



Edge Computing @Telefonica

Open Edge Computing Initiative
Spring Online Workshop

Juan Carlos García, SVP Technology and Ecosystems
Global CTIO Unit, Telefónica
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Summary

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How do we
understand the
EDGE CLOUD
Is it different from
the CLOUD?

02

Where is a TELCO
EDGE CLOUD
better positioned?
What is the space
for Telecom
Operators?

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Telefónica, an
EDGE CLOUD
OPERATOR
with active
collaboration with
the Industry

04

Summary

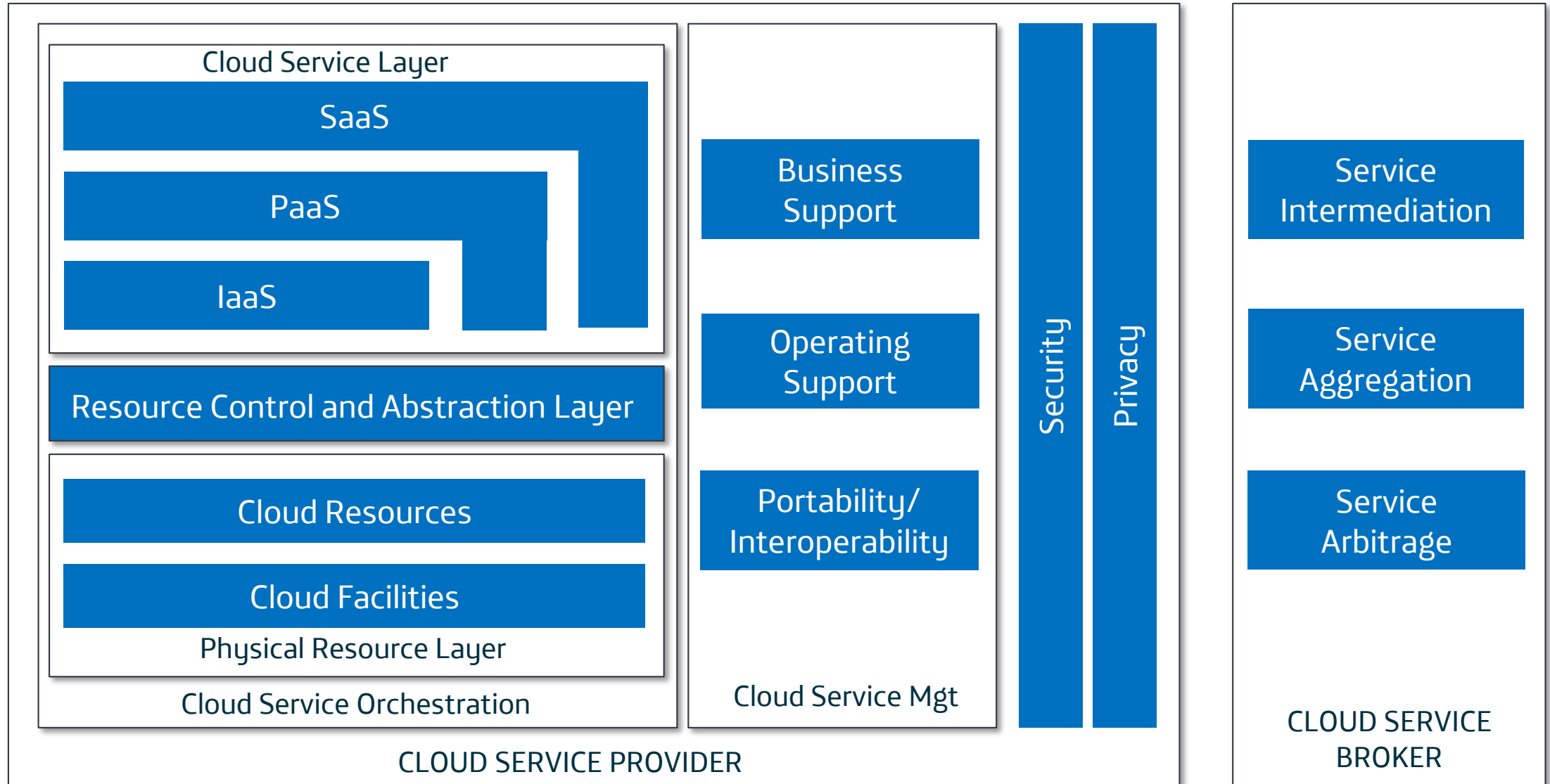
Edge Computing
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How do we understand the **EDGE CLOUD**

