

Internet 3.0: Ten Problems with Current Internet Architecture and Solutions for the Next Generation



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ABSTRACT

Internet has changed the way we work and live and has contributed positively to the growth of business and industry. Nonetheless, many parts of the Internet architecture were developed 30+ years ago. In these 30 years, we have learnt a lot about networking and packet switching. Is this the way we would design the Internet if we were to start it now? This talk is an attempt to answer this question raised by US National Science Foundation, which has embarked on the design of the next generation Internet testbed called GENI.

In this talk, we will point out ten key problems with the current Internet Architecture and proposed directions for the solutions. The original Internet design was host centric where it was believed that the network would be the infrastructure between two hosts wishing to communicate with each other. Also the original design was around a system of stationary end hosts in a friendly trust-all environment of universities and government agencies. It is obvious that the environment has now changed and the communication today is becoming more user centric and data centric. A long term view of the new architecture will be presented.

BIOGRAPHY

Raj Jain is a Professor of Computer Science and Engineering at Washington University, St. Louis, MO. Dr. Jain is a Fellow of IEEE, a Fellow of ACM. He has served on the Board of Technical Advisors to several companies including Nexabit Networks, Westborough, MA acquired by Lucent Corporation. (March 1997-1999), Amber Networks, Fremont, CA acquired by Nokia (1999-2001).

He is the author of "Art of Computer Systems Performance Analysis," which won the 1991 "Best-Advanced How-to Book, Systems" award from Computer Press Association. His fourth book entitled "High-Performance TCP/IP: Concepts, Issues, and Solutions," was published by Prentice Hall in November 2003.

Based on his active participation in the computer industry, Dr. Jain was awarded 1999 siliconindia Leadership Awards for Excellence and Promise in Business and Technology. He is also a winner of ACM SIGCOMM Test of Time award.

For his publications and talks, see <http://www.cse.wustl.edu/~jain/>