The bridge to possible

Cisco Ultra Cloud Core

Taking 2G, 3G, 4G and 5G Towards a Common Cloud-Based Mobile Core Future

David Perez Gil, Technical Solutions Architect

Cisco Live!

BRKSPM-2038

Cisco Webex App

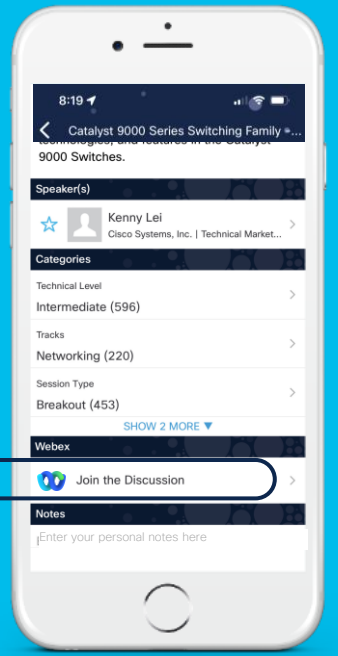
Questions?

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 until February 24, 2023.



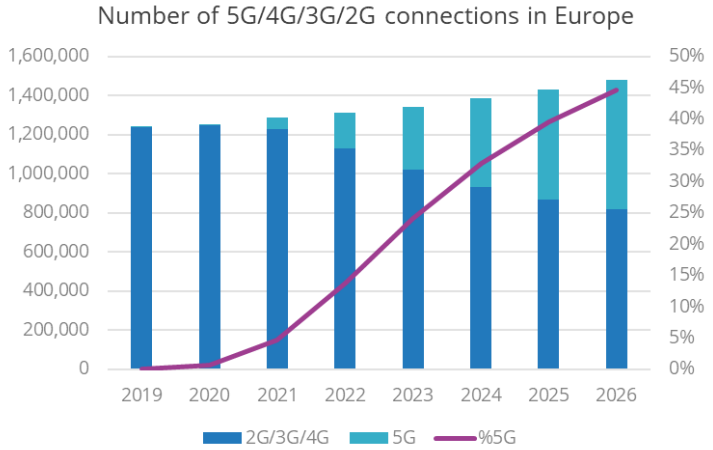
Agenda

- 5G Market Status
- Cisco’s path to 5G Standalone (SA)
- Cisco Public 5GaaS Overview
- 5G SA Core Insertion

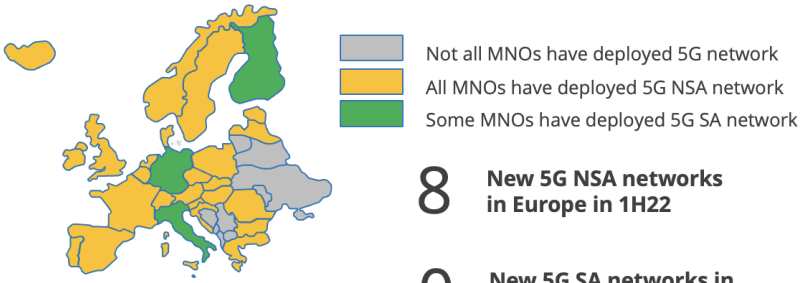
5G Market Status

5G Status Check

- 218 operators in 83 markets had launched 5G services by end Q3 2022 (mainly NSA)
  - ~72% EU population coverage
  - 31 operators globally offer commercial 5G services on SA networks
- Over 230 operators have received 5G spectrum (200 in mid-band with low band assignments also crossing the 100-operators milestone)
  - At least 10 EU countries provide dedicated spectrum for 5G verticals / private 5G



Source: IDC Telecom Service Tracker, Sept 2022



Source: IDC

5G Adoption Challenges

- Lacking convincing business justification
  - Both for operators and vendors
  - Flat or declining ARPU environment
- Technology complexity
  - Control and user plane separation
  - Service based architecture
  - Micro-service container-based infrastructure
- Parity & continuity conundrum
  - “No baggage left behind”

BUT … 5G can deliver key change in both architecture and cost to build and operate

