

The background features a vibrant, abstract design with overlapping, wavy bands of color in shades of blue, green, yellow, orange, and red. On the right side, a bright white light source radiates outwards, creating a starburst effect with fine, colorful lines. The overall composition is dynamic and energetic.

CISCO *Live!*

Let's go

#CiscoLiveAPJC



“Reconciliation” – Dustin Koa Art



The bridge to possible

The Journey to 5G with Cloud Managed MG

Via Low Earth Orbit Connectivity Options

Simer Singh

BRKMER -1563



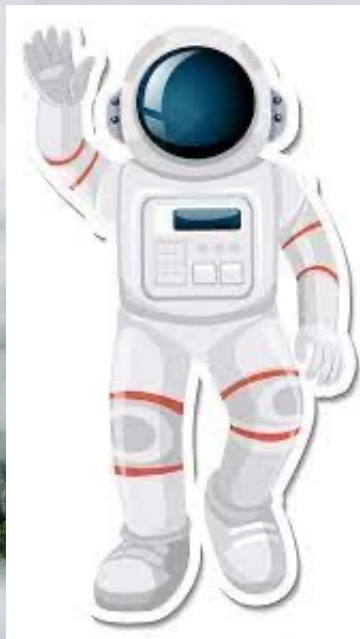
CISCO *Live!*

#CiscoLiveAPJC

A technologist for the betterment of humanity

Husband/Father
16yrs @ Cisco

<https://www.linkedin.com/in/singh-simer/>



Simplify

- Design and Deployment
- Administration and operations

Cisco Webex App

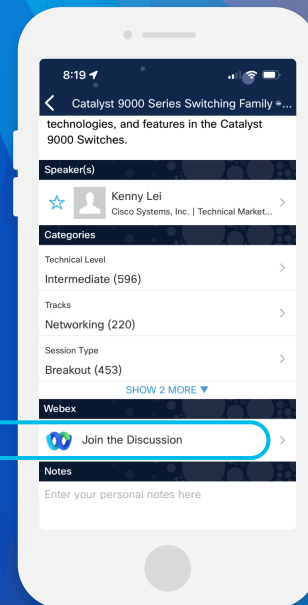
Questions?

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

How

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

Webex spaces will be moderated by the speaker until December 22, 2023.



<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKMER-1563>

MSP



Enterprise Customer

MG: Our Primary Focus Today

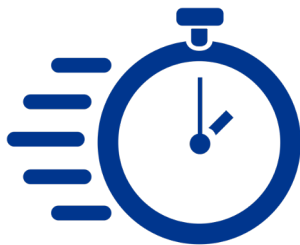


Agenda

- Customer problem
- Solution with LEO
- Solution with FWA

Setting the Stage

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

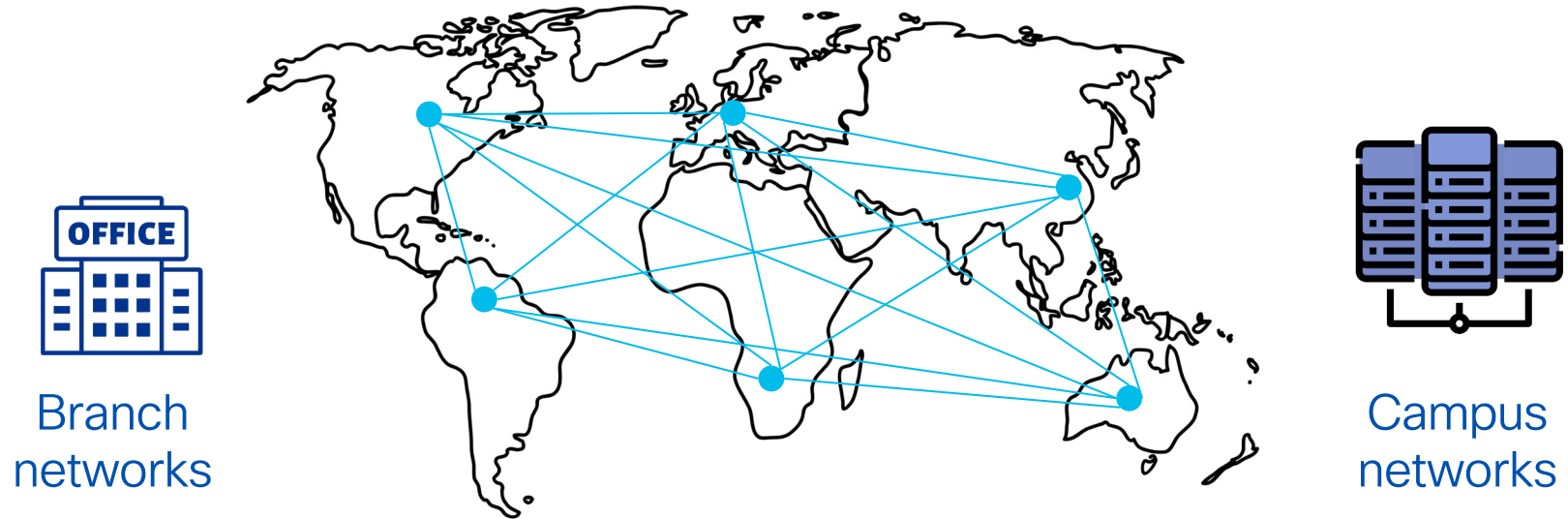


You now have bigger
objectives



Your scope isn't strictly
IT anymore

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





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



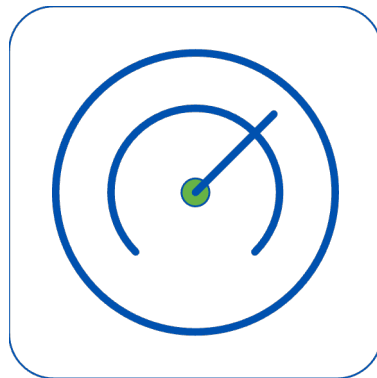
Enterprise-ready

Indoor-only gateway deployments don't scale as well

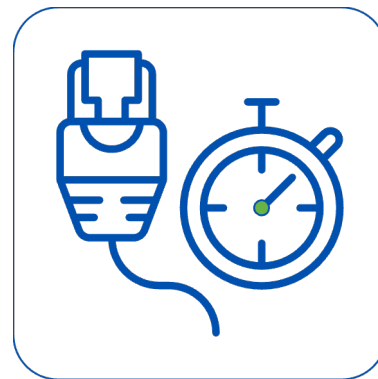
External
antennas



Coax is lossy



Complex
installations



Enterprise WAN Options- Back Then !!

WAN	Throughput	Performance	Maturity	Availability	Cost
MPLS	✓	✓	✓	✓	\$\$\$\$
Broadband	✓	✓	✓	✓	\$
Fiber	✓	✓	✓	✓	\$\$
Cellular	✓	✓	✓	✓	\$

Cellular has become a viable WAN option for certain use cases

What is a Cellular Gateway?



