Accelerating 5G Success: Unleashing the Benefits of a Converged Core Network

Cisco Knowledge Network

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Today's Presenters

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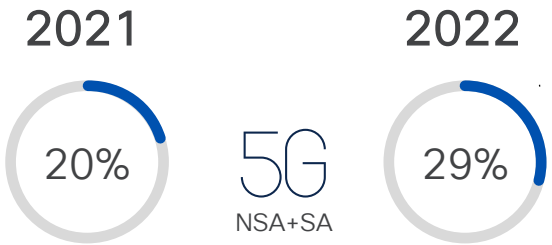
Benefits of 5G SA for Service Providers

How do Communication Service Providers *monetize* 5G?

5G Commercialization

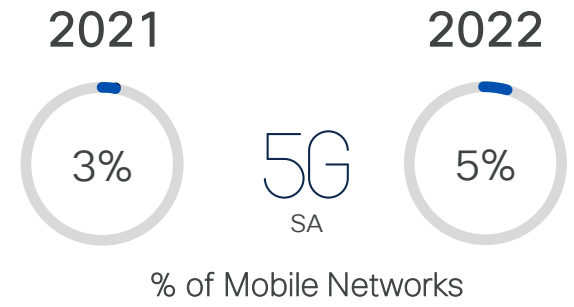


% of Mobile Networks

twenty-nine percent

Sources: GSMA Intelligence, December 2021, 5G Data provided by TeleGeography & 5G Americas as of 01/16/2023. 5G SA Data from Counterpoint Research 5G SA Core Tracker, January 2023. Total Worldwide MNO data from GSMAi, February 2023.

5G SA Commercialization



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5G SA Market for Service Providers

- Lacking convincing business justification
  - Both for operators and vendors
  - Flat or declining ARPU environment
- Technology complexity
  - Server based architecture
  - Control and user plane separation
  - Micro-service container-based infrastructure
- Legacy, Parity and Continuity
  - “Feature Parity” *in perpetuity*
  - What to do with 2G and 3G devices?

Cisco’s strategy is to accelerate adoption of 5G SA by *overcoming* adoption hurdles

Cisco in the Service Provider Mobility Market

- More than 1.2B connections on Cisco Packet Cores globally
- 100M users on TMO core
  - Announced in Dec 2022
- On Prem Customers
  - 30+ 5G SA/NSA Converged Core
  - 350+ Other/Legacy Platforms
- Converged Packet Core Migration:
  - Moved from Appliance based platforms to Server based
  - Separated Control and User Planes
  - Developed Cloud Native Control Plane
- Macro 5GaaS in Development

Cisco 5G Go to Market Models

Traditional On Prem Deployments

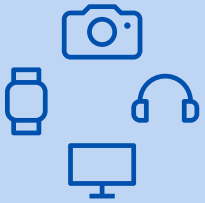
VPC / CUPS
5G NSA

4G/5G SA Cloud Core
eMBB, FWA

New 5GaaS Cloud Delivered

4G/5G SA Cloud Core
eMBB, FWA

4G/5G SA Cloud Core
Private



4G/5G SA Cloud Core
IoT

One Converged Platform, Multiple Offers

On Prem+

- Network operation and automation at scale
- Converged Core 4G, 5G NSA/SA
- Cloud Native control plane
- High Performance UPF
- Network Slicing and MEC

Private 5G

- Control Center + Converged Core
- aaS consumption & economics
- 5G, CBRS, 4G support
- Common identity across 5G & WiFi
- Private + Macro handoff

Macro 5GaaS

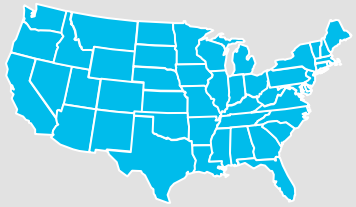
- Pre-integrated, E2E solution
- eMBB and FWA initial service offerings
- Comprehensive service insights and KPIs
- Hybrid deployment model

Mobile IoT

- 5G IoT aaS consumption & economics
- Leader in 5G Connected Car
- Zero Touch Deployment & ML

