Named Data Networking Community Meeting 2020

Sept. 10-11, 2020, virtual event hosted by NIST

Thursday September 10, 2020

10:00am **Opening**

10:10am **Session 1: NDN Trial Deployments**

Chair: Susmit Shannigrahi (Tennessee Tech University)

- Publishing Genomics Datasets into NDN Testbed and Integrating with Cloud Workflows, F. Alex Feltus (Clemson University)
- Data-Centric Ecosystems for Large-scale Data-Intensive Science, Edmund Yeh (Northeastern University)
- mGuard Project Overview, Lan Wang (University of Memphis)
- FABRIC - Capabilities and Use-cases, Ilya Baldin (RENCI/UNC Chapel Hill)

11:00am **Panel 1: Vehicular applications of NDN**

Moderator: Christos Papadopoulos (University of Memphis)
Panelists: Ted Guild (W3C)
Mike Westra (Ford Motor Company)
Tao Zhang (NIST)

12:00pm Break

1:00pm **Session 2: ICN for Wireless Edge Networking**

Chair: Eve Schooler (INTEL)

- ICN-WEN program overview, Srikathyayani Srikanteswara (INTEL)
- SPLICE: Secure Predictive Low-Latency Information Centric Edge for Next Generation Wireless Networks, Srinivas Shakkottai (Texas A&M University)
- Update on ICN-Enabled Secure Edge Networking with Augmented Reality (ICE-AR), Jeff Burke (UCLA REMAP)

1:45pm **Panel 2: IoT and other edge applications**

Moderator: Kathleen Nichols (Pollere, Inc.)
Panelists: Justin Caswell (Revokind, Inc.)
Dan Massey (DoD)
Sokwoo Rhee (NIST)
Geng Wu (INTEL)

2:45pm Break

3:15pm **Lightning Talks for Posters and Demos**

Chair: Lotfi Benmohamed (NIST)

- NDNViber: Vibration-Assisted Automated Bootstrapping of IoT Devices, Sanjeev Ramani (Florida International University)
- NDNts: Named Data Networking libraries for the Modern Web, Junxiao Shi (NIST)

- Towards a Distance Vector Routing Protocol for Named Data Networking, Italo Valcy Da Silva Brito (Federal University of Bahia, Brazil)
- CertCoalesce: Efficient Certificate Pool for NDN-Based Systems, Alex Afanasyev (Florida International University)
- Managing NDN with the Multiverse Network Management System, Amar Abane (NIST)
- A Novel P4 Target Architecture for Runtime-Reconfigurable NDN Data Planes, Ouassim Karrakchou (University of Ottawa)
- On Using NDN to Vertically Secure Smart Power Distribution, Sanjeev Ramani (Florida International University)

4:00pm **Posters and Demos**

5:00pm Day 1 Closing

Friday September 11, 2020

10:00am **Session 3: Routing and Forwarding**

Chair: Alex Afanasyev (Florida International University)

- On the Prefix Granularity Problem in NDN Adaptive Forwarding, Teng Liang (Peng Cheng Laboratory)
- m-ASF - An Adaptive SRTT-based Forwarding Strategy for Mobile Environments, Muktadir Chowdhury (University of Memphis)
- NDN-DPDK: NDN Forwarding at 100 Gbps on Commodity Hardware, Junxiao Shi (NIST)

10:45am **Panel 3: Named Data Networking: Lessons Learned Over the Last 10 Years**

Moderator: Christian Tschudin (University of Basel)

Panelists: Jeff Burke (UCLA REMAP)
David Clark (MIT)
Darleen Fisher (NSF)
Van Jacobson (Google)
Christos Papadopoulos (University of Memphis)
Lan Wang (University of Memphis)
Beichuan Zhang (University of Arizona)
Lixia Zhang (UCLA)

12:15pm Break

1:15pm **Session 4: DARPA SHARE**

Chair: Tamer Refaei (MITRE)

- DARPA Secure Handhelds on Assured Resilient networks at the tactical Edge (SHARE), Mary Schurgot (DARPA)
- PLI-Sync: Prefetch Loss-Insensitive Sync for NDN Group Streaming, Constantin Serban (Perspecta Labs)
- NDN in DARPA SHARE, John DeHart (Washington University in St. Louis)

2:00pm **Session 5: IoT/Edge**

Chair: Ken Calvert (University of Kentucky)

- The "Decision Maker": NDN concepts for intelligent automation, Marie-Jose Montpetit (Concordia University Montreal)

- MICN, a New Perspective on Network Coding with Named Data Networking, Hirah Malik (INRIA)
- A Named Data Networking Architecture Design to Internet of Underwater Things, Qi Zhao (University of California Los Angeles)
- Improving Existing Software Applications with a Practical and Secure NDN Publish/Subscribe Transport, Randy King (Operant Networks)

3:00pm Break

3:30pm **Session 6: Security/MAC**

Chair: Craig Partridge (Colorado State University)

- Rolling out NDN for DDoS Mitigation, Zhiyi Zhang (UCLA)
- Secure Sharing of Spatio-temporal Data through Name-based Access Control, Laqin Fan (University of Memphis)
- A Full Data-centric Network Stack Integrating V-MAC and NFD, Mohammed Elbadry (Stony Brook University)

4:15pm **Session 7: Discovery/Configuration**

Chair: Marie-Jose Montpetit (Concordia University Montreal)

- Plug-n-Play NDN, John Dellaverson (UCLA)
- NDNSD: Service Discovery in NDN, Saurab Dulal (University of Memphis)
- NDN Repo for Genomics Datasets - Progress and Future Directions, Zhaoning Kong (Purdue University) Susmit Shannigrahi (Tennessee Tech University)

5:00pm Closing

Panel Abstracts:

- **Panel 1: Vehicular applications of NDN**

The automotive sector is undergoing a revolution in both in-vehicle and V2X communication. Demands placed by connected and autonomous vehicles far exceed the capabilities of existing technologies, motivating emerging technologies such as automotive Ethernet, that enables a closer integration of vehicular and Internet technologies and opens opportunities for both Internet and automotive researchers. This panel will explore data communication, security and privacy issues in automotive communication

- **Panel 2: IoT and other edge applications**

Panelists will be asked to discuss the major challenges to networking and/or security in their areas of expertise with an eye toward areas where NDN might help.

- **Panel 3: Named Data Networking: Lessons Learned Over the Last 10 Years**

The Named Data Networking (NDN) project was funded under the NSF Future Internet Architecture (FIA) program in 2010. The 10-year journey since then has been exciting, challenging, strenuous, and filled with unpredicted turns at times. A lot has been achieved and a lot has been learned. This panel is composed of people from the NSF FIA program management and NDN team PIs, with a goal to summarize the results, collect the lessons, and shed light into next 10 years as we continue along this exciting journey.

Abstracts for Presentations/Demos/Posters (compiled in separate document)