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The bridge to possible

Hiking the Band Canyon with 5G

New use-cases & business outcomes

Pratik Desai
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Session ID BRKARC-2094

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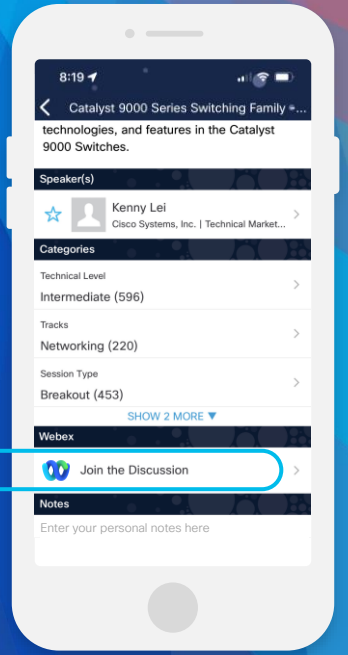
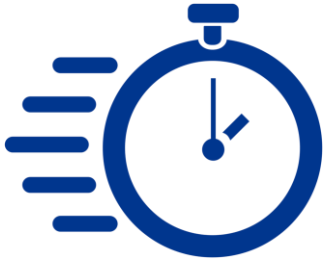


https://ciscolive.ciscoevents.com/ciscolivebot/#BRKARC-2094

Agenda

- Customer problem
- Solution
- Demo
- Business outcomes

Businesses have been shifting to cloud-managed branch networking to take advantage of new capabilities



Faster way of working

Enhanced capabilities

New experiences

New challenges have arisen that hinder business' potential

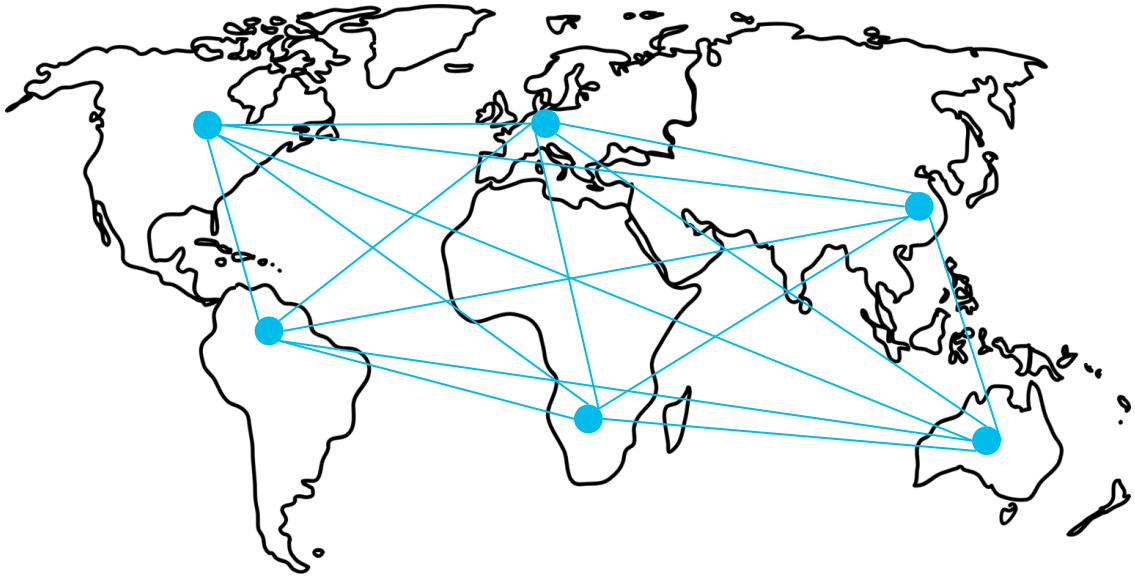
You're doing more than ever

You now have bigger objectives

Your scope isn't strictly IT anymore

How do we connect and manage large, global branch networks?

Branch networks



Campus networks

The truth is

The truth is you need more.

Question

How much can businesses save by switching to 5G fixed wireless access from traditional wired broadband?

Option 1: 100%

Option 2: 50%

Option 3: 25%

Option 4: 10%

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Option 1: 100%

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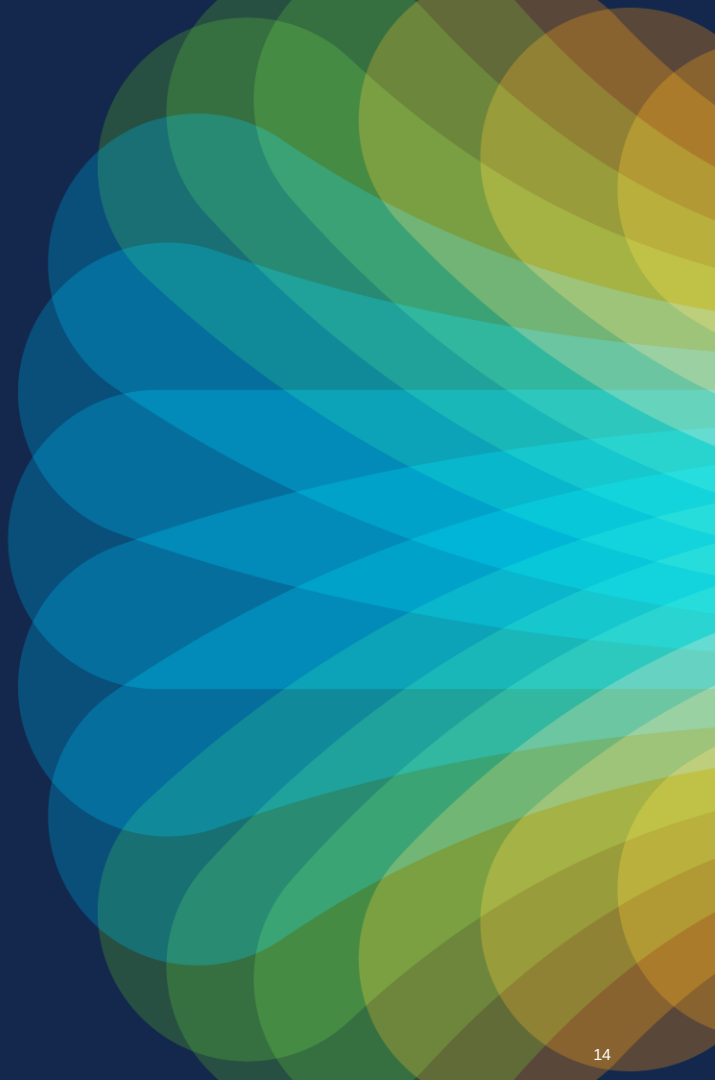
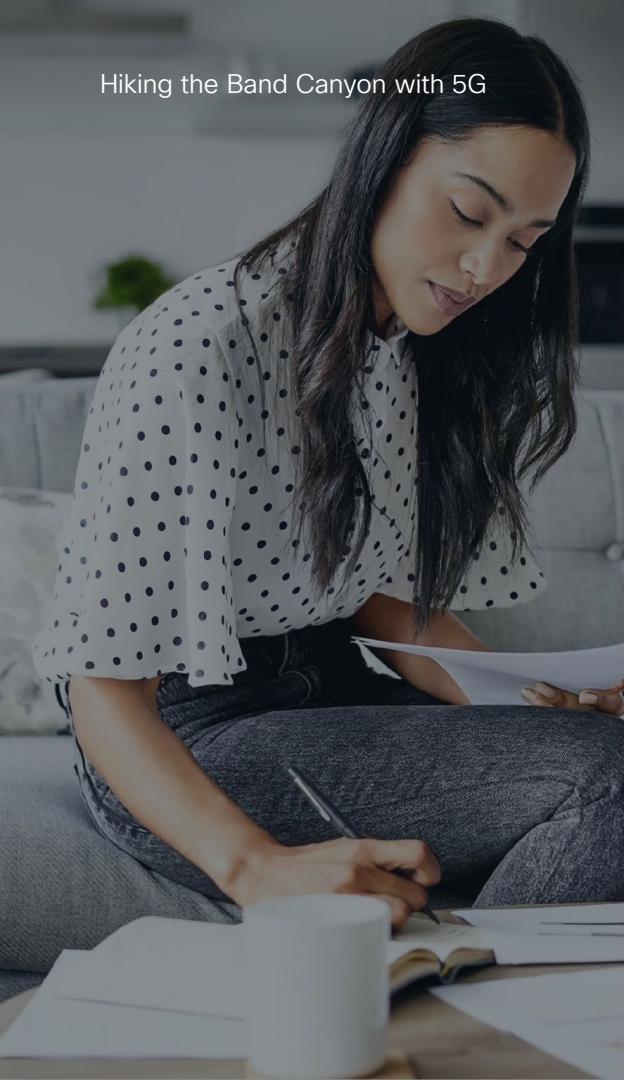
Reason 1





