

14:00 – 14:30

Towards a New Generation of Edge and Cloud

Juan Carlos García - SVP Technology Innovation and Ecosystems, Telefónica Global CTIO

Fidel Jesús Fernández Gómez - Director of technology & IT transformation, Telefónica España

Daniel Ribaya - Director of Cloud Products & Services, Telefónica Tech

MWC2024

100 Years
Leading Change



Towards a New Generation of Edge and Cloud

Juan Carlos García López

Fidel Fernández Gómez

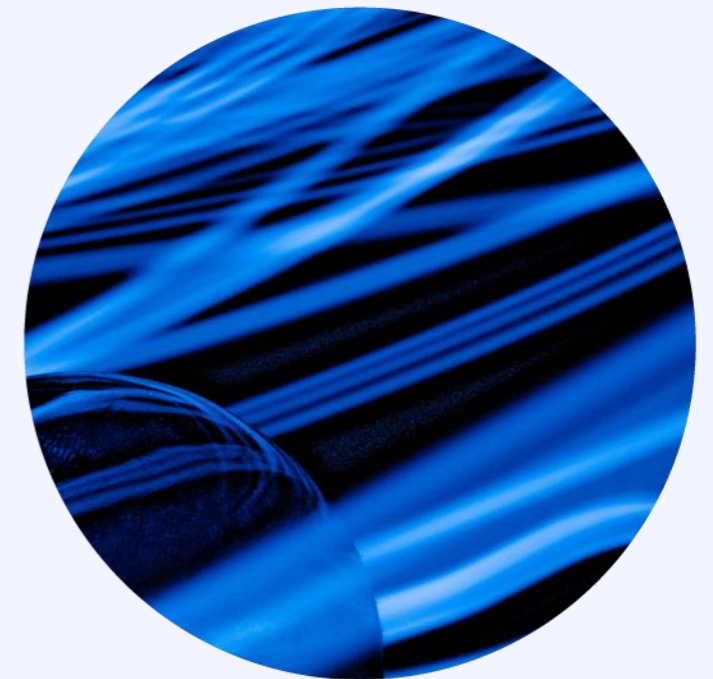
Daniel Ribaya González

Telco Edge bases

Industry Effort & Collaboration

Juan Carlos García López

Director Technology Development & Ecosystem



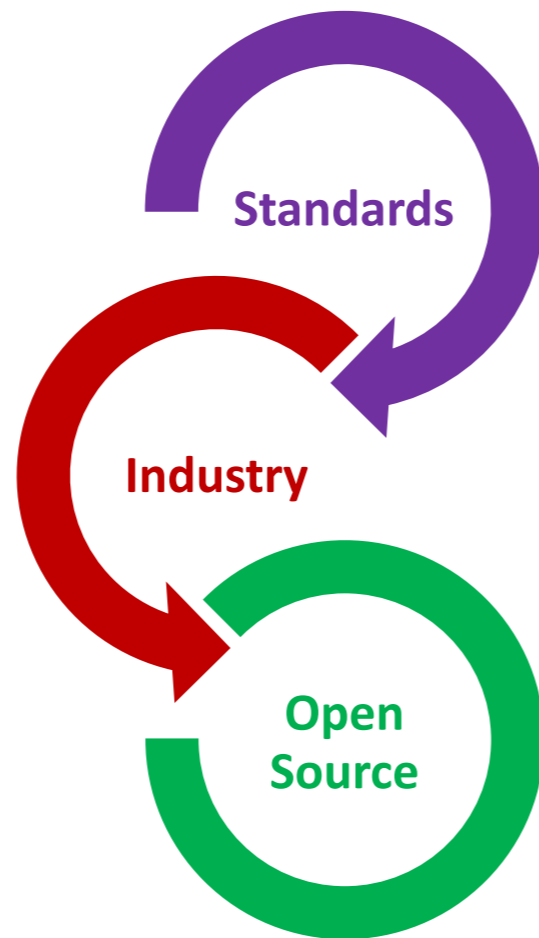
In the last 5 years, the industry has created a rich environment for the development of Telco Edge Computing...