5G Network at Scale

First and Fastest
4G/5G Core



Nationwide

Users

100 Tbps
Capacity

Fully Automated
60% Time Saved

50+ locations

Enabling Multiple
Use Cases

Cloud Native
Control Plane

50% Reduction
In Power

20% Reduction
In CPU Cores

Converged Core – Key Principles

Cloud Native Platform

Common platform supporting both containerized deployment as well as VM's on KVM

Light weight K8s artifacts optimized for 5G NF's

Control Plane

Geo-redundant deployment

Combo 4G/5G gateway supporting both 5G & legacy UE's

Multiple use case support on same deployment

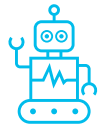
User Plane

High performing UPF's catering multiple use cases like consumer, IOT and FWA

Multiple redundancy modes supported; 1:1 and N:M

Policy

Large, K8s deployments serving IMS calls for both 4G and 5G UE's



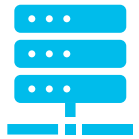
Automation & Monitoring

E2E automation of the entire cisco stack, including both platform setup and NF instantiation

Integrated CI/CD pipeline

Continuous network monitoring and KPI reporting

Cisco’s Value Proposition – Benefits



Use of single platform across all NFs results in fewer platform related failures.

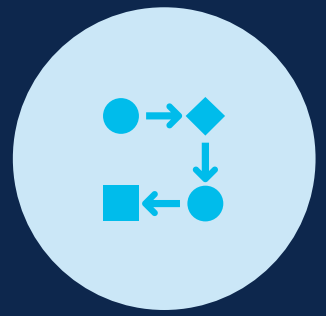
Standardized install / upgrade workflow for all 5G applications