Wired broadband is not the ideal solution for all scenarios

- **Takes weeks** to connect a new branch
- **Downtime** repairs require complex rewiring
- **Costly** to manage multiple WAN connections
- **Caps** on bandwidth consumption

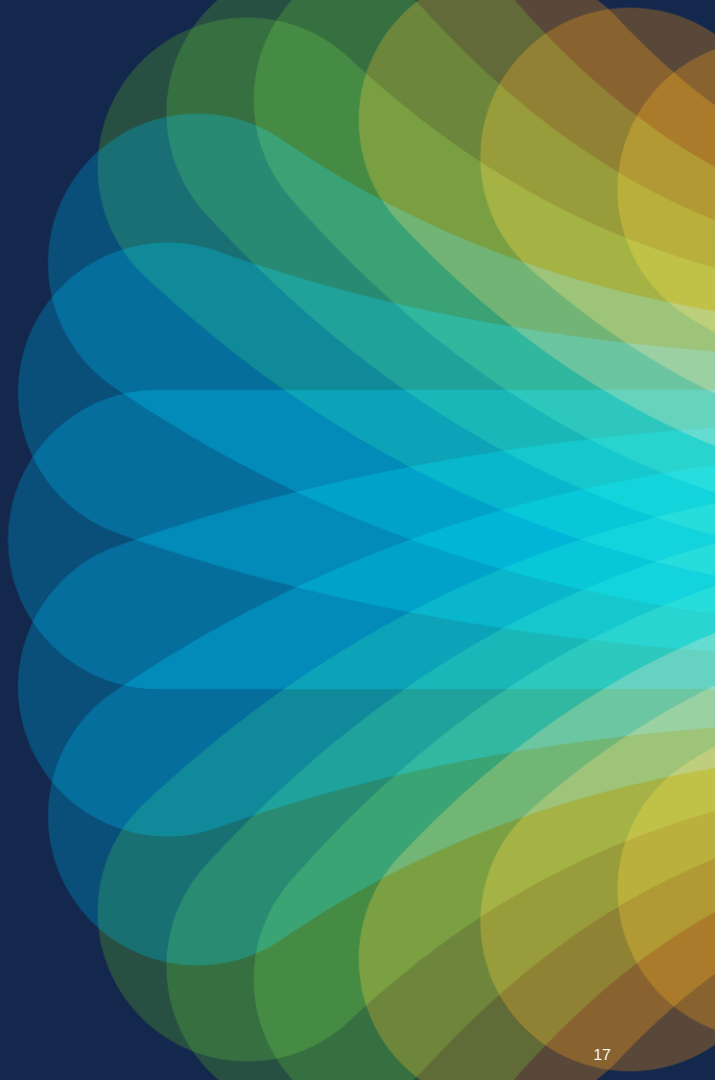
Branch WAN management should be simple, powerful, and scalable

Ease

Scale

Enterprise-ready

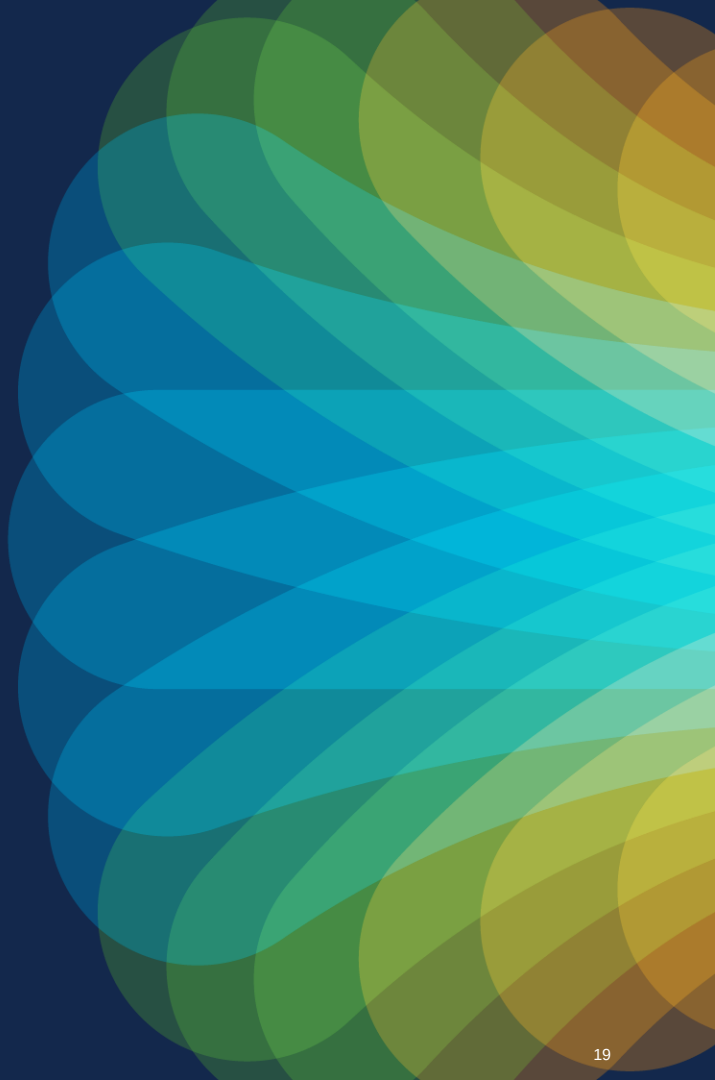
Reason 2



The marketplace has increased the demands on businesses

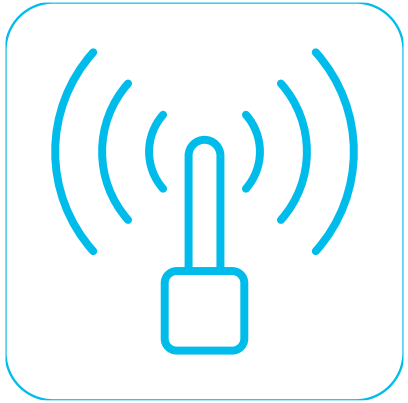
↑ needs	Enterprises and retail are using **more data than ever**
↑ growth	Wired infrastructure not conducive to **fast scaling**
↑ expectations	New applications **require higher data** throughputs/QoS
↓ cost	Wired redundancy is **expensive** for large branch networks

