MWC
GSMA

BARCELONA
26 – 29 FEBRUARY 2024
FIRA GRAN VIA

5G Futures Summit

Wednesday 28 February 2024

09:30 - 13:00 CET

Hall 6, Stage C

#MWC24

Platinum Sponsors:

CISCO

HUAWEI

Gold Sponsors:

Qualcomm

Whale Cloud

Welcome
5G Futures Summit, Session 3 agenda

TIME	SESSION
12:10 - 12:20	**Keynote** from Cisco
12:20 - 12:35	**Speech on IPCEI CIS** from TIM, Telefonica, Deutsche Telekom
12:35 - 13:00	**Panel discussion** with Cisco, Deutsche Telekom, Telefonica and TIM

Moderator
Mark Cornall
Technical Director
GSMA

Meet our speakers

Bob Everson
Senior Director,
Provider Mobility
Cisco

Lara Grohe
Project Management
IPCEI CIS
Deutsche Telekom

Juan Carlos Garcia
SVP Technology
Innovation and Ecosystem
Telefonica

Andrea Calvi
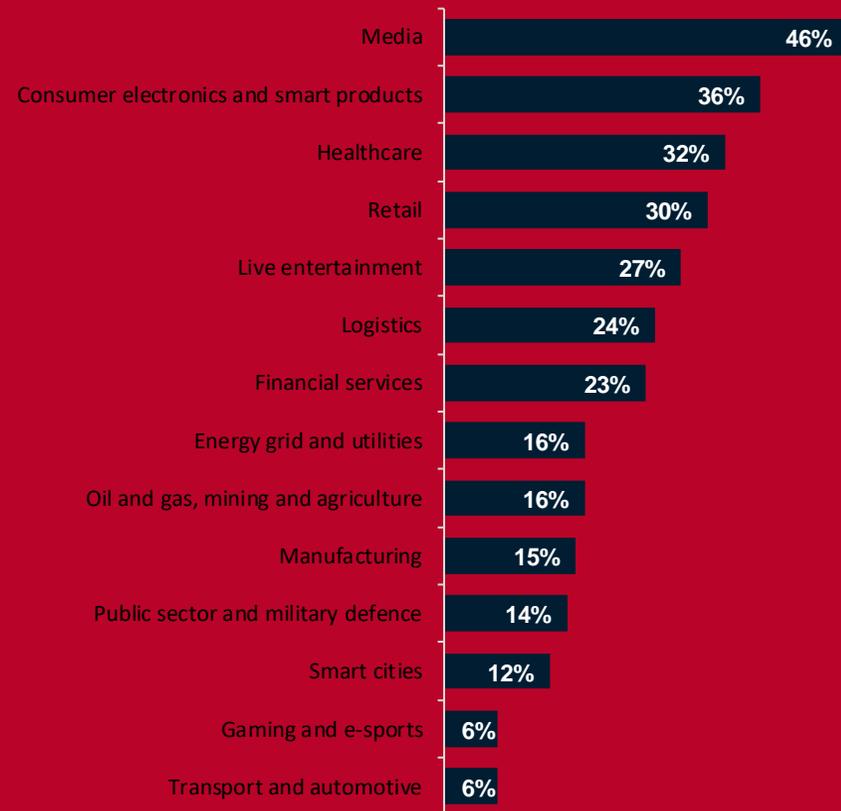Head of Technology
Innovation
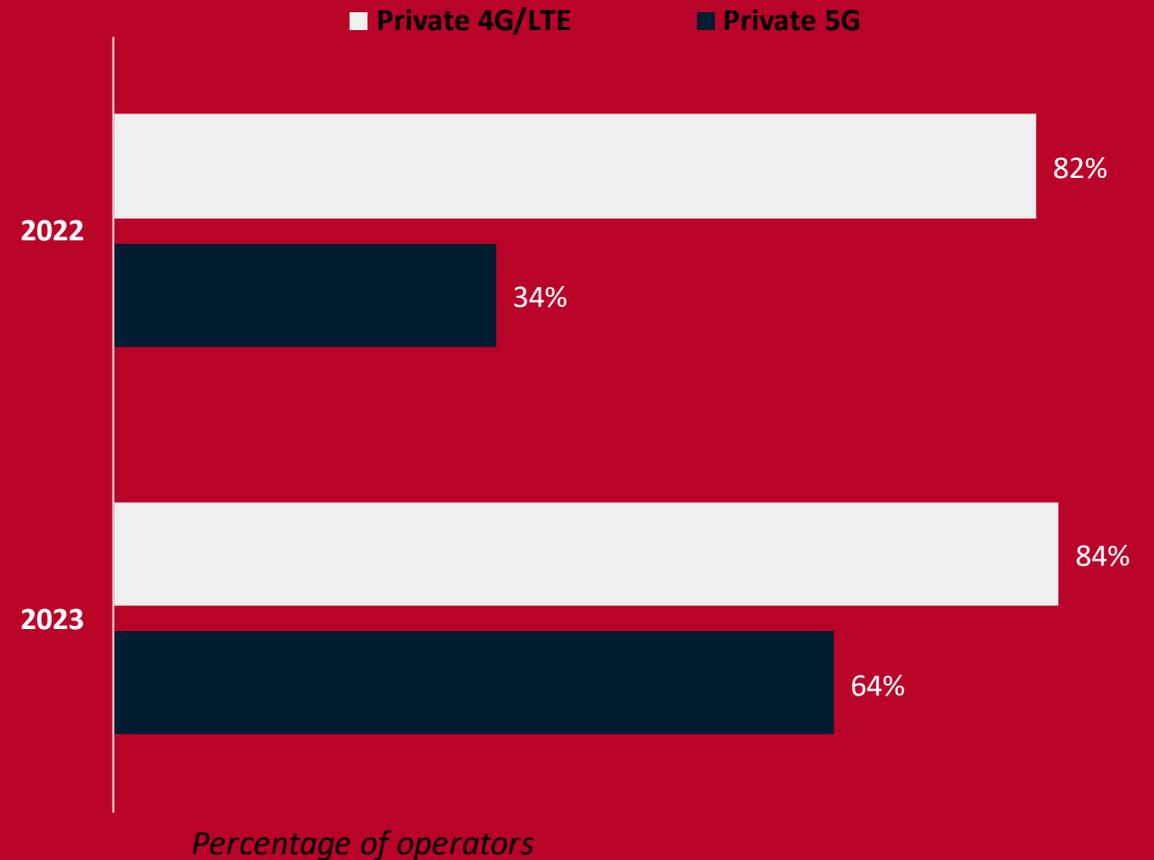**TIM**

