5GMEC4EU

European 5G Network Edge Ecosystem Approach

Monetizing 5G Edge:

A Commercial Ecosystem for 5G Smart Communities and Corridors in Europe

5G MEC

For EU Corridors and Smart Communities

Date:
October 8th, 2025

Funded by the European Union

5GMEC4EU: Who are we?

Detecon


Dimitri Jungblut


Edgar Tamaliunas


Daniel Henkel


Nikola Perkovic


Hendrik Grosser


Nicolas Stichel


Wolfgang Knospe


Stefan Schnitter


Christian Maasem

5GMEC4EU in a Nutshell

Project Duration: **30 Months**

Project Start: **January 2024**

Consortum: **Monotch & Detecon**

Funding: **CEF Digital**

Managed by: **HaDEA**

Type: **Coordination & Support Action (CSA)**

Main Stakeholders: **5G Smart Communities** & **5G Corridors**

The **5GMEC4EU** project supports the establishment of a "**Connected Collaborative Computing**" – "**3C Network**" to align 5G infrastructure and share knowledge across stakeholders. It supports **5G Smart Communities** and **5G Corridors** in implementing **edge computing** through their 5G projects, enhancing Europe's edge capabilities and fostering profitable **business models**.

monotch
SMART MOBILITY PLATFORMS


Paul Potters


Menno Malta


Nicolas Mercier

5G MEC
For EU Corridors and Smart Communities

Funded by the European Union

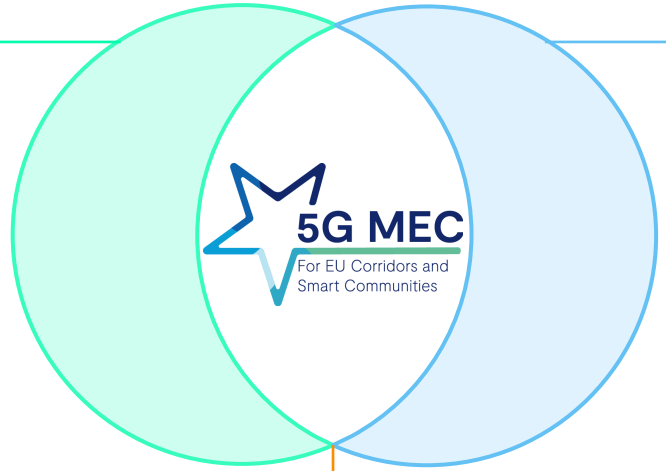
5GMEC4EU coordinates and supports the implementation of edge cloud technologies in 5G Corridor and 5G Smart Community deployment projects.

GUIDE CSA: 5G Corridors *

The GUIDE project aims to coordinate and support 5G Corridors in Europe by capturing and sharing best practices from CEF 5G Corridors projects.

The project objectives:

- Analyze CEF 5G Corridors for best practices.
- Develop guidelines for EU 5G Corridors deployment.
- Coordinate projects, monitor progress, offer feedback.

