

Webex Edge Connect

Design and Deployment for Webex Meetings/Calling and Dedicated Instance

Richard Murphy, Technical Marketing Engineer – Technical Leader @RichardF_Murphy BRKCOL-2094

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Cisco Webex App

Questions?

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

How

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

Webex spaces will be moderated by the speaker until June 7, 2024.

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Speaker(s)	2000 2000 2000 2000 2000 2000 2000 200
Categories Technical Level	
Intermediate (596) Tracks Networking (220)	>
Session Type Breakout (453) SHOW 2 MORE V	>
Webex Join the Discussion	
Notes Enter your personal notes here	

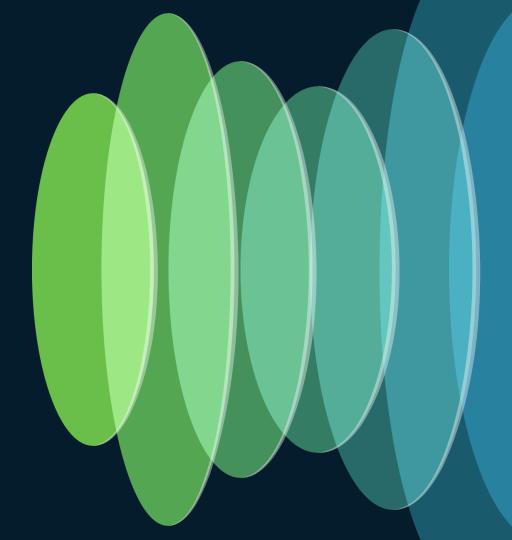
https://ciscolive.ciscoevents.com/



- Introduction
- Ordering process
- Meetings and Calling Architecture (1.0)
- Webex Suite Architecture (2.0)

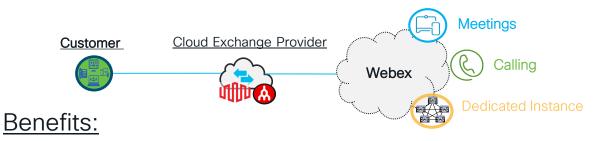
Edge Connect Overview





What is Webex Edge Connect?

Answer: One or more private network peering connections to Webex

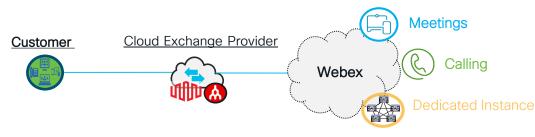


- Direct connection to the Webex backbone for services
- A dedicated, consistent, reliable, high-quality secure meeting and calling experience
- Provides protection from the public Internet and the potential threats and attacks associated with the Internet.

Cloud Exchange Providers for Edge Connect

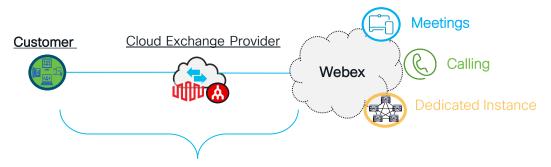
Connectivity through a cloud exchange provider only.

- Equinix
- Megaport New and in Early Access (EA) status 6
- No direct peering with Cisco from the customer, must use cloud exchange provider fabric connection to Webex.





Edge Connect sizing options



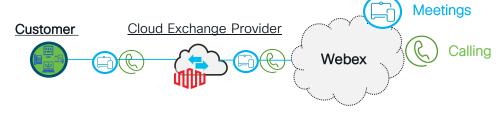
- Options from 200MB to 10 GB connection speed to Webex
- Can purchase a 200M, 500M, 1G, 2G, 5G, 10G connection
- Able to upgrade speed after initial purchase

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Webex Services over Edge Connect

<u>General Availability</u> Webex services available on a single connection:

- Meetings
- Webex Calling Multi-tenant



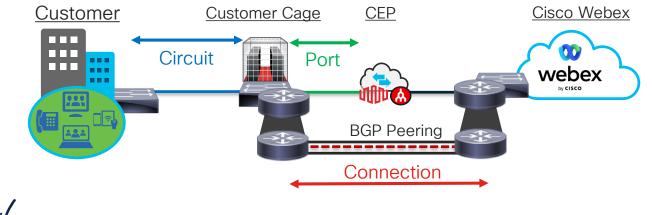
 Single connection for Dedicated Instance traffic only





Nomenclature – Let's speak the same language!!!

- Cloud Exchange Provider (CEP): Equinix or Megaport
- "Circuit": Network circuit between Customer and the CEP. May have traffic to multiple cloud providers.
- "Port" A port is the physical port that was ordered in the CEP that is connected from the CEP backbone to the customer equipment in the cage (router/switch).
- "Connection" This is where a customer uses the CEP portal to submit a request to connect to a Cloud Provider.



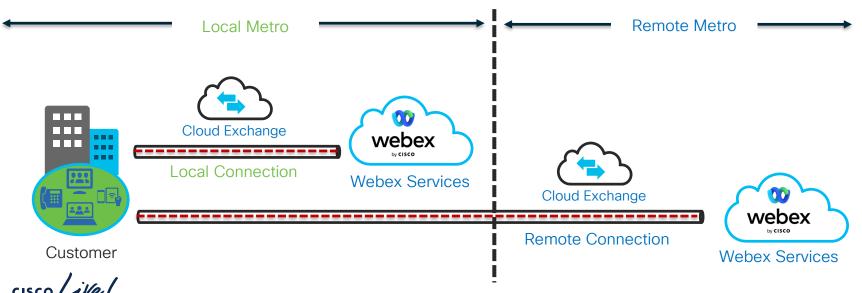
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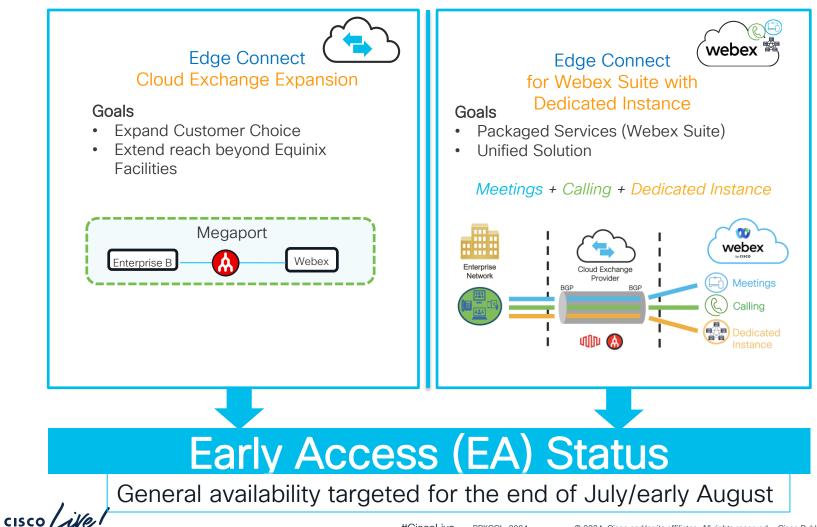
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Customer Connections: Local Connection vs Remote Connection

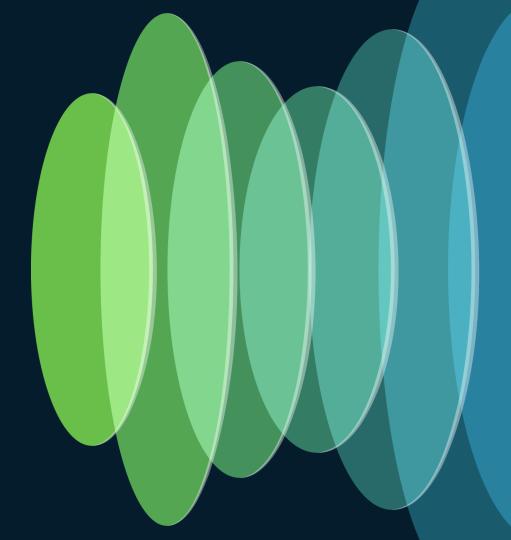
A Local Connection is a virtual connection between Webex Services and the customer that is within the same Metro location.

