The bridge to possible

# Cisco Webex Edge Video Mesh

## Walk Through Wednesday

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April 7th, 2021

# Agenda

- Overview
- Call Control
- Reachability
- Call Flows
- Control Hub Demos
- Video Mesh Webpage Demo

# Overview

# Components of Webex Edge for Meetings

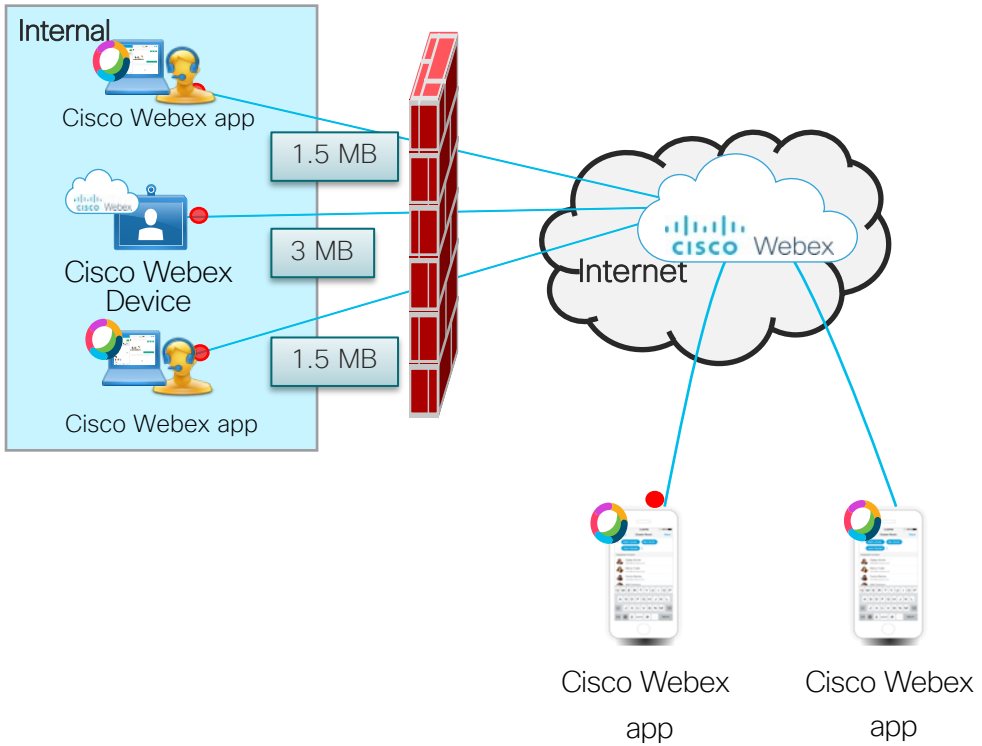
# Webex Video Mesh

## Problem

- 1:1 meetings use a cloud resource to meet
- Multiparty meetings use a cloud resource to meet
- Signaling and media go to and from the cloud
- Increased bandwidth requirement for the Internet with adoption of Cisco Webex Meetings

## Solution

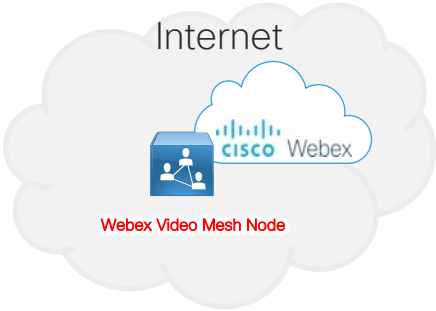
Cisco Webex Video Mesh

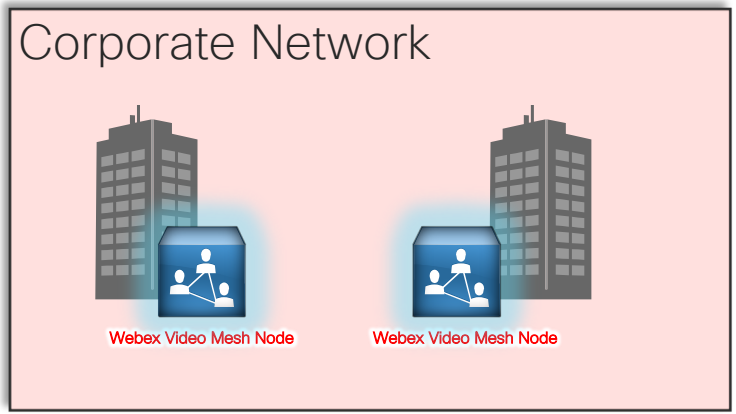


# Webex Video Mesh

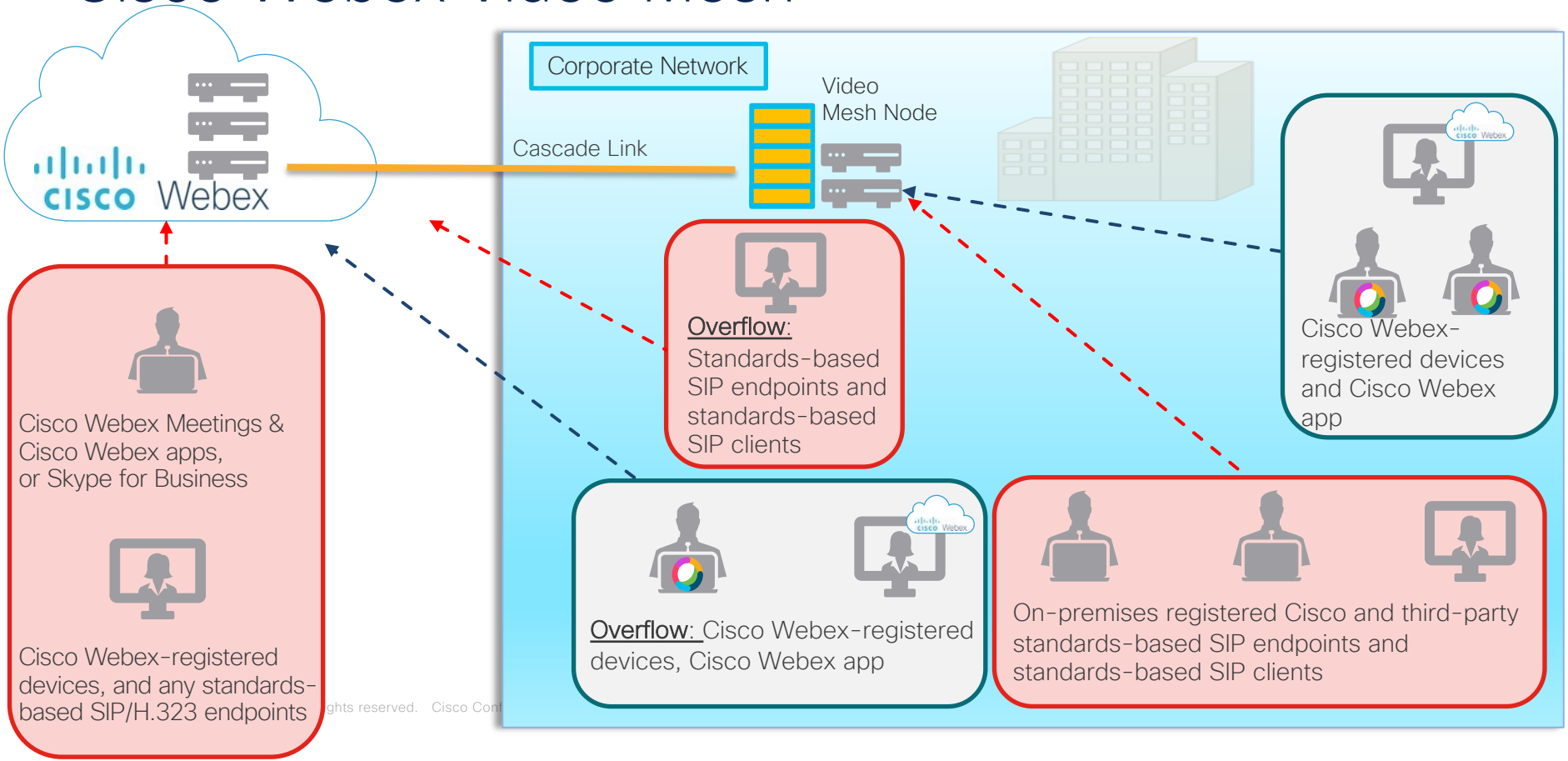
## What is it?