Edge and Private 5G Networks
Market update

Mark Cornall
Technical Director
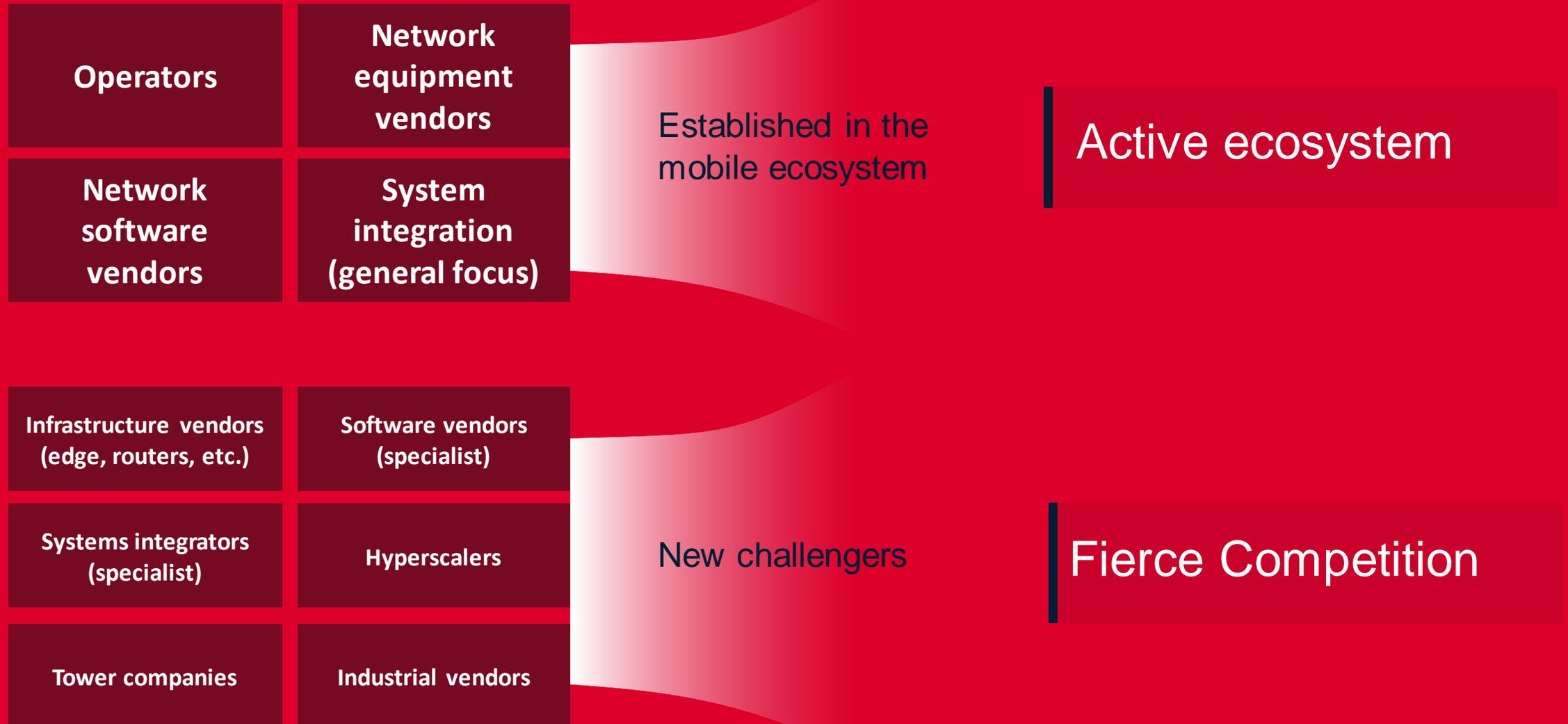GSMA

Private Networks leading the way
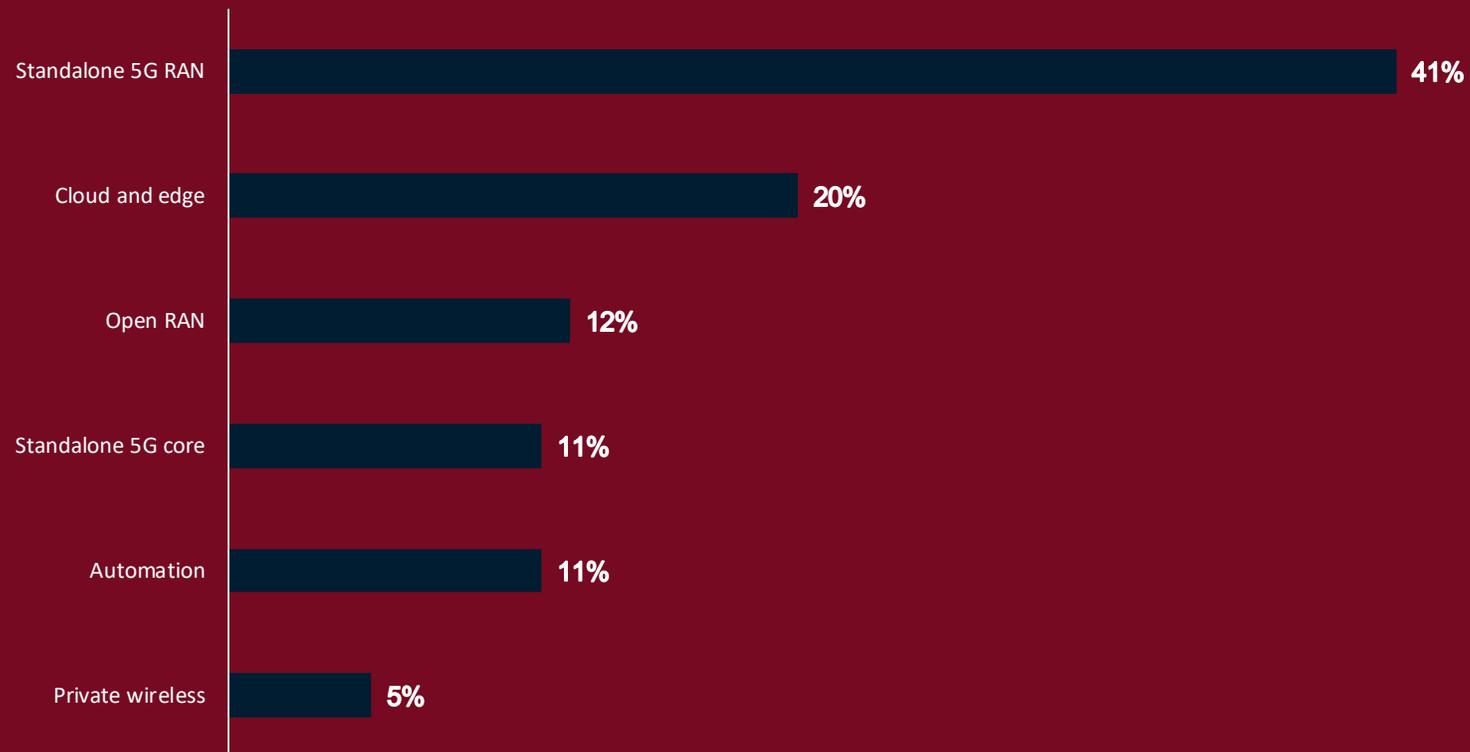
Vertical demand for private wireless networks

Private 5G

Media	46%
Consumer electronics and smart products	36%
Healthcare	32%
Retail	30%
Live entertainment	27%
Logistics	24%
Financial services	23%
Energy grid and utilities	16%
Oil and gas, mining and agriculture	16%
Manufacturing	15%
Public sector and military defence	14%
Smart cities	12%
Gaming and e-sports	6%
Transport and automotive	6%

Already launched or testing private 4G/LTE or private 5G

Private 4G/LTE   Private 5G

2022
- Private 4G/LTE: 82%
- Private 5G: 34%

2023