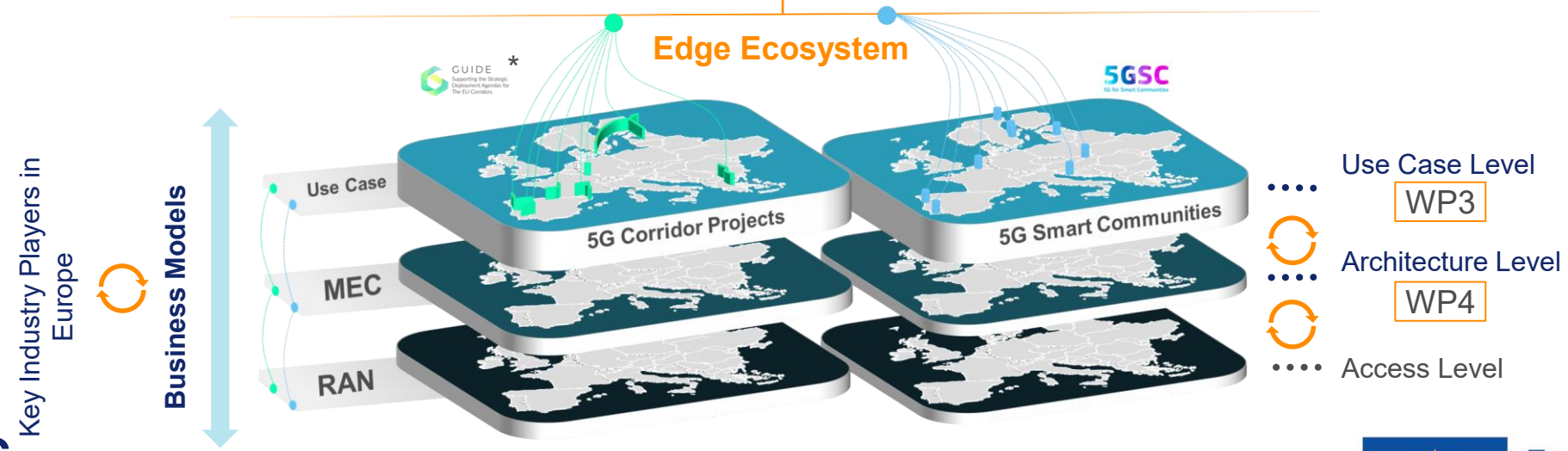


5GSC Platform: 5G Smart Communities

It is an initiative to deploy and use 5G networks to improve public services and socio-economic drivers in local communities.

The project objectives:

- Digital transformation and recovery of local areas
- 5G benefits in various sectors
- Collaboration and knowledge exchange



* CSA finalized in June 2025

5G MEC
For EU Corridors and Smart Communities

Funded by the European Union

A Sovereign European Cloud Ecosystem is essential amid increasing mistrust among Continental Technospheres.

American Technosphere

Dominated by Hyperscalers (AWS, Microsoft, Google) with a focus on global scale.

aws Azure Google ...

Trump signs CLOUD act in 2018, permitting U.S. law enforcement to access data stored overseas.

European Technosphere

Seeking autonomy through regulations like GDPR and fostering cloud sovereignty initiatives (e.g. GAIA-X).

EU Sovereign Play (TBD)

aws Azure Google

SAP ... orange Atos T new STACKIT GAIA-X OVHcloud

"I will push to create a new European Sovereignty Fund. Let's make sure that the future of industry is made in Europe."

Chinese Technosphere

Focused on state-controlled technology giants (Alibaba, Tencent) and strict data localization laws.

HUAWEI Tencent Cloud Alibaba Cloud ...

Chinese data sovereignty regulation & licensing regime essentially prevents market access to external players.

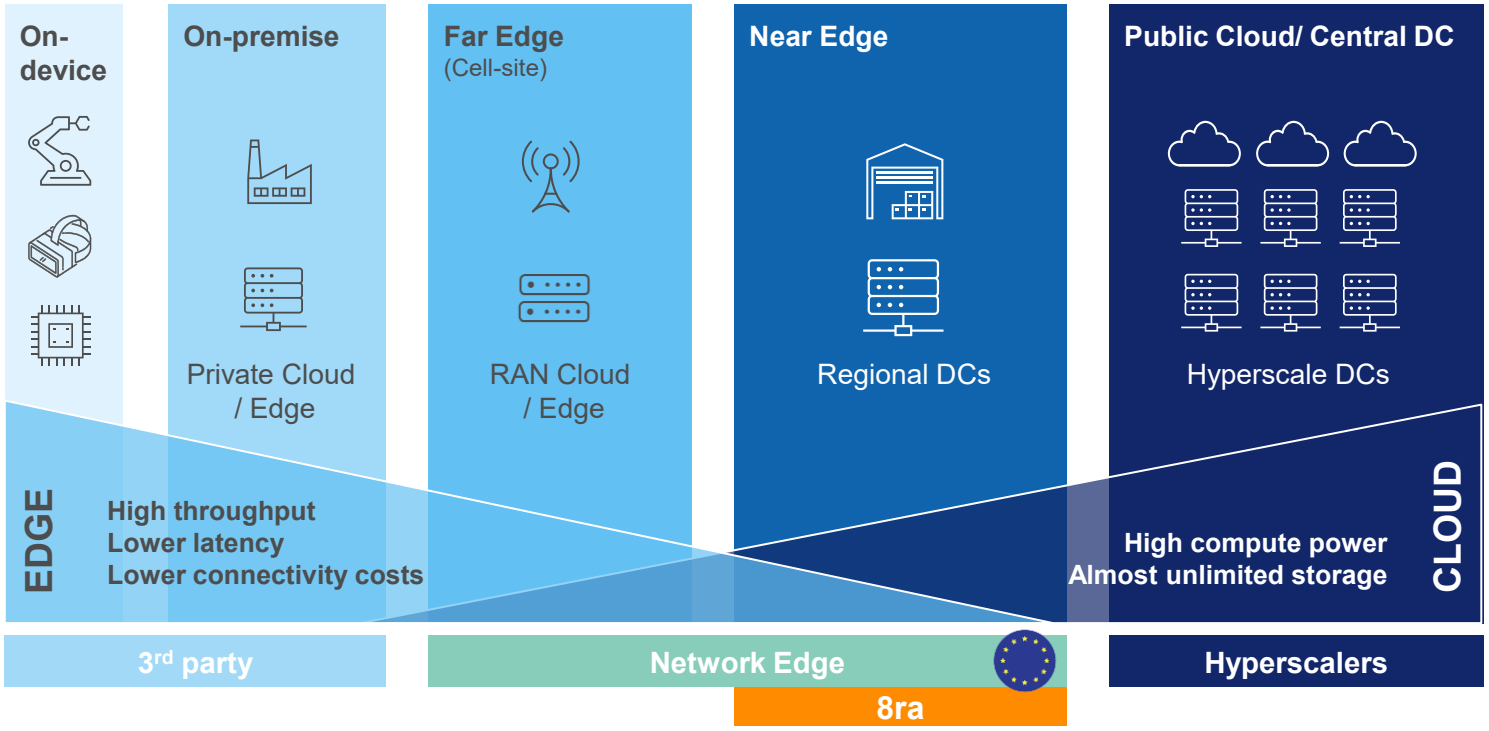
Increasing demand of Sovereign cloud solutions especially by regulated Industries like TelCo, Defense, Public & Healthcare