ETHERNET



LAN

Successful First Steps into LTE



Higher Throughput



Embedded LTE



Better Wi-Fi

The MG21 and MG21E



- Integrated CAT6 modem with up to 300Mbps
- DC / PoE power in
- 2x Ethernet ports for HA
- Nano SIM card slot
- IP67 rated
-  Multi-surface mounting bracket (wall, ceiling, and tabletop)
- LTE connectivity out-of-the-box
- External antennas*
 - Dipole included
 - Patch available as an accessory

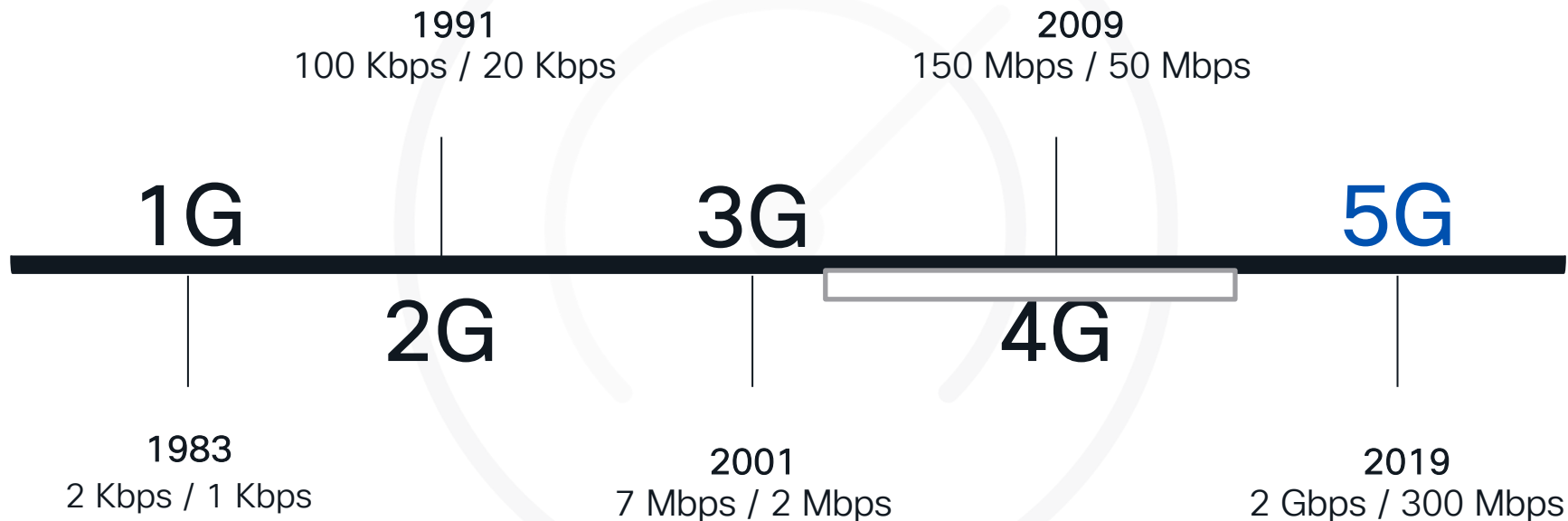


*Available on MG21E model

Historical Signal Visibility



Cellular is now viable for primary connectivity



Note: figures represents download/upload speeds

5G is NOT one solution fits all

Common misconceptions

- I have 5G coverage NOW
- 5G will replace 4G soon
- 5G is just higher throughput or lower latency
- 5G is going to replace Wi-Fi

Things to consider

Coverage

Cost

Data plans

23

Low Earth Orbit

New MSP Partnerships

- Focus on new revenue Stream
- Focus on New IT Solution
- Partnering with Leo Satellite Solutions

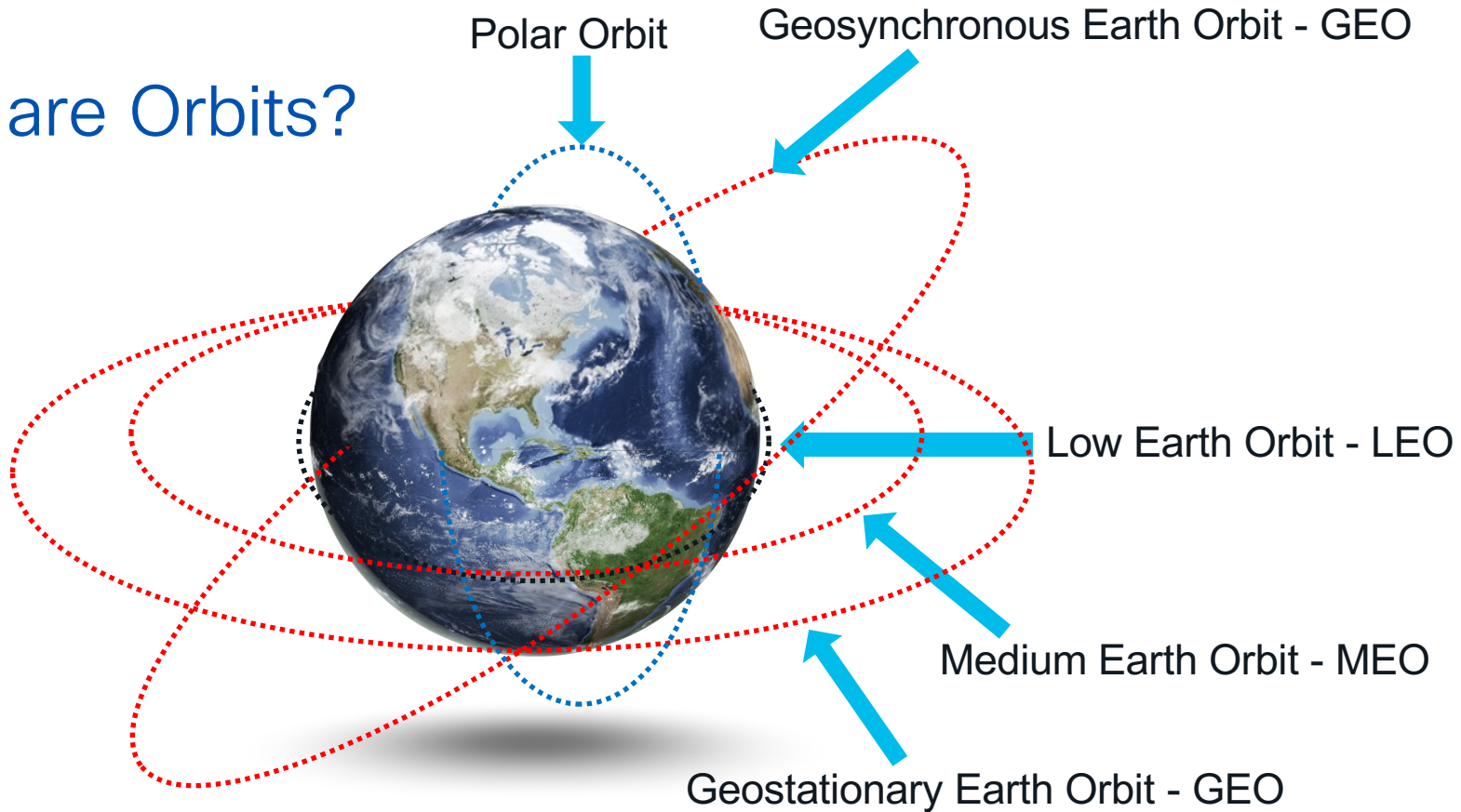
Telstra and OneWeb seal deal on delivering new satellite solutions

Optus and Lynk complete successful LEO satellite-to-mobile test

Spark New Zealand to partner with Lynk for direct-to-cell satellite service

Satellite company signs two out of three NZ telcos

Orbits are Orbits?