- Private 4G/LTE: 84%
- Private 5G: 64%

Percentage of operators

Source: GSMA Intelligence

GSMA

Private Networks growing ecosystem

Operators	**Network equipment vendors**
Network software vendors	**System integration (general focus)**

Established in the mobile ecosystem

Infrastructure vendors (edge, routers, etc.)	**Software vendors (specialist)**
Systems integrators (specialist)	**Hyperscalers**
Tower companies	**Industrial vendors**

New challengers

Active ecosystem

Fierce Competition

GSMA

Edge computing and cloud is set for impressive growth

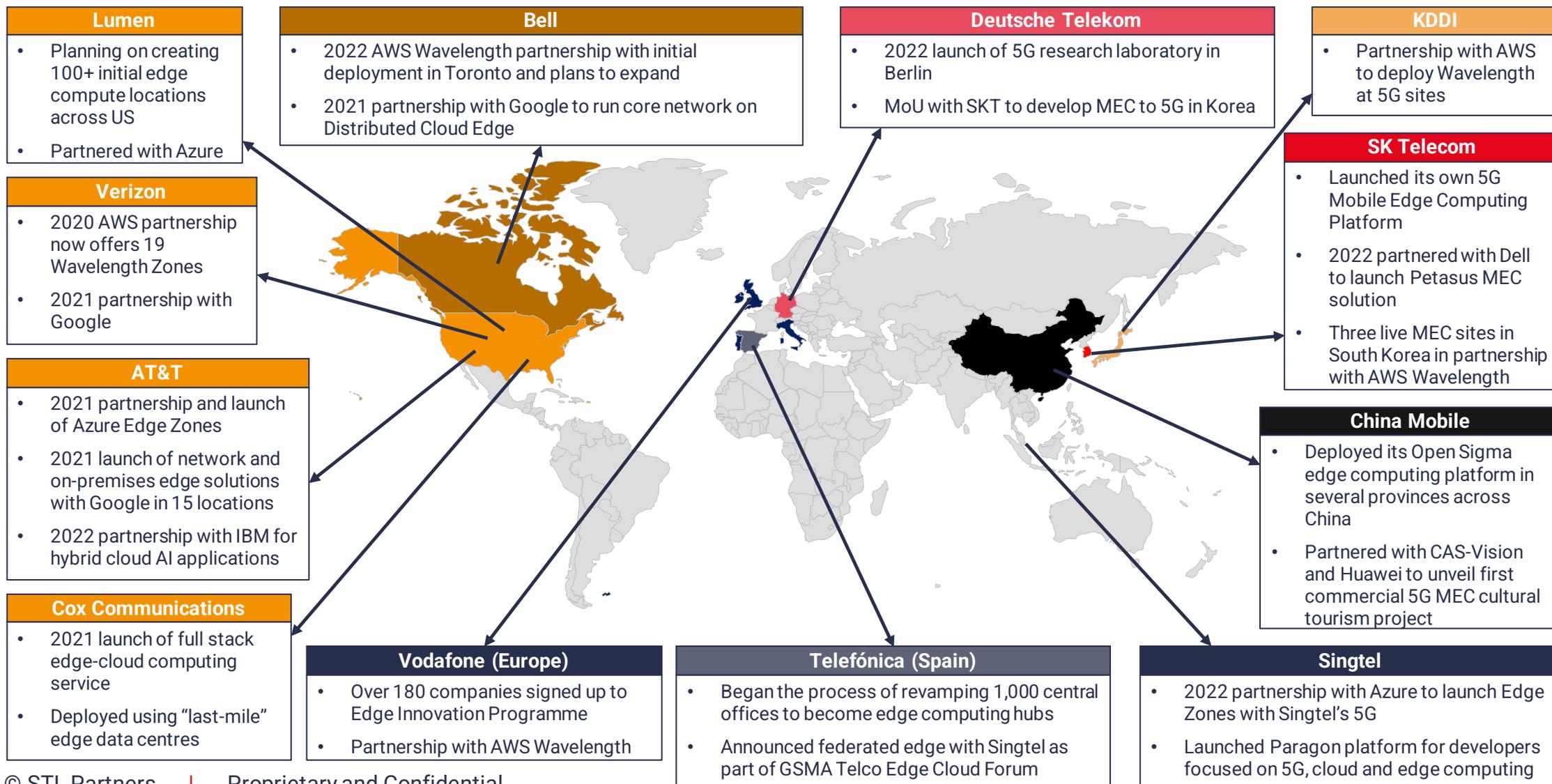| Category	Percentage
Standalone 5G RAN	41%
Cloud and edge	20%
Open RAN	12%
Standalone 5G core	11%
Automation	11%
Private wireless	5%