Reason 3

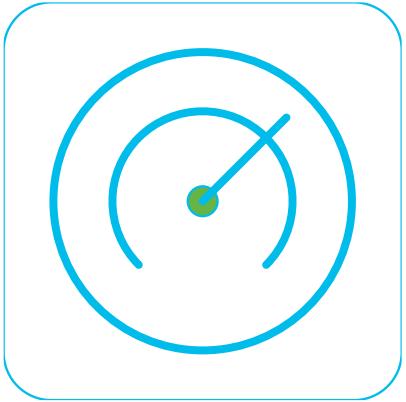


Indoor-only gateway deployments don't scale as well

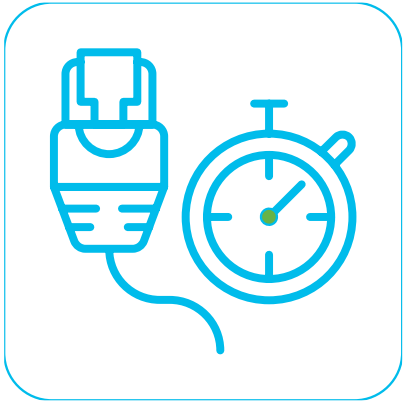
External antennas



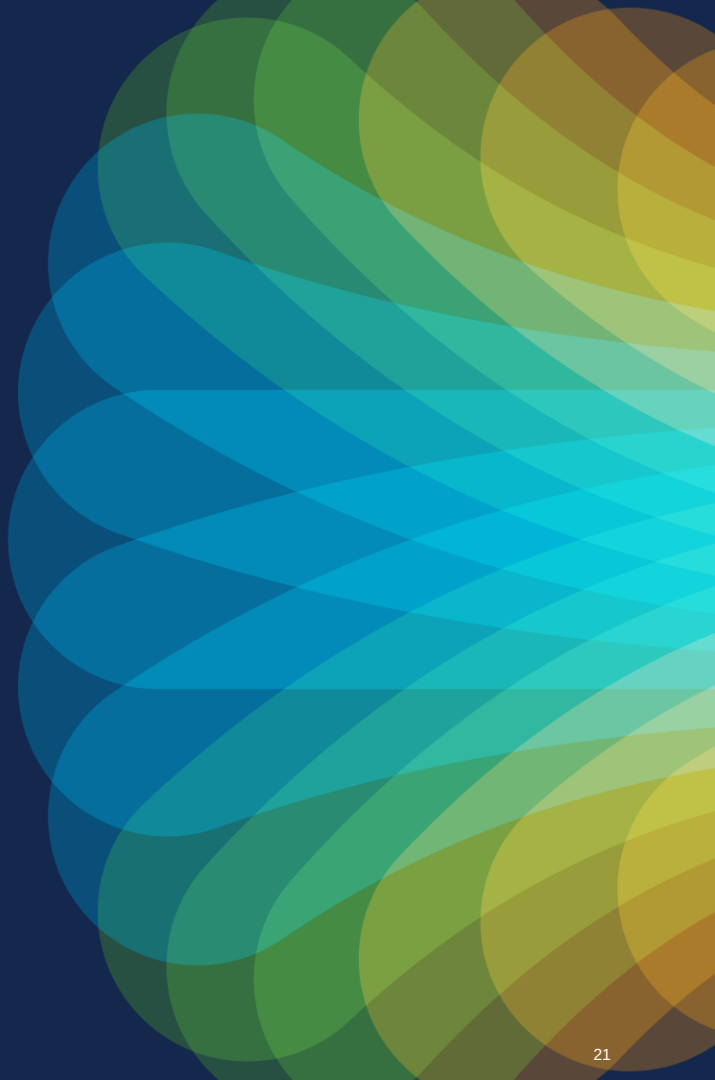
Coax is lossy



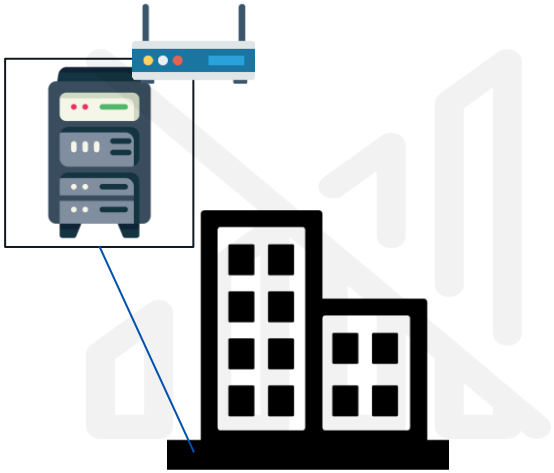
Complex installations



Reason 4



Existing indoor rack-mounted devices suffer from performance loss



Network closet

Obstructed signal

Cellular tower

Question

According to recent industry reports, what is the average latency of 5G fixed wireless access networks?

a) Less than 5 milliseconds

b) Between 5 and 10 milliseconds

c) Between 10 and 20 milliseconds

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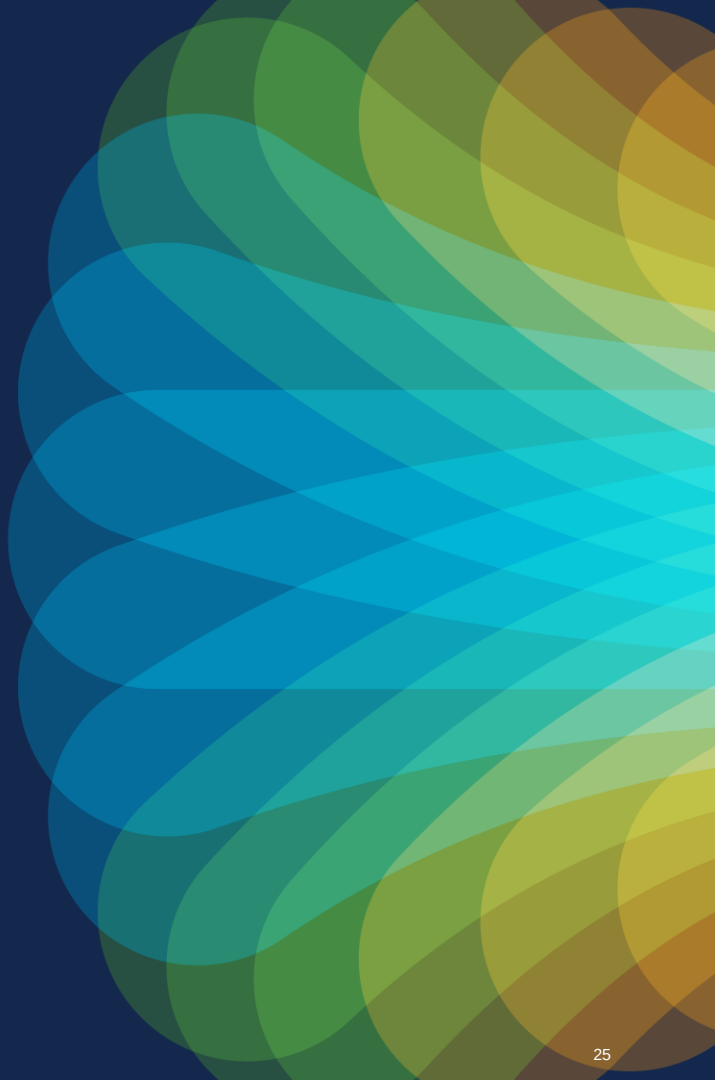
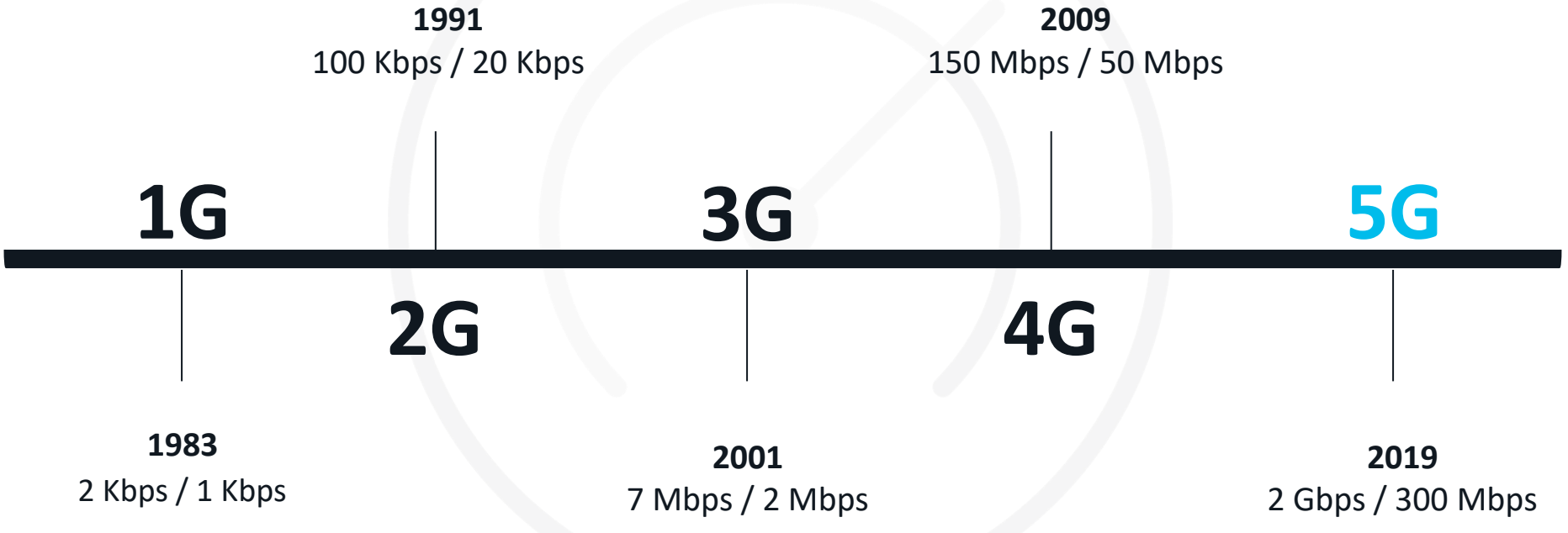