Centralized monitoring for both platform and application

Faster launch of new services with in-service upgrades

Enhanced performance resulting in hardware footprint reduction

Lessons Learned are Building Blocks



STANDARDIZE DAY-0 BRING UP

BREAKOUT USE CASES INTO DEDICATED INSTANCES

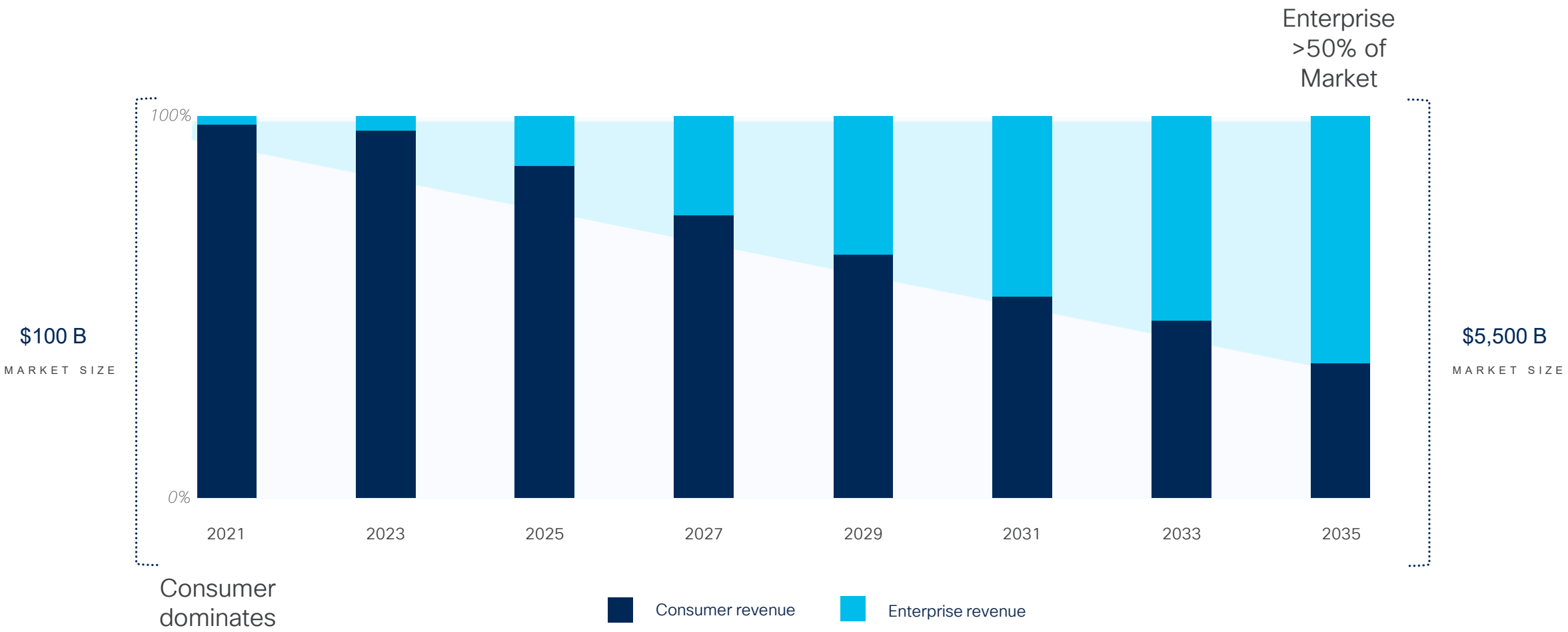
AUTOMATE UPGRADE FLOW

STANDARDIZE MONITORING

Our experience with the 5G Converged Core is what makes the move to 5GaaS possible

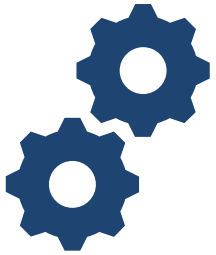
5G Opportunity – Enterprise

Enterprise & Industry are Key for 5G Monetization



Source: ABI Research

What if...