Source: GSMA Intelligence

$90bn.

potential spend on cloud and edge in the US/Europe alone over the next two years

GSMA

But it has been a long time coming

Lumen
- Planning on creating 100+ initial edge compute locations across US
- Partnered with Azure

Bell
- 2022 AWS Wavelength partnership with initial deployment in Toronto and plans to expand
- 2021 partnership with Google to run core network on Distributed Cloud Edge

Deutsche Telekom
- 2022 launch of 5G research laboratory in Berlin
- MoU with SKT to develop MEC to 5G in Korea

KDDI
- Partnership with AWS to deploy Wavelength at 5G sites

SK Telecom
- Launched its own 5G Mobile Edge Computing Platform
- 2022 partnered with Dell to launch Petasus MEC solution
- Three live MEC sites in South Korea in partnership with AWS Wavelength

Verizon
- 2020 AWS partnership now offers 19 Wavelength Zones
- 2021 partnership with Google

AT&T
- 2021 partnership and launch of Azure Edge Zones
- 2021 launch of network and on-premises edge solutions with Google in 15 locations
- 2022 partnership with IBM for hybrid cloud AI applications

China Mobile
- Deployed its Open Sigma edge computing platform in several provinces across China
- Partnered with CAS-Vision and Huawei to unveil first commercial 5G MEC cultural tourism project

Cox Communications
- 2021 launch of full stack edge-cloud computing service
- Deployed using "last-mile" edge data centres

Vodafone (Europe)
- Over 180 companies signed up to Edge Innovation Programme
- Partnership with AWS Wavelength

Telefónica (Spain)
- Began the process of revamping 1,000 central offices to become edge computing hubs
- Announced federated edge with Singtel as part of GSMA Telco Edge Cloud Forum

Singtel
- 2022 partnership with Azure to launch Edge Zones with Singtel's 5G
- Launched Paragon platform for developers focused on 5G, cloud and edge computing

Telco Edge ecosystem

GSMA
Operator Platform
Telco Edge Cloud
Open Gateway

Standards

Industry

Open Source

ETSI
MEC, NFV, ZSM

3GPP
A GLOBAL INITIATIVE
SA6 Edge

CAMARA
THE TELCO GLOBAL API ALLIANCE

THE LINUX FOUNDATION + Sylva + AKRAINO EDGE STACK

Open Infrastructure FOUNDATION + STARLINGX

Open Nebula

In the last 4-5 years a proper environment for the development of Telco Edge Computing has emerged

GSMA

Redefining Enterprise Services: Anytime, Anywhere

Bob Everson, Senior Director, Provider Mobility, Cisco Networking

February 28, 2024
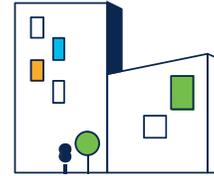
What does the enterprise want?
Digital Transformation

simple, secure, and ubiquitous.

New era, new requirements

connecting people, places, and things

Enterprise orientation **required**

1 Leveraging what has been done in the past, to take you into the future
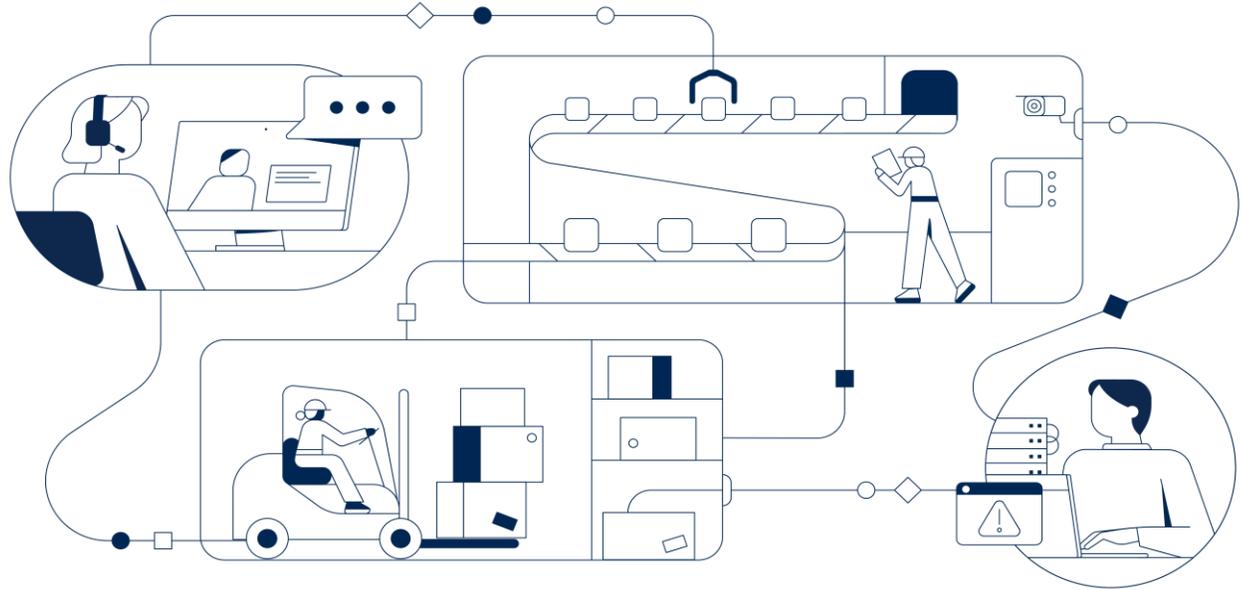
2 Clearing the path for enterprise and industry to seamlessly integrate technologies with a future-forward ecosystem

