Codebase and NDN Resources

NDN Services for Tactical Networks Tutorial

milcom
Military Communications for the 21st Century
November 12-14, 2019 • Norfolk, VA, USA
Defining Multi-Domain Command and Control
Standing Point

Named Data Networking (NDN) Project Newsletter for Jan-May 2018

May 18, 2018 by CAIDA's Newsletter | Comments Off on Named Data Networking (NDN) Project Newsletter for Jan-May 2018

The NDN project team compiles and publishes this newsletter periodically to inform the community about recent activities, technical news, meetings, publications, presentations, code releases, and upcoming events. You can find these newsletters posted on the Named Data Networking Project blog.

Community Outreach

We held the 5th NDN Hackathon on December 16-17, 2017 at the University of California, Los

Events

September 29-22, 2018
ACM ICN 2018
Boston, MA

September 18-19, 2018
NDN Community Meeting 2018
NSF, Gaithersburg, MD
Supported Platforms

- Desktop Systems
  - Ubuntu, OSX, FreeBSD and other Linux distributions
- Home routers
  - OpenWRT, DD-WRT
- Mobile:
  - Android, iOS (library only)
- IoT:
  - Arduino, ESP8266, RIOT-OS
  - Raspberry Pi (runs NFD, available binary packages)
- Web browser
  - NDN-JS library + microforwarder

https://redmine.named-data.net/projects/nfd/wiki
Where to Find Source Code for NDN Codebase

- Github organizations
  - [https://github.com/named-data](https://github.com/named-data)
    - NFD, core libraries, and other general use software
  - [https://github.com/named-data-mobile](https://github.com/named-data-mobile)
    - Android and related software
  - [https://github.com/named-data-iot](https://github.com/named-data-iot)
    - IoT related software
    - ndnSIM core, example and real simulation scenarios
### NDN Codebase Overview

#### Infrastructure Software
- NFD
- NFD-android
- NDN-RIOT
- μNFD
- NDN Tools
- NLSR
- Repo-ng, repo-sql
- NDN Control Center

#### NDN Libraries
- ndn-cxx
- NDN-CCL (JS, Java, Python)
- NAC
- ChronoSync
- PSync
- Vector Sync
- NDN-RTC

#### Apps
- ChronoChat
- ndns
- ndncert
- ndn-flow
- NdnCon
- ndn-fs
- ndn-atmos
- Many others

#### Evaluation Frameworks
- ndnSIM
- miniNDN
- NDN Testbed
NDN Forwarding Daemon (NFD)

- The reference implementation of NDN forwarder
- [https://named-data.net/doc/NFD/current/](https://named-data.net/doc/NFD/current/)
  - Overview
  - Getting started
  - NFD Developer’s Guide
  - Manpages
  - Wiki
  - API documentation (doxygen)
- Feedback, suggestions, and contributions are welcome.
NDN-Android: NDN Stack for Android

- Embeds actual NFD, compiled using NDK
- Works with all (non-rooted) Android devices

https://play.google.com/store/apps/details?id=net.named_data.nfd
&hl=en
https://github.com/named-data-mobile
**App Codebases**

NFD: NDN Stack

- [https://github.com/named-data/NFD](https://github.com/named-data/NFD)

NAC: Name-Based Access Control

- [https://github.com/named-data/name-based-access-control](https://github.com/named-data/name-based-access-control)

Libraries and security tools

- [https://github.com/named-data/ndn-cxx](https://github.com/named-data/ndn-cxx)

NDNCERT: automated certificate provisioning

- [https://github.com/named-data/ndncert](https://github.com/named-data/ndncert)

Syncs

- [https://github.com/named-data/ChronoSync](https://github.com/named-data/ChronoSync)
- [https://github.com/named-data/PSync](https://github.com/named-data/PSync)

Repos

- [https://github.com/named-data/repo-ng](https://github.com/named-data/repo-ng)

NDN tools: Maintenance and Debugging

- [https://github.com/named-data/ndn-tools](https://github.com/named-data/ndn-tools)
NDN Testbed

- Network of 46 sites across 4 continents, 14 countries
- Open to join and use
- [https://named-data.net/ndn-testbed/policies-connecting-nodes-ndn-testbed/](https://named-data.net/ndn-testbed/policies-connecting-nodes-ndn-testbed/)

- Examples applications and experiments
  - videoconferencing, network management, virtual machine migration, strategies, nTorrent

- Small scale realistic evaluations
MiniNDN: NDN Emulation Framework (Based on MiniNet)

- Runs actual instances of NFD, NLSR
- Medium-scale evaluations
- Easy to configure network emulation
- Runs any real application
- Number of emulated nodes $\propto$ CPU power
- Cluster edition can be used to scale emulations

http://minindn.memphis.edu/
ndnSIM: NDN Simulation Framework (Based on NS-3)

- Fully integrated with NDN prototype implementations: NFD & ndn-cxx

- Large scale evaluations

- Provide interoperability between simulation and prototyping

- Enable a two-way of experimentation and evaluation

- Enable high-fidelity NDN simulations

- 1500+ nodes with WiFi channels in the evaluation of NDN for vehicular networking

https://ndnsim.net/
Question and Answers