

# ndnSIM: Current Status & Latest Advancements

Spyros Mastorakis

Internet Research Laboratory

UCLA

# What is ndnSIM?

- An open-source common framework to perform NDN-related experiments
- A platform to conduct large-scale NDN experiments
- Based on the NS-3 simulator framework
- Implemented in a modular way
- Extensively documented
- Actively supported

# ndnSIM can..

- Run large-scale experiments in a simple way:
  - Initial topology and other parameters can be defined in a file
  - Stack helpers can adjust parameters of individual or multiple nodes at a time
- Collect detailed traces of NDN traffic flow and behavior of each forwarding component

# Current Status

- ndnSIM has been used by many researchers across the world:
  - 63 public forks
  - 29 contributors
  - ~400 subscribers in the ndnSIM mailing list
  - ~260 papers have used ndnSIM

named-data-ndnSIM / ndnSIM

Unwatch 28 Star 16 Fork 63

Code Issues 21 Pull requests 0 Pulse Graphs

ndnSIM: NS-3 based NDN simulator

1,321 commits 3 branches 28 releases 29 contributors

Branch: master New pull request New file Upload files Find file SSH git@github.com:named-data Download ZIP

Commit	Description	Time
cawka	docs: Fix description of ConsumerBatches app	Latest commit a4915ca on Jan 28
	.jenkins.d docs: Prepare release of version 2.1	6 months ago
	.waf-tools NFD+ci+docs: Attaching NFD as a submodule	7 months ago
	NFD @ bd8eea7 NFD+model+apps+helper+tests: Upgrade NFD and related changes	7 months ago
	apps apps: Switch ndn::App::GetId() to use application ID on the node	7 months ago
	bindings build: Fix compilation on Ubuntu platform and add work-around for ndn...	a year ago
	docs docs: Fix description of ConsumerBatches app	2 months ago
	examples docs: Add guide on how to simulate real apps in ndnSIM	6 months ago
	helper examples+helper+model: Allowing to disable NFD managers	3 months ago
	model examples+helper+model: Allowing to disable NFD managers	3 months ago
	ndn-cxx @ 36ec104 ndn-cxx+build: Enable ndnSIM-specific ndn::Face implementation	7 months ago
	tests examples+helper+model: Allowing to disable NFD managers	3 months ago
	utils docs: Documentation update, initial preparation for version 2.1 release	7 months ago

# Recent Advancements

- January 2015: ndnSIM version 2.0:
  - Updated protocol specification
  - Updated packet format
  - Leverages the ndn-cxx and NFD cobebase
- September 2015: ndnSIM version 2.1:
  - Parallelize simulations using OpenMPI
  - Simulation of real applications written using the ndn-cxx library
    - ndnSIM specific implementation of the ndn-cxx Face
    - full support for NFD's RIB manager
    - applications have to fulfill the requirements listed here:  
<http://ndnsim.net/2.1/guide-to-simulate-real-apps.html>

# Named Data Networking GitHub Organization

- Since the release of ndnSIM 2.1, we created a new ndnSIM organization on GitHub to host:
  - the ndnSIM source code
  - example applications/scenarios (***we would LOVE to host USERS' scenarios!!!***)
  - the ndn-cxx and NFD submodules used by ndnSIM
  - ndnSIM-related extensions (e.g., scenario template, python bindings)

# Simulation of Real Applications

- Examples of real applications ported to ndnSIM:
  - ChronoSync: <https://github.com/spirosmastorakis/scenario-ChronoSync>
  - NDNS (partially working – project of the first NDN hackathon): <https://github.com/spirosmastorakis/ndns-scenario>
  - Ping application from ndn-tools: <https://github.com/named-data-ndnSIM/scenario-ndn-ping>
  - NLSR: Coming soon...
  - ChronoSync 2.0: **Simulation code is ready!** Will be released as soon as the source code of ChronoSync 2.0 is released.

# Additional Documentation

- Technical Report:
  - <http://named-data.net/techreport/ndn-0028-1-ndnsim-v2.pdf>
- Detailed documentation, with pointers to source code, installation instructions, and examples can be found on the ndnSIM website:
  - <http://ndnsim.net/>



Let's Keep in Touch!

***ndnSIM Mailing List***

**[ndnsim@lists.cs.ucla.edu](mailto:ndnsim@lists.cs.ucla.edu)**

**Please Join Us! 😊**

Q/A



**Thank you!**