A **Remote Connection** is a virtual connection between Webex Services and the customer that is **between different** Metro locations.



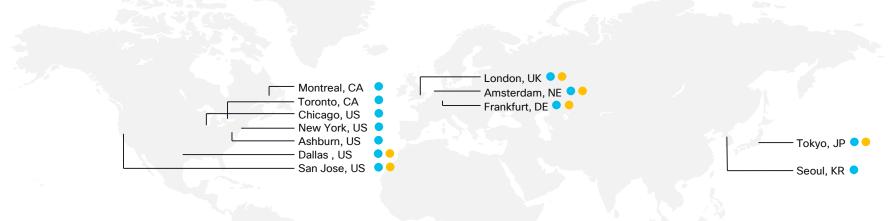


Locations



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Webex Meetings/Calling and Dedicated Instance footprint



– Singapore, SG 🔵 😑

─ Sydney, AU ● ─ Melbourne, AU ●

- Cisco Webex Meetings and Calling Multi-Tenant
- Webex Dedicated Instance data centers

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Edge Connect in Equinix and Megaport



Sydney, AU ፀ 🚺 *Melbourne, AU 🖪 🚺

* Webex Dedicated Instance ONLY

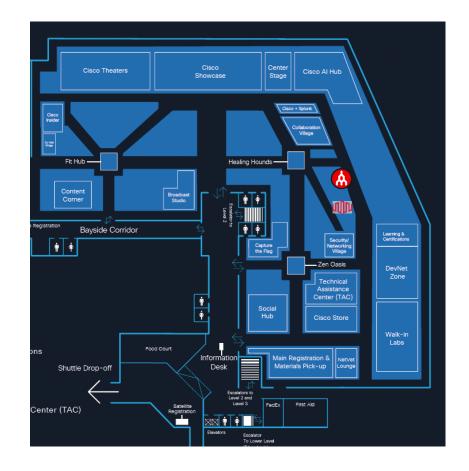
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World of Solutions

Visit the Cloud Exchange Provider Booths in the WoS!

Megaport Booth #4819

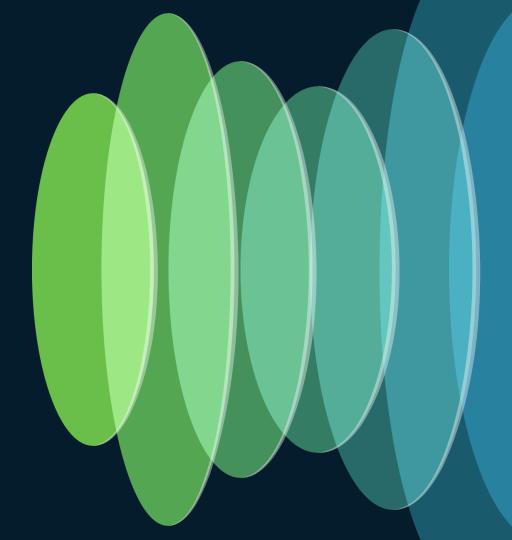
Image: Equinix Booth #4419





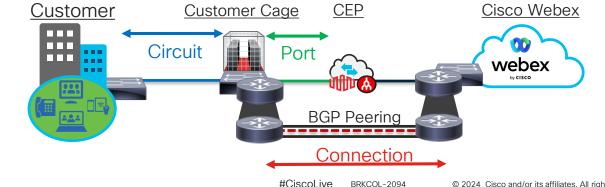
Ordering Edge Connect



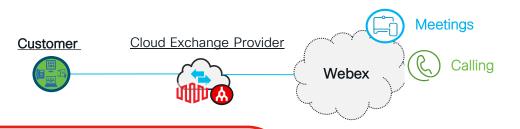


Customer Requirements Before Edge Connect "Connection" (Peering) Request

- 1. Customer must have a circuit to Equinix or Megaport (CEP)
- 2. Customer typically has **equipment** (router / switches) in a cage
- 3. Customer is required to have a **port** available and to connected to Equinix or Megaport fabric to make the Webex connection request. The port is the physical circuit created from the customer's cage to the fabric backbone.
- 4. Cisco PO# of Edge Connect licensing



Customer Requirements – Meeting and Calling



IP Addressing

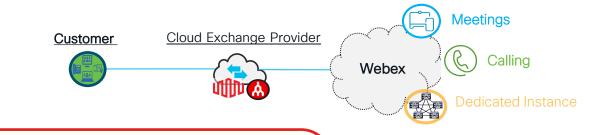
- Customer owned public IP /30 or /31 for BGP peering
- Private or Public BGP ASN
- Max length prefix that Webex advertises is /24
- The maximum length prefix that Webex accepts is /29
- The maximum number of routes Webex accepts is 100
- Customer router has NAT pool(s) configured

IP Addressing

- Cisco recommends that customers allow 500 routes from Webex on the BGP peering as the number of routes that Webex advertises may change over time. Meeting and Webex Calling Multi-tenant routes are sent to the customer.
- Bidirectional-Forwarding Detection (BFD) is supported and enabled with a default value of 300 ms x 3 on the Webex Edge routers

Early Access

Customer Requirements - Meeting, Calling, DI



IP Addressing

- Customer owned public IP /30 or /31 for BGP peering
- Private or Public BGP ASN
- Customer advertises default gateway (0.0.0.0) to Webex
- No customer configured NAT pool(s) for service

IP Addressing

- Cisco recommends that customers allow 500 routes from Webex on the BGP peering as the number of routes that Webex advertises may change over time. Meeting, Webex Calling Multi-tenant and DI routes are sent to the customer.
- Bidirectional-Forwarding Detection (BFD) is supported and enabled with a default value of 300 ms x 5 on the Webex Edge routers

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Ordering options: GA 1.0 and Early Access ---Today

Uses the ECX portal page process. (GA)

1. Equinix – Meetings and Calling

Uses the service key process. (Early Access)

- 2. Equinix Meetings, Calling, and Dedicated Instance
- 3. Megaport Meeting and Calling
- 4. Megaport Meetings, Calling, and Dedicated Instance

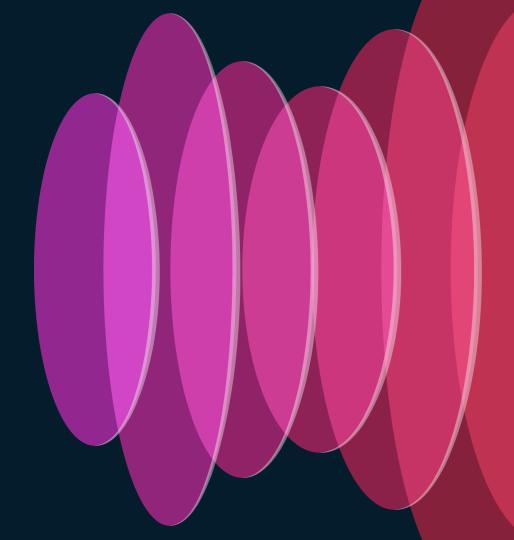
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Ordering options: GA 2.0 ~ August (subject to change)

- 1. Purchase Cisco Webex Edge offering in the cloud exchange provider's marketplace
- Use the **<u>Cisco portal page</u>** process for all connection types.
 - Equinix Meetings and Calling
 - Equinix Meetings, Calling, and Dedicated Instance
 - Megaport Meeting and Calling
 - Megaport Meetings, Calling, and Dedicated Instance
- 2. Enter all sales and technical information into the Cisco portal webpage.
- 3. Customer gets emailed the service key which is enabled on Equinix or Megaport website
- 4. Cisco router(s) are provisioned based on the information in the Cisco portal.

