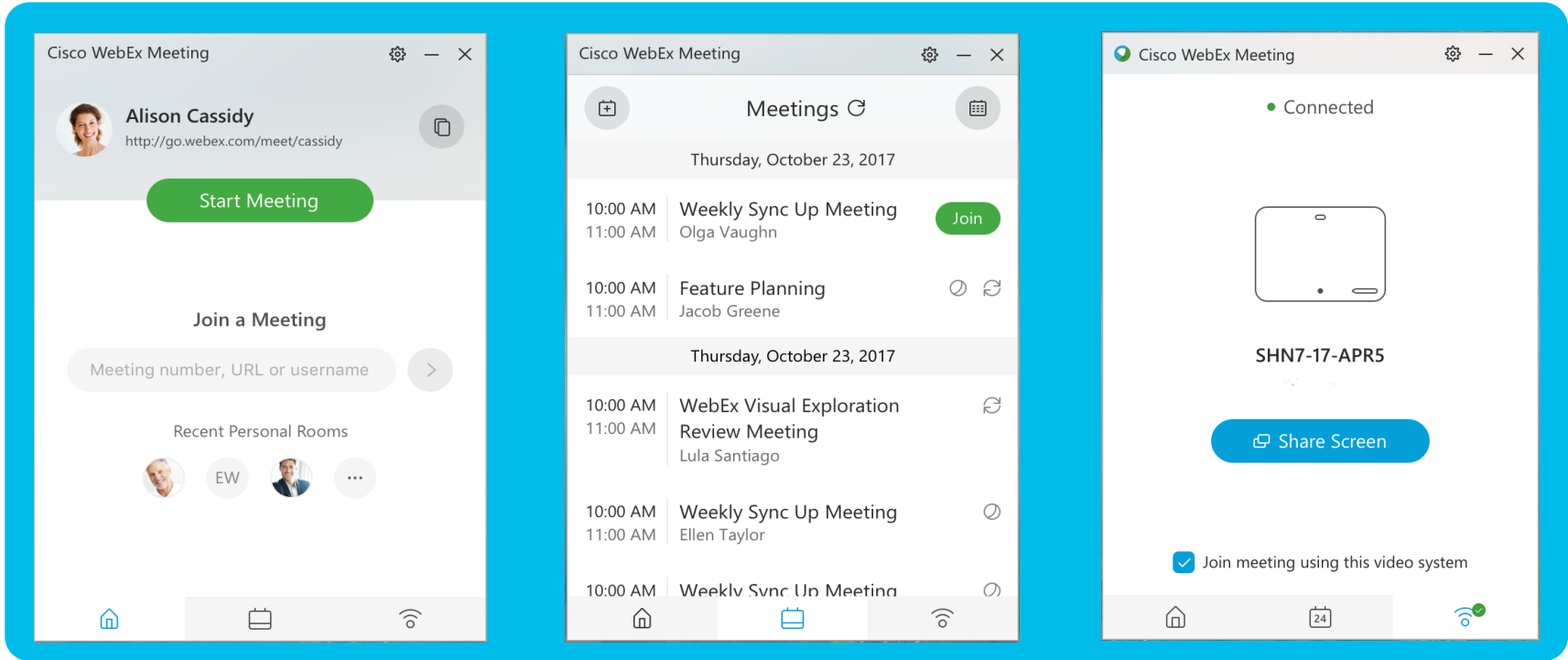
In-meeting control bar

Intuitive and one-click for most common tools



Webex Teams Modular App

Fastest Join Experience



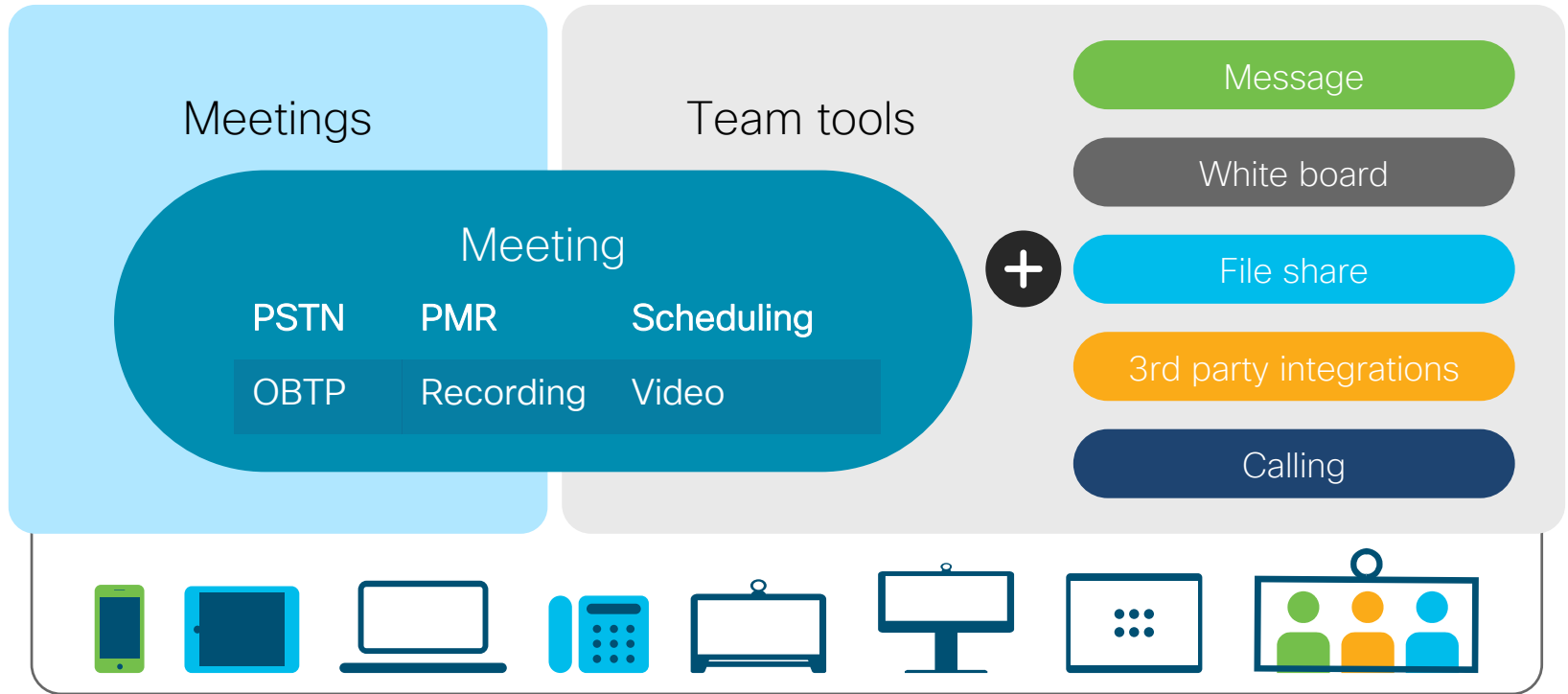
One click to start or join

Integrated calendar

Proximity for device pairing
and content share

cisco *Live!*

Optimized for the way *You* work

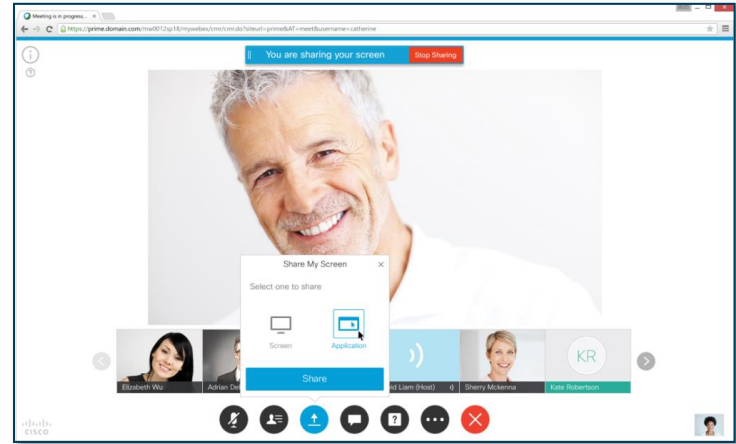


A New Meeting Experience

Mobile and Web Optimized



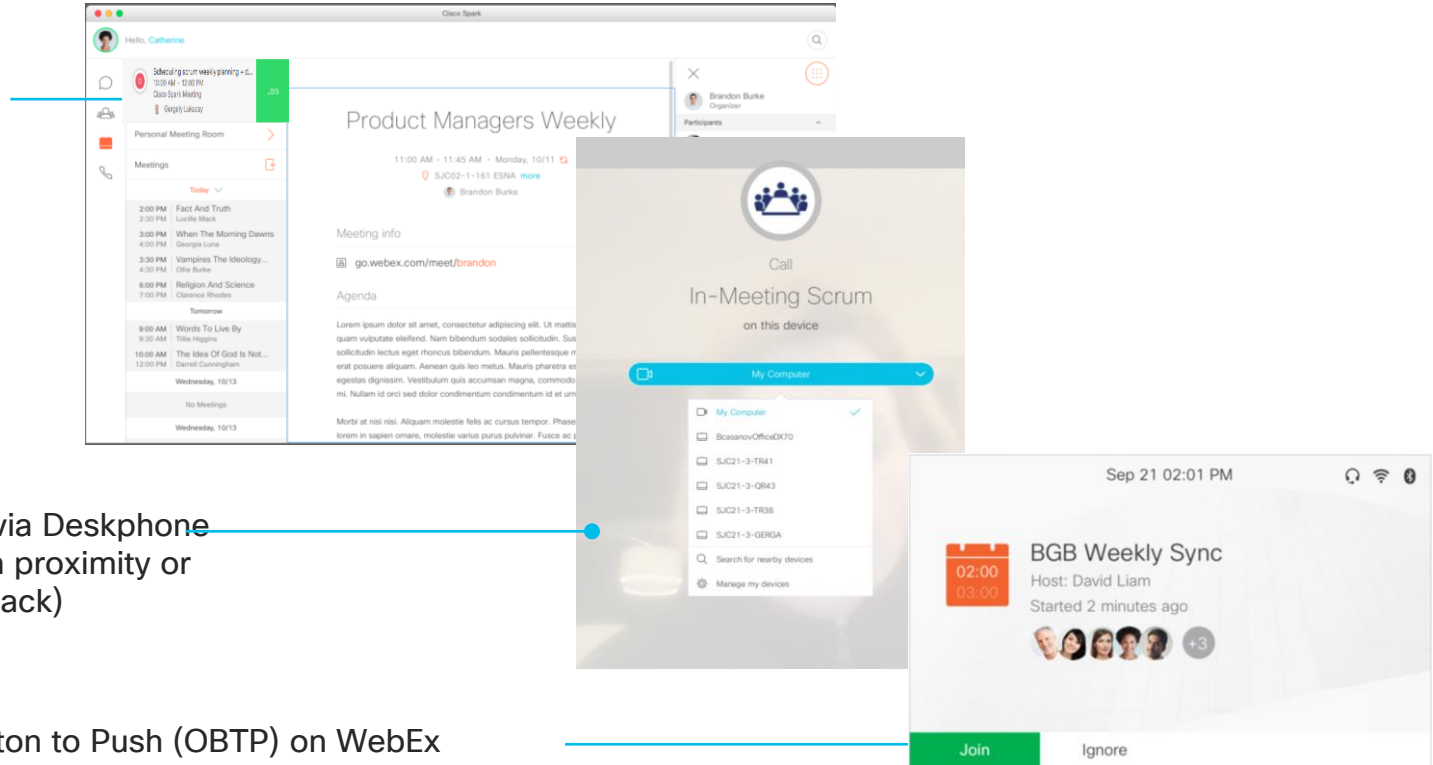
Reimagined mobile meetings equal participation



Using WebRTC – no plug-ins to host or join a meeting

Joining Meetings Made Easy

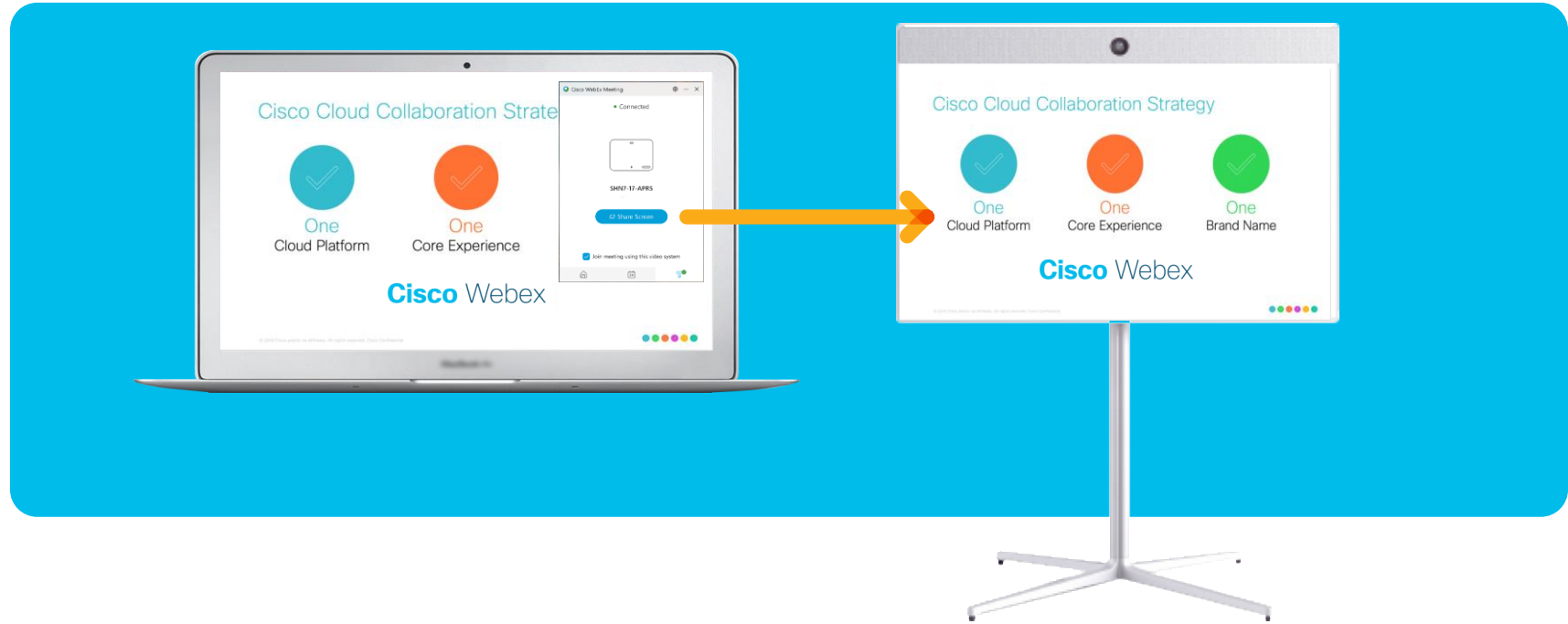
- One Button to Push (OBTP) to join WebEx, Teams or other SIP-based meetings
- Requires Cisco WebEx Teams Calendar services (Exchange, 0365, Google calendar)
- Device selection to join via Deskphone control, WebEx device in proximity or PSTN / TP (dial in / callback)
 - One Button to Push (OBTP) on WebEx Shared and Personal Devices



cisco Live!

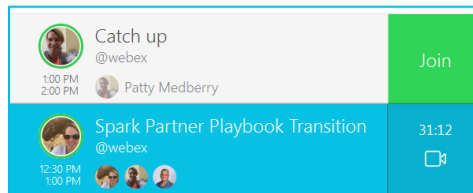
Intuitive and impactful meetings

Detect and connect to your video device for wireless sharing and control with Cisco Proximity

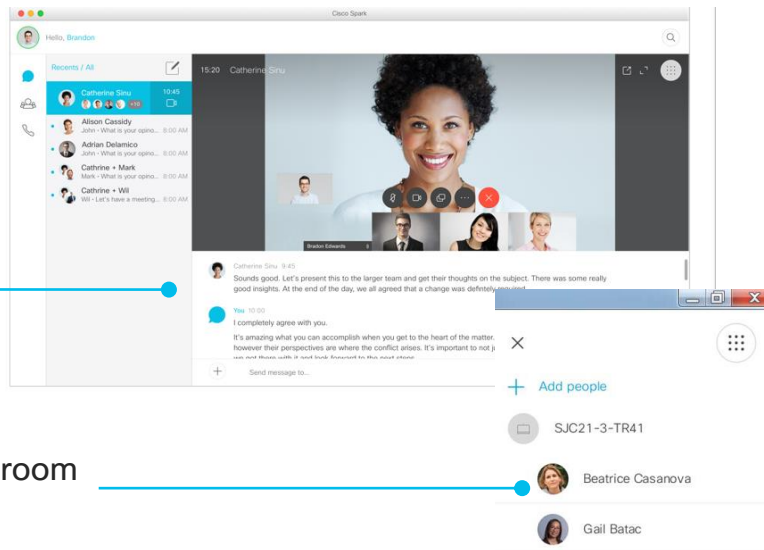


Bringing Context To Your Meetings

- See who is in the meeting so you can decide when to join!
- Easily switch from a meeting to another



- Multitask or locate the file you need to share in the meeting



- Identify who is sitting in the conference room (WebEx devices)

CISCO *Live!*

Cognitive Collaboration: People Insights for Webex

Learn more about the people in your meeting

The screenshot shows a Webex meeting window with a large video of a woman on the left. On the right, a 'Participants' list is visible. Below it, a 'Person' profile card for Tim Cook is displayed. The card includes a photo, name, title ('Chief Executive Officer'), company ('Apple Inc.'), and contact information. It also shows 'INTERNAL' details like email and phone, and 'REPORTING' information. At the bottom of the card, there are sections for 'CURRENT POSITIONS' and 'PAST POSITIONS' with small icons and text.

4 Know more about the companies and people in your meetings

3 You own your information – You can edit or enable or disable your profile information

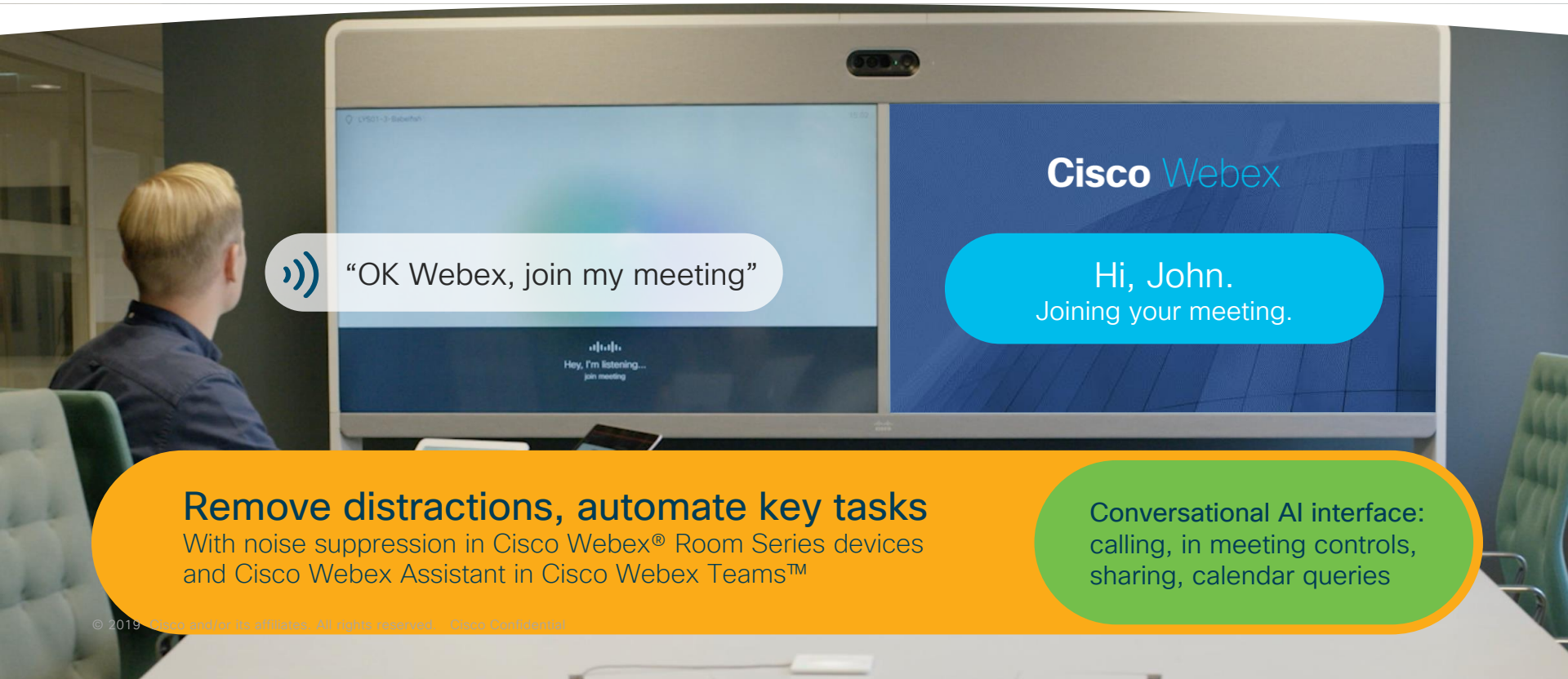
2 View internal directory details for meeting participants that belong to your own organization

1 Webex gathers information from publicly available sources and builds a rich profile for you

The screenshot shows a company profile page for Apple Inc. It features the Apple logo, the company name, and an 'ABOUT' section with a detailed description of the company. Below this, there are statistics for 'Industry', 'Employees', 'HQ', 'Founded', and 'Website'. A 'STOCK MARKET' section displays the market cap, stock price, and a line graph showing price fluctuations over time.

Cognitive Collaboration: Webex Assistant and Noise Suppression

AI powers smarter ways to work



“OK Webex, join my meeting”

Cisco Webex

Hi, John.
Joining your meeting.