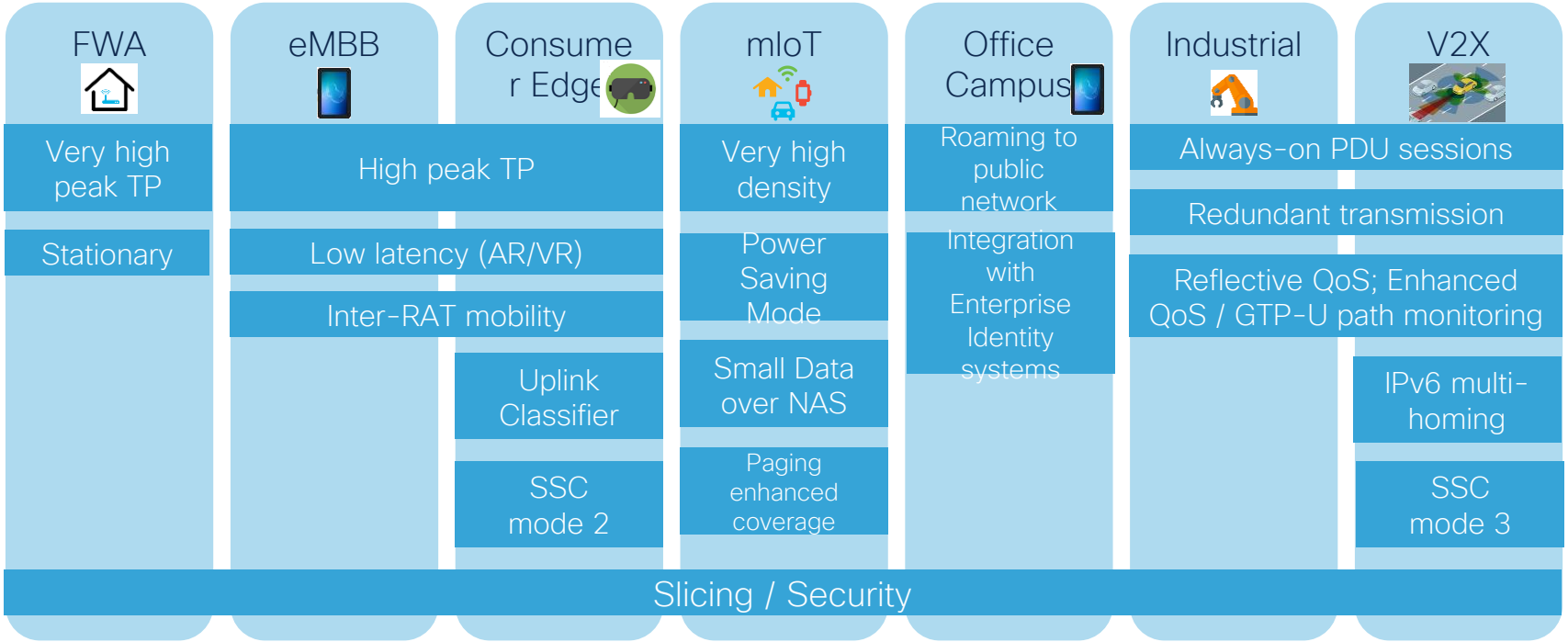
Increased capacity & bandwidth

Lower cost per bit

Lower operational cost

New technology for a new generation

5G Use Case Enablers



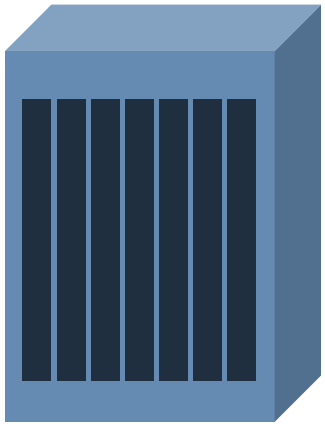
Cisco’s path to 5G Standalone (SA)

Mobile Core Evolution

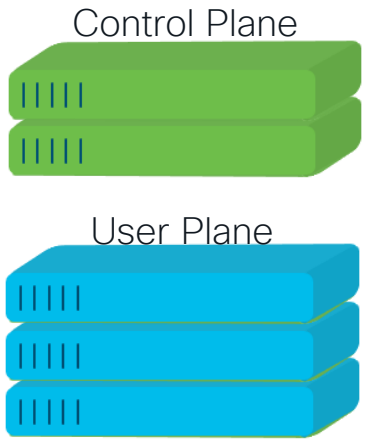
3GPP EPC standard
ETSI NFV WP Birth of Openstack
Docker Open-sourced
Kubernetes Announced
Cisco Ultra Packet Core
CNCF Founded
DevOps 2.0
ONAP First release
3GPP 5G standard
Cisco Ultra Cloud Core

Waterfall | Agile | CI/CD

2010 | 2015 | 2020



Purpose Built



Virtualized

Cloud-Native

kubernetes docker

Cisco Mobile Core (as a Service Offerings)

Enterprise & service provider market – B2B & B2B2X

IoT

connected car & assets

Private 5G

private network

Public 5G

eMBB, FWA, corporate APN

Future Services

other target segments

Common Platform

core network

billing

customer experience

enterprise services

operations

subscriber & SIM management

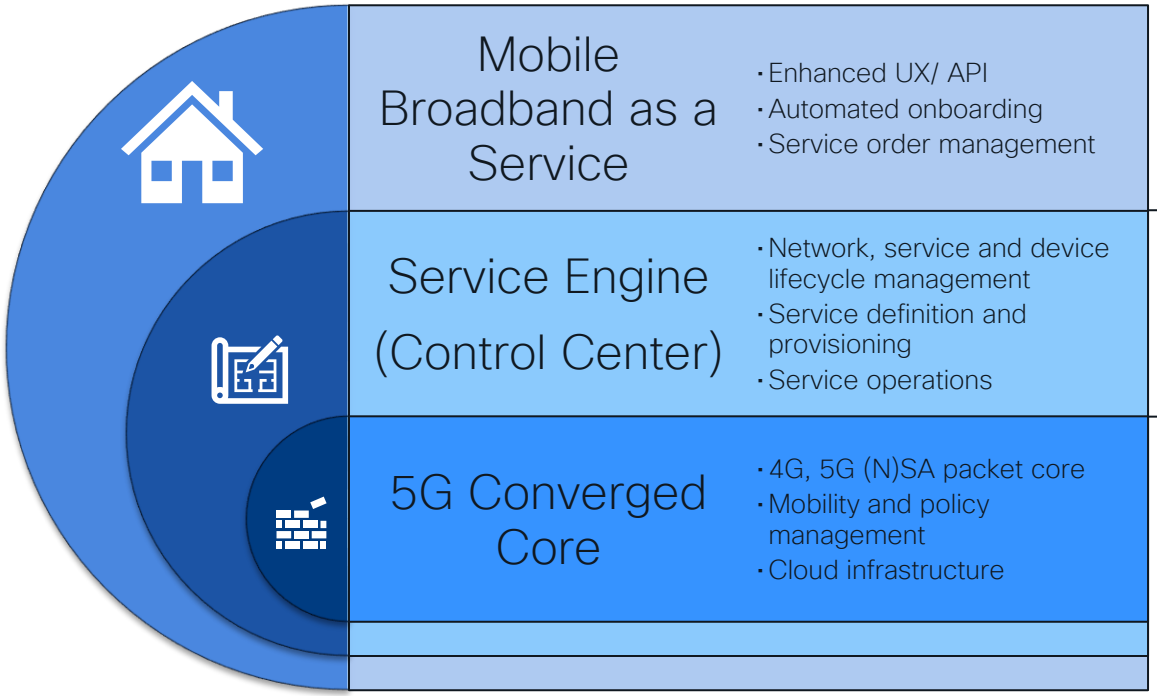
cloud management

open API

automation

Public & private hybrid infrastructure deployment models

5G Core as a Service – Layered Capabilities



Mobile Broadband as a Service
- Enhanced UX/ API
- Automated onboarding
- Service order management