Time Matters

40ms

350ms

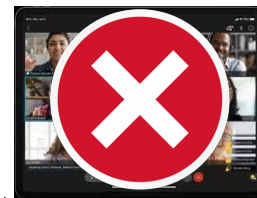
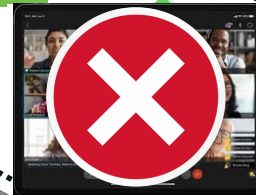
700ms

Physics Matters

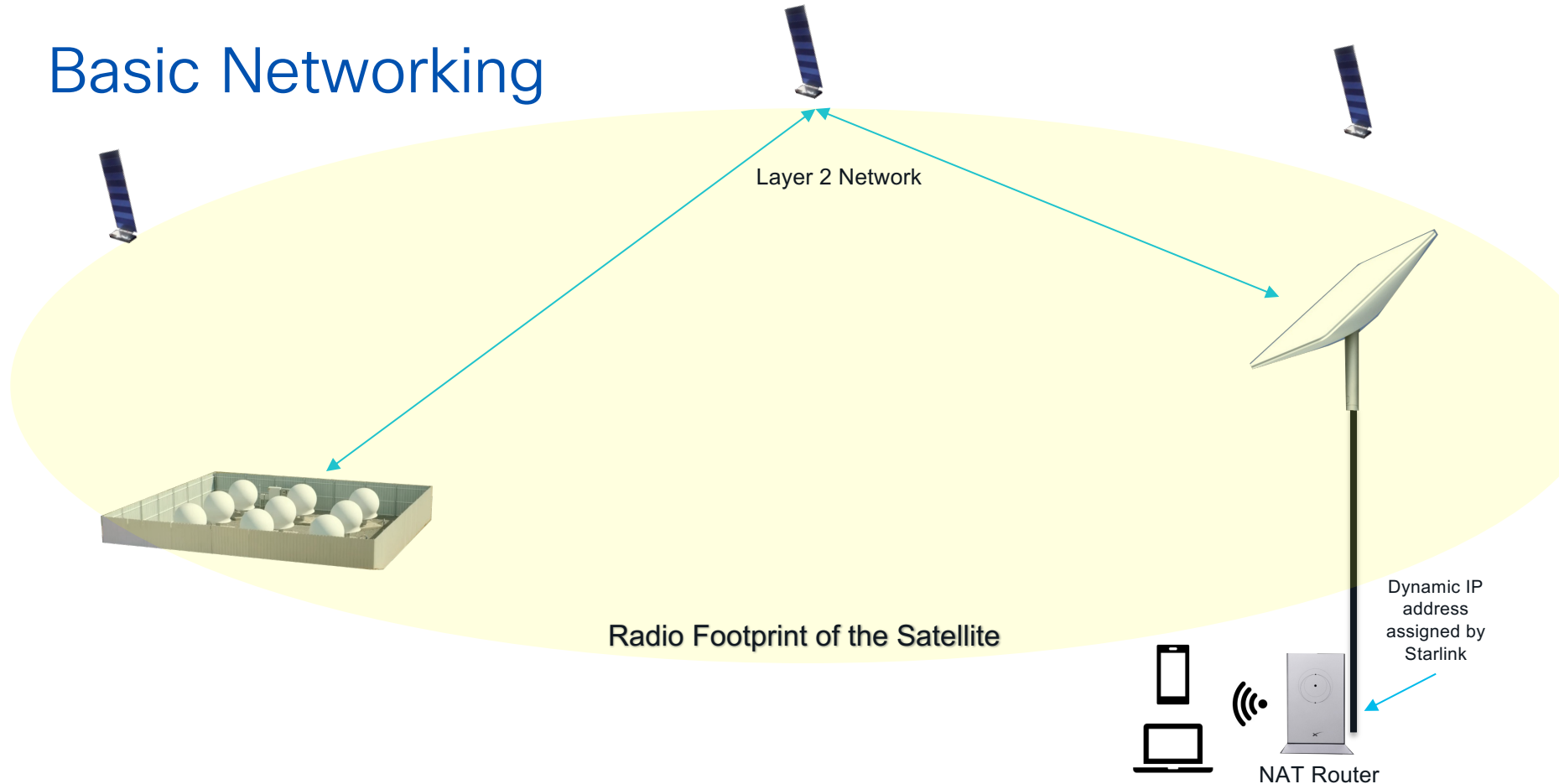
700ms

350ms

40ms



Basic Networking



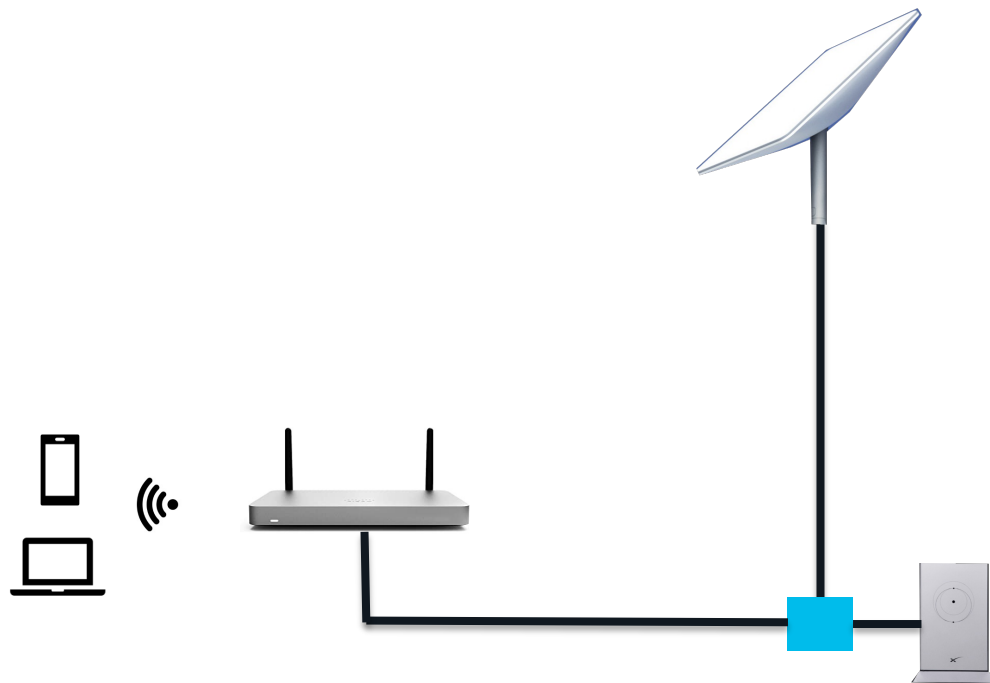
Starlink Security

There is no security other than what you bring yourself

BYOS – Bring Your Own Security

Meraki MX Deployment

- MX Series



Meraki is the simplest security option

Organization
SCCust1 ▾

Network
Spoke-Garage ▾

Secure Connect

Network-wide

Cellular Gateway

Security & SD-WAN

Wireless

Insight

Organization

Threat protection

Advanced Malware Protection (AMP)

Mode ⓘ Enabled ▾

Allow list URLs ⓘ There are no URLs on the Allow list
[Add a URL to the Allow list](#)

Allow list files There are no files on the Allow list.
[Add a file to the Allow list](#)

Intrusion detection and prevention

Mode ⓘ Prevention ▾

Ruleset ⓘ Balanced ▾

Allow list rules ⓘ There are no IDS rules on the Allow list
[Add an IDS rule to Allow list](#)

MX75
a8:46:9d:b8:96:01

Willowmavin Estate Playground

12 Kulin Drive, Kilmore, Vic 3764

WARM SPARE
Configure warm spare

WAN 1
65.181.3.239 Active
2406:2d40:4007:8710::4de Active

WAN 2
1152.110.106 Active

HOSTNAME
garage-wired-ghggpbgmdnc.dynamic-m.com

Summary Uplink DHCP IPv6 Prefixes Location Tools

Configuration

General

PUBLIC IP 65.181.3.239
customer.sydaus1.pop.starlinkisp.net

