

CALL FOR PAPERS

IEEE Internet of Things Journal Special Issue on Fog Computing in IoT

Fog Computing is an emerging research area that targets on providing services and satisfying customers' needs in the space between "Ground" and "Cloud". In the current cloud-based Internet-of-Things (IoT) model, smart devices (such as sensors, smartphones) exchange information through the Internet (routers and/or servers on cloud) to cooperate and provide services to users, which could be citizens, smart home systems, and industrial applications. Even though the cloud based IoT model describes a uniform, concise, and scalable solution for supporting IoT applications, the deployments of IoT applications on cloud, however, are facing the challenges originated from economic considerations, social concerns, technical limitations, and administrative issues.

In real world, things (which could be cheap sensors) generate lots of data. Moving these big data from the network edge (end networking devices) to the network core (cloud computing servers) and vis versa naturally brings the following issues: (i) it is expensive for moving the big data through the Internet; (ii) the cost is prohibitively high when storing the big data on clouds; (iii) the Internet access may be unavailable, unreliable, and slow; (iv) the Internet access might be congested by the big data transmissions; (v) the Internet based transmissions may increase the probability of information leakage; (vi) the large number of things, which may have less or no security protection, may be easily utilized by hackers to start DDoS attacks; (vii) the administrative team may question the security, the easiness, and the availability of managing the big data saved on clouds.

On the other hand, clouds may not be always necessary for implementing IoT solutions. For instances: (i) data generated by things may only be valuable for a group of users who are closely located; (ii) existing infrastructures may still be good and scaling up could be achieved by local resource sharing; and (iii) local mass data storage is already sufficient; etc.

There is no doubt that the big data generated by things is surprisingly useful. Fog consists of all the smart computing/sensing systems that are around us, tied together. Typically, it includes a small data center that is placed close to the things in IoT. Fog computing is probably the most promising technology to support IoT applications while simultaneously and successfully addressing all the aforementioned challenges and issues. It adds a new dimension to IoT model for meeting the customers' needs such as fast connection, high security, easy for management, infrastructure reuse, off load core network traffic, and scale quickly. Fog Computing are expected to support a wide range of IoT applications, including device-to-device data sharing, wearable cognitive assistance, video editing and sharing, vehicular systems, and etc. To address the arising new challenges and opportunities, we plan this feature topic issue to help both industry and academia research communities better understand the recent advances and potential research directions on the converging paths of IoT and Fog Computing.

The papers in this feature topic issue will focus on the state-of-the-art research and the grant challenges in various aspects of Fog Computing for IoT. We solicit papers covering various topics of interest that include, but are not limited to the following:

- Future services for Internet of Things via Fog Computing services and solutions
- Fog Computing architecture for IoT
- Technologies for supporting Fog Computing for IoT
- IoT Business models for Fog Computing applications in IoT
- QoS for Fog Computing and IoT services
- Security and privacy for Fog Computing in IoT
- Fog Computing management tools and services for IoT
- Fog Computing for mobile health and augmented cognition

- Data-centric approaches in Fog Computing for IoT
- Network Function Virtualization for Fog Computing in IoT
- Software Defined Networking for Fog Computing in IoT
- Virtualization security and management for Fog Computing in IoT
- Programming models and toolkits for Fog Computing in IoT
- Mobility and connectivity for Fog Computing in IoT
- Deployment and optimization of Fog Computing for IoT
- Current and future standardization for Fog Computing in IoT
- Load balancing and service selection in Fog Computing for IoT
- Interactions between the Fog and the Cloud for IoT

Important Dates

Manuscript Submission: **November 30, 2016**

Final Manuscript Due: March 1, 2017

Notification of acceptance: January 1, 2017

Publication: June, 2017

Submission

All original manuscripts or revisions to the IEEE IoT Journal must be submitted electronically through IEEE Manuscript Central, <http://mc.manuscriptcentral.com/iot>. Author guidelines and submission information can be found at <http://iot.ieee.org/journal>. Each submitted manuscript will be sent to reviewers who will evaluate your work. The IEEE IoT Journal encourages authors to suggest potential reviewers as part of the submission process, which might help to expedite the review of the manuscript. Please suggest only those without conflict of interest (e.g. who work at institutions other than your own and with whom you have no collaborative or other technical or family ties). Each submission must be classified by the author to select appropriate keywords of this Journal.

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