Remove distractions, automate key tasks

With noise suppression in Cisco Webex® Room Series devices and Cisco Webex Assistant in Cisco Webex Teams™

Conversational AI interface:
calling, in meeting controls,
sharing, calendar queries

Cognitive Collaboration: Facial Recognition

Know who you're talking to



Privacy & data protection

Organization and user level opt-in

Meet where you work

From your calendar

From messaging apps

From where you learn

From your car



Enable the best meeting experience from third-party tools

Stream to your followers

Facebook Live integration

Help build your
social media presence

Stream your video feed
directly through Facebook
Live



Additional Cisco Webex Services

Webex Events

Highly engaging, large-scale¹ online events to global audiences

Webex Training

Highly interactive and effective online training and e-learning²

Webex Support

Real-time, efficient, personalized customer service and IT support

Webex Webcasting

Managed service for large-scale online events (up to 40,000+ participants)

Cisco Webex[®] Assist Services available for meetings, events, and trainings

Video Mesh

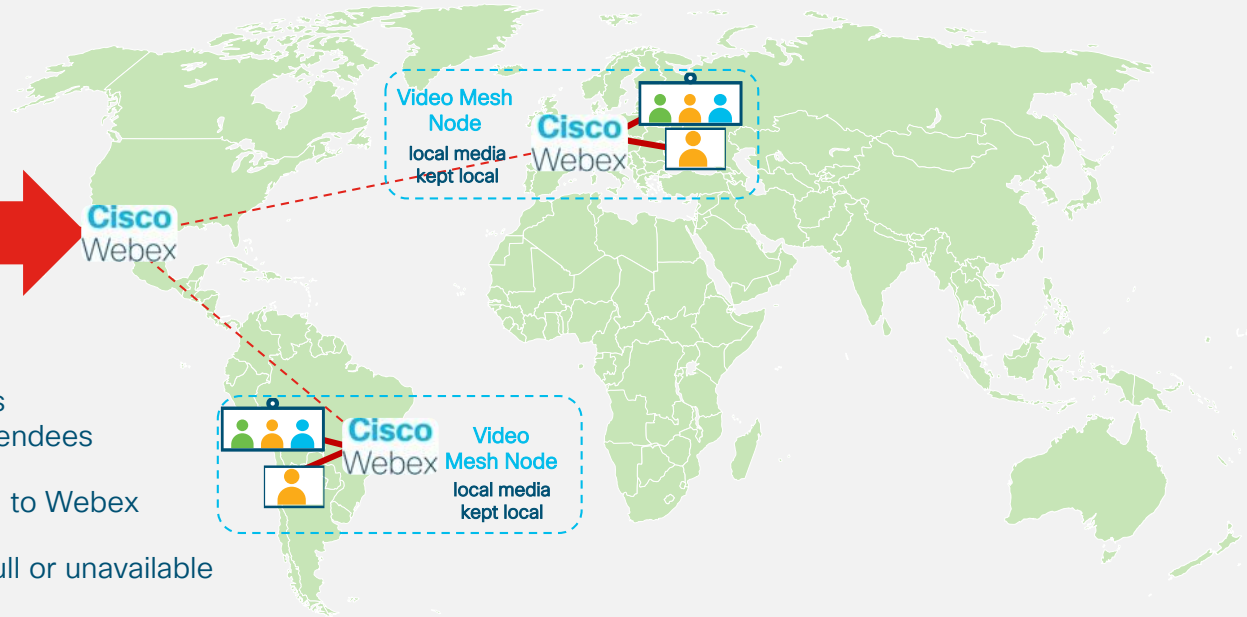
Webex Edge Video Mesh

On-premises video quality and bandwidth savings

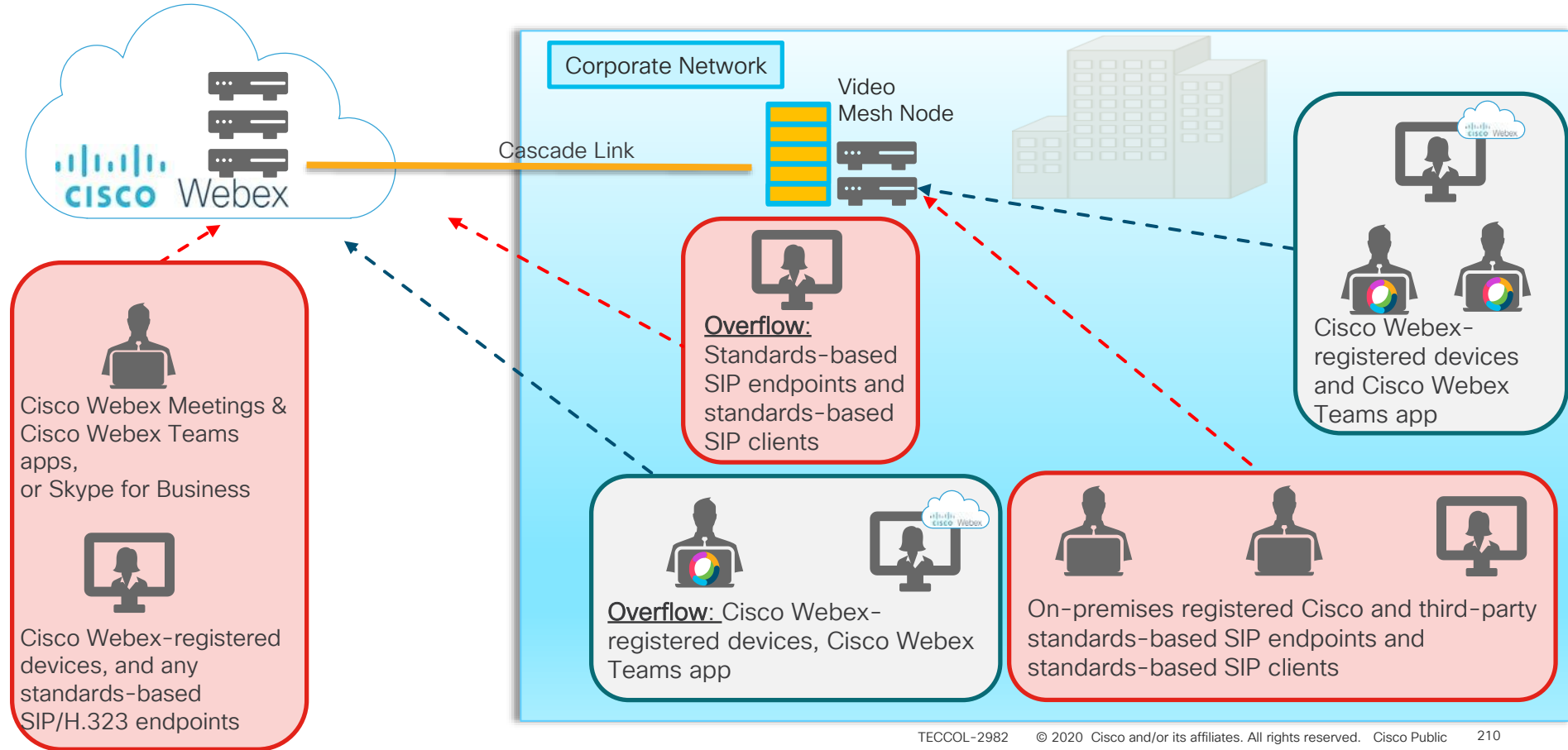


Webex Edge Video Mesh

- Software extends cloud to the premises - media stays local for on-premises attendees
- Cloud simple: managed by & registered to Webex cloud
- Automatic overflow if local capacity is full or unavailable

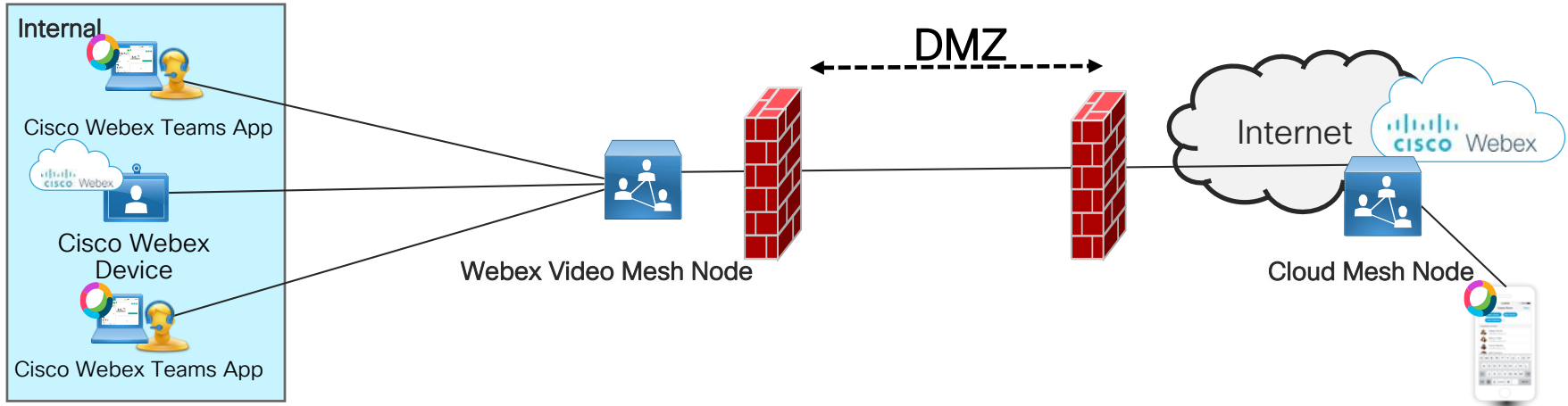


Cisco Webex Video Mesh



Architecture

Webex Video Mesh – Option 1

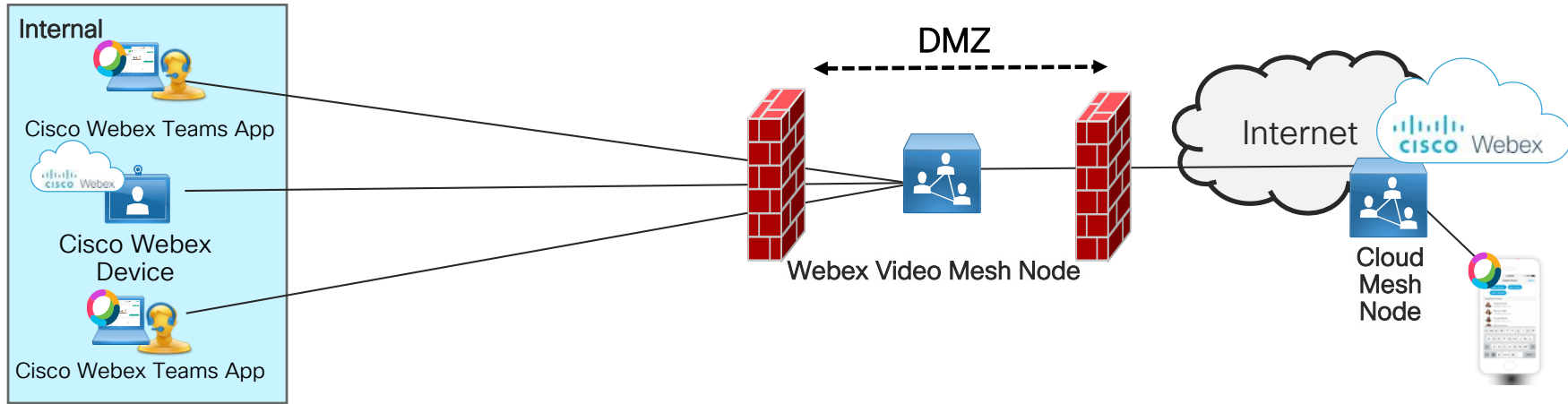


Internal installation considerations:

- All media for internal participants stay internal
- Placed with other collaboration infrastructure devices
- Single connection per conference to Cloud Mesh Nodes

Architecture

Webex Video Mesh – Option 2



DMZ installation considerations:

- External media does not traverse the internal network.
- All media for internal participants goes to the DMZ.
- Security policy does not allow Cisco Webex network ports to be opened outbound for media directly to the Internet from the internal network.

What devices and scenario can the Video Mesh node be used?

Uses the Node



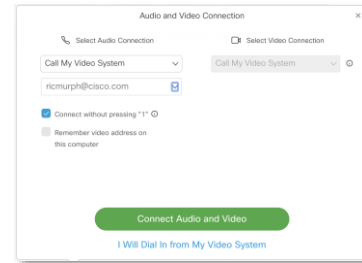
- Any Cisco Webex-registered device
 - SX, MX, DX, Room-series, Webex Board
- Cisco Webex Teams app
 - Desktop and Mobile
- CUCM-registered devices
 - Calling a Cisco Webex scheduled meeting or personal room.
 - SX, MX, DX, Room-series, Jabber, Jabber VDI (12.6 or higher)



Uses the Node

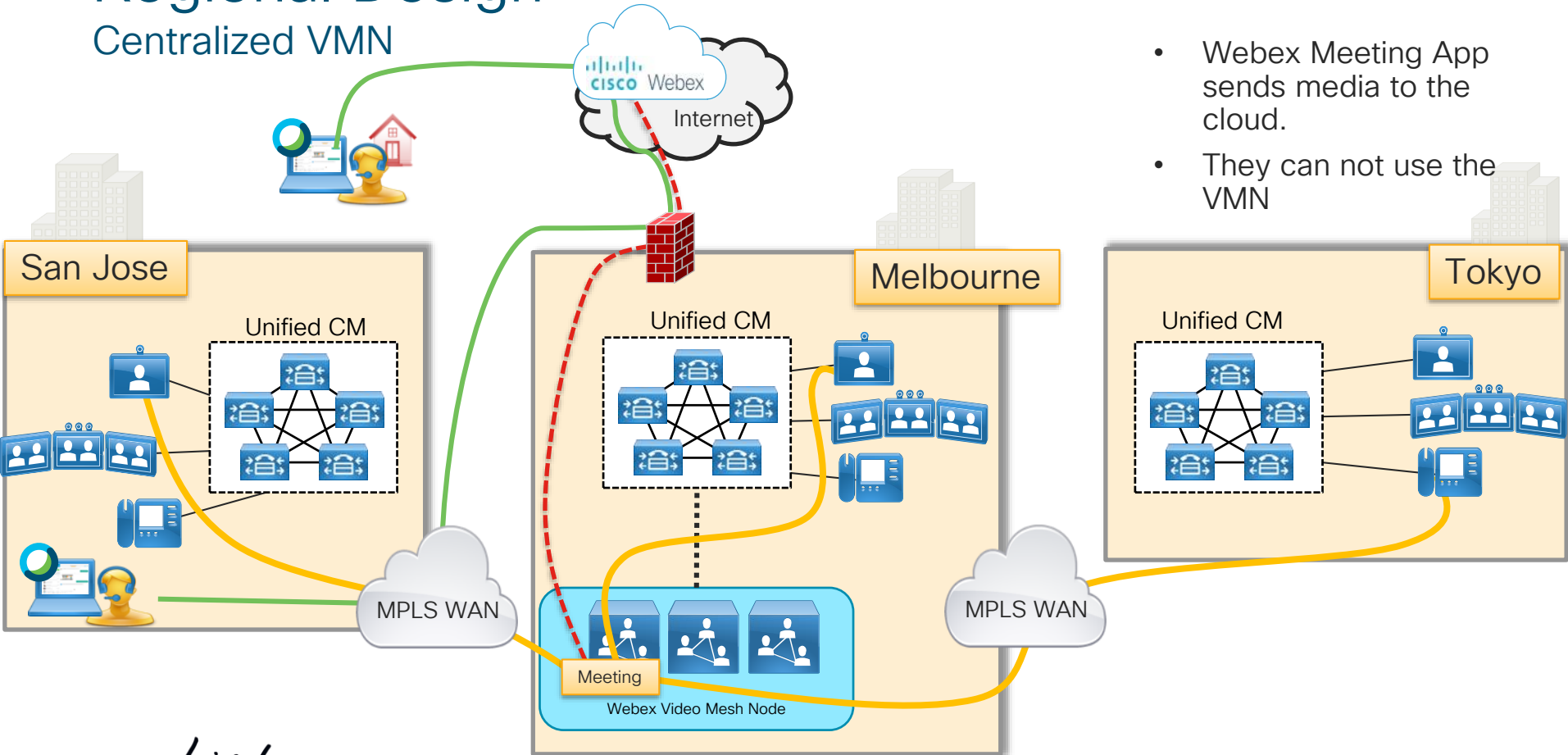


- Cisco VCS/Exp.-registered devices
 - Calling a Cisco Webex scheduled meeting or personal room.
 - SIP or H.323 (requires Interworking)
- Cisco Webex VDI client (39.3 or higher)
- Cisco Webex *Call My Video System* to Webex-registered endpoints



Regional Design

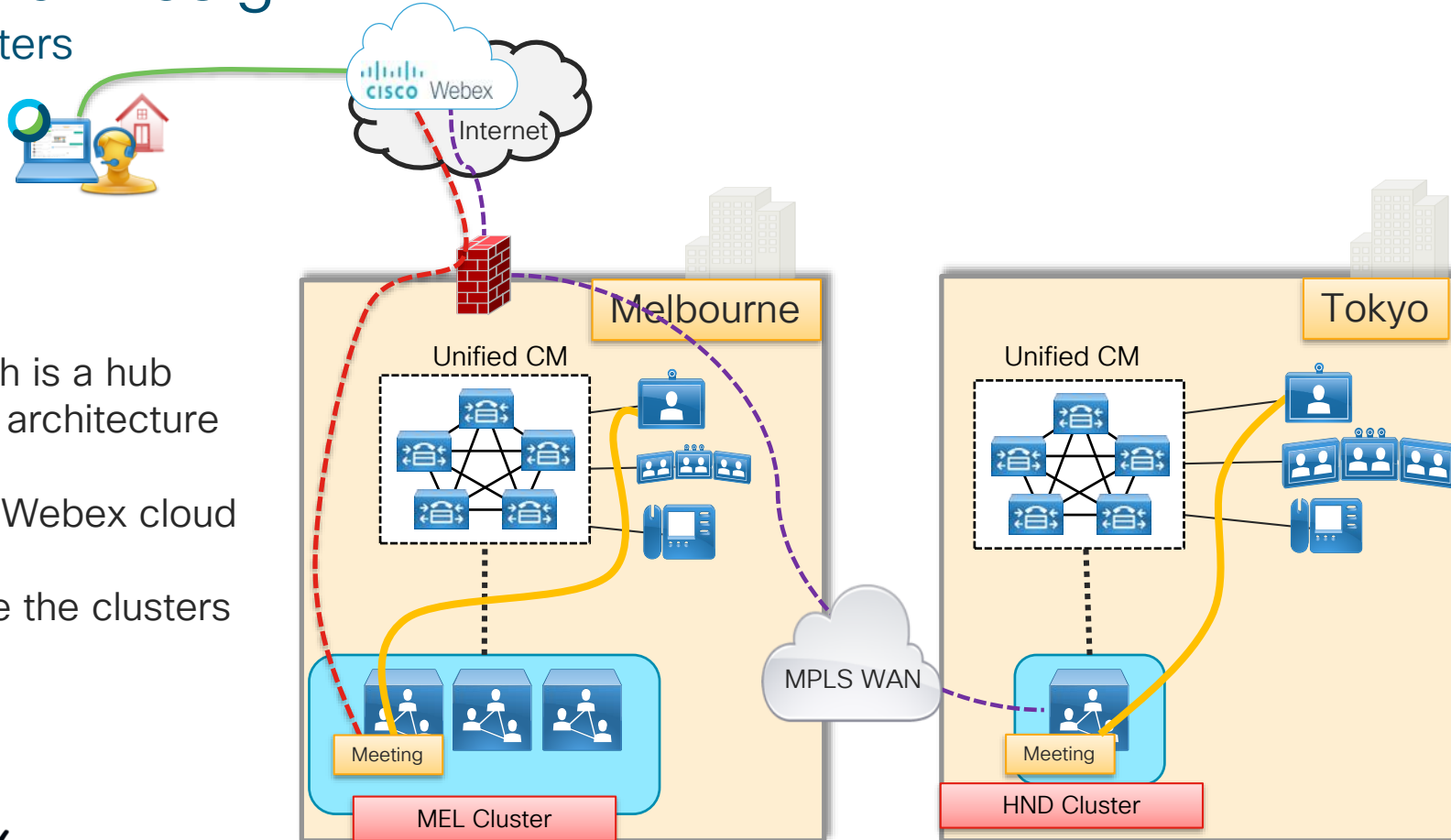
Centralized VMN



- Webex Meeting App sends media to the cloud.
- They can not use the VMN

Regional Design

Two Clusters



- Video Mesh is a hub and spoke architecture
- Hub is the Webex cloud
- Spokes are the clusters

Overview

Number of ongoing calls

Node Type, SW Image

Usage and Service Status

Node specific Alarm Notification

Cisco Webex
Video Mesh Node

Overview

Trust Store & Proxy

Server Certificate

Troubleshooting

Overview

Call Status

0

calls

Node Details

Type	Video Mesh Node
Image	Production
Deployment Type	Cms1000
Release Channel	Beta
Provisioning	Cloud
Version	2019.07.12.1917m.1
OS Version	2135.5.0
QoS	On
Maintenance Mode	Off

Node Health

CPU	70 cores, 0.33% used
Memory	3.66GB of 58.96GB used (6.2%)
Disk Space	13.43GB of 251.56GB used (6%)
Management Service	Active
Messaging Service	Active
NTP Sync	Active

Notifications

Hostname configuration of the Video Mesh Node is invalid.

The Video Mesh node's hostname settings are invalid and these alerts were generated on the node: Unable to resolve FQDN videomesh1.ucdemolab.com's IP address against the current DNS settings. These issues may cause sharing problems for users in Webex meetings. Please check the hostname and domain settings.

Last Reported: Wed Jul 24 2019 13:08:33 GMT-0400 (Eastern Daylight Time)

Experienced problem connecting to Cisco Webex Cloud services

Experienced problem connecting to Cisco Webex Cloud services.

Last Reported: Tue Jul 16 2019 00:44:22 GMT-0400 (Eastern Daylight Time)

Network Settings

Hostname	videomesh1.ucdemolab.com
Interface	00:50:56:88:bb:73
IP	10.99.255.21/24
Gateway	10.99.255.1
DNS	10.99.101.12, 10.99.102.11
NTP	ntp.ucdemolab.com, 10.99.101.12, 10.99.102.11
Dual IP	Disabled

Registration Details

Registered	Yes
Organization	UC Demo Lab
Org ID	35a15b0a-0ef1-4029-9f63-a7c54df5df59
Cluster	Boxborough - Full
Cluster ID	b7c30185-99cc-4ba7-b5b5-77adb1871dd8

Cloud Connectivity

Webex Cloud Resolution Test	Pass
3rd Party Resolution Test	Pass
Webex Cloud Connectivity Test	Pass
3rd Party Connectivity Test	Pass
Webex Cloud Bandwidth Test	Testing
3rd Party Bandwidth Test	Pass

Network Information

Node Registration Status

DNS Test, Server Response time, BW test

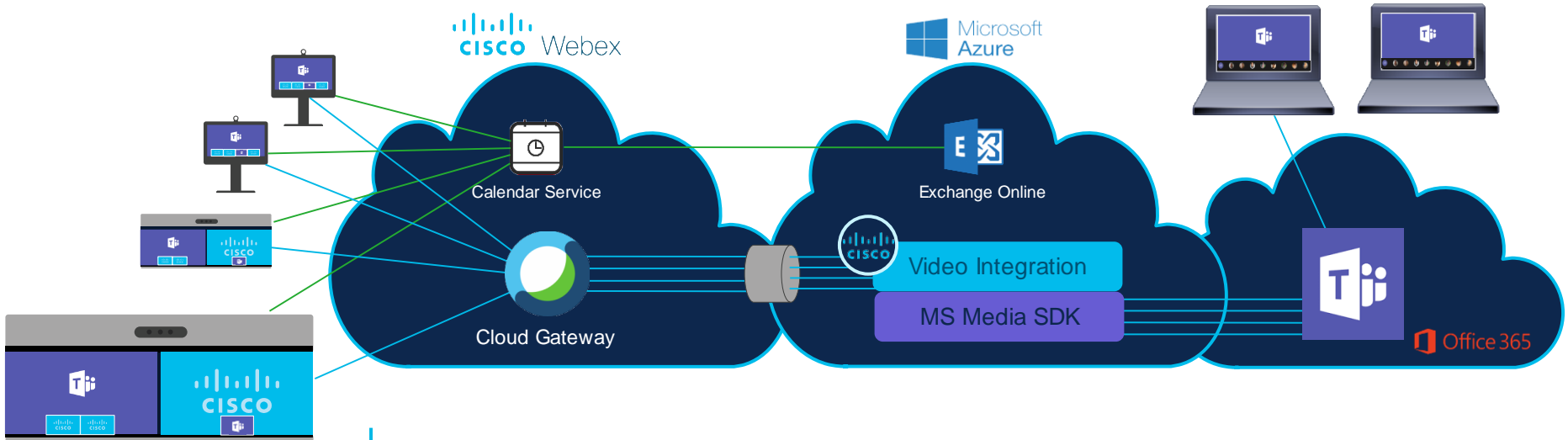
Hover to reveal when the test was run and what was checked

cisco *Live!*

Microsoft Teams and Cisco Webex

Cisco Webex Video Integration for Microsoft Teams

Cloud Gateway



Cisco & Third-Party SIP
Cloud and Premises Registered

Schedule & Join: Calendar integration provides OBTP on Cisco video endpoints. One click to join from Microsoft desktop and mobile

In-meeting: flexible multi-screen layouts, MS Teams users see their respective layouts, receive and send content, plus meeting controls

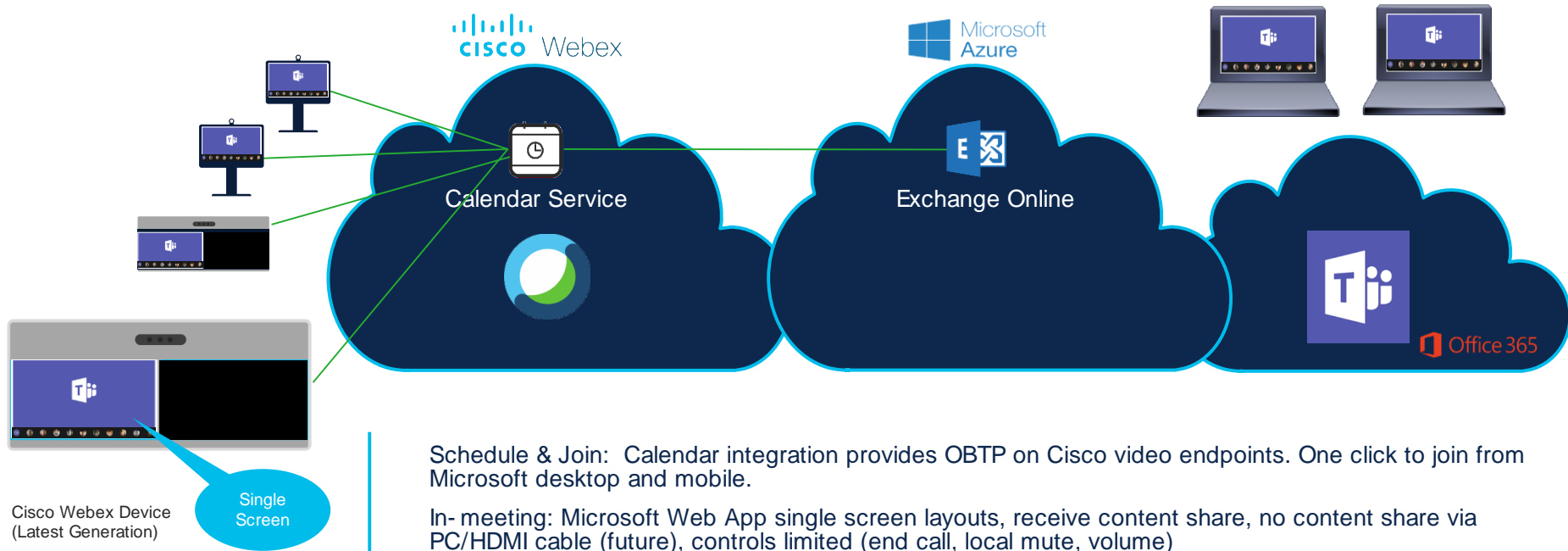
Participant List: Cisco and Microsoft participants receive full participant roster

Set Up: Administered via Webex Control Hub and Office 365 Admin

CISCO Live!