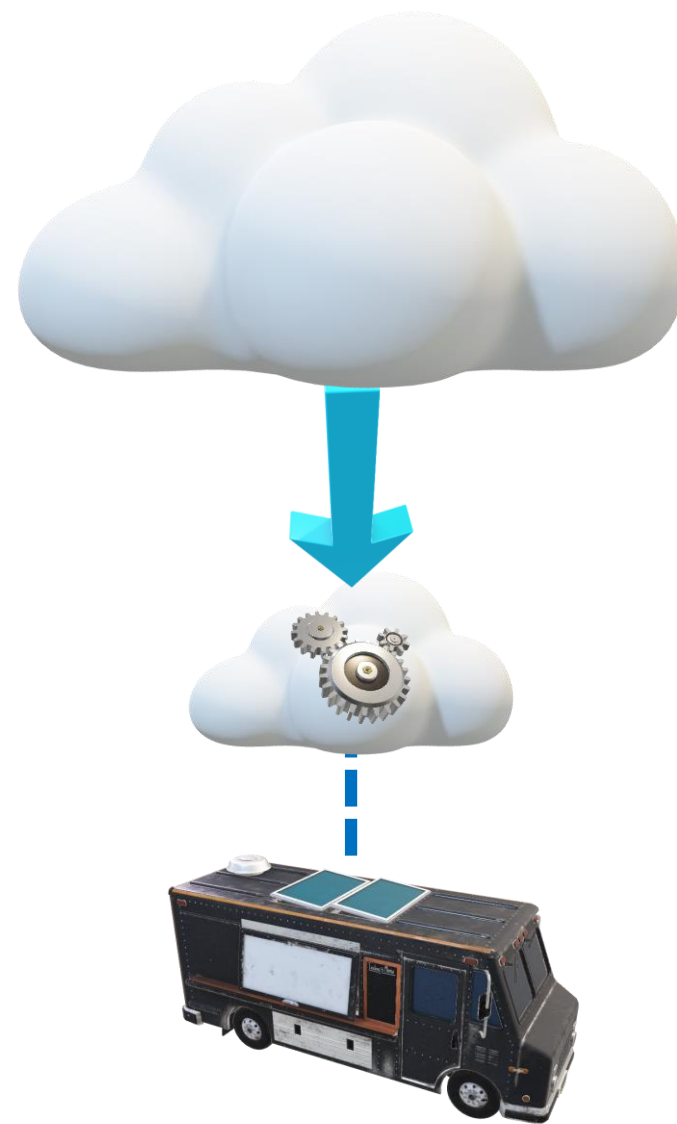
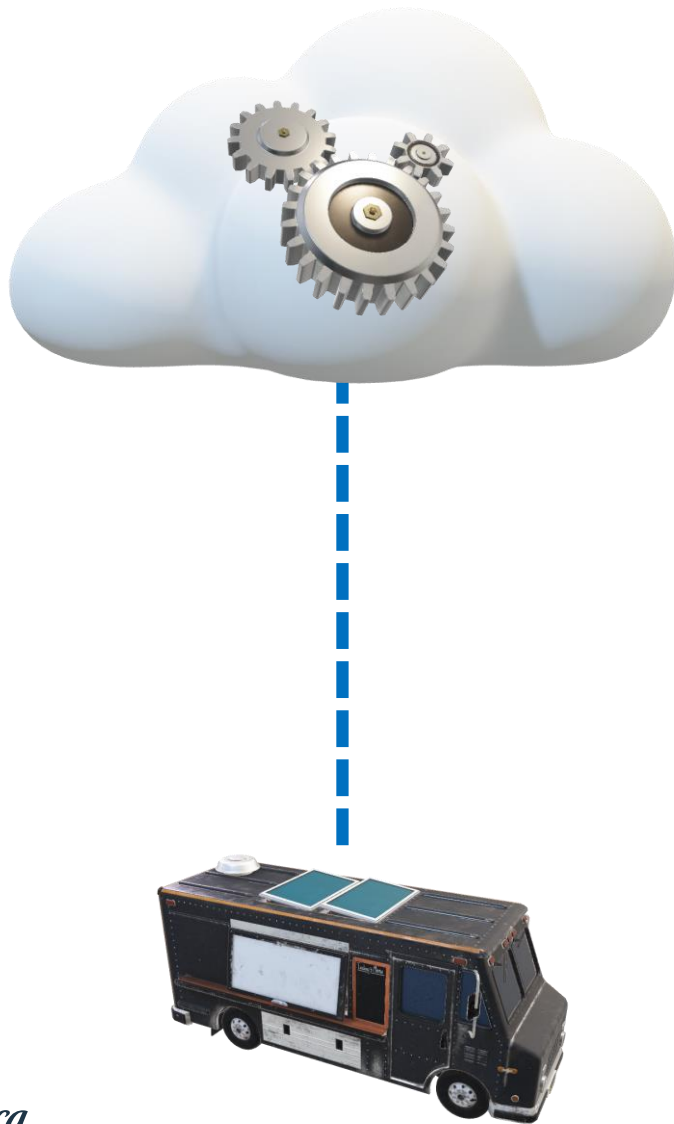
Is it different from the CLOUD?



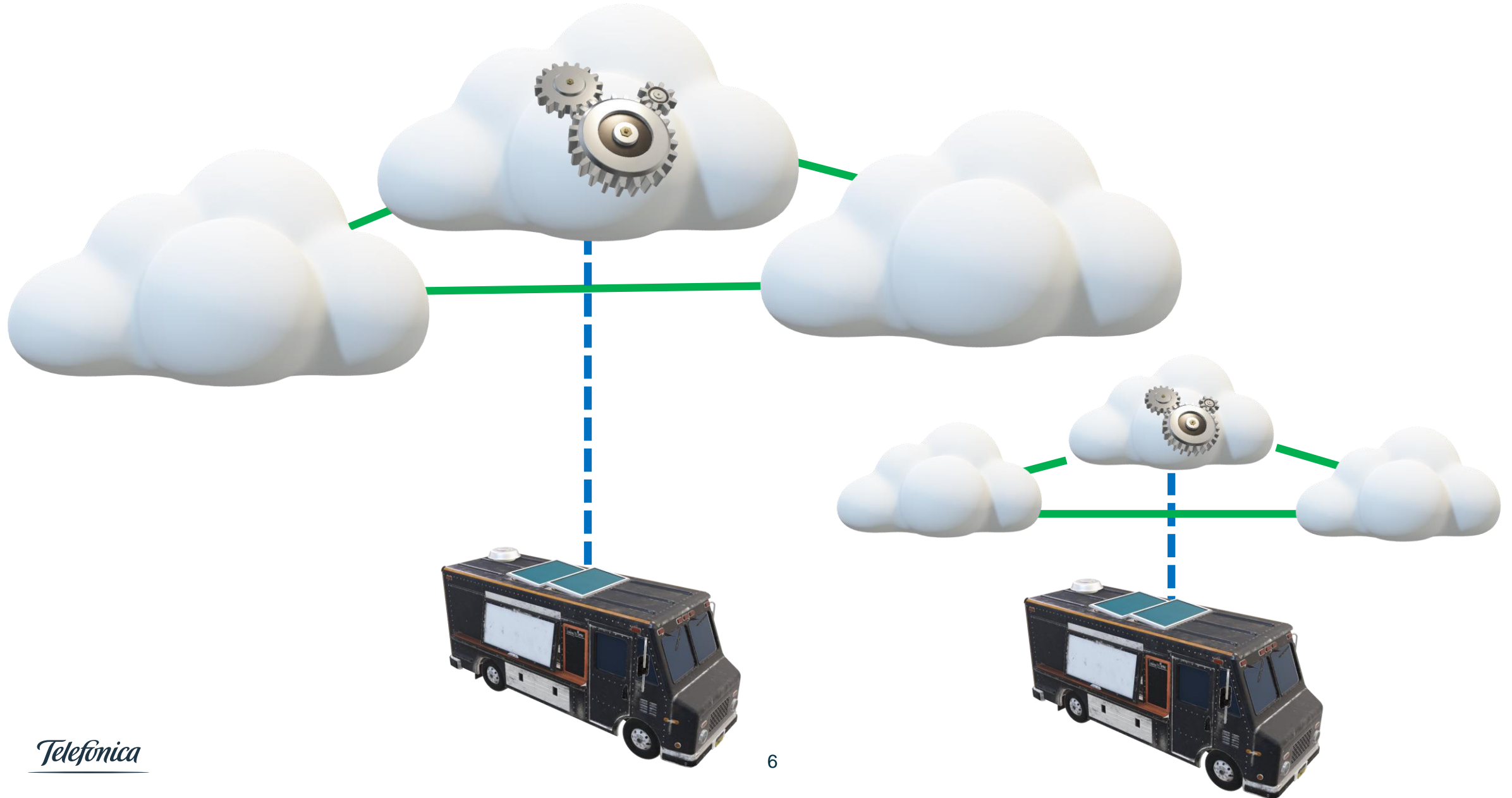
The EDGE CLOUD is a CLOUD: Same architectural principles apply