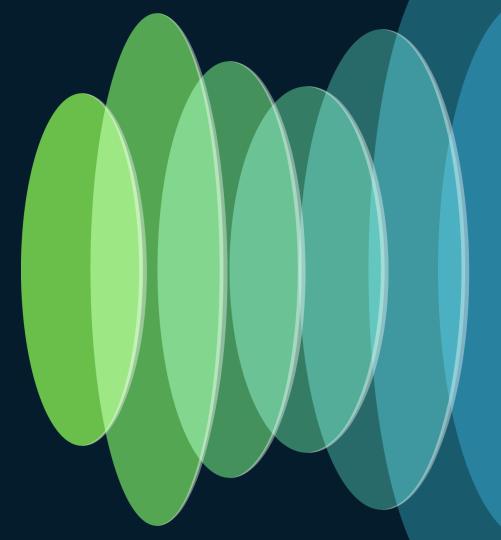
What technical information is needed?





Megaport Customer Portal Configuration with Service Key

Note: Part of the Early Access program



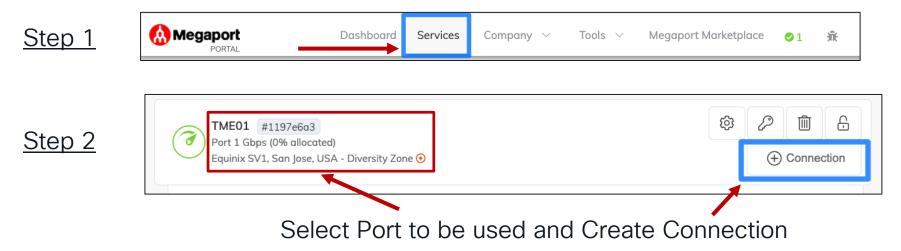
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Megaport – Customer Key Usage

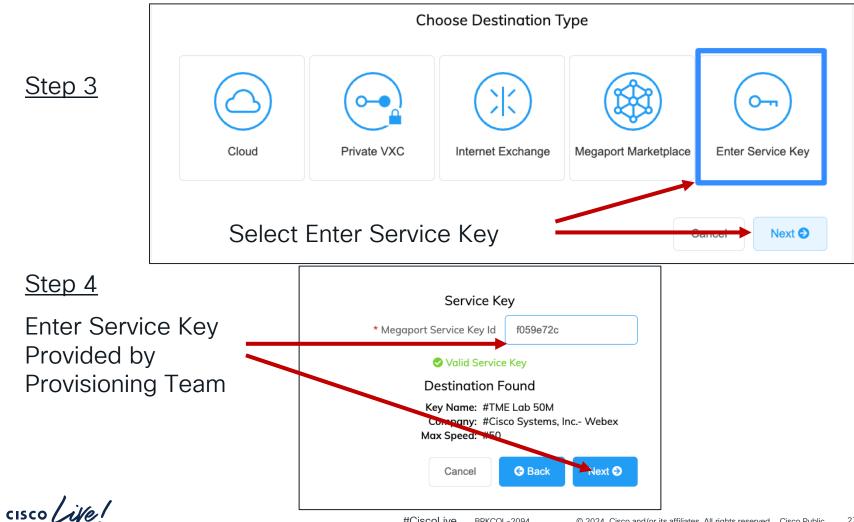
https://portal.megaport.com

- 1. Browse to Services
- 2. Choose the port you want to use for creating the connection
- 3. Choose service key destination type
- 4. Enter service key
- 5. Provide Connection Name, Bandwidth and VLAN
- 6. Select add VXC (virtual cross connect)

https://portal.megaport.com --> Services



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<u>Step 5</u>

Provide Connection Name, Bandwidth and VLAN

This VLAN is the customer side VLAN (A-End).

The Webex B-End VLAN will be pre-populated with the Service Key

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TME01 1 Gbps San Jose, USA Diversity Zone •		$\stackrel{\leftarrow}{\rightarrow}$	() 10 Gbps	WXBB-PE01-BUND	LE10001
Monthly Rate:\$100.00 USD (Price Excludes Tax)					
	Co	onnection Det	ails		
	* Connection Name Demo				
Service Level Reference Service Level Reference					
	* Rate Limit 😧	50		MAX: 50 Mbps	
	Preferred A-End VLAN U	ntag 🔵 4. LAN is available	4	•	
	Preferred B-End VLAN U	ntag 🚺 10 LAN is available	029		
		Cancel	G Back	Next 🔿	
	BRKCOL-20)94			28

Summary

Summary Connection Name: Demo Rate Limit: 50 Mbps Preferred A-End VLAN: 44 Preferred B-End VLAN: 1029 Service Key: f059e72c-c564-4e34-96cf-948213c6016e Max Rate Limit: 50 Monthly Rate: \$100.00 USD Price Excludes Tax G Back Add VXC 🤡 Cancel #CiscoLive BRKCOL-2094



Expectations for the provisioning process

Equinix Meetings and Calling ©©

- <u>5 business</u> days, starts the day after the information is put in the Equinix portal
- Dependent on the quality of the technical information provided in the portal

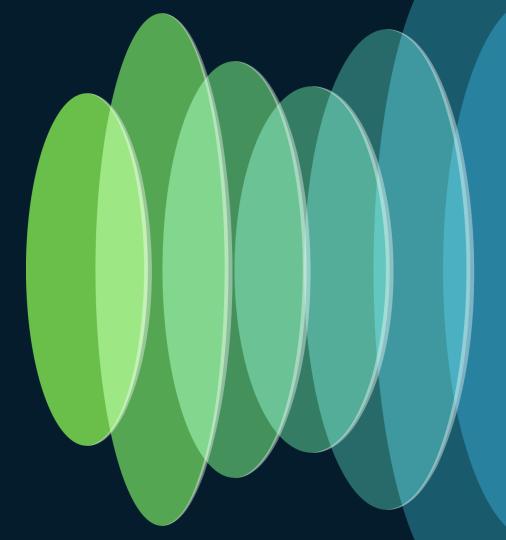
Megaport Meetings and Calling <a>©©

- This process is under Early Access status and is manually configured.
- Plan for up to <u>3 business weeks</u> turnaround
- Dependent on the quality of the technical information provided to the Webex team.

Equinix and Megaport Webex Suite (Meetings, Calling and Dedicated Instance)

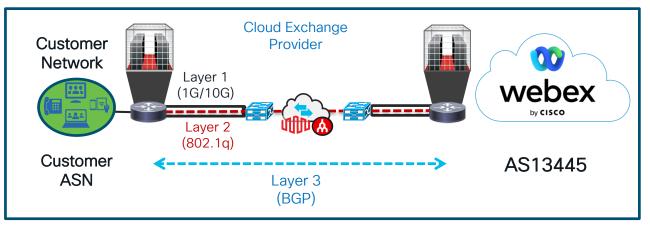
- This process is under Early Access status and is manually configured.
- Plan for up to <u>3 business weeks</u> turnaround
- Dependent on the services required and quality of the technical information provided to the Webex team.