Cisco Webex Devices for Microsoft Teams meeting

Microsoft Web App (WebRTC)



Schedule & Join: Calendar integration provides OBTP on Cisco video endpoints. One click to join from Microsoft desktop and mobile.

In-meeting: Microsoft Web App single screen layouts, receive content share, no content share via PC/HDMI cable (future), controls limited (end call, local mute, volume)

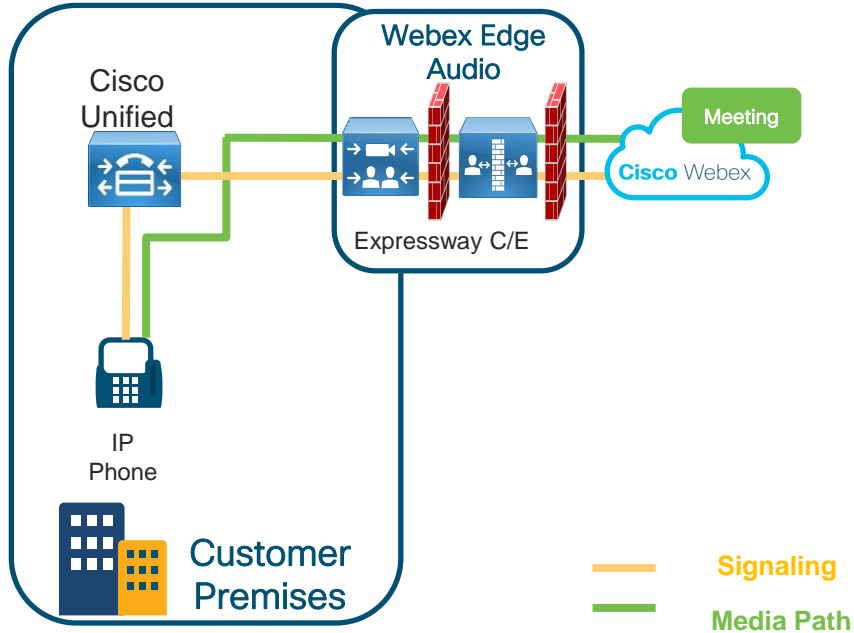
Deployment: Cisco Video endpoints must be cloud-registered or registered on-premises using Webex Edge for Devices

Set Up: Administered via Webex Control Hub and Office365 Admin

Webex Edge

Cisco Webex Edge Audio

Architecture requirements



Unified CM support only

- 10.5 or later

Cisco UCM registered IP phones

- Supporting G.711 or G.722

Expressway support only

- X8.10 or later
- Can use existing Expressway C/E deployment
- Audio scale dependent on Expressway deployment and services enabled.

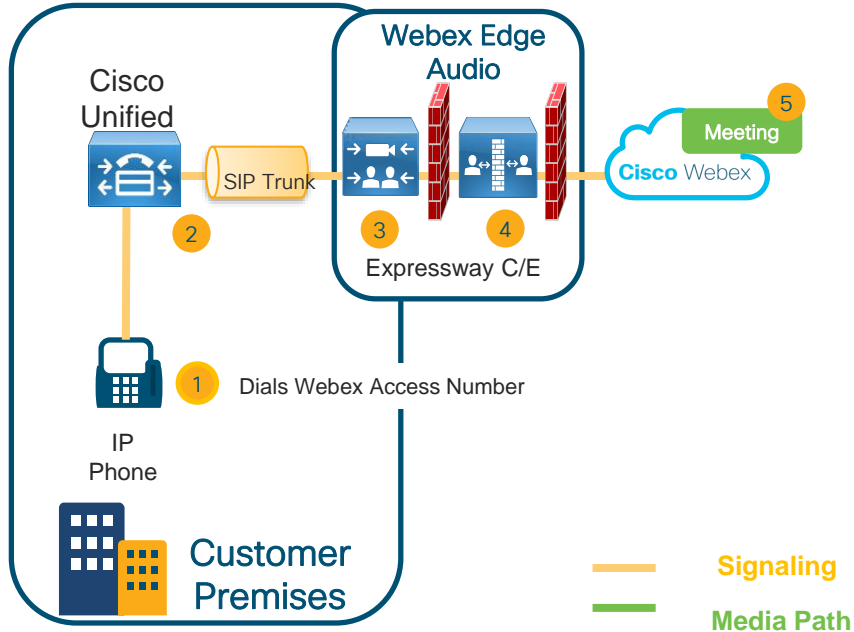
Webex site

- WBS 33.x or higher
- Included in Flex, A-WBX and A-SPK SKU need the Webex Edge Audio package
- Not available on CCA-SP, CCA-ENT or TSP sites.
 - Requires migration to Webex Audio Site

Requires a signed certification from a Cisco trusted Certificate Authority (CA)

Cisco Webex Edge Audio

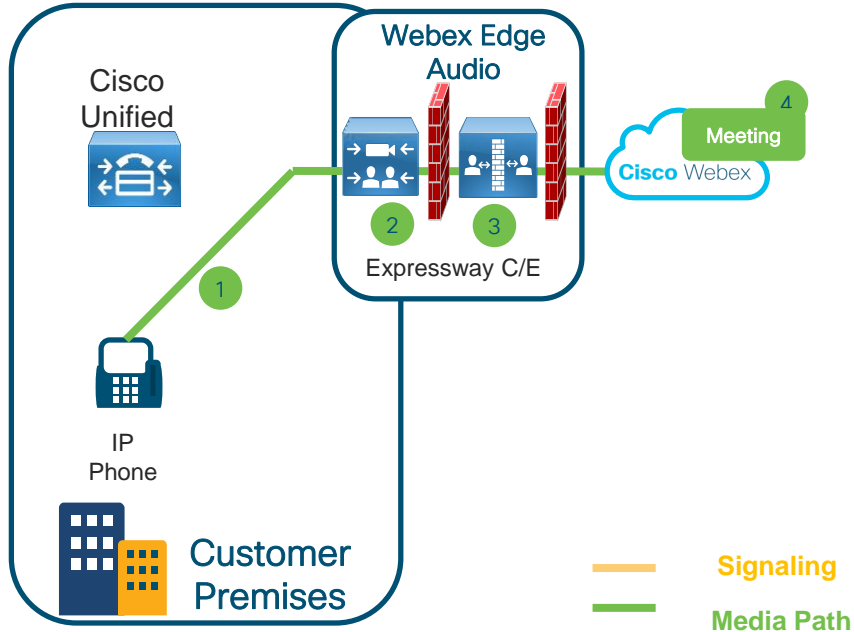
Dial in Signaling Call Flow



1. Endpoint dials Webex Audio access number.
2. Cisco UCM matches the number and routes as +E.164 through SIP trunk to Expressway-C.
3. LUA script on SIP trunk to Expressway-C applies transformations required for correct routing to Webex
4. Expressway-C sends request to Expressway-E.
5. Expressway-E routes call to the Webex cloud.
6. Meeting resources are setup.

Cisco Webex Edge Audio

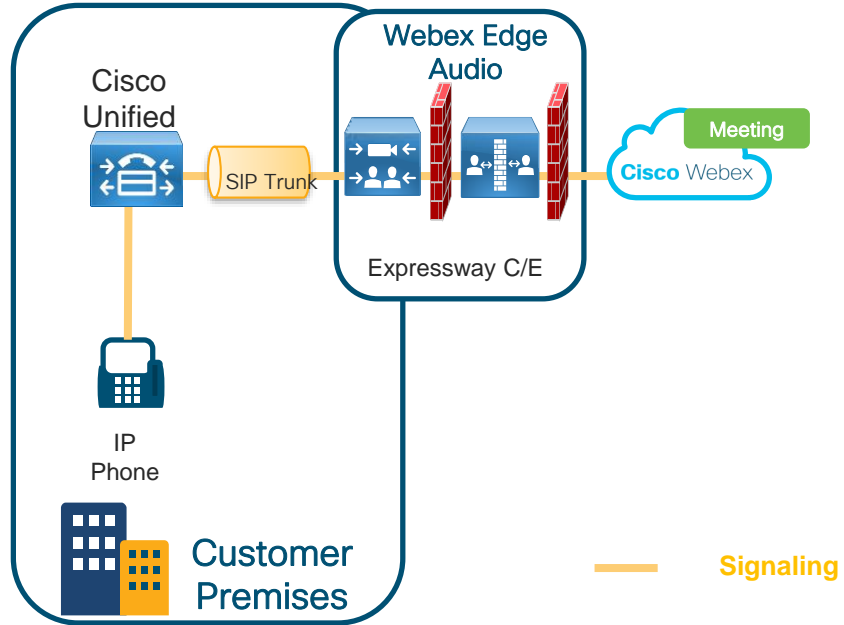
Dial in Media Call Flow



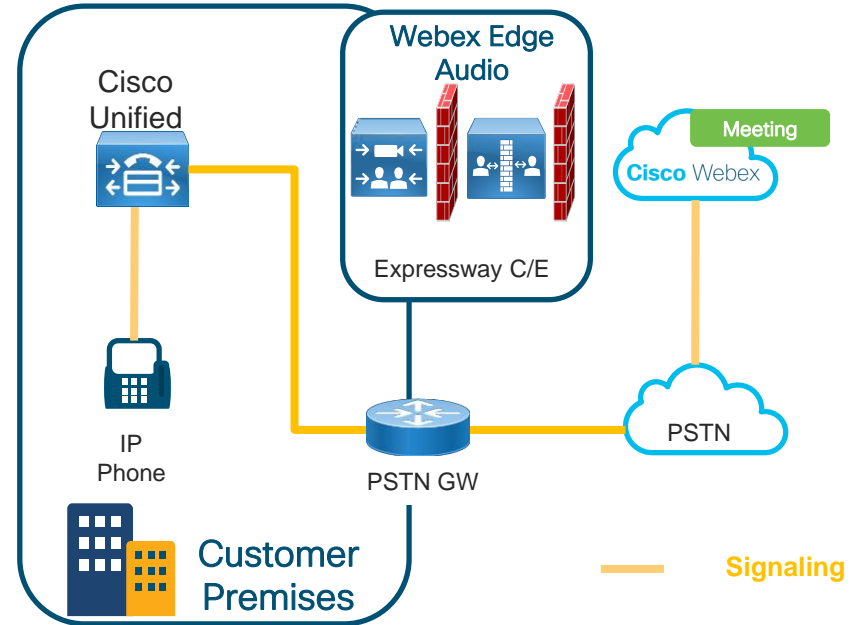
1. The IP phone sends media to Expressway-C
2. The Expressway-C sends media to Expressway-E via the traversal zone
3. The Expressway-E sends media to the Webex cloud.
4. IP phone's audio is mixed into the meeting and it hears the other participants.

Cisco Webex Edge Audio

Dial in Signaling Call Flow with and without Edge Audio configuration



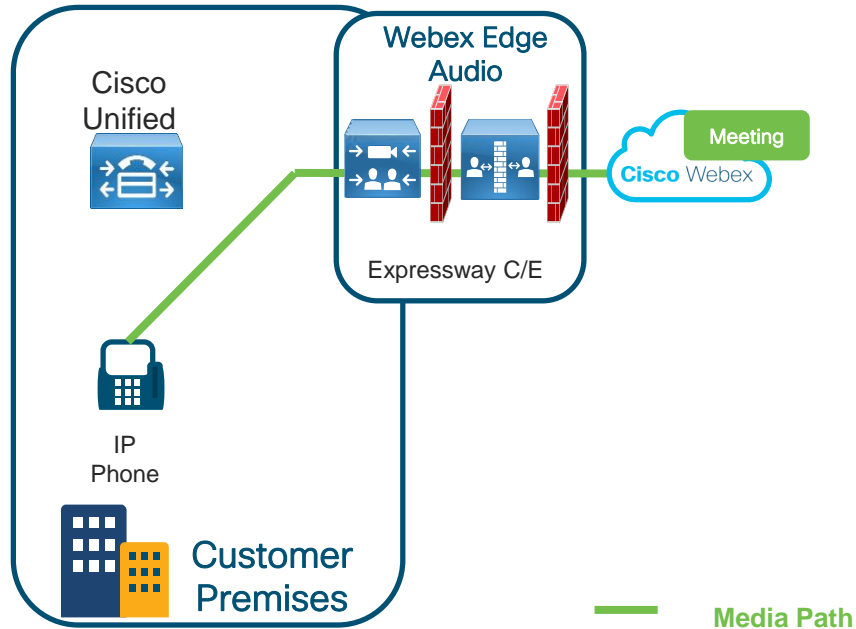
User dials E.164 Webex Access number that **does** have an associated Edge Audio route pattern in Cisco UCM



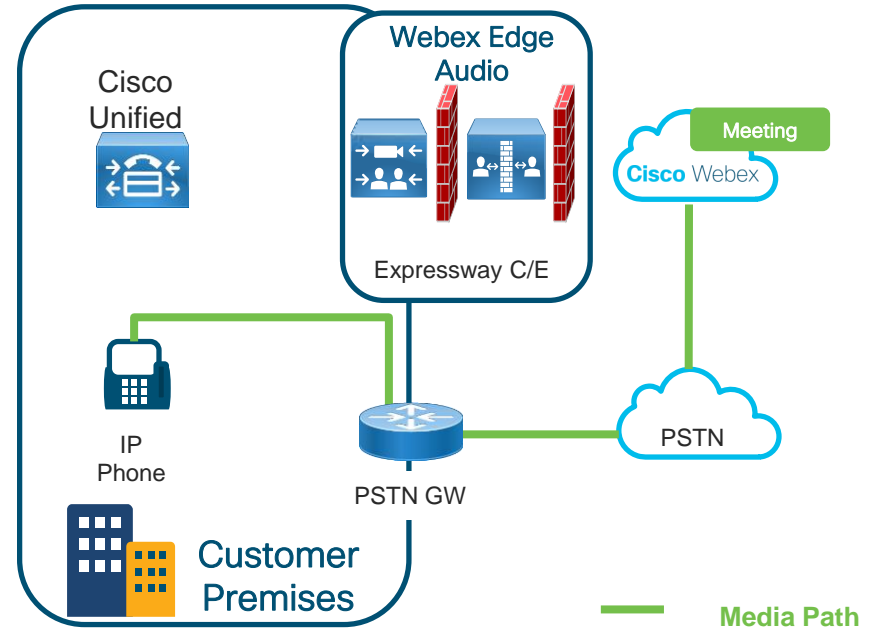
User dials E.164 Webex Access number that **does not** have an associated Edge Audio route pattern in Cisco UCM

Cisco Webex Edge Audio

Dial in Media Call Flow with and without Edge Audio configuration



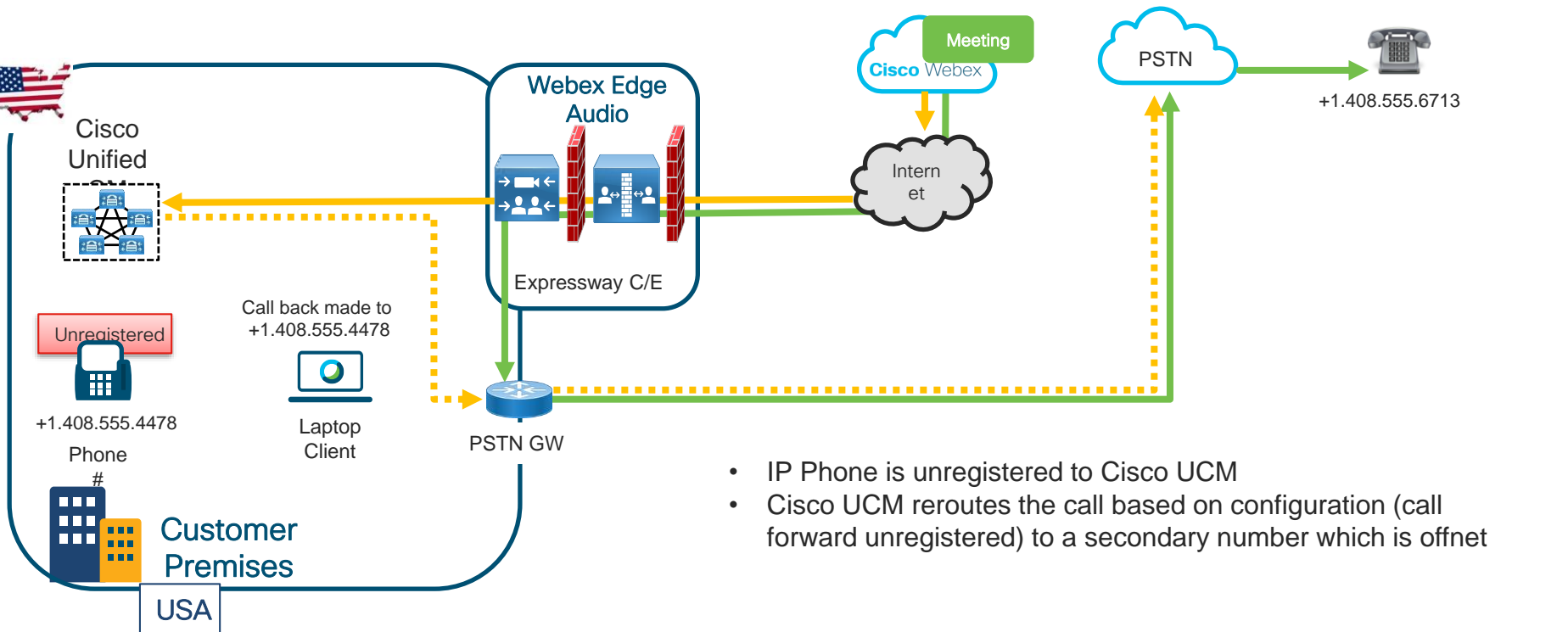
User dials E.164 Webex Access number that **does** have an associated Edge Audio route pattern in Cisco UCM



User dials E.164 Webex Access number that **does not** have an associated Edge Audio route pattern in Cisco UCM

Deployment Scenarios

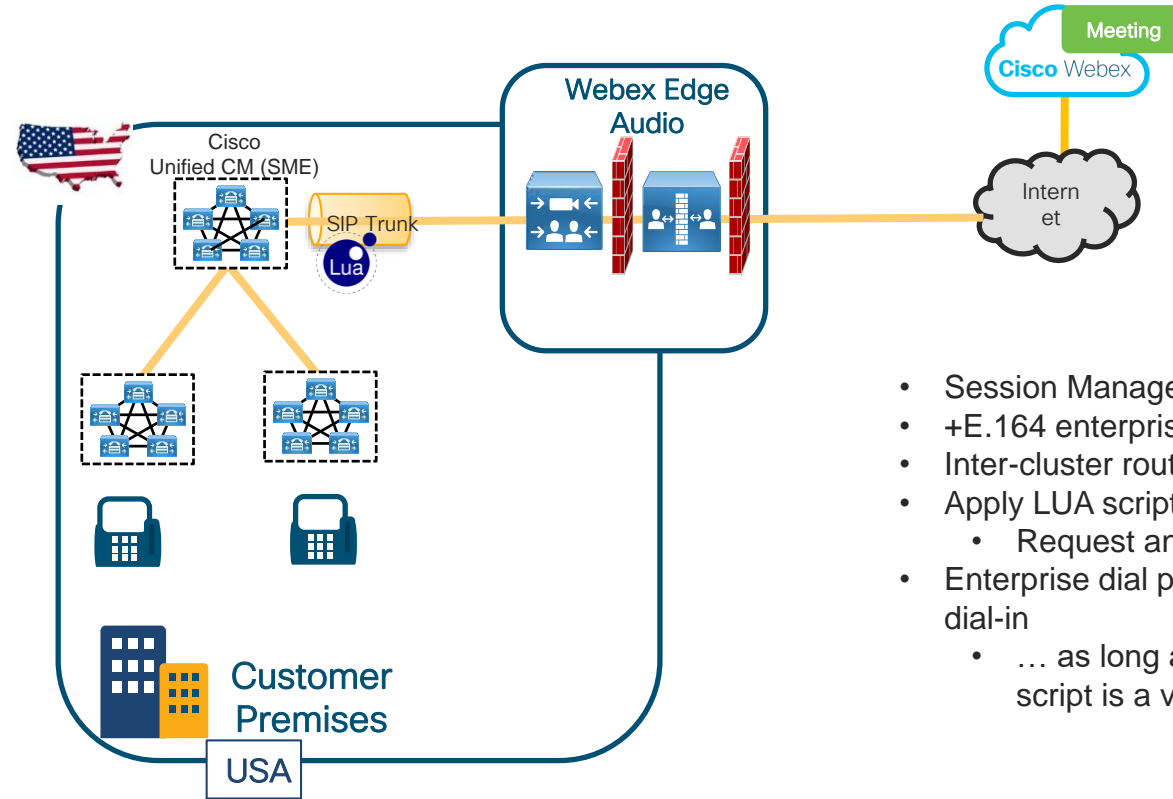
Single site Call Back US



- IP Phone is unregistered to Cisco UCM
- Cisco UCM reroutes the call based on configuration (call forward unregistered) to a secondary number which is offnet

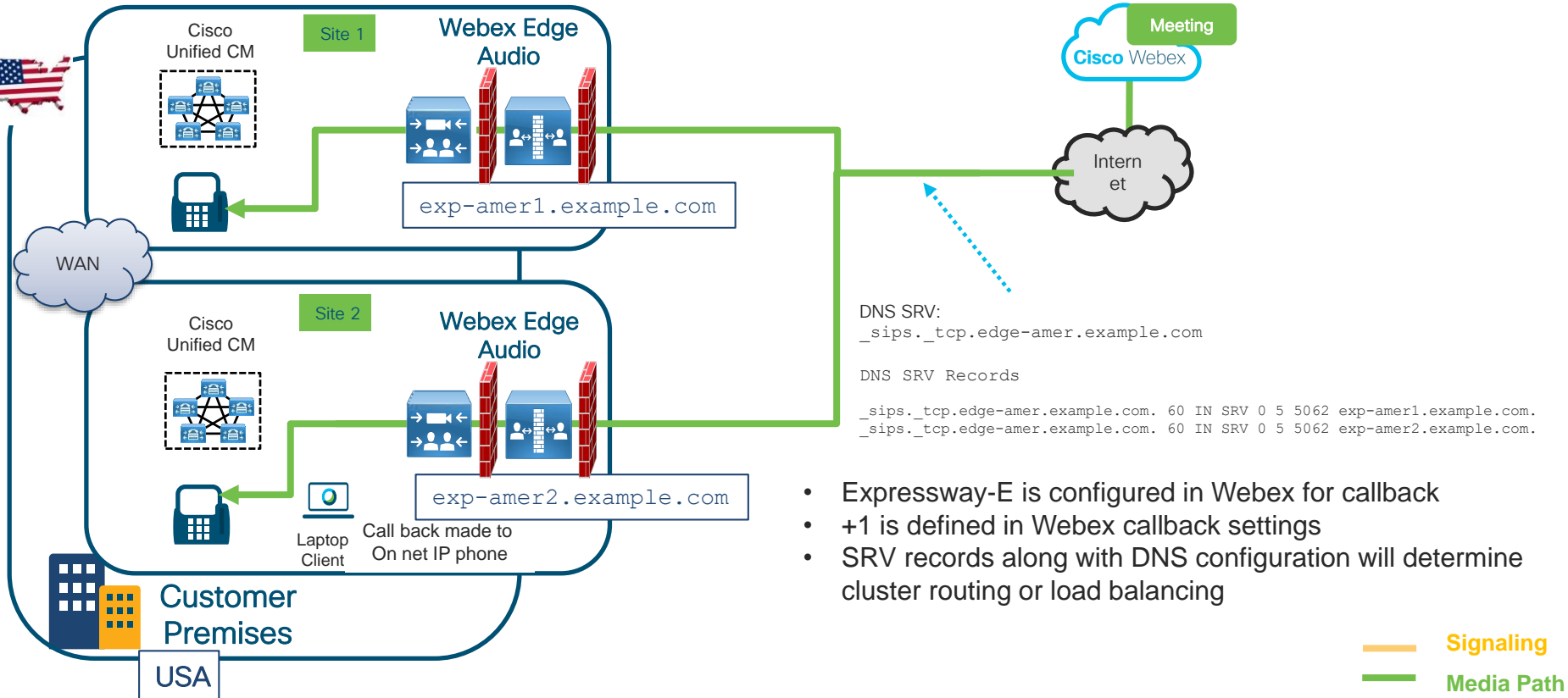
— Signaling
— Media Path

Single site with SME

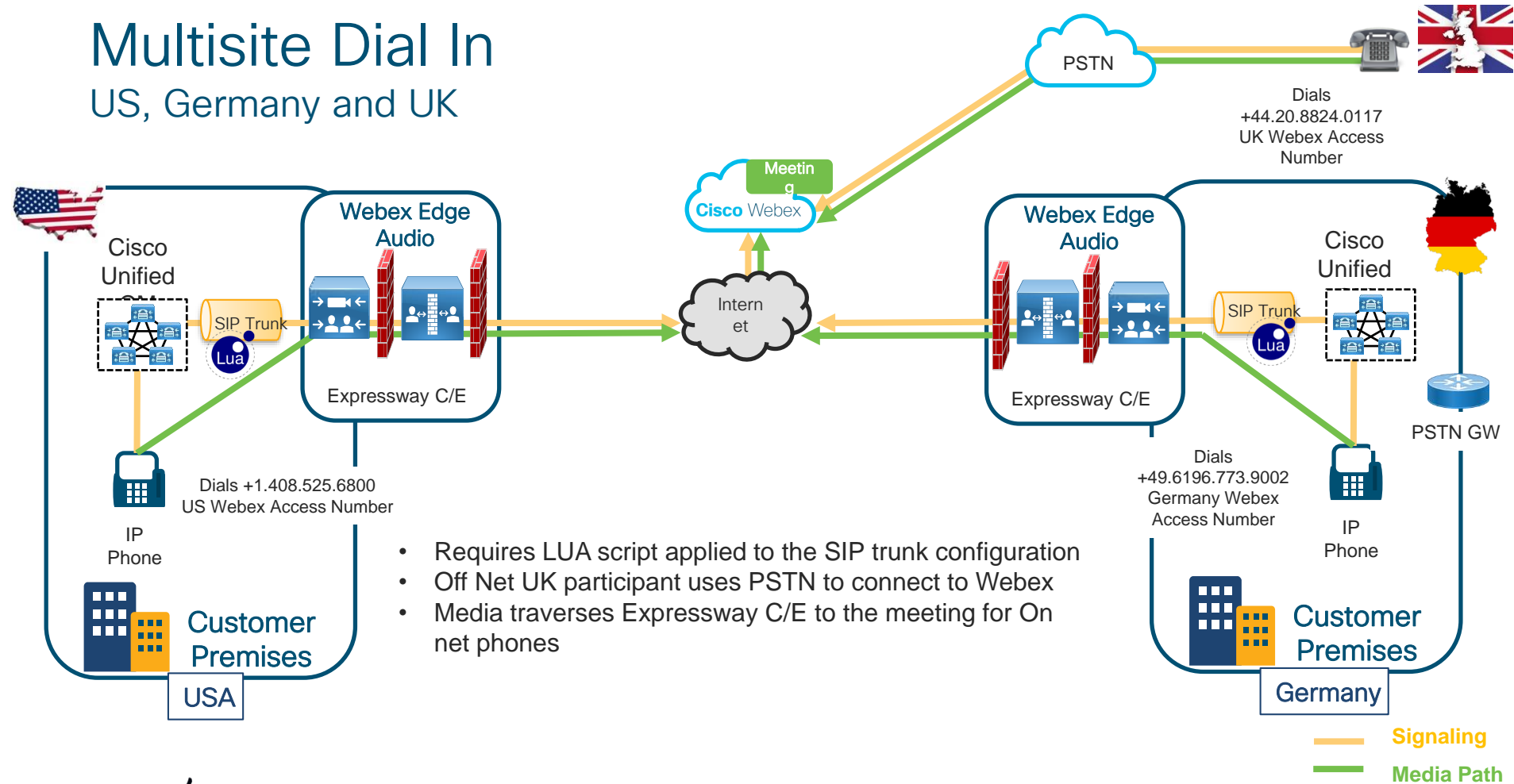


- Session Manager Edition is supported
- +E.164 enterprise dial plan to route dial-in and call-back
- Inter-cluster routing using ILS/GDPR
- Apply LUA script on SME trunk for dial-in
 - Request and To: URI manipulation
- Enterprise dial plan can support arbitrary dialing habits for dial-in
 - ... as long as the number ultimately exposed to LUA script is a valid +E.164 Webex dial-in number

