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1 Editorial

Software Defined Networks (SDN) is a new approach to manage network services by decoupling the data and control planes and providing an open interface between them able to support programmability. In parallel, Network Functions Virtualization (NFV) is a network architecture concept based on the application of technologies inspired in current cloud infrastructures to virtualize traditional network functions (mobile services, CDNs, Firewalls, etc.) and build network services by interconnecting these virtualized functions. SDN and NFV are complementary and they have become two key paradigms in today's networking. Due to its impressive growth, many standardization bodies such as IETF, IEEE, ETSI, ITU-T, ONF, TM Forum and 3GPP, and open source projects such as OpenStack and OpenDayLight among others, are taking positions to define frameworks, protocols, data models and reference implementations that pave the way for interoperable, extensible and standard SDN and NFV solutions.

This special issue has put the attention in the current state in the standardization areas of SDN and NFV by inviting industry, practitioners and researchers to contribute with original works that allow identifying and proposing solutions to important gaps, still under development in SDN and NFV standardization organizations. Moreover, review articles has been considered to help the readership to understand the effort carried out in the different standardization bodies and their future directions.

After a thorough peer-review process, eight papers have been selected for the publication in this special issue. They have been authored by researchers from more than 25 institutions in 11 countries worldwide, from France, Spain, China, USA, Switzerland, Italy, UK, Portugal, Greece and South Korea. This selection of papers starts with those providing a global description of the paradigms, state of the art and fundamentals of SDN and NFV, following by those describing application scenarios and specific solutions.

The first contribution, *Software Defined Networking Architecture Standardization*, by S. Schaller et al., provides a brief outline of the SDN architecture, its relation to NFV and areas for further study.

The second contribution, *Network Service Or-*

chestration Standardization: A Technology Survey, by C. Rotsos et al., surveys existing standardization efforts for the orchestration - automation, coordination, and management - of complex set of network and function resources.

The third contribution *Technology pillars in the architecture of future 5G mobile networks: NFV, MEC and SDN* by R. Flores et al., emphasizes the role played by SDN, NFV and MEC technologies and the main open issues in relation to 5G.

The fourth contribution *Future Mode of Operations for 5G - The SELFNET Approach Enabled by SDN/NFV* by Neves et al., proposes advanced mechanisms to evolve the management of the network into a fully autonomic and intelligent framework.

The fifth paper "SDN-based Service Function Chaining Mechanism and Service Prototype Implementation in NFV scenario" (Trajkovska et al.) joins NFV and SDN technologies into a novel traffic steering solution based on open source reference implementations designed having performance effectiveness and network optimization in mind.

The sixth paper *Optimal Virtualized Network Function Allocation for an SDN enabled Cloud* by A. Leivadreas et al., presents a novel approach based on NFV, SDN and cloud computing technologies to provide optimal placement of VNF and service chaining of network functions in the operator networks.

The seventh paper *A User-Centric SDN Management Architecture for NFV-based Residential Networks* by Ricardo Flores et al., describes an architecture to improve the end user experience in residential networks, based on a user-centric approach and making use of the SDN and NFV paradigms.

Finally, the eighth contribution *Challenges of and Solution to the Control Load of Stateful Firewall in Software Defined Networks* by T. V Tran et al., examines the current challenges to control load of stateful firewall in Software Defined Networks and presents a comprehensive solution based on adaptive host connection tracking.

We are confident that the papers in this Special Issue on Standardization in SDN and NFV will be of interest and relevance to a broad range of scientific community and industry.

Finally, we would like to thank Professor Rory V. O' Connor (Editor-in-Chief), Ms. Jiao, Qiang and Ms. Sudhakar Sandacoumar (Journal Managers)

from the Computer Standard and Interfaces Journal for their invaluable help and support, and for giving us the opportunity to edit this special issue. We are also extremely grateful for the hard work and kindness of all the members of our international program committee when performing their timely, complete and professional reviews. Last, but by no means least, we would also like to thank the all authors for their submissions to make these Special Issue a success.

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