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IEEE NFV-SDN

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2024 IEEE Conference on Network Functions Virtualization & Software Defined Networks

5–7 November 2024 // Natal, Brazil

Call for Papers

Network virtualization has transformed how our infrastructures are connected, built, and operated. Network services often rely on the disaggregation and reconstitution of Network Functions through Network Function Virtualization or NFV. When combined with dynamic and automated network configuration concepts, or Software Defined Networks (SDN), advantages of overall improved performance, reduced vendor lock-in, more rapid adoption of new features, and increased operational efficiency are realized.

Today network operators around the globe have proven the advantages of virtualization in portions of the network, yet much work remains to be proven beneficial in this field. Research and development of virtualization technologies, from the Radio Access Network to the network core, can increase resiliency, security, and power efficiency and provide more effective operationalization through automation and Artificial Intelligence.

The recent Cloudification and Cloud/Container Native Functions (CNF) practices continue to challenge network operators and their ecosystem partners from early research and into practice, while new and innovative applications at the edge demand even more attention from industry and academia. NFV, CNF, and SDN are accepted evolutions in all areas of network concepts and technologies today. They are transforming telecommunication networks, campus, enterprise, and data center networks. They are accelerating the introduction of technologies and applications, requiring further advances in several areas of network programmability and network automation.

Significant enablers for rapid adoption include shifts towards open source software and hardware development, the convergence of IT and telco tools and technologies, and the alignment of operational processes. Integration of the latest research in software technologies, algorithms, hardware design, etc., driven by competition to adopt the best ideas, is helping to drive global acceptance of network virtualization.

The 2024 IEEE NFV-SDN conference is an important forum for the ongoing exchange of the latest ideas, developments, and results amongst ecosystem partners in both academia and industry. The conference fosters knowledge sharing and discussion on new approaches and works addressing gaps and improvements in virtualized enabled architectures, algorithms, and operational frameworks for virtualized network functions and infrastructures.

IMPORTANT DATES

July 19th, 2024 (extended deadline)	Full & Fast Track Paper Submission Deadline
August 30th, 2024	Acceptance Notification
August 30th, 2024	Fast Track Paper Acceptance Notification
September 30th, 2024	Acceptance Notification

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TOPICS

Prospective The IEEE NFV-SDN conference invites researchers worldwide to share ideas influencing the evolution and operation of Network Virtualization, including SDN technologies. The following is a non-exhaustive list of topics:

NFV, CNF, and SDN Architectures, Infrastructure, and Elements

- Emerging improvements, including Network Slicing and the unikernel paradigm
- Improvements in the design of forwarding elements, e.g., switches/routers, wireless systems
- Optimizing virtualized infrastructures, including hardware acceleration technologies
- Heterogeneous server platforms and the detailed element-level CPU/GPU/FPGA mapping of network functions
- SDN/CNF/NFV in recent and novel architecture paradigms
- Architectural design aspects toward Next-Generation wireless networks,
- Virtualization Technologies for Edge/Fog Computing
- Microservice-based and agent-based SDN/NFV
- SDN/NFV in 6G three-dimensional networking
- Energy-efficiency driven architectures
- New network programmability paradigms

NFV, CNF, and SDN Operations

- Protocols for virtual network orchestration
- Dynamic license management, autonomics, machine learning, monitoring, resiliency, fault management, and self-healing
- Network security and isolation impacts of virtualization technologies
- Advanced tools for automated design, deployment, validation, and management
- Application of machine learning and big data analytics to manage to simplify deployment and operation of SDN/CNF/NFV networks
- SDN/NFV orchestration and operations in 6G network and cloud continuum

AI/ML in SDN/NFV networks

- AI/ML techniques and network softwarization
- AI/ML network automation
- AI/ML applications for SDN and NFV
- AI/ML enabled SDN/NFV deployments
- Design and performance evaluation of AI/ML techniques in softwarized networks

Performance Analysis and Optimization

- Costs of migration of application containers and workloads
- Experience building network virtualization testbeds
- Data/control plane performance, interoperability, and scalability studies
- Resource dimensioning and optimization (e.g., cloud-native design), workload isolation, and tradeoffs
- Design guidelines for modularity, scalability, high availability, and interoperability (e.g., container and micro services implementations)
- SDN/NFV new KPIs and trade-offs in 6G architecture

Results and Evaluations in Application Scenarios

- Comparative studies on different virtualization technologies
- Usage scenarios such as SD-WAN, IoT or Smart Grid,
- Use of virtualization technologies for Smart Cities, Smart and Connected Communities, Smart and Connected Health, Industry Digitalization, other verticals, etc.
- Improvements in future communication infrastructure enabled by SDN, CNF, and NFV, including fixed and wireless access, public, private and hybrid clouds
- Social and regulatory impacts (e.g., network implications of data location and privacy)
- Operational experience in operational networks (e.g., 5G deployments, AI in Radio Interface Controller)
- Standardization efforts on NFV/SDN advancement, and in their operational deployment

AUTHOR AND SUBMISSION GUIDELINES

Prospective authors are invited to submit original full technical or fast-track papers for publication in the IEEE NFV-SDN 2024 Conference Proceedings and presentations in the technical sessions. We solicit submission of high-quality full papers reporting original and novel research results on all the above topics. Papers must be written in English, unpublished, and not submitted elsewhere. Full papers must be formatted as the standard IEEE double-column conference template.

FULL TECHNICAL PAPERS should have a maximum paper length of six (6) printed pages (10-point font), including figures, without incurring additional page charges (maximum one additional page with over length page charge of USD100 if accepted). Papers exceeding 7 pages will not be accepted at EDAS. For information on submissions, please visit **http://www.ieee-nfvsdn.org/**

FAST-TRACK PAPERS: We also welcome fast-track papers from the research community up to four (4) pages in length (10pt font); max. one additional page with over length page charge of USD100 if accepted. These papers should focus more on recent and newly-developing results. Compared to longer papers, FAST-TRACK papers will be reviewed with a more open mind towards the scope of evaluation or breadth of topics. We recommend that authors check both calls for papers before submitting them. For information on submissions, please visit **http://www.ieee-nfvsdn.org/**

To be published in the IEEE NFV-SDN 2024 Conference Proceedings and to be eligible for publication in IEEE Xplore, an author of an accepted paper is required to register for the conference at the FULL (member or non-member) rate, and an author of that paper must present the paper at the conference. For authors with multiple accepted papers, one FULL registration is valid for up to 3 papers. Accepted and presented papers will be published in the IEEE NFV-SDN 2024 Conference Proceedings and submitted to IEEE Xplore®. The IEEE reserves the right to exclude a paper from distribution after the conference (including its removal from IEEE Xplore) if the paper is not presented at the conference. Papers are reviewed on the basis that they do not contain plagiarized material and have not been submitted to any other conference at the same time (double submission). These matters are taken very seriously, and the IEEE Communications Society will take action against any author who engages in either practice.