The Cloud basics are the same but implemented CLOSER to the user



Mechanisms like CLOUD RESILIENCE apply at the EDGE as well

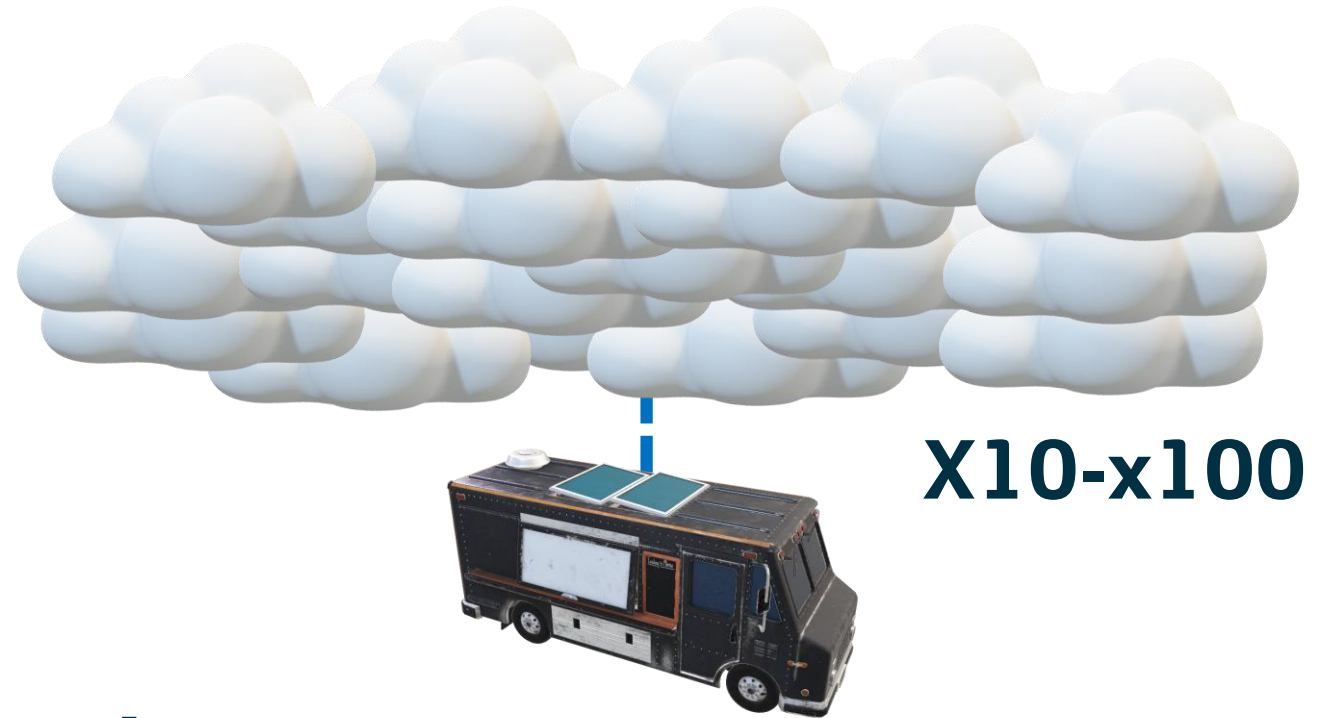


The EDGE is more distributed and denser, driving some specific needs

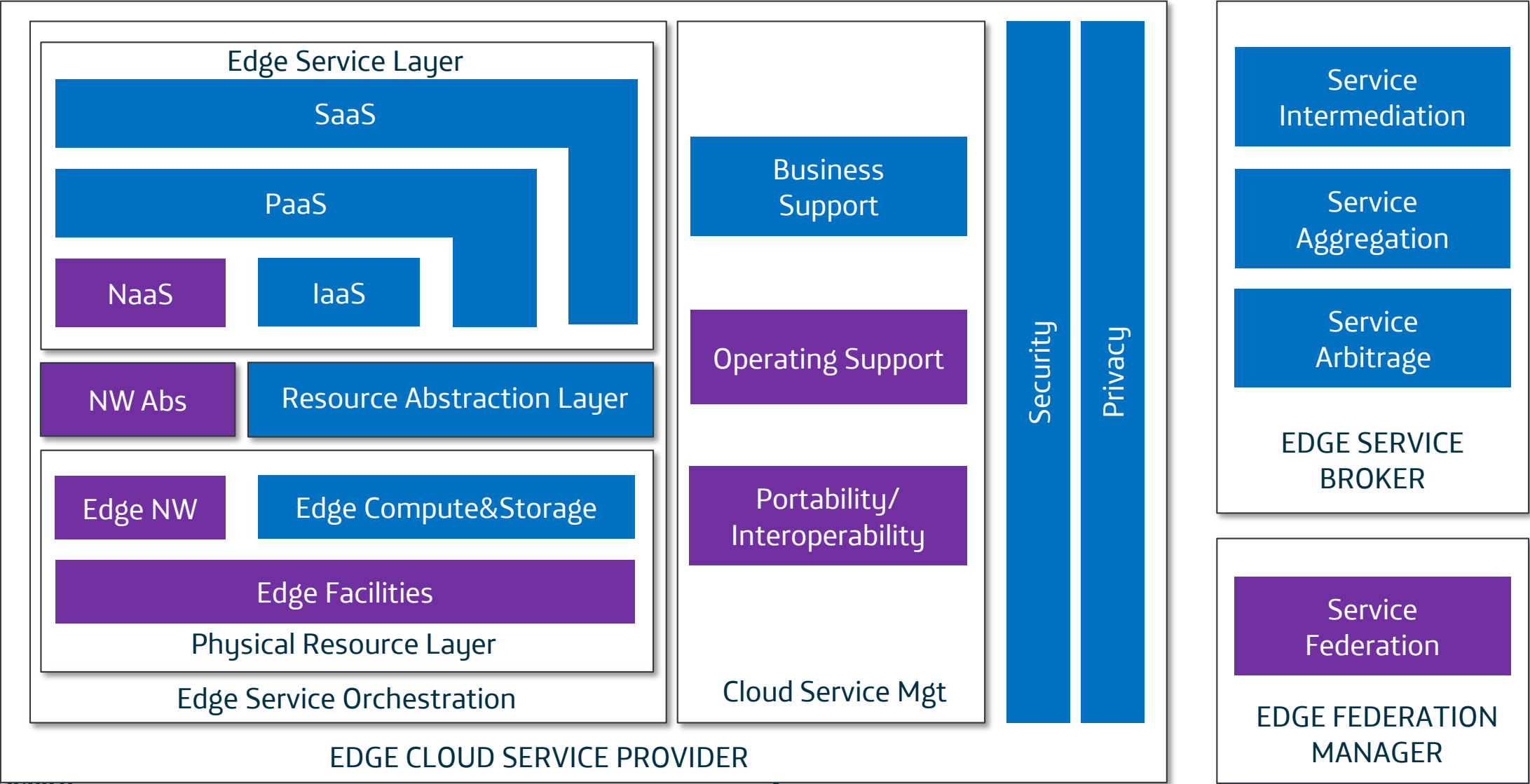


The deployment of an app over a wide coverage area requires a **smart resource management** to be efficient and affordable so that resources are allocated and apps instantiated only **when** and **where** they are needed.

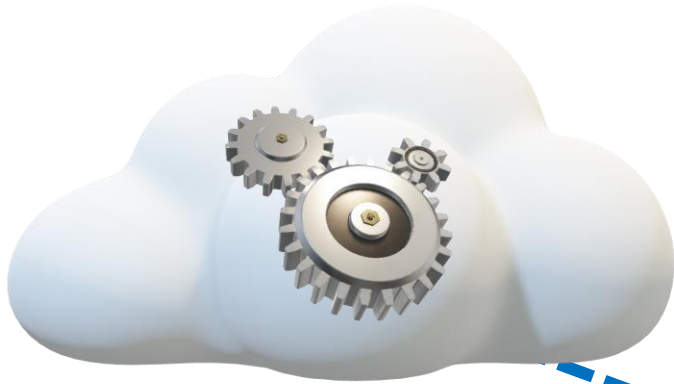
The Customer should be able to set the **policies** for the **app LCM** and the system should scale up and down resources to cope with the demand following such policies