GSMA™

Operator Platform

Telco Edge Cloud

Open Gateway



MEC, NFV, ZSM

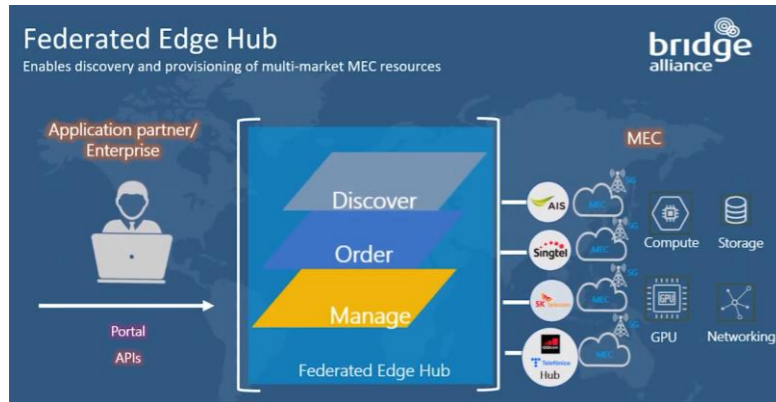


SA6 Edge



...that has set the basis for private and public initiatives

Asia-Pacific



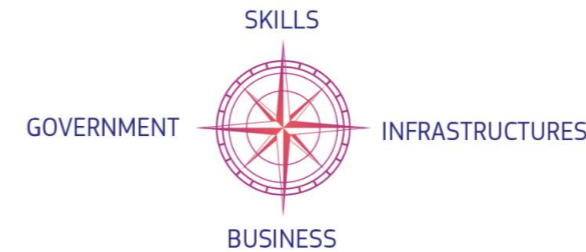
Bridge Alliance launches the **Federated Edge Hub** in 2023, after testing edge use cases and edge federation mechanisms



Europe

Intensive EU Public Policy actions

- Digital Decade
- Data Strategy
- Green Deal
- 2030 Digital Compass



Creation of some supporting **bodies**, like



EUROPEAN ALLIANCE FOR INDUSTRIAL DATA, EDGE AND CLOUD



IPCEI-CIS* project to develop next generation Cloud Infrastructure and Services, launched in dec 2023



Targets 2030

- 10.000 Edge nodes
- 75% SMEs on cloud, data, AI



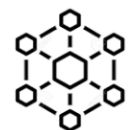
> 100 partners

* IPCEI-CIS: Important Project of Common European Interest for the Next Generation of Cloud Infrastructure and Services

A new Edge and Cloud concept that meets European values



Open/Interoperable



Federated/multi-provider



Mobility embedded



Integrated with network

Leveraging Telco infra to deliver a cloud continuum optimally integrated with the network