Cellular is now viable for primary connectivity



Note: figures represents download/upload speeds

5G offers a myriad of advantages over 4G

Increased availability

mGbps peak data speeds

Low latency

Massive network capacity

Let’s connect differently.

Let’s connect differently.
Wirelessly.

Let’s connect differently.

Wirelessly.

With 5G FWA.

MG51
cellular gateway

MG51E
enhanced cellular gateway

Introducing Cisco Meraki cloud-managed 5G

Robust, reliable, always-on

Designed for Primary WAN
Dual-carrier enabled
Dual downstream LANs
Mount anywhere
IP67 Rated

Fastest and simplest way to scale

2 Gbps up / 300 Mbps down
Indoor or outdoor use
Zero-touch provisioning
Powered by Cisco Meraki platform

Question

Based on 3GPP standards, what is the theoretical maximum download speed of a 5G fixed wireless access connection using mmWave technology?

a) 1 Gbps

b) 5 Gbps

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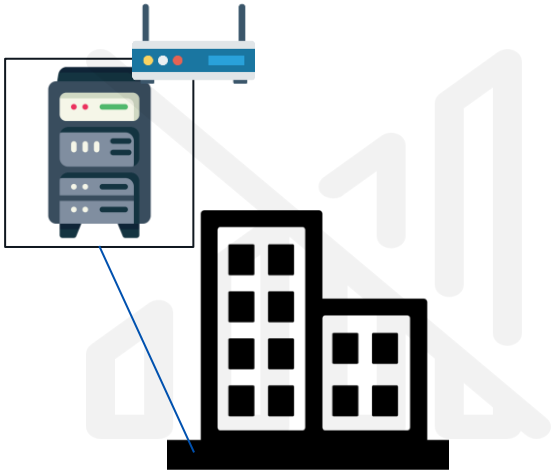
Though existing indoor rack-mounted devices suffer from performance loss

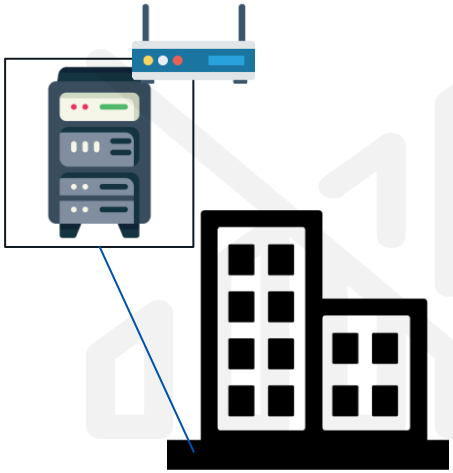


Network closet

Obstructed signal

Cellular tower

~~Though existing indoor rack-mounted devices suffer from performance loss,~~ the MG outperforms them all



Network closet

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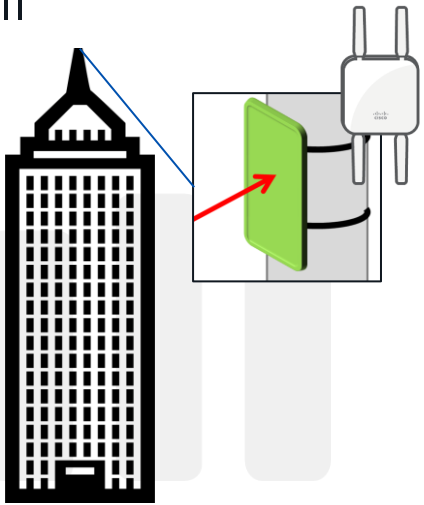


Roof-mounted

Direct line of sight

The MG works around the world

AT&T

OPTUS

verizon

GCF Global Certification Forum

T-Mobile

PTCRB

Telstra

Meraki cloud-managed 5G FWA **enhances** all other IT use cases

Problem	Solution	Outcome
Distributed workforce	5G FWA + hybrid cloud	More productive workforce
Large-scale retail operations	5G FWA + full stack Meraki (high end)	Enable guest Wi-Fi
Sensitive customer (or patient) data	SD-WAN over 5G FWA	Confidently do more
Rapid site expansions	5G FWA + full stack Meraki (low end)	Faster time-to-market
Outdoor, mobile , or moving goods	5G FWA + private cellular network (PCN)	Reduce operating expenses
Small branch or “colo” facility security	5G FWA + Meraki IoT	Ensure data and physical security

An MG for **every** sized deployment, no matter what

Device	Use case	Example
MG51 and MG51E	Fast 5G	Large branches or campuses
MG41 and MG41E	Advanced 4G	Mid-size branches
MG21 and MG21E	Basic 4G	Small pop-up sites

