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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