How do I Connect? (1.0 solution)



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Connectivity and Responsibilities



IMPORTANT ROLES AND RESPONSIBILITIES



Layer 1 - Physical Connectivity

Layer 2 – Ethernet Connectivity

3. Layer 3 – IP connectivity

Cloud Exchange Provider responsibility:

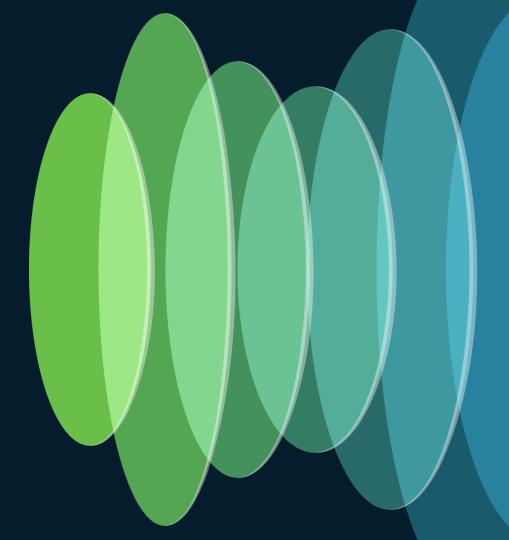
- Physical link provisioning (cross connects)
- ✓ Virtual circuit monitoring reports & support
- Cisco responsibility
- peering provisioning and support



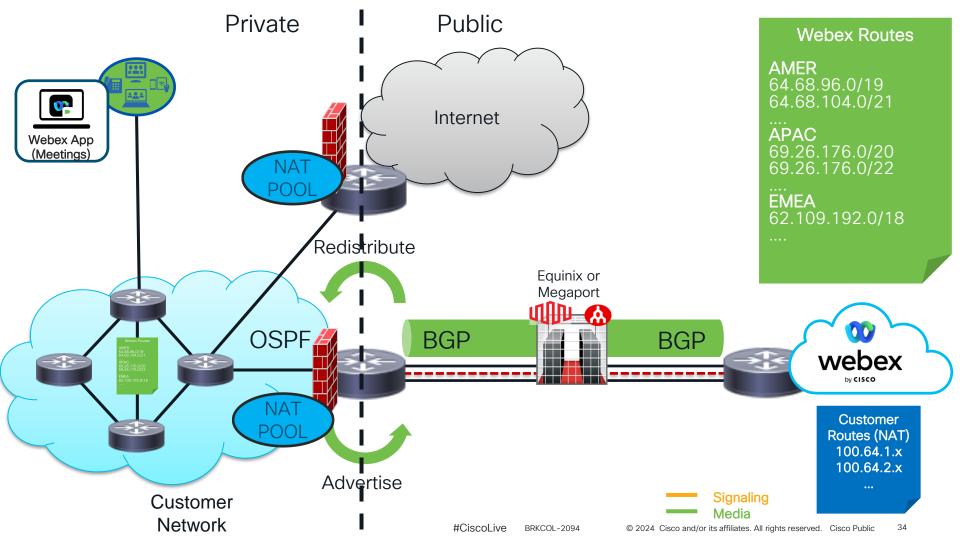
webex

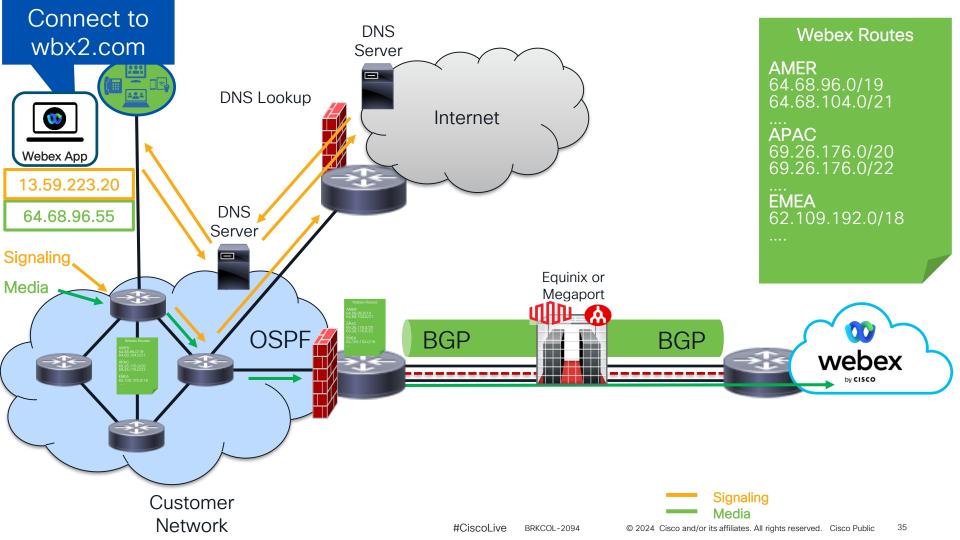
How it works?

Meetings and Calling routing



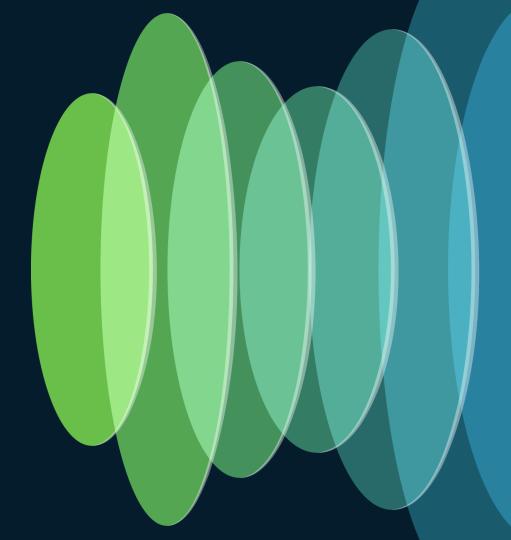
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BGP Peering

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BGP Traffic Engineering – Customer Controlled

Multiple options to influence traffic flow

Option 1 – BGP Community local preference tagging

- Highest level of control and routing influence
- Advanced customer configuration

Option 2 – AS-Path prepending

Simple

Option 3 – Unique NAT Pools per peering session

- Simple
- **Disruptive Fail-over**

Traffic Engineering Communities

Link Priority

- None Default (least desirable path)
- 13445:200 Local Preference 200
- 13445:300 Local Preference 300
- 13445:400 Local Preference 400
- 13445:500 Local Preference 500
- 13445:600 Local Preference 600
- 13445:700 Local Preference 700
- 13445:800 Local Preference 800
- 13445:900 Local Preference 900 (Most desirable path)

Webex Prefix BGP Origin communities

- 13445:10000 AMER 13445:20000 Calling AMER
- 13445:10010 EMEA 13445:20010 Calling EMEA
 - **13445:10020** APAC **13445:20020** Calling ANZ
 - 13445:20060 Calling APAC

Customer Prefix propagation scoping communities

- None Default permit global reachability
- 13445:677 Permit local theater reachability

Meetings and Calling

router bgp 65333

bgp log-neighbor-changes neighbor 100.64.2.2 remote-as 13445 neighbor 100.64.2.2 fall-over bfd

address-family ipv4

network 100.64.200.128 mask 255.255.255.128 neighbor 100.64.2.2 activate

neighbor 100.64.2.2 route-map CALL-ONLY in

exit-address-family

ip bgp-community new-format ip community-list 1 permit 13445:10000 ip community-list 2 permit 13445:10010 ip community-list 3 permit 13445:10020 **ip community-list 4 permit 13445:20000 ip community-list 5 permit 13445:20010 ip community-list 6 permit 13445:20020 ip community-list 7 permit 13445:20060**

route-map CALL-ONLY permit 10 match community 4 5 6 7

route-map MTG-ONLY permit 10

match community 1 2 3

Filtering on Webex Calling Prefixes through Community Strings

Apply Route-Map to filter on Webex Calling Prefixes ONLY

Route-map matching only on permitted community lists with Webex Calling communities

Meetings and Calling



router bgp 65333

bgp log-neighbor-changes neighbor 100.64.2.2 remote-as 13445 neighbor 100.64.2.2 fall-over bfd

address-family ipv4

network 100.64.200.128 mask 255.255.255.128 neighbor 100.64.2.2 activate

neighbor 100.64.2.2 route-map MTG-ONLY in

exit-address-family

ip bgp-community new-format

ip community-list 1 permit 13445:10000 ip community-list 2 permit 13445:10010 ip community-list 3 permit 13445:10020

ip community-list 4 permit 13445:20000 ip community-list 5 permit 13445:20010 ip community-list 6 permit 13445:20020 ip community-list 7 permit 13445:20060 !