To design and define the EDGE CLOUD we just have to focus on the DIFFERENTIAL functionality vs the CLOUD

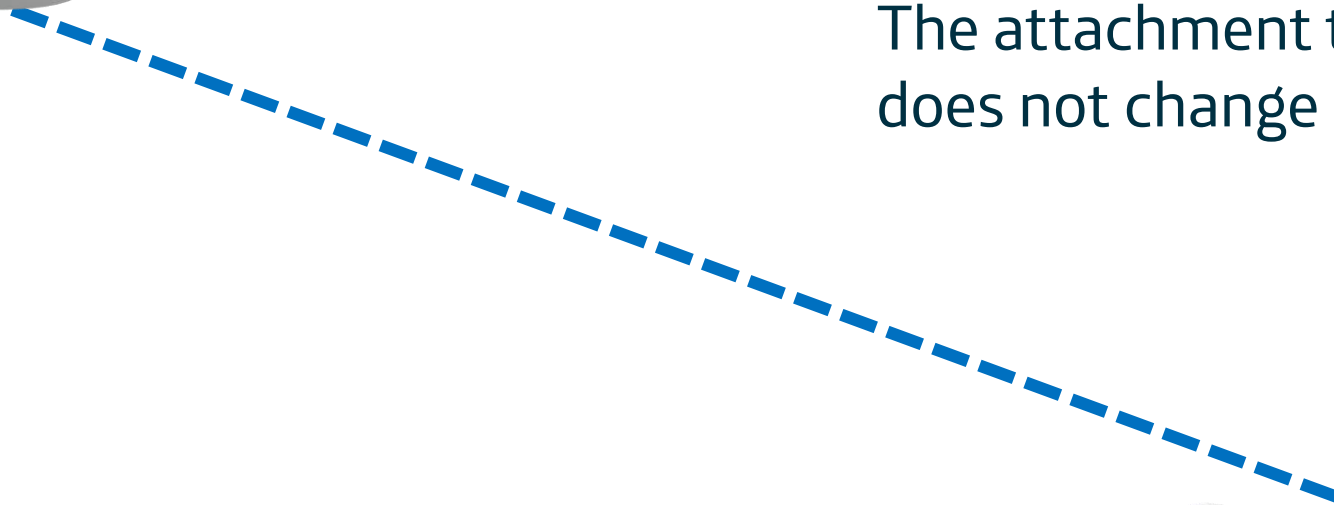


From a more STATIC Central Cloud...



Pretty STATIC resource allocation and app instantiation for moving users

The attachment to the central Cloud does not change as the user moves



...To a more DYNAMIC Edge Cloud

The DYNAMIC resource allocation and app instantiation addresses the fact that the user may be moving...

...and the Edge Node that was serving the user may not be the most suitable one after some time

Switching to a new Edge node, and changing the anchor point to the network, may be needed

