



## MEC APIs: opportunities and challenges

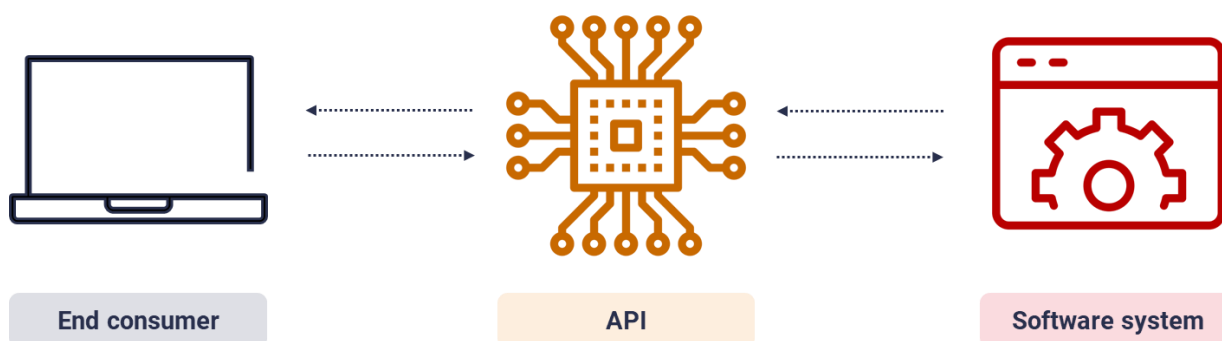
MEC APIs are a type of APIs that allow app developers to access the benefits of multi-access edge computing and integrate them into applications and services. However, taking advantage of this opportunity is currently complicated due to lack of standardisation. This article looks at the efforts to overcome this challenge and make MEC APIs widely available.

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## What is an API?

API stands for Application Programming Interface. Essentially, an API is a set of definitions and protocols that dictate how two or more systems/programmes interact in an automated fashion. In simpler terms, it is an intermediary allowing two applications to talk to each other. APIs allow different software systems to exchange data and functionality and can be used to enable a wide range of capabilities, such as accessing a database, integrating with a third-party service, or building a mobile application. APIs are by no means a new concept and form the foundation of the interactions which underpin the internet itself. If we consider the example of a mobile weather application, APIs create the link between the daily weather data from the weather bureaus software system and the weather app on a phone, which allows the application to retrieve relevant information and show daily weather updates on a phone.

**Figure 1: APIs are the foundation of application communication**



APIs are an important part of automating systems and creating massively scaled communications. Twilio is a company that offers a suite of solutions for businesses to improve their customer engagement by creating personalized and unique customer experiences through APIs. Their programmable messaging allows businesses to send and receive messages with cloud-scale messaging APIs for SMS, MMS, and WhatsApp. They also provide API building blocks that help developers address customer communication challenges and create innovative and intuitive communication solutions. Twilio's solutions have helped businesses like Airbnb and Shopify streamline their communication with customers, resulting in improved percentage of successful bookings and better customer service. Twilio's use of APIs created a new business and generated huge amount of revenue to the tune of US\$2.8 billion, a number that has caught the attention of CSPs looking to optimise their solutions for edge computing, 5G and cloud native technologies. APIs could allow better integration between application and the network and completely transform the way applications interact with the network. One example of such is MEC APIs.

## What are MEC APIs?

MEC APIs are a type of APIs that allow the integration of multi-access edge computing functionality into applications or services. MEC refers to the ability to perform computing tasks and provide services at the edge of a network, close to the user or device making the request. This can be useful in a number of scenarios, such as reducing latency or ensuring the most optimal routing of the edge network traffic. MEC APIs can be used to access that MEC functionality, which, in turn, allows app developers to build and deploy applications that take advantage of the benefits of MEC. In situations when these capabilities are mission- or business-critical, APIs can be used to distribute workloads and offer services at the optimal network location, edge cloud or core

cloud, allowing application developers to move away from best efforts connectivity and deliver dynamic applications for optimal outcomes.

Although such a concept sounds wonderful in theory, there is one major problem with implementing it in real life – a lack of standardisation. Currently, application developers need to integrate with each carrier’s APIs individually to be able to interact with them – a complex process preventing them to achieve scale (the first and foremost aim of any app developer). Achieving standardisation is crucial to ensuring interoperability, meaning that MEC APIs can be used by various applications in a consistent and reliable way and simplifying the current integration process.

## Efforts to standardise MEC APIs

There are several organisations involved in the standardisation of MEC APIs, including the European Telecommunications Standards Institute (ETSI), Telecommunications Management Forum (TM Forum), and CAMARA. These organisations work with various stakeholders within the industry to develop and maintain standards for MEC APIs and other aspects of mobile edge computing to promote the adoption and use of MEC and facilitate the development of new products and services taking advantage of the capabilities MEC enables. It is interesting to look in more detail at what some of these industry initiatives are working on.

