NDN Snapchat

Nicholas Gordon, Damian Coomes, Laqin Fan

Needs

Our project addressed a lack of usable, practical applications on the mobile platform that utilize NDN as the underlying transport. There are people in the NDN community that feel we cannot make serious progress on “real world” adoption until we successfully dog-food our own systems, a problem that this project attempts to address.

Approach

Given the uncertain nature of Hackathon teams, this project was structured in milestones to be achieved. The planned approach was the one followed, which was to identify ccooperating mechanisms and to assign different people to those mechanisms.

Benefits

There is not a specific group that would benefit from this work. Rather, the community as a whole benefits if there are more usable applications that utilize NDN, which fosters understanding of the engineering challenges of using NDN in a way that pure research often misses.

Alternatives

To our understanding, there are no other ways to do this with NDN on Android. Similar functionality exists in Snapchat and other file transfer apps that use established protocols, like NFC and Bluetooth.

Achieved

We achieved, at least partially:

1. NDN hook-ins – The application can register arbitrary prefixes with NFD, and can send and receive interests.
2. QR Code functionality – The application generates QR codes, both of RSA public keys and arbitrary text, enabling file-name sharing.
3. Photo functionality – The application takes and stores photos, moving toward enhanced interaction with the photos.
4. File selection and interactivity – The application allows file selection, making these files available under the first prefix that was registered
5. Packetization – Since JNDN does not have a native packetizer, one was written that successfully sub-divides files into 1400-byte packets, which can be signed, verified, and transmitted like ordinary NDN data packets.

Achieved, cont.

Progress was slower than expected, owing to the complexities of Android development. Much time was lost sorting out problems with files, including permissions, packetization, and "Android scoping".

Link

Github link

Demo