



Insights for Edge Software Developers



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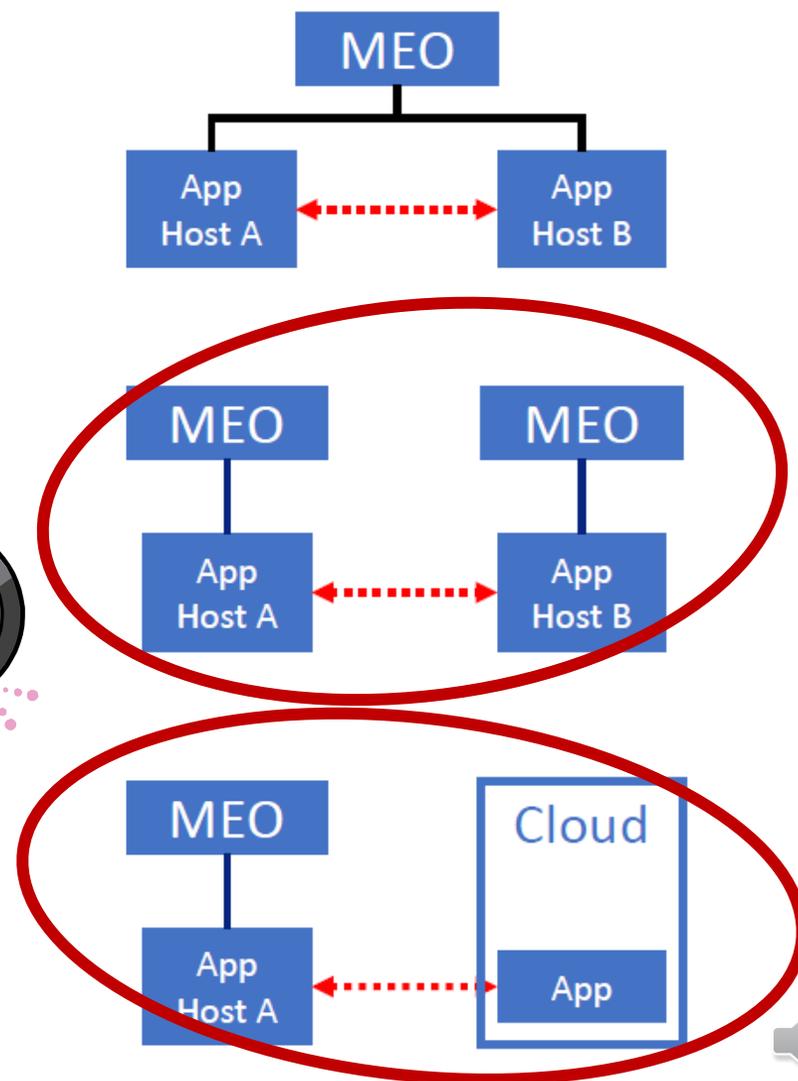
For: **everyone**

Episode #2 – Overview of MEC Federation



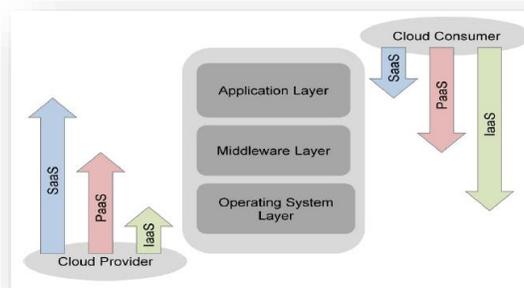
In this episode ...

- We will learn how:
 - The Cloud Federation is an evolution of Cloud Computing
 - ETSI MEC is focusing on Edge Cloud and MEC Federation
 - Real-world Use Cases are in need of MEC Federation