route-map CALL-ONLY permit 10 match community 4 5 6 7

route-map MTG-ONLY permit 10

match community 1 2 3

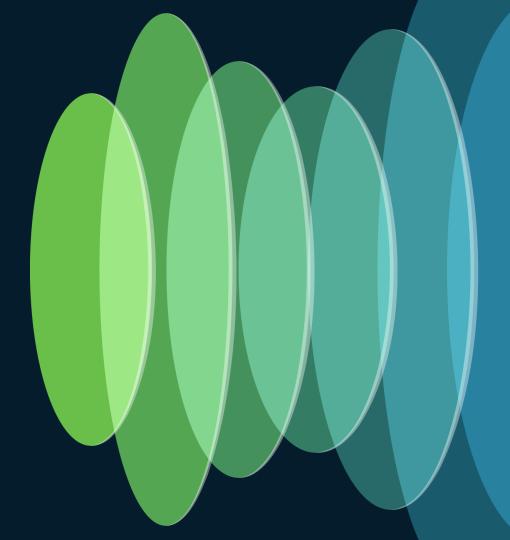
Filtering on Webex Meetings Prefixes through Community Strings

Apply Route-Map to filter on Webex Meetings Prefixes ONLY

Route-map matching only on permitted community lists with Webex Meetings communities

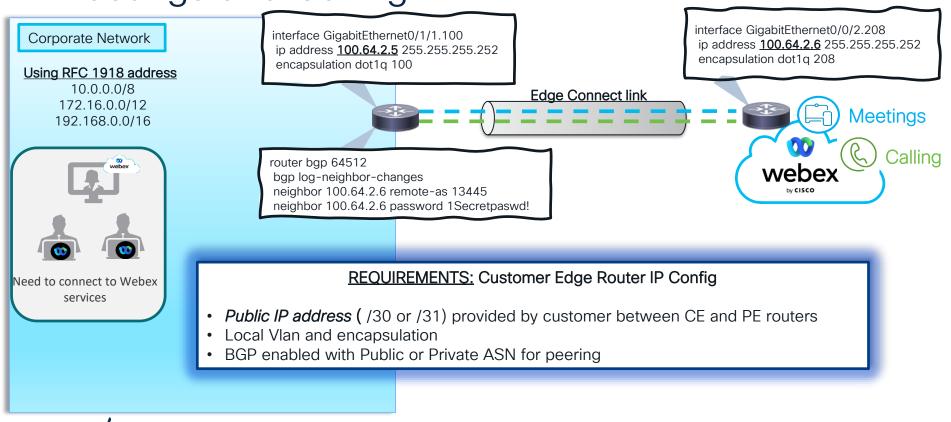
Meeting and Calling IP architecture (GA)





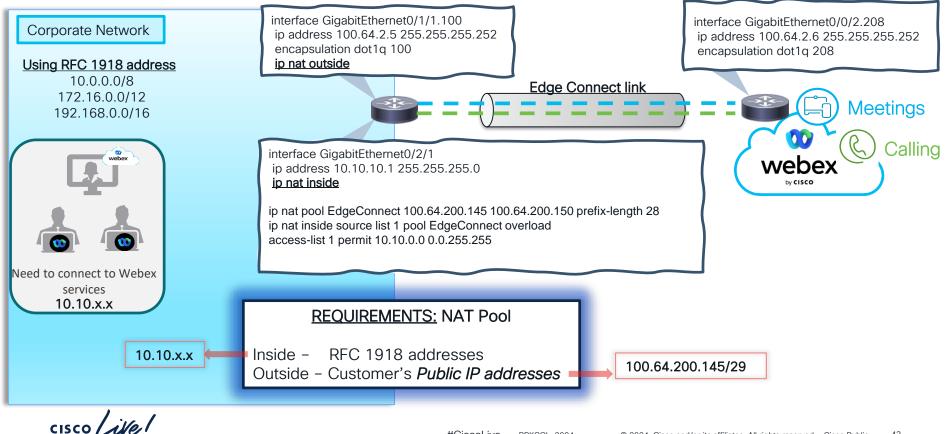
Meetings and Calling

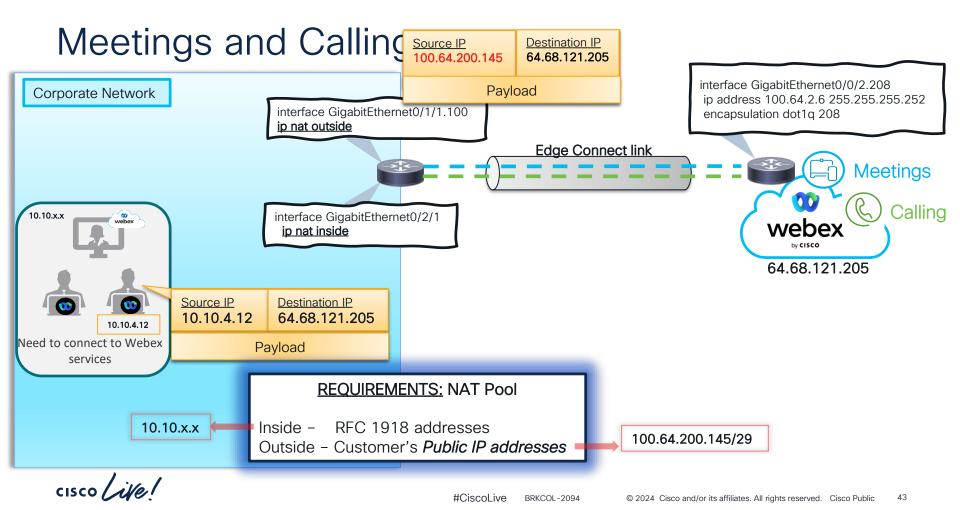
Meetings and Calling



Meetings and Calling

Meetings and Calling





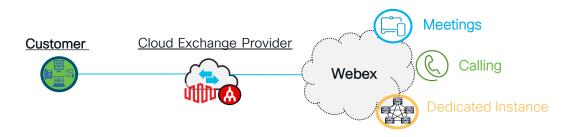
Meetings and Calling - Key points

- Edge Connect link uses Public IP addresses between CE and PE.
- Nat pool is on the customer's router.
- BGP passes customer's Nat'd IP address range to Cisco
- Webex receives public source IP addresses on packets to Meetings and Calling services on the backbone.



What is Edge Connect for the Webex Suite (2.0)?

Edge Connect for Webex Suite is for customers who have Webex Suite with Dedicated Instance (Webex Meetings, Webex Calling and Webex Dedicated Instance (DI)) all available over a single Edge Connect Peering.

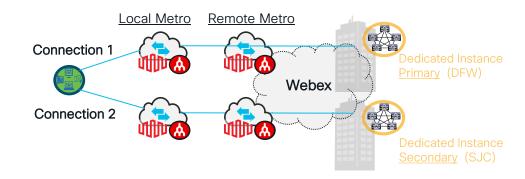


Prior to this offering customers required separate BGP peerings and virtual connections for Webex Dedicated Instance (DI) and Webex Meetings / Webex Calling.

