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SPECIAL ISSUE ON
**“Reliability and Scalability of Communication Middleware
and Distributed Applications”**

Overview:

In the last years it is manifest that the world of high-end parallel servers and distributed computing systems/applications (in their continuous evolving declinations of high-performance computing, grid computing, and cloud computing, and supports to mobile cloud computing) is paying increasing attention to the technical challenges related to quality of service, determination of temporal behavior and response of software platforms, interactivity, and performance of communication mechanisms and tools. In modern computation centers, traditional distributed applications may coexist with other supports and services that become more and more time-sensitive (cross-border surveillance and object tracking, big data analysis, smart city application supports, net gaming, adaptive video streaming, etc.), and this tends to happen more and more frequently on virtual resources hosted by a virtualized infrastructure.

Therefore, the design, implementation, and deployment of distributed reliable systems must take into careful account the critical and still open technical challenges about the dynamic selection and runtime evaluation of interaction models and software technologies, as well as their temporal behavior, resource efficiency, performance, scalability, and coordination overhead vs. flexibility. In addition, we are experiencing growing interest and need for novel contributions about dynamic middleware solutions capable of taking context-aware resource management decisions to enforce the most appropriate quality levels depending on application SLAs and overall (possibly clustered) visibility of resource status. These solutions are particularly challenging when dealing with large-scale open deployment environments and their associated scalability issues.

The purpose of this Special Issue (SI) is to gather high-quality papers about “Reliability and Scalability of Communication Middleware and Distributed Applications” in the above perspective, thus offering to MONET readers a fresh and updated overview of the most relevant research activities ongoing in the area. The SI is also in association and synergy with the Reliable Software Technologies and Communication Middleware (RST) track that the Guest Editors are organizing within the 32nd ACM SAC 2017 conference (around 30%-40% of SI articles will be extended versions of selected best papers from RST, the other ones will be selected from open call).

Topics

Topics of interest include, but are not limited to, the following scope:

- Cloud computing advances for cyber-physical systems and mobile cloud computing	- Reactive stream processing and on line processing of big data flows
- Communication middleware for efficient reliability in wide-scale environments	- Reliable and time-sensitive distribution models
- Efficient and context-aware management of big data flows (e.g., to support smart city apps)	- Resource-efficient and time-constrained interaction models
- Efficient integration with run-time supports:	- Scalability solutions and evaluation of reliable communications and

<p>operating systems and virtualization technologies</p> <ul style="list-style-type: none"> – Middleware for the efficient integration of cyber-physical systems and the cloud – Programming models and languages for reliable high-end distributed systems – Quality-aware middleware for datacenter resource management 	<p>distributed systems in wide deployment scenarios</p> <ul style="list-style-type: none"> – Simulation/emulation-based and on-the-field performance evaluation of distributed applications
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Important Dates

- **Manuscript submission deadline: June 1, 2017**
- Notification of acceptance: September 15, 2017
- Submission of final revised paper: October 30, 2017
- Publication of special issue (tentative): March 2018

Submission Procedure

Authors should follow the MONET Journal manuscript format described at the journal site. Manuscripts should be submitted on-line through <http://www.editorialmanager.com/mone/>.

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