- A little piece of our cloud on your premises
- Cisco cloud meeting capabilities packaged in a software image for on-premises deployment
- Ability to provide local media processing on the corporate network to save Internet bandwidth.
- Customers can deploy Video Mesh Nodes across multiple locations, optimizing media quality within a location and bandwidth across locations
- Automatic overflow from on-premises Video Mesh Node to cloud nodes
- Automatic upgrades of Video Mesh Nodes
- Single pane of glass for management, resource monitoring and usage metrics
- Supports Webex Meetings and Webex Events



# Cisco Webex Video Mesh



# Hardware and Software Options

Hardware platforms:

- Cisco Meeting Server 1000 (Preferred)
  - 72vCPUs
  - 60GB main memory
  - 80GB local hard disk space
- Cisco Multiparty Media 410v server (End of Sale)
  - 48vCPUs
  - 60GB main memory
  - 80GB local hard disk space
- Specifications-based Configuration:
  - Same requirement as the CMS 1K or MM410v
  - Needs dedicated CPU, Memory, and disk space

Common Requirements:

- VMware ESXi 6 and vSphere 6 or later
  - 2 dedicated vCPUs needed
  - Hyperthreading enabled
  - No Coresidency of applications

Software download location:

- In Control Hub go to
  - Services -> Video Mesh
- Then look in the Help section at the bottom of the webpage


Demo version of software:

- For proof of concepts or internal labs only.
- No TAC support
- Can not be upgraded to full version
- 90-day trial license
- Hardware Requirements
  - 14 vCPUs
  - 2.6 GHz Intel Xeon E5-2600v3 or later processor
  - 8 GB main memory
  - 20 GB local hard disk space

# Choice

## Full version

Transcoding and Switching

Original option

## VMNLite

Optimized for switched traffic

New Option

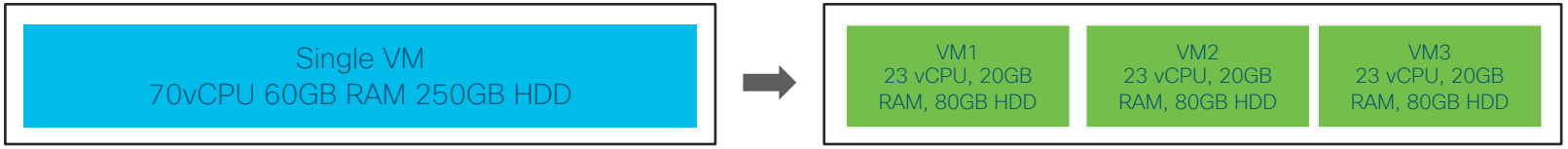
# VMNLite Deployment Option - Details

vCPU, RAM and HDD numbers for VMNLite are chosen such that, a single MM410v VM (46 vCPU) can be replaced with two instances of VMNLite VM and a CMS1000 VM (70 vCPU) can be replaced with three instances of VMNLite VM

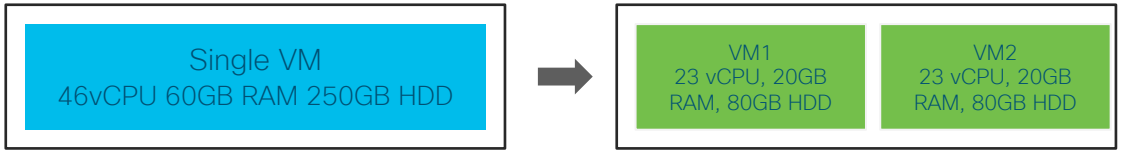
Only the following VMNLite configurations are supported

- Three VMNLite VM instances on CMS1000
- Two VMNLite VM instances on MM410v

Co-residency of VMNLite VM with non VMNLite instances is not supported.




One instance of 70 vCPU VMN can be replaced with three instances of VMNLite on the same Hardware

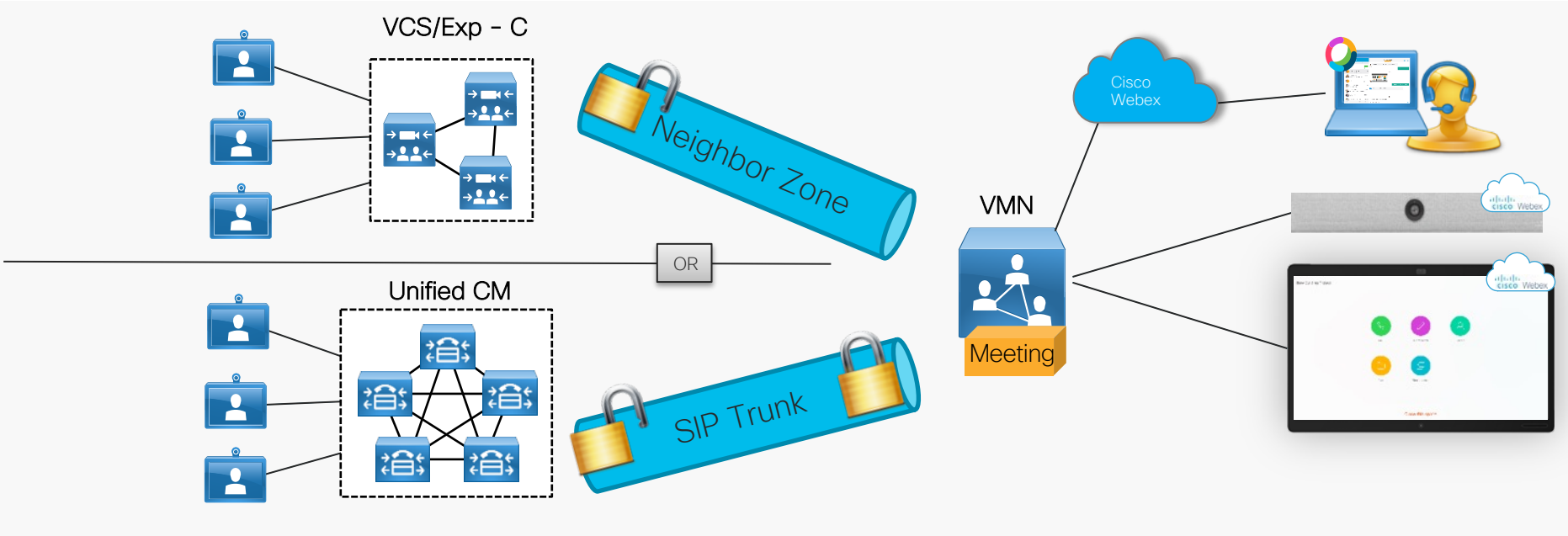



One instance of 46 vCPU VMN can be replaced with two instances of VMNLite on the same Hardware

# Call Control Integrations

# Call Control Connectivity

VMN = Webex Video Mesh Node

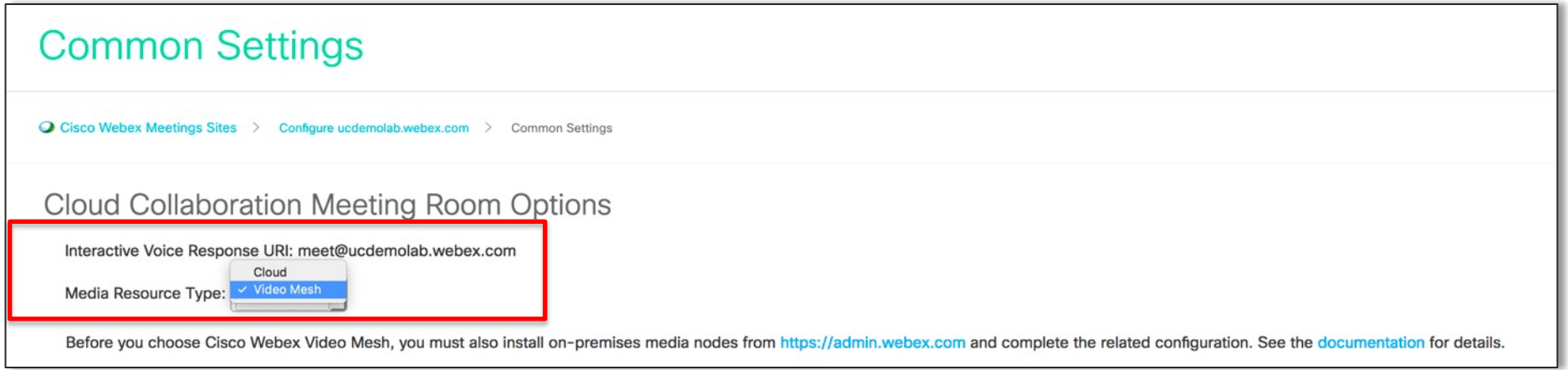



- Supported with Unified CM version 11.5(1) and higher. Recommended versions 12.5(1) and higher.
- Supported with VCS or Expressway X8.11.4 or higher

