

Emerging Computing Offloading for IoTs: Architectures, Technologies, and Applications

Nowadays, billions of IoT devices, e.g., sensors and RFIDs, arise around us providing not only computing-intensive, but also delay-sensitive services, ranging from augmented/virtual realities to distributed data analysis and artificial intelligence. Unfortunately, in many application scenarios, the low response latency for IoT services are achieved at the cost of computing-complexity that far exceeds the capabilities of IoT devices. To feed this trend, multiple computing paradigms emerge, such as mobile transparent computing, edge computing, and fog computing. These paradigms employ more resourceful edge devices, e.g., small-scale servers, smart phones and laptops, to assist the low-end IoT devices. By offloading the computing-intensive tasks to the edge devices, it is expected to converge the data collection at IoT devices and the data processing at edge devices to provision computing-intensive and delay-sensitive services. However, lots of issues remain in the application of computing offloading which impede its flourish in IoTs. For example, what are the killer APPs that desire computing offloading for performance boost? How to partition an encapsulated APP into offloadable code blocks for remote loading? How to determine that code blocks or computing tasks should be offloaded to edge servers? How to customize the communication protocol to guarantee the coherence of computation offloading?

This special section solicits original research and practical contributions which advance the computing offloading regarding the architecture, technologies and applications. Surveys and state-of-the-art tutorials are also considered. Topics include, but are not limited to the following research topics:

1. Architecture design for computing offloading in IoTs
2. Data-driven energy consumption and delay model of computing offloading in IoTs
3. QoS-aware computing offloading in IoTs
4. Offload-enabled software design in mobile transparent computing for IoTs
5. The management of software in mobile transparent computing for IoTs
6. Communication protocol design for computing offloading in IoTs
7. Convergence of energy harvesting and computing offloading in IoTs
8. Security, privacy, integrity, and trust in IoT computing offloading
9. Hardware design and prototyping for offloading in IoTs
10. Testbeds and simulation platforms for computing offloading in IoTs
11. Key scenarios/applications for computing offloading in IoTs (e.g., connected vehicles).

SUBMISSIONS

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>. 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. Each submission must be classified by appropriate keywords.

IMPORTANT DATES

Submissions Deadline: **May 15, 2018**

First Reviews Due: August 1, 2018

Revision Due: September 1, 2018

Second Reviews Due/Notification: October 1, 2018

Final Manuscript Due: **November 1, 2018**

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