
Nearly real time data processing and time critical cloud applications --
Theme of 2nd International Workshop on
Interoperable infrastructures for interdisciplinary big data sciences (IT4RIs
16)
in conjunction with IEEE Real Time System Symposium (RTSS 2016)
<http://staff.fnwi.uva.nl/z.zhao/workshop/it4ris/>,
November 29 - December 02, 2016, Porto, Portugal
Deadline extension: 25 September 2016

Aims and scope

Real-time applications (disaster warning and response, traffic flow control, weather monitoring and forecasting, etc.) are among the most challenging applications to develop, deploy and control on distributed infrastructure, but can be of great current and future value to research, industry and public safety/security. Applications that fuse real-time requirements with environmental science require the establishment of dedicated agile e-infrastructure that can provide fundamental storage and processing capacity that is able to respond effectively to time-critical events.

To address many of the real-time scientific challenges facing the research community and society at large today, it is necessary to be able to analyse and process large quantities of heterogeneous data acquired in several different scientific domains and at present distributed across many different kinds of existing ICT infrastructure. Interdisciplinary research (for example on the topic of climate change) requires substantial cross-domain knowledge and expertise, and the effective extraction of that knowledge and expertise for computational science requires new technical solutions for enhancing collaboration and for increasing interoperability between ICT services used within different research disciplines to perform their analyses. Of particular concern is how to manage real-time aspects of research (e-)infrastructure, including the management of large quantities of data being generated by sensor deployments in real-time, the fast orchestration of workflows on virtual infrastructure in response to real-time events (e.g. earthquakes) or in response to irregular demands on resources by researchers, and the search and aggregation of research data from multiple sources and catalogues on-demand. Solutions that make use of new developments in Cloud, virtual infrastructure, or software engineering tools and methodologies are particularly timely in this context.

The workshop for "interoperable infrastructures for interdisciplinary big data science (IT4RIs)" focuses on practical aspects of the design, development and operation of research e-infrastructure and virtual research environments, as well as the interaction between ICT infrastructure and user communities. This year, the workshop specifically highlights two important topics in those contexts: nearly real-time data processing and time-critical applications in Clouds. The workshop aims to provide a forum for researchers and developers to exchange their experiences and ideas on building nearly real-time data processing solutions, and models for programming, executing and controlling time-critical applications on virtualized infrastructures (e.g., Clouds).

Topics

Authors are invited to submit original manuscripts that demonstrate current research in all aspects of interoperable infrastructure for interdisciplinary big data science. The workshop solicits novel papers on a broad range of topics, including but not limited to:

- Real-time guarantee for sensor networks
- Real-time data quality control
- Time-critical applications in Clouds
- Nearly real-time data processing in research infrastructures

- Real-time data analytics
- Citation and identification of dynamic data
- Disaster early warning systems
- Live event broadcasting in Clouds
- Reference model for time-critical systems
- Real-time decision support
- Time-critical data processing workflows
- Virtualized infrastructure for time-critical applications
- Software-defined networking for time-critical applications
- Self-adapting big data applications on Cloud
- Software workbenches for time-critical applications

Paper submission and publication

All papers must be submitted electronically in PDF format via online submission system, and must describe original work not previously published or concurrently. The papers should follow the IEEE 8.5"x11" two-column format. We welcome full papers (up to 10 pages, substantive work) and short papers (up to 6 pages, work in progress).

An author of each accepted paper is required to register and present the paper in the workshop. Selected high quality papers will be invited for a special journal issue in Future Generation Computer System.

Important Dates

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- Extended submission deadline: September 25, 2016
 - Notification: October 7, 2016
 - Camera ready: October 14, 2016
 - Workshop: November 29- December 2, 2016

Programme committee

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 - Leonardo Candela, CNR, Italy
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 - Shahriar Nirjon, University of North Carolina, USA
 - Tam Chantem, Utah State University

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