Service Engine (Control Center)
- Network, service and device lifecycle management
- Service definition and provisioning
- Service operations

5G Converged Core
- 4G, 5G (N)SA packet core
- Mobility and policy management
- Cloud infrastructure

Foundational Proof Points

50+ Service Providers

200M+ Devices

100% Cloud-based, cloud delivered

100M+ Devices

>100Tbps Capacity

100K+ Containers over 57 distributed clouds

Time To Value Improvement

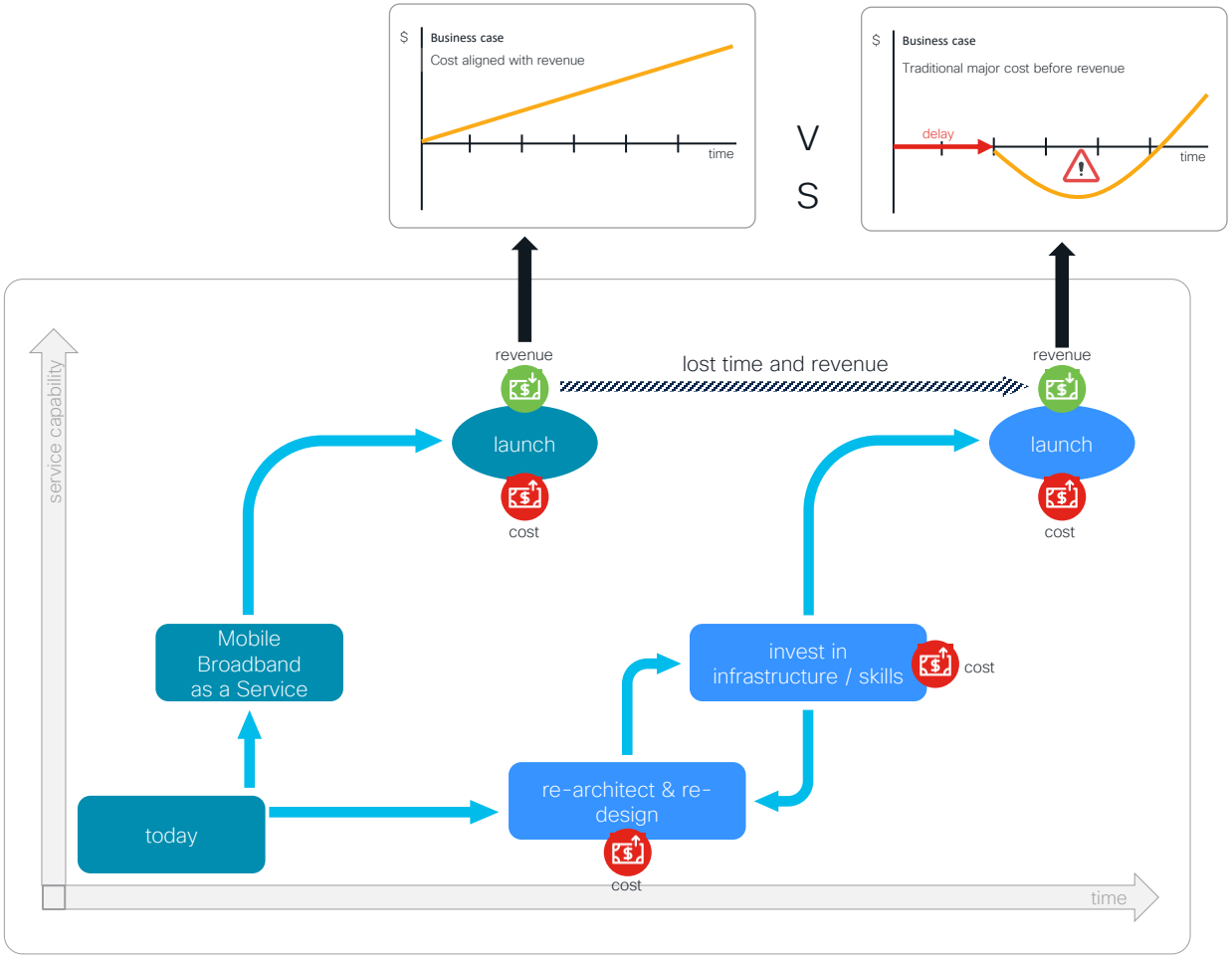
Zero Capex, Pay per use model

Flexible service creation & rapid prototyping

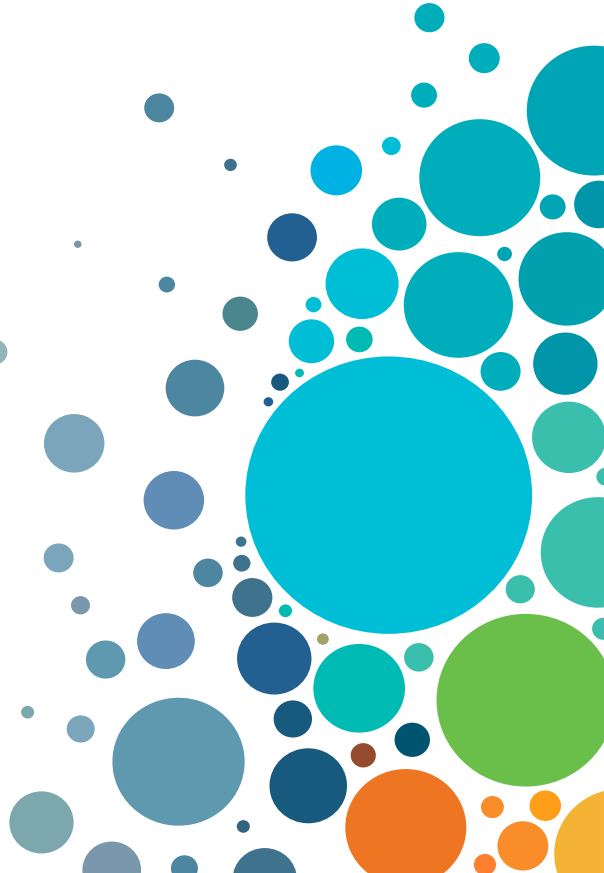
High level of service control and visibility via APIs

