

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 called GENI.

In this talk, we will point out key problems with the current Internet Architecture and proposed directions for the solutions. In particular, the next generation of Internet has to be commerce friendly. It has to be designed to meet the needs of businesses, organizations, and governments. The first generation was designed by researchers for research. The design team did an excellent job resulting in its adoption by the masses. The next generation Internet should build on this success, keep the best ideas of the past and add features that will help businesses, organizations, and governments utilize it in the same way they utilize other methods of communication and transport and have the same or superior level of flexibility. Ten such problems and proposed solutions will be presented in this talk.

BIOGRAPHY

Raj Jain is a Professor of Computer Science and Engineering at Washington University, St. Louis, MO. He is also Co-founder and Chief Technology Officer of Nayna Networks, Inc - a next generation broadband access equipment company in San Jose, CA. Until August 2002, he was also a Professor of Computer and Information Sciences at Ohio State University in Columbus, Ohio.

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.

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