Single Country Call Back – Multiple Expressways



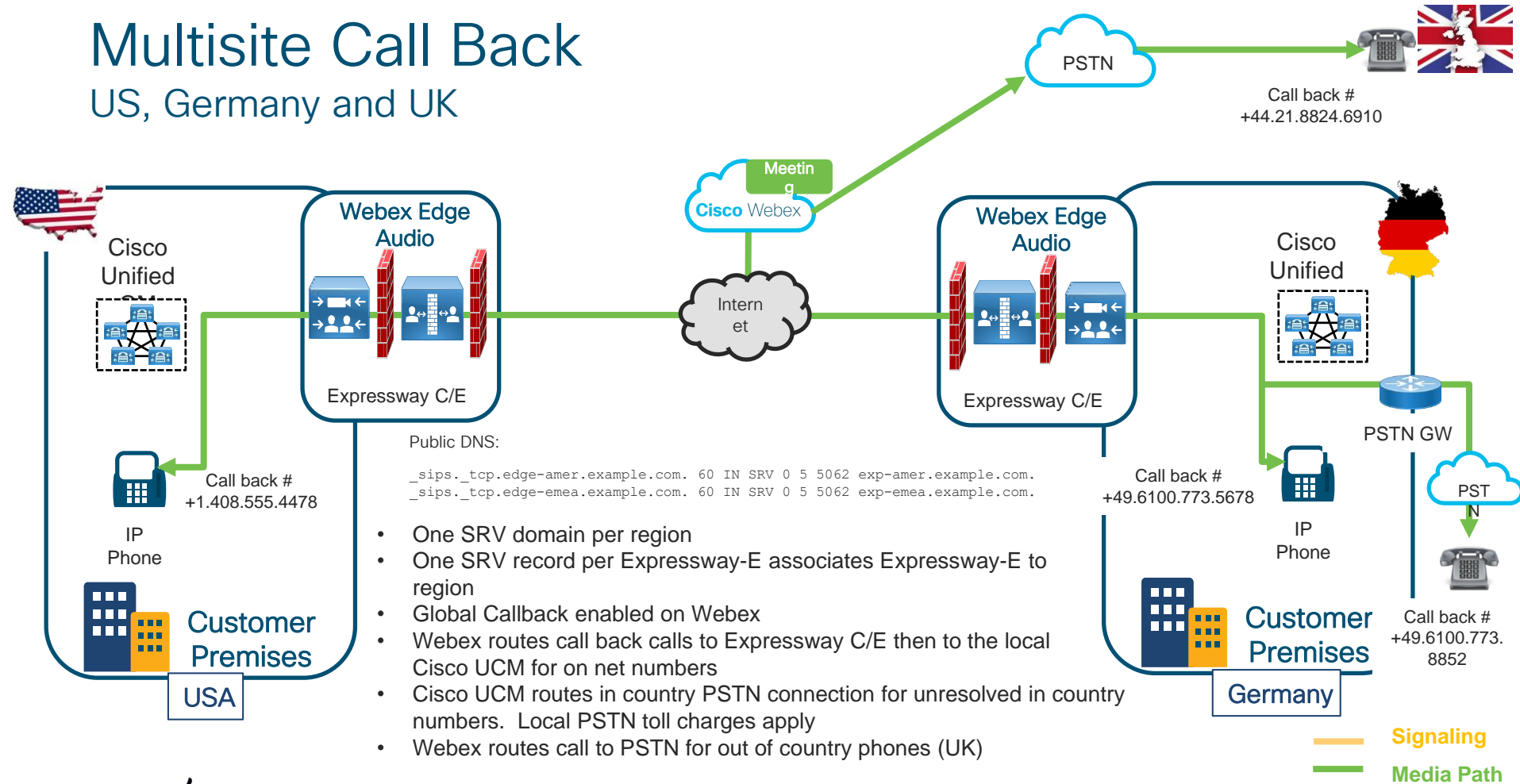
Multisite Dial In US, Germany and UK



- Requires LUA script applied to the SIP trunk configuration
- Off Net UK participant uses PSTN to connect to Webex
- Media traverses Expressway C/E to the meeting for On net phones

Multisite Call Back

US, Germany and UK



PSTN Fall Back



Cisco Webex Control Hub

- Overview
- Users
- Places
- Services
- Devices
- Analytics
- Troubleshooting
- Settings

Webex Edge Audio

Cisco Webex Meetings Sites > Configure ucdemolab.webex.com > Webex Edge Audio

solution.

Dial-in Settings

Click [Generate Lua Script](#) and save the Lua script to your computer. Then apply the Lua script to your Unified CM to update its configurations that allow for the appropriate routing of dial-in calls to the cloud. [Click here](#) to view the list of phone numbers allowed under this setting.

[Generate Lua Script](#)

Callback Settings

When enabled, this option allows calls that fail or are rejected via Edge Audio to redirect using the configured PSTN provider. PSTN charges will apply.

Retry call using PSTN Audio

Enable

Country/Region:

Afghanistan (93)

Expressway DNS SRV:

[Add](#)

Country/Region	Expressway DNS SRV	Connectivity Check Status	Action
----------------	--------------------	---------------------------	--------



Webex Edge Connect

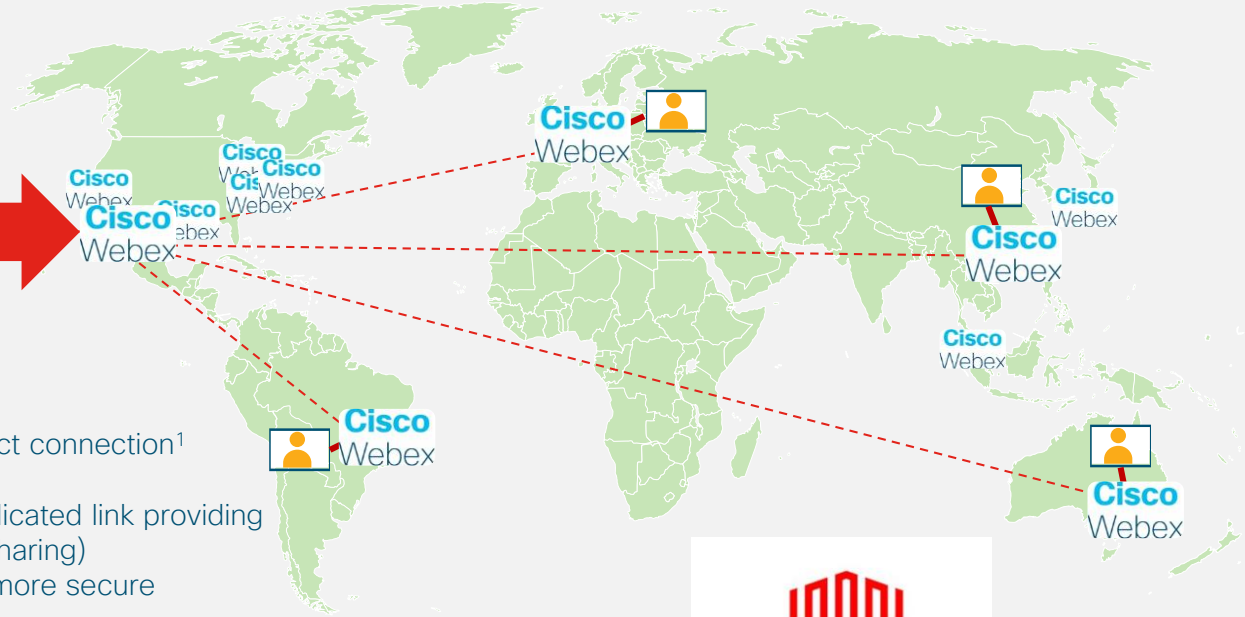
Webex Edge Connect

Brings the power of the Webex backbone directly to your data center



Webex Edge Connect

- A direct peering at Equinix data centers
- Bypasses the Internet by providing a direct connection¹ to the Webex data center
- All Webex media traffic traverses the dedicated link providing end-to-end QoS. (VoIP, video, content sharing)
- When used with Video Mesh provides a more secure end-to-end experience



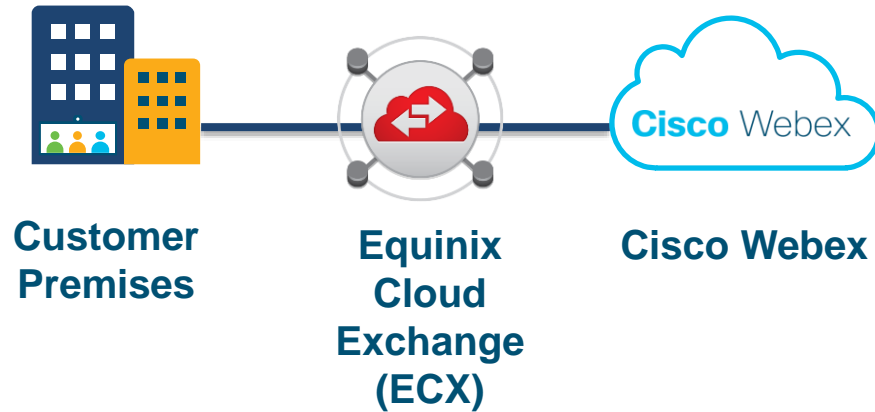
¹ via a peering agreement with Equinix

Webex Edge Connect and ECX Locations



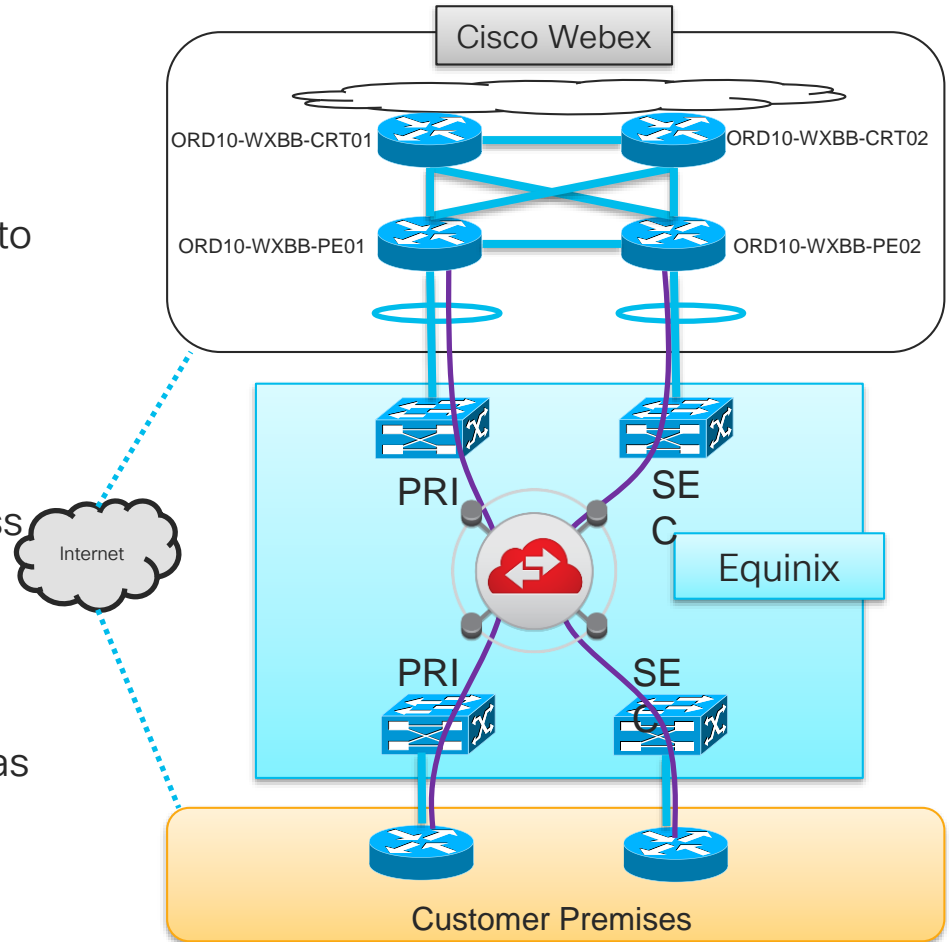
Customer Requirements

1. A cage and router in place at Equinix
2. A paid connection to the Equinix Cloud Exchange
3. Knowledge of BGP Routing
4. Public BGP Autonomous System Number
5. Public provider independent IP block
 - No RFC1918 addressing (10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/16)
 - Customer may rent a /29 IP block from Equinix
6. Paid service to Cisco Webex



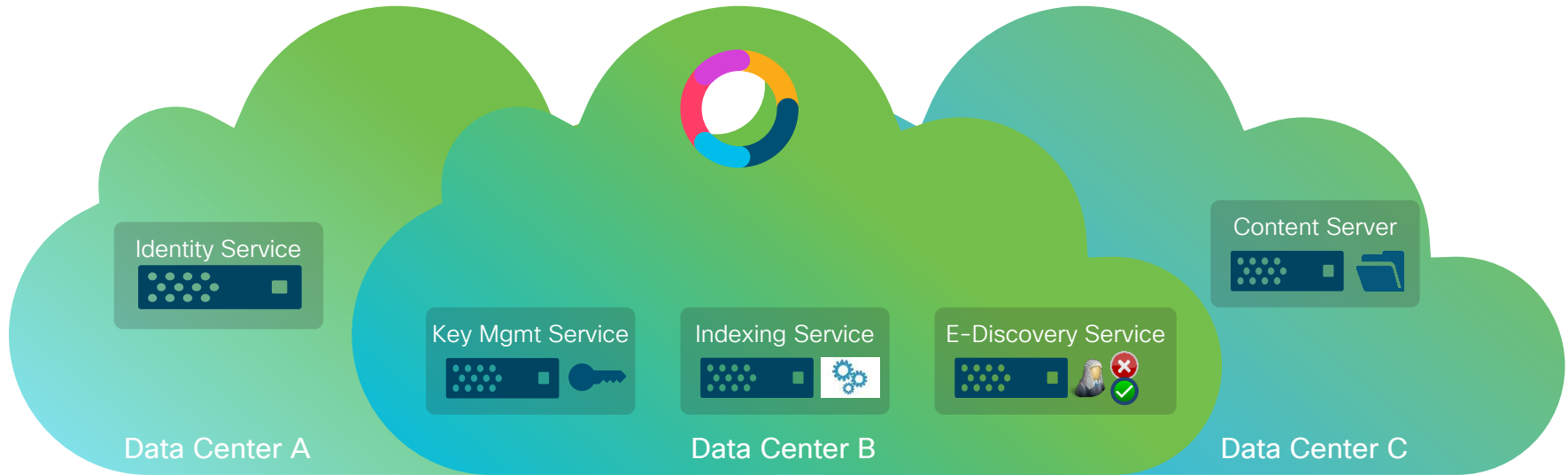
Architecture

- A customer setups up dual connections to Equinix for redundancy
- Cisco Webex has redundant connection to Equinix at all colocations across the globe
- BGP routing is used to route traffic across the peering connection.
- Customers that have a global presence can choose which regions to peer.
- Customer's Internet connection is used as fallback



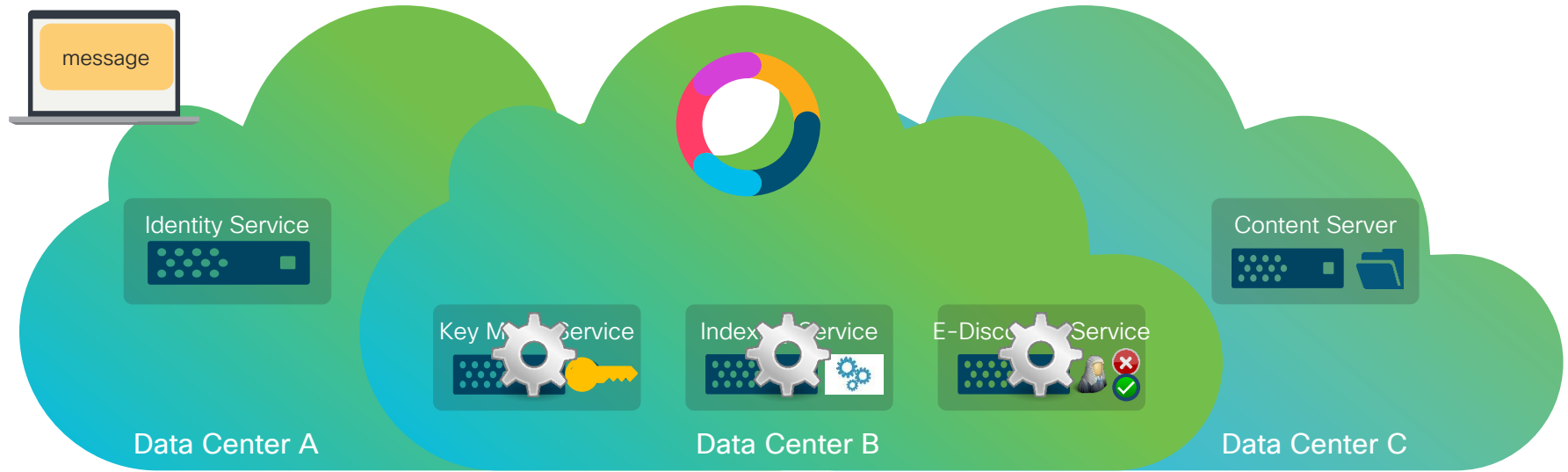
Cloud Security and Hybrid Data Security

Webex Cloud Security - Realms of Separation



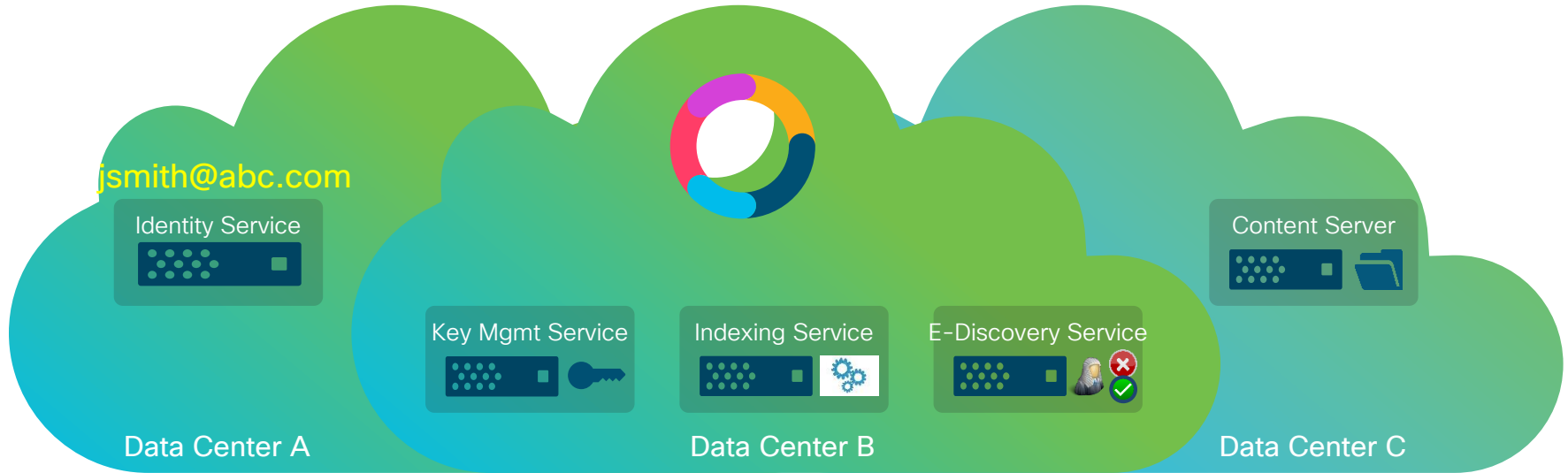
Webex logically and physically separates functional components within the cloud Identity Services holding real user Identity (e.g. email addresses) are separated from Encryption, Indexing and E-Discovery Services, which are in turn separated from Data Storage Services

Realms of Separation – Encryption and Storage



Webex logically and physically separates functional components within the cloud Data Services such as Encryption Key Generation, Secure Message Indexing for Data Search, and E-Discovery functions operate in different Data Centers from the Data Center that encrypted content is stored in

Realms of Separation – Identity Obfuscation

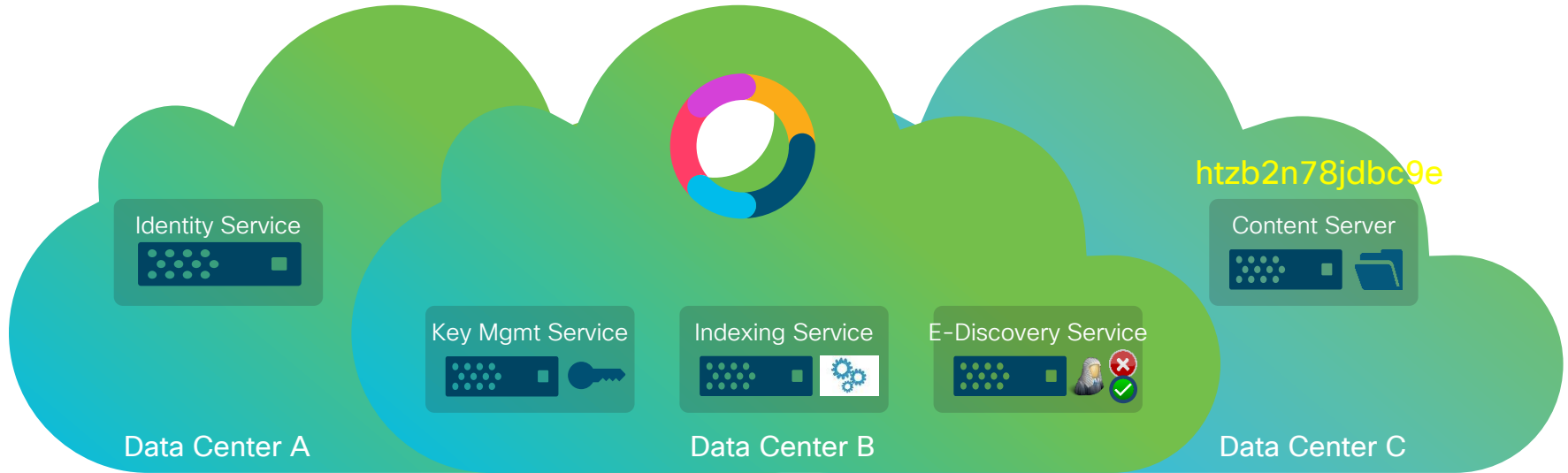


Outside of the Identity Service – Real Identity information is obfuscated :