Major benefits



• Sovereign, no lock-in



• Open for partners and customers



• Interoperable across borders



• Innovative ecosystem

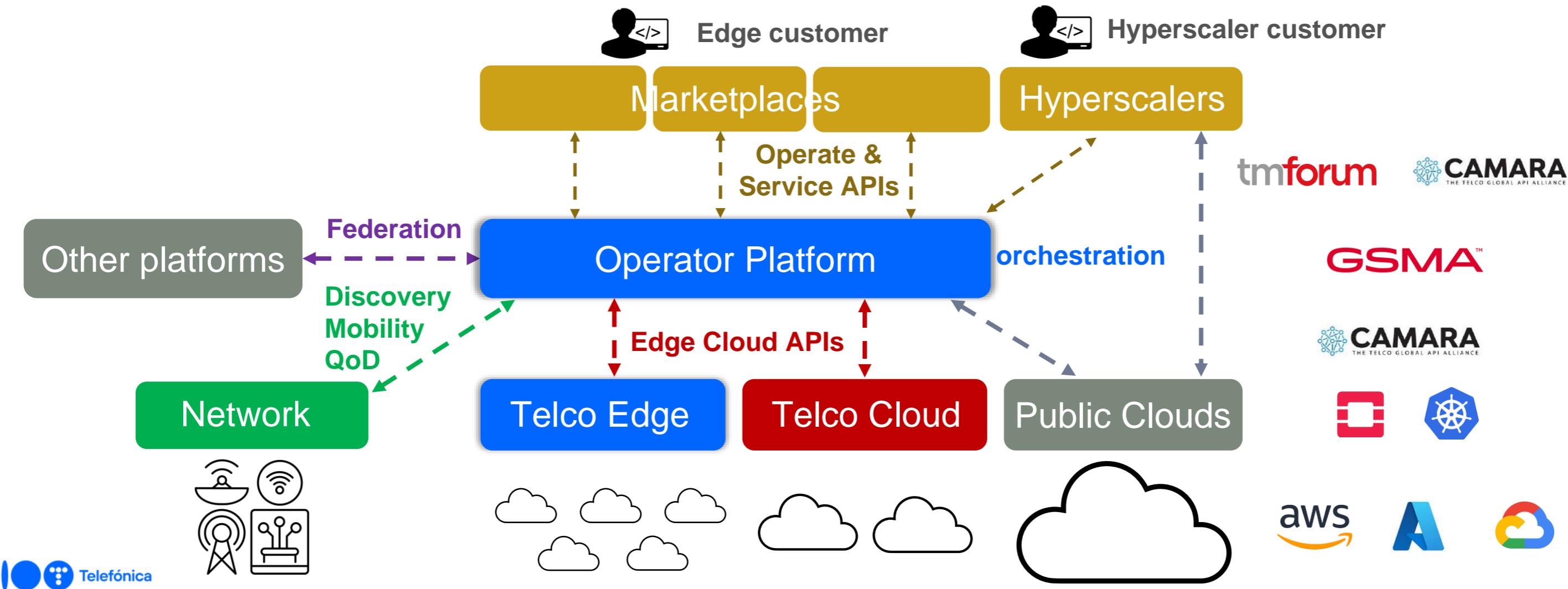


• Built-in security



• Sustainable by design

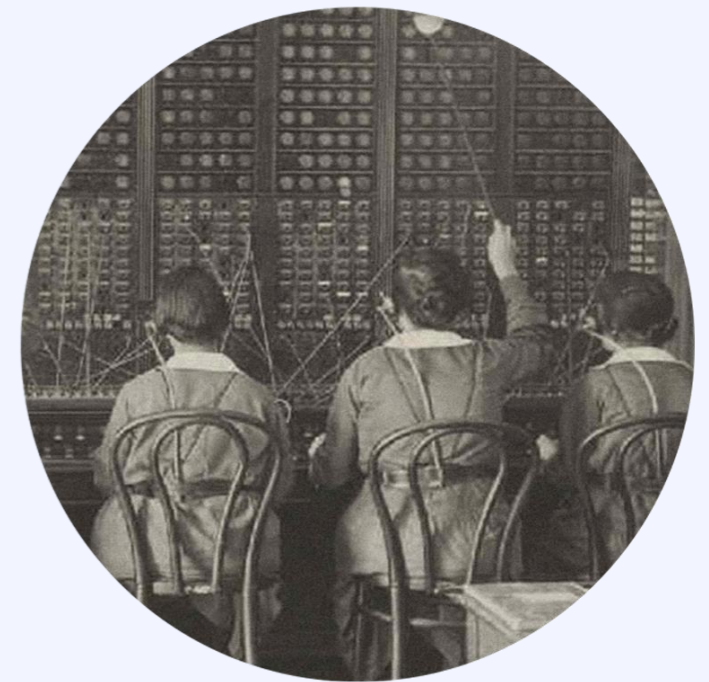
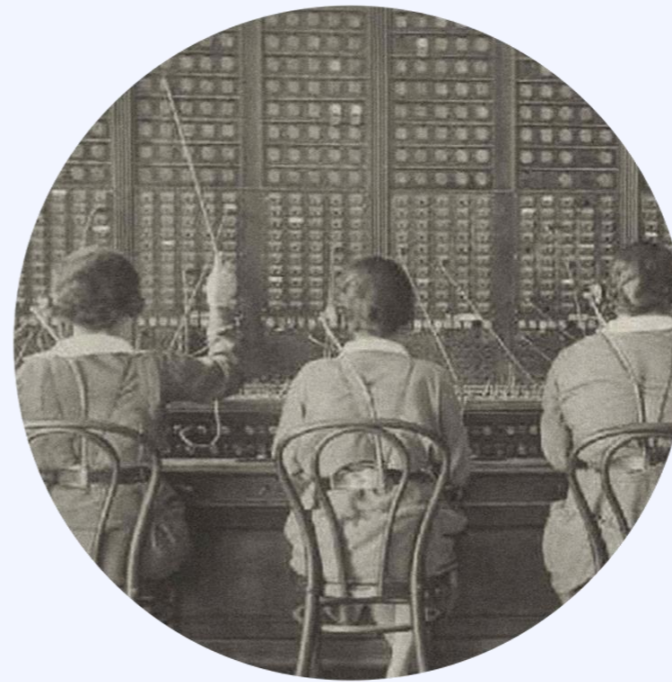
The resulting Edge platform supports a multiprovider Edge Cloud continuum