Enter source information here

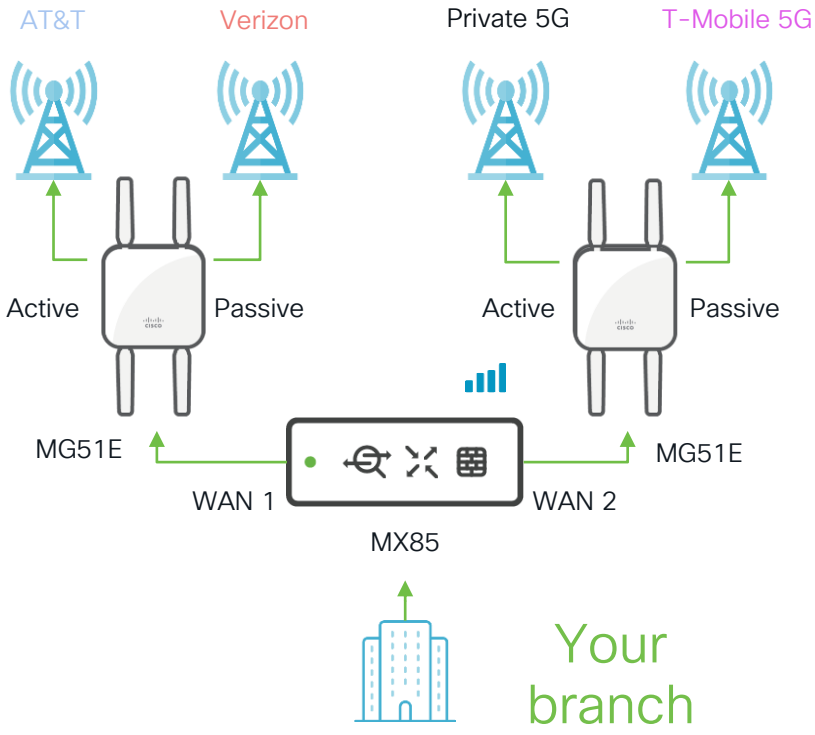
Robust, always-on, same-day branch connectivity

5G primary WAN = instant

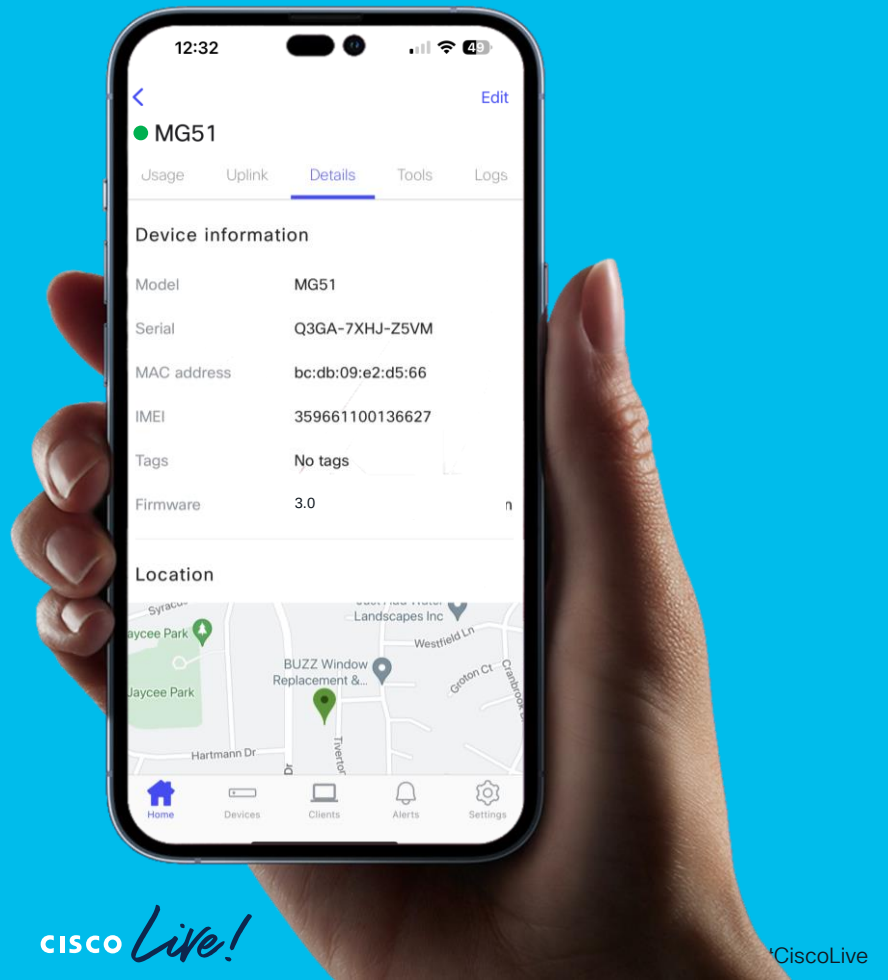
Made for lean operations

Security and SD-WAN integration

Built-in redundancy



Hiking the Band Canyon with 5G



Meraki cloud-managed FWA in your hands

- Zero-touch provisioning
- Dual-carrier support
- Scheduled or automatic firmware upgrades
- Power two downstream networks
- Instantly connect entire sites in minutes

5G core architecture began with a decision regarding **scale**

Non-Stand Alone

Stand Alone

Question

What percentage of global mobile data traffic is predicted to be carried by 5G networks by 2023, according to one study?

a) Around 20%

b) Approximately 40%

c) Over 60%

d) Less than 10%

Question

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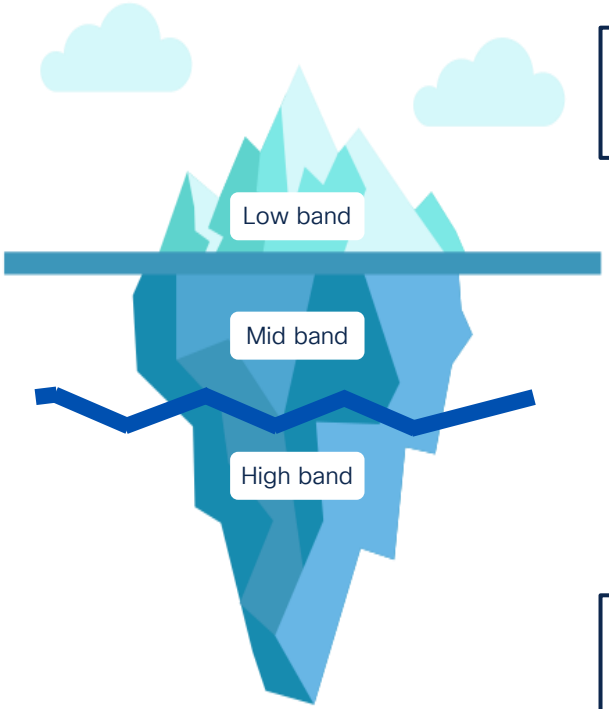
What do all these bands mean?



1 Low band typically covers **very long distances** yet offers the **lowest performance.**

2 Mid band balances coverage over **long distances** while offering **fast performance.**

3 High band offers the **highest performance** but covers only **short distances** and requires special small cell arrays.

4 **Marketing 101** 💡: **Sub-6** refers to the combo of low and mid bands, whereas **mmWave** refers to high band. Ultra wideband (**UWB**) refers to the combo of mid and high band.

Band category	Frequency range	Channel bandwidth	Coverage distance	Device throughput	Optimal placement
Low	< 1 GHz	< 25 MHz	Very long	Low	Anywhere
Mid	1 GHz-6 GHz	< 100 MHz	Long	High	Outdoor
High	24 GHz-40 GHz	< 3 GHz	Short	Very high	Outdoor

