5G Private Mobile Networks

Creating value for Enterprises using 5G

Cisco Knowledge Network Series for Managed Provider Partners

Ken Seitz, Neeraj Kumar, Jeff Minson, & Matt Falkner

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Today's speakers

Ken Seitz
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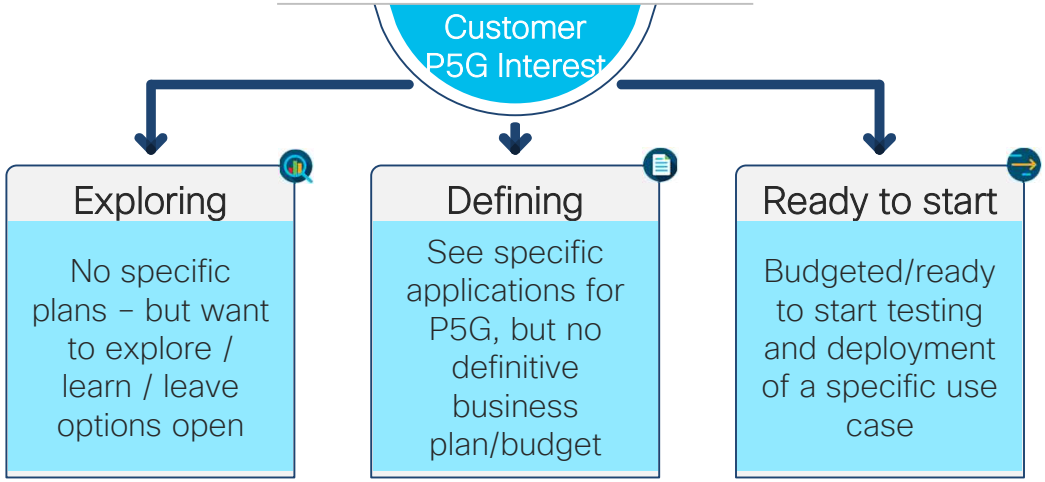
Neeraj Kumar
Business Development Director

Matthias Falkner
Distinguished Technical Marketing Engineer

Jeff Minson
Offer Development Manager

Before we begin

Customers are at different stages of exploring or planning for P5G:



This discussion is intended to share perspectives on exploration of Private 5G. Future sessions will get into details of Defining and Executing

What we will discuss in this session

Setting the Scene	What is Private 5G? Why the interest? What are the benefits?	5 minutes
Sample Use Cases	What are some key industries and Use Cases of interest?	10 minutes
Technical Insights	Technical Perspectives and Architecture vision	15 minutes
Partners Role	What is the key role that Partners would play in 5G Ecosystem?	10 minutes
Q & A	Questions….	10 minutes

Private mobile networks: here, there, everywhere!

BT signs smart port agreement with Belfast Harbour

Juan Pedro Tomás • October 28, 2020 • Share | 0

Vodafone and Centrica to build 'first' 5G-ready private network for oil and gas sector