# Enable Video Mesh support on Cisco Webex site

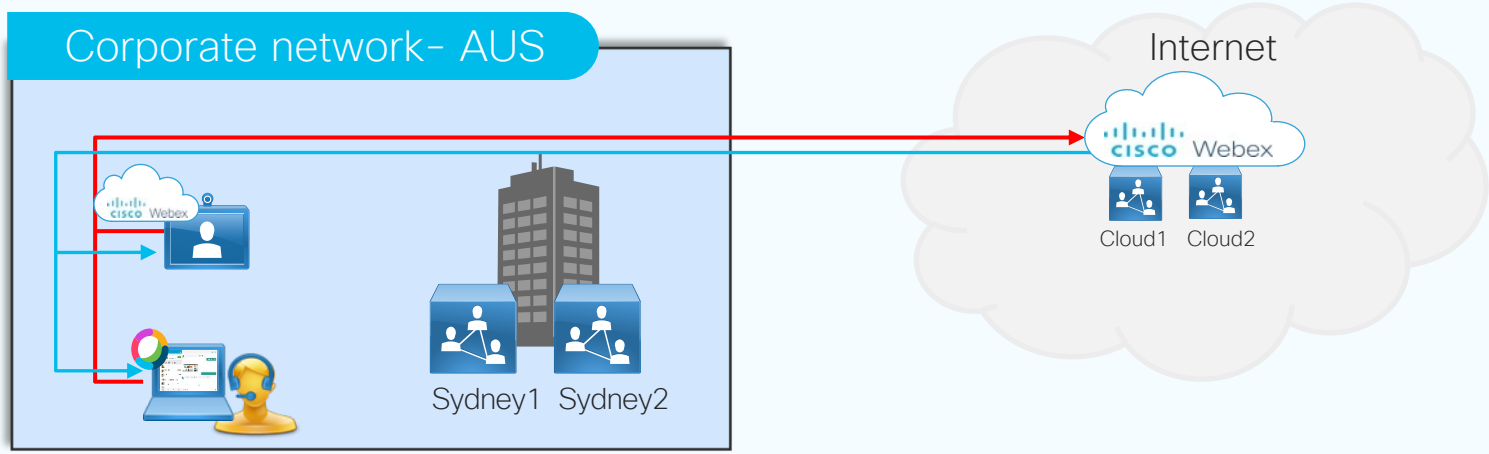
To cascade media to and from the VMN for Webex meetings, a configuration item needs to be modified from the default setting.

Media Resource Type
- Cloud (default)
- Video Mesh



# Reachability

# On - Net
## Registration




Cisco Webex app and Webex device register to their organization

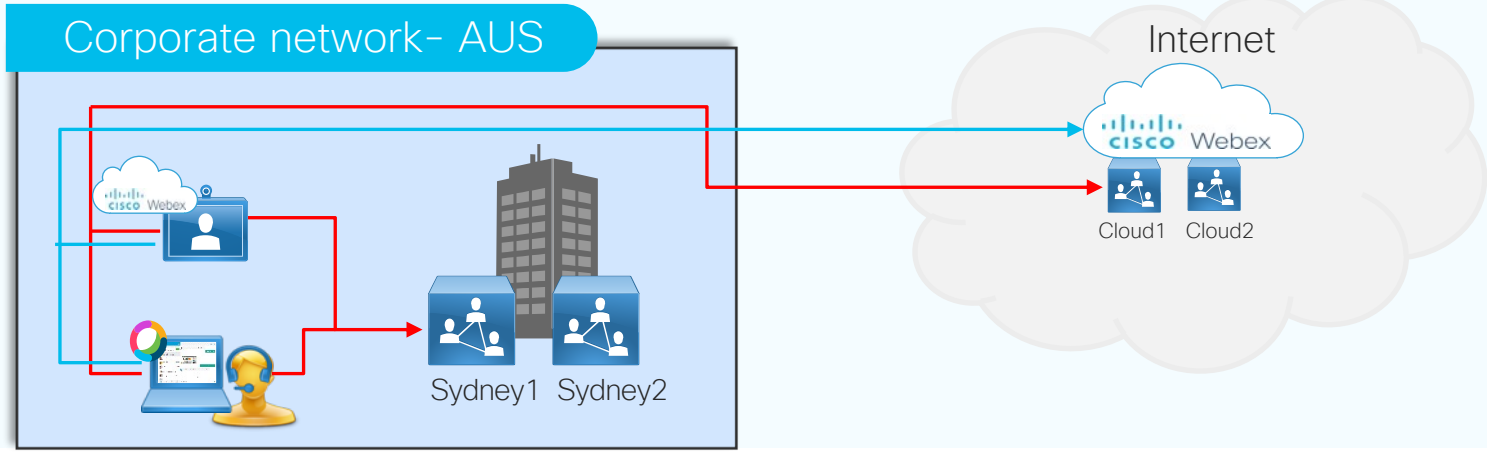
Cisco Webex responds with the clusters available for the users

| Cluster - Sydney | Cluster - Cloud |
|---|---|
| Node – Sydney1 | Node – Cloud2 |

Randomly selects a node in each cluster

# On - Net
## Reachability Test

Note: Checks are performed:
a) At launch of Cisco Webex app
b) Network change event
c) Cache expiration (2 hours)




Cisco Webex app and Webex devices do reachability tests to the mesh nodes.
Cisco Webex app and Webex devices sends results to the cloud at call start.

| Cluster - Sydney | Cluster - Cloud |
|---|---|
| Node – Sydney1 (RTD = 10) | Node – Cloud2 (RTD = 220) |

Randomly selects a node in each cluster

# Desktop App Log

## Opened “current_log.txt”

Log location:

- Windows: C:\Users*UserName*\AppData\Local\CiscoSpark\ (aka, %LocalAppData%\CiscoSpark\)
- Mac: /Users/*UserName*/Library/Logs/SparkMacDesktop/ (aka, ~/Library/Logs/SparkMacDesktop/)

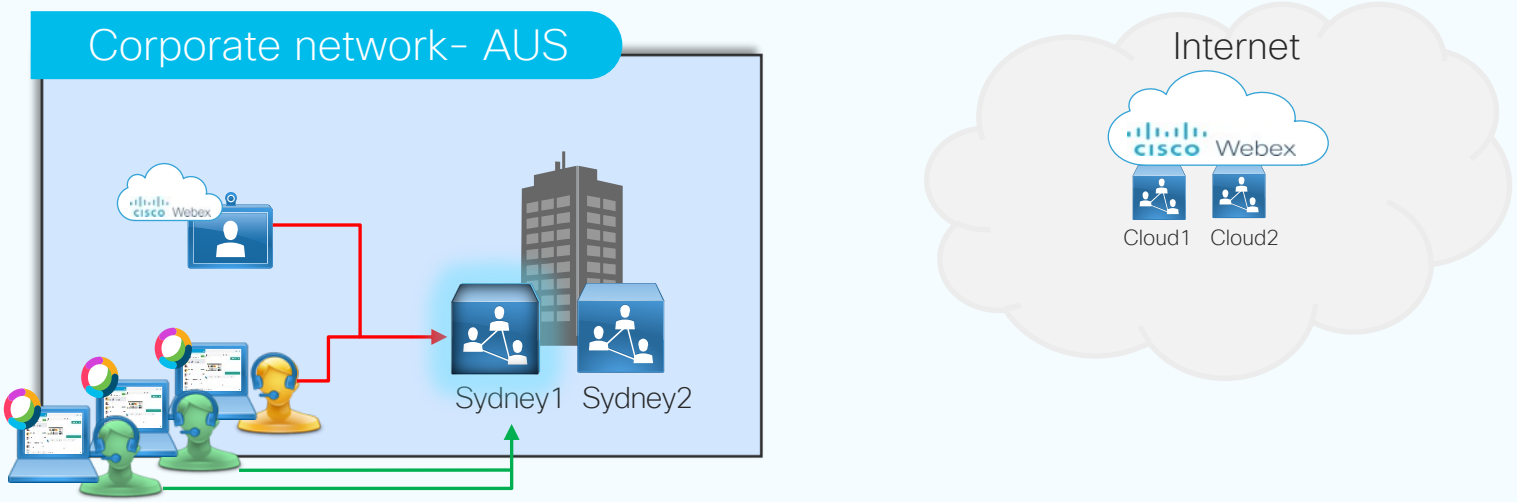
Reachability to clusters (Video Mesh Clusters)

2020-01-26T17:25:37.509Z<Debug>[0x700001f48000] MediaManager.cpp:1713 onTraceServersCompleted:In onReachabilityResultReady:

35a15b0a-0ef1-4029-9f63-a7c54df5df59.hq_sydney.*":

{"clusterUsability":{"usable":"true"},"tcp":{"latencyInMilliseconds":”20","reachable":"true"},"udp":{"latencyInMilliseconds":”10","reachable":"true"}},