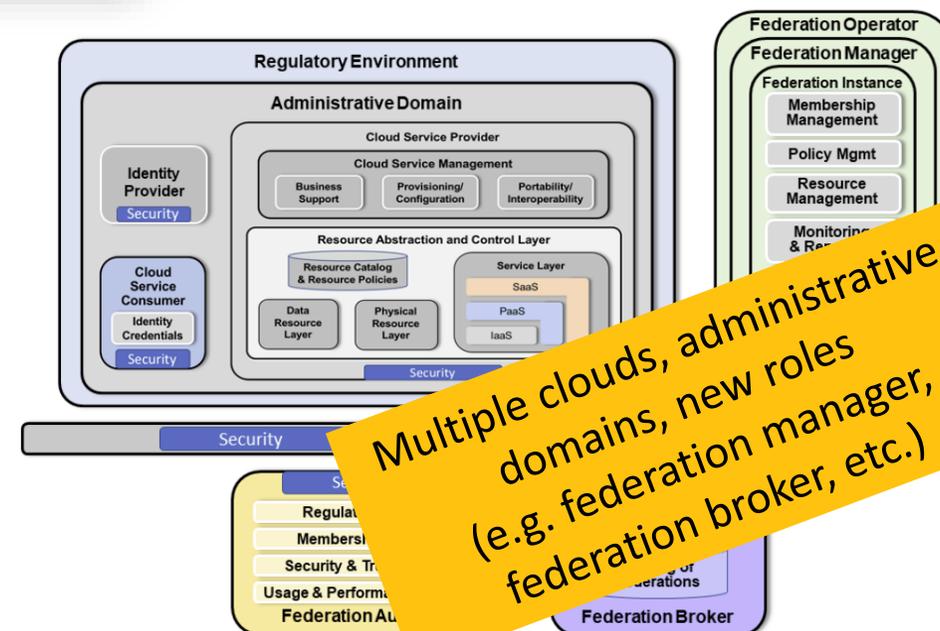
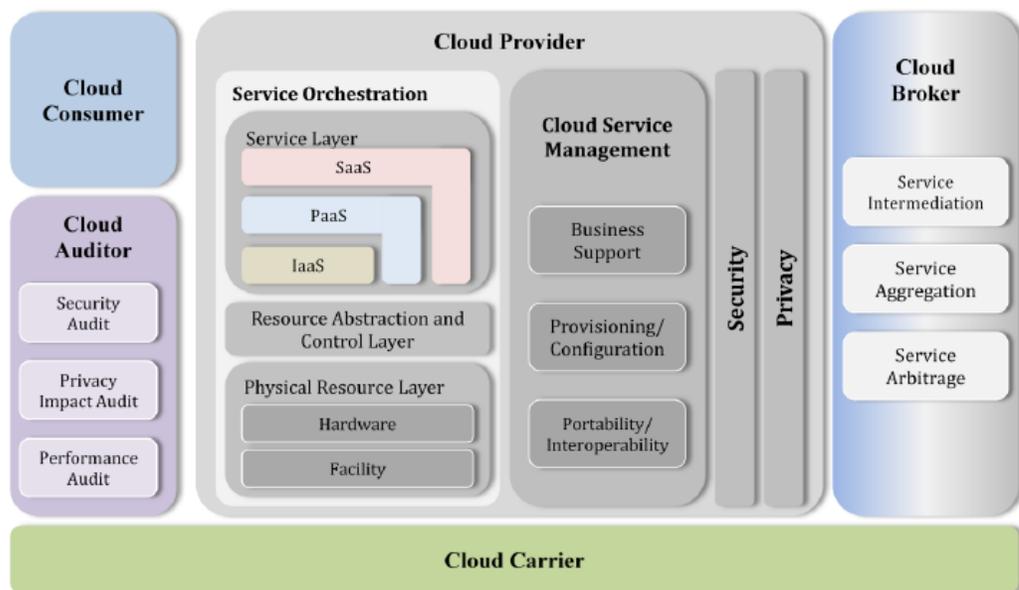


From Cloud Computing to Cloud Federation

The well-known **Cloud Computing** models (IaaS, PaaS, SaaS)



... are still included in a more elaborated **Cloud Federation** concept



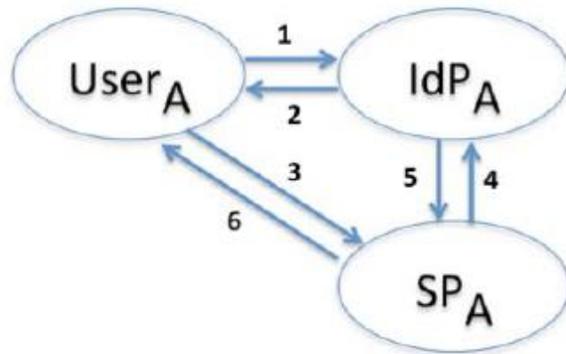
Multiple clouds, administrative domains, new roles (e.g. federation manager, federation broker, etc.)



