



Debate – MobilityFirst

Seminar 6 preparation

Team 3

What is MobilityFirst?

- MobilityFirst is fully known as the MobilityFirst Future Internet Architecture Project
- Started in 2010 by the FIA (Future Internet Architecture) program of the NSF (National Science Foundation).
- The primary goal is to “design and implement a next-generation Internet starting from a clean slate” (MobilityFirst, n.d)
- Devised to address the issues of a mobile architecture as mobile devices outnumber fixed internet hosts.
- Primary designed with trustworthiness, mobility and scalability in mind.

Key features of MobilityFirst?

- Separation of naming and addressing
- Hybrid Name/Address Based Routing
- Name-based Network Service API
- Mobile End-Points with Multi-Homing
- Network Mobility, Ad-Hoc and Disconnected Mode
- Storage-Aware Intra-domain and Edge-Aware Inter-Domain Routing
- Hop-by-Hop Transport
- Optional in-network computing services

Why is MobilityFirst the future?

- The number of mobile devices is constantly increasing and outstripping the number of fixed assets.
- It is predicted and argued that mobile platforms and applications have the potential to replace the fixed host/server model in future as the internet reaches an inflection point (Raychaudhuri et al, 2012)
- Issues with current internet:
 - A download does not resume gracefully when moving from home to work
 - A VoIP call does not seamlessly switch from home Wifi to mobile LTE
 - Difficult mobile information exchange when network is congested

Benefits of MobilityFirst

- Adopting a mobility-first architecture enables better contextual awareness for devices wishing to obtain services (Venkataramani et al. ,2014)
- Reliable and smooth transition allowing for a resilience to temporary breaks in network connection.
(Disconnection tolerant)
- Breaks away from connection orientated approaches
- Robust towards Mobile requirements and frequent connection changes
- A proof-of-concept prototype for the protocol stack has been successfully developed on the GENI experimental testbed and first demonstrated in Nov 2011.

References

MobilityFirst. n.d. *MobilityFirst is a Future Internet Architecture (FIA) research project*. Available from [https://mobilityfirst.cs.umass.edu/#:~:text=MobilityFirst%20is%20a%20Future%20Internet%20Architecture%20\(FIA\)%20research%20project.&text=The%20MobilityFirst%20project%20envisions%20mobile,of%20a%20next%2Dgeneration%20Internet](https://mobilityfirst.cs.umass.edu/#:~:text=MobilityFirst%20is%20a%20Future%20Internet%20Architecture%20(FIA)%20research%20project.&text=The%20MobilityFirst%20project%20envisions%20mobile,of%20a%20next%2Dgeneration%20Internet).

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Venkataramani, A., Kurose, J.F., Raychaudhuri, D., Nagaraja, K., Mao, M. & Banerjee, S. (2014). Mobility first: a mobility-centric and trustworthy internet architecture. ACM SIGCOMM Computer Communication Review, 44(3):74-80.