Common deployment scenarios for 5G FWA

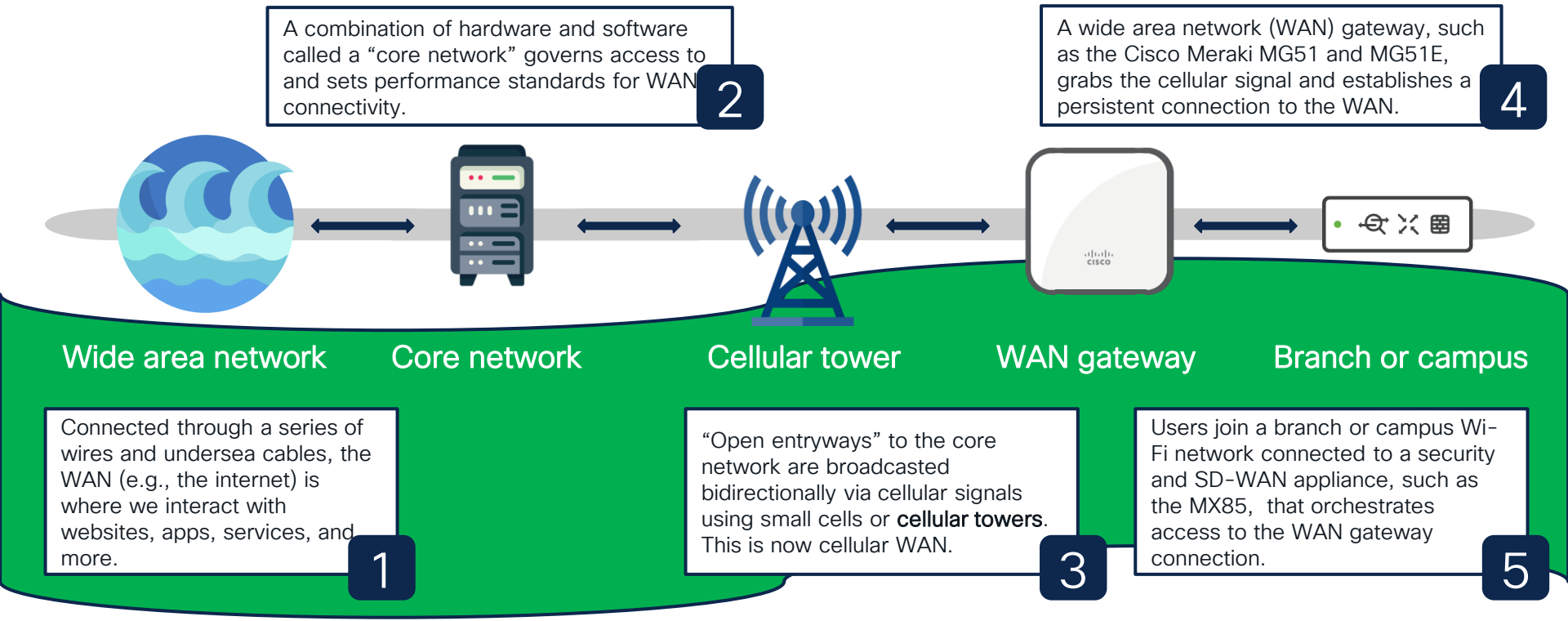
Primary WAN

Urban and remote

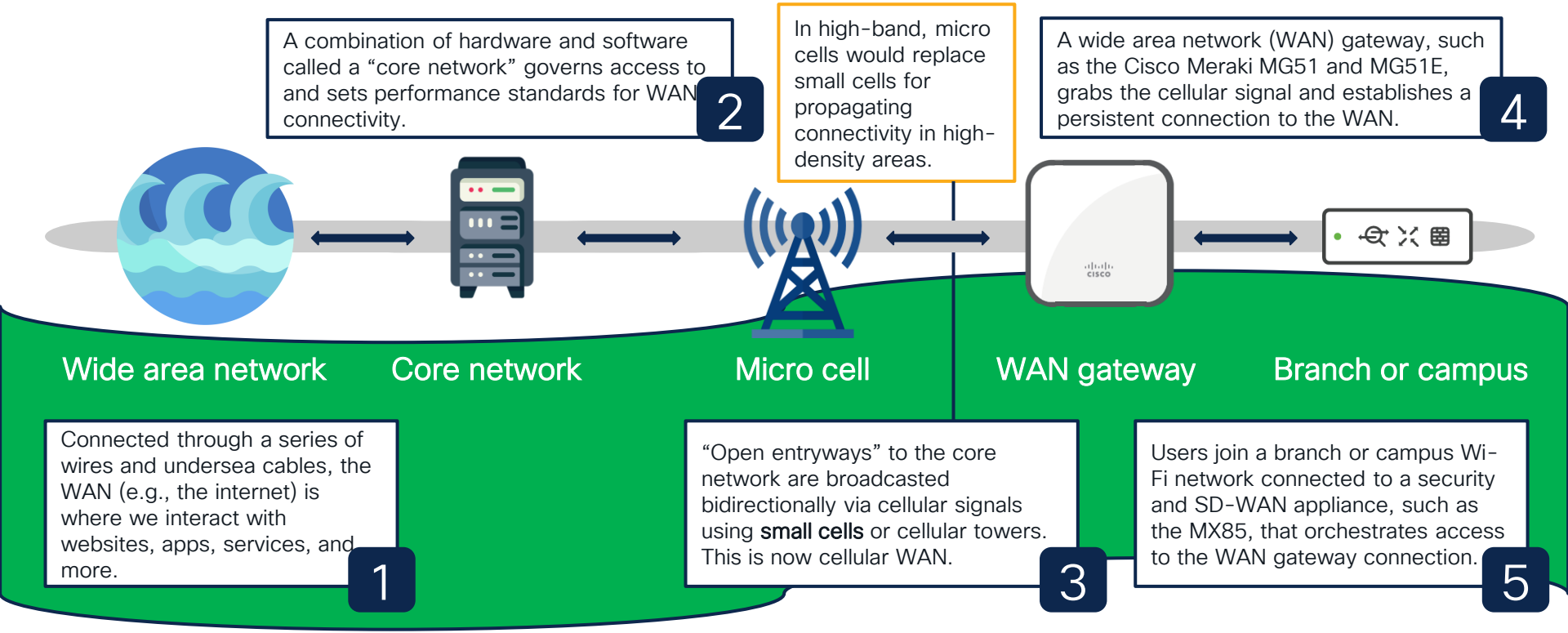
Fixed and pop-up

SD-WAN and IOT

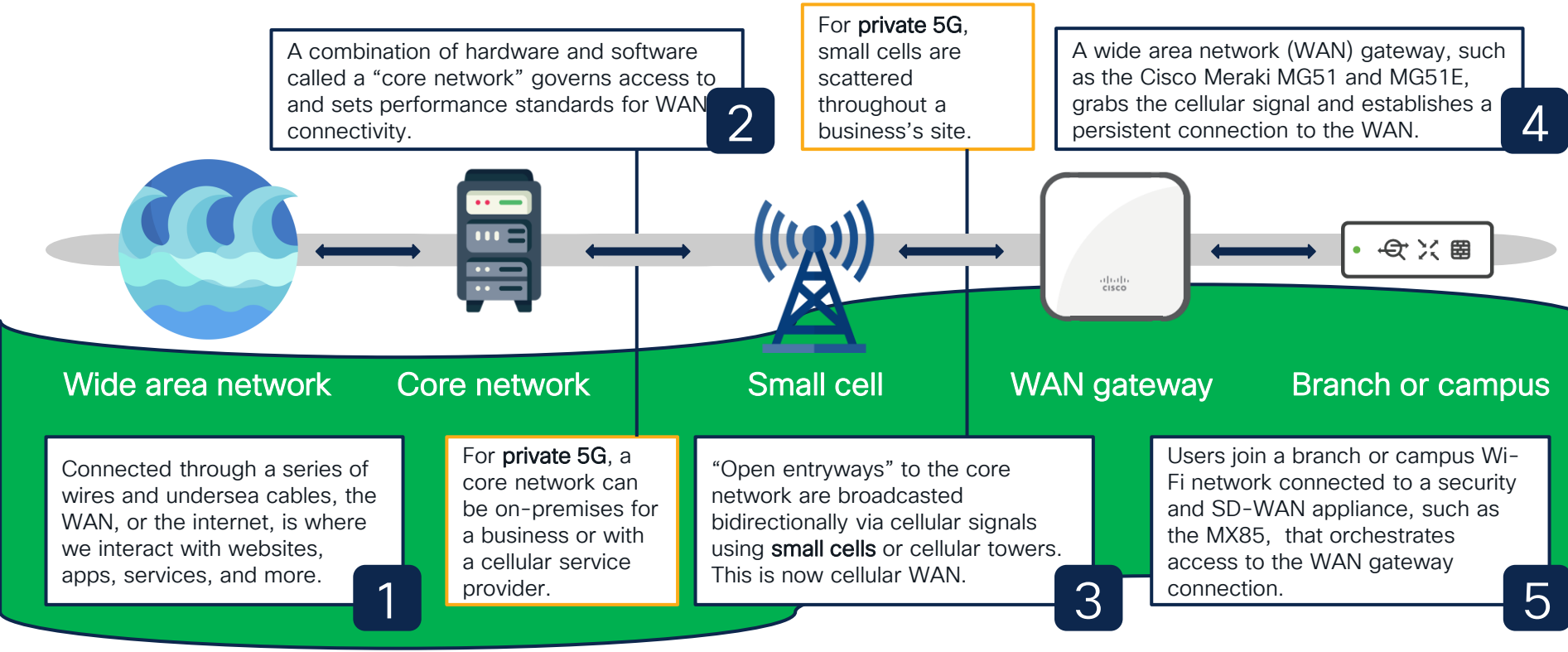
How does 5G FWA work from one end to the other?