- Key concepts:
 1. a virtual **collaboration context**, where the federation is actually not necessarily “owned” by any one user or organization;
 2. participating entities have a **membership** in the federation and **identity credentials** that are linked to each member;
 3. users, sites, and organizations can participate in a federation by choosing to **share** some of their **resources** and **metadata** and making them discoverable and accessible to other federation members;
 4. participating members **agree upon the common goals and governance** of their federation, based on well-known roles, attributes and policies.

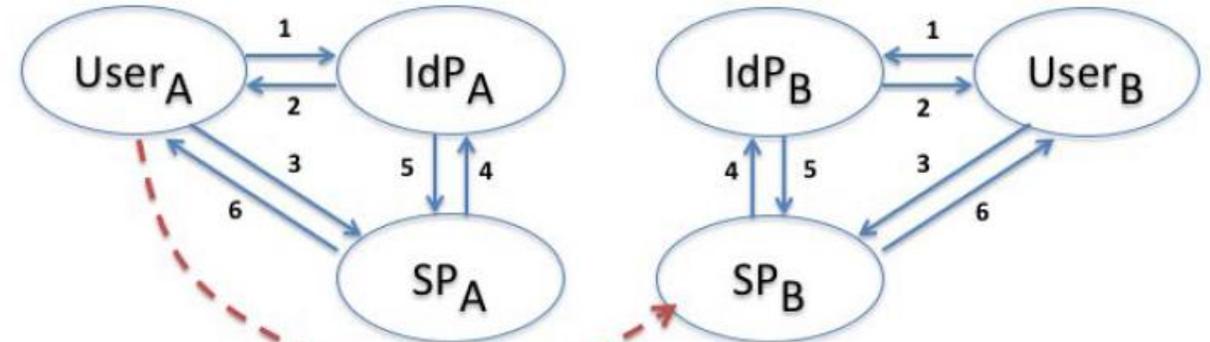


The essence of Federation



Ordinary authentication and authorization

- User requesting a service to a Service Provider
- identity credentials are issued by an Identity Provider, and presented by the User to the Service Provider, who validates the credentials and make an access decision



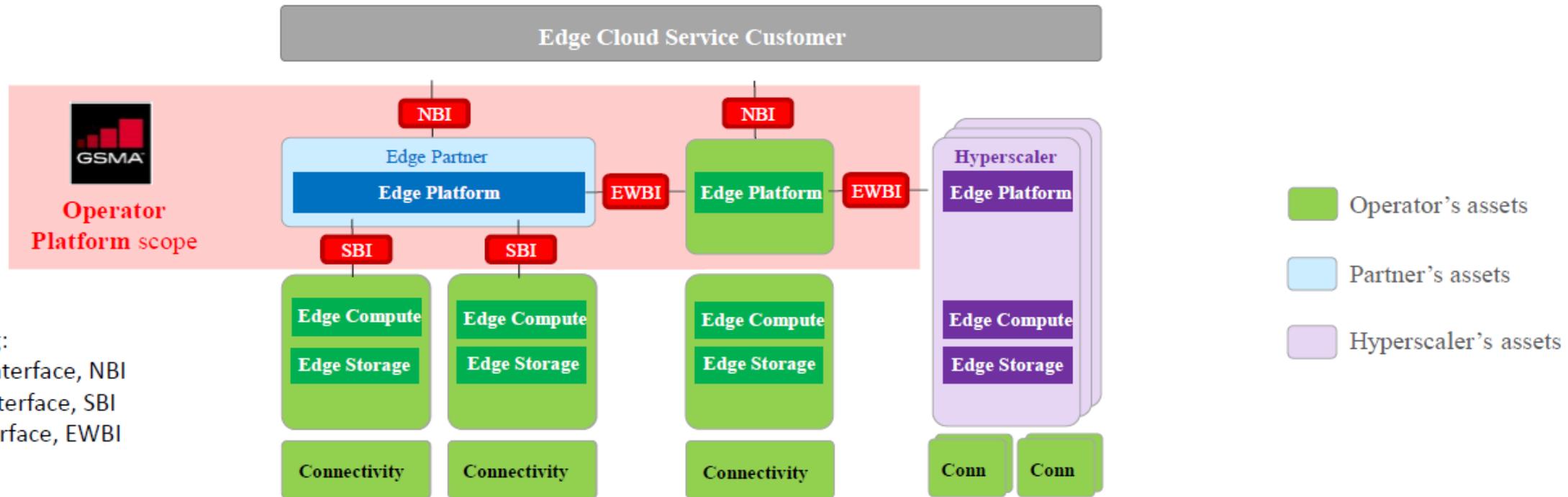
User_A must be able to discover (find) SP_B and make service request
SP_B must be able to validate User_A's credentials and make access decision