# On - Net
## Registration



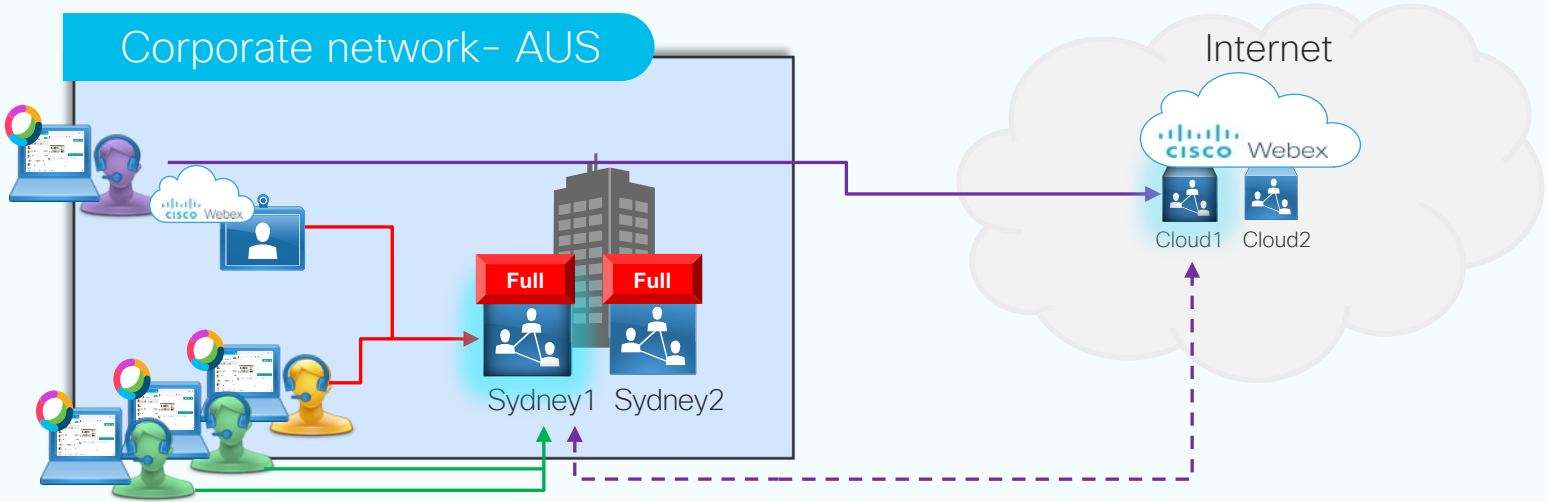

Cisco Webex app and Webex devices connect to a mesh node

Mesh node Sydney1 hosts the meeting

If additional participants join later, they follow the same process

# On - Net

## Meeting with Overflow




Cisco Webex app and Webex devices connect to a mesh node

Mesh node Sydney1 hosts the meeting

If additional participants join later, they follow the same process

Sydney 1 and Sydney 2 are full

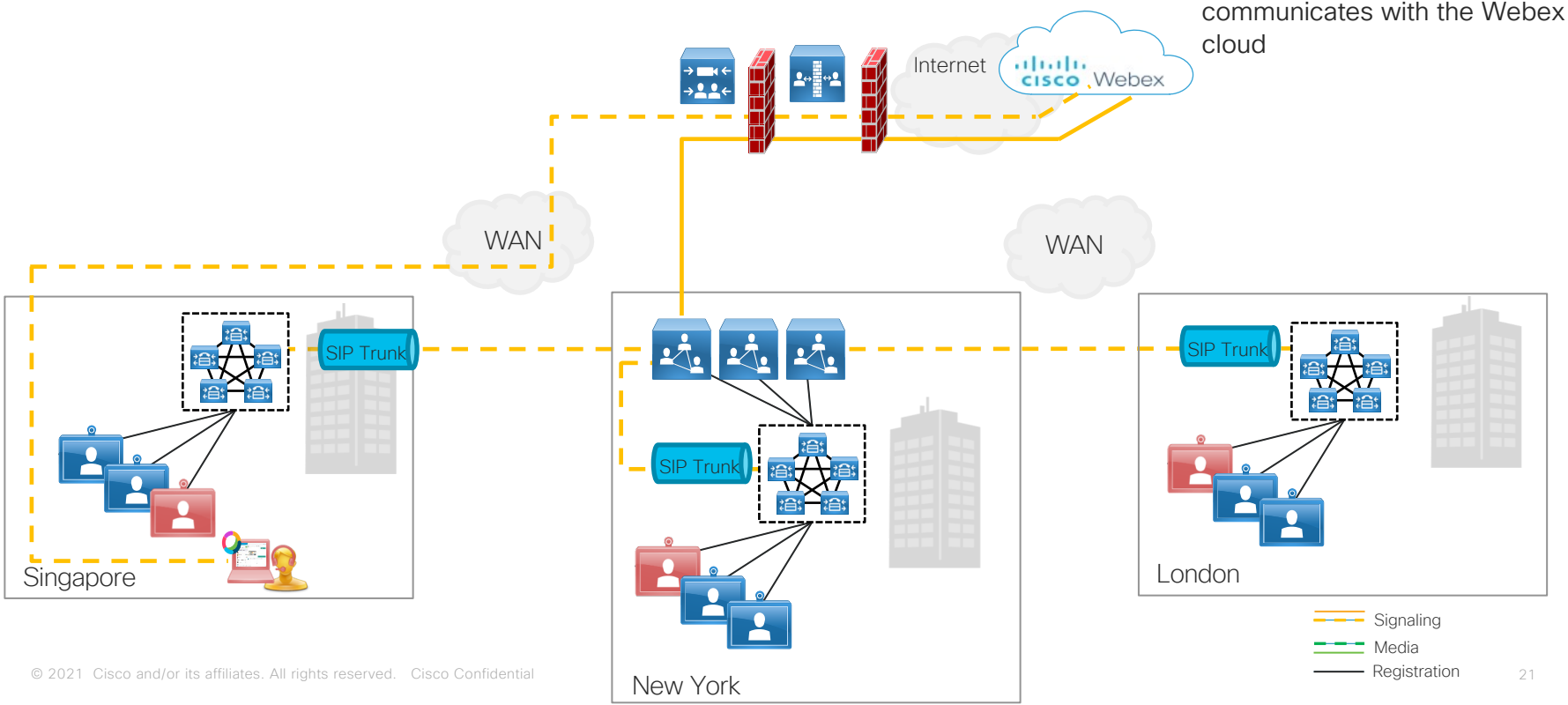
Overflow to the cloud and automatic cascade is created

# Deployment Architectures and Call Flows

# Regional offices

## Centralized Video Mesh cluster – Centralized Internet

- 3 internal devices and 1 Webex app dial into a Webex Meeting
- Signaling goes to Unified CM then to Video Mesh
- Video Mesh signaling communicates with the Webex cloud



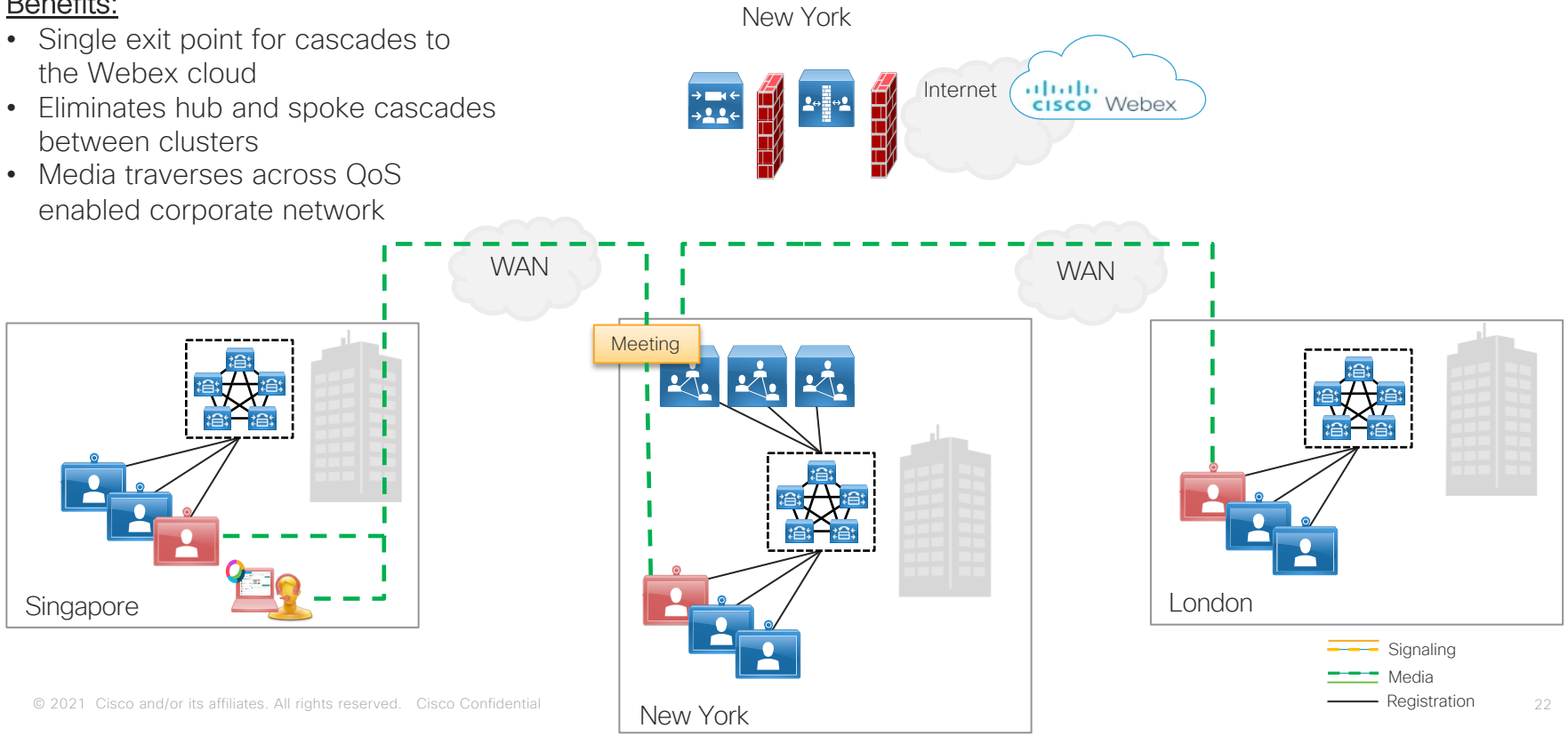
# Regional offices

## Centralized Video Mesh cluster – Centralized Internet

- 3 internal devices and 1 Webex application dial into a Webex Meeting
- Media goes to Video Mesh

