# 2021 12th International Conference on Network of the Future (NoF 2021)

Coimbra, Portugal 6-8 October 2021



IEEE Catalog Number: CFP2111R-POD ISBN: 978-1-6654-2435-6

# Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP2111R-POD

 ISBN (Print-On-Demand):
 978-1-6654-2435-6

 ISBN (Online):
 978-1-6654-2434-9

#### **Additional Copies of This Publication Are Available From:**

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



### **Table of Contents**

## **Full Paper Session #1**

- On the tradeoff between load balancing and energy-efficiency in hybrid IP/SDN networks
   Jaime Galán-Jiménez, Marco Polverini, Francesco Giacinto Lavacca, Juan Luis Herrera,
   Javier Berrocal
- Delay-Aware Dynamic Hypervisor Placement and Reconfiguration in Virtualized SDN Saquib Amjad, Amir Varasteh, Nemanja Deric, Carmen Mas-Machuca
- Improving East/Westbound SDN Connectivity via Enhanced Availability
  Dorabella Santos, João P. Vidal, Teresa Gomes, Lúcia Martins
- A Framework Integrating FPGAs in VNF Networks
   Mohammad Ewais, Juan Camilo Vega, Alberto Leon-Garcia, Paul Chow

#### **Short Paper Session #1**

- A Performance Study of Flow-Based Monitoring in Internet of Vehicles Mingyuan Zang, Lars Dittmann, Ying Yan
- On the Performance of 5G for Cloud- and Edge-based Emergency Services in Smart Cities Gonçalo Perna, Rodrigo Rosmaninho, Hugo Sampaio, Pedro Rito, Miguel Luis, Susana Sargento
- AppSlice: A system for application-centric design of 5G and edge computing applications Murugan Sankaradas, Kunal Rao, Srimat Chakradhar

#### **Short Paper Session #2**

- Towards an all New Submarine Optical Network for the Mediterranean Sea: Trends, Design and Economics

  Konstantinos T Paximadis, Charalampos G Papapavlou
- Toward True Cloud Native NFV MANO
   David Breitgand, Vadim Eisenberg, Nir Naaman, Nir Rozenbaum, Avi Weit
- 5G Non-Public-Networks (NPN) Roaming Architecture
  Marius Corici, Pousali Chakraborty, Thomas Magedanz, Andre S. Gomes, Luis Cordeiro,
  Kashif Mahmood

#### Full Paper Session #2

- IoT DDoS Detection Based on Stream Learning
   Gustavo Arbex, Kétly Machado, Michele Nogueira, Daniel M. Batista, Roberto Hirata Jr.
- AnubisFlow: A Feature Extractor for Distributed Denial of Service Attack Classification
   Alan Barzilay, Caio L Martinelli, Michele Nogueira, Daniel M. Batista, Roberto Hirata Jr.
- Building Efficient Regular Expression Matchers Through GA Optimization With ML Surrogates
   Jonathan Hillblom, Johan Garcia, Anders Waldenborg

#### **Demo Session**

- Demonstrator for Experimental Evaluation of Large-Scale Distributed SDN Deployments
   Hemanth Kumar Ravuri, Maria Torres Vega, Jeroen van der Hooft, Tim Wauters, Filip De
   Turck
- Integrating IP and Future Networks through a Performance Enhancing Proxy Kristjon Ciko
- A Framework to boost the potential of network-in-a-box solutions
  Carlos Baena, Sergio Fortes, Oswaldo Peñaherrera, Raquel Barco

#### **Full Paper Session #3**

- Accelerating Packet Classification via Direct Dependent Rules
   Takashi Fuchino, Takashi Harada, Ken Tanaka
- A Network and Computing Resource Management Method based on Population Prediction in Mobile Networks
   Kohei Shiomoto, Tatsuya Otoshi, Masayuki Murata
- On Message-based Consensus and Network Coding
  Michael Braun, Alexander Wiesmaier, Nouri Alnahawi, Julian Geißler
- Cost-Effective Capacity Increase of Deployed Optical Networks to Support the Future Internet:
   the Multi-Band Approach

# 2021 12th International Conference on Network of the Future (NoF)

06-08 October 2021 - Coimbra, Portugal

Rasoul Sadeghi, Bruno Correia, Emanuele Virgillito, Antonio Napoli, Nelson Costa, Joao Pedro, Vittorio Curri

# **Short Paper session #3**

- D2D-enabled Failure-tolerance in Cellular IoT
   Krzysztof Mateusz Malarski, Kalpit Ballal, Sarah Ruepp
- Characterization of the End-to-End Delay in Heterogeneous Networks
   Diyar Salah Fadhil, Rodolfo Oliveira
- An Outlook on using Packet Sampling in Flow-based C2 TLS Malware Traffic Detection
  Carlos Novo, João Marco C. Silva, Ricardo Morla

**Author Index**