WAN 1

	IPv4	IPv6
TYPE	Dynamic	Auto (DHCP6)
CONFIGURED AS		
STATUS	Active	Active
IP ADDRESS	192.168.1.21	2406:2d40:4007:8710::4de
GATEWAY	192.168.1.1	fe80::7624:9fff:fe21:82ee
DNS	192.168.1.1	fdc7:ac7d:ca5b:10::1

WAN 2

	IPv4	IPv6
TYPE	Dynamic	Auto (Stateless)
CONFIGURED AS		
STATUS	Active	Not connected
IP ADDRESS	172.31.128.68	
GATEWAY	172.31.128.65	
DNS	172.31.128.65	

Latency Comparison

9th Sept 12:33am

🔄 SPEEDTEST

🔄 SPEEDTEST

📶 PING

43

ms

📶 DOWNLOAD

21.6

Mbps



🌐 Launtel ✓
Sydney

📱 Download our free Speedtest app for desktop.

COPY LINK



📶 PING

19

ms

📶 DOWNLOAD

98.4

Mbps



🌐 Telstra ✓
Melbourne

📱 Download our free Speedtest app for desktop.

COPY LINK



📶 JITTER

9

ms

📶 UPLOAD

5.1

Mbps



📶 JITTER

1

ms

📶 UPLOAD

17.0

Mbps



SpaceX Starlink
206.83.119.17



Launtel
Sydney



Vodafone
101.114.138.95



Telstra
Melbourne



5G

5G offers a myriad of advantages over 4G



Increased availability



mGbps peak data speeds

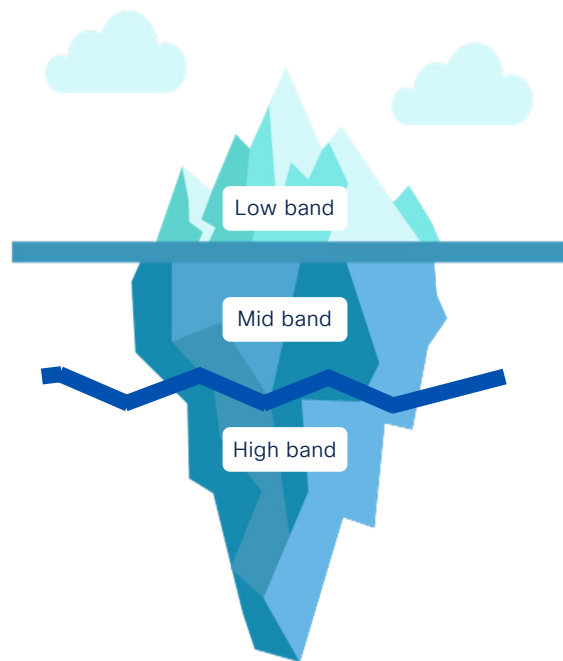


Low latency



Massive network capacity

What do all these bands mean?



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

1

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

3

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

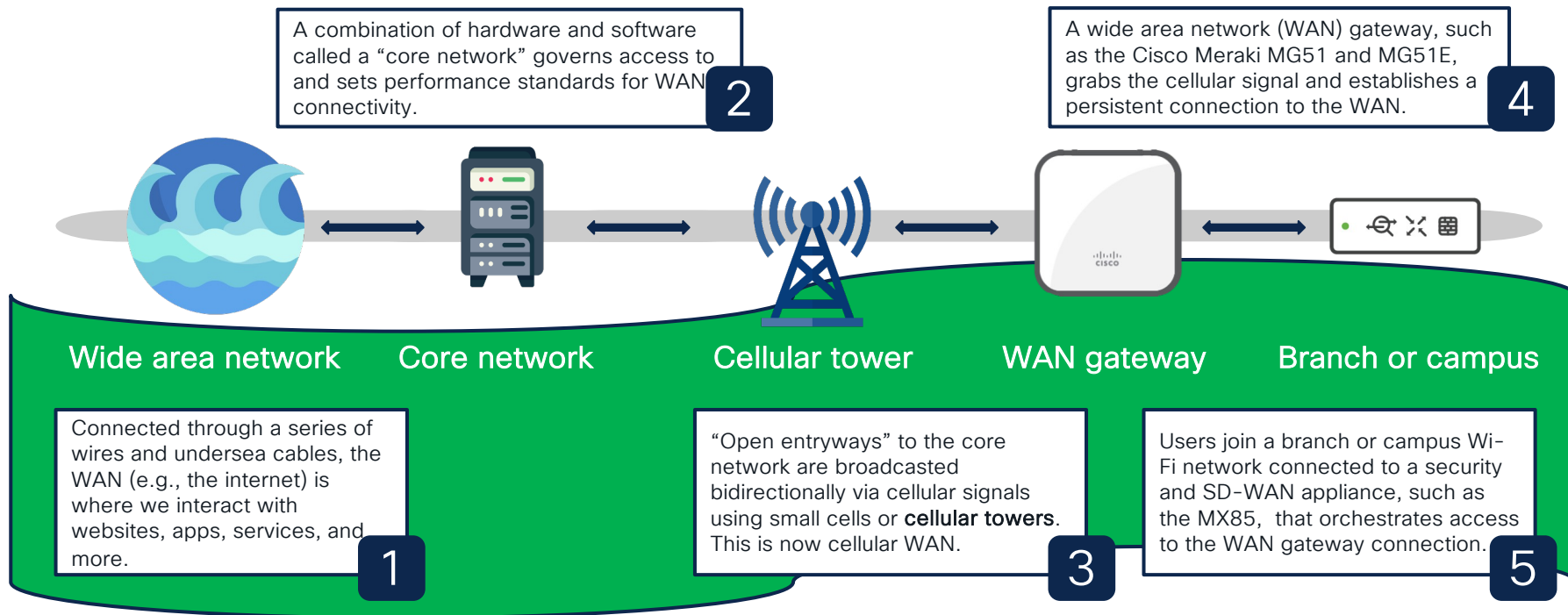
Mid band balances coverage over **long distances** while offering **fast performance**.