5G core benefits without all the complexity

Solutions proven at massive scale, delivered from a trusted partner

Most popular enterprise solutions pre-integrated, helping drive top line growth

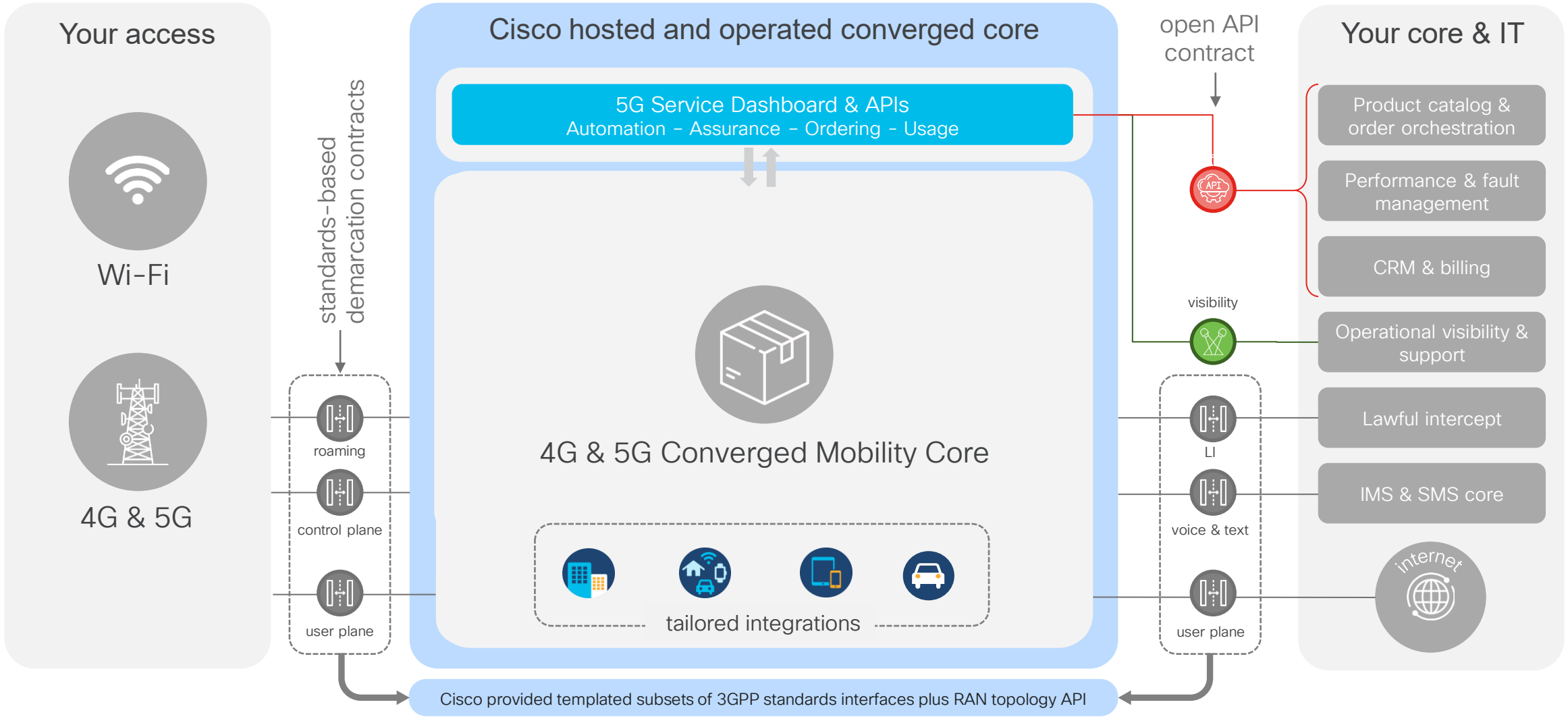
Cisco Macro 5G as a Service

- A pre-integrated 4G and 5G (N)SA mobility core system which is delivered as a service through well-defined external interfaces and APIs.
  - Initially targeted to Enterprise offers in the Macro network

- The metered, pay-as-you-grow service is built and operated by Cisco using technology and knowhow proven at production scale.

A fully functional, pre-integrated, easily consumable service ready to support end-customer product offers.

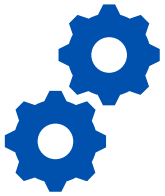
Cisco's Macro 5G as a Service



Key Benefits

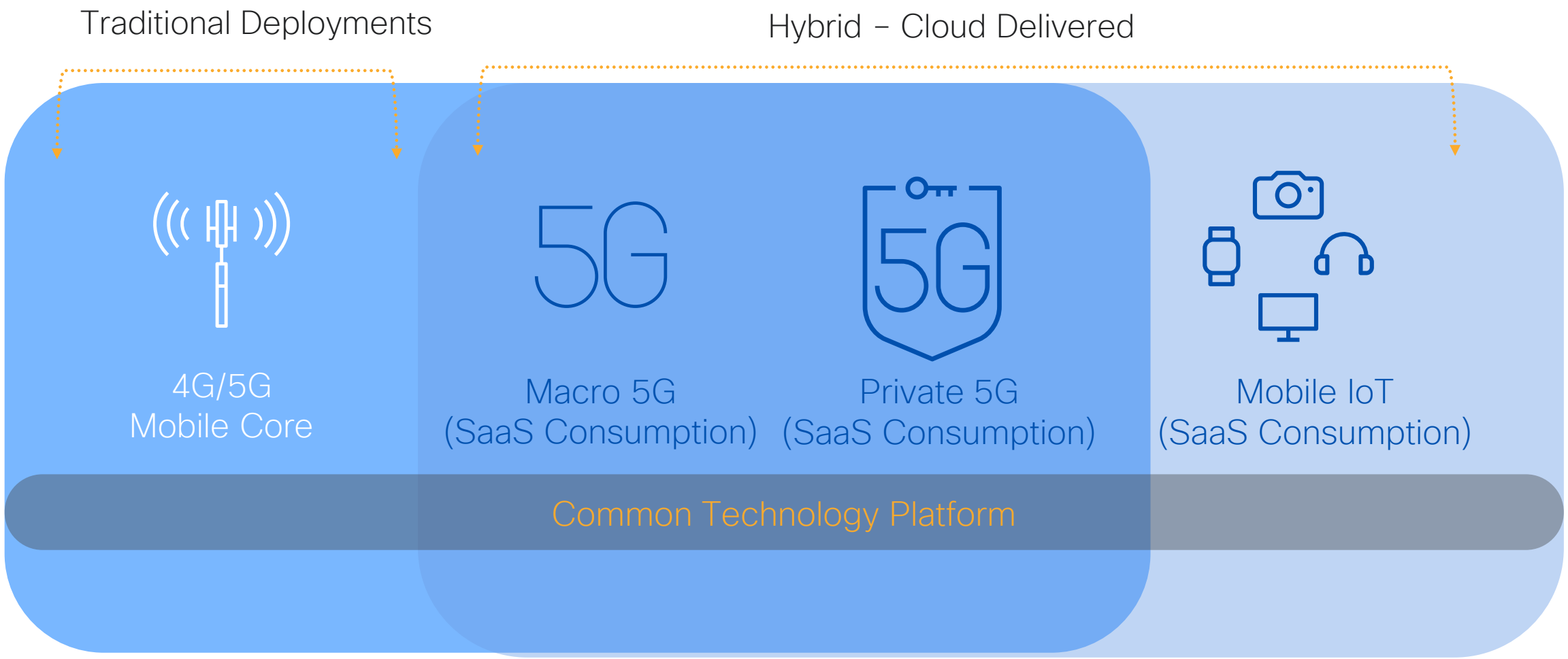
- Faster Time to Market / Value
  - Flexible service creation & rapid prototyping
  - Native integration with Service Provider's service catalogues / marketplaces via standard APIs