<u>Benefits:</u>

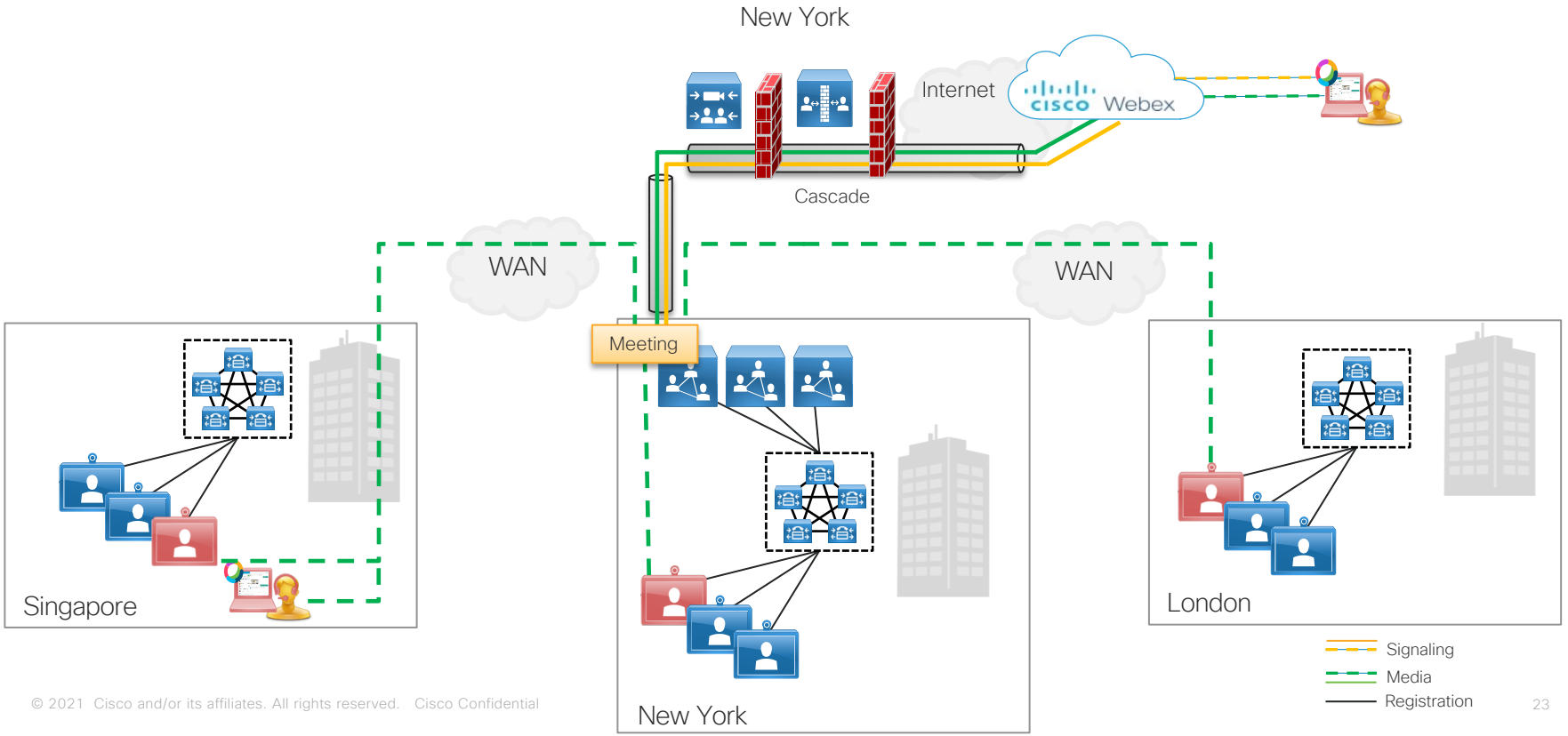
- Single exit point for cascades to the Webex cloud
- Eliminates hub and spoke cascades between clusters
- Media traverses across QoS enabled corporate network



# Regional offices

## Centralized Video Mesh cluster – Centralized Internet

- New external participant joins
- Media cascade between Video Mesh and Webex established