2

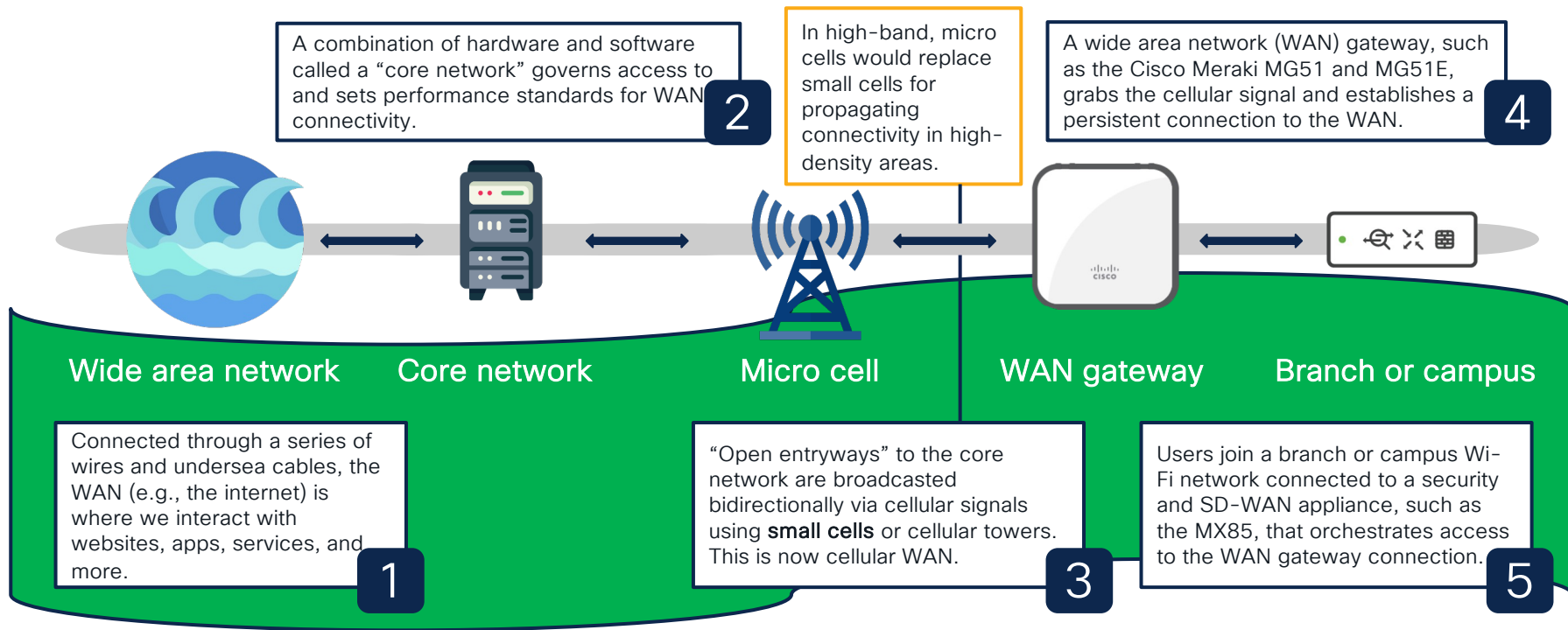
Marketing 101 💡: Sub-6 refers to the combo of low and mid bands, whereas **mmWave** refers to high band. Ultra wideband (**UWB**) refers to the combo of mid and high band.

4

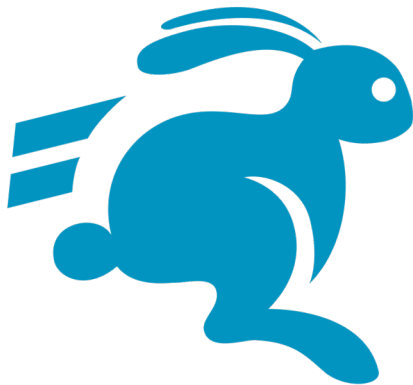
How does 5G FWA work from one end to the other?



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



5G core architecture began with a decision regarding scale



Non-Stand Alone



Stand Alone

Common deployment scenarios for 5G FWA

Primary WAN



Urban and remote



Fixed and pop-up

SD-WAN and IOT

MG51

Device architecture

Telit FN980 5G Sub 6Ghz

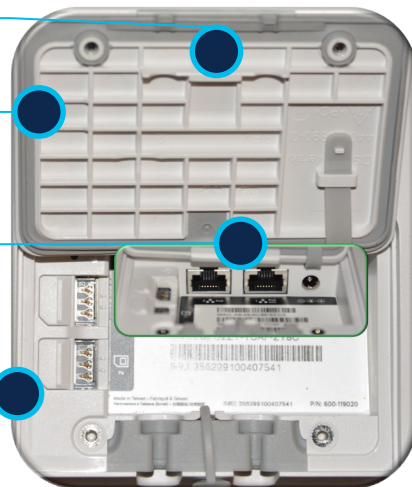
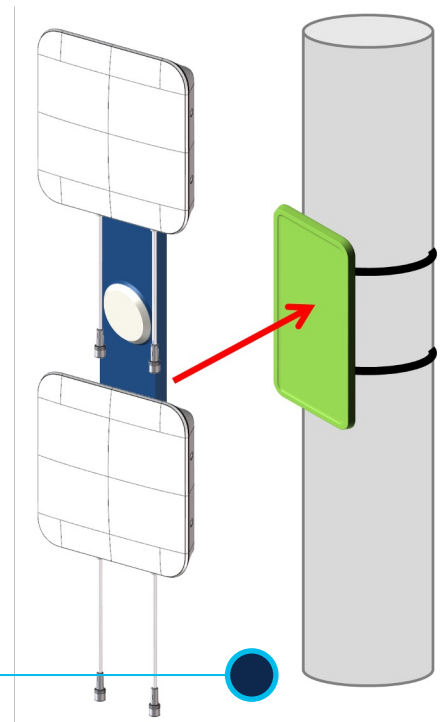
Cover plate to protect
SIM & cables