For each User ID, Webex generates a random 128-bit Universally Unique Identifier (UUID) = The User's obfuscated identity

No real identity information transits the cloud

Realms of Separation – Identity Obfuscation



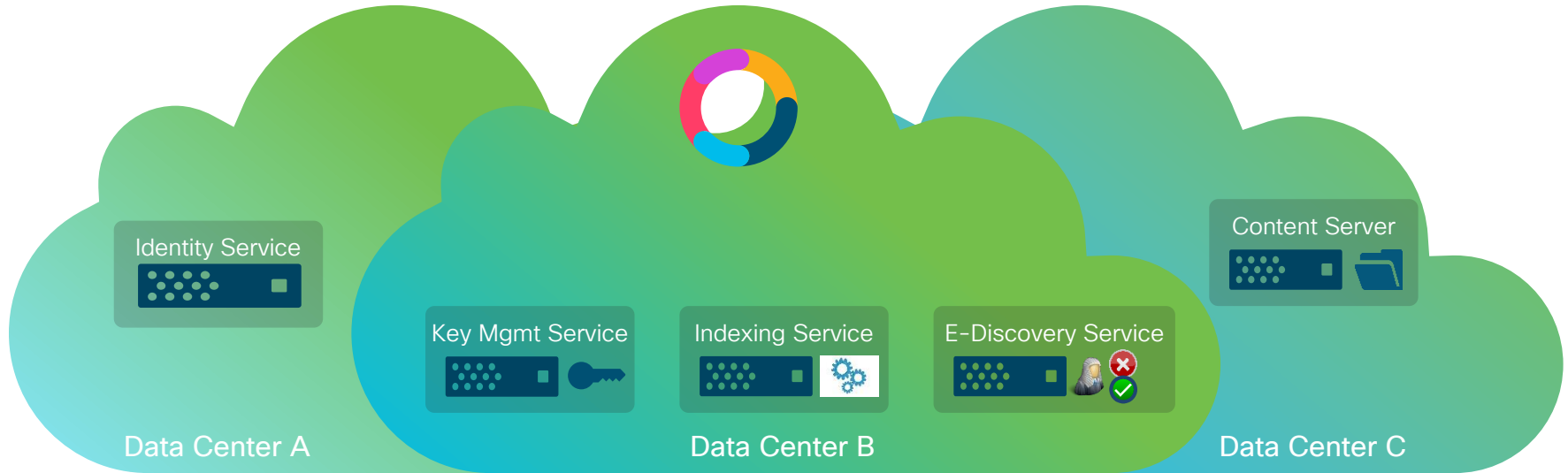
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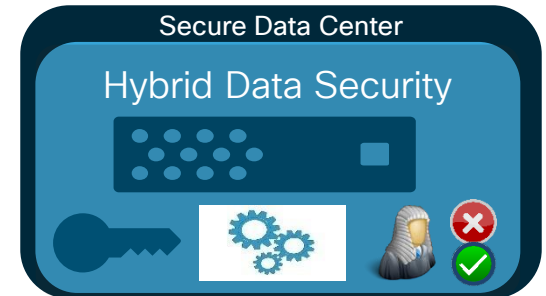
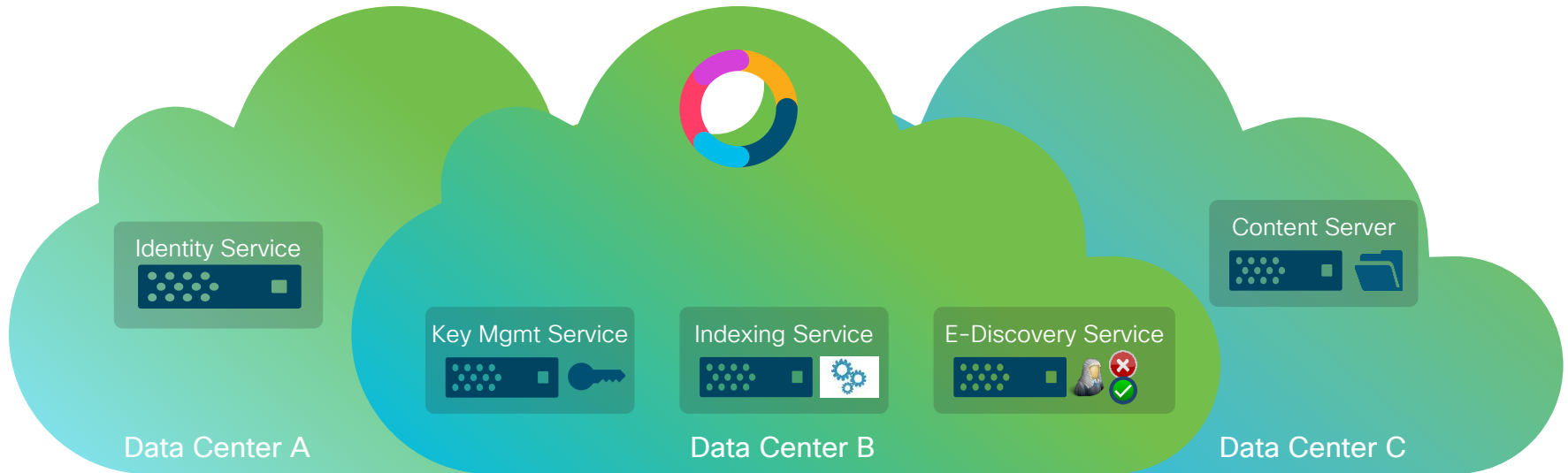
No real identity information transits the cloud

Customer Controlled Security : Hybrid Data Security

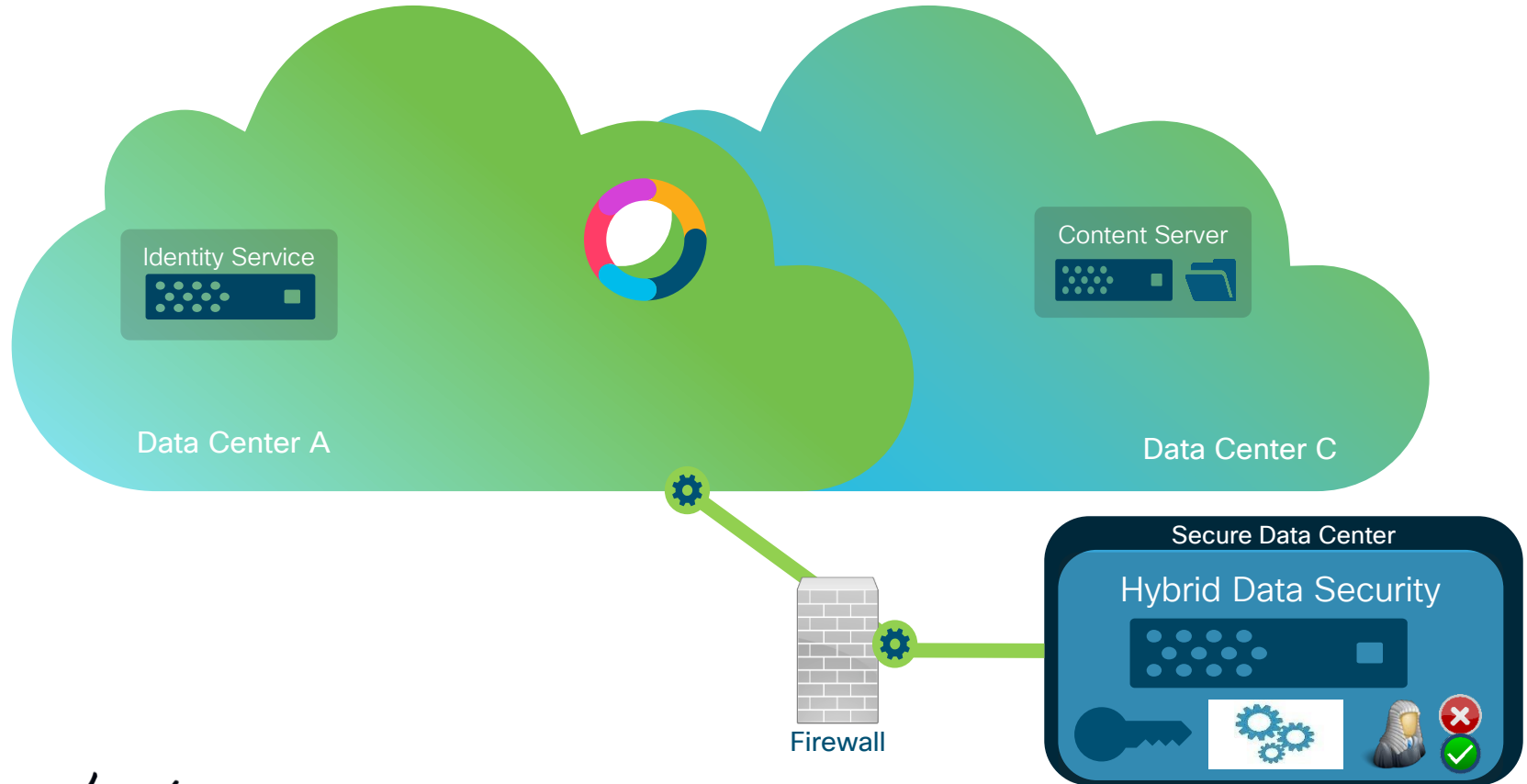
Webex – Hybrid Data Security (HDS)



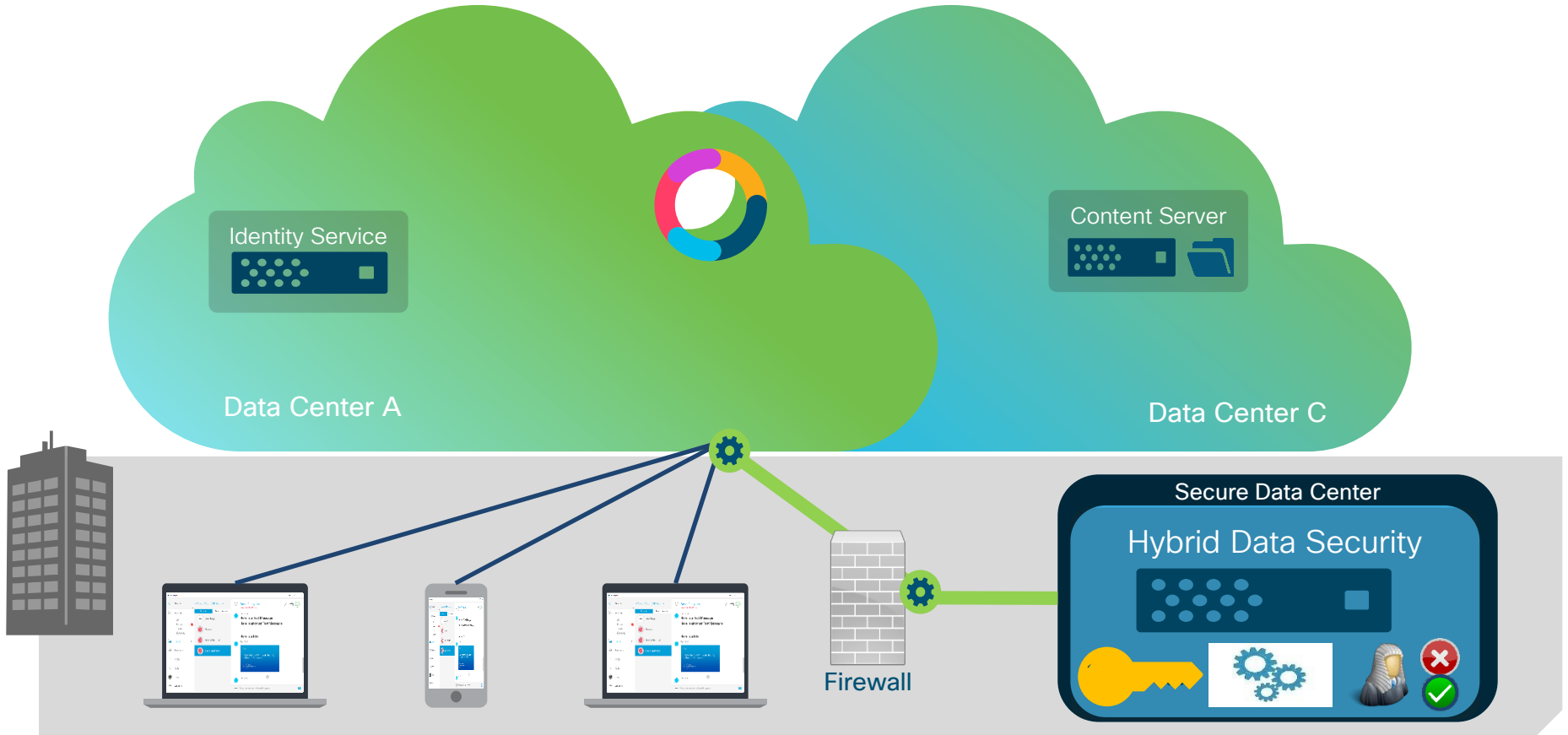
Webex – Hybrid Data Security (HDS)



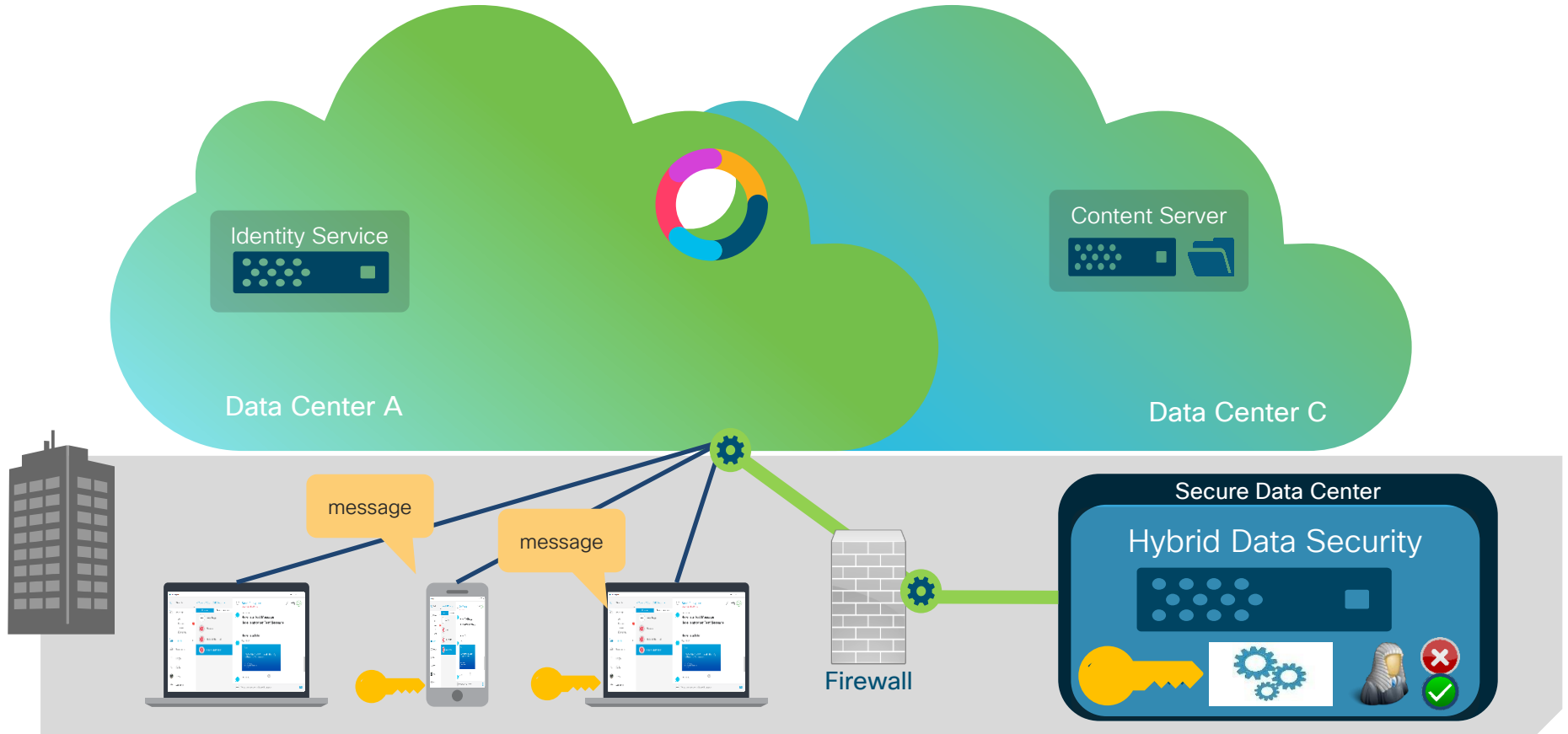
Webex – Hybrid Data Security (HDS)



Webex – Hybrid Data Security (HDS)



Webex – Hybrid Data Security (HDS)

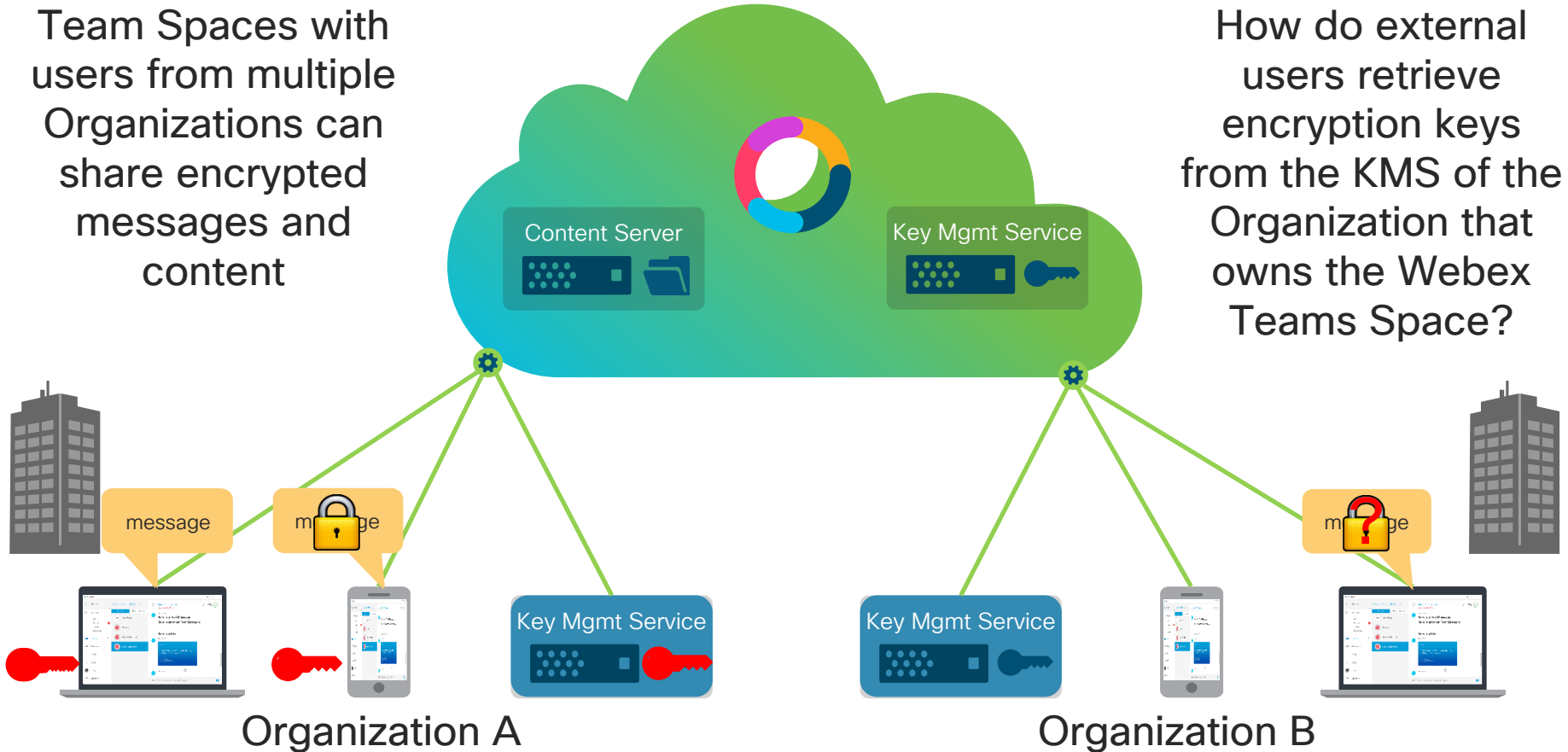


Customer Controlled Security : Key Management Server Federation

HDS: Encryption Keys & Users in other Orgs

Team Spaces with users from multiple Organizations can share encrypted messages and content

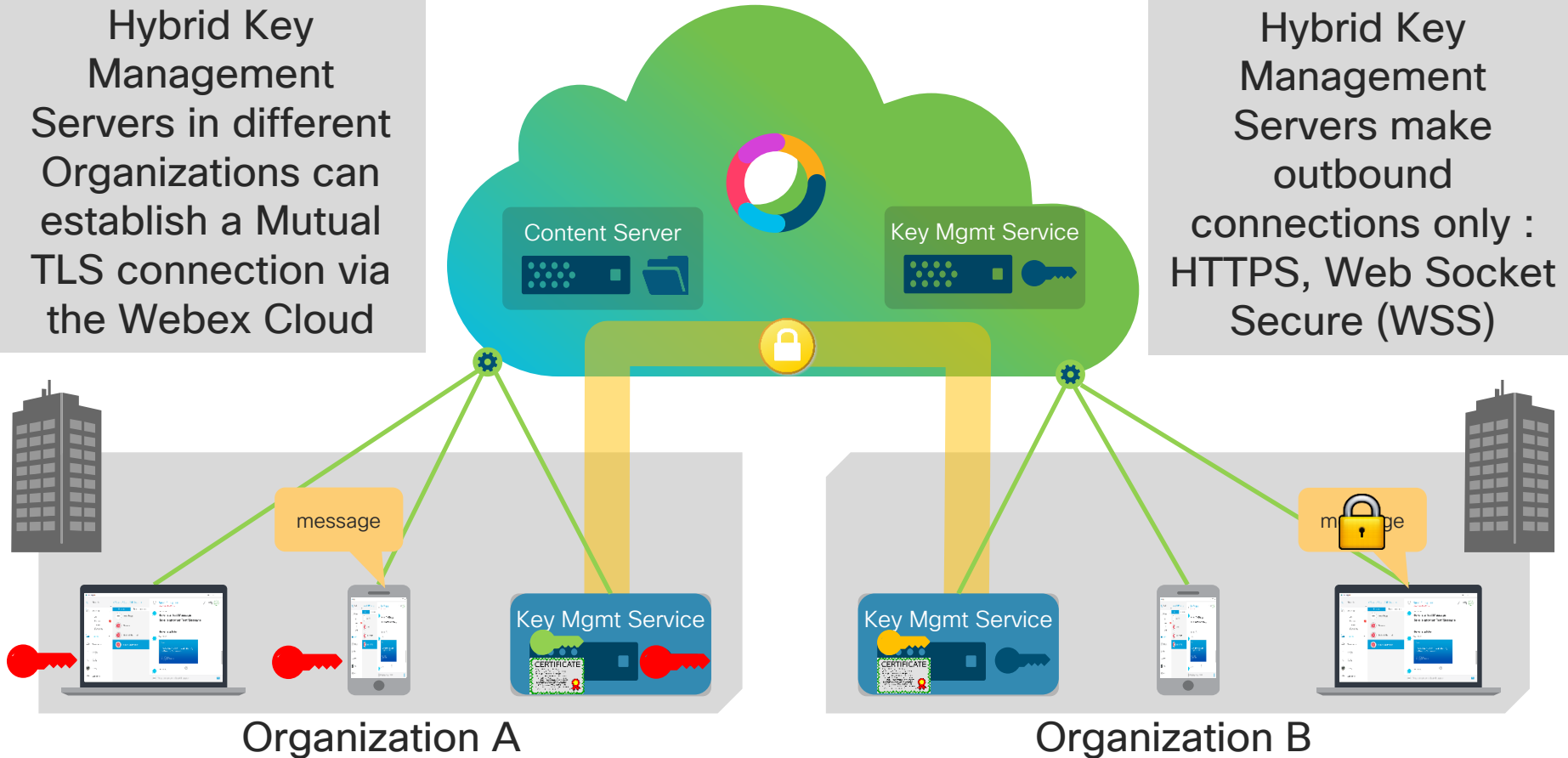
How do external users retrieve encryption keys from the KMS of the Organization that owns the Webex Teams Space?