# Regional offices

## Regional Video Mesh clusters – Centralized Internet

- 3 internal devices and 1 Webex app dial into a Webex Meeting
- Signaling goes to Unified CM then to Video Mesh or for Webex app client to the cloud
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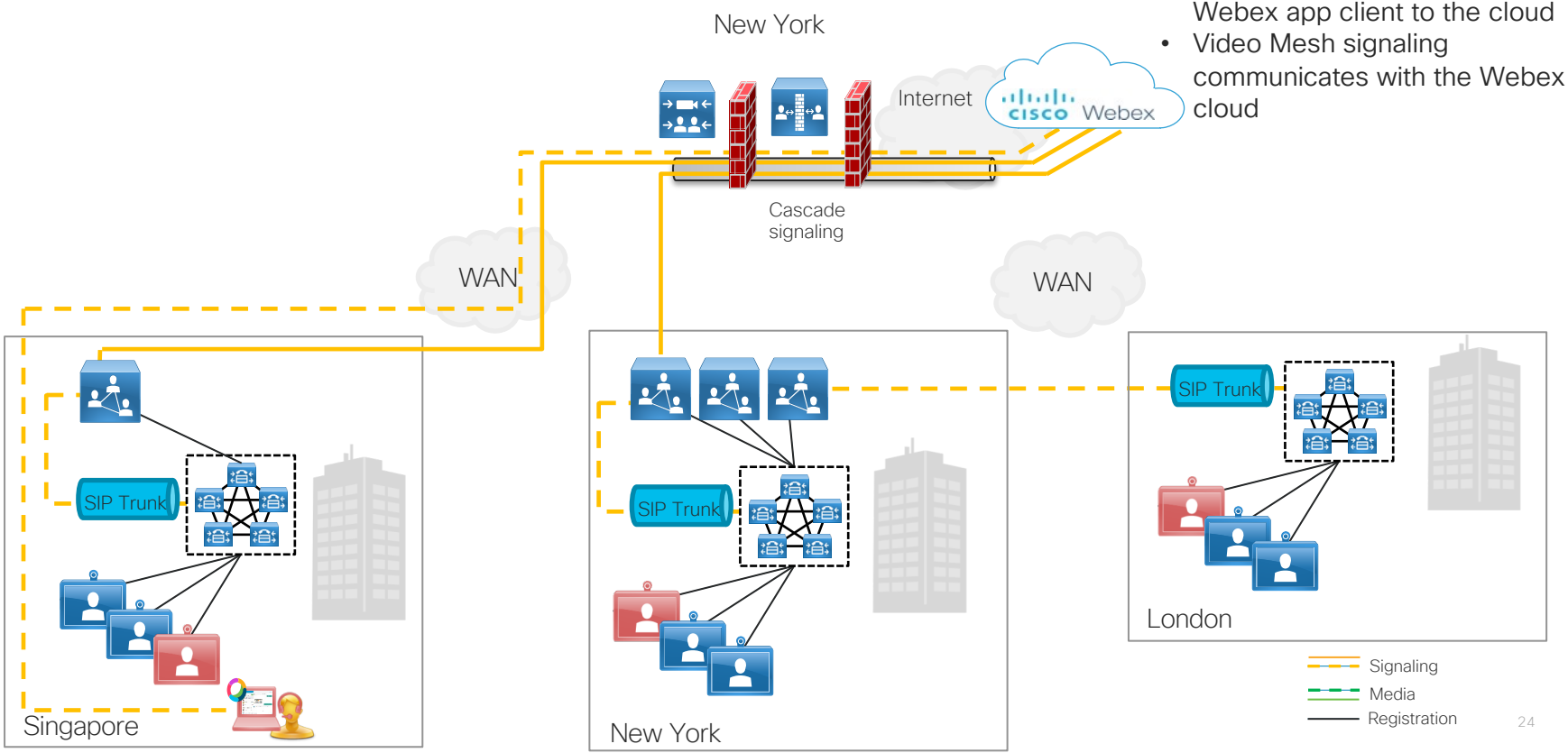
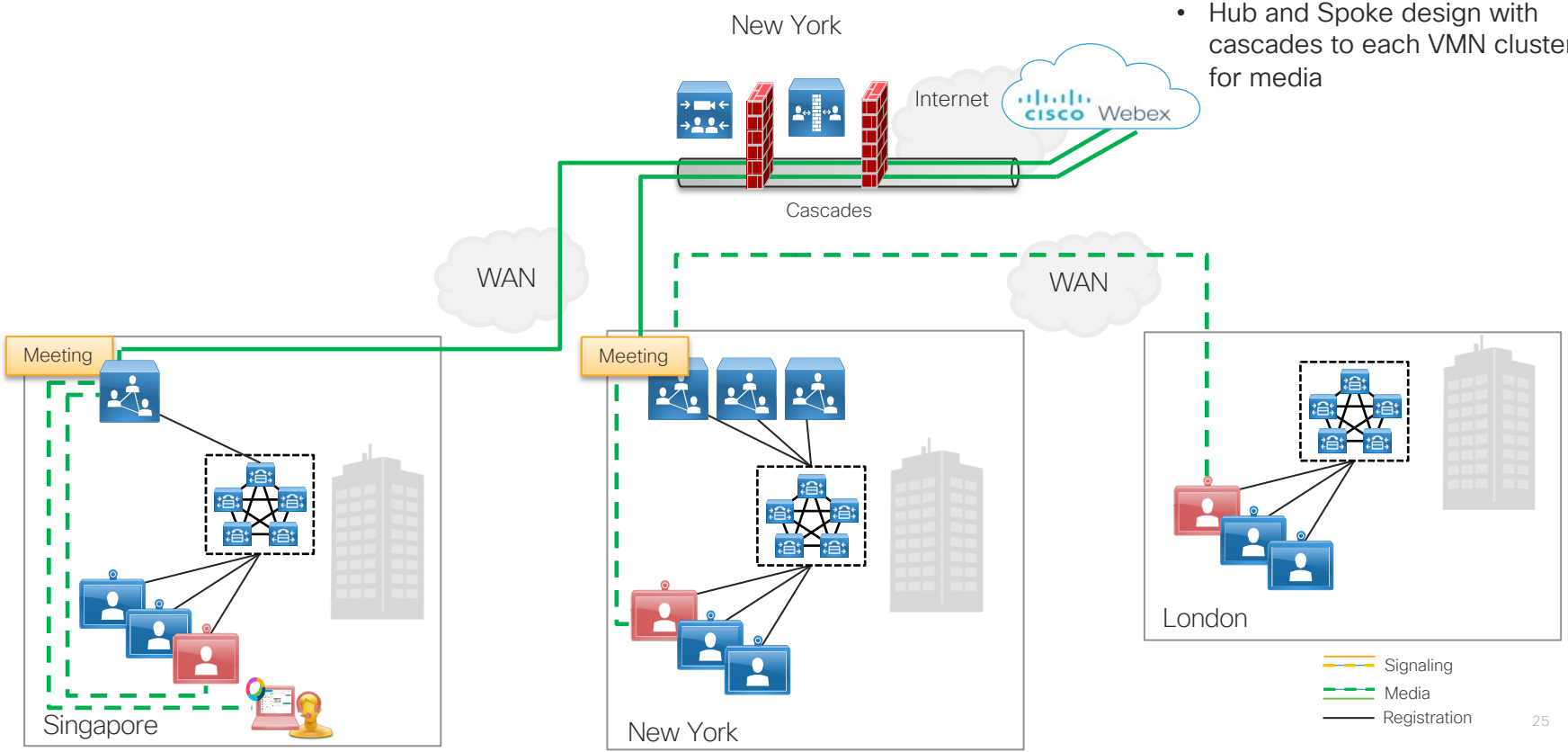


# Regional offices

## Regional Video Mesh clusters – Centralized Internet

- 3 internal devices and 1 Webex app dial into a Webex Meeting
- Media goes to the Video Mesh in each cluster
- Hub and Spoke design with cascades to each VMN cluster for media



# Regional offices

## Regional Video Mesh clusters – Local Internet

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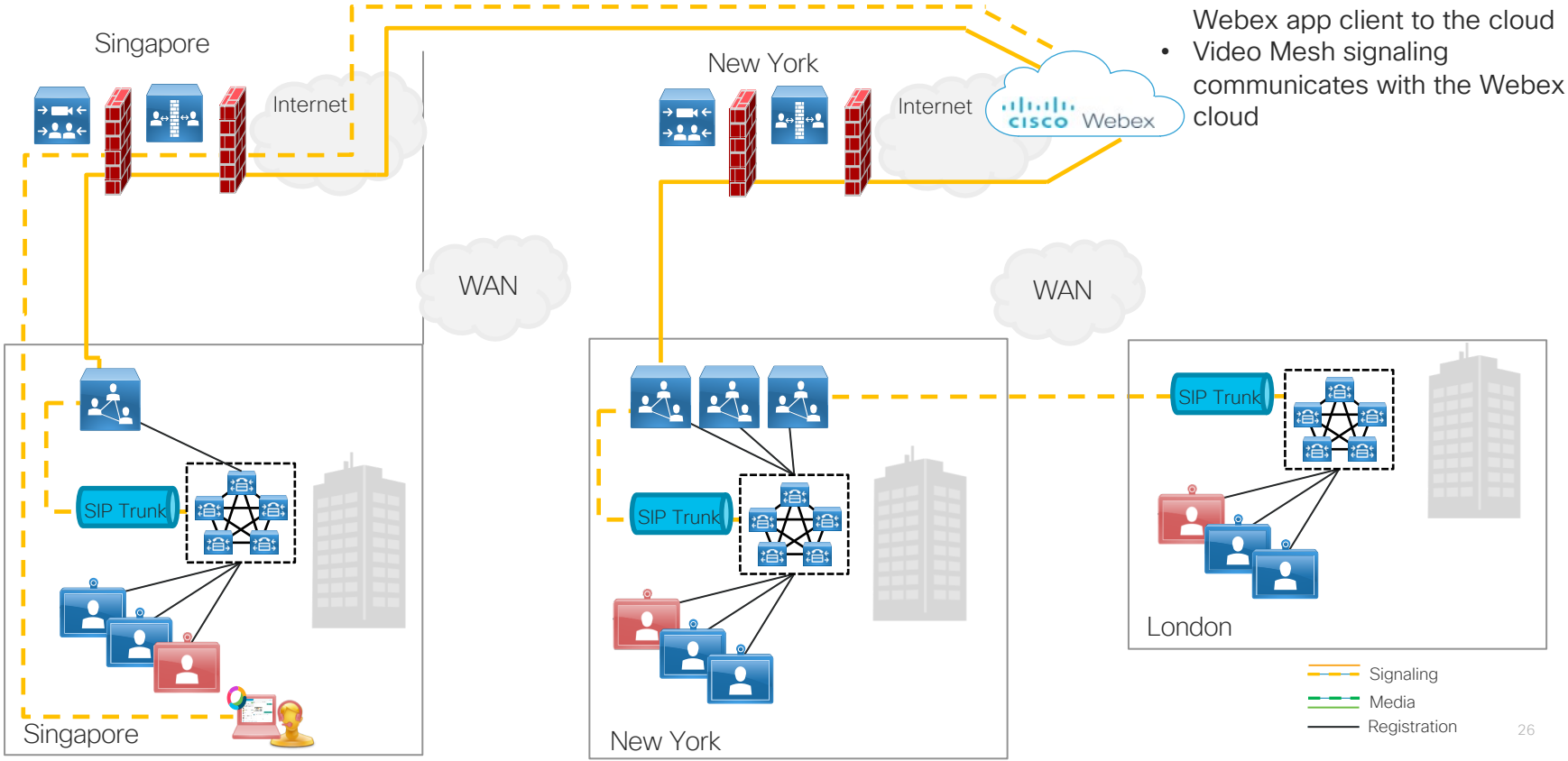