James Blackman • August 6, 2020 • Share | 0

CBRS private network put to the test by Utah school district

Mercedes 5G Enabled Factory

Shaw to deploy Private LTE at Teck's Elkview coal mine

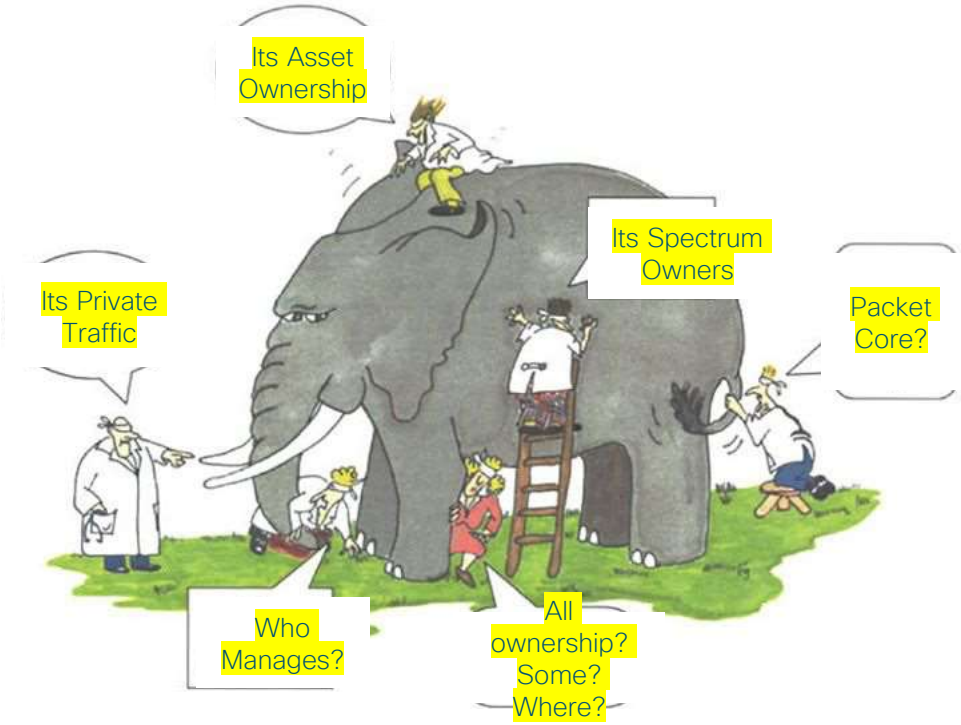
A private LTE network for mining

Challenge Networks Pty Ltd

By Jonathan Nally

Wednesday, 08 March, 2017

What is a private mobile network?

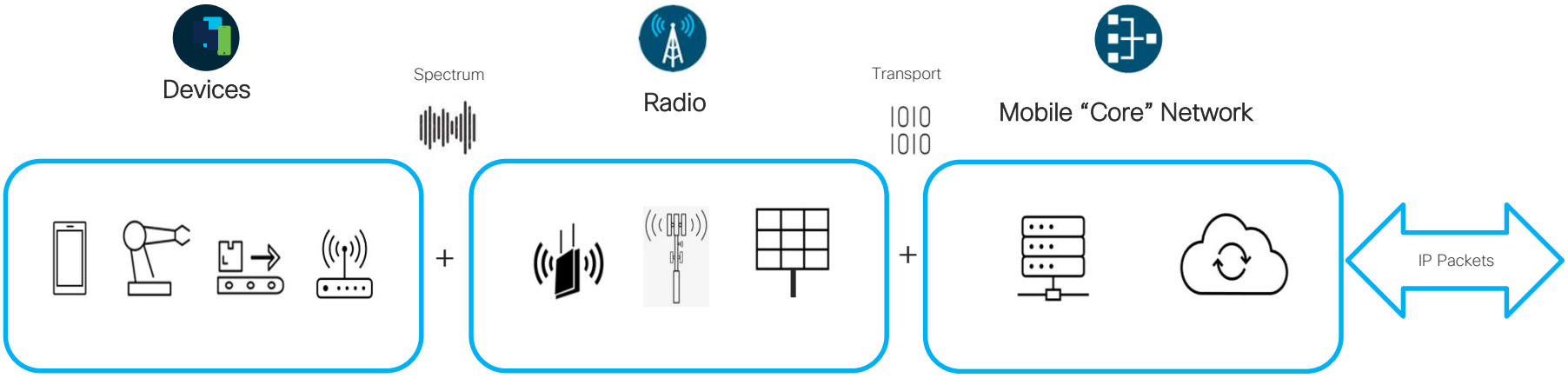


Basic Characteristics

- Mobile Network is dedicated for a business entity
- Only Business entity's traffic is kept on its Private Network
- Ownership is with the Enterprise / Business Entity

Perspective matters…

Basic components of a Private 5G network



User Equipment (UE)

Radio Access Network (RAN)
5G NR (New Radio)
gNodeB

Its not about who manages, operates, hosts or where!

Additional information: 3GPP standards

What is different about Private 5G?

SECURITY / CONTROL

PRIVATE SPECTRUM AVAILABILITY

NEW BUSINESS MODELS / NEW FUNCTIONALITY

Private 5G benefits a range of operational areas

Isolation from Public Networks
Clean 3.5GHz LTE band

Extend Coverage
10,000sqft+ per AP in LTE B48

Eliminate DAS[1] & Small Cell Costs
One CBRS radio supports multiple MNOs

Increase Security
SIM based authentication

Ease of Management
Enterprise Managed or MNO Managed

Enterprise Owned Analytics
Cisco DNA[2]

Industrial IoT | **Hospitality** | **Public Venues** | **Retail** | **Healthcare**