Edge Plan Telefónica España

Fidel Fernández Gómez

Director Tecnologías y Transformación
de Operaciones, Red y TI



After Cloud, Edge Computing is the next digital revolution

Complementing excellence connectivity provided by Telefónica's Next Generation Network (5G, FTTH) **with computing and storage in the border**

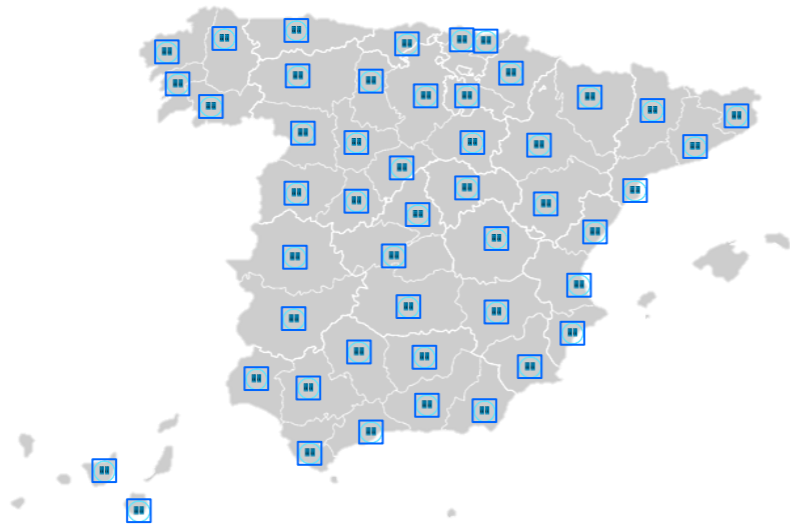


Processing the data close to the source, enabling a new ecosystem of services and applications, that are not possible with traditional cloud architectures and that will be **key in the Digital Transformation of the coming years**