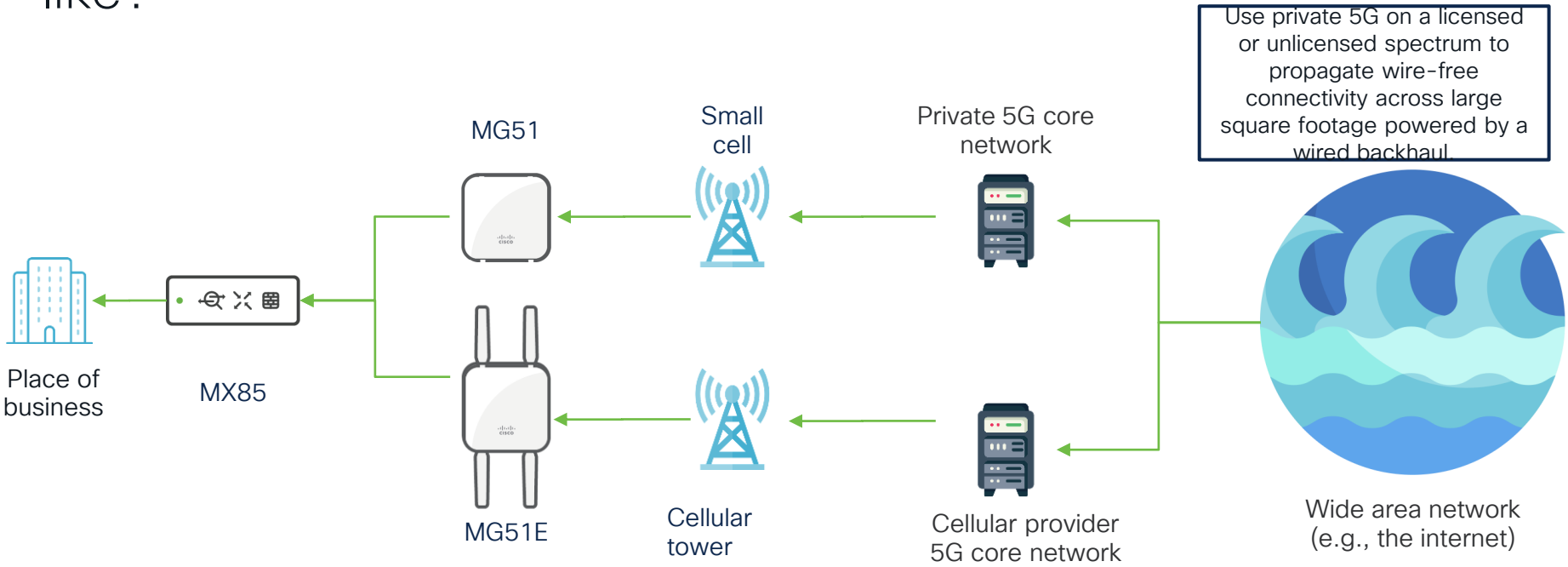
How does 5G FWA work with mmWave (high band)?



How does private 5G work?

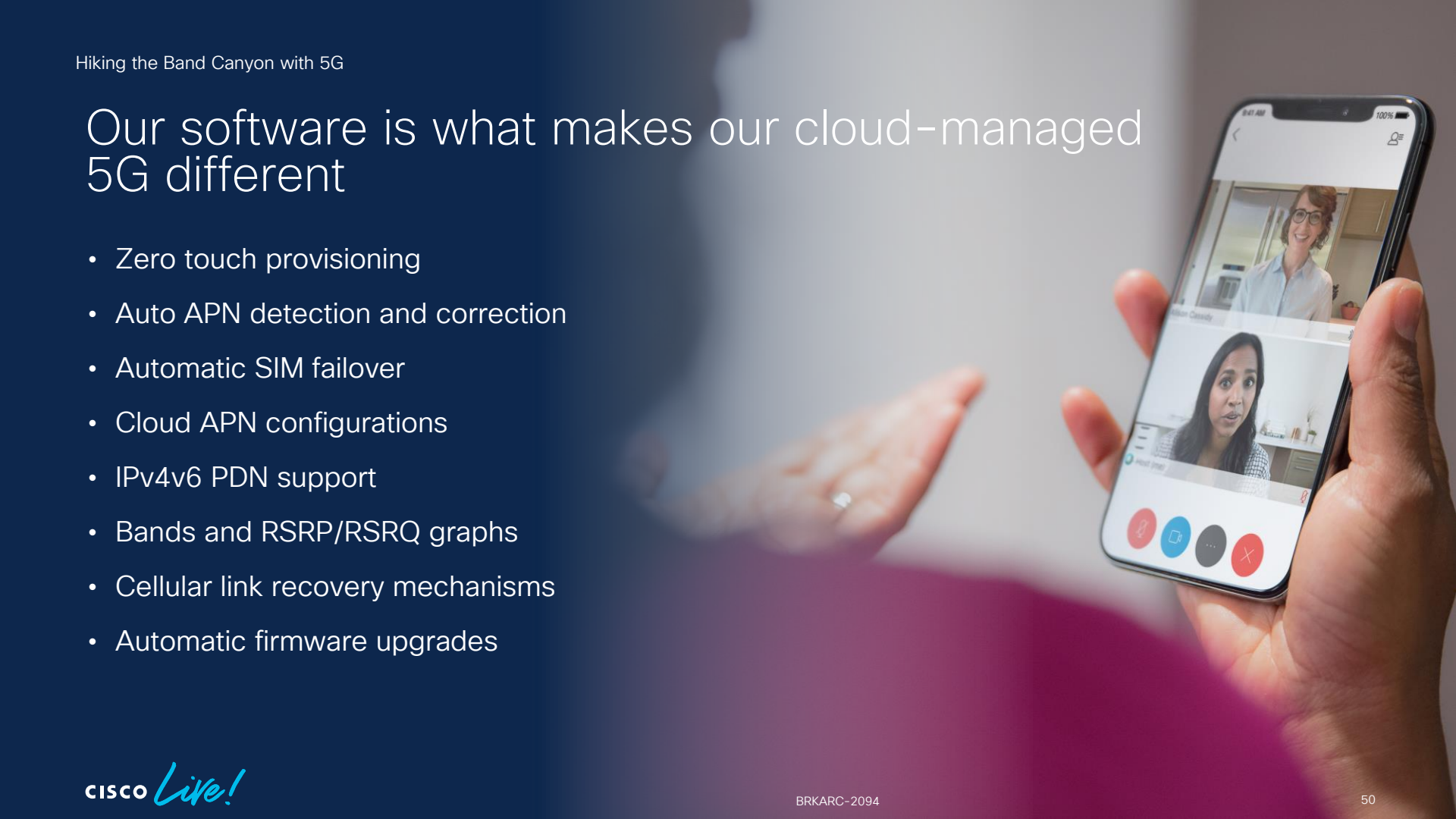


What does a blended public-private 5G architecture look like?