[1] Distributed Antenna Systems
[2] Cisco DNA

5G PMN for remote and large outdoors mining, oil & gas, transportation, utilities

Value Prop

- Replace and/or complement legacy coms
- Private LTE coverage above and below ground
- PTT, Autonomous haulage and drilling, improved conferencing, surveillance, monitoring, Smart Grid

5G enhancement

- Higher resolution video
- More video feeds and telemetry
- More tactile response with lower latency

Service Options

- Prefer to own and manage
- Some may consider SP managed service

P5G use case – industrial manufacturing

Current trends

- New requirements in manufacturing:
  - New tools and processes e.g., robotics & automation are critical for Industry 4.0 and manufacturing competitiveness
  - AGVs/driverless vehicles to reduce costs
  - AR / VR devices for remote operations
  - Fragmented wireless connectivity across different access networks (wifi, zigbee, NB-IoT etc)
- All the above need low latency, high bandwidth, seamless and secure wireless connectivity

Unique value of Private 5G Networks

- Customer maintains control over wireless network SLAs and policy. e.g., visibility, assurance, service agility, and security
- Provides clean spectrum for less congestion, consistent performance, more security
- Minimizes in-building network complexity
- Keeps data local for proprietary processes e.g., robotics, AI.
- Delivers consistent SLAa, QoS, user experience

P5G use case – distribution/logistics/warehouse

Current trends

- New real time IOT and other smart devices proliferating:
  - Digital transformation in distribution and logistics to drive transparency, tracking, usage, ROIs etc.
  - Trend in national security initiatives such as smart base, smart warehouse, flight line of the future, repair depots, shipyards, training/simulation
- All these require low latency, high bandwidth, seamless and secure wireless connectivity

Unique value of Private 5G Networks

- Safe and secure connectivity of new, smart IOT devices supporting distribution and logistics.
- Broader reach and improve signal penetration (e.g., into aircraft)
- Enable business outcomes e.g., Supply chain modernization for high-value deployable smart assets e.g., vehicles, assemblies
- Customer maintains control over its wireless Network's SLAs, policy