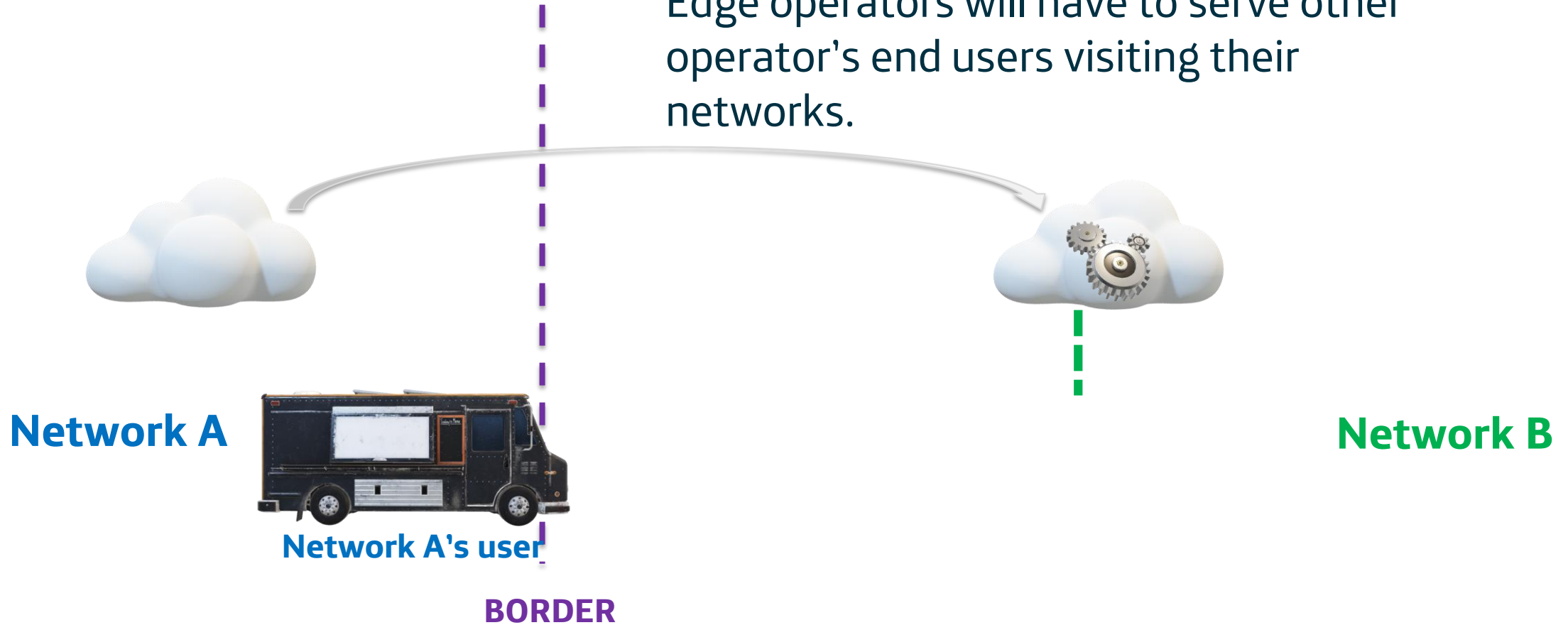


The effect: the EDGE CLOUD seems to follow the customer...



...and this happens also across BORDERS

Many applications demand a global reach.
Edge operators will have to serve other
operator's end users visiting their
networks.



The EDGE CLOUD is a CLOUD, but requires specific features when Mobility is required

- ☁ Smart Edge Resource allocation
- ☁ Smart Edge Connectivity
- ☁ Federation: connect Edge Computing platforms
 - Share a Federation Manager
 - Implement a Federation Manager

...and when Mobility is required:

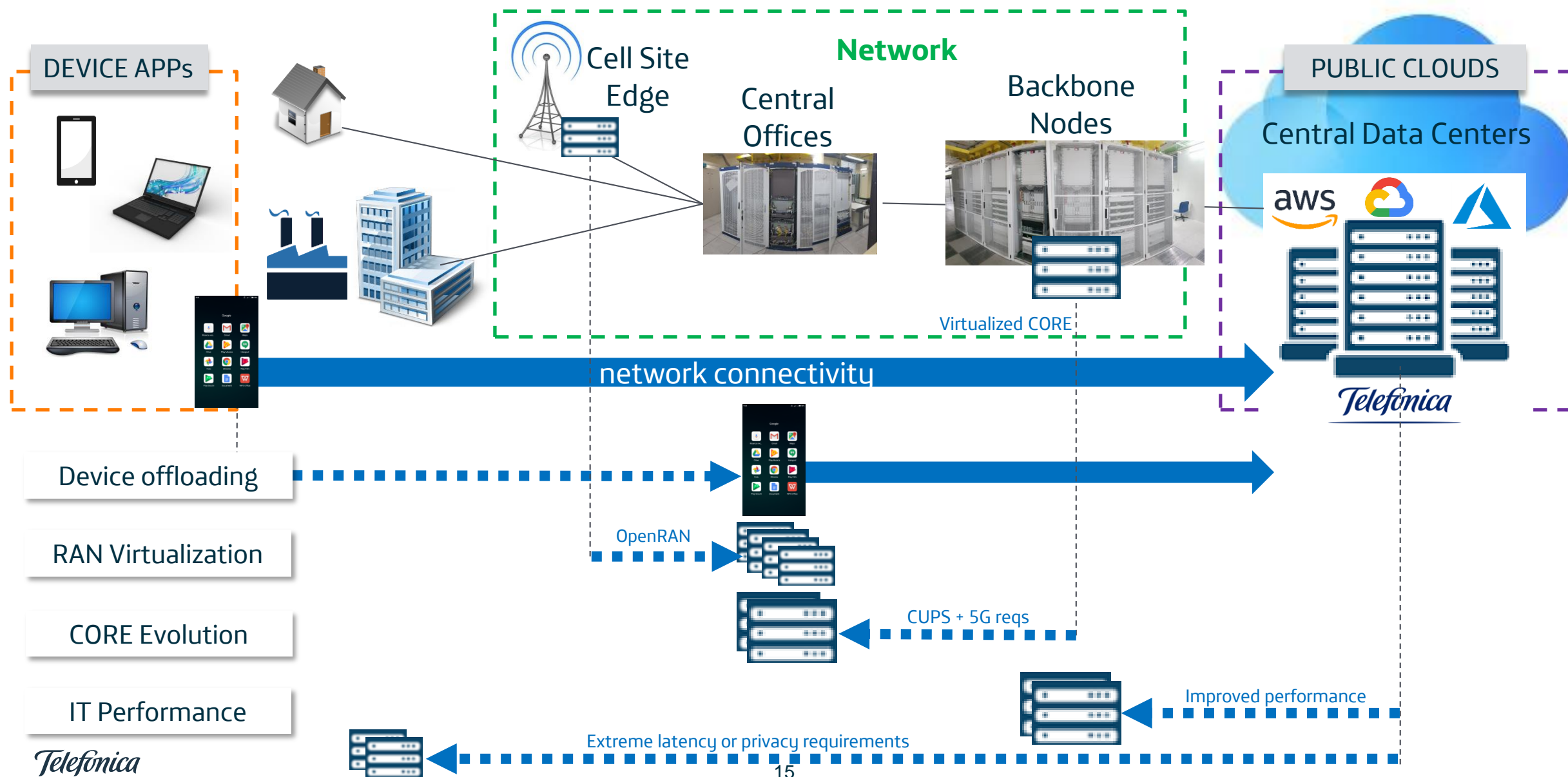
- ☁ Smart Edge Discovery
- ☁ Mobility support
- ☁ Service Availability in visited networks

Where is a TELCO
EDGE CLOUD
better positioned?

