Insights for Edge Software Developers

Presented by: Dario Sabella
(Intel, Chairman of ETSI MEC)

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.)
Basics on Cloud Federation

• 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 makes an 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
1 – MEC Federation in ETSI

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

- To...
  - Inter MEC

- And...
  - MEC - Cloud

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

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

• Example#2 – immersive AR gaming

  • 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 😊
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