

NFD-Android Enhancements

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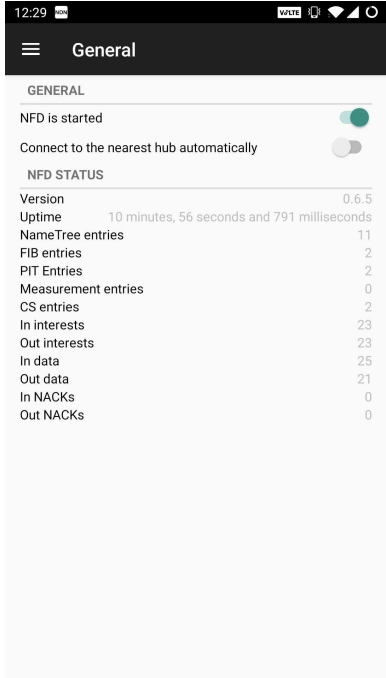
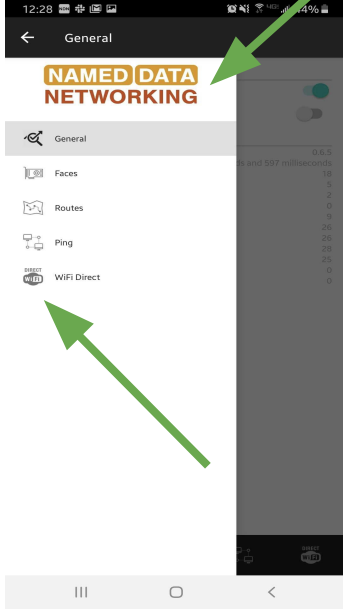
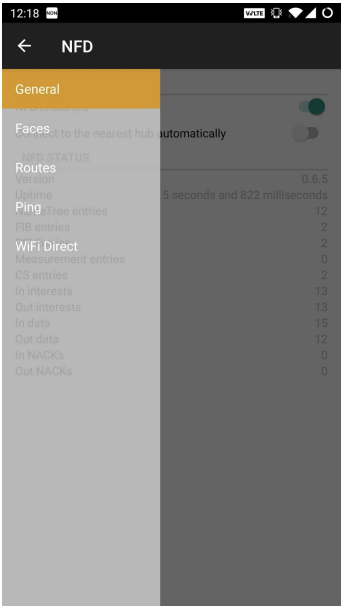
What was proposed

- Add ndnping server (#4765) and extend existing client implementation
- Allow changing strategy choices (#3462) and content store configuration at runtime
- Modify global NFD settings from the app: face protocols, multicast, logging, ... (#2623, #2746)
- Hub discovery improvements: Wi-Fi access point or IP gateway, DNS-SD, fix bugs, ... (#3840, #4028)
- Bug fixes and stability enhancements (#4688, #4628, #3409, ...)
- UI/UX improvements

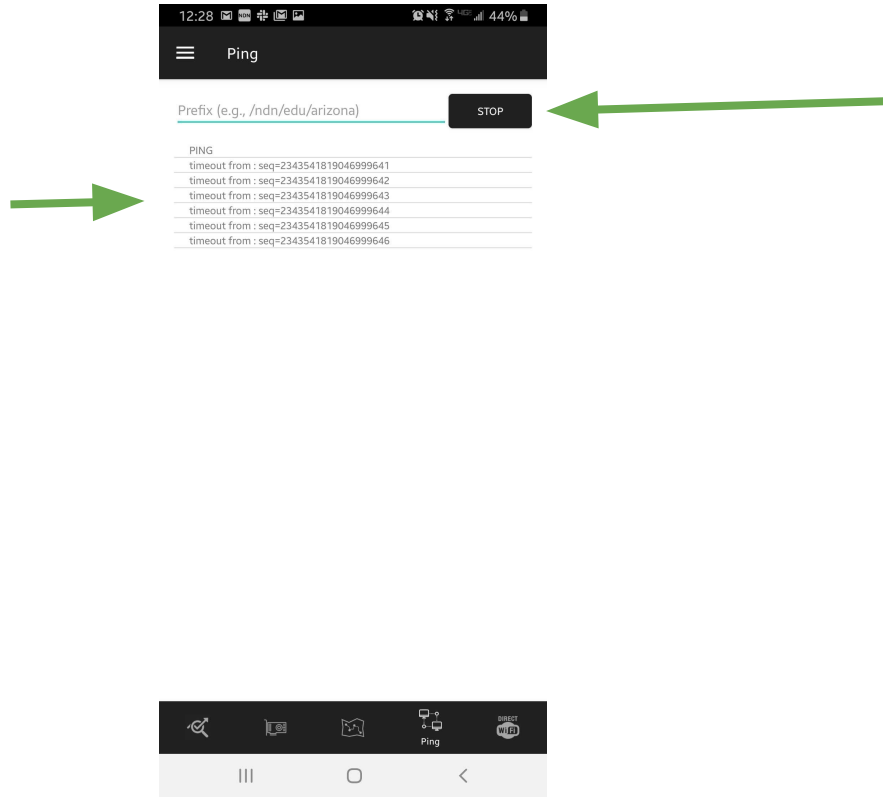
What We Did

- Fixed several bugs in ndnping client implementation (#4688, #4628)
 - We rectified the unexpected start of ping when the app is launched and re-launched
 - Fixed crash when switching to another app while the ping client is running
- A more stable, better looking, and easier-to-use NFD app for Android
 - Added Material components to enhance the way the existing drawer looks
 - Added bottom navigation bar (with icons!)
- Basic KeyChain management (in progress)

UI/UX Enhancements



Ping “Stabilized” and “Bug-Fixed”



Basic KeyChain Management

- Status quo
 - Java side
 - In-memory keychain
 - A random key and self-signed cert generated every time NFD app starts
 - Multiple in-memory keys keychains/keys for management and WiFi direct
 - JNI (NFD) side
 - Sqlite3 PIB/file-based TPM app-private location
 - Random key and self-signed cert generated first time NFD service starts
- Attempt to make things better
 - Shared app-private sqlite3/file PIB/TPM
 - Generate key once
 - Ability to export self-signed certificate(s) as a file (export from the common KeyChain)
 - Ability to import signed certificate as a file (and import to the common KeyChain)
 - Ability to import key bundle as a file

Status of Basic KeyChain Management

- Shared app-private sqlite3/file PIB/TPM
 - Shared KeyChain: **done**
 - But running faced a few issues:
 - Default constructor with “pib-sqlite3” of jNDN-android picks a wrong PIB (Sqlite3PibImpl vs AndroidSqlite3PibImpl)
 - Can create directly Sqlite3PibImpl and FileTpmlImpl, but they don't have PIB/TPM locators; Pib and Tpm have locators, but not part of KeyChain constructor
- Generate key once
 - Done (logic is in, but facing app crashes--could be related to PIB/TPM locators)
- Ability to export/import
 - Found how Android app can do this, but no implementation yet

Proposed vs. accomplished

- (-/+) Add ndnping server (#4765) and extend existing client implementation
 - (-) Allow changing strategy/CS (#3462)
 - (-) Modify global NFD settings from the app (#2623, #2746)
 - (-) Hub discovery improvements: Wi-Fi access point or IP gateway, DNS-SD, fix bugs, ... (#3840, #4028)
- (+) Bug fixes and stability enhancements (#4688, #4628, #3409, ...)
- (+) UI/UX improvements
- (new, ~) Basic Keychain management
- (new, -) Failed initial attempt to refactor lifetime of NFD service in the app

Code in gerrit, ready for review and merge

Bug reports will be filed soon

Demo

What's left

- World domination