

Euroview 2012 Abstract

MobilityFirst: A Robust and Trustworthy Mobility-Centric Architecture for the Future Internet

D. Raychaudhuri
WINLAB, Rutgers University
Technology Center of NJ
671 Route 1 South
North Brunswick, NJ 08902.
ray@winlab.rutgers.edu

Abstract:

This talk provides an overview of a clean-slate mobility-centric Internet architecture (called “*MobilityFirst*”) currently under investigation at Rutgers and collaborating institutions under NSF’s new FIA (Future Internet Architecture) program. The *MobilityFirst* network is designed to efficiently handle emerging mobility service requirements such as resilience against wireless channel impairments and disconnections, user and network mobility at scale, multi-homing or multicast services, edge-aware inter-domain routing, content caching and retrieval, context-aware message delivery, and enhanced security/privacy. The proposed protocol stack is centered around the so-called “GUID (Globally Unique Identifier) Service Layer” which enables a clean separation of naming and addressing, and provides considerable flexibility in routing and service definition. Key protocol components of the proposed architecture are introduced along with example evaluation results from work-in-progress - these include the global name resolution service (GNRS), generalized storage-aware routing (GSTAR) with disconnection tolerance, hop-by-hop transport, and content- or context-aware services. The talk concludes with a brief discussion (and video demo) of the *MobilityFirst* proof-of-concept prototype with global name resolution, storage routing and dual-homing that was recently demonstrated on the GENI meso-scale networking infrastructure.