

GEC-12 MobilityFirst Demo

- **Platform: GENI**
 - ProtoGENI backbone nodes + Internet2 ION backbone
 - Emulab nodes
 - ORBIT WiMAX + WiFi
 - DieselNet bus nodes + DOME WiMAX
- **Software:**
 - MobilityFirst Prototype Router 1.0 running:
 - Name Resolution Service
 - Storage Aware Routing Service
 - Click modular router as forwarding engine
 - MobilityFirst Client Stack
 - Implemented on the Android and Linux platforms
 - API for network interaction – addressing and messaging
- **Applications:**
 - Progressive download and streaming of video content
 - VoIP calls with static and mobile peers
 - Hail-a-Cab anycast service

Scenarios Under Demonstration

- Mobility
 - Device moves to different network attachment point or domain
 - Multi-homed device move between types of wireless networks
 - WiFi and WiMAX
 - A sub-network moves from one attachment point to another
- Disconnection and Partition
 - User is temporarily disconnected (out of range, or offline)
 - Network is temporarily partitioned
- Variable Link Quality
 - Temporal variation to model load and environment
 - Packet loss
- Scalability and Robustness in subsequent versions

Visualization Framework

- Data collection from each node (MF routers and clients)
 - GPS location and network attachment details: address, AP (if any) and link properties (bandwidth, signal strength)
 - Traffic details: Rx/Tx pkt. counts and slower reporting of traces
 - Application events tagged and reported from end nodes
- Central repository of network state
 - RDBMS tables combined with links to detailed traces
 - Query API exported to report per node data with filters for time and space
 - Callback API with to receive notifications on events or data availability
- Application-centric Views
 - Graphical representation of topology with network and application events