Fast activation of new services and new service regions

Updates, upgrades are automatically provided – zero touch delivery model

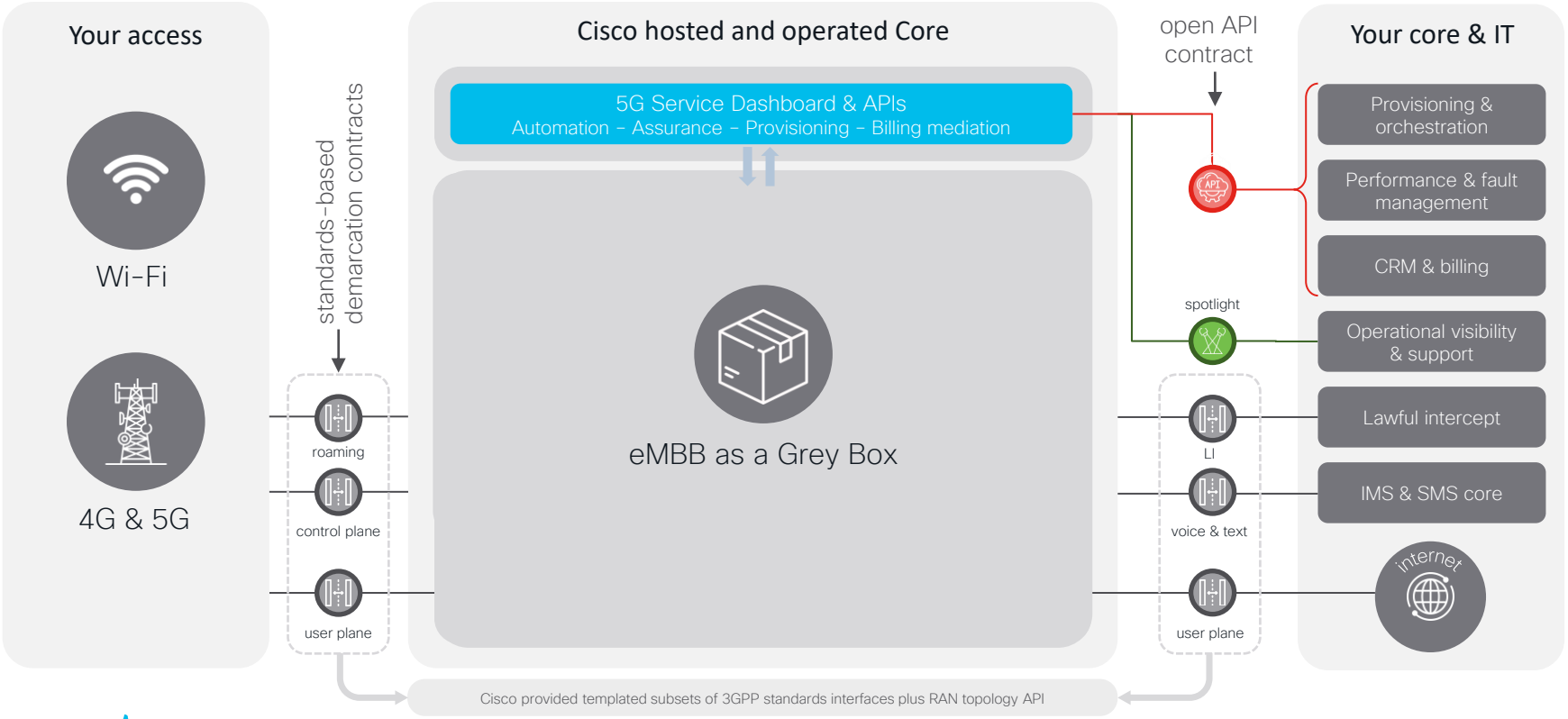


Cisco Public
5GaaS Overview

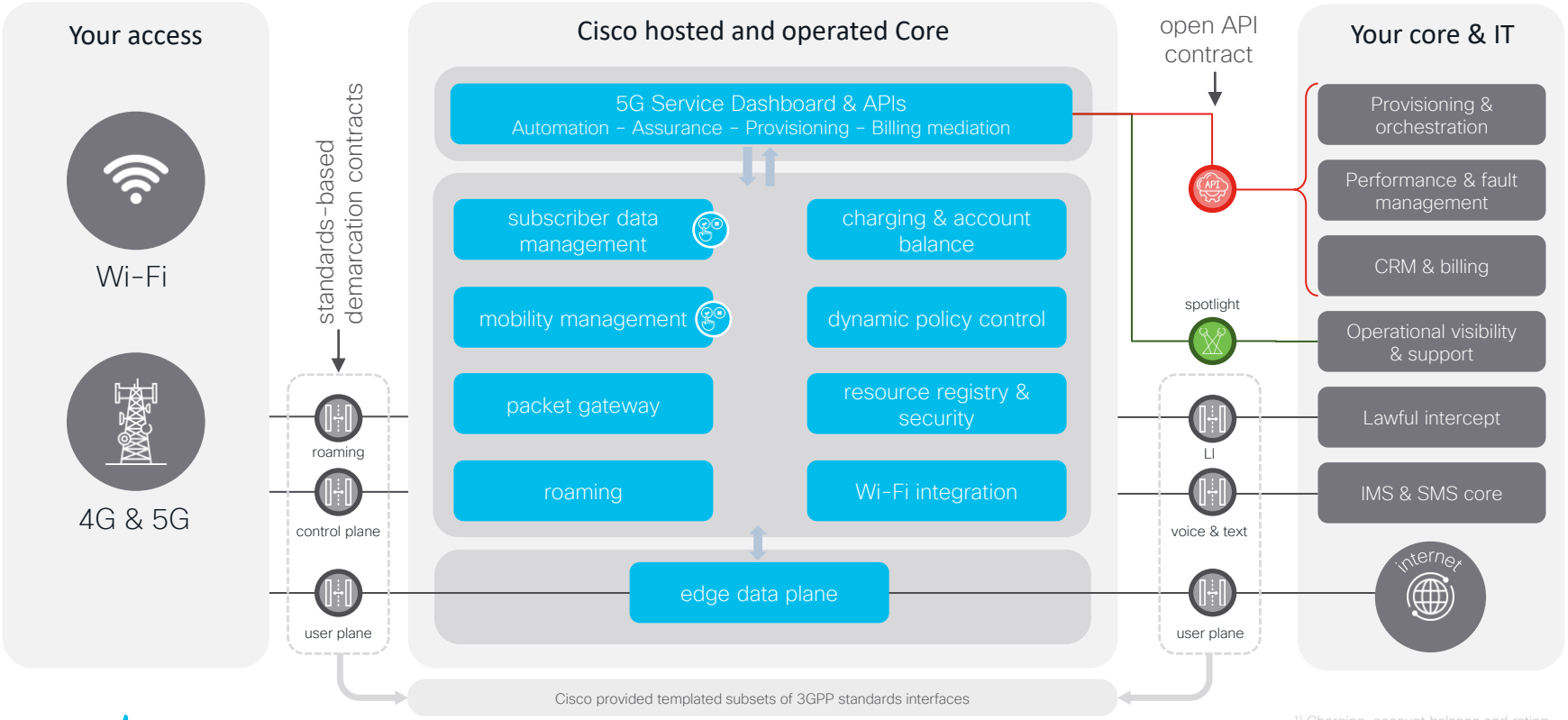


cisco Live!