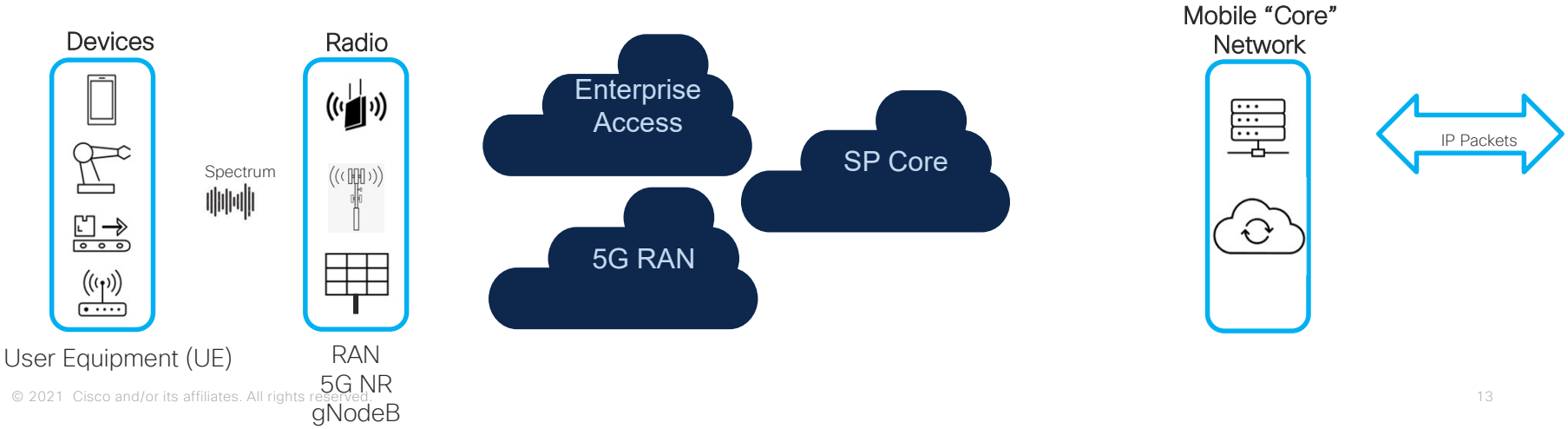
Enterprise 5G architecture needs

- Automation / Orchestration / Assurance
- Security

- Enable Devices / Spectrum / Radios
- UE / Radio management

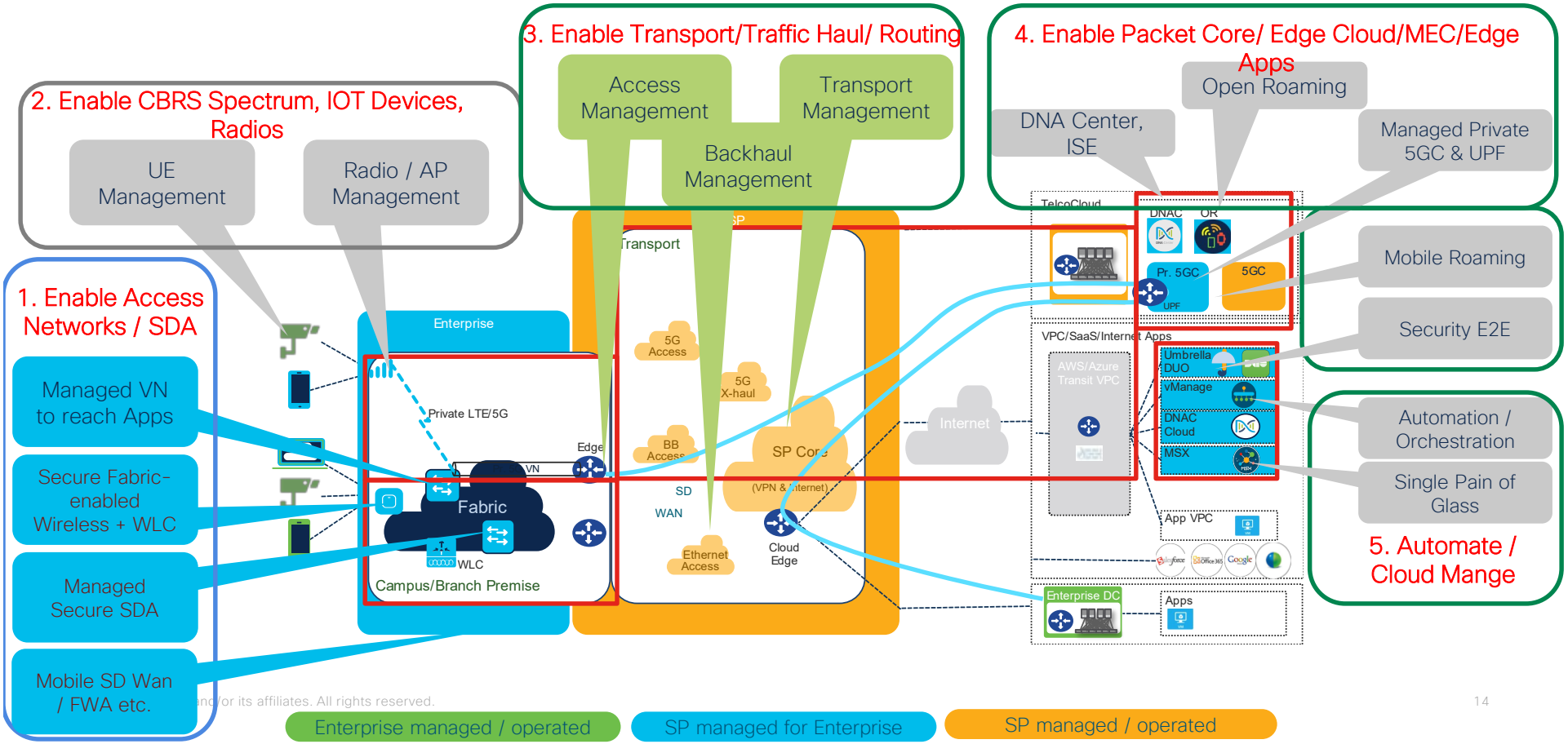
- Enable Transport / Xhaul (Public/Private)
  - E.g. Cisco SD-Access
- Transport management
- Security

- Enable Packet Core
- Mobility / Edge compute
- Roaming
- Identity
- Cloud access