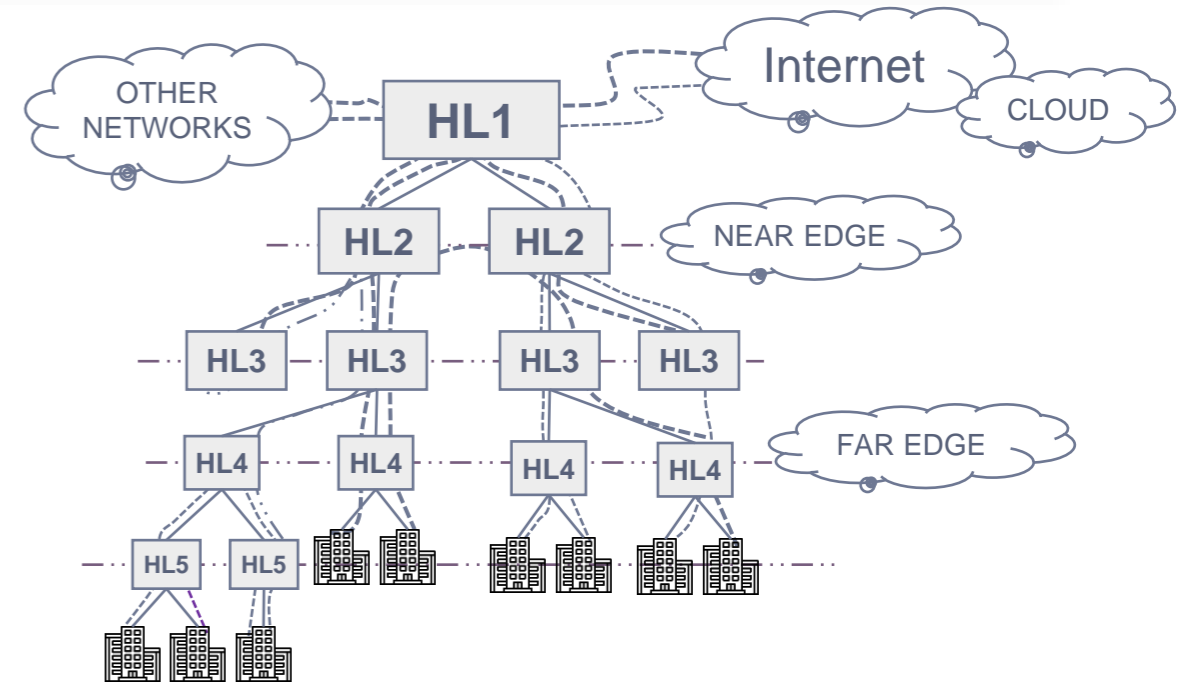
Edge Plan is the perfect complement to Telefónica's Fiber and 5G network with a topology-aware design that minimizes latency



Central Offices strategically distributed across the region



Transport Network Topology



Telefónica has the key assets to develop Edge Computing

Edge Computing will allow Telefónica to accelerate the upcoming transformation



More efficient infrastructures: secure, sustainable and innovative



Network optimization: providing disruptive latencies



Edge Cloud continuum across Europe based on Federation

Edge Cloud will overcome traditional Cloud limitations



In terms of performance

Outstanding latency



In terms of data sovereignty

Reducing dependency on other regions



Leveraging High-Capacity Networks

Enabling real-time applications

Under an Open Architecture, the Edge Platform will be aligned with industrial standards, for both third parties and own developments



Combines differential technological capabilities of the third parties and others, with Cloud solutions developed by Telefónica

Provides **Access to Network APIs** (Network as a Service) in order to consume 5G capabilities in a programmable way



Focused on developing key use cases to boost the Edge scenario for the coming years

Public sector



Businesses



Consumers



Telefónica is **exploring all the industrial domains** where Edge Cloud will have impact

Edge & Cloud proposition

Telefónica Tech

Daniel Ribaya

Director Hybrid Cloud Product & Services



What is the Edge Computing objective?