### #1 ETSI

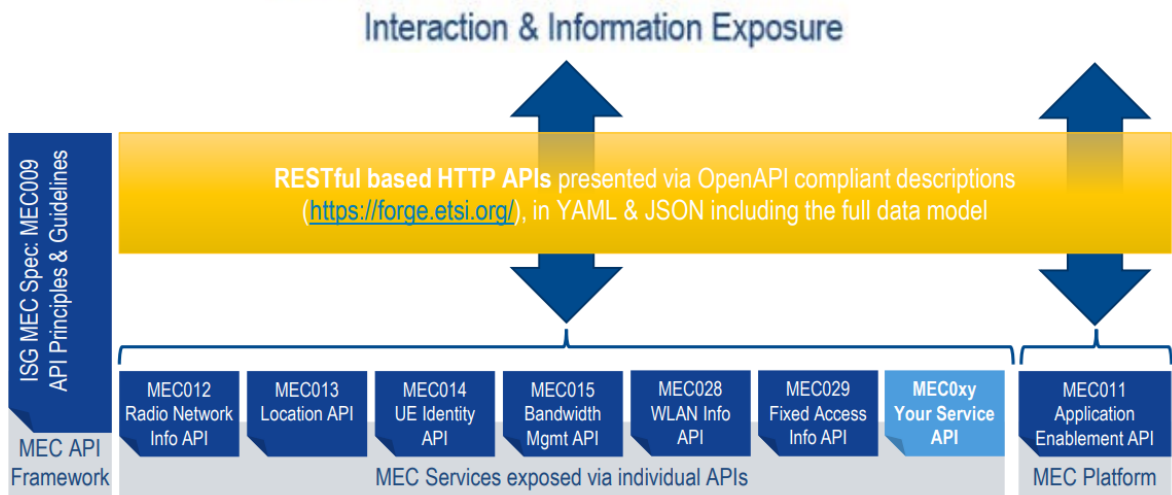
ETSI is probably the first organisation that comes to mind after hearing the term MEC APIs. Working in collaboration with a wide range of experts from telcos, network operators, equipment vendors and software developers, ETSI has been developing technical standards for information and communication technologies, including MEC APIs. They have a dedicated working group called **MEC ISG (Industry Specification Group)** that has released the first set of MEC API standards back in 2017 and is responsible for developing and maintaining standards for MEC.

ETSI has published a number of technical specifications for MEC APIs, including:

- MEC API for network functions virtualisation
- MEC API for IoT applications
- MEC API for emergency services
- MEC API for AR/VR applications
- A set of APIs for accessing MEC functionality, such as data storage, processing, networking, and other services. These APIs are designed to be used by developers to build applications and services that take advantage of the benefits of mobile edge computing.
- A standard defining the security requirements for MEC platforms and applications, specifying the measures for the protection of confidentiality, integrity and availability of MEC-based systems

In addition to developing technical standards for MEC APIs, ETSI is also involved in other aspects of MEC, including testing, certification, and the promotion of MEC technologies and applications.

**Figure 2: ETSI MEC API standards**



Source: ETSI MEC: An Introduction - <https://www.etsi.org/images/files/technologies/ETSI-MEC-Public-Overview.pdf>

## #2 TM Forum/Bridge Alliance Partnership

This **strategic partnership** between **TM Forum** and **Bridge Alliance** is aimed at providing opportunities for telcos to simplify the adoption of MEC. This, in turn, would help telcos leverage new business opportunities within emerging technologies and accelerate their digital transformation. In collaboration, the organisations are working towards standardisation and an industry-approved architecture for MEC, which would drive the deployment of various MEC use cases.

TM Forum is a global industry association that provides a platform for communication service providers, digital service providers, and their suppliers to share knowledge, collaborate, and develop best practices. The TM Forum provides a set of **Open APIs** that enables member companies to build new digital services and applications. The Open APIs are based on the TM Forum's APIs Framework, which provides a set of guidelines and standards for designing, building, and publishing APIs. The TM Forum's Open APIs cover a range of areas, including customer management, network orchestration, and service fulfilment.

Bridge Alliance – a mobile alliance of 34 major telecoms companies in Asia Pacific, Middle East and Africa – has been driving POCs and live deployments of MEC services through its Federated Edge Hub, which connects MEC platforms across member operators and allows them to deliver on-demand edge computing services regionally. With the partnership, Bridge Alliance and its members can now leverage TM Forum's Open APIs to deliver MECs at scale.

## #3 CAMARA

The **CAMARA** group is focused on developing Northbound APIs for specific customer use cases and an open catalogue of API frameworks for telcos to use.

Northbound APIs are those which are built for specific developer communities, integrating network functions with vertical applications to solve specific business problems. Initiated by Telefónica in March 2020, CAMARA is developing API standards that are defined by customer demand, and sharing them with other telcos once

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they have been tested and deployed. This approach allows for faster scaling of successful APIs and a focus on the customer experience. The group is made up of telcos, cloud providers, device manufacturers, and application developers, and is organized into 11 service API groups with plans to expand in the future. CAMARA works closely with the TM Forum and GSMA to develop frameworks for the consumption of these APIs, and define common business models for Network-as-a-service technologies to ensure a unified customer journey across multiple operators.

## The future of MEC APIs

The capabilities of MEC are unleashed by APIs, automating the exposure of edge network functions to the application and providing much deeper control of connectivity to the developer. CSPs believe that network APIs and network-as-a-service will be an important tenet of their success in 2023 and beyond, but significant challenges remain before they can reach commercial scale. To have a discussion with us about how CSPs should be approaching the challenges of network-as-a-service, and the many business models that surround it, please reach out to us at [tim.otto@stlpartners.com](mailto:tim.otto@stlpartners.com).

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