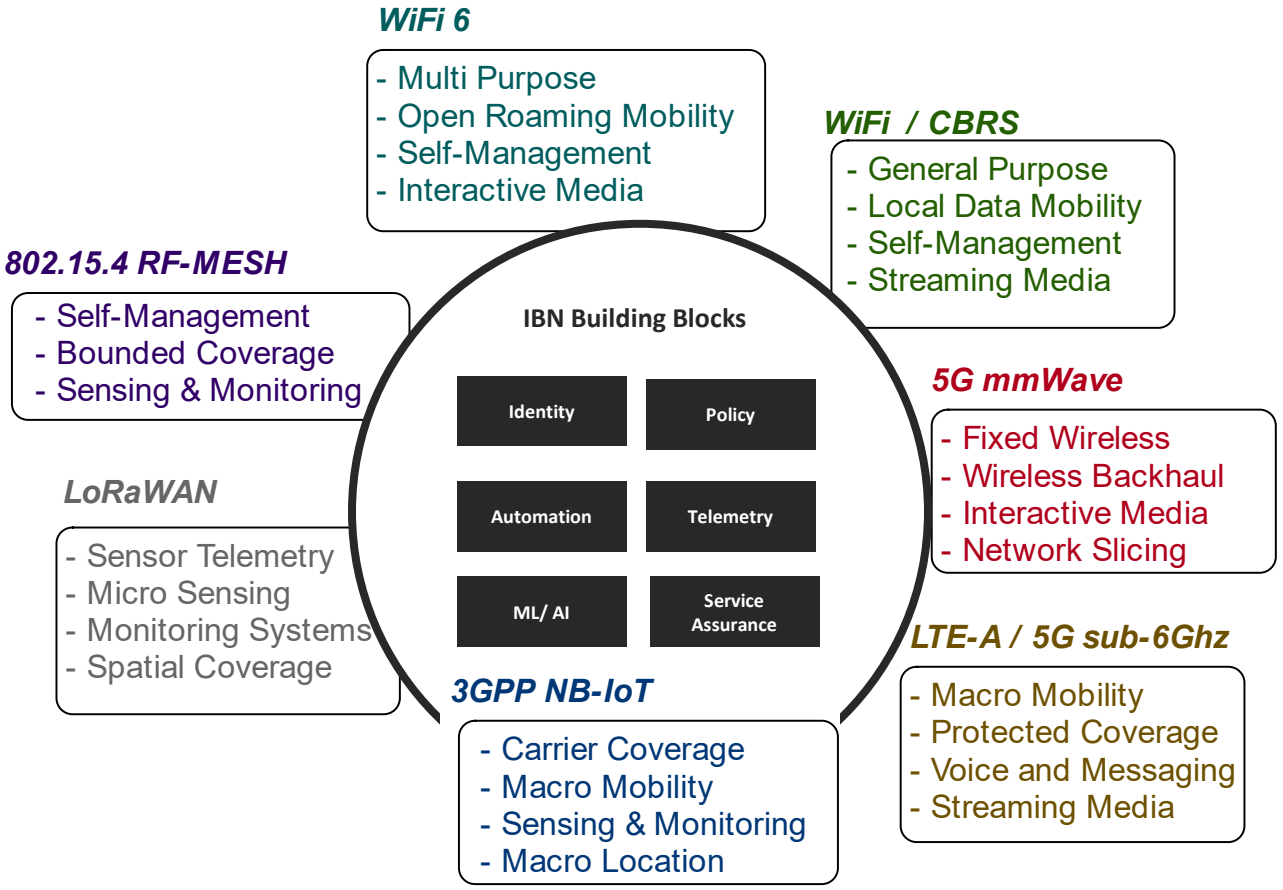
Enterprise needs for 5G Services

Reference



5G & Wi-Fi 6 complement: It is not OR but AND

Consistent identity and policy create business value
Consistent behaviors of people, process and things



Promise of Mobile IBN

- Seamless network access across networks based on common identity models
- Enterprise maintains granular control & visibility even within mobile domain
- Controllers facilitate policy extension & programmability across domains to dynamically create virtual networks outside the campus &