Cisco's Mobile Broadband as a Service

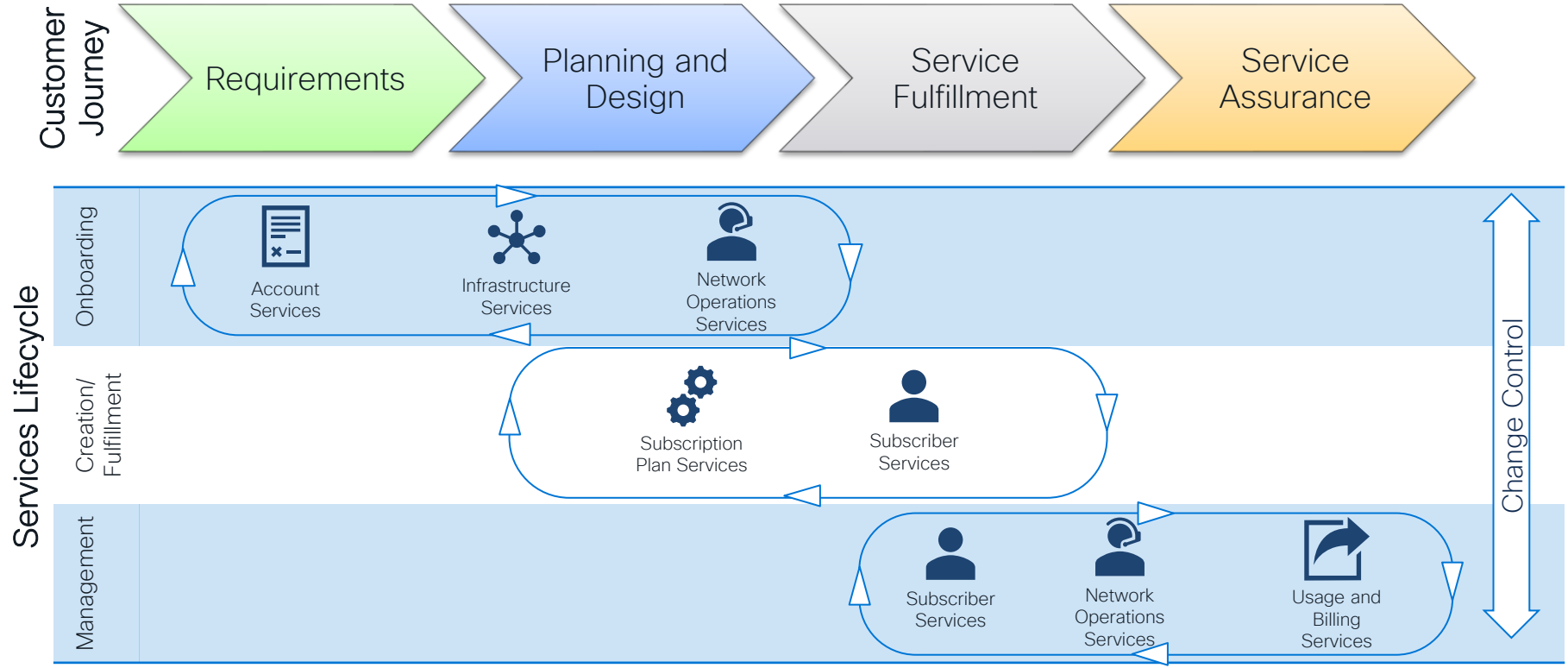


Cisco's 5G as a Service – functional view



Customer Journey/ Services Lifecycle

Cisco Goal: 100% automated, UI/ API-based interactions between SP and Cisco-aaS Domains