Federated authentication and authorization

- Hence, a federation is essentially an environment wherein:
1. Users in Organization A can discover and invoke services in Organization B, and
 2. Service Providers in Organization B can validate credentials from Organization A and make the proper access decisions.



Telco Edge Cloud in GSMA OPG



Aims at normalizing:

- Customer-facing interface, NBI
- Resource-facing interface, SBI
- Inter-platform interface, EWBI
- Device-facing, UNI

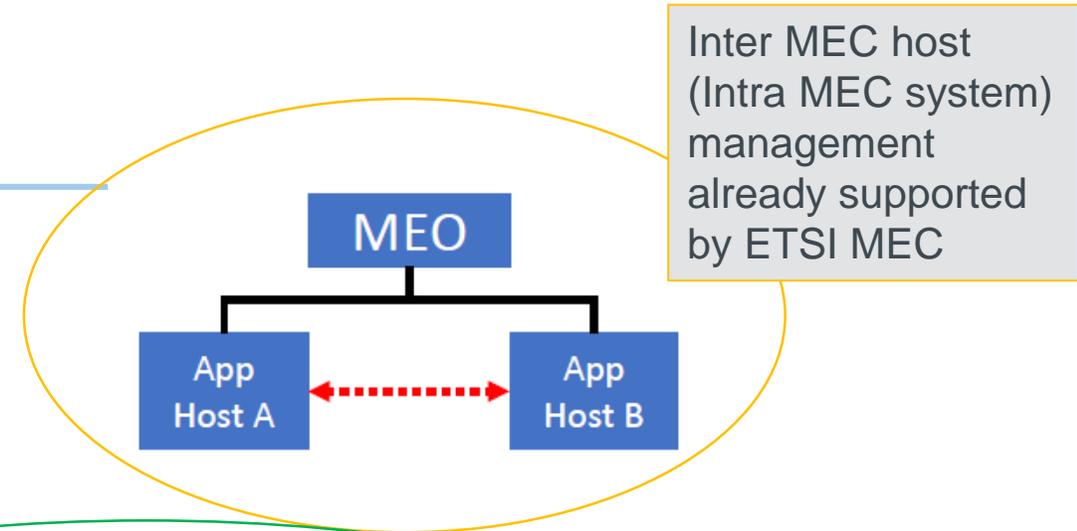
Ref: GSMA OPG white paper: “Operator Platform Edge Requirements overview”, Oct 2020
<https://www.gsma.com/futurenetworks/resources/op-telco-edge-proposal-whitepaper/>