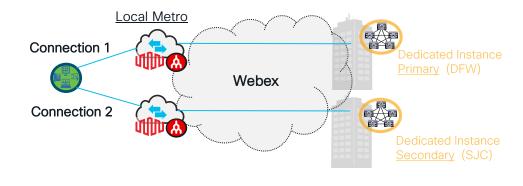
	Equinix Webex Suite	Equinix Meetings and Calling	Megaport Webex Suite	Megaport Meetings and Calling
Cisco Purchase Order (PO) Number (CCW order)	Required	Required	Required	Required
BGP Peering Public IP Range: Customer side IP and Webex side IP required	Public IP Range (/30 or /31)	Public IP Range (/30 or /31)	Public IP Range (/30 or /31)	Public IP Range (/30 or /31)
Advertised Public IP Range: Subnets used for NAT and Advertised to Webex	Cisco implements the NAT	Customer NAT: max /29 max 100 subnets	Cisco implements the NAT	Customer NAT: max /29 max 100 subnets
Public or Private ASN (32 bit supported) BGP Password	ASN required Password optional	ASN required Password optional	ASN required Password optional	ASN required Password optional
Tech contact	admin group alias email + phone number	admin group alias email + phone number	admin group alias email + phone number	admin group alias email + phone number
Number of connections	DI requires 2 connections minimum	1 connection minimum	DI requires 2 connections minimum	1 connection minimum
Link speed 200mb, 500mb, 1gb, 5gb, 10gb	Speed should match PO	Speed should match PO	Speed should match PO	Speed should match PO
Metro Location(s):	Location where the peering terminates to Webex	Location where the peering terminates to Webex	Location where the peering terminates 2094 to Webex	Location where the peering terminates to Webex

Redundancy Considerations for DI

- Using a <u>virtual circuit</u> provisioned for Dedicated Instance only
 - Requires provisioning 2 circuits
 - Requires 2 cloud exchange provider ports and remote connections to each datacenter
 - Increased cost to the customer



- Edge Connect for the Webex Suite model
 - Requires a 2 Edge Connect circuit to the Webex backbone
 - Requires 2 cloud exchange provider ports
 - Webex routes the traffic to the remote primary and redundant datacenters across the backbone



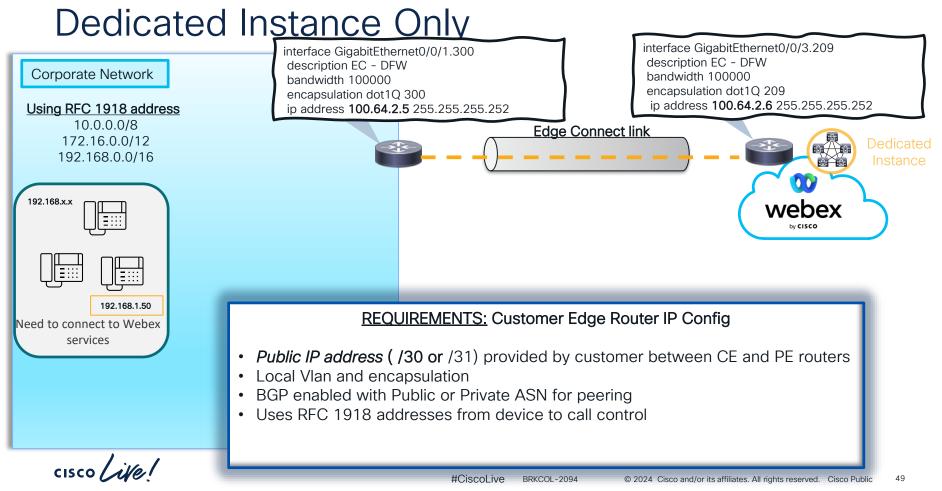
Scenario A

<u>Scenario</u>

- Customer has purchased Edge Connect links (2.0 connection).
- Customer wants to have Dedicated Instance traffic on the Edge Connect links.
- What is the network architecture?
- What is the IP routing requirements?

Webex Suite 🗐 🕼 🙀

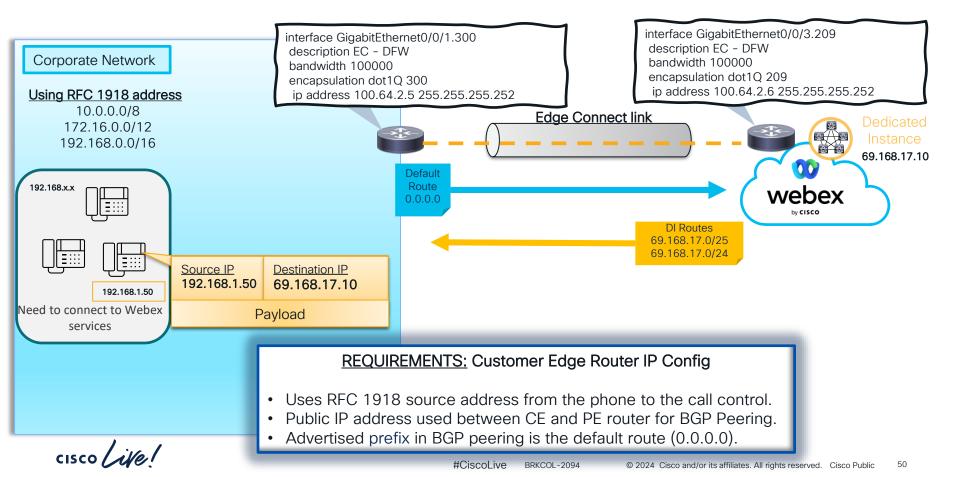
Note: DI requires redundant links to different datacenters





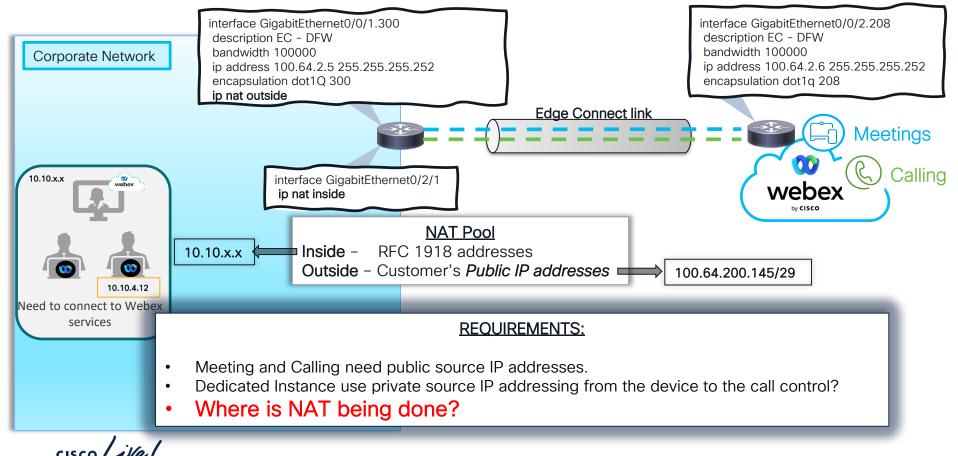
Dedicated Instance Only

Note: DI requires redundant links to different datacenters



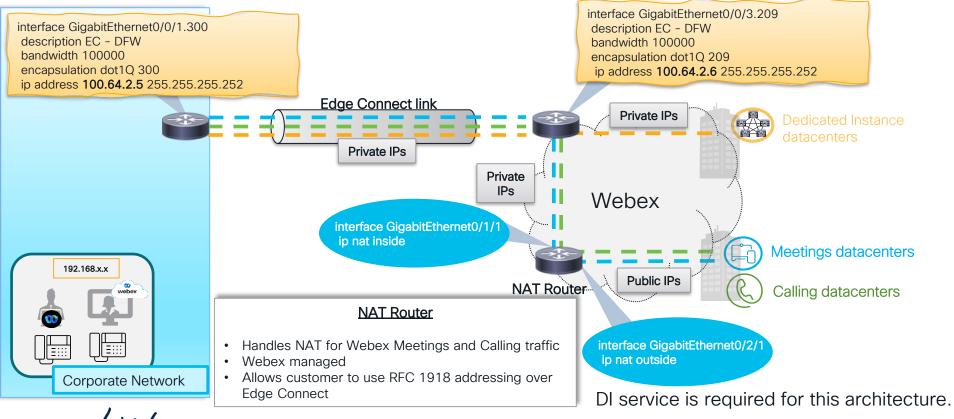
Webex Suite

Add Dedicated Instance to a Meetings and Calling Early Access (2.0) link?