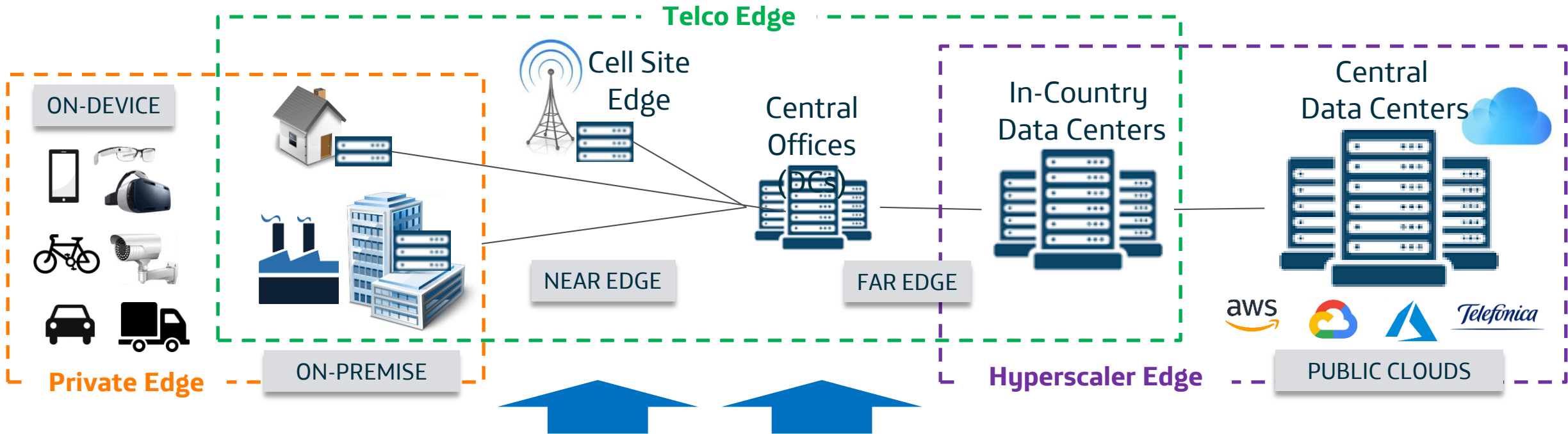
What is the space for
Telecom Operators?



Which are the trends that take workloads to the TELCO EDGE CLOUD?



Why should an application be placed at the TELCO EDGE CLOUD?

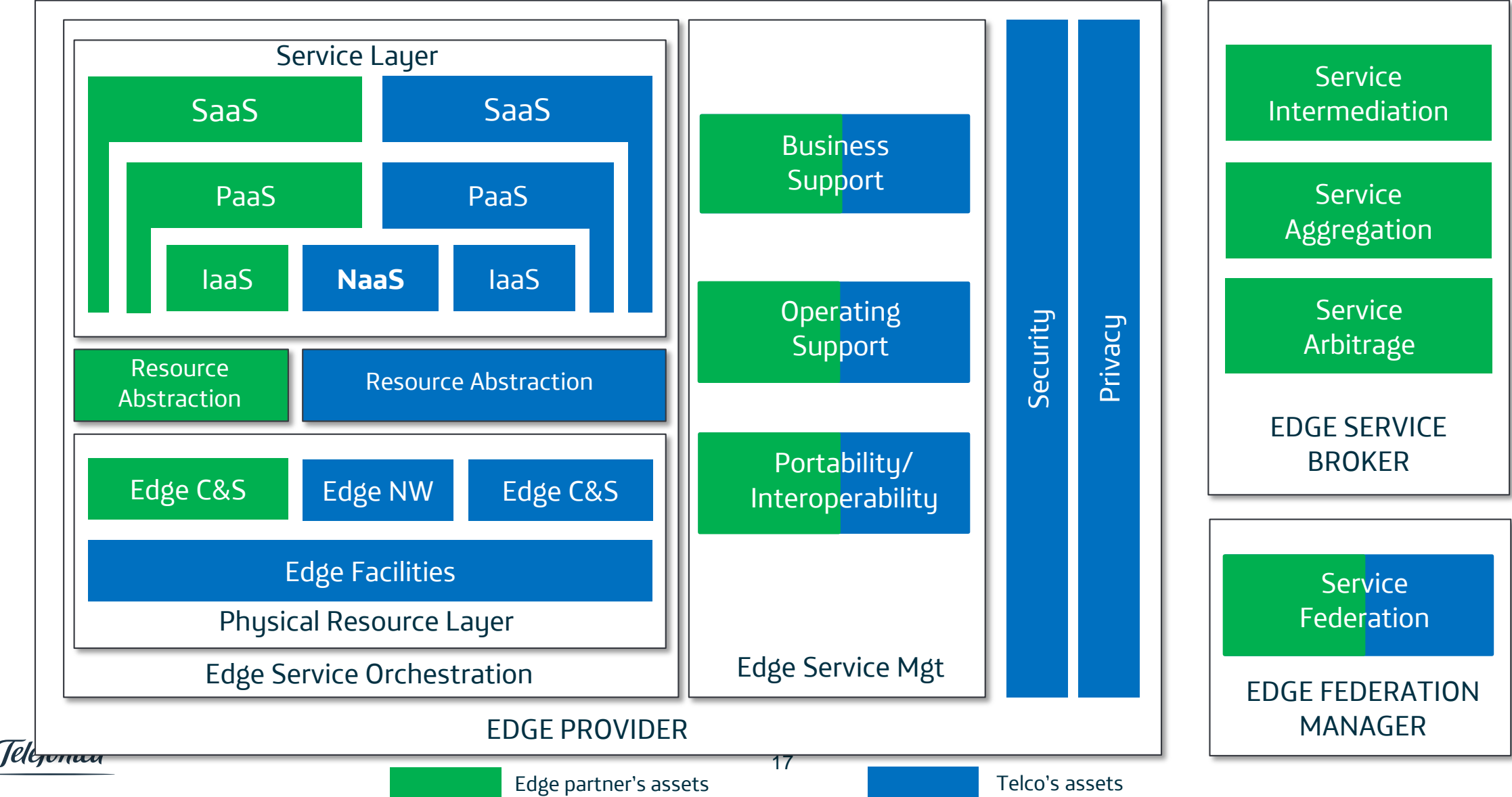


- **New apps:** in case **value add** comes at **commercial conditions** that the customer/user may afford and accept.
- **Existing apps:** only if it is **cheaper** than on-premise or public cloud solutions, or a combination of both.