5G MEC For EU Corridors and Smart Communities

Funded by the European Union

Within the Cloud / Edge Continuum, the Network Edge represents a window of opportunity to enable (partial) digital autonomy via European ownership!

The Cloud / Edge Continuum is a fluid ecosystem of many participants



Comments:

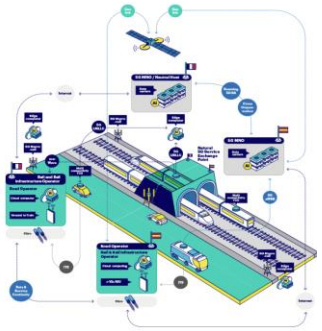
- The Cloud/Edge Continuum spans from on-device computing to hyperscaler-dominated cloud, involving diverse ownership models.
- Unlike the hyperscales , TelCo Edge is not yet dominated by a few large foreign players, offering a window of opportunity for European companies.
- European participation in this domain could allow digital autonomy as especially critical workloads will be deployed on the edge-part of the continuum.
- However currently scalable and viable models of infrastructure provisioning have not yet developed.
- **A thorough evaluation of ownership-, operating & underlying business models is essential to enable an autonomous European Edge Cloud ecosystem.**

5G MEC
For EU Corridors and Smart Communities

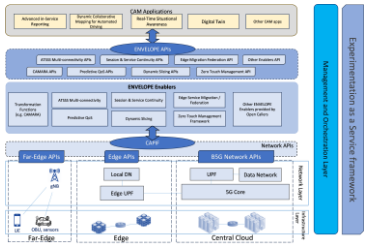
Funded by the European Union

Seamless cross-border CCAM services require more than connectivity. Service providers need to align on quality and performance of their infrastructure.

Examples of current/ previous 5G MEC Cross Border Projects:



Source: https://5gmed.eu/ 5GMED, Mediterranean Cross-Border Corridor, CCAM for automotive and railway



Source: https://envelope-project.eu/architecture/ Envelope 5G

CCAM for automotive

Source: BALTCOR5G - Part of the "Connecting Europe" (CEF) program, funded by the EU. BALTCOR5G

5GMEC4EU has established the **5G MEC Community**, fostering collaboration across 5G Smart Communities and 5G Corridors in 2025. The community serves as a platform for sharing **best practices, exchanging knowledge**, and **providing support at multiple levels**.

Key requirements for delivering uninterrupted, secure, and high-performance digital experiences across borders.

A **Seamless Service Continuity**
Ensure uninterrupted, automatic handover of services and applications across borders and networks. [1]

B **Ultra-low Latency and High Reliability:**
Maintain under 10–20 ms latency with robust edge computing resources for real-time use cases. [2]

C **Interoperability and Open Standards:**
Guarantee seamless device and application operation via harmonized APIs and protocols across countries. [3]

D **Privacy, Data Sovereignty, and Compliance:**
Protect user data with GDPR-compliant processing and transparent cross-border data handling. [4]

E **Support for Mission-critical Mobility:**
Provide resilient, high-performance edge services for safety-critical and logistics applications at borders. [5]

Funded by the European Union

Telcos are dealing with technical and regulatory challenges, but struggle with business challenges