- Improved Profitability at Lower Risk
  - Subscription-based commercial model
  - Offloaded ownership and operation of infrastructure

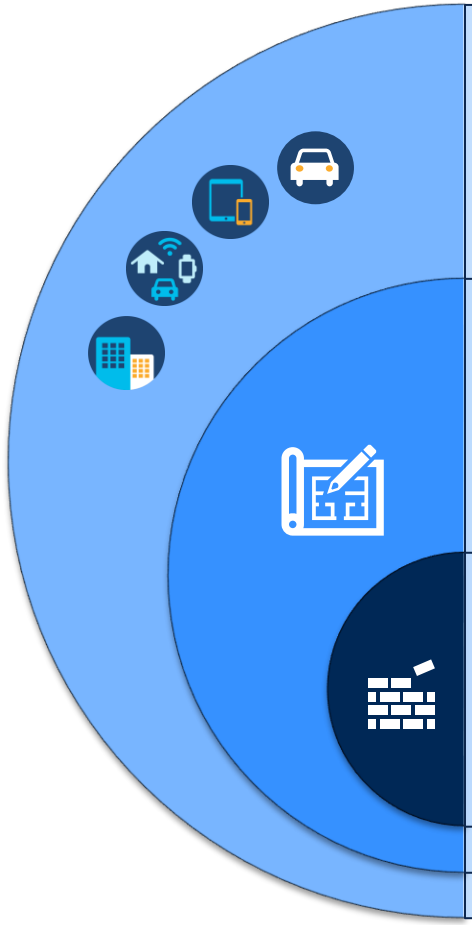


- Best-in-class Service Provider and Enterprise solution components
  - 4G/5G converged Core backed by Control Center – proven at scale
  - Integrations enabling common Enterprise identity, policy, security across access technologies via Cisco Identity Services Engine, Umbrella, Talos, etc.

