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Special Issue on Software Defined Network, Software Defined Infrastructure, Network Functions Virtualization, Autonomous System & Network Management

http://www.manageability-at-scale.org/cfp

International Journal of Communication Networks and Distributed Systems

Theme and Scope

For last few years there has been a tremendous growth in data traffic due to high adoption rate of mobile devices and cloud computing. Internet of things (IoT) will stimulate even further growth. This is increasing scale and complexity of telecom/internet service provider (SP) and enterprise data center (DC) compute and network infrastructures. As a result, managing these large network-compute converged infrastructures is becoming complex and cumbersome. To cope up, network and data center operators are trying to automate network and system operations, administrations and management (OAM) functions. Here “OAM” means all the non functional aspects which keep the network running.

By removing human operators from the lower levels of the management loop (e.g. using an automated system to analyze network alarms/events and take corrective action), improved operational and economic efficiencies and operational scalability is being achieved. This kind of network management automation is reducing capital and operation expenditures, this in turn is driving down cost, stimulating service demand, increasing revenues and maintaining profitability. New paradigms like Software Defined Network (SDN), Software Defined Infrastructure (SDI), Network Function Virtualization (NFV), and automation of network and system management operations is helping in achieving these business objectives. SDN, NFV are milestones towards achieving this vision of automated OAM for large scale infrastructures.

Centralization of control plane in a SDN controller avoids the need to have human operators to manage large number of network devices individually. By virtue of centralization, SDN can implement various automated network management and control plane logic. Similarly, many large internet application providers have implemented home grown non-traditional automated network and system management systems at their DCs. On the other hand, NFV approach by telecom SPs is proposing to address some of the manageability-at-scale problems with virtual network devices running on generic hardware. This will replace large variety of specialized network device hardware, simplify and bring in operational efficiencies. For all these paradigms, the key success factors are intelligent software, its programmability to implement complex logic at low cost and scaling opportunities through elasticity at different time scales.

This special issue aims to show case and disseminate new ideas and high quality research for enabling automation, optimization and/or improving economics of network and system management and operations. We solicit original research articles, review papers, theoretical studies, practical software systems incorporating new paradigms, experimental prototypes, and insightful industry analysis with the above theme. Articles from industry authors will be given special consideration. Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. All papers are refereed through a peer review process and are selected for publication based on quality, unique contribution and relevance to the theme of this special issue.

Topics of interest include:
- New ideas that improve network, compute and storage infrastructure economics, programmability and security
- New paradigms in network operations, administration and management (OAM), service orchestration, service engineering, converged network and data center management
- Software Defined Network (SDN), abstraction, programmability, application Interface, south and northbound API
- Software Defined Infrastructure (storage, etc.)
- Network Function Virtualization (NFV), distributed control, virtual switches, routing virtualization
- Network & system management, orchestration, resource management and optimization, integration, interoperability
- Network operations & management related automation, troubleshooting and management tools
- Cloud based network and system management application paradigms
- Application of artificial intelligence (AI), machine learning (ML), analytics and big data in network and system management
- Performance analysis & evaluation, simulation, QoS/QoE, benchmarking
- Security, privacy, authentication, trust, verification
- ASICs, SoC, hardware architectures for SDN, SDI, NFV, Autonomous NMS, OAM
- Insights about SDN, SDI, NFV, NMS architectural requirements & analysis
- Scalability of SDN, NFV, SDI, NMS systems
- Application and use cases: wireless and mobile networks, carrier Ethernet, optical transport, converged optical & packet, data center networks, transitioning existing networks to SDN
- User experience, user interface design issues and challenges in NMS, ethnographic studies on network operations centers, usability studies of management applications
- Insights about telco (SP), enterprise DC business & industry trends related to SDN, SDI, NFV and NMS

For additional ideas/insights please see our linkedin post “Manageability at scale: A problem that needs multifaceted solutions developed by multi-expertise teams” at http://tiny.cc/o68wlx. This CFP is also at http://tiny.cc/yo5ylx

Instructions for Manuscripts

Prospective authors should submit full manuscripts with MS Word format or PDF format, electronically at http://www.inderscience.com/info/inauthors/author_submit.php, and cc to manageabilityatscale@gmail.com

Submissions should not exceed 25 double-spaced, 8.5x11-inch pages (including figures, tables, and references) in 10-12 point fonts. Include five to 10 keywords. Follow rest of the journal’s guidelines.

Important Dates

Full paper regular submission due: Jan 15, 2015
Notification of results: March 15, 2015 or earlier
Revision due: April 15, 2015
Notification of final acceptance: May 15, 2015 or earlier
Submission of final revised paper: June 15, 2015

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