Call for Contributions

Note: Onsite and Online Options
In order to accommodate a large number of situations, we are offering the option for either physical presence or virtual participation. We would be delighted if all authors manage to attend in person, but are aware that special circumstances are best handled by having flexible options.

Submission:
1. Inform the Chair: with the Title of your Contribution
2. Submission URL:
https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=ICN+2021+Special
Please select Track Preference as **SOFTNETWORKING**

Special track

SOFTNETWORKING: Advances in Software Defined Networking and Network Functions Virtualization

Chairs and Coordinators
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along with

ICN 2021, The Twentieth International Conference on Networks
April 18 - 22, 2021 - Porto, Portugal
http://www.iaria.org/conferences2021/ICN21.html

The special track is dedicated to recent trends in networking, i.e., going to software. Specifically, advances and challenges in SDN&NFV technologies and their applications are envisaged.

Software-Defined Networking (SDN) architectural and technological approach decouples the network control and data planes. It separates the network control logic from the underlying routers and switches by logically centralizing the network control in SDN controllers and implementing the traffic forwarding in switching elements (physical or virtual). SDN offers strong network programmability capabilities, applicable in a flexible way. Novel abstractions are introduces in networking, thus simplifying network management and facilitating faster network evolution. SDN is natively based on virtualization. Via service orchestration, the applications can automatically reconfigure the network and simultaneously optimize the user experience, application performance and network resource utilization.

Network Function Virtualization NFV is an emergent technology promoted recently (mainly by the telecom

World- ETSI, ITU, 3GPP, etc.), having as major objective to improve the capital efficiencies versus traditional dedicated hardware implementation solutions, NFV provide Virtualized Network Functions (VNFs) through software virtualization techniques running on COTS hardware. Among its specific objectives are: sharing of hardware and reducing the number of different hardware architectures; to improve flexibility in assigning VNFs to hardware (better scalability, decoupling functionality from location, enabling time of day reuse, enhancing resilience through virtualization, and facilitating resource sharing); rapid service innovation through SW-based service deployment; common automation and operating procedures; reduced power usage; standardized and open I/Fs between VNFs infrastructure and management entities.

SDN approach is applicable in many contexts: clouds/data centres; enterprise; WANs, cellular/mobile, wireless, home, sensors – networks; network and resources management, security; traffic and QoS management, media and content distribution. New areas of applications have targets in IoT, M2M, wireless and 5G networks. The emerging 5G technology (including 5G slicing) is strongly oriented to base its management and control on SDN cooperating with and

NFV. It is hoped to achieve a high level of flexibility and scalability when supporting different 5G deployments with a common toolbox of network functions. SDN is moving very fast towards its adoption in the industry and by the operators, but it still has open research issues related to centralization concept, real-time response, security, backward compatibility, scalability, etc.

NFV applications and use cases are oriented towards several areas (but not only): Home environment; Mobile Core&IMS; Mobile base stations; Fixed access networks; CDNs; flexible service offering through NFVIaaS, VNFaaS, VNPaaS, VNF flexible Forwarding Graphs. NFV has also challenges and open research issues, related to processing speed and time response, management and orchestration issues, cognitive management, security and isolation, applicability in multi-tenant, multi-domain and mobile contexts, etc.

SDN and NFV technologies could be implemented independently; however, they are seen today as being complementary, cooperating towards implementation of powerful management and control systems. This cooperation is still an open research issue and also an important topic of the symposium.

The Softnetworking special track has the objective of bringing the above vision closer to reality and expects to provide a comprehensive overview of the state-of-the-art in network and services softwarization.

Prospective authors are invited to submit original papers on topics including, but not limited to:

- Software Defined Networking (SDN): concepts, challenges and architectures
- Control and Management in SDN; Network Operating Systems and virtualization in SDNs
- Network Function Virtualization concepts, challenges and architectures
- SDN and NFV cooperation
- SDN and NFV standardization
- OpenDaylight (goals, platforms, interfaces and applications), OpenStack and SDN
- SDN Controllers design and implementation
- SDN Forwarding Elements design and implementation
- OpenFlow and Southbound Protocols
- Application programming interfaces for SDN
- Forwarding plane abstractions, programmability, languages
- Verification techniques and tools for SDN and NFV
- Performance evaluation, optimization and isolation of the Data and Control Planes
- SDN applications and use cases:
    - Data-center/ clouds/ BigData
    - Service Provider Networks: dynamic service chaining, optical networks and transport, cellular/mobile, traffic management, resources and QoS management, WANs/carrier networks and support for clouds, virtualization of aggregation networks
    - Enterprise, home, sensors networks
    - Software Defined Wireless Networks (SDWN)
    - SDN controlled vehicular networks
    - Internet of Things (IoT) and M2M communications
- NFV applications and use cases
    - Home environment
    - Mobile Core&IMS, mobile base stations
    - Fixed access networks
    - CDNs
    - NFVIaaS, VNFaaS, VNPaaS, VNF Forwarding Graphs
- SDN&NFV applied in 5G slicing
    - Business models
    - 5G slicing architectures based on SDN&NFV
    - MANO framework based on SDN&NFV
    - Network slice life cycle management
    - Multi-tenant, multi-operator and multi-domain contexts
    - RAN, Core and transport slicing
    - QoS/QoE aspects in network slicing
    - Slice isolation and security

    - Mobility management in sliced networks
    - Fog/Edge/MEC computing applied in network slicing
- Reliability, resiliency and fault management in SDN and NFV
- Security and privacy and in SDN and NFV
- Data and Control Plane scalability, inter-operability
- Autonomic (self) and cognitive management technologies in SDN and NFV
- SDN/NFV architecture versus Content delivery and oriented networks, Information Centric Networking
- Operators and Service Providers business and deployment perspective on SDN and NFV
- Planning and Deployment of SDN/NFV technologies and applications in operational networks

Important Datelines

- Inform the Chairs: As soon as you decided to contribute
- Submission: March 4, 2021
- Notification: March 20, 2021
- Registration: April 1, 2021
- Camera ready: April 1, 2021

Note: *These deadlines are somewhat flexible, providing arrangements are made ahead of time with the chair.*

Contribution Types

- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaria.org]
- Presentations: slide only [slide-deck posted on www.iaria.org]
- Demos: two pages [posted on www.iaria.org]

SOFTNETWORKING Advisory Committee

Eugen Borcoci, University Politehnica of Bucharest, Romania (Chair)
Carlo Vitucci, Ericsson, Sweden
Nicola Ciulli, Nextworks, Italy

SOFTNETWORKING 2021 Technical Program Committee

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Paper Format

- See: http://www.iaria.org/format.html
- Before submission, please check and comply with the editorial rules: http://www.iaria.org/editorialrules.html

Publications

- Extended versions of selected papers will be published in IARIA Journals: http://www.iariajournals.org

- Print proceedings will be available via Curran Associates, Inc.: http://www.proceedings.com/9769.html
- Articles will be archived in the free access ThinkMind Digital Library: http://www.thinkmind.org

Paper Submission
https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=ICN+2021+Special
Please select Track Preference as **SOFTNETWORKING**

Registration
- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at http://www.iaria.org/registration.html

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