

# NFD Strategy Plugin System - Proof of Concept

( 10th NDN Hackathon )

Ashlesh Gawande, Muktadir Chowdhury, Saurab Dulal

# Why bother **Strategy Plugin System**?

- Plugin strategies can be used to deliver quick fixes to existing Strategies
- Plugin system can be used to load experimental Strategies on the testbed
  - Can test strategies developed in ndnSIM/MiniNDN based publications which were/cannot be merged in NFD
- Today's reality is that fixes require new version of NFD (and a restart of NFD)
  - We can use nightly build - but usually not standard practice to run nightly in production

# What we did ?

- Added a sample PluginStrategy that is not compiled as a part of NFD binary
  - PluginStrategy is compiled as a shared library and installed in **`/usr/local/lib/nfd-strategy-plugins`**
- NFD logger does not seem to work in PluginStrategy - so changed to ndn-cxx logger
  - But having problems with configuring NDN\_LOG for NFD (nfd.conf always overrides)
  - Use `std::cout` for the demo
- When nfdc strategy set triggers insert, we look for strategies in `/usr/local/lib/nfd-strategy-plugins`
  - That is if the Strategy is not found in already registered Strategy
  - Don't try to register in static registry - because problems
- If Strategy is found with the name in the shared file, it is loaded and created

# Alternative (basically where time was wasted)

- Tried calling registerType (i.e. NFD\_REGISTER\_STRATEGY) of Strategy from extern “C”
  - But static registry is different from when called via NFD\_REGISTER\_STRATEGY!
  - Tried putting extern “C” in around registerType etc. - does not work
- Try putting using core-object/daemon in shlib to find linking errors

Me: uses core-objects/daemon object in shlib use

Compiler/Linker: may overflow; use -fPIC

Me:



# Demo (Can follow along if this fork is compiled)

- Added a README and how to follow along in the demo
  - <https://github.com/10th-ndn-hackathon/NFD-Strategy-Plugin-System#testing>

# Conclusion and Future Work

- Demonstrate that a new version of plugin strategy can be used
  - **CURRENTLY NOT WORKING W/O NFD RESTART**
  - **So partially achieved goal**
- Decide on whether to make all Strategies as plugin
  - Or just have the plugin system as a backup
- Maybe create a folder such as daemon/fw/strategy-plugins where plugin strategies can be there for wscript to decide
  - Only compile them when a flag is provided

# Resources

- [Making a Plugin System](#)
- [Dynamic Loading Example](#)
- [dlsym manpage](#)
- [Compiling NFD as shared object](#)

Thank you!