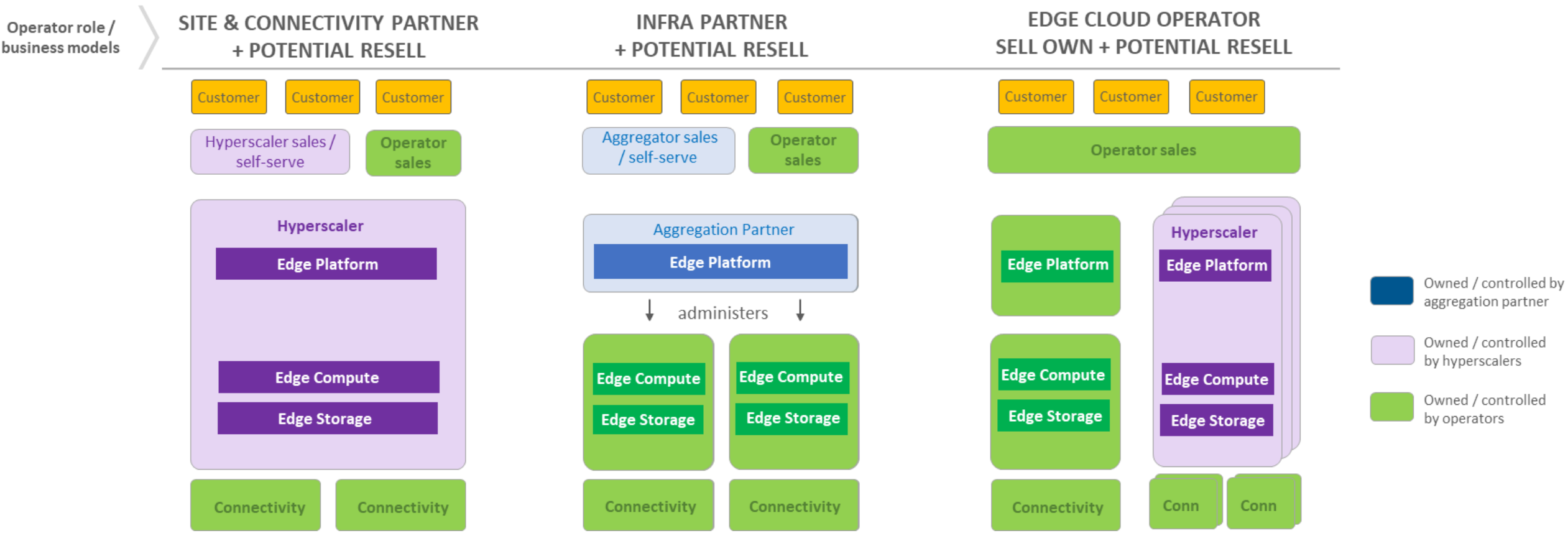
Latency reduction, data privacy/residency, transport efficiency, weight of **network as tenant**

Multitenancy, **operational scale**, energy efficiency

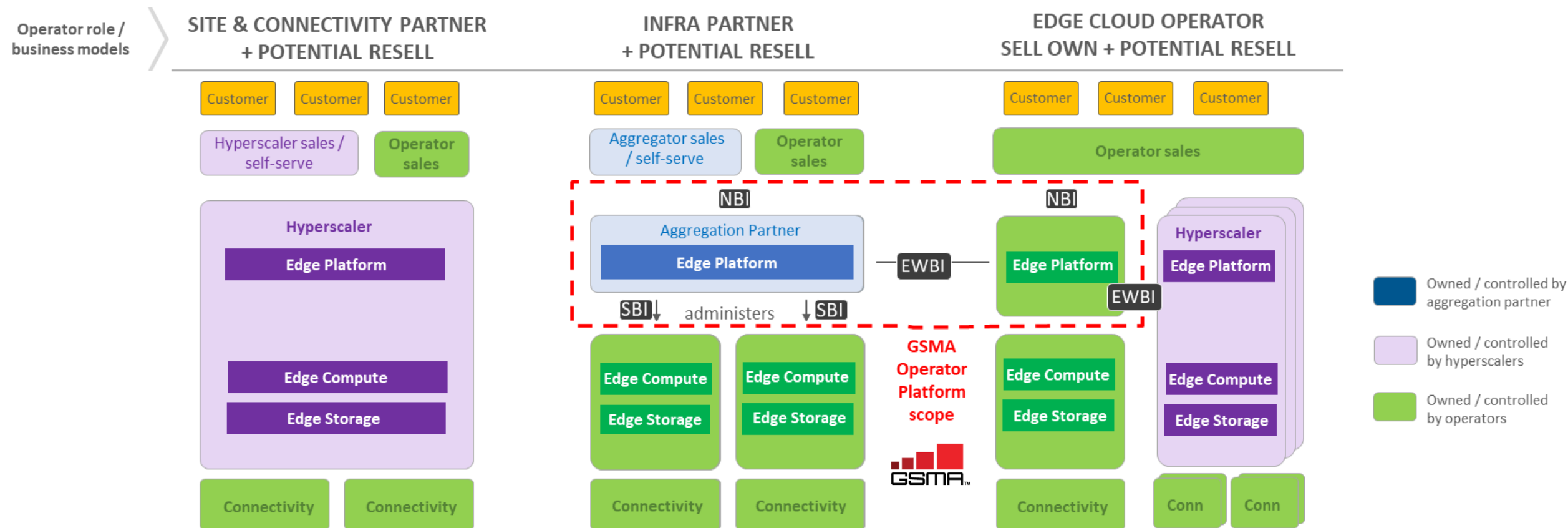
The role of TELCOS in the EDGE CLOUD depends on which elements the TELCO is better prepared for and which ones it needs to control



Depending on the ROLE the Operator wants to play, the EDGE CLOUD may follow different DEPLOYMENT and BUSINESS MODELS