# Regional offices

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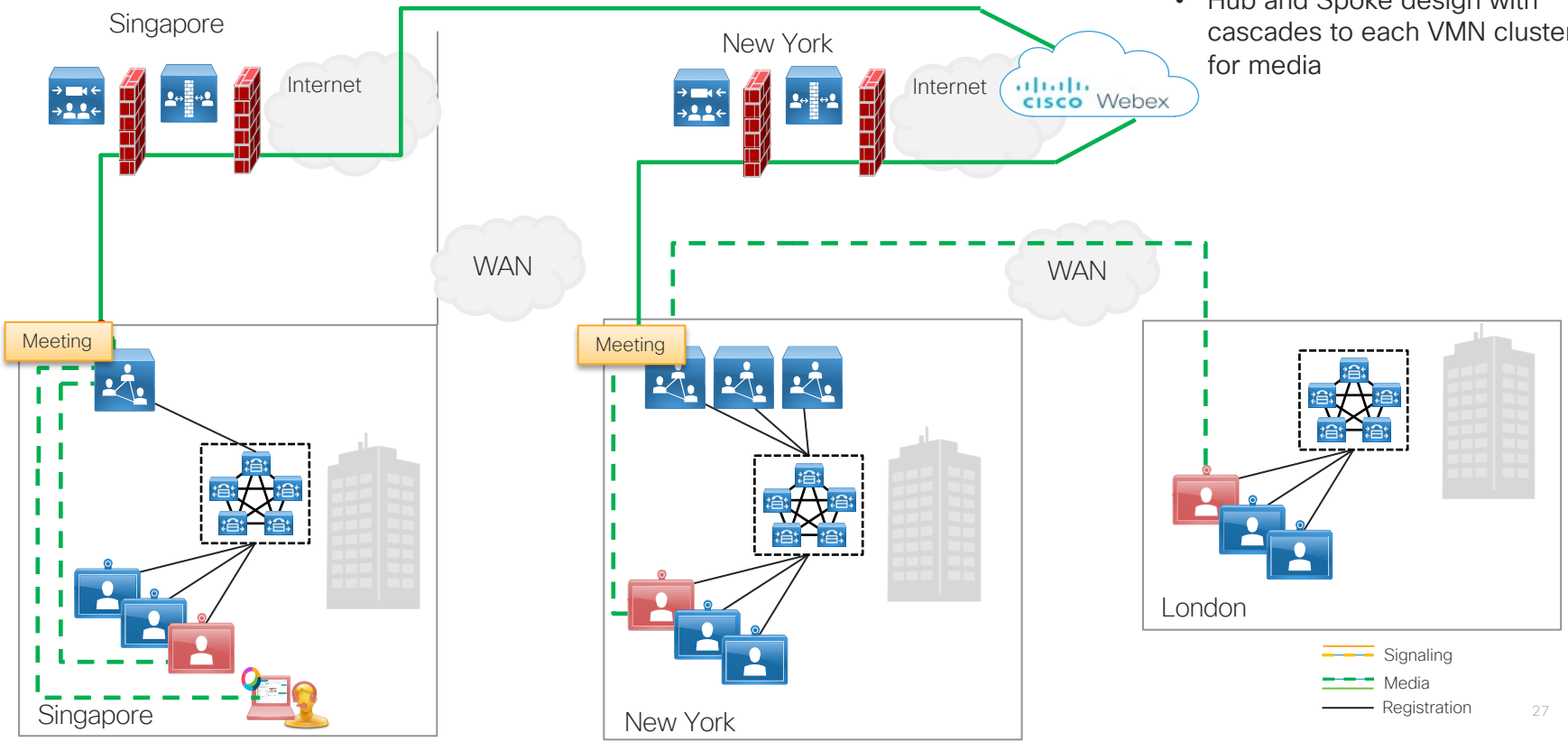
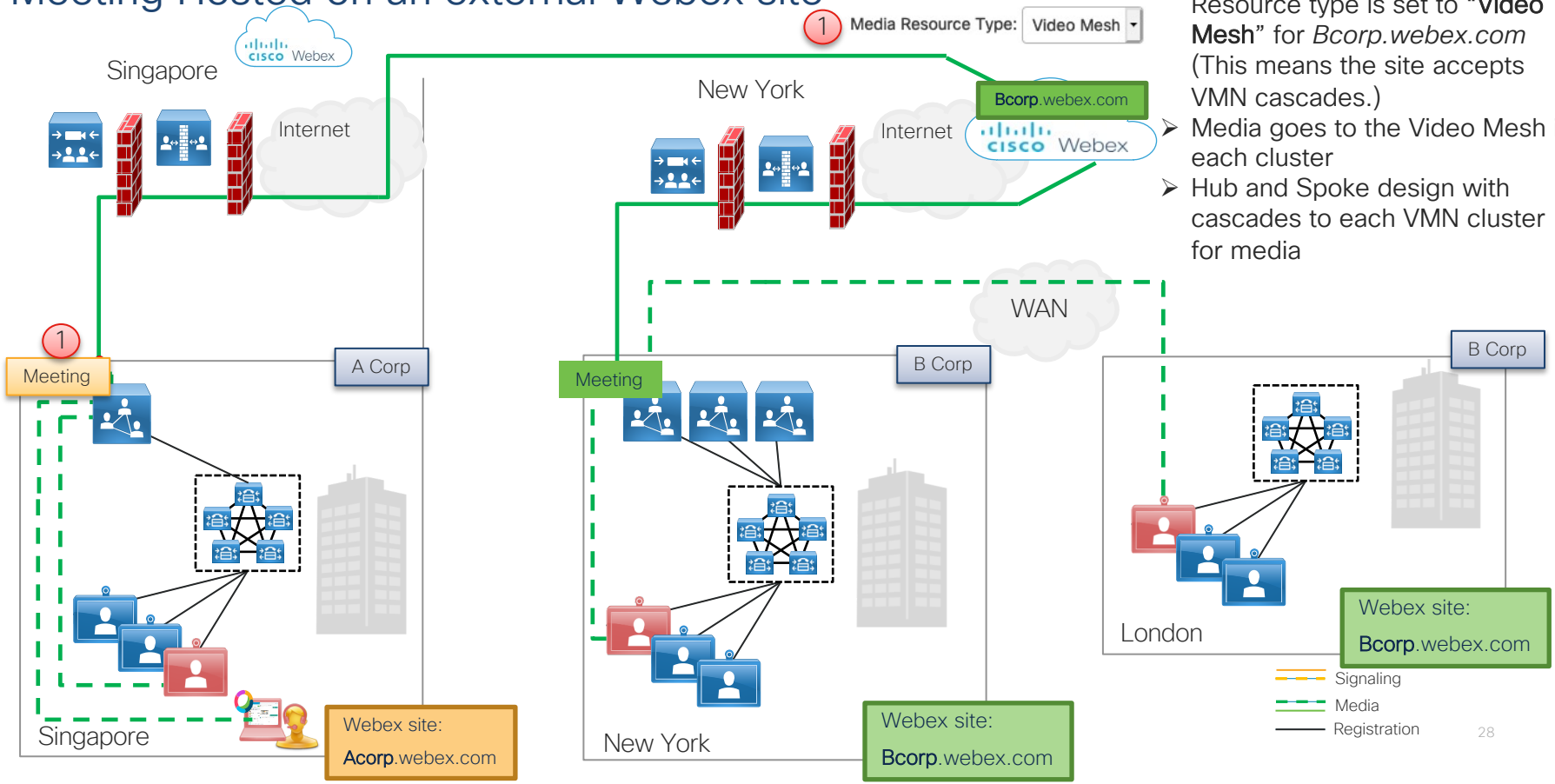


