

## CALL FOR PAPERS

### Special Issue on Modelling and Simulation of Virtualized Networks (SSI 9)

The diversity of networking technologies has increased considerably over the last decade. The maturity of hardware virtualization along with precise management of datacenter networks brought Cloud Computing technologies to life. It is clear that Cloud Computing unfolded a number of opportunities for technological and scientific advances of a myriad of applications, which in turn put pressure on the development of disruptive networking technologies. Networking Virtualization (NV) architectures is now a well-known strategy to deploy more efficient networks. More recently, the computer networking community embraced the concept of Software-Defined Networking (SDN), where there is a clear separation of the control plane from the data plane. In SDN, more intelligent decisions can be made in the SDN controller, whereas the forwarding plane can be deployed in very efficient switching devices. Last, but not least, there is a growing interest in virtualization of networking functions. Network Functions Virtualization (NFV) has been in the center of debate in several standardization bodies, such as Internet Engineering Task Force (IETF) and European Telecommunications Standards Institute (ETSI). NV, SDN, and NFV consider the cases where reconfiguration of the underlying networking technologies must be more dynamic with minimal disruption, thus maximizing availability and reliability. Initial research studies indicate that future networks would benefit from several layers of virtualization, where NV, SDN, and NFV will be of paramount importance. They are the key enabling complementary technologies for the future Internet and Telecom industries.

Although it is becoming clear that virtualization is a key player for the next generation networks, there is still no clear view on the performance of such networks when those virtualization approaches are stacked. Both academia and industry researcher are trying to design more agile and robust networks in order to meet the dynamic needs of the ever-increasing traffic from users. Performance evaluation of the above-mentioned virtualization technologies has been so far carried out isolatedly. A tight interdependence among these virtual layers might cause severe impact in performance when they are deployed simultaneously. In order to enable robust and dynamic networking services capabilities, the computer networking community needs an in-depth understanding of the dynamics when those virtualization technologies start to face real-world traffic.

In this special issue, the journal seeks for high quality papers to address the challenges of developing analytical and simulation models for virtualization-based networks and services. As currently research efforts are heading to combine virtualization techniques to provide more dynamic, scalable, and efficient services, it is of paramount importance for researchers in both academia and industry to step-up and provide reproducible strategies - based on analytical and simulation models - to shed some light on suitable ways to deploy such highly complex networking architectures.

We invite the submission of high-quality manuscripts that address the challenges involved of deploying highly virtualized environments. Articles must explore innovative solutions for solving the most relevant issues in the topic, through modelling and simulation. All papers must have not been published previously and are not currently under review by any journal. Please indicate in the cover letter or on the paper itself that the paper is submitted for the **Special Issue on Modelling and Simulation of**

## Virtualized Networks (SSI 9).

The general scope of this special issue includes, but is not limited to, the following:

1. Dynamic resource allocation for virtual functions and services;
2. Stacked virtualized environments (e.g. SDN+NFV);
3. Optimization of Service Function Chaining (SFC);
4. SDN controller placement problem
5. Workload and virtual network topology generation
6. Novel performance metrics in virtual environments
7. Predictive performance models
8. Performance of virtual devices in the data plane
9. SDN control plane performance
10. Cloud traffic engineering and management
11. User and service mobility
12. Cross-layer design, modeling and optimization
13. Quality and performance for virtual network and services
14. Performance of future wireless networks
15. Scalability of virtual devices and services

### Submission Guidelines

Authors should refer to the submission rules specified in the “Information for Authors” section of the [JOURNAL guidelines](#) to prepare their papers. Papers should be submitted through <https://mc.manuscriptcentral.com/simulation> according to the following schedule:

### Tentative Schedule

Manuscript Submission: January 30, 2017

First Review Notification: May 1, 2017

Second Review Complete/Notification Letters: July 1, 2017

Final Manuscript Due: September 1, 2017

Publication: 2nd quarter, 2018

### Guest Editors

Stenio Fernandes, Federal University of Pernambuco, Brazil

Nazim Algoumine, Université d'Evry, France

Carlos Kamienski, Federal University of the ABC, Brazil