Regulatory Challenges

- **Cross-border fragmentation** - inconsistent regulatory frameworks and spectrum policies across EU member states [1, 3, 4, 5]
- **Security restrictions** - varying vendor restrictions and cybersecurity coordination requirements between countries [5, 6]
- **Standards harmonization gaps** - lack of unified site acquisition processes and regulatory approval procedures [1, 5]

Technical Challenges

- **Interoperability complexity** - cross-border network handovers and edge infrastructure deployment coordination issues [1, 2, 7]
- **5G Standalone dependency** - network slicing and resource management requiring standalone 5G architecture [1]
- **Performance optimization** - maintaining ultra-low latency and high reliability across heterogeneous national networks [5]

Business Challenges

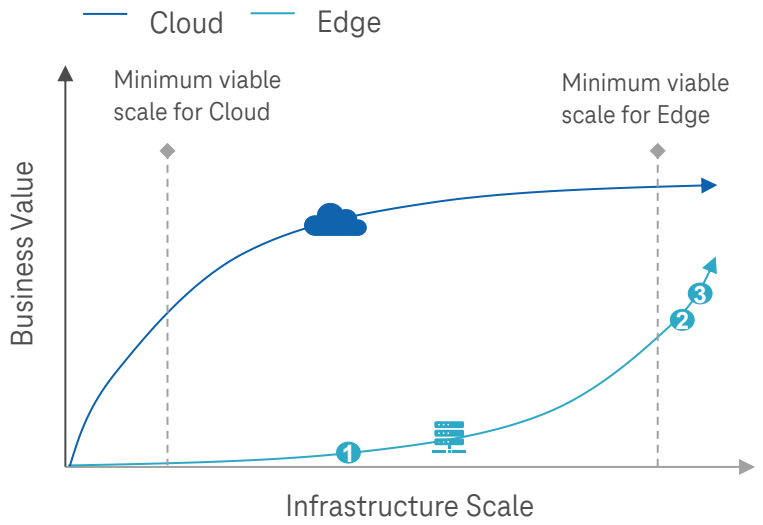
- **Revenue model uncertainty** - unclear business cases and investment structures due to undefined Connected Automated Vehicle requirements [1, 9]
- **Market fragmentation** - 34 separate mobile network operators across the EU creating deployment complexity [8]
- **Minimum viable scale** - difficulty reaching critical mass for economic viability and co-funding requirements [1]

Funded by the European Union

There needs to be an initial demand to reduce costs to a reasonable level backed by a holistic ecosystem & investment to promote minimum scale.

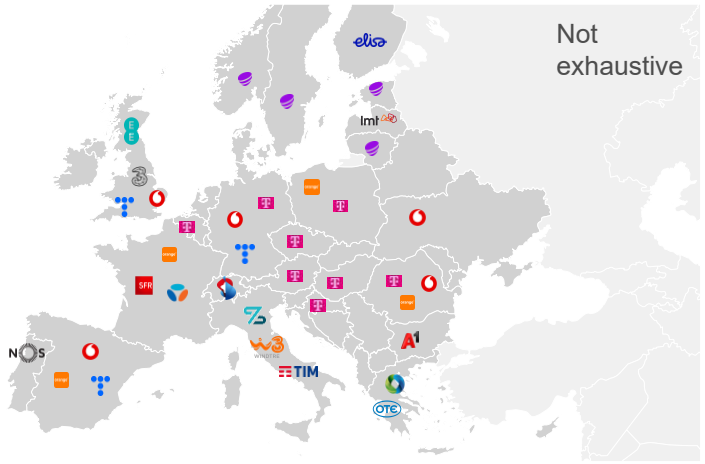
Reaching minimum viable scale

Due to its decentralized nature the minimum viable scale of Network Edge is far higher than Cloud Computing



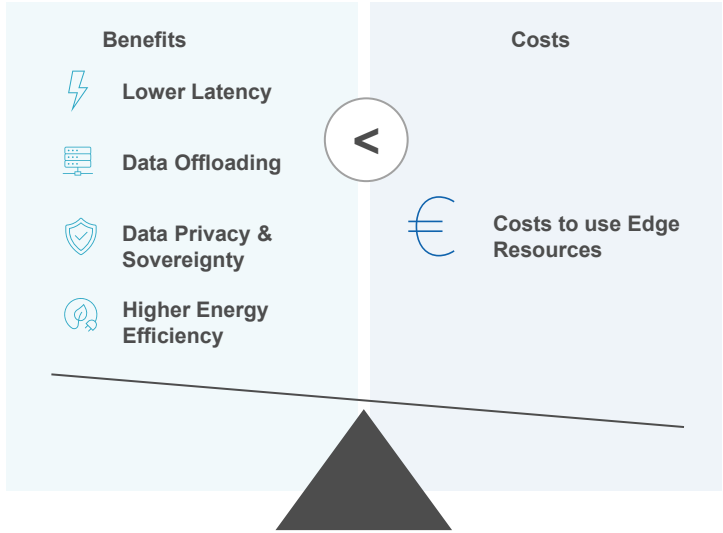
Market fragmentation & Integration

MNOs lack a common approach and a holistic integration with Public & Private Cloud & Device Edge.