Dual 2.5G (mGig)
ethernet ports w/PoE

Dual SIM support
for active/passive failover



Mount indoors or outdoors with
Meraki Universal Mounting
Bracket



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

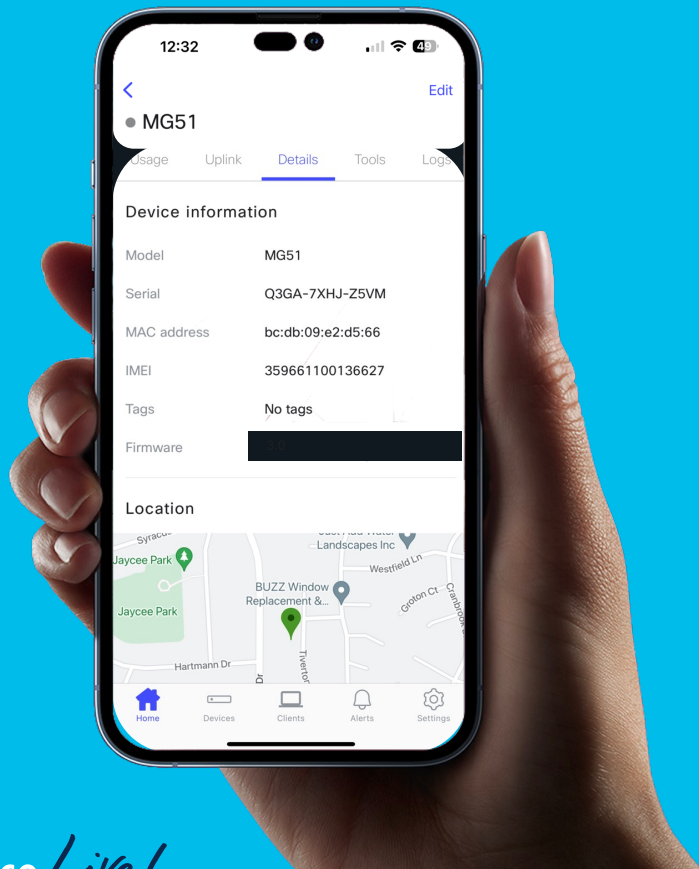
Fastest and simplest way to scale

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

The MG works around the world



Why Meraki cloud-managed 5G FWA



Meraki cloud-managed FWA in your hands

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

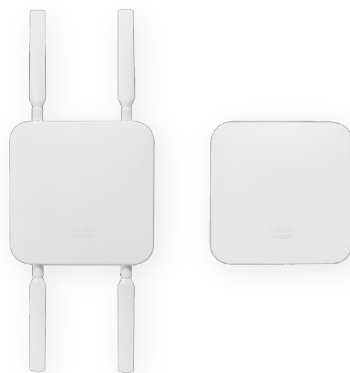
Demo

Platform Story



MX/Z SECURITY AND SD-WAN

Protect and securely
connect what matters
most, regardless of
location



MG WIRELESS WAN

Extend your network to
anywhere with a cellular
connection



VIRTUAL MX (vMX)

Seamlessly extend
your SD-WAN fabric
to public or private
cloud environments

API Ready

1. Get Organization Cellular Gateway Uplink Statuses
2. Get Network Cellular Gateway Connectivity Monitoring Destinations
3. Put Network Cellular Gateway Connectivity Monitoring Destinations

CELLULAR WAN PORTFOLIO

A Model For Every Location

CELLULAR GATEWAY



**CAT 6 LTE
MG21/MG21E**

300/50 Mbps CAT 6 LTE
802.3af / DC Power
IP67 certified
1 x Nano (4FF) SIM
MG21E: 2x Ext Antenna
Optional Patch Antenna

[Certified Carriers](#)



**CAT 18 LTE
MG41/MG41E**

1.2Gbps/150Mbps CAT 18
2 x 802.3af / DC Power
IP67 certified
2 x Nano (4FF) SIM
MG41E: 4x Ext Antenna
Optional Patch Antennas

[Certified Carriers](#)



**5G (Sub-6)
MG51/MG51E**

Upto 2Gbps DL 5G (Sub-6)
2 x 802.3af / DC Power
IP67 certified
Nano (4FF) SIM
MG51E: 4x Ext Antenna
Optional Patch Antennas

[Certified Carriers](#)

SPECIAL BAND CERTIFICATION



	SUPPORT	Product
CBRS	BAND 48	MG51/E and MG41/E
FirstNet	Ready	MG51/E and MG41/E

SMALL BRANCH CELLULAR PORTFOLIO



Z4C

Remote Work/ Home Office
500 Mbps FW throughput
PoE Support and Wifi6
CAT 12 LTE modem



MX67C

Up to 50 users
600 Mbps FW throughput
PoE Support
CAT 6 LTE modem



MX68CW

Up to 50 users
600 Mbps FW throughput
Wi-Fi & PoE
CAT 6 LTE modem

November 2023

Use Cases

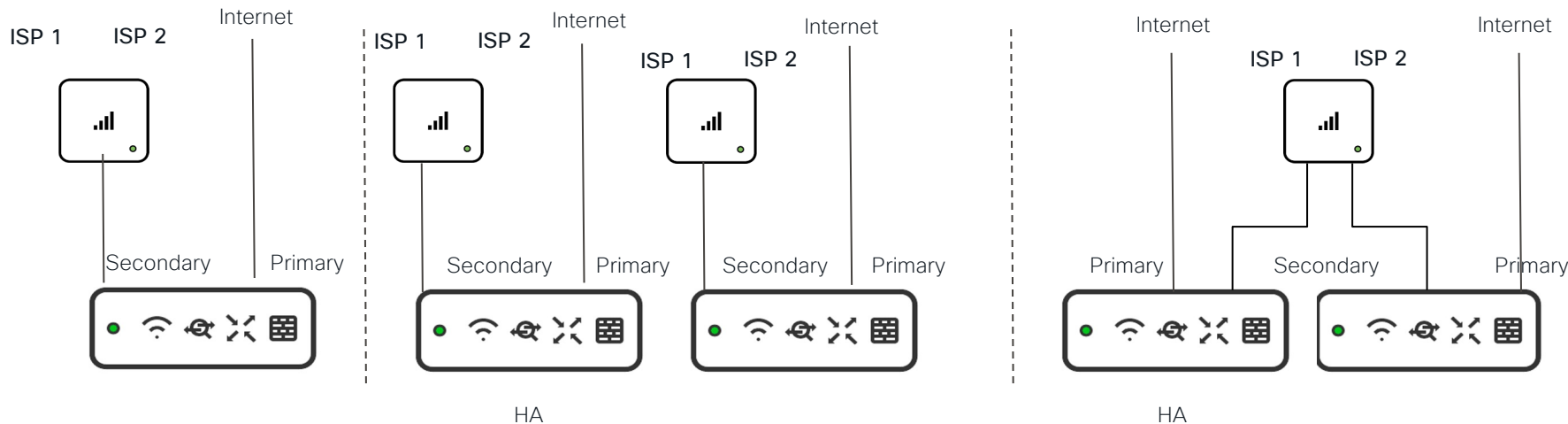
An MG for **every** sized deployment, no matter what