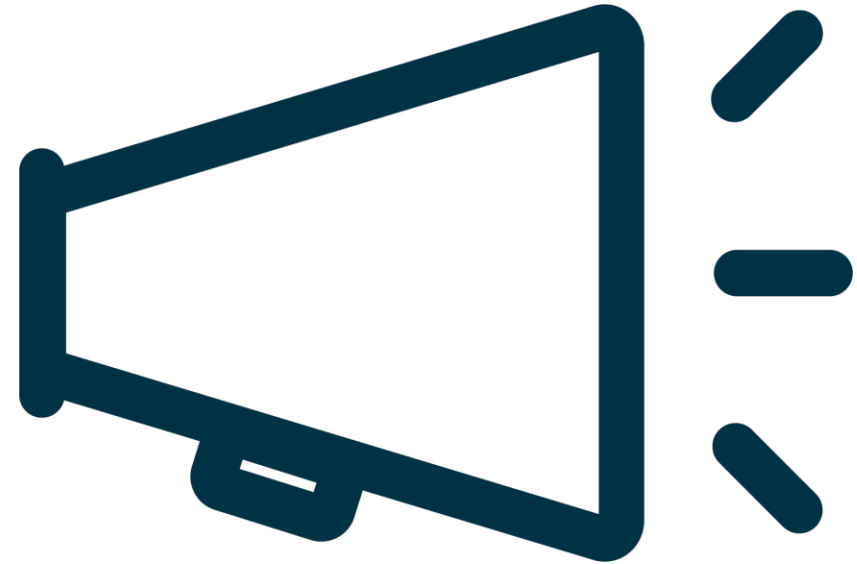


The GSMA Operator Platform project seeks to align the industry so that the different approaches to the EDGE CLOUD can interoperate



Telefónica, an EDGE CLOUD OPERATOR

with active collaboration with
the Industry



Telefonica's position as EDGE CLOUD OPERATOR leverages its network assets and capabilities and the strengths of the different options

Launch of first Edge Computing commercial services in Spain



VDC Edge

To be announced this week

Collaboration to develop federation mechanisms

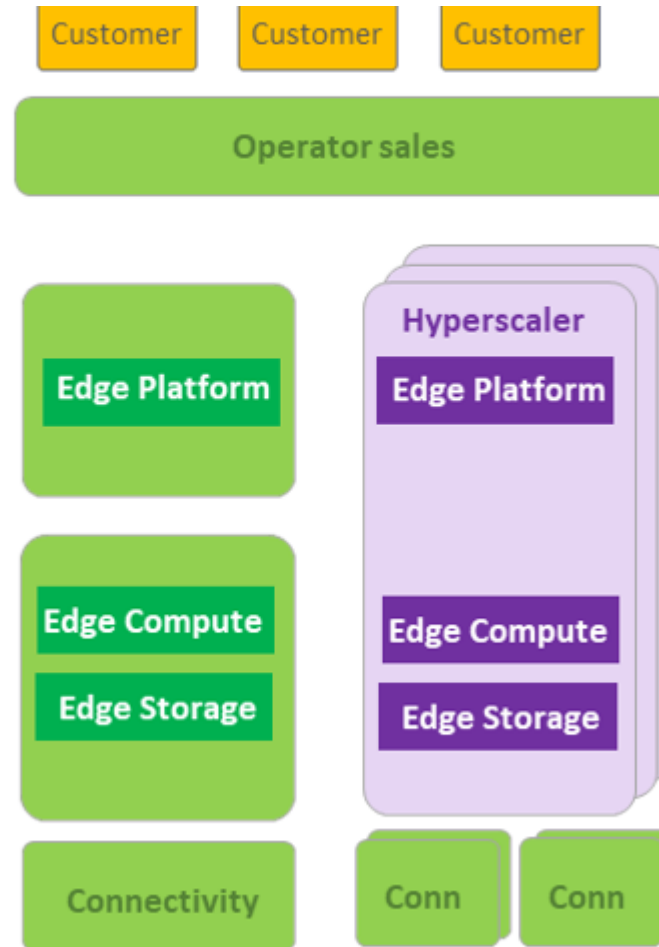


MultiOperator MEC experience

4th Mar 2020

<https://www.telefonica.com/en/web/press-office/-/telefonica-signs-an-agreement-with-kt-corp-china-unicom-and-telstra-to-collaborate-on-the-multi-operator-edge-computing-experience>

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The **Edge Cloud** development is aligned with our **Fibre** and **4G/5G** Strategy

Collaboration with hyperscalers:
e.g, agreement with Microsoft



29th Feb 2020

<https://www.telefonica.com/en/web/press-office/-/microsoft-to-open-new-datacenter-region-in-spain-and-expand-strategic-partnership-with-telefonica-to-boost-spain-s-competitiveness>

31st Mar 2020

<https://azure.microsoft.com/en-us/blog/microsoft-partners-with-the-industry-to-unlock-new-5g-scenarios-with-azure-edge-zones/>

Telefonica collaborates actively with the Industry to develop the EDGE CLOUD

MultiOperator MEC experience

Telefonica leads the **MultiOperator MEC Project** with key operators and Technology partners. The Project aims at developing and testing basic MEC functionality and support for **federation, mobility and roaming** to enable a **global Telco Edge Cloud service**



<https://www.telefonica.com/en/web/press-office/-/telefonica-signs-an-agreement-with-kt-corp-china-unicom-and-telstra-to-collaborate-on-the-multi-operator-edge-computing-experience>

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Operator Platform Group

Telefonica works with other operators and technology partners in defining **requirements** and a **reference architecture** design for the **Operator Platform**, that will enable operators to expose and monetize network capabilities, including Edge Computing.



<https://www.gsma.com/futurenetworks/resources/operator-platform-concept-whitepaper/>

Telco Edge Cloud taskforce

Telefonica collaborates with other operators to create a **Telco Edge Cloud** service providing global reach and differentiating capabilities. The taskforce defines **commercial models** and provides global **testbed for service trials** with customers on telco production networks



<https://www.gsma.com/newsroom/press-release/telecom-operators-collaborate-to-build-the-telco-edge-cloud-platform-with-gsma-support/>

Summary

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- The EDGE CLOUD is a CLOUD but presents some specific requirements: smart resource allocation, smart edge discovery, federation, mobility support, service availability while roaming
- The TELCO EDGE CLOUD has a wide space of development. It is key to find the right cost/benefit balance
- Telefonica is positioned as an EDGE CLOUD operator with a strategy that leverages its network assets and capabilities and the strengths of the different options.



INSERT TYPE OF SECURITY USE

“Understand what
is the value and
which are the
economics”



THANK YOU!

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