Traditional IT

Traditional infrastructure needed for:

- Extremely low latency / jitter
- Handling large amounts of data (need for large uplink bandwidth)
- Data residency & control

Edge Computing

Aims to bridge the gap:

- keeping advantages of both worlds
- providing a Cloud Continuum
- making the most of the access to next generation networks



Edge can also have an impact on devices:

- less complexity / cost
- longer battery life
- upgrading functionality without changing the devices

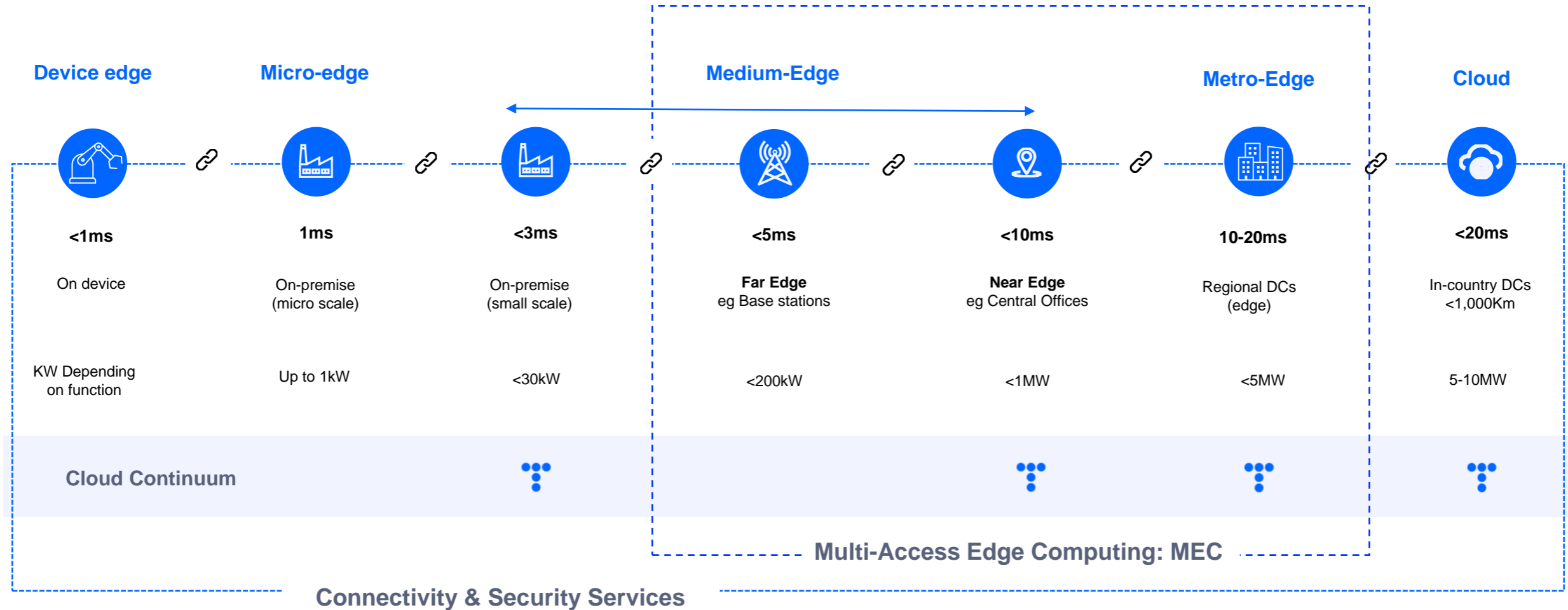
Cloud Computing

The aaS paradigm brought in:

- Elasticity
- Low barriers of entry
- Developer focus (APIs)
- Access to hundreds of services
- Shared resources usage
- Resiliency & security

What types of Edge infrastructure are there?

Bridging the gap between Cloud infrastructure and Traditional on-prem IT through connectivity



Telefónica's B2B Telco Cloud Infrastructure vision

Cloud infrastructure is evolving to be closer to the end user when is relevant and centralized for economies of scale