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

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

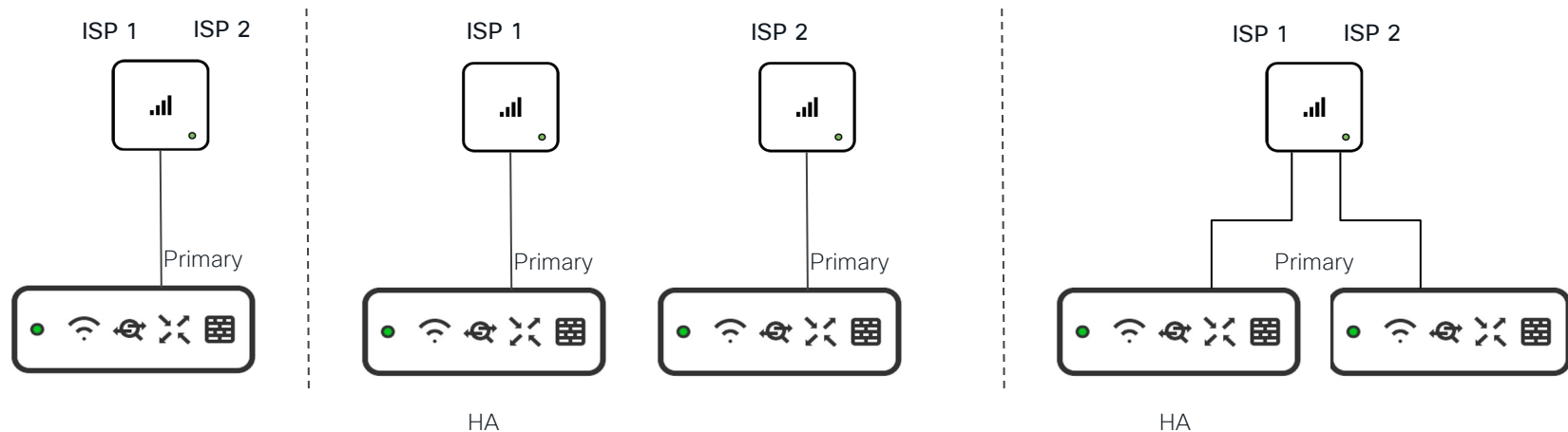
Problem	Solution	Outcome
Distributed workforce	5G FWA + hybrid cloud	More productive workforce
Large-scale retail operations	5G FWA + full stack Meraki (high end)	Enable guest Wi-Fi
Sensitive customer (or patient) data	SD-WAN over 5G FWA	Confidently do more
Rapid site expansions	5G FWA + full stack Meraki (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

Target Topology: LTE Failover



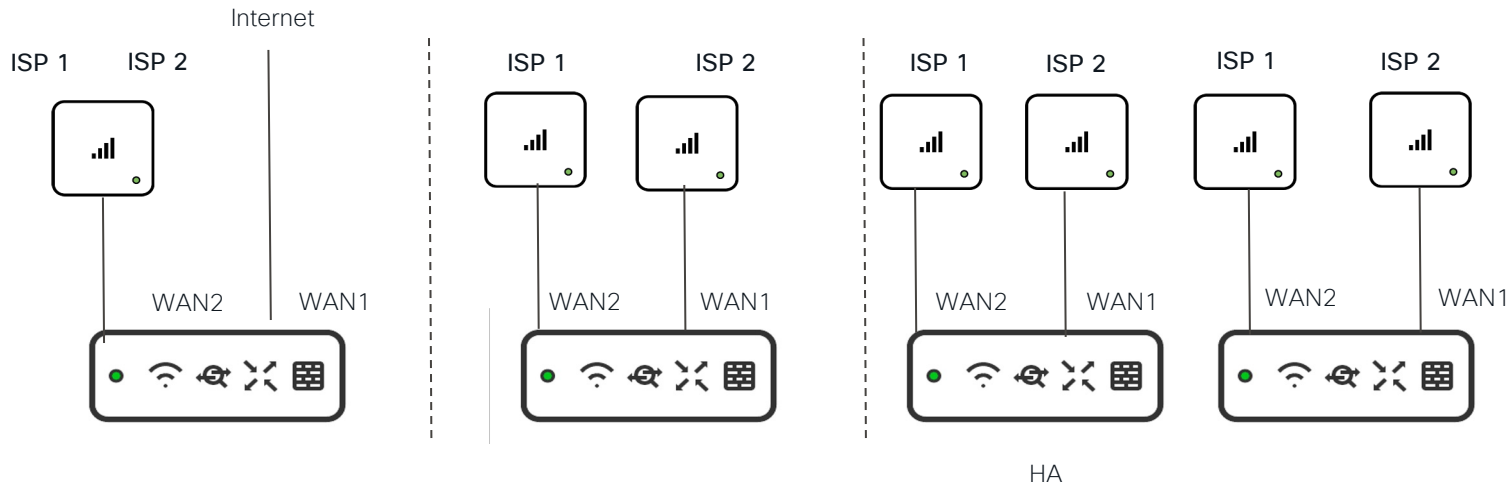
- Failover to LTE in case of Primary WAN outage
- Connect MG to any MX Secondary WAN interface
- Support any 3rd-party router downstream
- Failover decision lies within the router not MG

Target Topology: LTE Primary



- Put MG where LTE signal coverage is optimal
- Connect MG to any MX Primary WAN interface
- Support any 3rd-party router downstream

Target Topology: SD-WAN over LTE



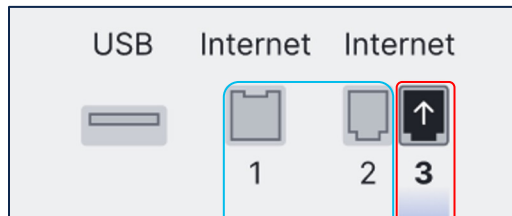
- Support following combinations: Internet-LTE, LTE-LTE
- Connect MG(s) to any MX
- Support any 3rd-party router downstream
- SD-WAN policies are configured on downstream router

Multi-WAN (2 Active + 1 Backup)

