Named Data Networking Project

Main Components:

1. Clouding. *NFD Component*
2. IP Multi-casting. *jNDN Component*
3. Video Surveillance Files Transferring. *jNDN Component*
4. Publish/Subscriber Model. *NDNClient Component*
5. Matching Contents Model. *NDNClient Component*
6. Mobile Application. *NDNClientAndroid Component*

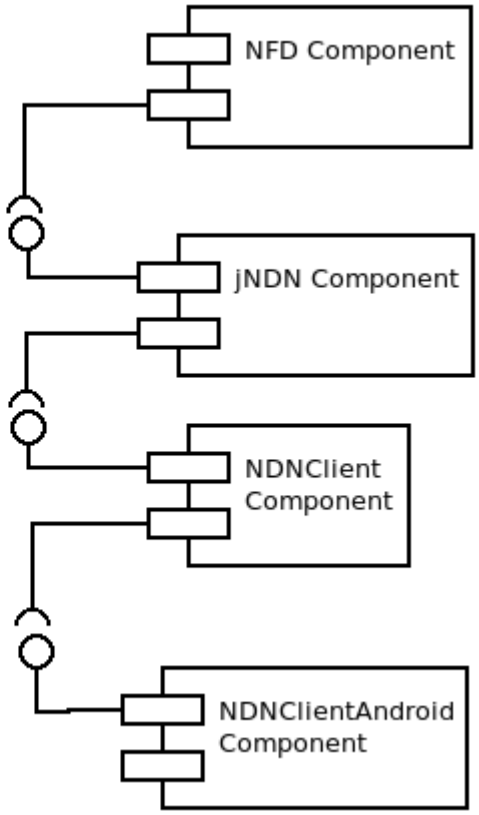

Figure 1: Main Components Diagram

Main Components Description:

1. **Clouding:** *Using NFD Component*
   - Hosting the NFD Server, which is based on the NDN protocol, on a Linux Ubuntu Clouding Software as a Service. Which suppose to handle all the Named Data Networking tables and forwarding services as FIB, RIB, SC,... Clients (Publisher or Subscriber) will create a Face using IP or URL to access and get the services of host server.

2. **IP Multi-casting:** *Using jNDN Component*
   - Using TCP or UDP we are sending the datagrams to a group of interested Subscribers/Consumers in a single transmission.

3. **Video Surveillance Files Transferring:** *Using jNDN Component*
   - The Resource, Video Surveillance Files will be ready for be transfered using our proposed solution represented in the research.

4. **Publisher/Subscriber Model:** *Using NDNClient Component*
   - Publisher/Producer will be able to register on the NFD server his own resource “Video file”, he should describe his data with a specific prefix name and specific list of content attributes and register this information on the server.
   - Subscriber/Consumer should send an interest using the same prefix name and match the Contents Attributes with at least 50% of the attributes which the publisher sent.
   - Server will allocate prefix name and matched contents attributes, then will let the routers doing their jobs, which send an receive the required data packets between the Publishers/Subscribers.

5. **Matching Content Model:** *Using NDNClient Component*

- Matching Contents Attributes with at least 50% of the attributes which the publisher sent.
- Publishers could send one or more Contents Attributes, each content has a Name-Value(Single value). eg.:

```
Event = Regular
Time = 12:30
Persons = 3
Place = Riyadh
```

- On the other hand, Subscribers could send one or more Contents Attributes to evluated and matched with Publisher's contents attributes he sent, each Contents Attributes could have a single or a range of value that could be match in between.

eg.:

```
Event = Regular, Night Shift, Some Properties Stolen
Time = from 10:00 to 15:00
Persons = from 1 to 5
Place = Riyadh, Jeddah, Dammam
```

6. **Mobile Application:** *Using NDNClientAndroid Component*
   - Using Android OS, a Mobile Application with three main screens:
     - Setting
     - Publisher
     - Subscriber

Figure 2: NDNClient Class Diagram