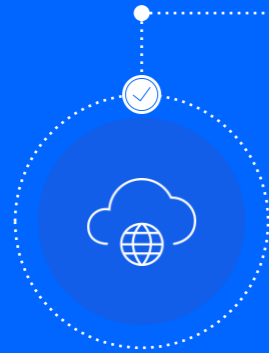
✓ **SOVEREIGN** – SUBJECT TO NATIONAL JURISDICTIONS

✓ **DISTRIBUTED** – FROM DATACENTRES TO EDGE LOCATIONS

✓ **HYPERCONNECTED** – TO NEXT GEN NETWORKS

✓ **SUSTAINABLE** – ADHERES TO ESG PRINCIPLES

Telefónica Tech Cloud Platform



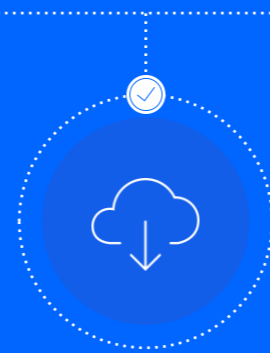
Compute (VDC)

- Std., Real-time, BigVMs, SAP, K8s
- App Catalogue, IaC, Migration, DR, Optimization, ...



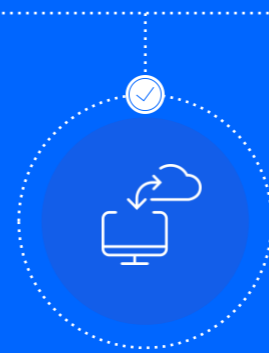
GPUs

- Private AI NVIDIA
- Video Processing



Cloud Storage

- SAN, NAS, Objets
- Encryption, Autogrowth



Cloud Backup

- Files, Apps, VMs,
- Datacenter, Edge, SaaS, On-prem, Hyperscalers, ...