SP Components and Responsibility Areas

- RAN (4G/5G)
- OSS/BSS (including billing systems)
- IMS / SMS core
- Lawful Intercept infrastructure
- Location-based services systems
- Public warning and broadcast systems
- Voice roaming partners
- Internet exchange partners
- Backhaul and core routing infrastructure
- Public IP address space
- Co-location facilities (optional) for ‘on-prem’ deployments

Network Integration
Support &
Ops Validation

Customer Care & Billing

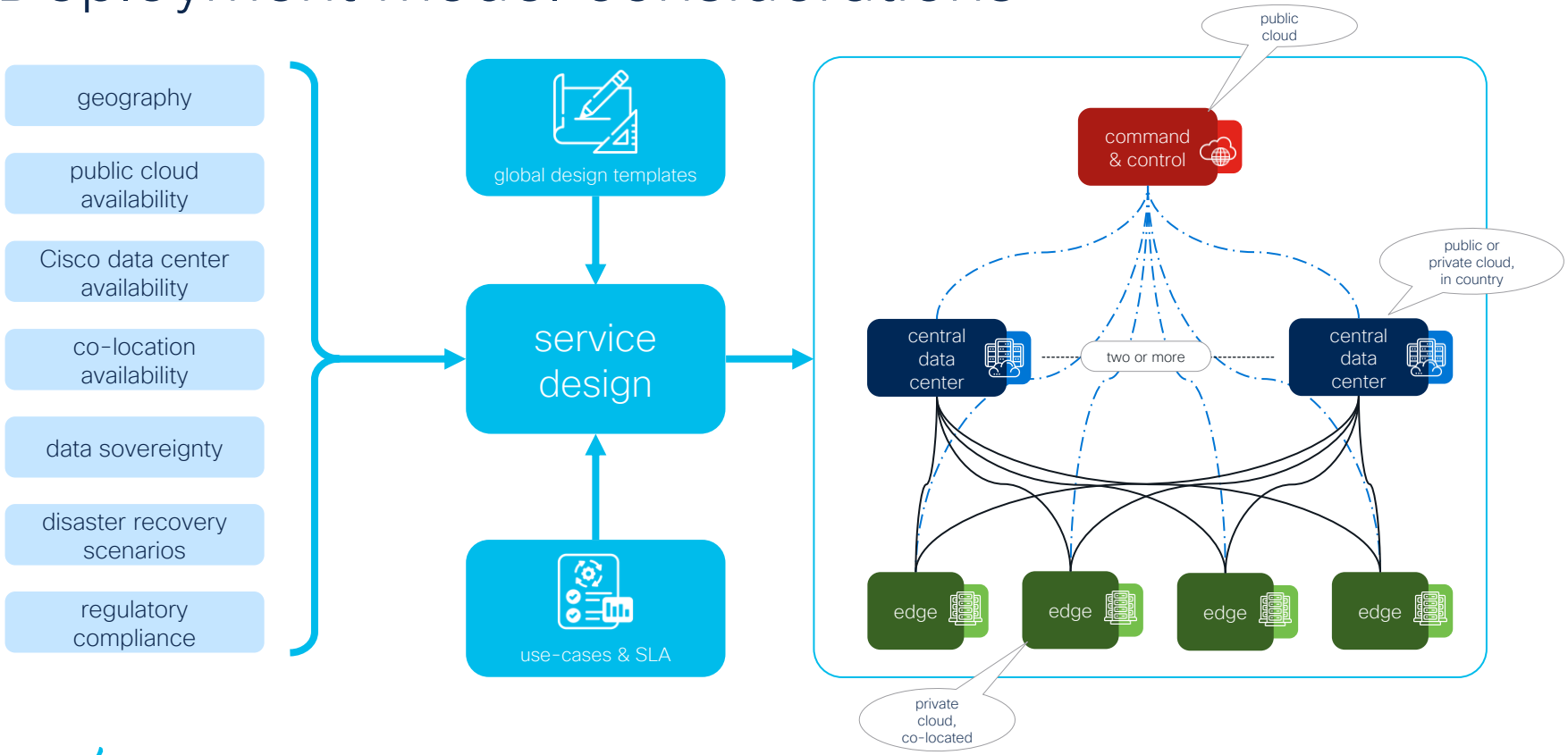
Service Definition,
Marketing

Legal &
Regulatory

Deployment Model

"5G as a Service" does not imply everything runs in a public cloud

Deployment model considerations



Deployment models

	Physical location ownership	Equipment ownership	Infrastructure operation	Service operation	End user service ownership
On-prem	Mobile operator	Mobile operator	Mobile operator	Mobile operator	Mobile operator
Private cloud	Third-party or customer co-located	Cisco	Cisco	Cisco	Mobile operator
Public cloud	Hyper scaler*	Hyper scaler*	Hyper scaler*	Cisco	Mobile operator