Private BETA Only
GA will be announced soon

PLATFORM
COMPATIBILITY

MX75

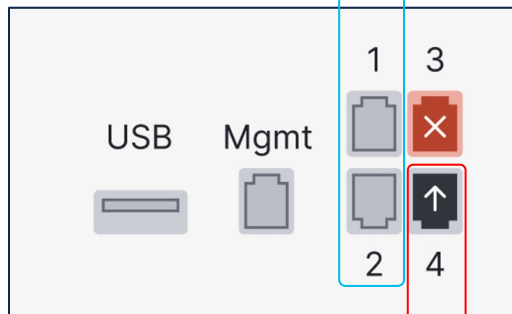


2 Active WAN uplinks

1 Backup WAN uplink

- Ports 1 & 2 are the designated WAN ports
- Port 3 on the MX75 is the Backup link

MX85,
MX95,
MX105



1 Backup WAN uplink
(port 4 is PoE capable to power MG)

- Ports 1 & 2 are the designated WAN ports
- Port 4 on the MX85/95/105 is the Backup link
- Port 3 on the MX85/95/105 is disabled

WARM SPARE	
<button>Configure warm spare</button>	
WAN 1	
71.196.53.205	Failed
WAN 2	
73.124.49.69	Failed
WAN 3	
75.114.201.156	Active

Co-term Licensing: ENT, ADV, SDW+

Subscription Licensing: Essential, Advantage

November 2023

Robust, always-on, same-day branch connectivity



5G primary WAN = instant



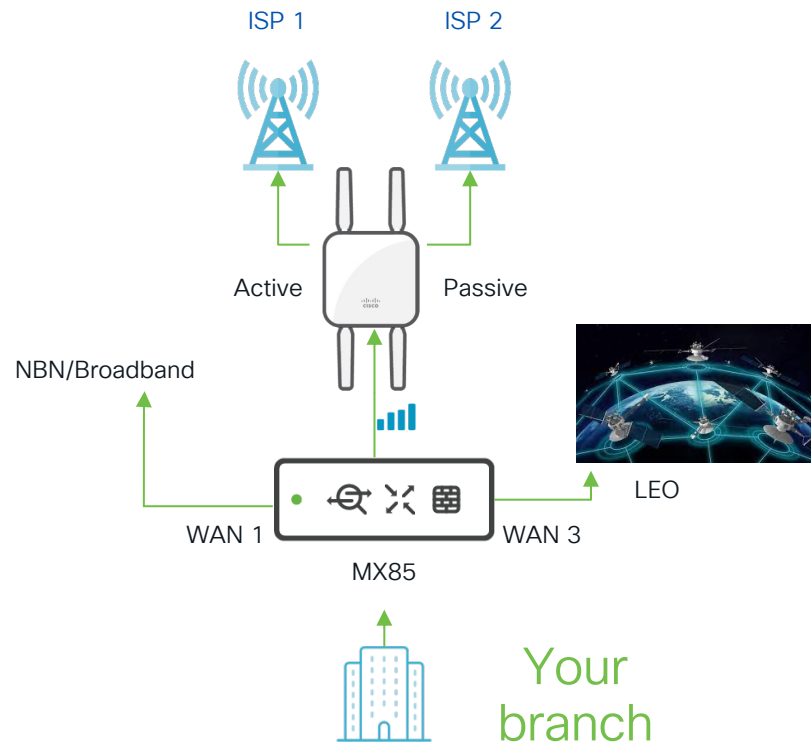
Made for lean operations



Security and SD-WAN integration



Built-in redundancy





End to End 5G/LTE delivery across Enterprise



Cellular WAN



M2M IOT SIM



Cisco Meraki MG

Mount anywhere



Cisco Meraki MX

Use two WAN uplinks



Cisco Meraki IOT

Cameras and sensors

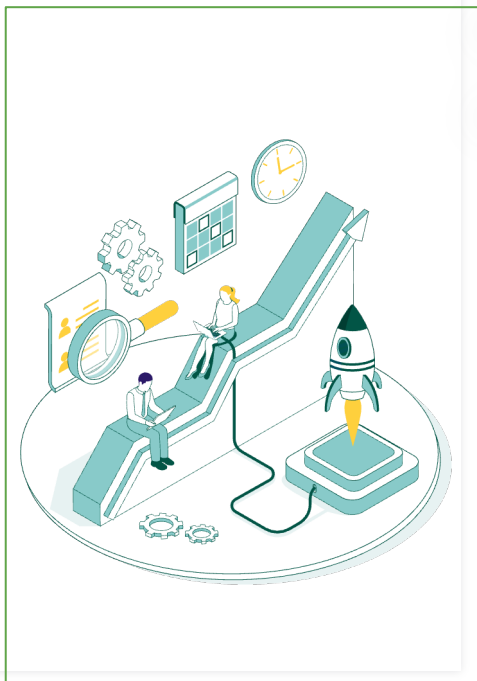
Fully interoperable on the **Meraki platform**

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

Senior IT Leader

Large, branch-based conglomerate

A solution to help you scale fast



Outcomes:

Deploy instantly: Expand to new locations—even those that are difficult to reach—with resilient, same-day connectivity, enabling faster business expansion.

Use zero-touch provisioning: Leverage MG cellular gateways to instantly provision primary cellular connectivity across thousands of sites at once without waiting for a wired connection installation.

Automate upgrades: Save time and money and stay up to date on the latest firmware with schedulable or automatic updates.

Simplify management: Work with experts who can launch new branches quickly and ensure secure, optimized connectivity for all users, no matter their location or equipment you use.

Engage with us: Become a Cisco Meraki Insider



Join
the community



Complete
challenges



Receive
rewards

Call to Action



- Check out the latest sales enablement content on [Sales Connect](#)
- Engage with your trusted experts – the Cisco Meraki MG Ninjas at meraki-mg-ninjas@cisco.com
- Ask your customers how they're scaling large branch networks ([conversation starter](#))



Did you know?

You can have a
one-on-one session with
a technical expert!

Visit Meet the Expert in The HUB
to meet, greet, whiteboard & gain
insights about your unique questions
with the best of the best.



Meet the Expert Opening Hours:

Tuesday	3:00pm – 7:00pm
Wednesday	11:15am – 7:00pm
Thursday	9:30am – 4:00pm
Friday	10:30am – 1:30pm

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We would love to know your feedback on this session!

- Complete a minimum of four session surveys and the overall event surveys to claim a Cisco Live T-Shirt



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- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Expert meeting
- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
- Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand



The bridge to possible

Thank you

CISCO *Live!*

#CiscoLiveAPJC

The background features a vibrant, multi-colored abstract design. On the left, there are horizontal, wavy bands of color in shades of red, orange, yellow, and green. On the right, a bright white light source emits a series of colorful rays in shades of blue, green, and yellow, creating a sunburst effect.

cisco *Live!*

Let's go

#CiscoLiveAPJC