1 – MEC Federation in ETSI

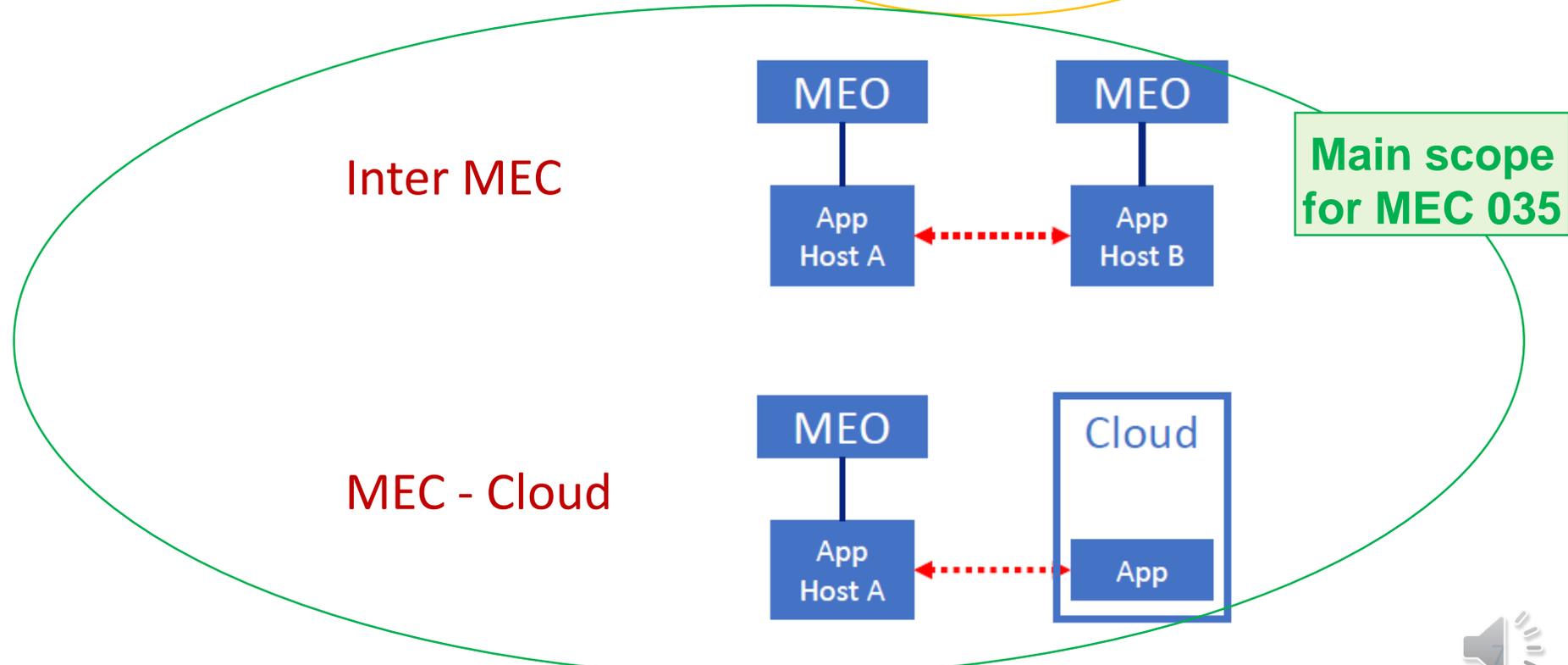
- In Phase 3 ETSI MEC is expanding its scope from ...

Intra MEC



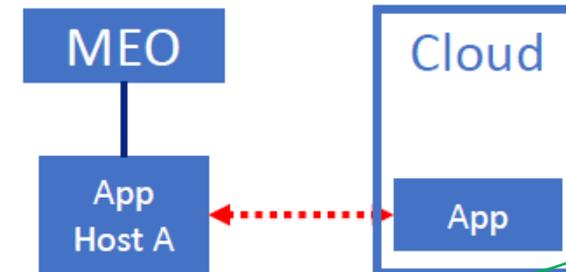
- To...

Inter MEC



- And...

MEC - Cloud



2 - Inter-MEC system communication in MEC 003



ETSI MEC GS 003 specifies three **high-level requirements** for inter-MEC system communication, along with a hierarchical framework for inter-MEC system discovery and communication as described by the following excerpt (Clause 9 of MEC 003):

"Inter-MEC system communication addresses the following high-level requirements:

- 1. A **MEC platform** should be able to **discover** other MEC platforms that may belong to different MEC systems;*
- 2. A **MEC platform** should be able to **exchange information** in a **secure manner** with other MEC platforms that may belong to different MEC systems.*
- 3. A **MEC application** should be able to exchange information in a secure manner **with other MEC applications** that may belong to different MEC systems.*