Initial focus

supported deployment models

* hyper scaler services contracted by Cisco

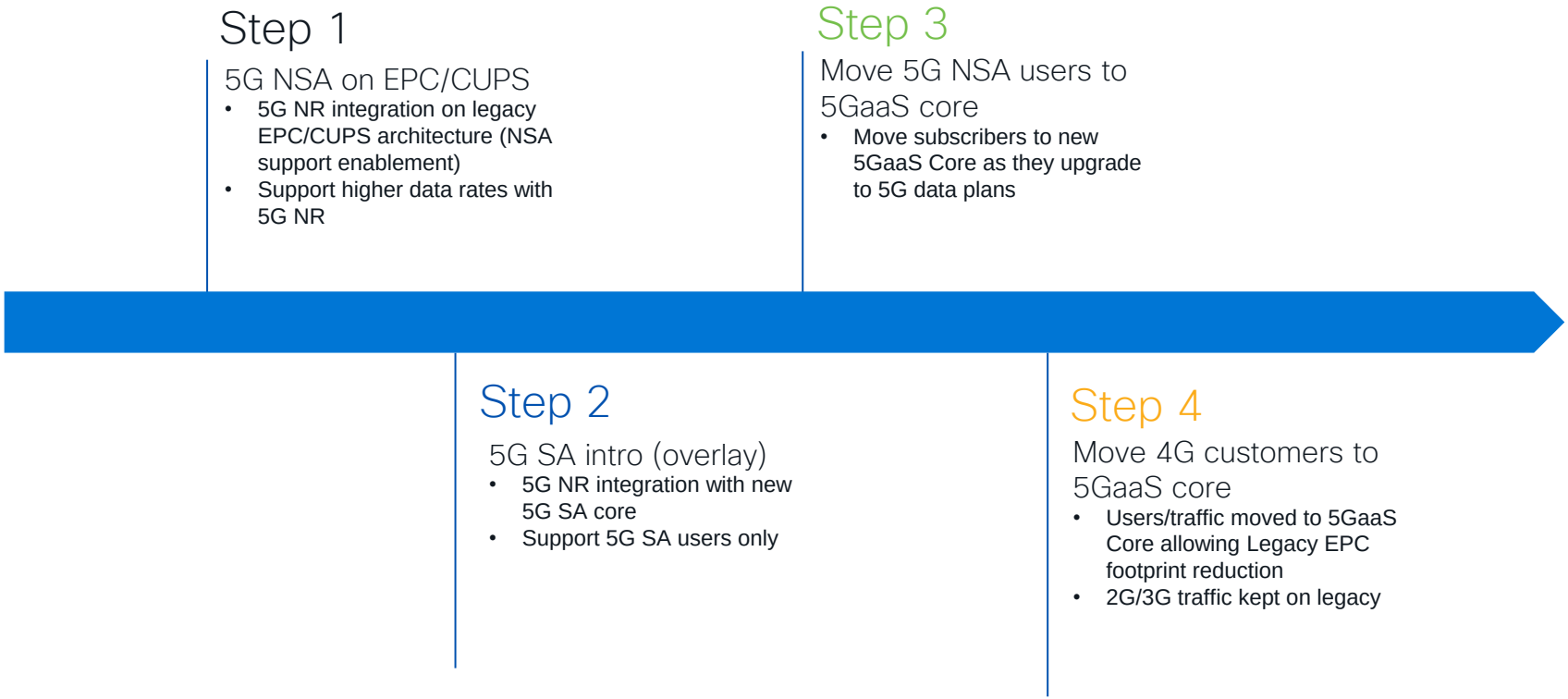
Deployment models in “as a service” are about infrastructure ownership, **not** about network function placement

5G SA Core Insertion

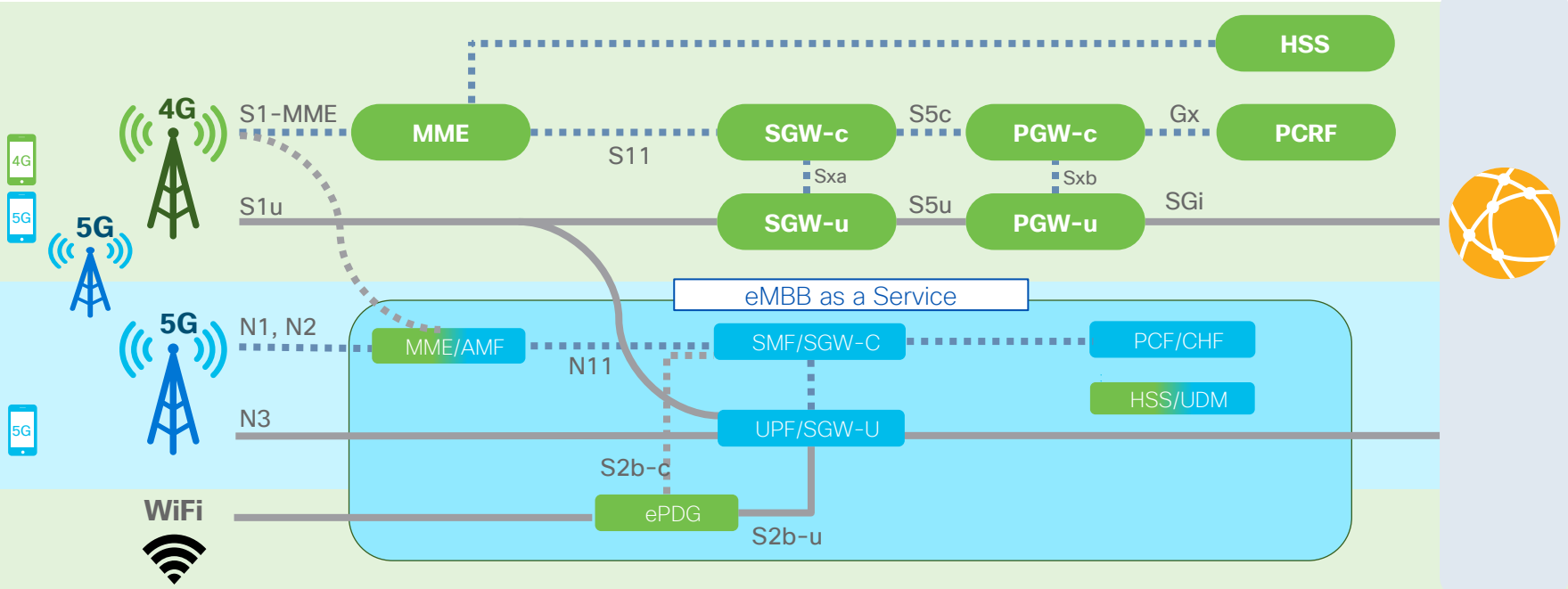
cisco Live!