Benefits do not outweigh the costs

At the moment the benefits of the Network Edge do not outweigh the cost – especially vs. Public Cloud



Investment to create supply at scale… → **… via a Holistic & Harmonized Ecosystem** → **… based on initial demand.**

To address these challenges, we propose 3 key guiding hypotheses which act as foundation for our concept paper and will be validated with stakeholders.

Overview of key challenges:

I **Ecosystem compatibility:** The network edge is embedded in a fragmented computing continuum across different ownership domains (device, private, public), making E2E workload integration complex.

II **Initial demand & economic viability:** Current benefits of Network Edge do not justify the high costs, and a critical mass of initial demand is needed to drive down prices and reach economic viability

III **Minimum viable scale:** A viable Network Edge-based computing ecosystem can only be established at minimum European scale.

Guiding Hypothesis:

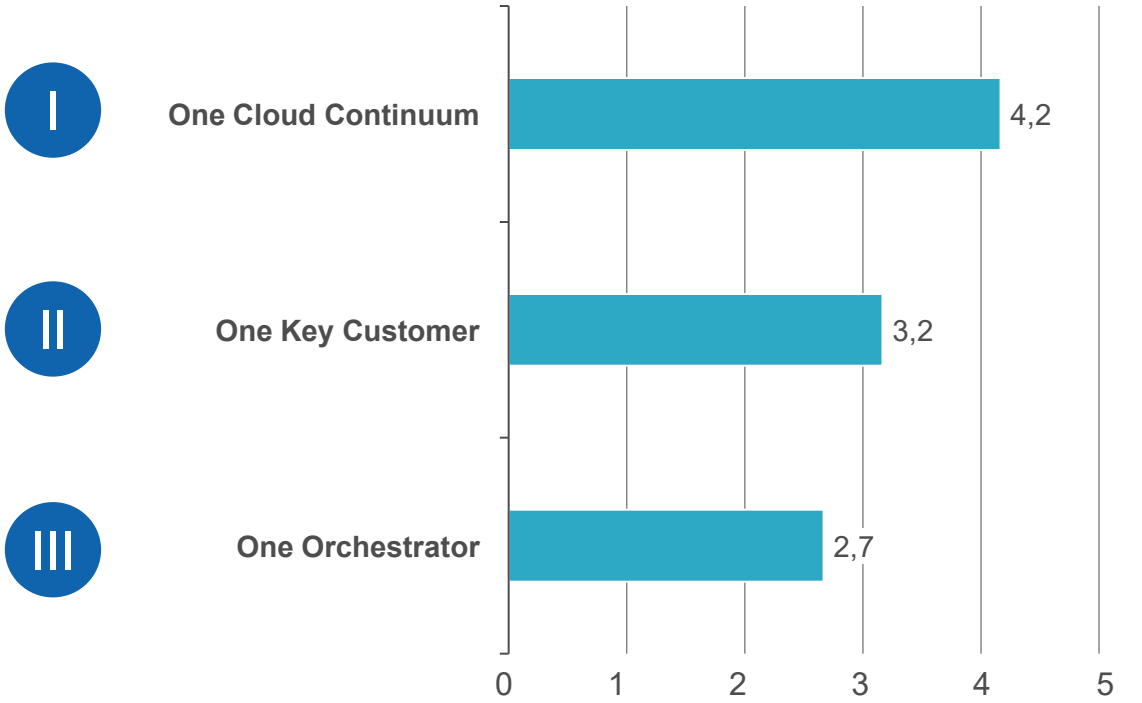
One cloud continuum: End-to-end workload integration at the network edge requires an open architecture that spans hyperscalers, private edge, device and MNO domains.

One key customer: MNOs are currently the only actors with strict demand for the network edge; to accelerate broader adoption, they must share the capacity already required for their own workloads.

One orchestrator: A single, federated orchestration layer is required across the network edge, but MNOs are not positioned to fulfill this role, as their operations are limited to national markets. Potentially a Joint Venture of European MNOs would be suited well to do so.