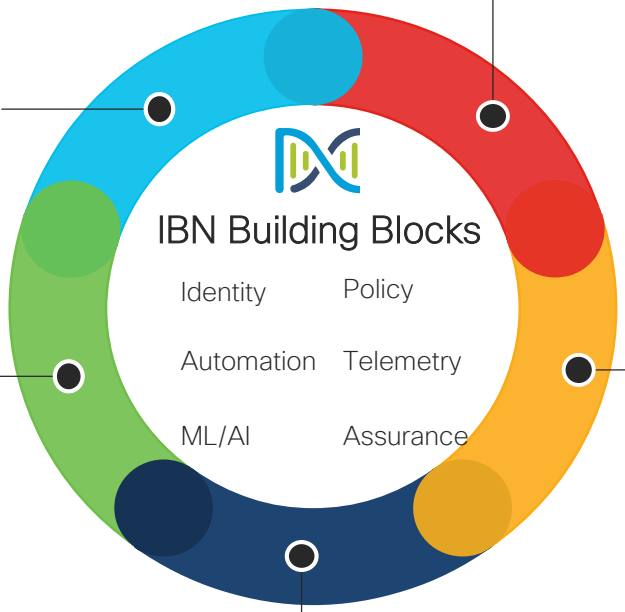
Access agnostic mobile Intent Based Networking (IBN) strategy

CBRS

Private LTE; Local data mobility, Deterministic Low Latency, Larger coverage, Cleaner Spectrum

Wi-Fi 6

Faster speeds; optimized capacity



802.15.4 RF/BLE

IoT driven; sensing & monitoring

Future: 5G NR

Speed, Coverage, Macro-mobility, V2X, Ultra-low latency

LoRaWAN

Low Power Large IoT Coverage

Cisco Private 5G: service definition

Cisco's Private 5G enables:

1. Seamless deployment of dedicated private networks for Enterprises
2. Service delivery from the cloud with a high-performance edge platform
3. Single portal for KPIs and SLA Management

Delivers deterministic network services for business-critical use cases

1	2	3	4	5
				
Broad Device Support	Carrier Class Resiliency	Flexible Deployment	Flexible Consumption	Broad Use Cases
4G and 5G Handhelds, AGV/AMR, Cranes, Ind'l Routers	99.999% Availability	Indoor / Outdoor Hybrid Cloud (Edge. on prem Cloud Mgmt)	SaaS model for flexible consumption Scalable small, medium, large options	Support for multiple use cases /industry verticals Flexible Service Creation Environment

Managed Service Providers' role in Private 5G

Regardless of the specific Cisco solution approach, Managed Service Providers (MSPs) play a critical role in Private 5G.

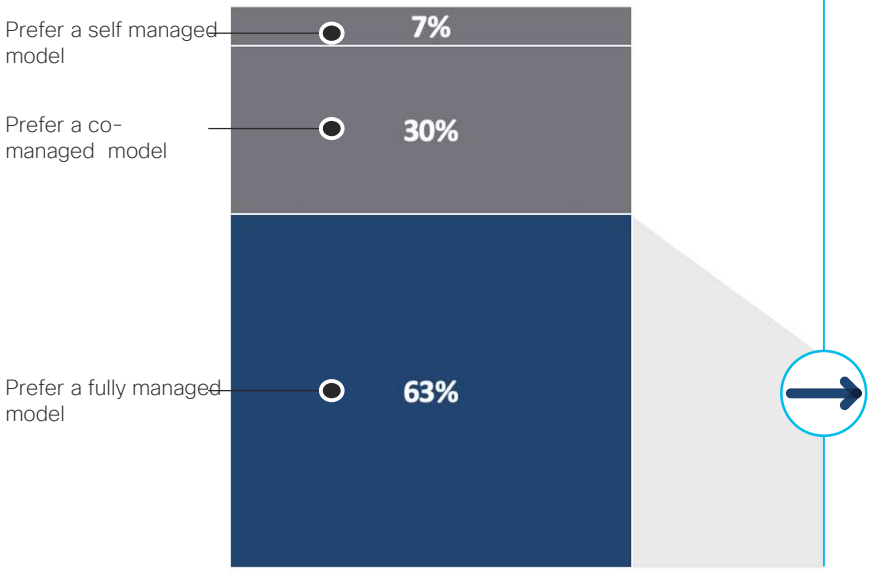
Even when private spectrum is available, most end-customers prefer to consume Private 5G as a managed service.

MSPs leverage their experience to fill knowledge gaps and develop value-added services for end-customers.

