## **BWA 2012 KEYNOTE TALK**



## "Wireless Access Considerations for the MobilityFirst Future Internet Architecture"

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http://www.winlab.rutgers.edu/docs/faculty/RayBio.html

## Abstract

This talk presents an overview of wireless access considerations behind the design of the MobilityFirst clean-slate future Internet architecture. The MobilityFirst architecture is motivated by a historic shift of the Internet from the fixed host-server model to one in which access from mobile/wireless platforms becomes the norm. This implies the need for a future Internet architecture designed to handle the special needs of mobile/wireless access efficiently and at large scale. A number of key wireless access network requirements including user/network mobility, varying wireless link quality and disconnection, multihoming, ad hoc networking, flexible autonomous system boundaries and spectrum coordination are identified along with a brief discussion of the implications for protocol design. This is followed by a summary of the MobilityFirst protocol stack based on separation of names and locators, global name resolution service (GNRS), storage-aware routing with hop-by-hop transport, integrated spectrum management, along with an enhanced edge-aware interdomain routing framework. Selected results from ongoing protocol design and evaluation work are given for key components such as the GNRS, storage-aware routing and spectrum coordination protocol.

## **Biography**

Dipankar Raychaudhuri is Professor-II, Electrical & Computer Engineering and Director, WINLAB (Wireless Information Network Lab) at Rutgers University. As WINLAB's Director, he is responsible for an internationally recognized industry-university research center specializing in wireless technology. His research group at WINLAB has been working on design and implementation of next-generation wireless networks covering a number of emerging usage scenarios such as ad hoc mesh, vehicular, cognitive radio, 4G and mobile Internet. He is the principal investigator for several large projects funded by the US National Science Foundation (NSF) including the "ORBIT" open-access next-generation wireless network testbed, and the "MobilityFirst" future Internet architecture (FIA) project. He also

helped to initiate the ongoing GENI program for deployment of a global-scale experimental infrastructure for Internet research, and is currently involved with the "Open GENI Base Station" project aimed at deploying programmable 4G wireless networks at several university campuses across the US.

Dr. Raychaudhuri has previously held corporate R&D positions in the telecom/networking industry including: Chief Scientist, Iospan Wireless (2000-01), Assistant General Manager & Dept Head-Systems Architecture, NEC USA C&C Research Laboratories (1993-99) and Head, Broadband Communications Research, Sarnoff Corp (1990-92). He obtained his B.Tech (Hons) from the Indian Institute of Technology, Kharagpur in 1976 and the M.S. and Ph.D degrees from SUNY, Stony Brook in 1978, 79. Dr. Raychaudhuri is a Fellow of the IEEE.