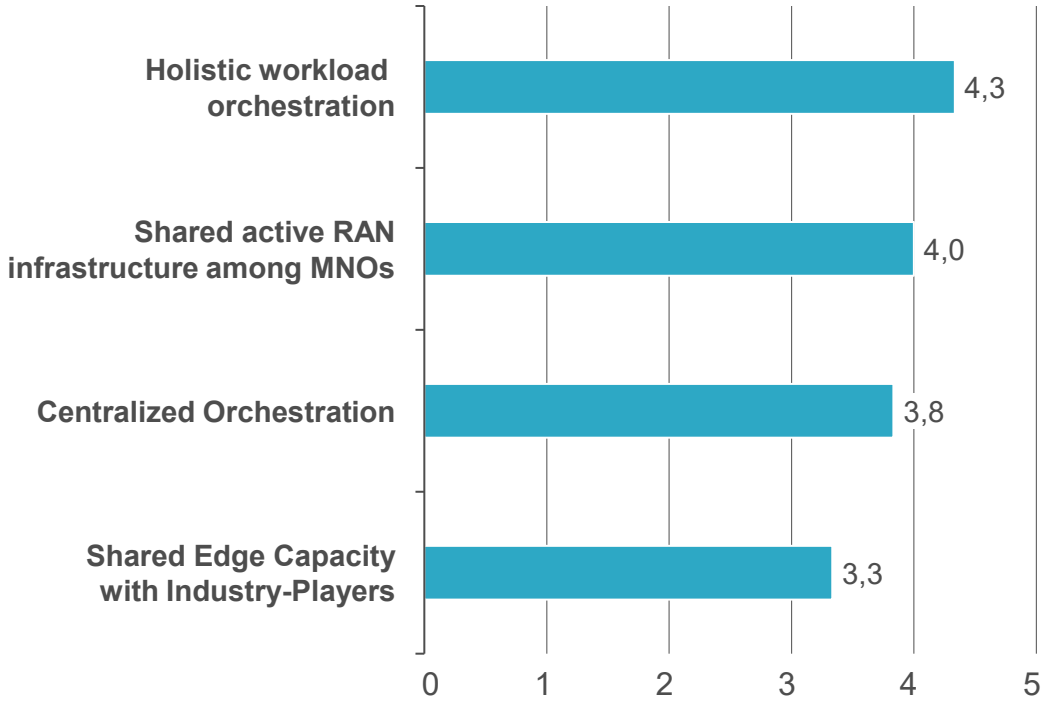
Our first Survey results show support of Hypothesis 1 and 2 while most design principles for a successful NW Edge Ecosystem are found to be valuable.

Overview of survey of results – Guiding Hypothesis:



1 Strongly disagree | 2 Disagree | 3 Neutral | 4 Agree | 5 Strongly agree

Overview of survey of results – NW Edge Design Principles:

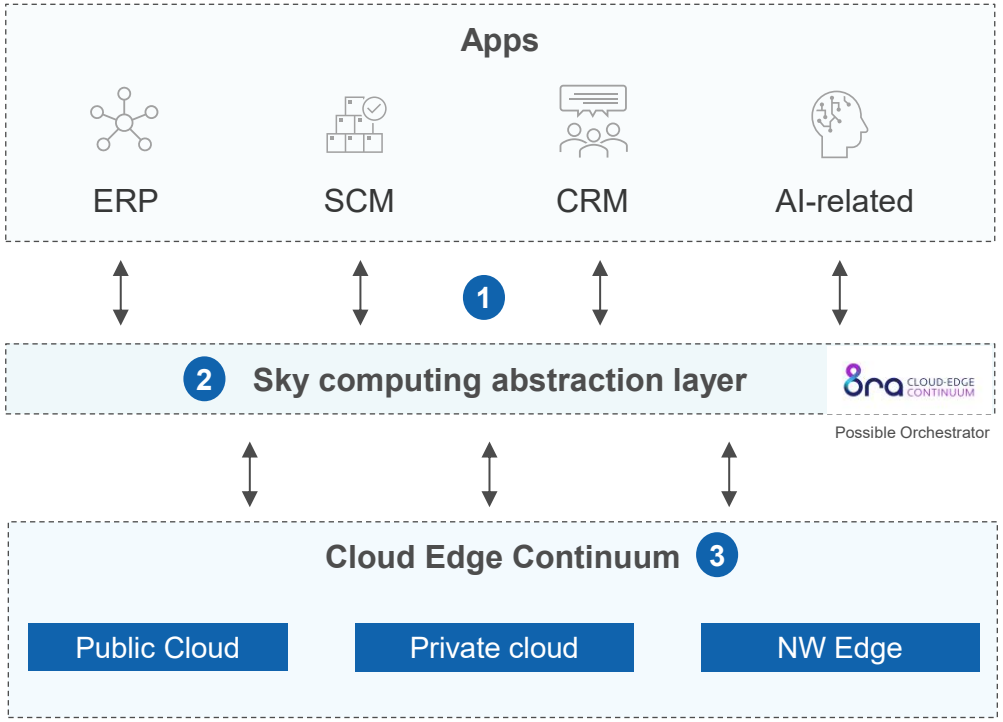


1 Not relevant | 2 Slightly relevant | 3 Somewhat relevant | 4 Relevant | 5 Most relevant

Funded by the European Union

A promising Multi-Cloud orchestration approach is ‘Sky Computing’: a vendor-agnostic API-layer to manage the cloud to edge continuum holistically.

Key paradigm of ‘Sky Computing’:



Sources: Detecon Research, 2024; https://blog.bytebytego.com/p/no-more-vendor-lock-in-the-rise-of

Explanation and comments

Key paradigm:

Apps are not bound to any single cloud provider. You can develop cloud-agnostic apps and optimize for performance, cost or latency.

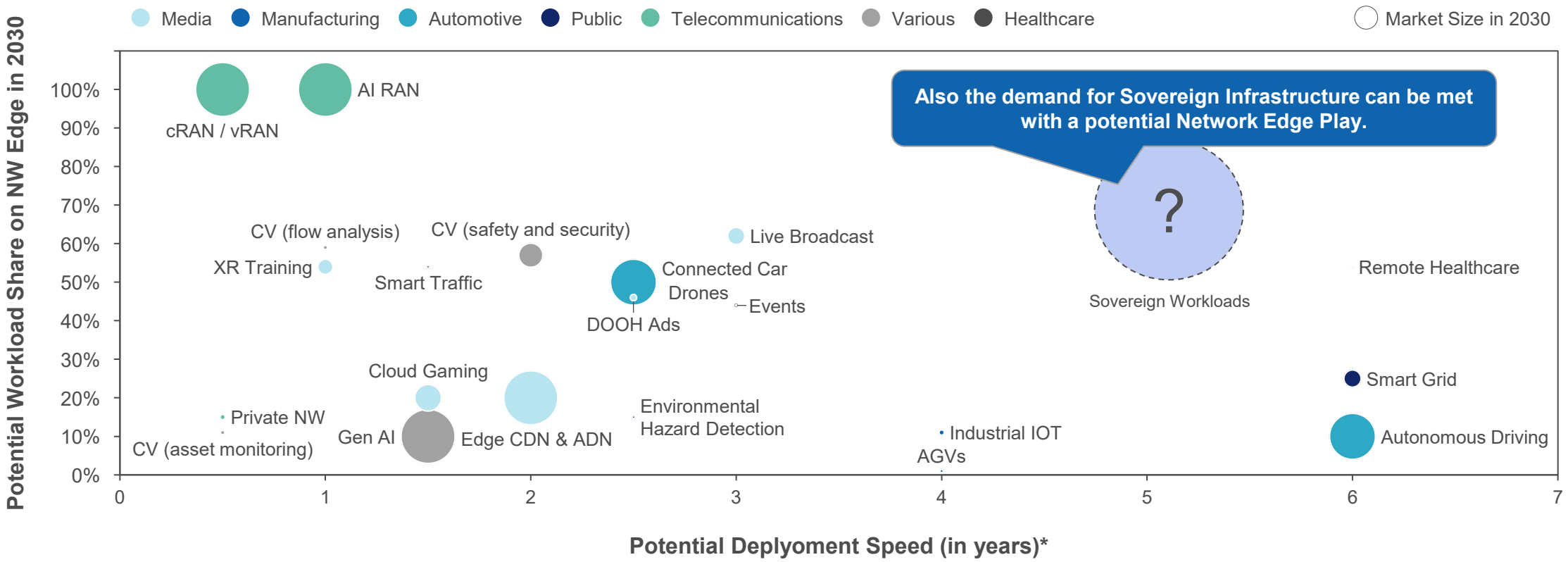
Process:

1. Micro-service architecture for app workloads.
2. Sky Computing layer finds best CSP for each workload.
3. Relevant data exchanged between CSPs and other entities.

Benefits:

- Redundancy & high availability as apps operate cloud agnostically.
- Risk mitigation and cost optimization by flexibility of CSP selection.
- Optimization for specific services based on CSPs specific strength.