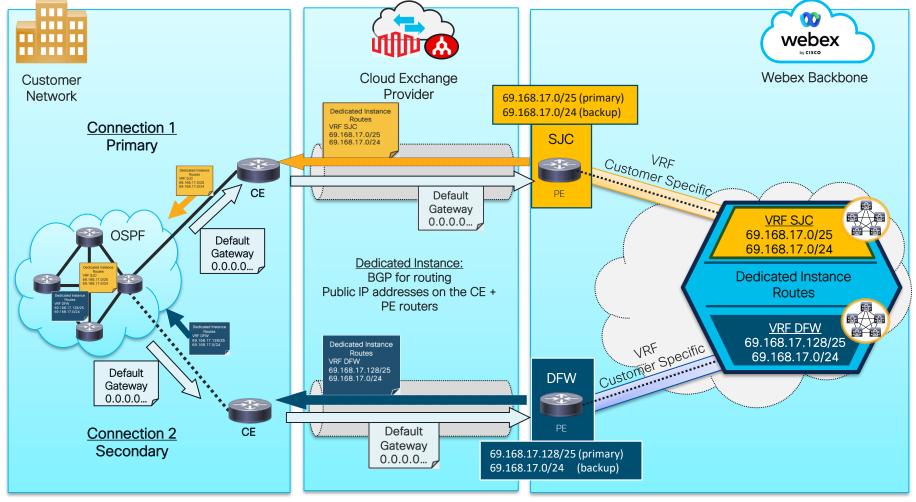


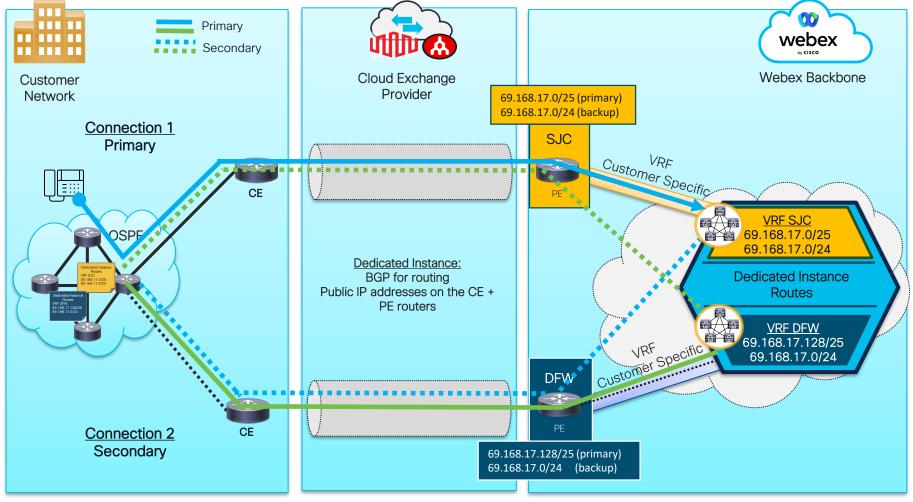
Webex Suite

Meetings, Calling and Dedicated Instance

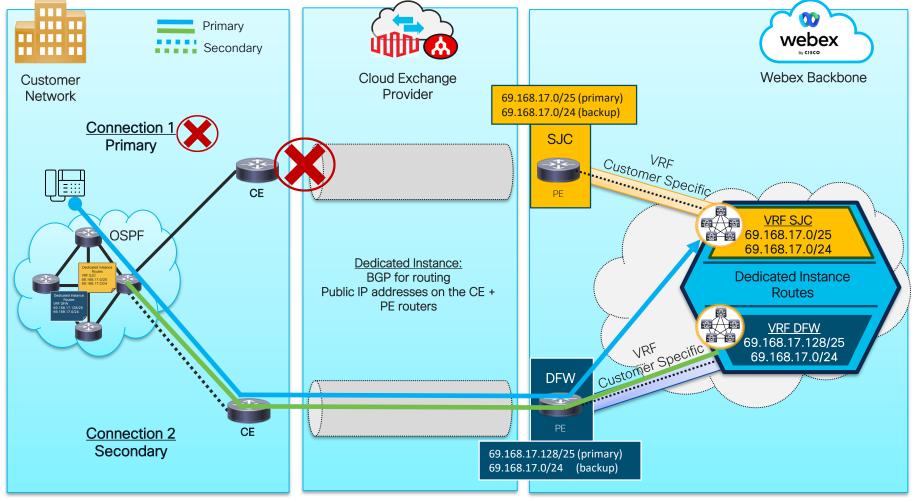


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Regional IP subnets for Dedicated Instance

APJC	DI IP subnets	Europe	DI IP subnets
SIN	103.232.71.0 /25	LON	178.215.138.0 /25
NRT	103.232.71.128 /25	AMS	178.215.138.128 /25
Australia	DI IP subnets	FRA	178.215.131.0 /25
MEL	178.215.128.0 /25	AMS	178.215.131.128 /25
SYD	178.215.128.128 /25	(
		North America	DI IP subnets
		SJC	69.168.17.0 /25
Note: 3 letter names represent the airport code		DFW	69.168.17.128 /25

DI documentation uses TKY for Tokyo, not NRT

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Scenario A Summary

<u>Scenario</u>

- Customer has purchased Edge Connect links (2.0 connection).
- Customer wants to have Dedicated Instance traffic on the Edge Connect links.
- What is the network architecture?
- What is the IP routing requirements?

<u>Summary</u>

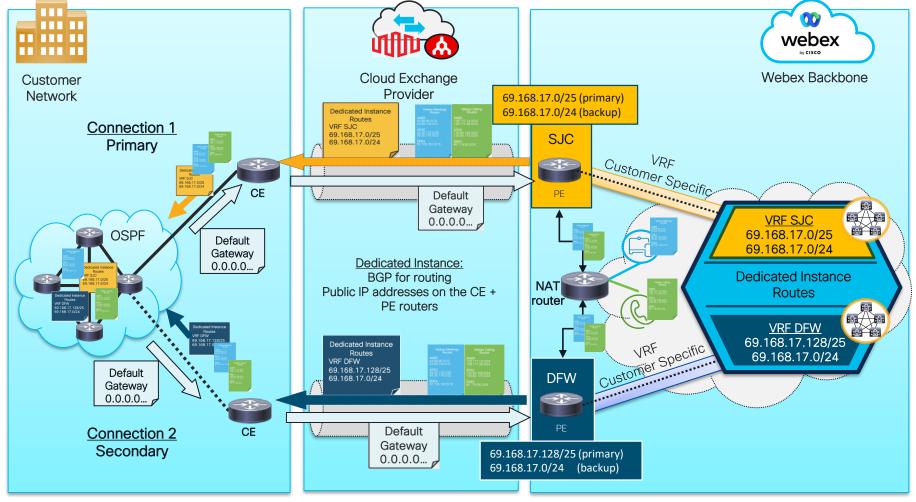
- DI requires dual connections to different DI instances in Webex.
- CE and PE routers need public IP addresses on the interface with BGP enabled. Highest IP address is the PE router interface.
- Each PE passes a /25 and /24 route to the customer. The same IP routes are sent to every customer.
- Customer sends only a default route 0.0.0.0 to Webex.

Scenario B

<u>Scenario</u>

- Customer has purchased Edge Connect links (2.0 connection).
- Customer wants to have all Webex services, Meetings, Calling and Dedicated Instance traffic on the Edge Connect links.
- What is the network architecture?
- What is the IP routing requirements?





Scenario B Summary

<u>Scenario</u>

- Customer has purchased Edge Connect peering (2.0 connection).
- Customer wants to have all Webex services, Meetings, Calling and Dedicated Instance traffic on the Edge Connect links.
- What is the network architecture?
- What is the IP routing requirements?