3 Secure and reliable; bringing carrier grade services to enterprise applications
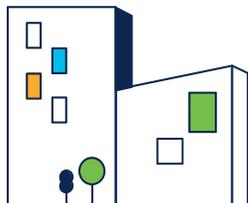
Enterprise **lessons learned**

Ecosystem Harmony

- Everything working together
- Trusted partnerships
- Open innovation
- APIs

Common Platform

- Simplify the complex
- Common identity and policy
- Maintain network hygiene
- Access agnostic mobility

Observability & Control

- Turn insight into action
- Enterprise remains in the driver seat
- Manage new challenges their way

Digital transformation
success is intimately tied to simplicity

Make it easy

and get all the customers who can see the value to their business

Keep it difficult

and search for the few customers that must have it
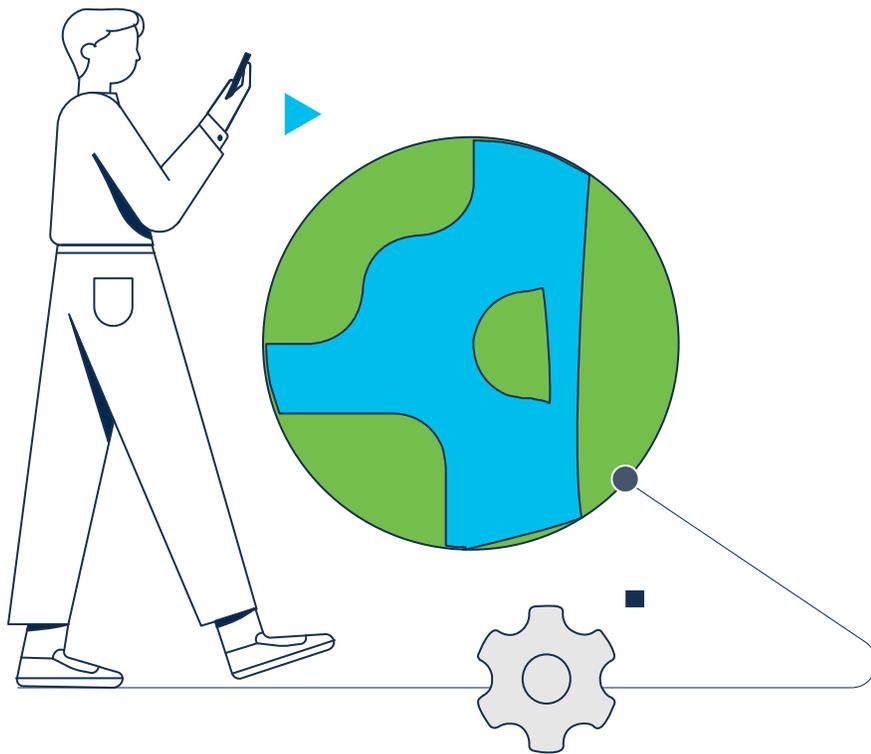
Delighting
the customer

- Connect needs to technology and applications
- Benefit the bottom line
- It's time for the Internet of useful things

CISCO

The bridge to possible

Telco Edge is becoming a reality with private and public initiatives

Asia-Pacific

Bridge Alliance, composed of more than 20 operators in the region, launched the **Federated Edge Hub** in 2023, after an initial phase testing edge use cases and edge federation mechanisms

European Union

EU **Public Policy** actions
- Digital Decade
- Data Strategy
- Green Deal
- 2030 Digital Compass
- Edge Observatory

Targets 2030
10.000 Edge nodes
75% SMEs on cloud, data, AI

Creation of some supporting **bodies**

IPCEI-CIS* project to develop the next generation Cloud Infrastructure and Services (launch dec 2023)

Edge Federation @IPCEI-CIS

Europe is making strong efforts to gain relevance in Edge and Cloud

The IPCEI-CIS initiative integrates different projects with more than 100 partners from 12 EU member states

In this framework, DT, TEF and TIM have launched 3 coordinated projects to deliver an open multi-provider Telco Edge

Telco Edge approach

Mobility embedded

Open, Interoperable

Federated, multiprovider

Secure

Sustainable

| Workstream 1 Cloud-Edge Continuum Infrastructure	Workstream 2 Cloud-Edge Capabilities	Workstream 3 Advanced smart data processing tools and services	Workstream 4 Advanced Applications
Deutsche Telekom	Atos	4iG	Siemens
Telefónica España	Orange	E-Group ICT Software	Fincantieri
	SAP	Tiscali Italia	Engineering Ingegneria Informatica
	Reply	CloudFerro	
	TIM		
	Oktawave		
	Atende Industries		
	OpenNebula Systems		
	Arsys Internet		
	Leaseweb Global		

The IPCEI CIS Project
(Next Gen Cloud Infrastructure and Services)

IPCEIs are large projects of **European interest** for which the EC authorizes Member States to **provide state aid in support of private investments for research development**, innovation and Pre-Industrialization.

It delivers **breakthrough innovations** to enable an industrial production of new technologies and products.