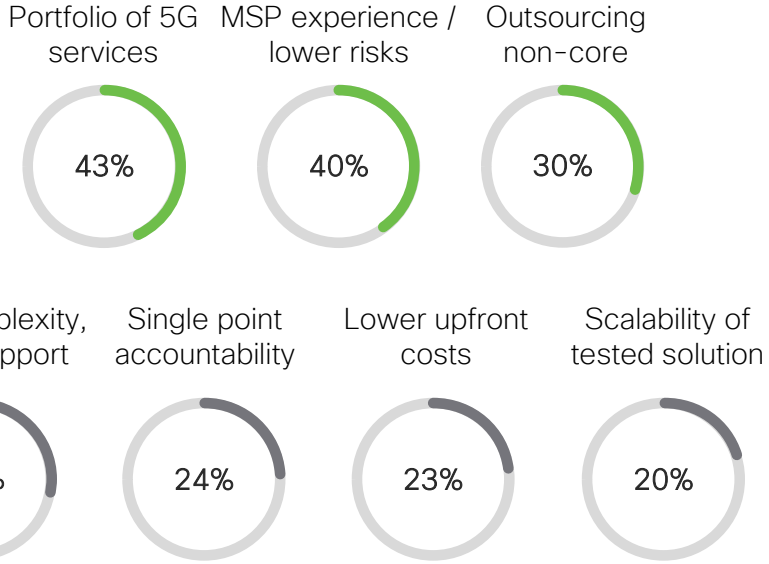
This section provides an overview of the specific MSP roles and the services they could offer.

Most end customers prefer to consume private 5G as a managed service

How would end customers most likely purchase 5G value-added services?



Will purchase a full managed service, largely to leverage experience, lower risks and outsource



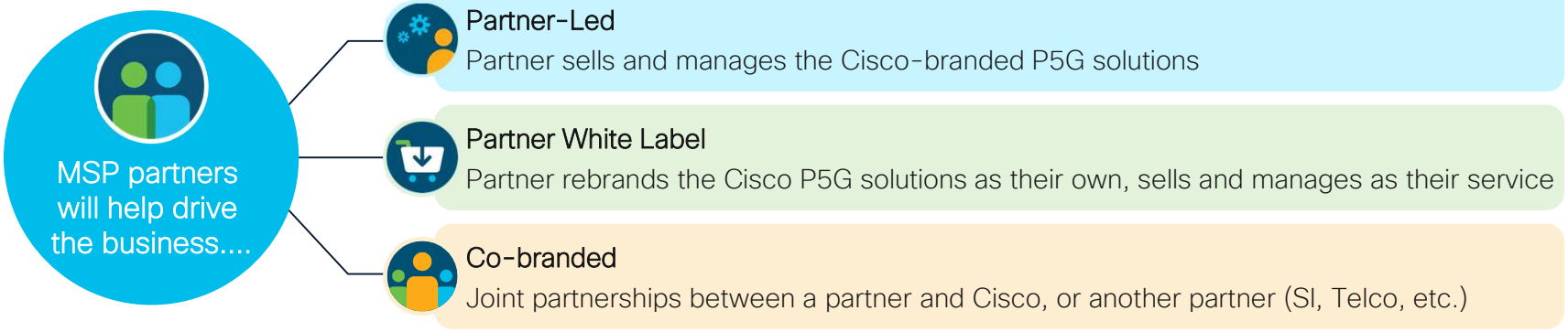
Source: Cisco Voice of the Customer Study (2019); Survey of 50 CIOs, and 1500 Line of Business & IT decision makers.

MSPs are actively developing a catalog of value-add Private 5G managed services

Delivering OPEX-based, turnkey managed services for Cisco P5G solutions

One Stop Shop	Delivering managed services encompassing fulfillment, deployment, assurance, billing, regulatory, compliance, services; optionally spectrum
Solutions and Integrations	Providing expertise and support for key verticalized software and solutions
Supplementary Services	Enhancing enterprise P5G deployments with a portfolio of WAN/transport, LAN, security, and collaboration solutions
Scale Market Acceleration	Maximizing features and functions to deliver on key business outcomes

Characterizing partner models and key roles served



....While adding customer value

- Bring existing 5G expertise
- Create/provide comprehensive vertical solutions
- Established fulfillment processes that scale
- Offer many levels of support
- Accommodate regulatory requirements
- Offer custom integration services into existing brownfield solutions
- Own/provide licensed spectrum and possible shared spectrum
- Will create a catalog of services with extensions (e.g. managed LAN)

Coming next

- Details of Cisco's P5G solutions
- POC methodology
- How can we partner for Private 5G...
- ...And jointly go-to-market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