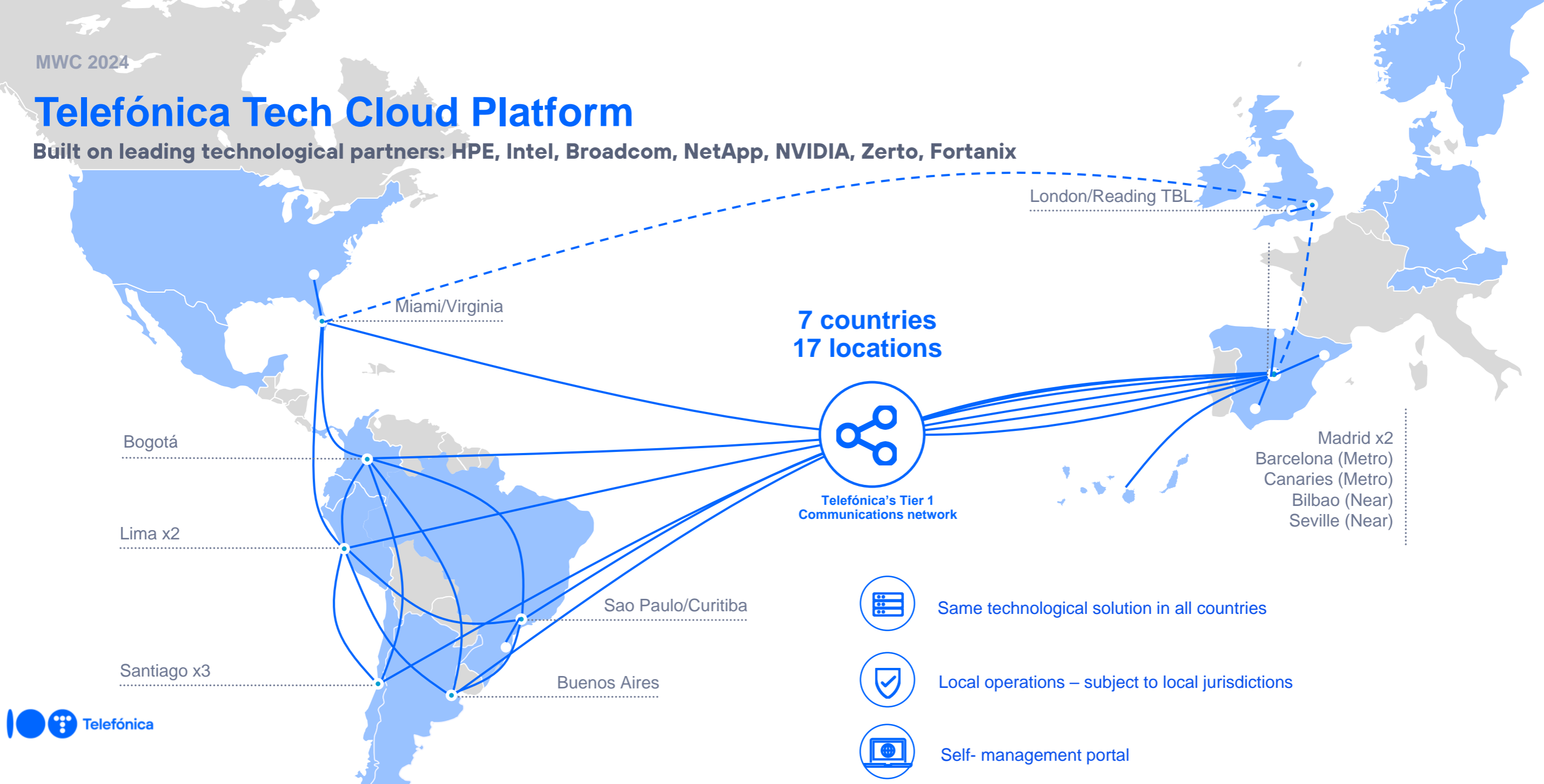
Security

- FW, LB, IDS/IPS, AntiDDoS
- SECaaS, 5G security

MWC 2024

Telefónica Tech Cloud Platform

Built on leading technological partners: HPE, Intel, Broadcom, NetApp, NVIDIA, Zerto, Fortanix



Actual Use Cases running on Edge infrastructure

Our first deployments of Edge infrastructure have enabled these and many other use cases

Remote video production



Remote professional video production

- Live event feeds are encoded and sent to the Edge Nodes via cameras connected to 5G instead of using satellite links
- The production software installed at the Edge Nodes receives the different feeds and generates suitable content for TV
- Uplink capacity from 5G and the processing power from GPUs at the Edge are key drivers in this project

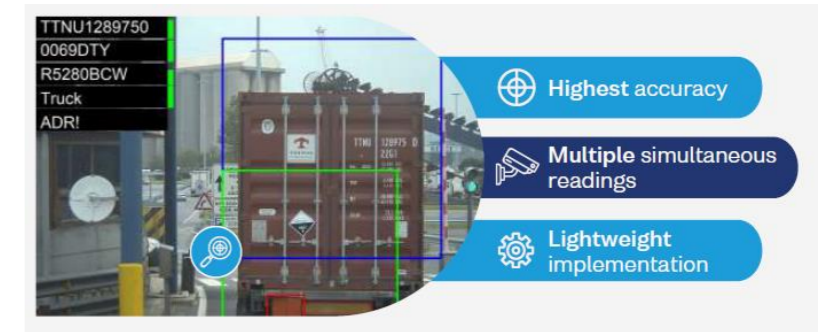
Industry 4.0



Factory Digital Twin

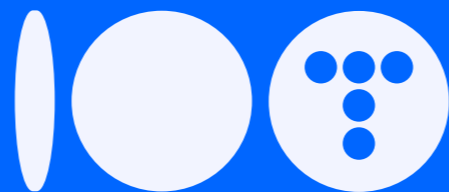
- Factory processes are virtualized to improve the decision making
- Robots and other physical elements are connected via 5G sending real time data to the Edge node
- Real time data is fed to a virtual model known as digital twin that replicates the whole factory processes.
- This allows simulations of how changes in one process might affect the whole factory

Computer vision & analytics



Port Assets Tracking

- Video streams from cameras are transmitted to the Edge Node using the fibre network
- Images are processed at the Edge nodes with Deep Learning so it works even in unfavourable weather or deteriorated codes
- Low latencies and the processing capacity from GPUs are key to this project



Telefónica
since 1924