Innovative Cloud and Edge continuum from Data centers to far edge locations to enable the most critical services of the future

Real time critical services

Non-critical services
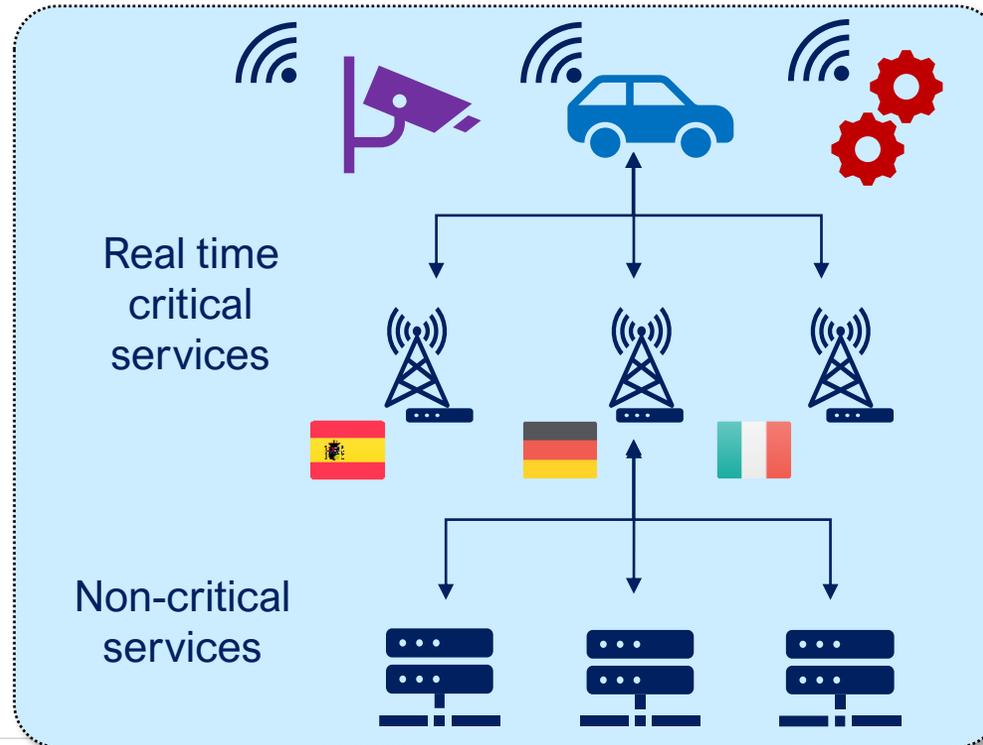
...with major European benefits

- ✓ Sovereignty for users
- ✓ Open continuum for customers and providers
- ✓ No vendor lock-in
- ✓ Highly secure
- ✓ Interoperable across borders and providers
- ✓ Key sustainability features

Quantum leap Innovation required !

The Telco Edge project inside the IPCEI-CIS

Telcos create an Edge platform **leveraging their existing infrastructure in Europe**.

**Open** to **Third Parties**, to **mobility**, to **developers**, and to **other cloud** platforms.
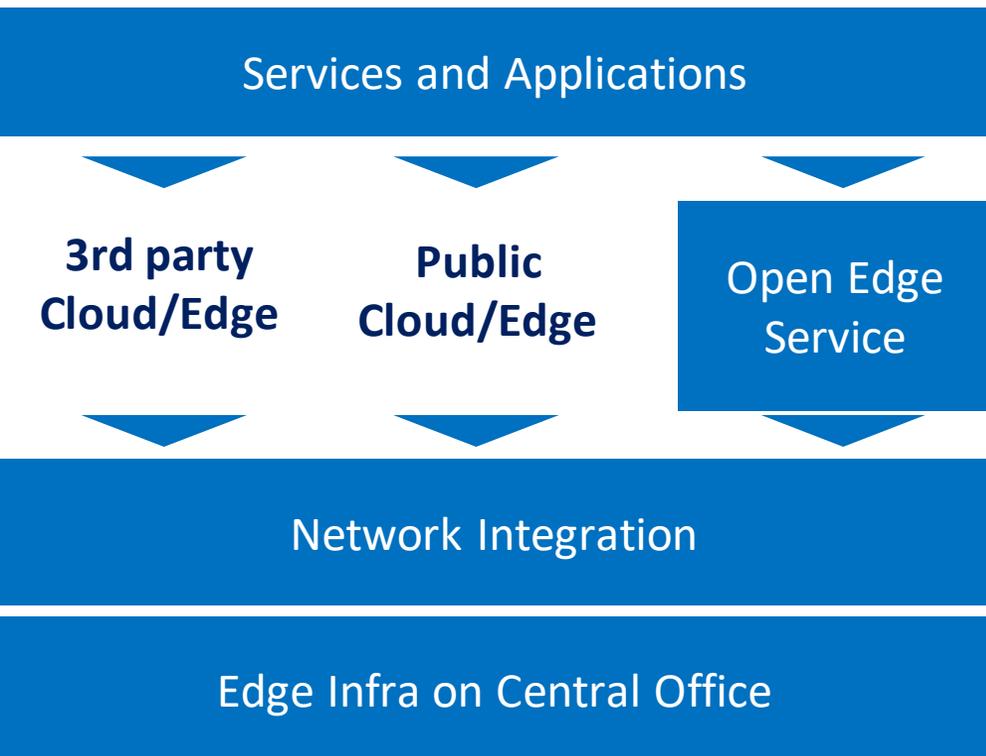
Services and Applications	**Use Cases** for different verticals, check value, fine-tune service
3rd party Cloud/Edge · **Public Cloud/Edge** · **Open Edge Service**	**Open platform technology** for smart resource and application life cycle management
Network Integration	Integrate **5G** and **FTTH** capabilities optimally with the edge.
Edge Infra on Central Office	**Technical capabilities** to efficiently scale Near and Far Edge Compute