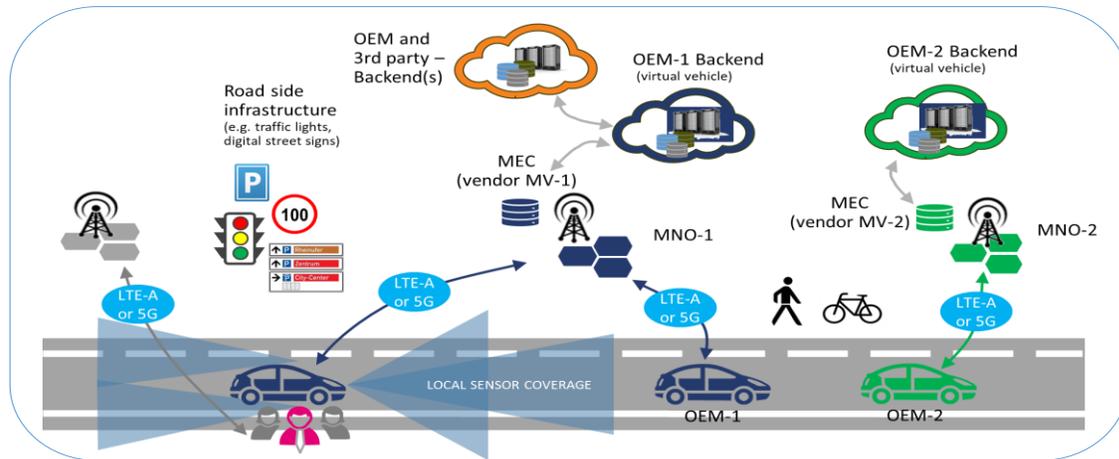
To enable the inter-MEC system communication, the following hierarchical inter-MEC system discovery and communication framework is assumed:

- ✓ MEC system level inter-system discovery and communication.*
- ✓ MEC host level inter-system communication between the MEC platforms."*

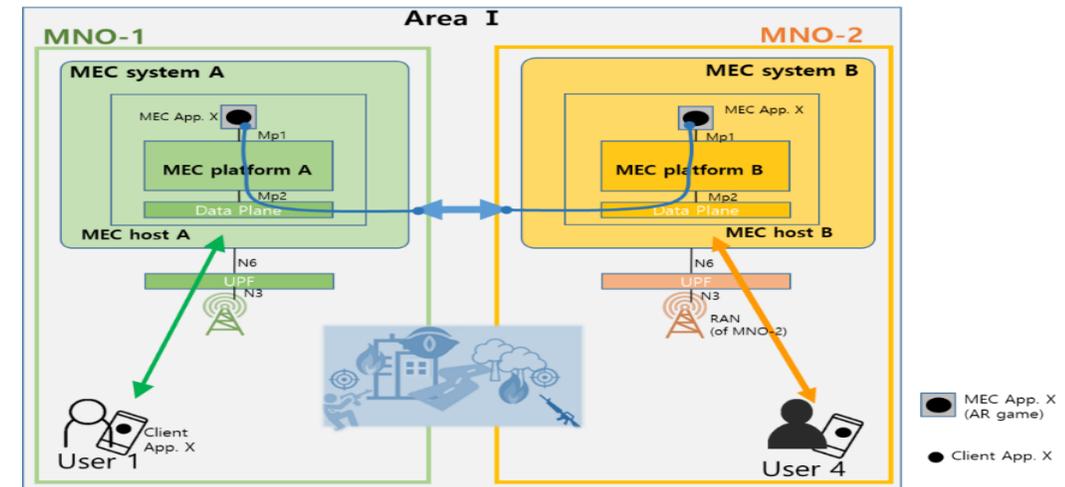


3 – Real-world use cases for MEC Federation

- Example#1 – V2X Services



- Example#2 – immersive AR gaming



- Multi-MNO interoperability
- Multi-OEM interoperability
- Multi-vendor interoperability

- multiple MEC systems
- Direct communication App-to-App
- Managed connectivity



Conclusions and further deepening



What we have learned:

- Cloud Federation overview and essential concepts
- Phase 3 activities on MEC Federation
- Real-world use cases for MEC Federation



Interested to learn more?

- See GR MEC 035 published by ETSI MEC
- Stay tuned on the forthcoming ETSI MEC standards
- Follow also the [next episodes of the MEC TECH Series](#) 😊



Enjoy the