# External Meetings

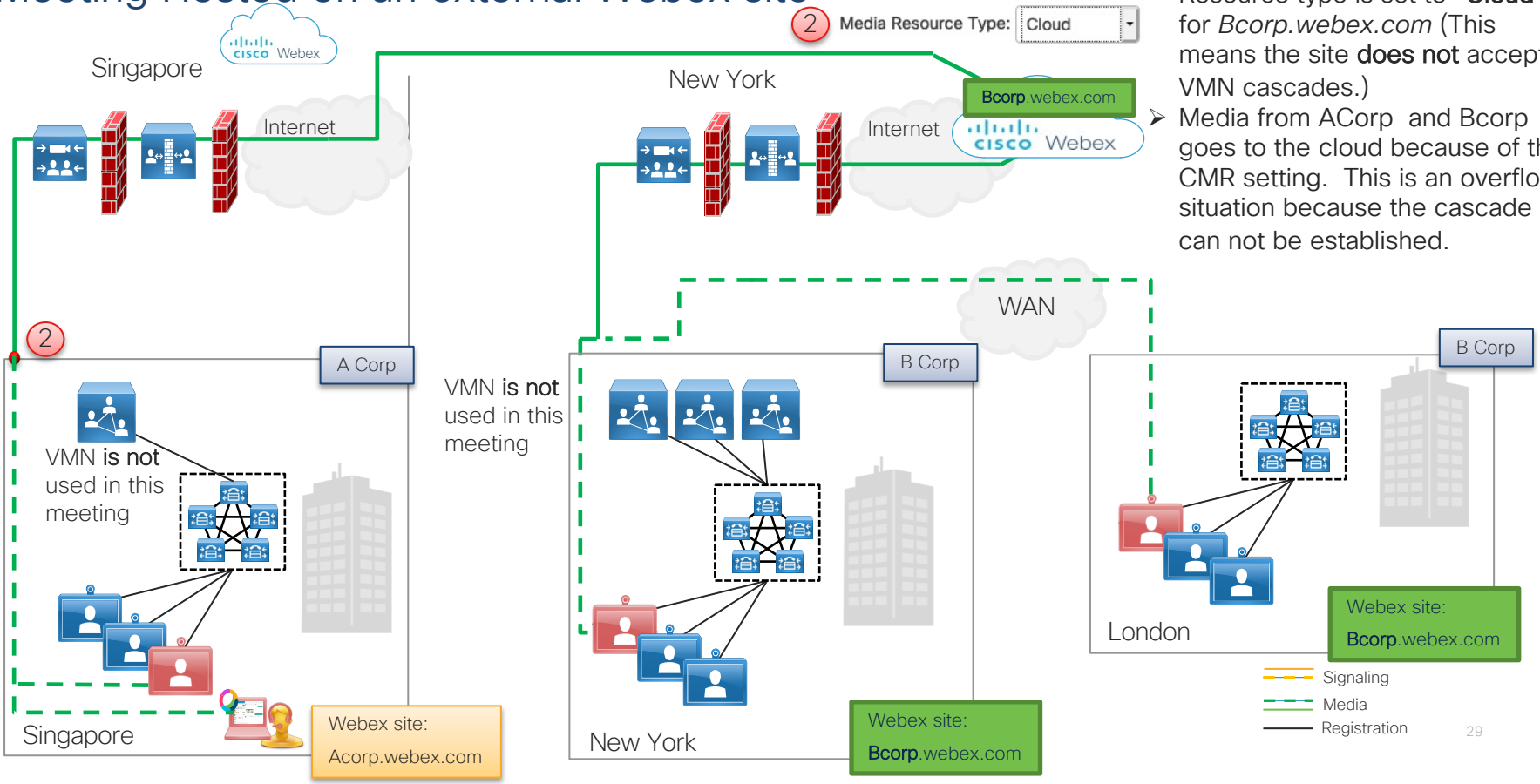
## Meeting Hosted on an external Webex site




- 2 different organizations have a meeting.
- In Control Hub, the CMR (1) Resource type is set to "**Video Mesh**" for *Bcorp.webex.com* (This means the site accepts VMN cascades.)
- Media goes to the Video Mesh in each cluster
- Hub and Spoke design with cascades to each VMN cluster for media

# External Meetings

## Meeting Hosted on an external Webex site



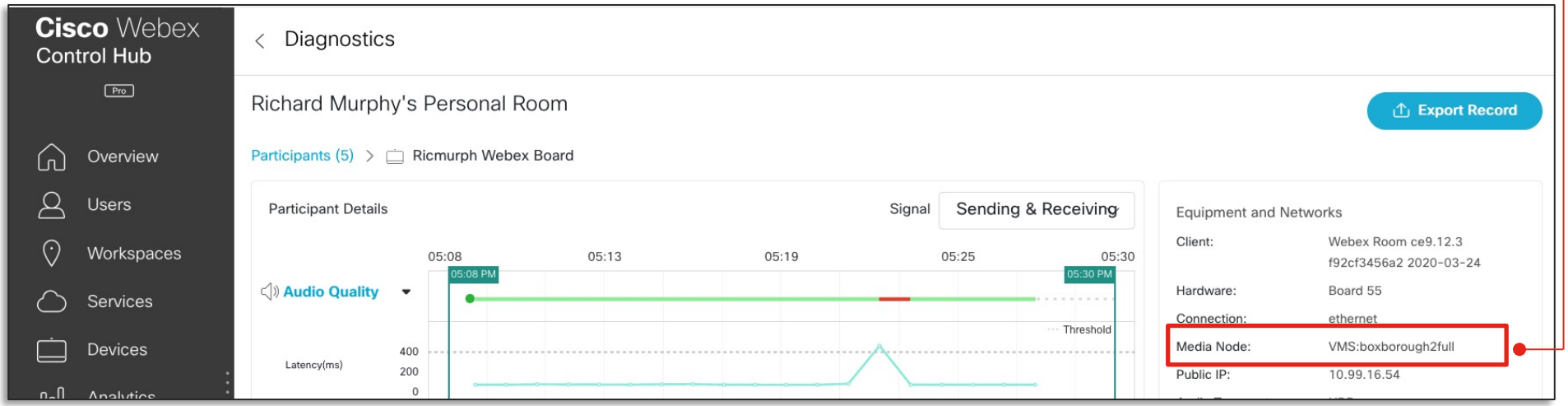

- 2 different organizations have a meeting.
- In Control Hub, the CMR (2) Resource type is set to "**Cloud**" for *Bcorp.webex.com* (This means the site **does not** accept VMN cascades.)
- Media from ACorp and Bcorp goes to the cloud because of the CMR setting. This is an overflow situation because the cascade can not be established.

# Control Hub

# Video Mesh Node identified in Diagnostics

## Troubleshooting

- If the device is connected to a Video Mesh Cluster, it will have *VMS:Cluster_Name* as the media node.



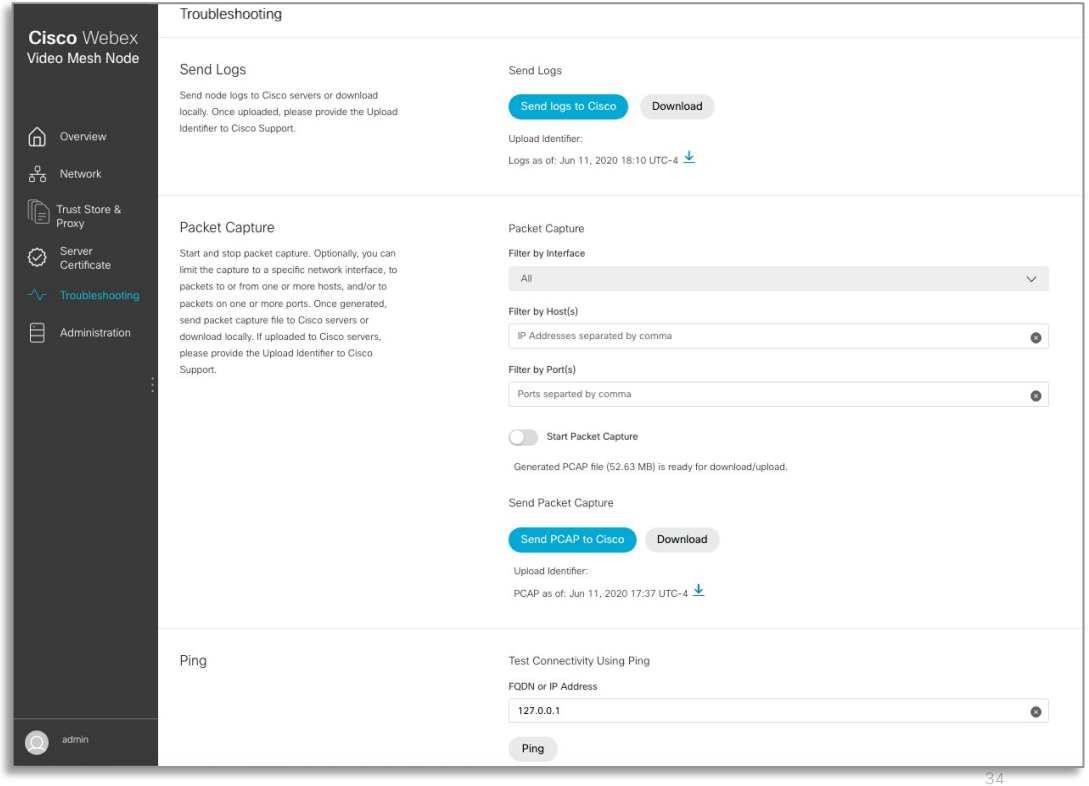
# Control Hub Demo

- Video Mesh Events
- Video Mesh alerts notification
- Go to the Node
- Video Mesh Monitoring Tool
- New Analytic page
- Video Mesh Webpage

**Troubleshooting the Cisco Webex Video Mesh Solution – DGTL-BRKCOL-3002**
Event: 2020 Digital
Speaker: Paul Stojanovski
https://www.ciscolive.com/global/on-demand-library.html?#/

# Troubleshooting

- Logs
  - Send logs to Cisco
    - Log package contains media, system, and container logs
  - Download logs locally to attach to a TAC case manually
- Packet Capture
  - Captures packets from internal, external or all interfaces
  - Filter host(s) and port(s)
  - 2 GB limit for the packet capture file
  - Include upload identifier to a TAC case for the support engineer to look at the file
- Ping



# Key points to remember in architecting a VMN solution

## One recommendation does not fit all deployments

1. Deploy Webex Video Mesh Nodes in the large campus sites with Internet connections
   - Start small and grows as needed
2. Keep in mind the cascade path when placing a Webex Video Mesh Node in the architecture.
3. Continuously monitor analytics, add more nodes and/or clusters based the observed traffic and meeting locations (Video Mesh, Overflow, or Cloud).


The bridge to possible