11th NDN Hackathon

# Mini-NDN Improvements

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# Mini-NDN Problems<sub>(a few)</sub>

The current Mini-NDN extremely useful but;

- Is a bit tricky to install and use, especially for people new to NDN. Packages are compiled from the source, many weak spots that lead to installation failure.
- Lacks basic helper scripts e.g. traffic generator, consumer-producer, file transfer, etc
- Some of the documents and video demo are outdated

GUI for topology creation and visualization would have been great

# Vagrant Box

- Pre-installed Mini-NDN

  - Uses PPA for packages, except for mininet, there's no package for 20.04 yet.

- Mini-NDN Vagrant Box:

  - This box is terminal only (Ubuntu Server 20.04 LTS) for now.

  - https://app.vagrantup.com/ashiq/boxes/minindn

  - GUI tested separately for now and should be easily included in a basebox with desktop env.
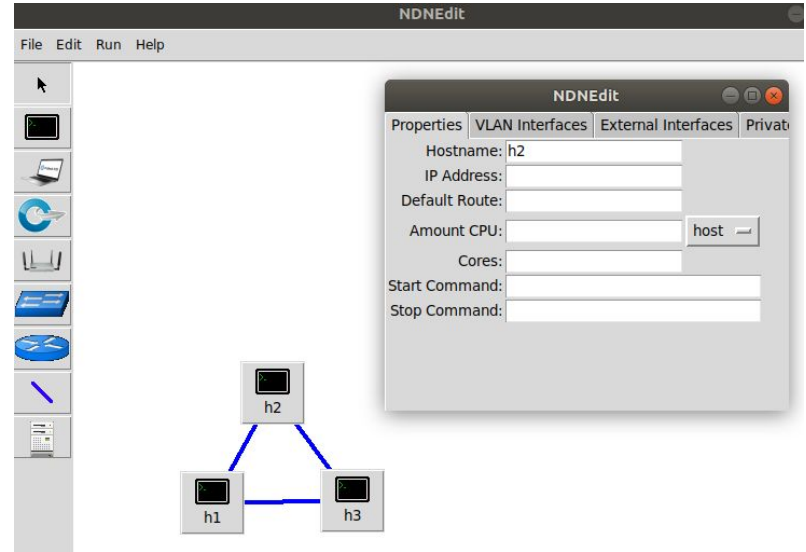
# Docker (bonus!)

- CLI works perfectly.
- Pre-built image, ready to pull from DockerHub:
  - **docker pull marahman/minindn**
- Dockerfile for local build from scratch with a single line command.
  - https://github.com/ashiqopu/docker-minindn
- Xterm on macOS 11 does not seem to work (XQuartz appears broken). 👌
- Should work on Linux.
- This takes us one step closer to:
  https://github.com/play-with-docker/play-with-docker, hope in the very near future we can play with Mini-NDN online in browser

# Mini-NDN GUI topology editor and documentation

- A visual without taking away *functionality*
  - Every item placed can be configured to meet desired needs
- Mimics Mininet's GUI

- To get started, documentation is a one shop stop to get started.

**Misc:**

- Fixes for default topologies, improved comments on experiments

# Using external tools with Mini-NDN

ndn-traffic-generator, catchunks, (in progress) consumer/producer

- Installed via Mini-NDN installation script
    - Installation script is refactored to
        - provide options to install ndn software from source or ppa (default)
        - resolve dependency issues and remove deprecated packages
- Added helper experiments for traffic generator (traffic_generator.py), catchunks (chunks.py), and consumer/producer (consumer-producer.py)
- Documentation is in progress

**Future work:**

- address feedback received on the patches
- create helper classes for the tools and complete the documentation

# Solutions/Hackathon Accomplishments

- Installation
    - Mini-NDN vagrant box with Vagrantfile
    - mini-ndn docker
- Refactor installation script and add helper scripts for
    - ndn-traffic-generator
    - catchunks
    - consumer-producer
- Improve documentation
    - Clearer instructions
    - Demo video
- Created GUI topology editor based on Mininet-wifi's version of MiniEdit

# GUI Demo