HDS: Key Management Server Federation

Hybrid Key Management Servers in different Organizations can establish a Mutual TLS connection via the Webex Cloud

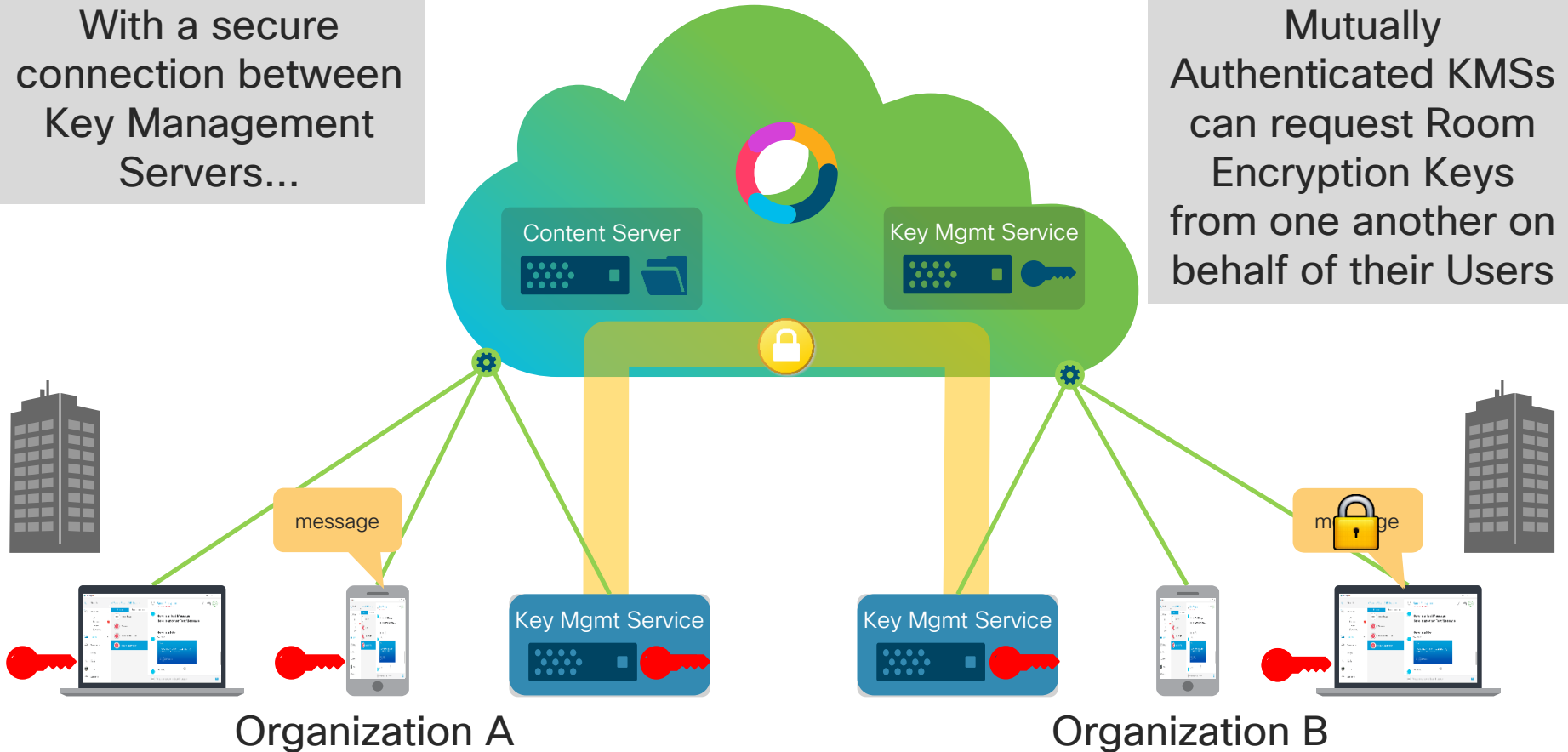
Hybrid Key Management Servers make outbound connections only : HTTPS, Web Socket Secure (WSS)



HDS: Key Management Server Federation

With a secure connection between Key Management Servers...

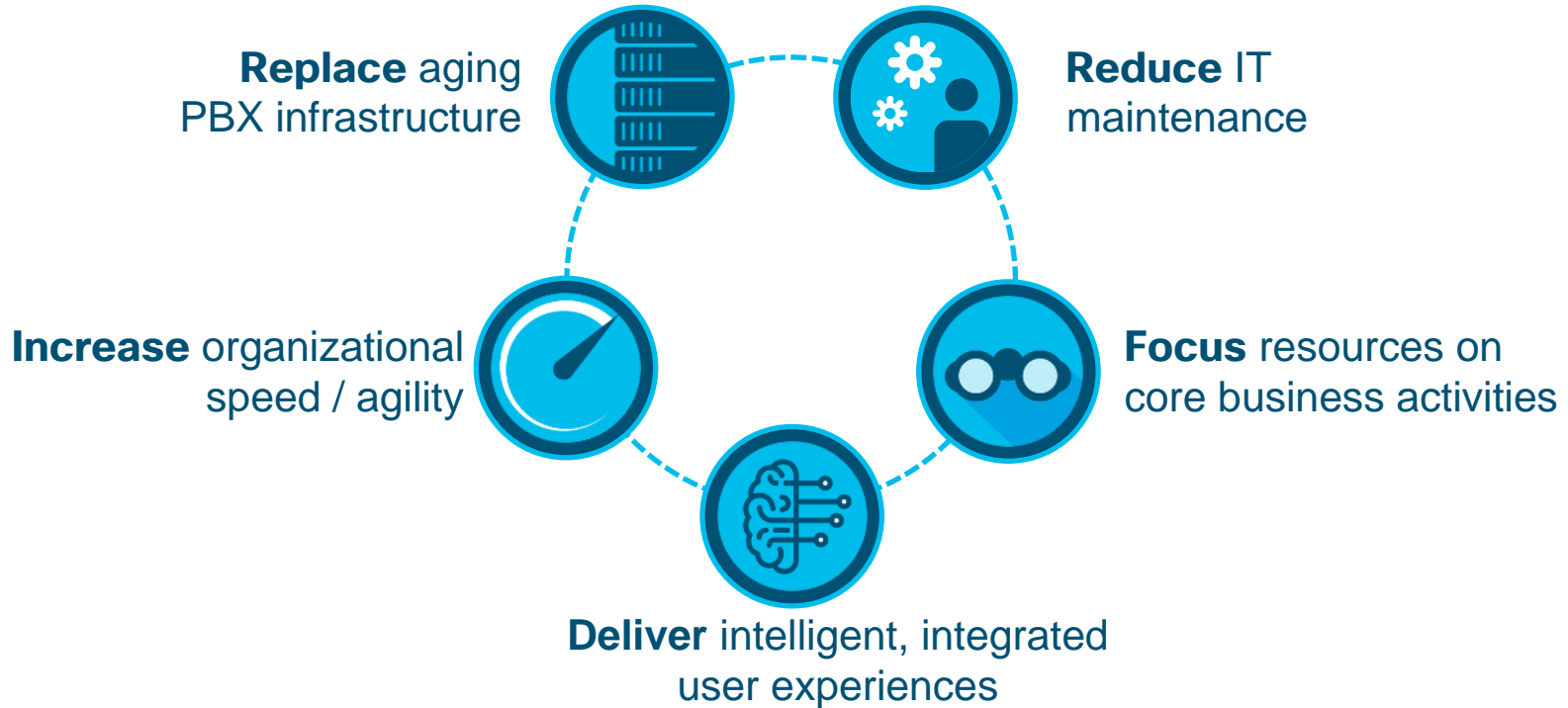
Mutually Authenticated KMSs can request Room Encryption Keys from one another on behalf of their Users



Calling



5 reasons to move your calling to the cloud



Choose the enterprise solutions that meet your needs



Cisco Webex Calling



Cisco UCM Cloud

Midsized businesses and large enterprises:

Cisco operated multi-tenant cloud

Proven enterprise cloud PBX

Ultimate simplicity

OTT / Internet

Large enterprises with sophisticated migration requirements:

Cisco hosted, private instance

UCM/Jabber features

Custom IT integrations

Private Network / Equinix

← Simplicity

Sophistication →

Webex Calling





Key elements

- Packed with the features and applications your business needs
- Simplified all-in-one package
- Part of Webex® – the world's **favorite** collaboration suite – 54% market share*

*Synergy Research, Dec. 2018

Benefits of Webex Calling

1

Secure,
enterprise-grade
cloud calling from
a trusted brand

2

Offers a more
intelligent
collaboration
experience

3

Enables a more
responsive, agile
organization

4

Management
without the
complexity

5

Makes IT strategic
again

Complete, integrated UCaaS functionality

Webex Calling

- Fully featured PBX functionality
- Seamless Webex Teams and Webex Meetings Integration
- Apps, open SIP, and Cisco integrated device support
- Webex Teams centered experience
- Full PSTN connectivity
- Unique, native mobile integration
- Secure, redundant, carrier grade global cloud

Webex Teams

- Secure group messaging
- Persistent team spaces
- Native file sharing with option to use Microsoft OneDrive/SharePoint
- White boarding in the app and on the Webex Board
- Rich integrations: Microsoft, Google, Salesforce, Asana, Jira, Trello, ServiceNow...
- Video meetings on any device with interop to SIP and Skype for Business users

Webex Meetings

- World's leading meetings service
- Award winning Webex video devices
- Secure, redundant, managed, QoS optimized global network
- Leading mobile experience: customizable video views, native screen sharing, hands-free joining
- Intelligence: Webex Assistant, People Insights, one-push/pairing join
- Rich integrations: Google, MSFT, Slack, LMS, Ford cars, etc.

Common Identity, Calendar, UX, Management, Licensing, Ordering ...

Alternate numbers	Analog hotline	Anonymous call rejection	Auto attendant	Barge-in exempt	Business continuity (CFNR)	
Busy lamp monitoring	Call forwarding always	Call forwarding busy	Call forwarding no answer	Call forwarding selective	Call history	
Call forwarding no answer	Call hold and resume	Call logs w/click to dial	Call notify	Call redial	Call routing and queuing	
Call return	<div data-bbox="326 259 751 625" data-label="Text"> <p>All the enterprise features your business needs</p> </div>			<div data-bbox="753 259 1176 625" data-label="Text"> <p>Enables a seamless migration to the cloud</p> </div>		Call waiting ID
Conferencing (site based)						<div data-bbox="1178 259 1601 625" data-label="Text"> <p>Addresses your RFP requirements</p> </div>
Extension						Inbound caller ID
Main number outbound call ID						Three-Way calling (6)
Office anywhere	<div data-bbox="326 656 1601 762" data-label="Text"> <p>Feature-rich business telephony</p> </div>					Priority alert
Push-to-talk	Remote office	Schedules	Sequential ring	Receptionist client	Reports and metrics	
Selective call acceptance	Selective call rejection	Shared line appearance		Simultaneous ring	Speed Dial 100	
T-38 Fax support	Three-way calling	Unified messaging	Video (point to point)	Visual voicemail	Voice mail	

Easy administration with Webex Control Hub

The screenshot displays the Cisco Webex Control Hub interface. On the left is a navigation sidebar with options: Overview, Users, Places, Services, Devices, Analytics, Troubleshooting, and Settings. The main area is titled 'Users' and shows a table of users. A modal window is open for 'Dennis Weeks', showing configuration options for Services (Messaging, Meeting, Calling), Roles and Security, Devices (with an 'Add Device' button), Device Settings (Settings Lock), Location, and User Details.

First Name	Last Name	Display Name	Email
Dennis	Weeks	Dennis Weeks	dew66+2@gmail.com
Dennis	Weeks2	Dennis Weeks2	dew66+3@gmail.com
		cjlandmark13+testing2@gmail.com	cjlandmark13+testing2@gmail.com

Users are managed from the user panel in Webex® Control Hub

- Entitlement, number assignment, roles, devices, and location can all be configured
- Call-specific configurations can be edited by the end user in self-care or by the administrator in the Webex Calling admin portal

Users can be provisioned, entitled, and configured by either the partner or customer administrators

Three Webex Calling “station types”

Enterprise

- Full-featured business solution
 - Full set of PBX telephony features
 - Webex Teams™
 - Webex® Meetings (optional)
- Associated with a person



Basic

- For phone-centric office users
 - Full set of PBX calling features
 - Limited mobility features
 - Only “free” version of Webex Teams
- Appropriate for cubicles and shared desk locations
- Associated with a person or place



Common area

- Simple dial tone for common area phones
 - Limited telephony feature set
 - No Webex Teams or Meetings
- Appropriate for locations like lobby, breakroom, etc.
- Associated with a place

Global availability

Delivered globally



- Three regional platforms - NA, EMEA, and APAC
- Offer services to multinational customers from a single region
- Secure data and traffic within chosen region

Data center committed expansion:

- Geo-redundant DC in Japan (2Q-CY2019)
- Data center in Canada (1Q-CY2019)

Data center considered expansion:

- Second data center in EU (Amsterdam, CY2019)
- Second data center in U.K. (CY2019)

Market availability

Contract and satellite countries



Contract countries

Australia	Finland	Luxembourg	Slovenia*
Austria	France	Malta	Spain
Belgium	Germany	Mexico*	Sweden
Bulgaria	Greece	Netherlands	Switzerland
Canada	Hungary	New Zealand	U.K.
Croatia	Ireland	Norway	U.S.
Cyprus	Italy	Romania	
Czech Republic	Japan*	Poland	
Denmark	Latvia*	Portugal	
Estonia*	Lithuania*	Slovakia	



Satellite countries

Algeria*	Macau*
Angola*	Malaysia
Argentina	Mexico
Azerbaijan*	Singapore
Benin*	South Africa*
Bosnia & Herzegovina*	South Korea*
Brazil	Taiwan*
Hong Kong*	Thailand*
Indonesia	Turkey*
Kenya*	Vietnam*

Relationship between Cisco® and partner only in contract countries

* Target availability as contract, or satellite country, as indicated, in August, 2019

Contract versus satellite countries

Selling versus deploying



Contract countries

“The country where the partner sells to enterprises. The partner is on-boarded in the contract country, covering items such as interconnects, billing, invoicing, language, and currency. The partner’s service is active in the regional platform for their contract country.”



Satellite countries

“The country where the partner deploys enterprise offices. It is the partner's obligation to ensure it meets any regulatory requirements. Satellite countries have varying degrees of localization.”

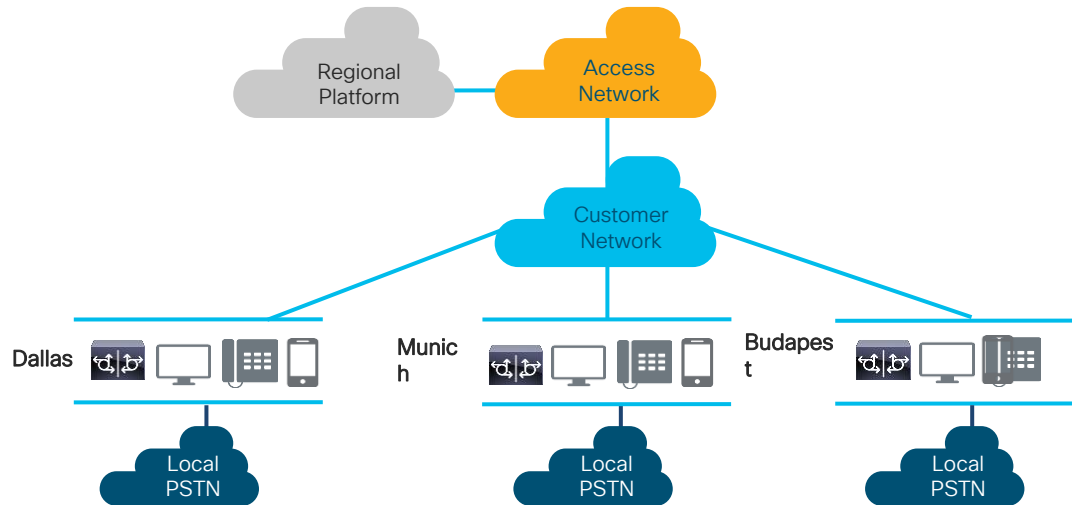
Relationship between Cisco® and partner only in contract countries

Example: Webex Calling contracted in the U.S.

Acme is a U.S. Webex Calling partner with an enterprise customer, Digital Design, that is headquartered in Dallas with branch offices in Munich and Budapest.

Acme signs a U.S. Webex® Calling agreement. Acme provisions Digital Design's Dallas, Munich, and Budapest offices in CCW. Full local language and localization support exist for the U.S. and Germany. Local dial plan and device localization only are supported for Hungary. Hungarian users can use any supported Webex Calling language.

Cisco's relationship with Acme is in the U.S. only (contract country) - not in Germany or Hungary (satellite countries).



Service configuration

Regional platform

- North America

Contract country

- United States
- USD

Satellite countries

- Germany
- Hungary

Data center locations

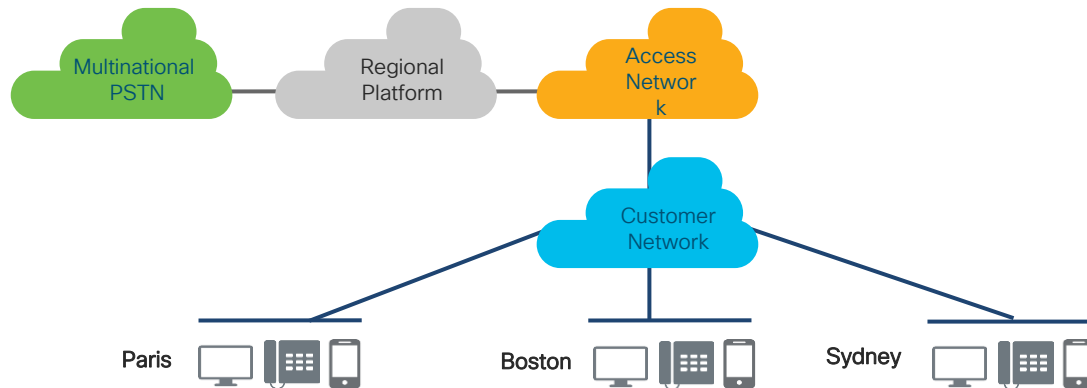
- U.S.

Example: Webex Calling contracted in France

Acme's enterprise customer, EU Brokers, is based in Paris with offices in Boston and Sydney. EU Brokers requires its data to stay inside the European Union.

Acme signs a French Cisco Webex® Calling agreement. Acme provisions EU Brokers' Paris, Boston and Sydney sites, with all data staying in the EU.

Note that this is a subsequent Webex agreement to Acme's existing U.S. one. This enables Acme to operate a U.S.-based and French-based service, depending on buyer preference or market need.



Service configuration

Regional platform

- EMEA

Contract country

- France
- EU

Satellite countries

- United States
- Australia

Data center locations

- Europe

Clients and devices

Cisco voice device portfolio

Collaborate your way with a device for any user, in any location

IP phones

6800, 7800, 8800 Series IP Phones



IP video phones

8845/8865 IP Video Phones



IP conference phones

7832/8832 IP Phones



Headsets

500 Series Headsets



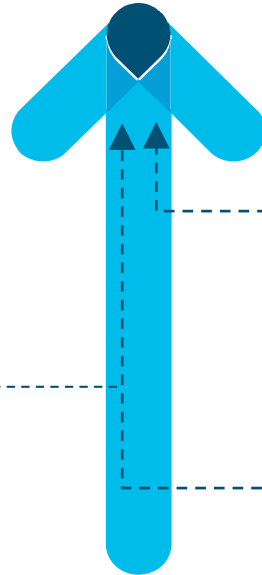
Wireless IP phones

6825/8821 IP Phones



Protect investments in Cisco IP phones

Cisco Webex
Calling



- Reuse existing PSTN connectivity
- Interworking with UCM
- Interworking with legacy PBX

Reuse newer UCM phones



Adopt new cloud devices



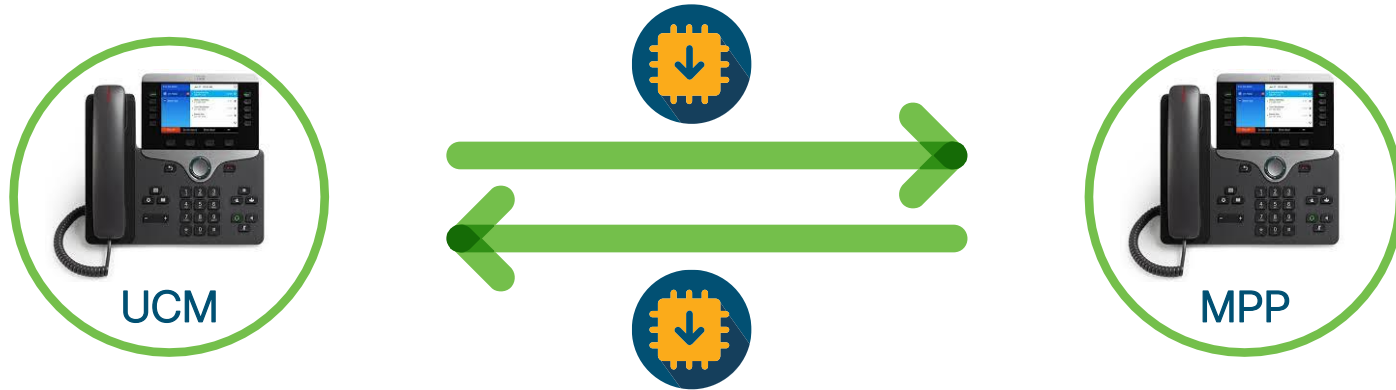
Connectivity

On-premises PBX

Devices

CISCO *Live!*

Phone firmware migration



Migration firmware

- All 7800s: Some hardware limitation (pre-CY2016)
- All 8800s except 8821, 8831, 8851NR, 8865NR
- KEMs do not require migration
- Partial data loss – call history, local contacts



Migration license

- Flex plan includes 1 license per user
- Locked to MAC address
- One-way migration per license

PSTN options

Webex Calling: PSTN quick facts



● Cisco never supplies the PSTN

● PSTN required for all off-net calling and between enterprises

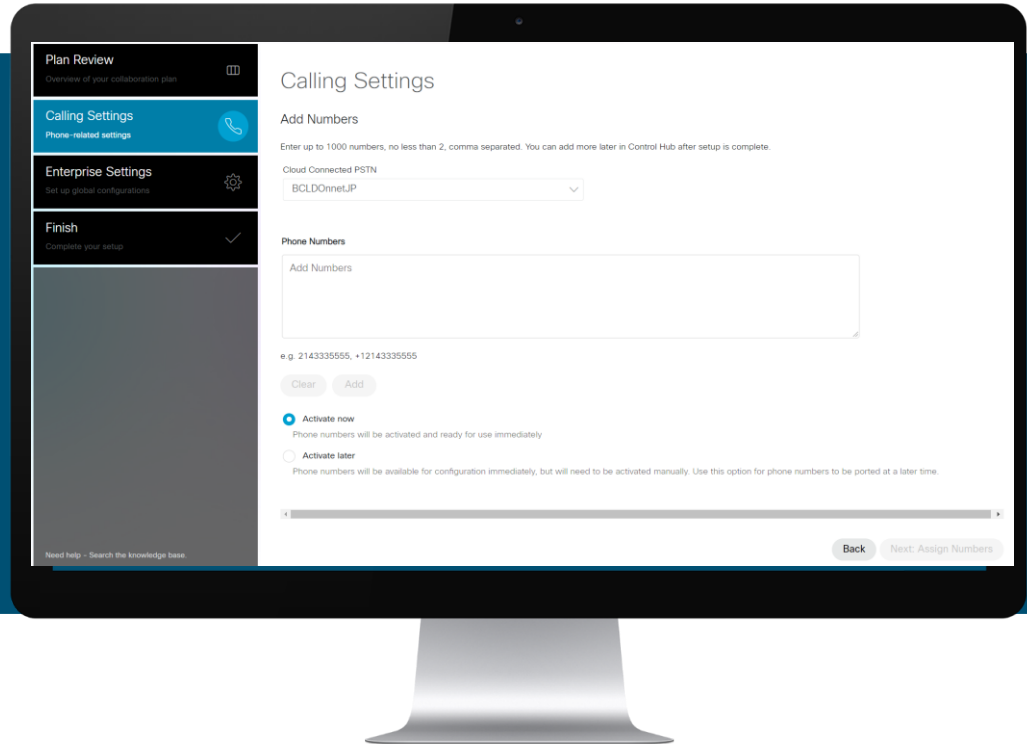
● PSTN dial plan supports the E.164 format

● Emergency calls and lawful intercept are the responsibility of the PSTN provider

Multi-PSTN connectivity

Increased flexibility, PSTN coverage and cost optimization

- Support multiple PSTN providers per partner
- Define PSTN providers at the location level