Scope of Telco Edge project @IPCEI-CIS
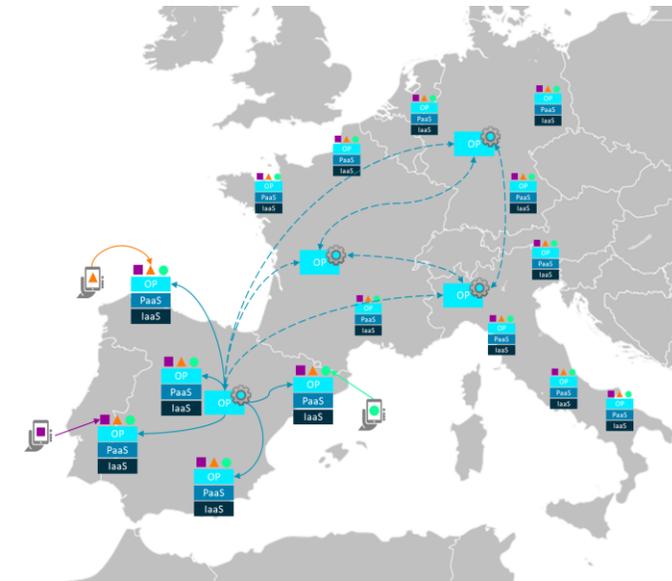
Each operator addresses the project layers with different level of intensity and type of contributions

|	**Telefónica**	**· · ·** (Deutsche Telekom)	**TIM**
Applications	Edge use cases in different verticals	Edge use cases in different verticals e.g. autonomous logistics as a Service or autonomous mobile devices	Edge use cases in urban mobility, cultural heritage and e-health verticals
Open Edge Service	R&D and deployment of innovative edge exposure, orchestration and federation	Orchestration & Federation Layer Edge developer framework	New Edge Cloud infrastructure in a federated and orchestrated environment
Network integration	Network Integration blueprints to improve quality and performance	Develop fully interoperable open solution (cross-border/-operator)	Edge Cloud integrated with capabilities exposed by Telco network
Edge infra	Near Edge infrastructure blueprints scalable, operable, sustainable, secure	Sustainable and secure near and far Edge Infra set in GER incl. scalable blueprints	Near Edge and Far Edge infrastructure blueprints

Intensity | lower | medium | higher |

Collaboration spans several topics

Applications	Design, develop, test, implement **Edge Service APIs** **Use cases** across the combined footprint **Service agreements**: business and regulatory aspects	
Open Edge Service	Design, implement open source **Edge Federation mechanisms** Design, implement other open source **Edge advanced features** Test, implement **Open Telco Cloud Stack**	
Network integration	Blueprints for **Network integration** (transport, core) **Interconnection and roaming** to optimize Edge experience	
Edge infra	Blueprints for green, secure, innovative **Near Edge infrastructure** (racking, power, cooling, hardware, security…)	
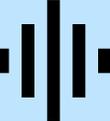
Use cases show the Telco Edge value

Telco Edge enables new use cases that bring opportunities to all stakeholders
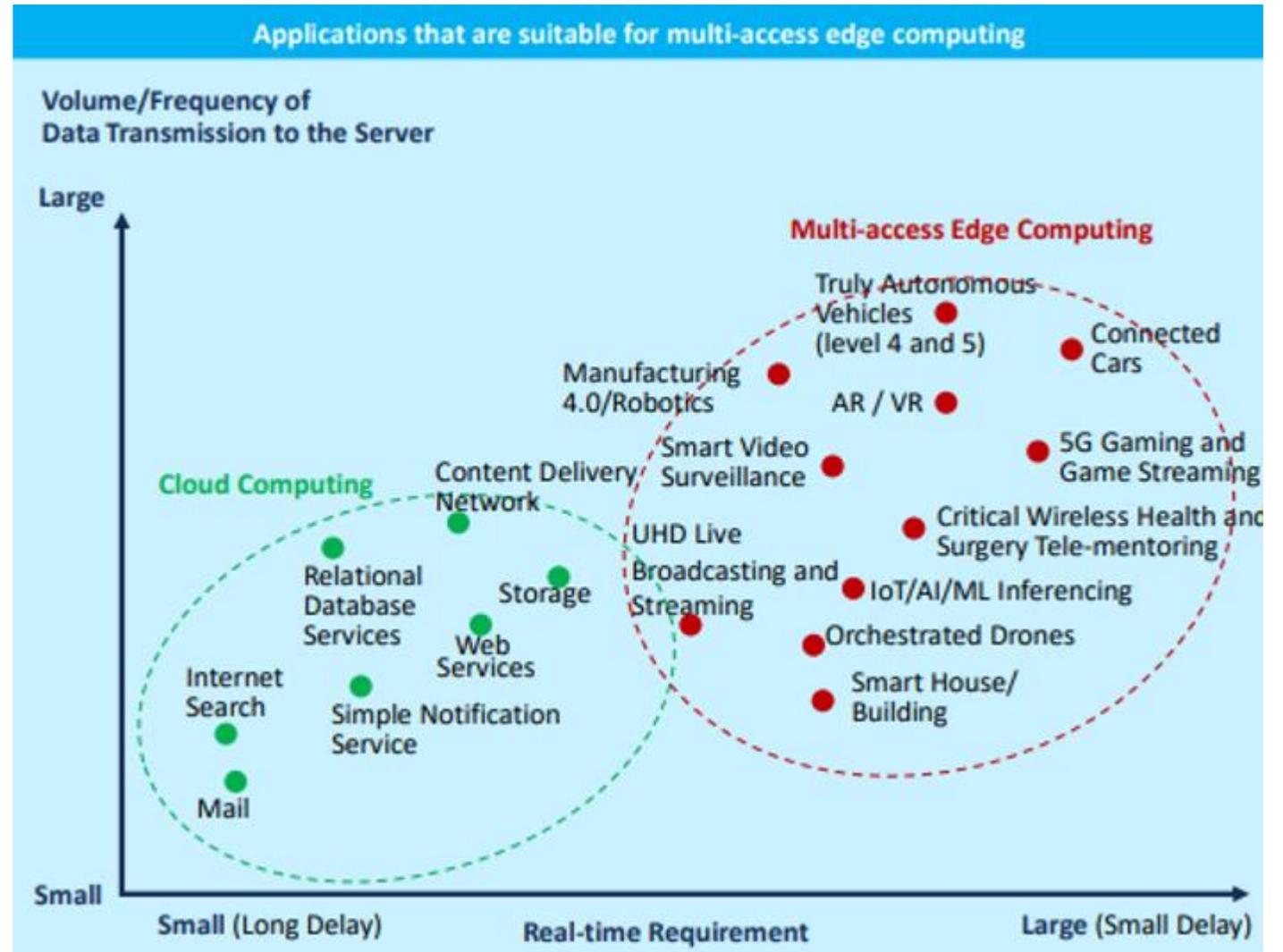
Source: Frost & Sullivan

