

Simulation Modelling Practice and Theory

Special Issue on

Simulation-based Performance Evaluation of Infrastructures for the Internet of Things:

Connectivity and resource considerations in the mobility Era

Guest Editors

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Call for Papers

Smart wireless devices that are configured to communicate in a Mobile Peer-to-Peer (MP2P) manner will be soon able to have integrated features hosting all kinds of daily needs' applications, in a 3A (Anything, Anytime, Anywhere) reliable configuration, and interact with one another using multiplatform applications. These advancements create the need of the development of a supportive infrastructure and network architecture that will enable the realization of the Internet of Things (IoT) which will be able to host real-time applications in a resource and energy efficient reliable way. The IoT realizes its potential in the context of a global communications platform that can be used by millions of independent devices co-operating together in large or small combinations, and in shared or separated federations. It involves connected embedded-devices such as sensors, home appliances, weather stations and even movable objects (such as toys, wearable devices-objects etc) to Internet Protocol (IP)-based networks.

This Special Issue addresses the trend in both science and industry for smart embedded devices (smart objects) to become IP-enabled, as well as the latest frontier of the Internet, consisting of wireless low-power embedded devices-called the Wireless Embedded Internet. It also targets the development and implementation of new fundamental architectures for the efficient support of IoT technologies, where many resource limitations can be faced and various network mechanisms will be optimized by providing new middleware architectures that will face application-specific issues. Additionally the Special Issue aims to present novel middleware architectures and techniques for optimizing the power consumption, connectivity and reliability aspects, as well as aims to propose new models for capacity and data flow management for providing sufficient end-to-end resource management. Performance evaluation can be performed using simulation in order to evaluate the performance under different efficiency angles. With modeling and simulation the dynamically changing IoT environments, can be further analyzed and explored by utilizing computational and mathematical techniques, while creating a model construct of a conceptual framework that describes an IoT system.

Topics

The list of topics for this special issue includes:

- Network and system architectures of IoT
- IoT infrastructures
- Reflective and flexible application specific middleware for the IoT
- Short-range Communications for IoT
- Sensor networking technologies for IoT
- Access network technologies for IoT
- Cross-layer optimization for supportive IoT efficient resource sharing
- Energy efficiency issues

- Resource Management for the IoT support systems
- Middleware supportive architectures
- Design and evaluation of new IoT processes and/or Algorithms.
- Performance improvement of existing IoT algorithms and/or reliability techniques and configurations
- Semantic resource management Algorithms and techniques
- Information processing, management, and distribution in IoT
- IPv6 over low-power wireless area networks (6LoWPAN) support in the IoT domain
- Embedded Architectures, Techniques and Algorithms that face the scarceness and availability of wireless resources
- Data-synchronisation for offline support and resource availability
- Application-specific resource management (RFID implementation, MP2P resource availability)
- Smart Grid and the IoT infrastructures
- Theoretical aspects of modelling and simulation the IoT including modelling new techniques for performance-oriented design methods
- Novel techniques in computer system simulation for the IoT
- Cloud Computing and IoT convergence
- IoT and the Grid and any supportive concept for a future architecture of the Internet of Things

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Manuscript Submission

Articles should be a novel research work in nature and authors must follow the Elsevier on-line submission system at: <http://ees.elsevier.com/simpat/>. All submissions to *Simulation based Performance Evaluation of Infrastructures for the Internet of Things: Connectivity and resource considerations in the*

mobility Era, should proceed on-line. Authors must select *Special Issue: Internet of Things* when they reach the “Article Type” step in the submission process.

All submissions will be fully refereed for accuracy, technical content, and relevance.

Special Issue Important dates

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