Join the Slido poll @ slido.com #1756183

5GaaS Stepped Insertion



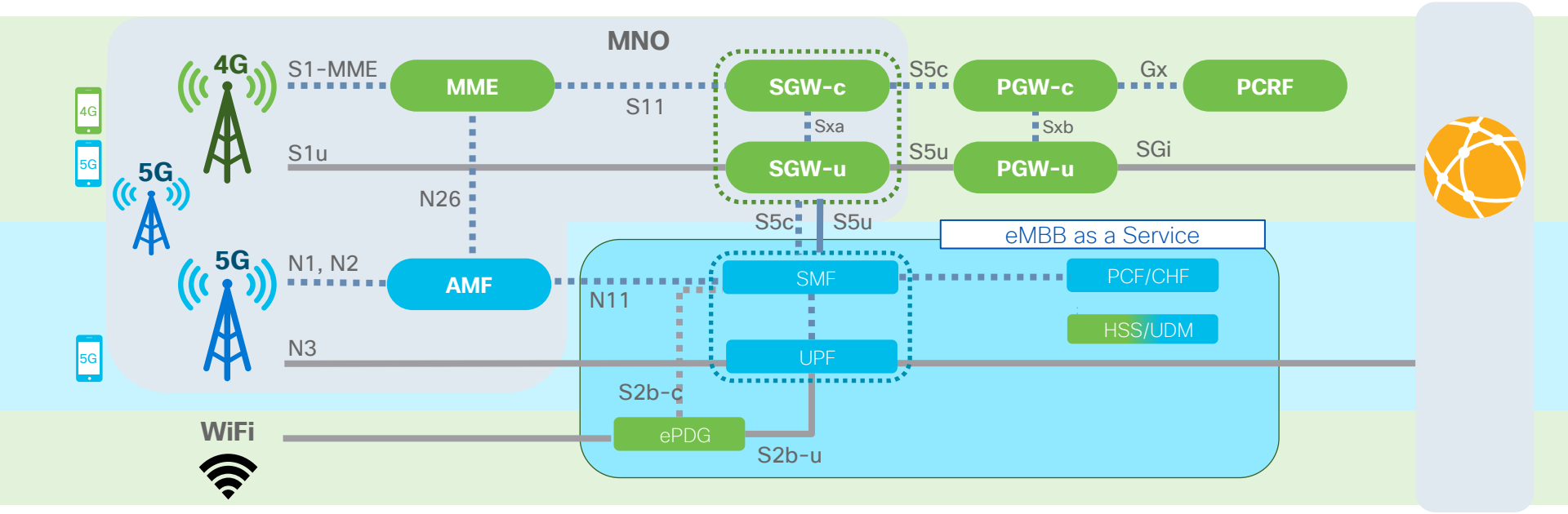
Target Architecture – Full MNO Example



Mobility Management (MME/AMF) and SDM layers are optional in aaS model and can be provided

Target Architecture – MVNO Example

Mobility Management provided by MNO



SDM layers is optional in aaS model and can be provided

User Experience Summary

Subscriber Type	Anchor	SDM layer	Session Continuity	Re-anchoring
4G only	vPC/CUPS	Legacy HLR/HSS	2G/3G/4G	No
4G only	5GaaS	UDM	No	Yes for 2G/3G
5G NSA	vPC/CUPS	Legacy HLR/HSS	2G/3G/4G/5G	No
5G NSA	5GaaS	UDM	4G/5G	Yes for 2G/3G
5G SA	5GaaS	UDM	4G/5G	Yes for 2G/3G

- Subscribers can be gradually migrated to 5GaaS Core
  - vCP/CUPS vs 5GaaS Anchor selected based on combination of device capabilities and subscription data / APN configuration
- No 2G/3G session continuity on 5GaaS Core

Wrap-up & call to action

- 5G SA adoption has been slow because of complexity and challenging business case
- Cisco's strategy is to speed up 5G SA adoption by eliminating complexity and addressing the business case challenges by offering its 5G SA portfolio 'as a service'
- **Call to action**: envision a future where you work towards outcomes using services rather than re-inventing architecture wheels

Want to know more? Contact me @ dperezgi@cisco.com or see me here at Cisco Live!

Complete your Session Survey

- Please complete your session survey after each session. Your feedback is very important.
- Complete a minimum of 4 session surveys and the Overall Conference survey (open from Thursday) to receive your Cisco Live t-shirt.

- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Session Catalog and clicking the "Attendee Dashboard" at https://www.ciscolive.com/emea/learn/sessions/session-catalog.html

Continue Your Education

Visit the Cisco Showcase for related demos (e.g. Public & Private IoT Demo).

Book your one-on-one Meet the Engineer meeting.

Attend any of the related Breakout sessions

Visit the On-Demand Library for more sessions at ciscolive.com/on-demand.


cisco
The bridge to possible
Thank you
cisco Live!


CISCO Live!
ALL IN