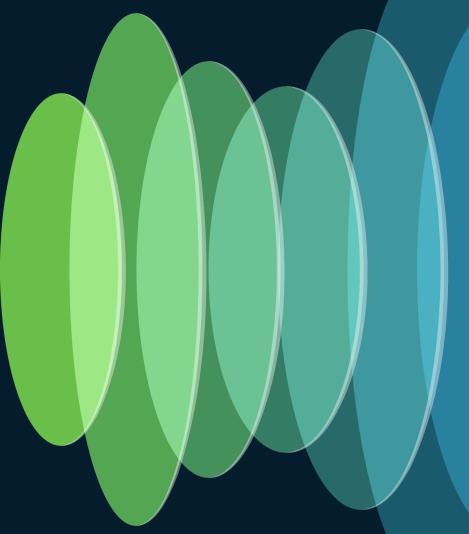
<u>Summary</u>

- Meetings and Calling do not support RFC 1918 addressing.
- NAT is moved from the customer network to a Webex provisioned and managed router for Meetings and Calling traffic.
- Meetings and Calling IP routes are passed to the customer's CE router across BGP.
- CE and PE routers need public IP addresses on the interface with BGP enabled. Highest IP address is the PE router interface.

Adding additional Webex Suite services to Edge Connect existing links

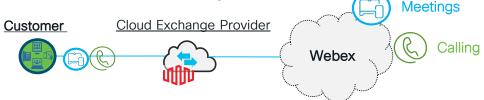
Note: Part of the Early Access program

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Scenario C

- Customer has an existing Meetings and Calling Edge Connect link. (1.0 architecture)
- <u>Not</u> a link provisioned for Early Access (EA)

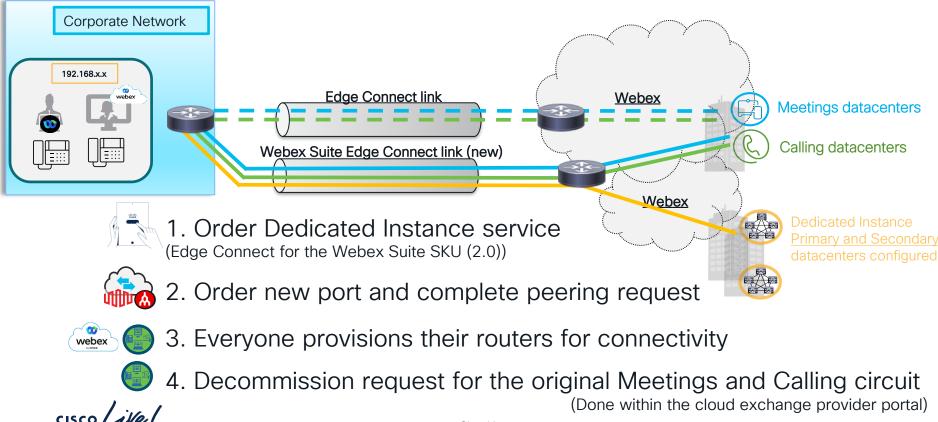


- Now wants to add all the services over a single peering, the Webex Suite (2.0) offering of Edge Connect.
- How is this be accomplished?



Note: DI requires redundant links to different datacenters

Adding Dedicated Instance to an existing link



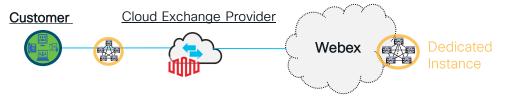
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Adding Dedicated Instance to an existing link

- Can not add new services to the existing DI link due to architecture.
- Must provision a new connection with Equinix or Megaport. May be over the same port if bandwidth is available. Equinix allows for over-provisioning, Megaport does not.
- New public IP addressing (/30 or /31) needed for BGP peering if the old and new links are active at the same time.
- Could use existing IP addresses if traffic is routed to the Internet during the transition.
- Highest number IP address in the subnet must be the Cisco PE router address in the /30 or /31 subnet
- Plan for up to 3 business weeks for the provisioning process as it is part of the Early Access process.

Scenario D

- Customer has an existing Dedicated Instance Edge Connect link. (1.0 architecture)
- Not a link provisioned for Early Access (EA)

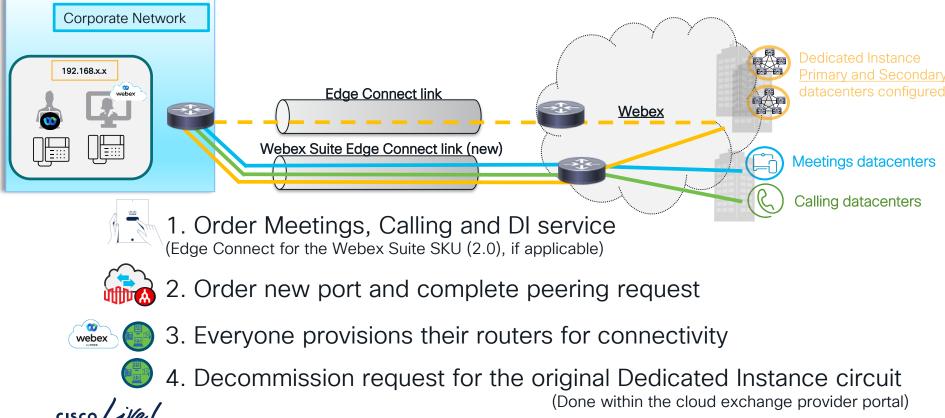


- Now wants to add all the services over a single link, the Webex Suite (2.0) offering of Edge Connect.
- How is this be accomplished?



Note: DI requires redundant links to different datacenters

Adding Meeting and Calling to an existing DI link



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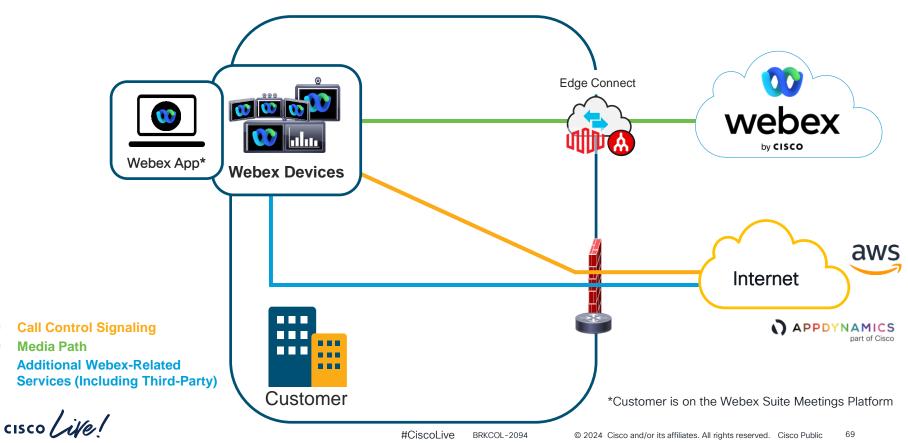
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Traffic Flows across Edge Connect

- Media will always traverse the Edge Connect link.
- Make sure that the Internet link is available for certain traffic and for failover use cases!
- Some Webex microservices are located on public cloud providers (AWS).
 - This traffic does not traverse the Edge Connect link.
 - Call Control signaling will go across the Internet link.
- Webex backbone is not a transit network to the Internet.

Webex Registered App and Devices



RECAP – 4 key points for the Edge Connect

- Nat pool location
- Customer owned Public IP addresses for BGP connection
- Webex Suite (2.0) offering is Early Access (EA) status with near future GA status.
- No direct upgrading from GA (1.0) link to a Webex Suite (2.0)link

Edge Connect Reference Links

Edge Connect	https://help.webex.com/en-us/article/n68tcpb/Webex-Edge- Connect
Dedicated Instance (Edge Connect)	https://help.webex.com/en-us/article/nquhruk/Dedicated- Instance-network-and-security-requirements
Dedicated Instance Network and Security	https://help.webex.com/en-us/article/nquhruk/Dedicated- Instance-network-and-security-requirements
*Preferred Architecture	https://www.cisco.com/c/dam/en/us/td/docs/solutions/PA/E dgeConnect/PA_Edge_Connect_Design.pdf
* Network requirements	https://help.webex.com/en-us/WBX000028782/Network- Requirements-for-Webex-Teams-Services
AS13445 Looking Glass	https://lg.webex.com/lg/

*focuses on 1.0 Meetings and Calling architecture. Will be updated with 2.0 information sometime after GA.

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Thank you



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