

mF2C: Fog-to-Cloud Management Ecosystem



Towards an Open, Secure, Decentralized and Coordinated Fog-to-Cloud Management Ecosystem (mF2C) sets the goal of designing a multi-stakeholder management framework to set the foundations for a novel distributed architecture to cover the necessities of the new stack of resources (F2C).

Fog computing brings cloud computing capabilities closer to the end-devices and users, thus enabling location-dependent resource allocation and the deployment of low latency services, while simultaneously extending significantly the IoT services portfolio as well as market and business opportunities in the cloud sector. With the numbers of devices growing globally at a fast rate, new cloud and fog models are expected to emerge, paving the way for shared, collaborative, extensible mobile, volatile and dynamic compute, storage and network infrastructure. When put together, cloud and fog computing create a new stack of resources from the edge up to the cloud, the so-called Fog-to-Cloud (F2C), creating the need for a new, open and coordinated management ecosystem. In this context, mF2C proposes an open, secure, decentralized, multi-stakeholder management framework, which includes novel programming models, privacy and security, data storage techniques, service creation, brokerage solutions, SLA policies and resource orchestration methods. This framework will set the foundations for a novel distributed architecture between Cloud computing and Fog computing.

With an almost unstoppable proliferation of wearable computing, smart devices, large-scale wireless sensor networks and the well-known Internet of Things, novel smart services are expected to come up in the near future, leveraging cloud technologies, already mature, as well as fog technologies still in their infancy. Recent work in the fog arena has been done by the OpenFog Consortium, turning into a high-level reference architecture for Fog Computing, with many challenges yet unsolved though.

The mF2C project **addresses the need for an open and coordinated managing solution for fog and cloud computing systems** providing a novel management framework. Three real-world use cases, namely Smart City, Navigation Service and Fog-Hub, will be used to test and validate the distributed architecture, system and platform.

“mF2C’s ambition is to develop a framework leading to appropriate incentives for fog and cloud computing resources to participate in the cooperative resource sharing.”

Ana Juan, Project Coordinator, ATOS

The project consortium, led by ATOS, puts together a balanced team of complementary organisations including industry and academia, as follows: Atos Spain SA (Spain), Universitat Politècnica de Catalunya (Spain), Technische Universität Braunschweig (Germany), Intel Research and Development Ireland Limited (Ireland), Barcelona Supercomputing Center (Spain), WorldSensing Limited (UK), XLAB Razvoj Programske Opreme in Svetovanje Doo (Slovenia), SIXSQ SARL (Switzerland), Engineering Ingegneria Informatica SpA (Italy) and Science and Technology Facilities Council (UK).

For more information visit our website www.mf2-project.eu or contact the project coordinator Ana Juan (ana.juanf@atos.net).

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