

Special Issue on
Fog and Mobile Edge Computing

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Fog/Edge Computing architecture aims at processing client data as close to the original source as possible. The current use of this technology is driven by the huge amount of devices used in the Internet of Things (IoT), the mobile computing, and the decrease in the cost of computer components. The edge of the Internet is the site for analyzing, aggregating, and distilling sensors, mobile applications, and wearable or IoT data. It is usually located just one wireless hop away from associated devices. It allows distributing the computing and the storage for assisting the resource-constrained IoT devices and promoting emerging applications such as wearable cognitive assistance or augmented reality. Also, this architecture allows optimizing cloud computing systems for tackling network bottlenecks. Moreover, the combination of edge and cloud computing will make the Internet of Things faster, cheaper, and more stable. These paradigms will also improve the possibilities of systems development to improve user's welfare in smart cities.

However, although it is interesting to think about a world with billions of sensors and devices whose data are read by applications and users, careful attention needs to be also paid to the security and privacy aspects. Users are exposed to malicious monitoring or intrusions in their activity. Sensors could need to collect sensitive information from data producers and some smart services. In occasions, peers would need to collaborate among them to carry out a specific task. Communications with the cloud must also be protected. In this context, many challenges related to potential attacks or information leakage and misuse need to be analyzed for maintaining adequate levels of privacy and security in Fog/Edge Computing systems. In addition, other challenges in this field need to be analyzed: design of new applications that use programming models adapted to these distributed systems that can be used on diverse platforms; study of new scheduling challenges (task can move between different physical devices); study of dedicated facilities, data storage, operating systems, energy consumption, network, and middleware techniques to build and operate the micro data centers that host virtualized computer resources; and the necessity of services automatic discover.

The aim of the special issue is to present leading edge work concerning issues related to the challenges presented in the field of Fog and Mobile Edge Computing.

Potential topics include but are not limited to the following:

- ▶ Data centers and infrastructures for Fog/Edge Computing
- ▶ Middleware for Fog/Edge infrastructures
- ▶ Programming models and runtime systems for Fog/Edge Computing
- ▶ Scheduling for Fog/Edge infrastructures
- ▶ Fog/Edge storage
- ▶ Monitoring/metering of Fog/Edge infrastructures
- ▶ Fog/Edge Computing applications
- ▶ Latency/locality-critical applications
- ▶ Legal issues in Fog/Edge clouds
- ▶ Modelling Fog/Edge environments, for example, using process networks, agent-based models, and Peer-2-Peer systems
- ▶ Performance monitoring and modelling
- ▶ Applications of Fog/Edge Computing Privacy-Enhancing Cryptographic Techniques
- ▶ Wearable technologies and the Internet of Things
- ▶ Authentication, auditing, and accountability in Fog/Edge Computing
- ▶ Security architectures for Fog/Edge Computing
- ▶ Security protocols for Fog/Edge Computing
- ▶ Access control mechanisms
- ▶ Secure software-defined networking and virtualization for Fog/Edge Computing
- ▶ Trust management and reputation issues in Edge Computing
- ▶ Usable /accessible security in Fog/Edge Computing
- ▶ Usable/ accessible applications in Fog/Edge Computing
- ▶ Wireless and mobile security in Fog/Edge Computing
- ▶ Energy/cost/efficiency of security in Fog/Edge Computing
- ▶ Trust, reputation, and policy management in Fog/Edge Computing
- ▶ Agent-based coordination for maintaining security in Fog/Edge Computing
- ▶ Agent-based simulation of attacks in Fog/Edge Computing
- ▶ Edge-CoT for smart cities
- ▶ New Edge-CoT computing architecture for data sensing and processing

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Papers are published upon acceptance, regardless of the Special Issue publication date.

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