Edge use cases bring new opportunities for all

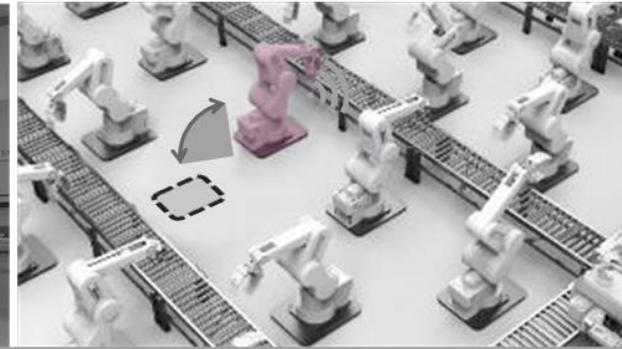**MACHINE TO X COMMUNICATION**
REAL TIME IOT
PREDICTIVE MAINTENANCE
BIG DATA ANALYTICS

TRACK & TRACE

FLEXIBLE CONTROL OF PRODUCTION LINES

REMOTE VIDEO PRODUCTION

CAMERA ANALYTICS & SURVEILLANCE

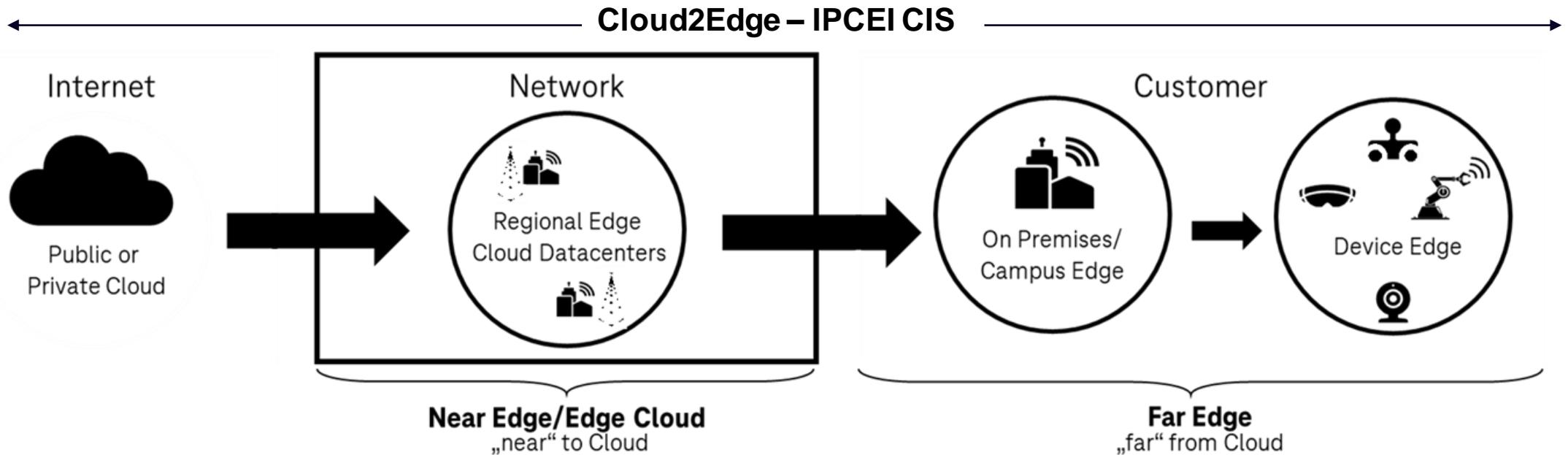**AUTOMATED GUIDED VEHICLES INDOOR & OUTDOOR**

CONTENT DOWNLOAD + UPLOAD

AUGMENTED REALITY FOR REPAIR, MAINTENANCE & OPERATIONS

MWC
GSMA
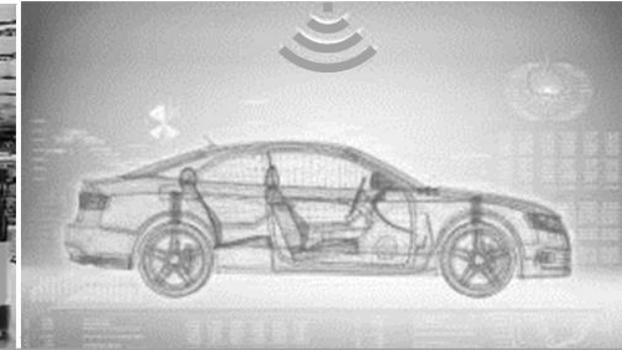
Cloud2Edge offering as an IPCEI CIS result

Interested? Something for you and your business?
Want to collaborate on future edge cloud? Contact us!

Lara Grohe, DT
GroheL@telekom.de

Cristina Santana, TEF
cristina.santanacasillas@telefonica.com

Roberto Procopio – TIM
roberto.procopio@telecomitalia.it

Panel discussion

Moderator
Mark Cornall
Technical Director
GSMA

Bob Everson
Senior Director,
Provider Mobility
Cisco

Lara Grohe
Project management
IPCEI CIS
Deutsche Telekom

Juan Carlos Garcia
SVP Technology
Innovation and
Ecosystem
Telefonica

Andrea Calvi
Head of Technology
Innovation
TIM

MWC™ GSMA

BARCELONA
26 – 29 FEBRUARY 2024

4Y FN

Thank you

Platinum sponsors

CISCO

HUAWEI

Gold sponsors

Qualcomm

Whale Cloud

GSMA™

Together with our members, we make connectivity work for all.

Join us at Future Space, GSMA Pavilion, Hall 4

gsma.com/membership

Find out more