Our software is what makes our cloud-managed 5G different

- Zero touch provisioning
- Auto APN detection and correction
- Automatic SIM failover
- Cloud APN configurations
- IPv4v6 PDN support
- Bands and RSRP/RSRQ graphs
- Cellular link recovery mechanisms
- Automatic firmware upgrades



MG51v2

MG51 c4:8b:a3:fc:93:29

ADDRESS

2334 Highwood Ct, Aurora Il 60503

PUBLIC IP

162.191.170.189

IMEI

350633310002237

PRIMARY

SIM 1 Active

SECONDARY

SIM 2 Standby

Summary | Uplink | Performance | Location | Tools

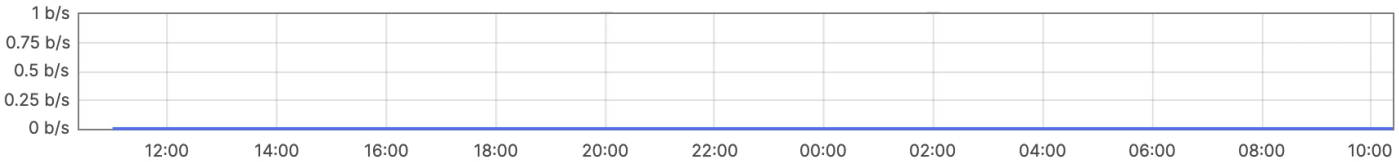
Ports

1 2

Historical device data for the last day

Connectivity

Network usage



Question

Based on market research, what is the projected compound annual growth rate (CAGR) of the 5G fixed wireless access market from 2021 to 2026?

a) 30% CAGR

b) 50% CAGR

c) 70% CAGR

d) 90% CAGR

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5G FWA is designed to give all branch-based organizations a fast, scalable, cloud-managed way of getting sites connected

Retail & food services

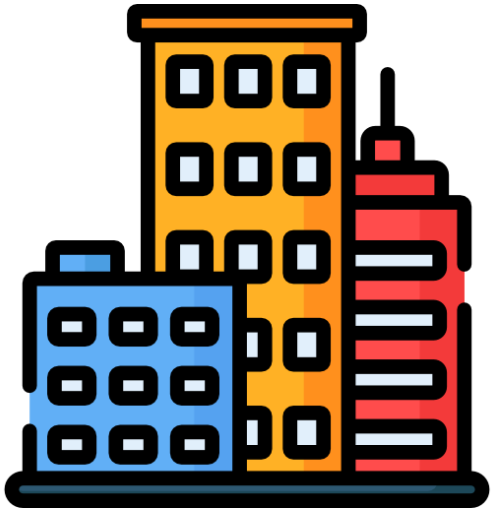
Manufacturing, construction, & supply chain

Managed solutions providers

Healthcare

Public sector & public safety

Recent data shows that this is imperative now more than ever



Source: US Census Bureau

500K+

Increase in branches
since 2010

Healthcare

Alternative care

Spend expected to outpace nearly all other categories of over **$12 trillion** in healthcare spend

Source: World Economic Forum

Retail

Differentiation

73% of consumers expect brands to **personalize** to their unique needs and expectation

Source: Forbes

Managed services providers

$400 billion

Managed solutions expected to exceed **$400 billion** in market size by 2030

Source: Global News Wire

Manufacturing and supply chain

$2.3 trillion

A growing sensitivity to interest rates and cash on-hand will increase importance of time-to-market and **lean IT operations**

Source: World Economic Forum

“What we’re looking for is simple – how can we adapt to changing business needs quickly?”

Senior IT Leader

Large, branch-based conglomerate

Win a chance for a free Meraki 5G device

Scan the QR code with your smartphone's **camera app**

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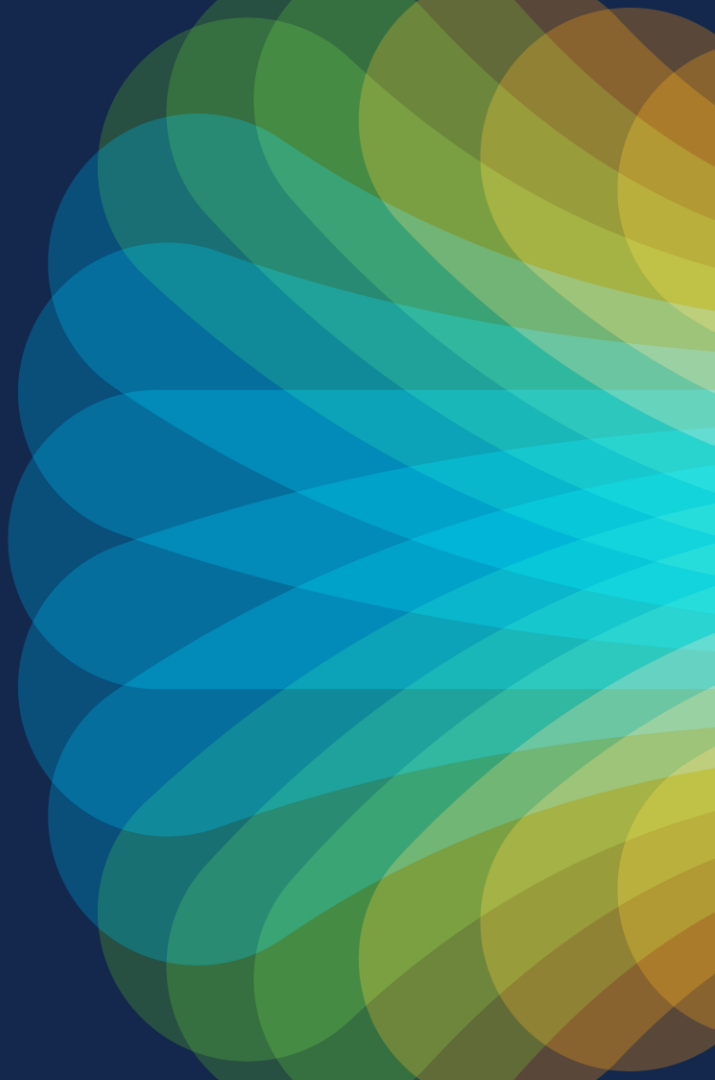
The bridge to possible

Thank you



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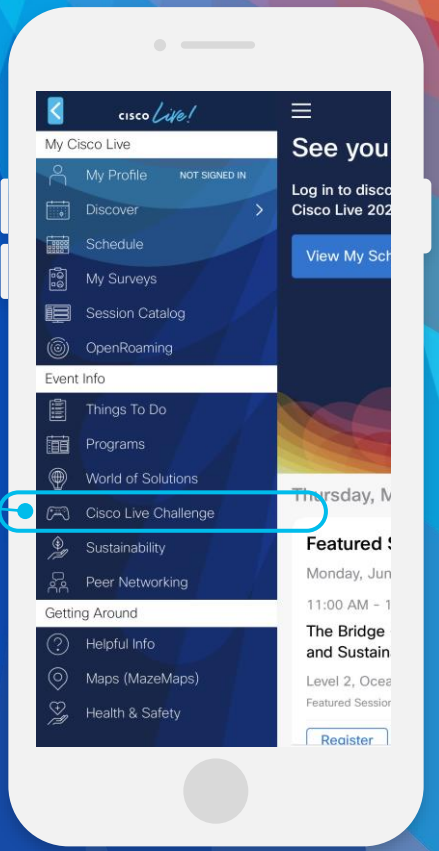

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