

Mobility First/NGI Final-Status

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About Mobility First

▶ **Motivation:**

Historic inflection point, with mobile platforms and applications poised to replace the fixed-host/server model

▶ **Challenges:**

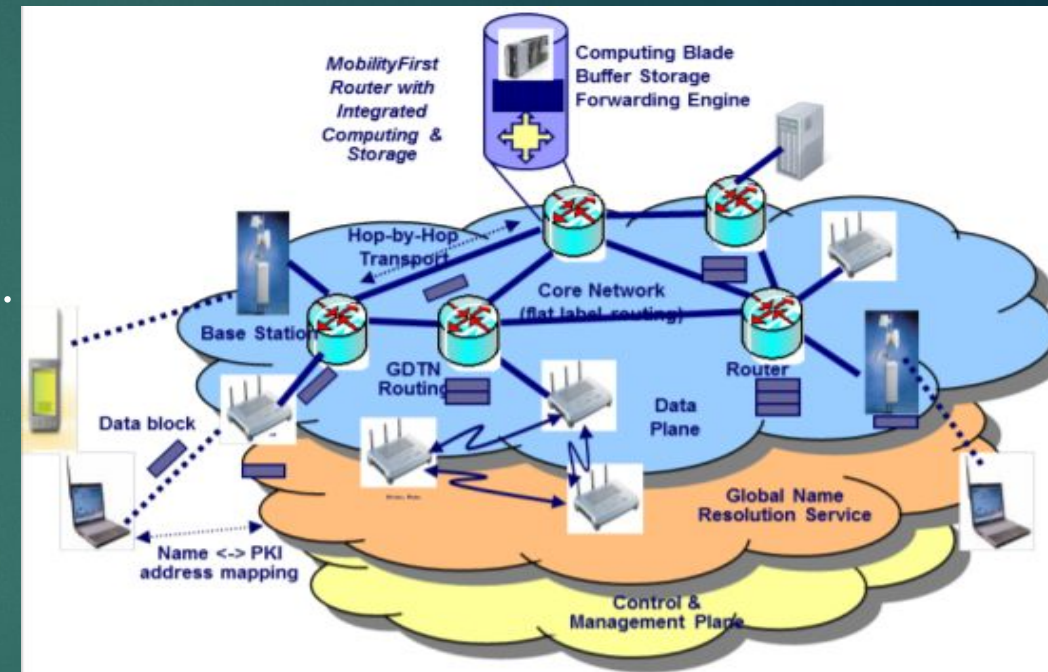
- Multi Homing
- Host and Network Mobility.

▶ **Use cases:**

- Emergency Response
- Vehicular Networking
- Virtual Networks
- Content Delivery

Key Features of Mobility First Architecture

- ▶ Separation of name and addressing
- ▶ Storage Aware Routing, Ad-hoc networking.
- ▶ Connectionless, hop-by-hop transport (hop-by-hop link layer protocol)



Components of the Mobility First Architecture I got to work on

- ▶ I got the chance to work on two essential components
 1. Mobility First router configured using Click.
 2. GNRS Server built in Java.

- ▶ Key features of a Mobility First Router:
 1. Generalized Storage Aware Routing
 2. GUID and network address based routing.

- ▶ Key Features of GNRS server:
 1. Distributed approach based on hashing

My role in the project Mobility First and Accomplishments

- ▶ Creating Click elements in C++, to configure the router.
- ▶ Worked on UDP socket programming in C, C++ and Java in order to understand how to use Socket Programming for the required components.
- ▶ Built UDP Socket Programming for developing communication between the client in Click program and the server in Java.

Sample click program for c++ client

```
TimedSource(1, "{840DB3BC-678D-4D1C-90F7-368B14921F64}", LIMIT 3)  
->Socket(UDP,127.0.0.1,5000, CLIENT true)  
->Queue(2)  
->Print(q, MAXLENGTH 500, CONTENTS 'ASCII')  
-> TimedSink(0.5)
```

Result After adding Hashing code into the Socket programming



```
naga@naga-VirtualBox:~/winlab$ click client_socket.click
q: 11 | -1669952 260
q: 11 | -1669952 260
q: 11 | -1669952 260
```

```
naga@naga-VirtualBox:~/winlab$ java Jserver 5000
Received GUID: -{840DB3BC-678D-4D1C-90F7-368B14921F64}
GUID in Bytes: [B@5f184fc6
Received GUID: -{840DB3BC-678D-4D1C-90F7-368B14921F64}
GUID in Bytes: [B@3feba861
Received GUID: -{840DB3BC-678D-4D1C-90F7-368B14921F64}
GUID in Bytes: [B@5b480cf9
```

Future Work

- ▶ Get a clear understanding of each method of the GNRS Server.
- ▶ Try to integrate the Socket program created with the GNRS.
- ▶ Try to understand the technical working of the end-to-end communication in the *Mobility First Architecture*.



Thank You

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