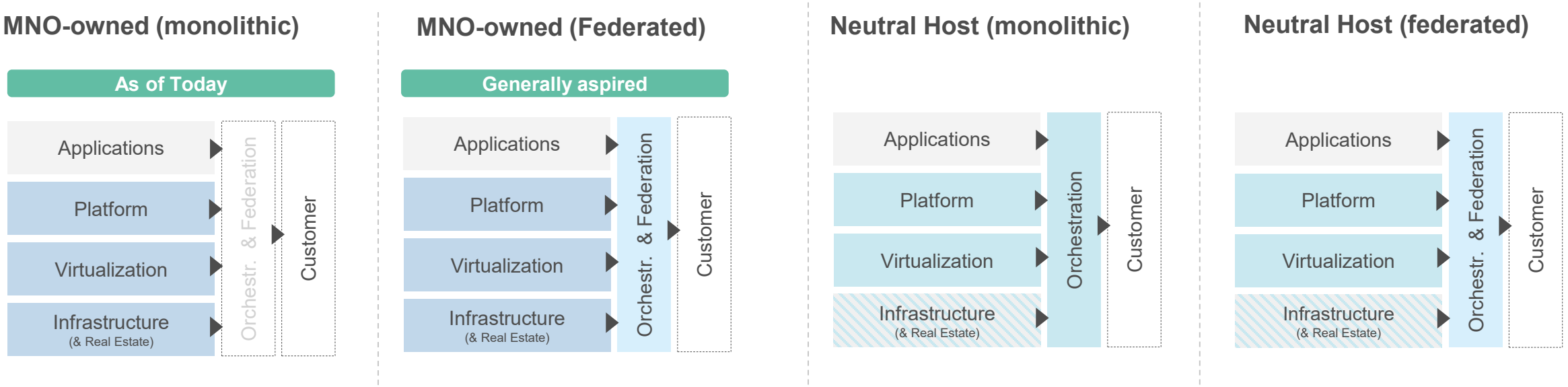
Next to MNO workloads also GenAI, CDN / AND and Connected Car use cases will fuel the demand for Network Edge.



*Assumption: If Network Edge Ecosystem would readily available. **Market Size: Very Small = 1- 9 €m / Small =10 - 99 €m / Medium = 0.1 - 1 €B / Large = 1 – 9 €B / Very Large = 10+ €B)

Source: Detecon, STL Partners

Creating a neutral host approach enables an edge adoption at continental scale while it is challenging for MNOs to do so due to their national operations.



The advantages of Neutral Host-based architectures are understood but many Interview respondents see a pragmatic execution as challenging, because the MNOs are very sensitive about giving up control of Edge resources!

MNO | Federated | Neutral Host | Various

Altice Ultra Edge is a Neutral Host based Network Edge Player aspiring to share its resources across MNOs - while the Market clearly values the approach.

About Ultra Edge

First nationwide independent distributed colocation provider in France

- Independent distributed colocation provider
- 257 Edge data centers
- Valuation: € 764m (29x multiple!!)
- Installed capacity of more than 45MW

Source: MS Press Release

Investment Thesis

"We believe the opportunity to create an independent and distributed edge colocation provider, benefiting from access to SFR's nationwide fiber infrastructure in France, makes UltraEdge a very attractive investment for MSIP,"

Yacine Saidji, Managing Director and Co-Head of Europe for Morgan Stanley Investment Partners.

"With its extensive countrywide presence, UltraEdge is positioned to benefit from the growing demand for ultra-low latency connectivity services from corporate clients and other telecommunications operators in France."

Ultra Edge, 2025

We welcome you to participate in our Questionnaire & Interview process and join the debate of future Network Edge Ecosystem in Europe.

Your general benefits by participating

Exclusive Access to Concept & White Paper

- Potentially shape EU policy and funding priorities
- Get early access to survey results and the concept paper on a European 5G Edge Ecosystem

Recognition and Acknowledgment

- Potential public visibility in the published report
- Invitations for speaker slots on follow-up events such as publication.

Networking Opportunities

- Contact and alignment with other 5G / MEC stakeholders on both demand & supply-side
- Invitations to community meetings (Roundtable in Brussels)

Selected overview and snippets of our concept paper:

A Visionary Network Edge Ecosystem:

Use Case Evaluation:

Innovative Architecture Approaches & Business Models:

Let’s talk about Edge!

Dimitri Jungblut
Detecon International
Project Coordinator
dimitri.jungblut@detecon.com

Paul Potters
Monotch BV Netherlands
Mobility Use Cases
paulpotters@monotch.com

5G MEC
For EU Corridors and Smart Communities