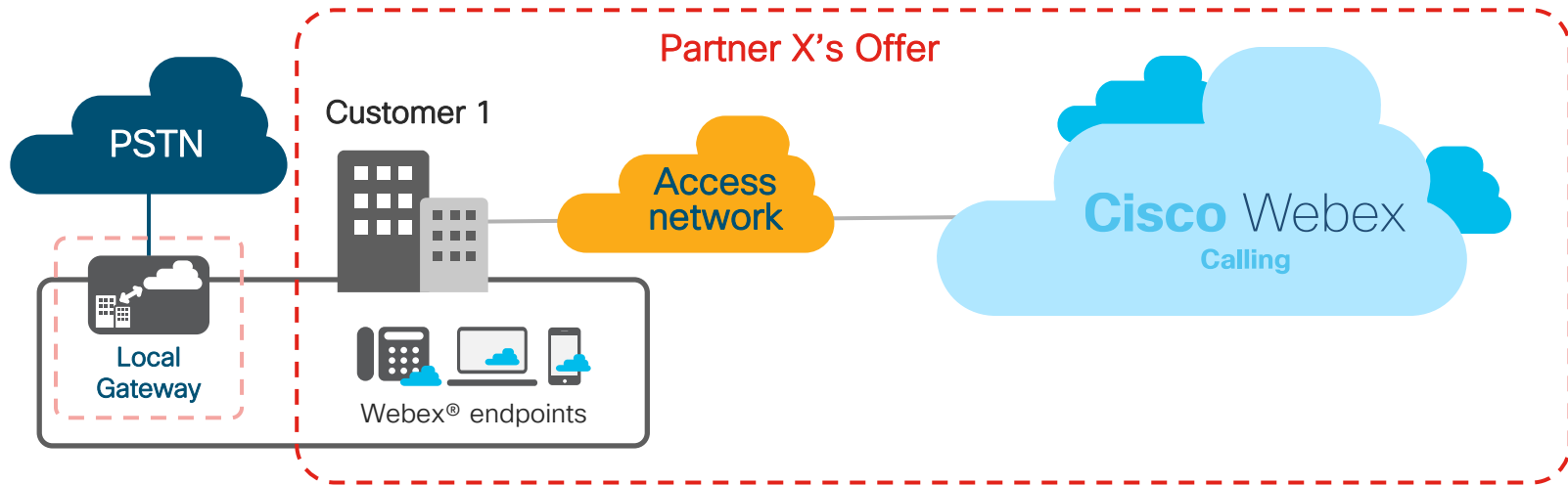


Webex Calling PSTN: Cloud Connected



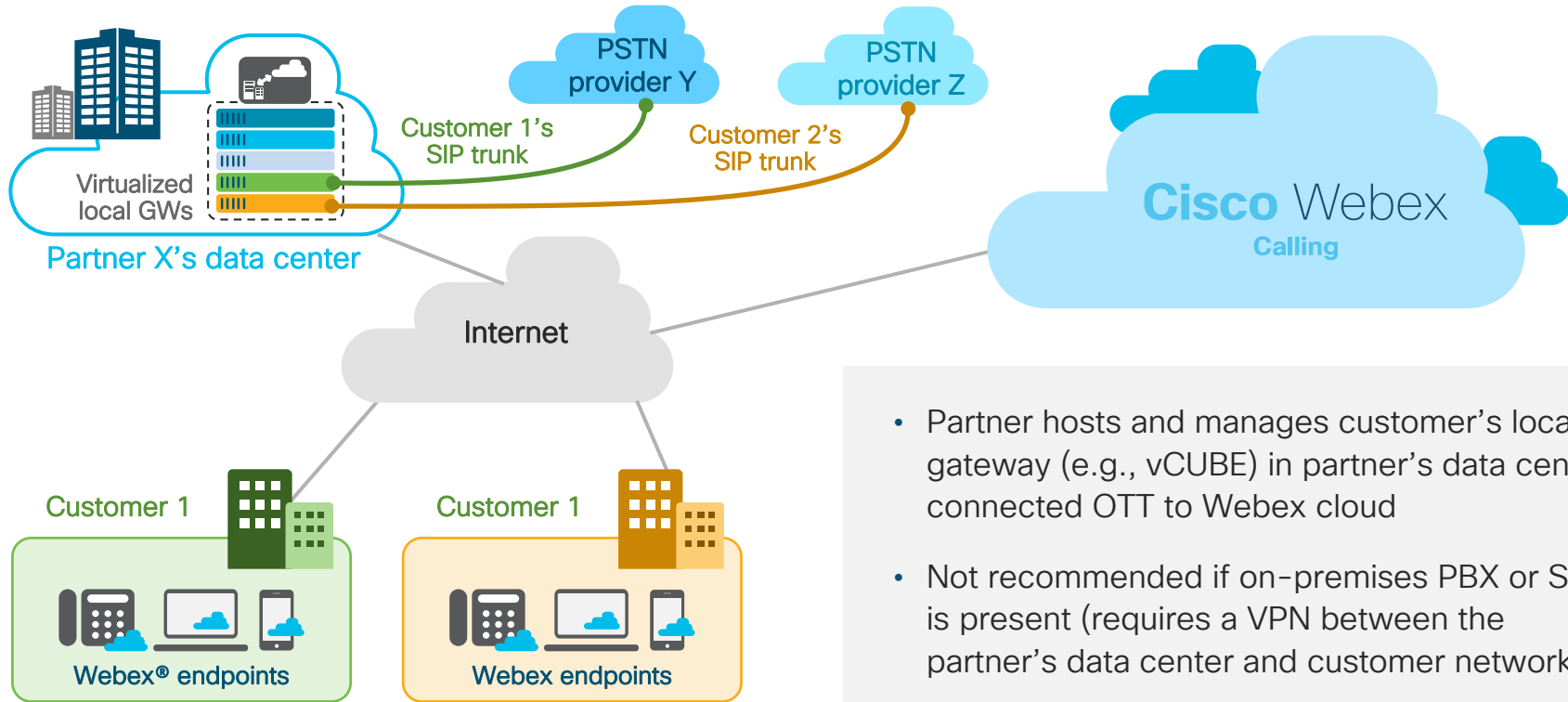
- PSTN access through peering with a selection of Cloud Connected partners integrated into the Cisco Webex® Calling cloud
- Partner helps enterprise procure and provision PSTN
- Available to service providers who serve customers with locations outside of their PSTN footprint

Webex Calling PSTN option: Local Gateway PSTN through customer premises



- PSTN access through a **Local Gateway** device at the customer site and the customer's PSTN service (SIP Trunk, PRI, etc.)
- PSTN service **decoupled** from Cisco® Webex Calling service

Webex Calling PSTN option: Local Gateway PSTN through customer premises

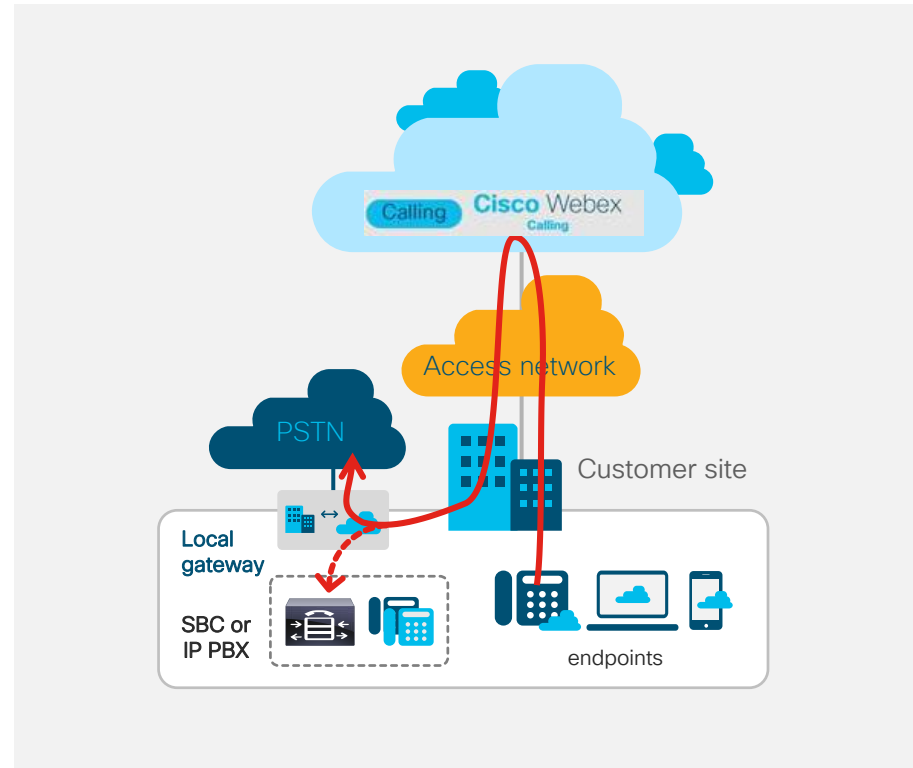


- Partner hosts and manages customer's local gateway (e.g., vCUBE) in partner's data center; connected OTT to Webex cloud
- Not recommended if on-premises PBX or SBC is present (requires a VPN between the partner's data center and customer network)

Local gateway

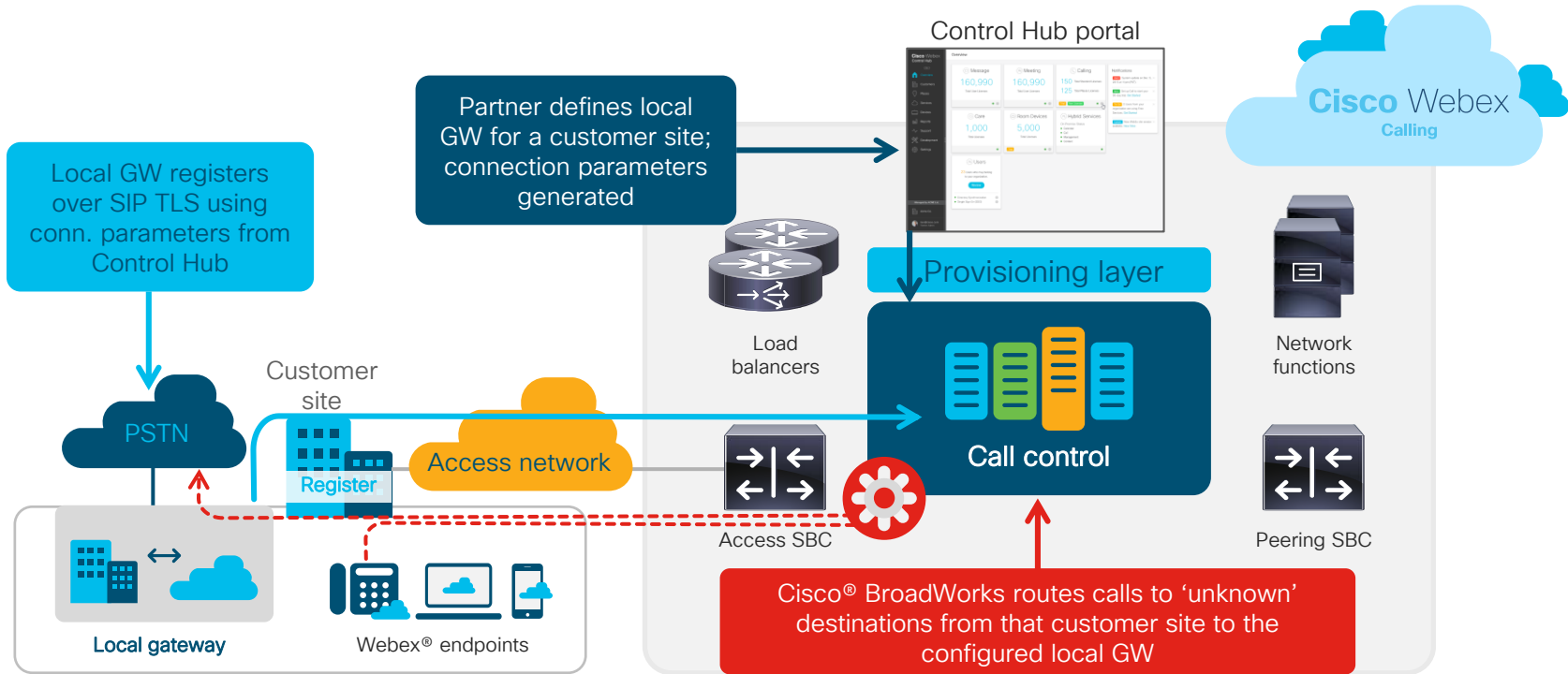
Architecture overview PSTN option

- Enables a BYOPSTN option for Webex Calling
- Provides connectivity to a customer-owned PSTN service
- May also provide connectivity to an on-premises IP PBX or SBC



CUBE as local gateway

Architecture overview



Call routing with local gateway

Enterprise dial plan enhancements



Familiar dialing habits for enterprise users



Basic enterprise dialing use cases to support Webex® Calling

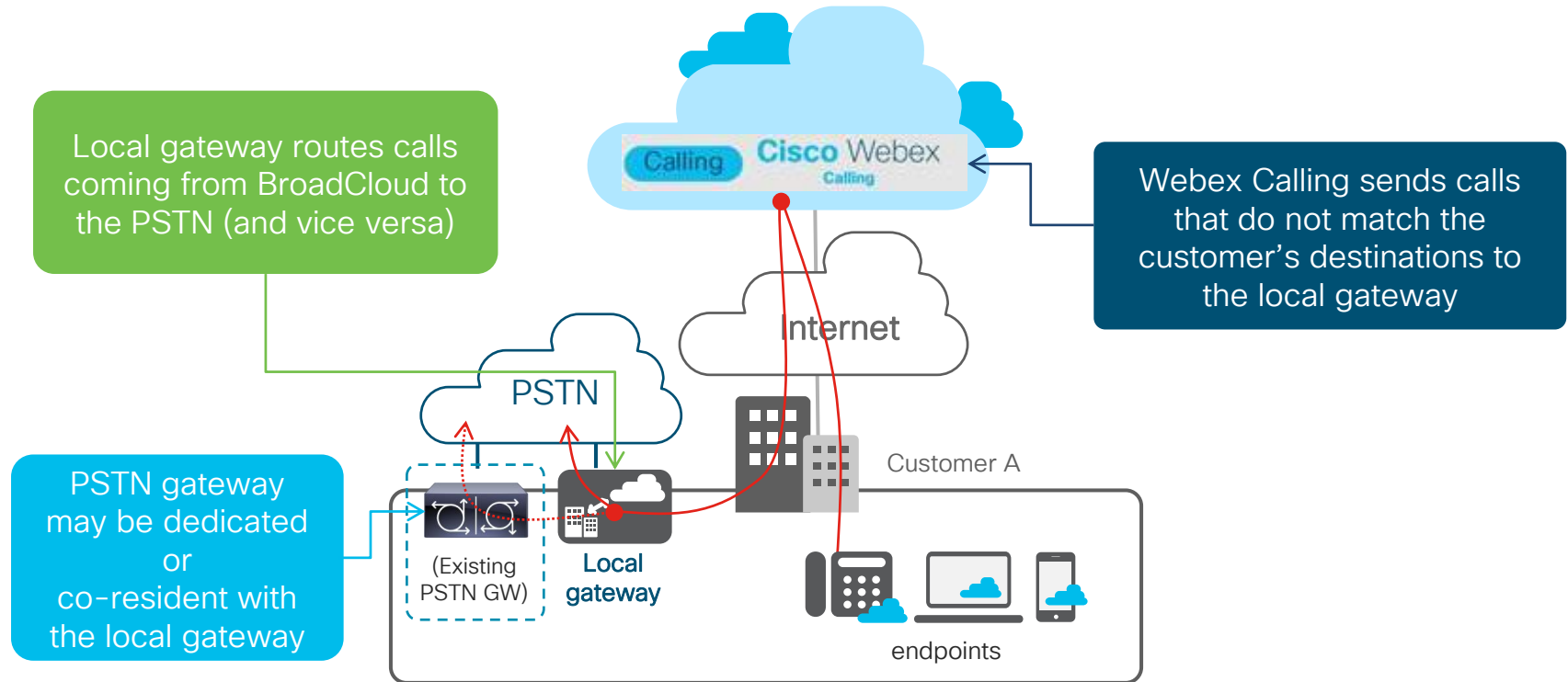


- Ability to have a steering digit for PSTN calls (9 to dial out)
- Permissive dialing allowed from the Webex Calling app (with or without an access code)
- Ability to define a prefix length for site and extension ranges
- Ability for off-hook dialing without using the SEND key or waiting for interdigit timeouts



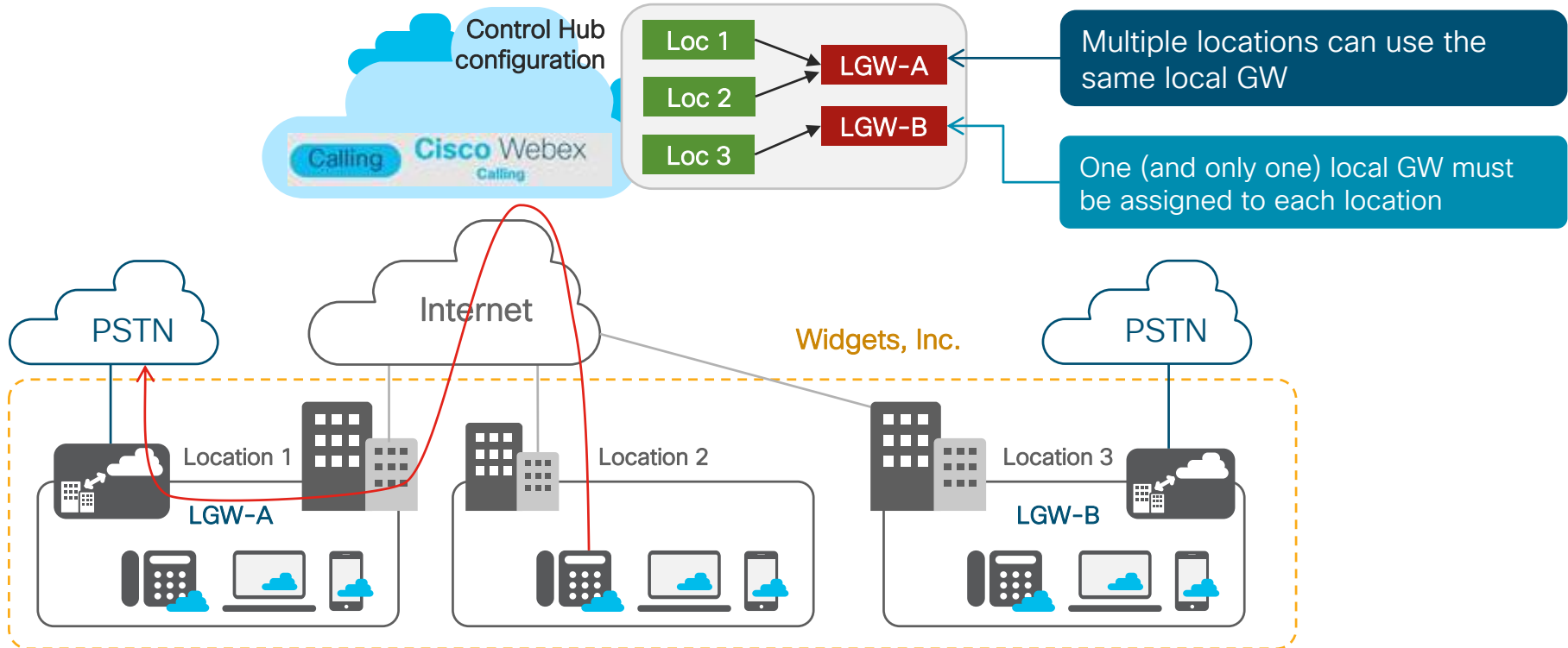
Call routing

Single local gateway



Call routing

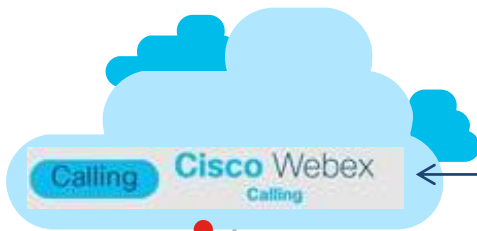
Multiple local gateways



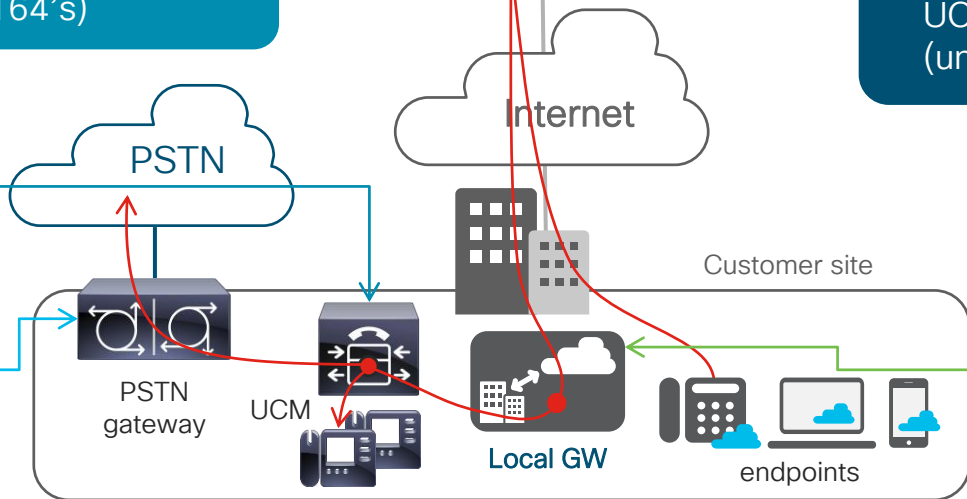
Call routing

With an IP PBX/CUCM

- Cisco® UCM routes incoming calls to local destinations or to the PSTN (per existing dial plan)
- Add route/translation patterns to send calls for Webex to local GW (normalized as +E.164's)



- Webex sends calls that do not match the customer's destinations to the local gateway
- Includes PSTN numbers and UCM internal extensions (unknown to Webex)

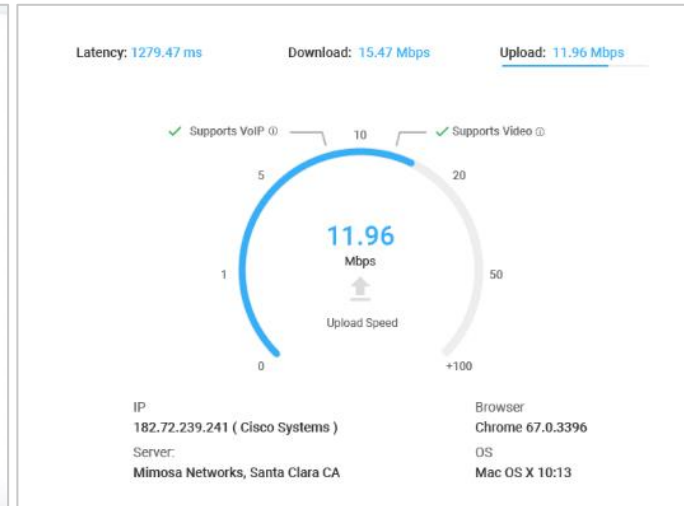
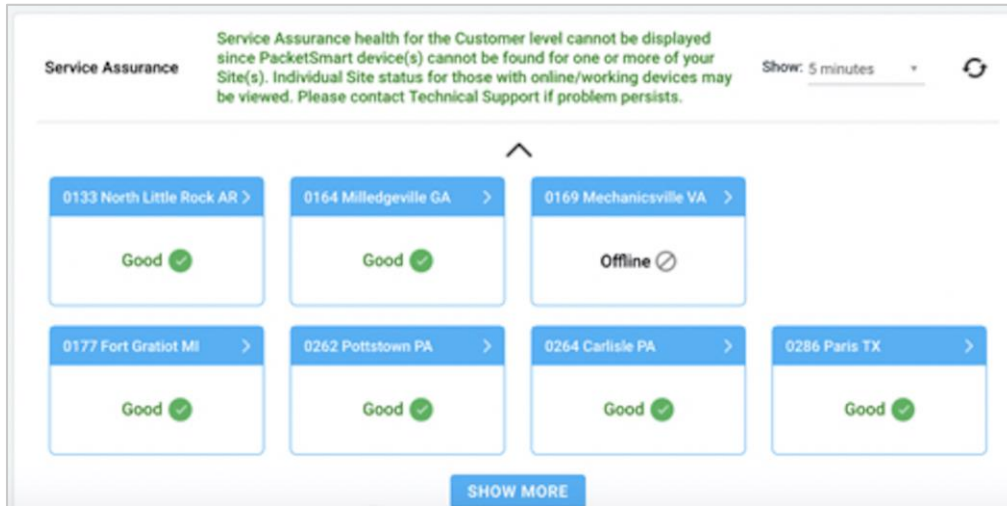


PSTN gateway may be dedicated or co-resident with the local gateway

Local gateway routes calls coming from Webex to UCM (and vice versa)

Service assurance for Webex Calling

- Overall view of site-by-site media quality for Webex Calling sites accessible by partner and enterprise admin
- Browser-based pre-qualification bandwidth and port testing tool



Webex Edge for Calling

Solution: Connect, Centralize & Unify



CONNECT

Begin the migration to the cloud with Webex Calling for branches & knowledge workers with site to site calling across all calling platforms

