Multi-Homing Support in MobilityFirst FIA
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Introduction to MobilityFirst
Motivation
• Historic shift from PCs to mobile devices
  • ~4 B Cell phones vs. ~1 B PCs in 2010.

Challenge
• Host and network mobility
• Varying level of wireless connectivity
• Multi-homing

Prevalent mobile devices in the Internet

MobilityFirst Architecture
Generalized Storage-Aware Routing (GSTAR)
Hybrid GUID and network address based routing
Conditional routing behavior
Late binding
In-network storage utilization

Name Resolution
Global Name Resolution Service (GNRS)
Naming system serves as narrow waist of the protocol stack
Distributed approach based on hashing functions
Low resolution latency goal of less than 100ms on average

Demo Scenario
1. Multi-homed client requesting content
2. Server receives request and replies with content using destination GUID1
3. Query to GNRS for GUID 1 returns 2 Network Addresses
4. Given 2 different NAs for the client, the router selects the best path depending on link quality
5. Delivery over WiFi
6. Multi-homed client leaves WiFi coverage
7. Delivery over WiMax

Future Work
• Design and implement different multi-homing policies (best performance, max throughput, stable throughput, etc.)
• Explore ideas of source driven, receiver driven and network driven multihoming

References
• MobilityFirst, http://mobilityfirst.winlab.rutgers.edu