Mobility Portfolio Evolution



Simplicity Speed-to-Market Scale

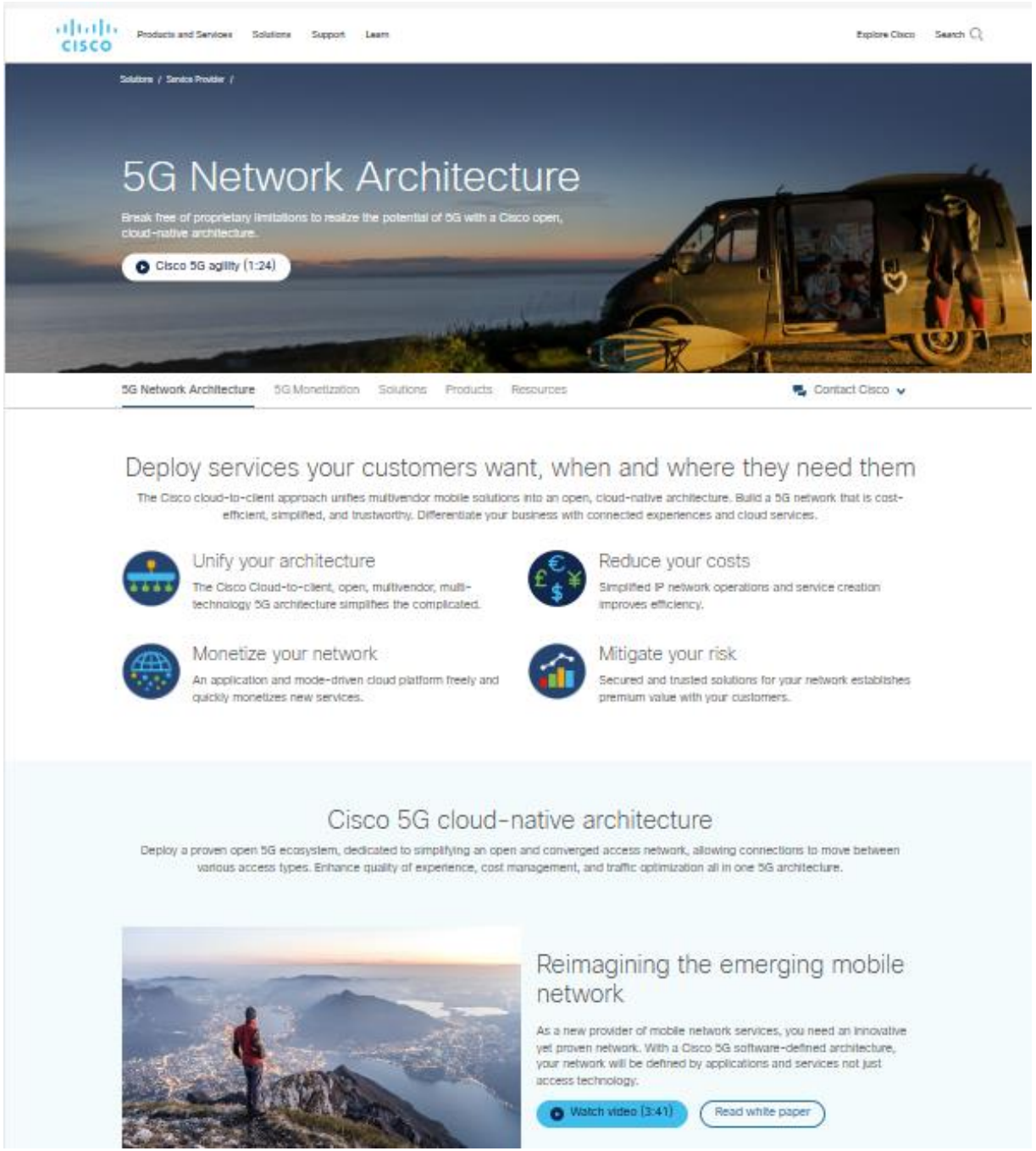


Service Outcomes	• Open APIs • Simplified onboarding • Service order management • Enterprise solutions	100% Cisco delivered and operated	Cloud-first, rapid prototyping	Open APIs
Management and Control	• Network, service and device lifecycle management • Service definition, charging and provisioning • Service operations	50+ Service Providers	200M+ Devices	100% Cloud- based, cloud delivered
Network Foundations	• 4G, 5G (N)SA packet core • Mobility, session and policy management • Cloud infrastructure	100M+ Devices	>100Tbps Capacity	100K+ Containers over 50+ distributed clouds

Full-stack solution, pre-integrated and validated

For more information visit:

cisco.com/go/5G



Questions?

The bridge to possible