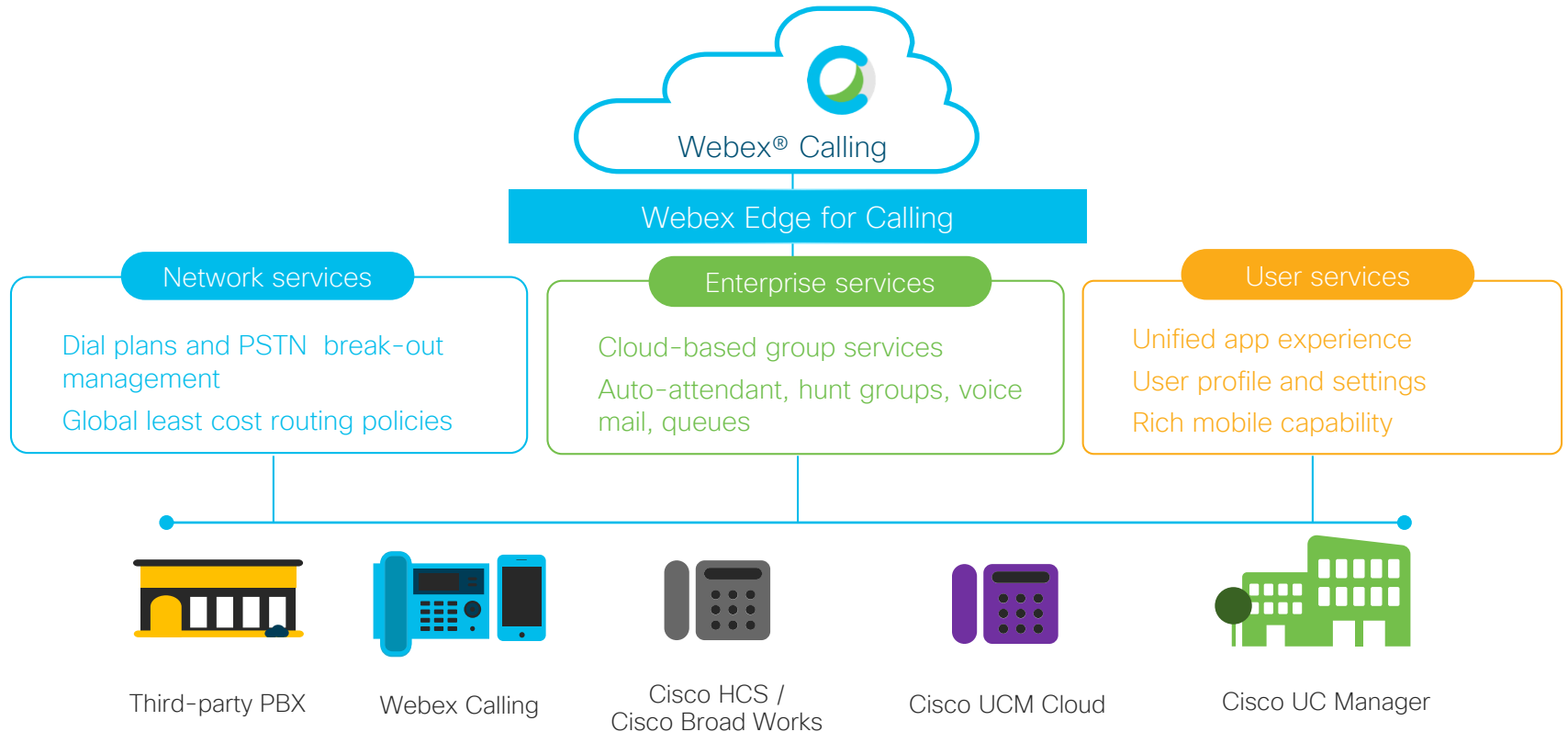
CENTRALIZE

Centralize calling routing with a cloud-based dial plan across Cisco & 3rd party PBXs to simplify management and lower costs while leveraging existing investments

UNIFY

Unify and optimize the experience through a single client to deliver a set of consistent collaboration services across your enterprise

Webex Edge for Calling: Key capabilities



UCM Cloud

Cisco UCM Cloud

Private cloud services delivered over a dedicated infrastructure to a single enterprise



- Enterprise unified communications and collaboration as a service from the Webex® Cloud
- Dedicated resources and security controls provide a stronger cybersecurity posture
- Scalability, agility, and efficiency of a resilient private architecture assures your business-critical services will always be available and operational
- Enhanced levels of controls and customization capabilities
- Ability to integrate into existing IT systems to ensure business continuity
- Powered by the Cisco® Unified Communications Manager in the cloud



Cisco Unified
Communications
Manager



Cisco Unity®
Connection



Cisco
Jabber®



Cisco Webex
Teams™



Cisco Webex®
Meetings

Cisco UCM Cloud



Hosted and operated
by Cisco; sold
and managed
by partners

Enterprise-tested Unified Communications Manager as a service from the Cisco® Cloud

- Powered by the proven Cisco® Communications Manager platform with over **100 million** devices worldwide offered as a service from the Webex® Cloud
- Hosted and operated by Cisco; sold and managed by partners
- An **enterprise-ready** calling solution with all the features, integrations, and benefits of Cisco UC Manager plus enhanced security options capable of meeting FedRAMP authorization
- Designed for enterprises and public sector customers
- Webex Teams™, Webex® Meetings, Jabber®, and **all collaboration endpoints are supported**
- Cisco UCM Cloud is available in the Cisco Collaboration Flex Plan as a cloud calling option

Cisco UCM Cloud positioning

1K+

Cisco UCM Cloud

- Generally intended for large enterprise customers (**1000+**)
- Minimum initial order can be as small as 1000 to support ramping
- Possible exceptions for smaller customers are not a fit for Webex® Calling

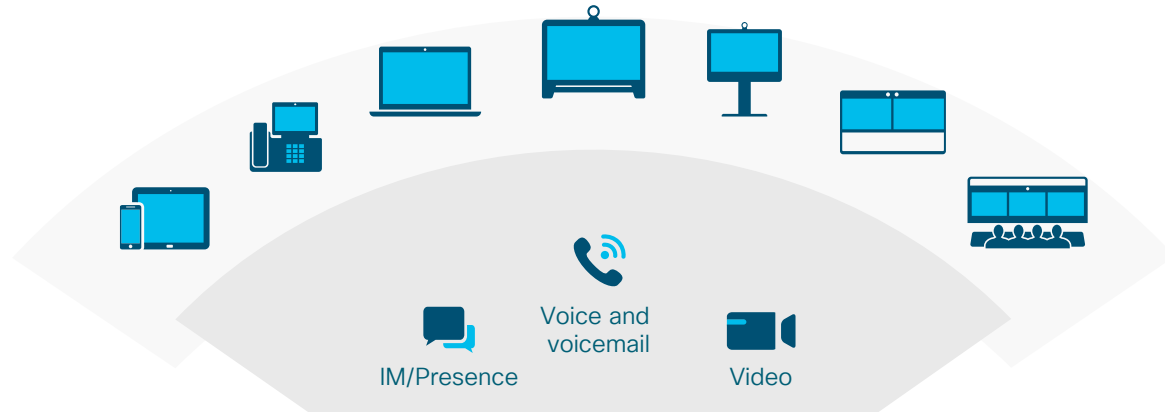
Cisco UCM Cloud

- UCM Feature Set
- Commercial and Enterprise
- Customizable Private Instance
- Global Deployments
- ENCRYPTED!

Webex Teams™ and Webex® Meetings are available with both services

Cisco UCM Cloud calling key elements

Currently based on Cisco 12.5 Collaboration Solution Release (CSR)



- Market-leading platform
- Same feature, UE, and integrations
- Full endpoint support
- Integrated experiences



Secure UC in the
Cisco® cloud

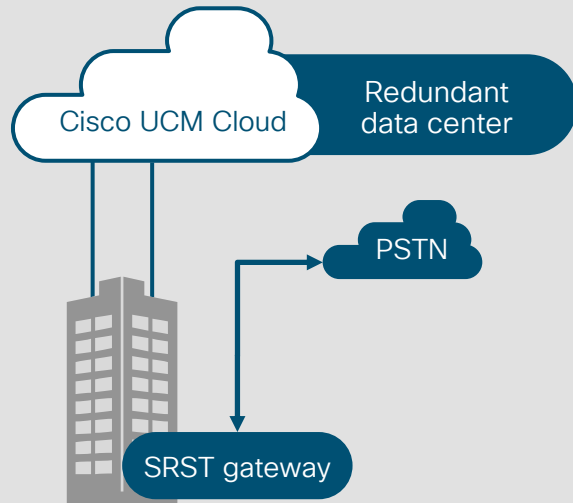
- Seamless migration path to cloud
- Dedicated customer instance
- Enhanced security options
- Redundancy and survivability

All the benefits of a traditional phone system with integrated collab tools without the management overhead

Strategic features for Cisco UCM Cloud transitions

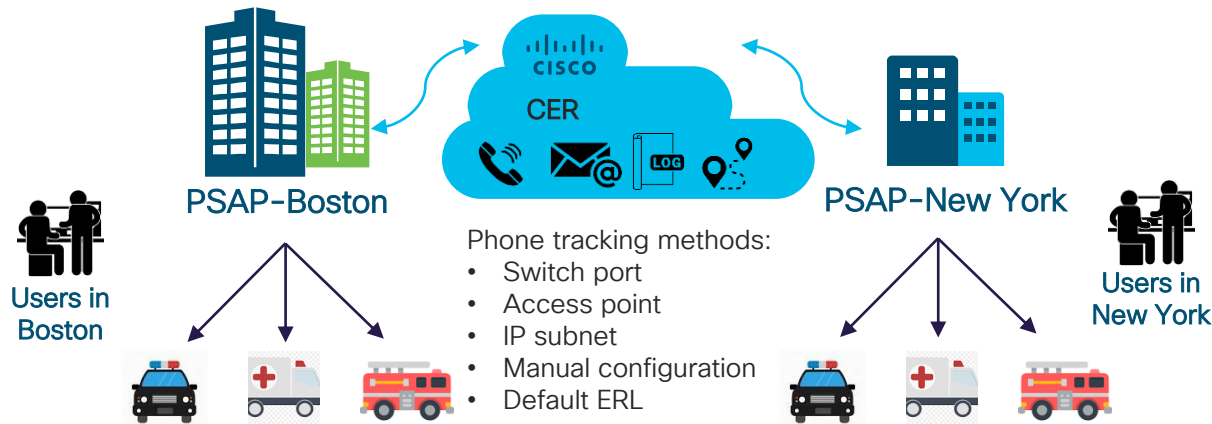
Cisco UCM compatibility benefits	
100% Cisco® UCM-compatible features	Cisco endpoint support (new and legacy voice and video devices; Cisco UCM version-dependent)
Support for complex dial plans and media encryption	Cisco Contact Center interoperability (Webex® Contact Center, UCCE, UCCX, HCS-CC)
Native Cisco TelePresence® and video (registration, B2B video, and PSTN dialing)	Highly customizable
Private cloud (SD-WAN, MPLS, etc.) with on-net media optimizations	LDAP, Active Directory, SSO, MFA
Cisco voice gateway support (ASR, ISR, VG)	Cisco survivability support (MGCP, ASR, ISR)
Virtualized Desktop Infrastructure (VDI)	Advanced emergency call handling (Cisco Emergency Responder)
IT integrations (CRM and extensive third-party ecosystem)	Computer Telephony Integration (CTI)
Bulk provisioning and extensive APIs	Native peering for private connection
Proven scale for large customer deployments	PSTN flexibility (partner-provided or bring your own)

Cisco UCM Cloud survivable telephony



- Cisco® UCM Cloud provides proven redundancy via two Webex® data centers and dual links per data center
- Survivable Remote Site Telephony (SRST) adds automatic telephony survivability during outages for seamless transitions during failure and restore
- Available for both headquarters and branch locations

Cisco Emergency Responder



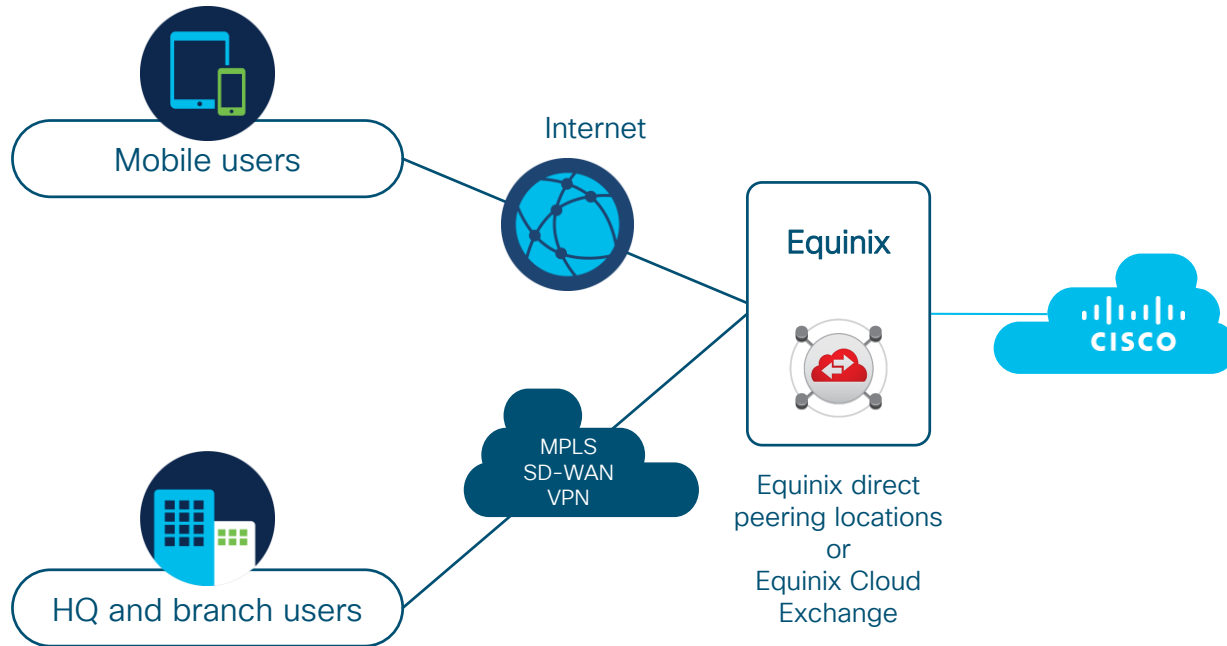
- Routes emergency calls to a local Public-Safety Answering Point (PSAP)
- Alerts staff via email or phone of a local emergency call for quick response
- Logs all emergency calls
- Provides PSAP with accurate dispatch address for the caller in need
- Automatic location tracking for soft clients and phones

PSTN options

-  **Partner Bundled**
 - Partner interconnects to UCM Cloud and is responsible for bundling UCM Cloud Calling and PSTN minutes
-  **Local Gateway**
 - Customer or partner-managed edge device for PSTN interworking and legacy PBX interworking (including Cisco® UCM)
-  **Bring Your Own SIP Trunk**
 - Partner helps customer procure and provision PSTN, via certified SIP trunk provider interworking directly to UCM Cloud
-  **Preferred Media Partner (PMP)***
 - Partner helps customer procure and provision PSTN, via pre-interconnected media partner to UCM Cloud

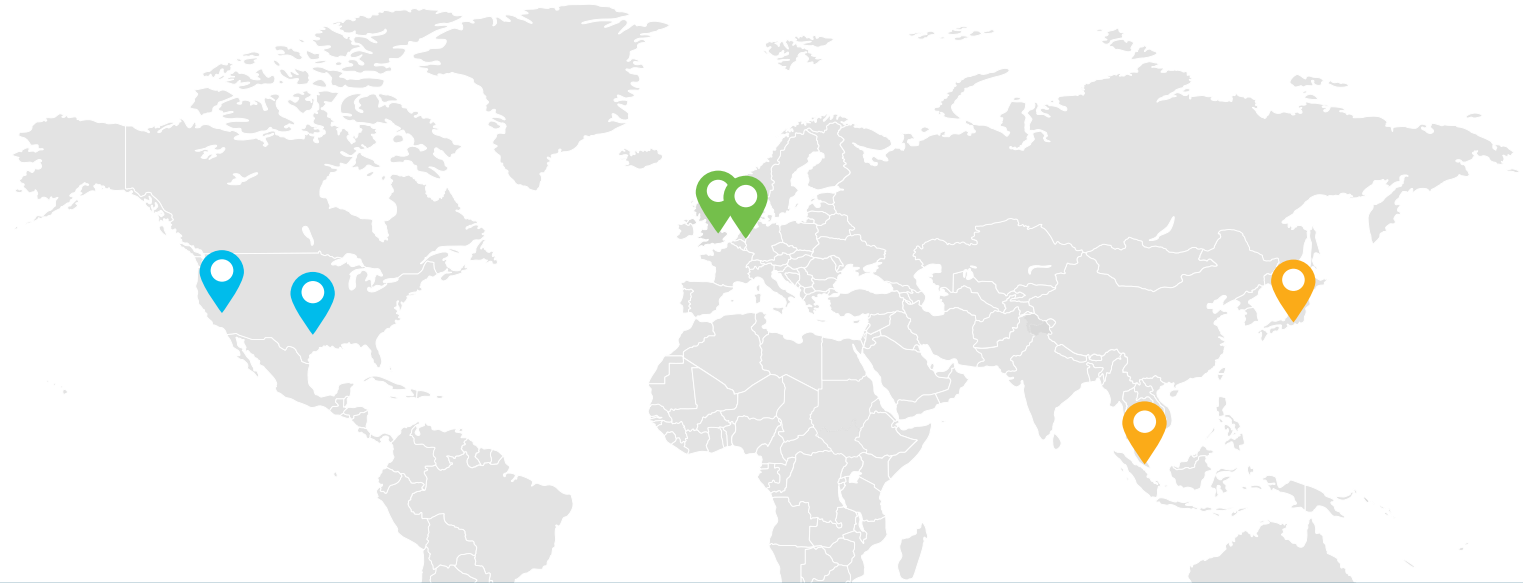
*Roadmap

Cisco UCM Cloud connectivity



By 2019, 30% of all enterprises will connect to their cloud providers via cloud direct connect solutions
- Gartner

Cisco UCM Cloud – global data center availability



 North America – Now |  EMEA – Q4 CY 2019 |  APJ – Q1 CY 2020

Cisco® Unified Communications Manager Cloud (Cisco UCM Cloud)
Cloud-optimized, point-to-point media traversal architecture reduces the need for multiple regional data centers

Service availability

A light gray world map is centered on the slide. The word "Worldwide" is written in a large, dark blue, sans-serif font across the middle of the map.

Worldwide

Service is not available in U.S.-embargoed countries:

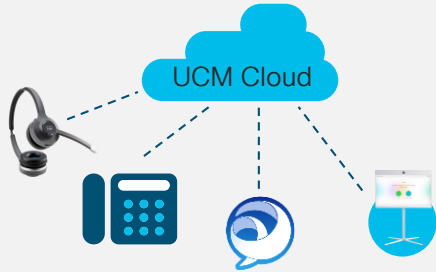
- Crimea
- Cuba
- Iran
- North Korea
- Syria

The UCM Cloud partner is responsible for the regulatory compliance of its customers

- Due to constantly changing global telecommunications laws and regulations, service availability may become restricted in some countries. While Cisco routinely monitors applicable telecommunications laws and regulations in an attempt to adapt to changing legal environments, we reserve the right to modify our country coverage listing as necessary to meet all country legal requirements.
- Brazil, India, Russia, and Singapore have unique regulatory requirements and require evaluation on a case-by-case basis by Cisco® legal representatives.

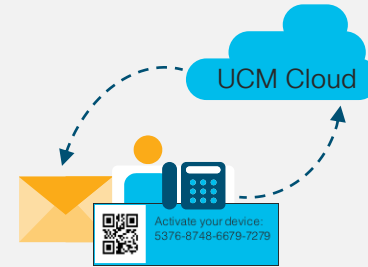
Simplified device administration

Centralized device management



- Centrally manage Cisco® endpoints, headsets, video devices, and Jabber®
- User-based configuration
- Inventory summary and reports
- Centralized telemetry and analytics

Simple and secure phone activation



- Activation code issued via email
- Phone authenticates using the activation code
- UCM Cloud config update is automatic and a phone registers securely
- Simple user experience. Reduced admin. Secure. Lower onboarding cost. Bulk capabilities.

Phone activation – unified end-user experience

1. Generate activation code



- Admin generates for users
- Available on the self-care portal

2. Unbox and plug in



3. Enter activation code

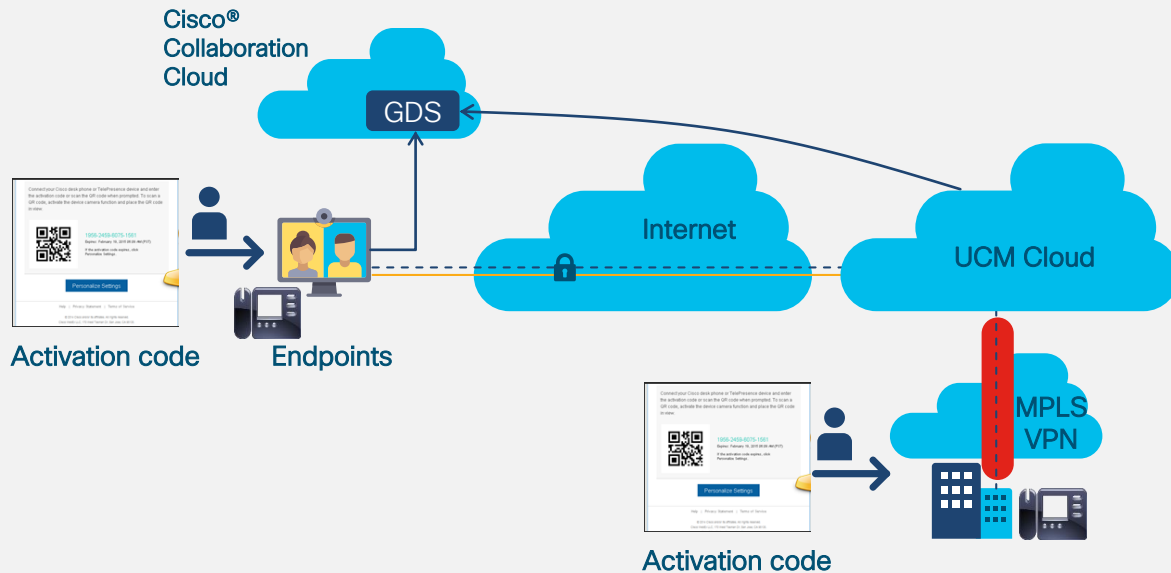


- QR code for video endpoints
- Via numeric keypad for other phones

4. Ready to go (secure)



Activation code-based device onboarding

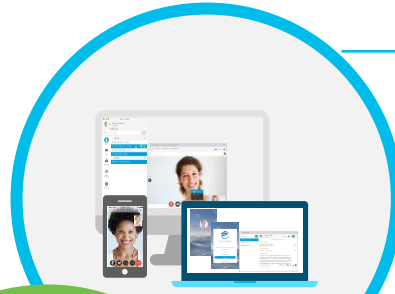


- Simplifies user experience for device onboarding
- Faster onboarding process reduces deployment costs
- Secures Internet access, allowing broader adoption for MRA

7800 and 8800 Series IP phones – 7811, 7821, 7832, 7841, 7861, 8811, 8841, 8845, 8851, 8851NR, 8861, 8865, 8865NR

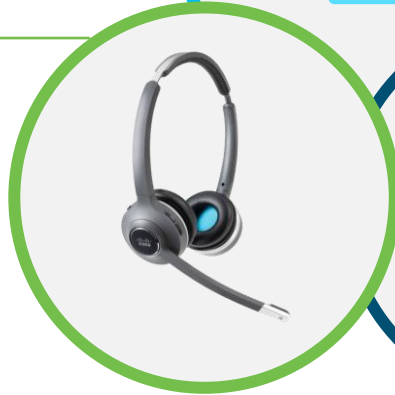
Fully centralized device management

Jabber configuration management



- No** more XML file uploads!
- Create Jabber® configuration templates - per site, per user group, etc.
- Jabber client can retrieve configuration settings from the service profile

Headset management



Centrally manage Cisco® Headsets from Unified Communications Manager:

- **User profile templates**
- **Managed firmware releases**
- **Customized inventory queries**

No additional end-user software

No new infrastructure

No additional licensing

Video endpoint management*



- Full** provisioning support for video endpoints
- Intuitive** tabbed admin interface
- Simplify** - migrate video endpoints from VCS to UCM
- Easily** restore the configuration in the event of a factory reset or RMA/ spare swaps

*Video management feature supports CE 9.4 and above: Cisco MX Series, Cisco SX Series, Cisco Webex® DX Series, Cisco Webex Room Series

Complete your online session survey



- Please complete your session survey after each session. Your feedback is very important.
- Complete a minimum of 4 session surveys and the Overall Conference survey (starting on Thursday) to receive your Cisco Live t-shirt.
- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Content Catalog on ciscolive.com/emea.

Cisco Live sessions will be available for viewing on demand after the event at ciscolive.com.

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Demos in the
Cisco campus



Walk-in
self-paced labs



Meet the engineer
1:1 meetings



Related sessions



Thank you





You make **possible**