

The New Generation Network (NwGN) Project: Its Promises and Challenges

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Abstract: This presentation consists of two parts. The first part is an overview of the New Generation Network (NwGN) project, a future Internet research project at NICT (National Institute of Information and Communication Technology), Japan. Its architecture, named AKARI, has four main features: cross-layer optimization, ID/Locator split, virtual nodes, and integrated optical packet switching and optical paths. JGN-X is a testbed that provides an environment to implement the AKARI and other future Internet architectures and to develop applications that run on these virtual networks.

The second part of this talk is my personal observations about the future Internet research in general, including the efforts made in the U.S., Europe, Japan and elsewhere. I question how several candidate architectures for the Future Internet will converge to one good network architecture that is acceptable to all members in the research community and various stakeholders. The anticipated difficulty will be exasperated because the research community is not well equipped with quantitative characterizations of the network performance. We propose some ideas and approaches that may remedy the current state of affairs.

About the Speaker: **Hisashi Kobayashi** is the Sherman Fairchild University Professor Emeritus of Princeton University, where he was previously Dean of the School of Engineering and Applied Science (1986-91). Currently he is Executive Advisor of NICT, Japan, for their New Generation Network. Prior to joining the Princeton faculty, he spent 15 years at the IBM Research Center, Yorktown Heights, NY (1967-82), and was the Founding Director of IBM Research-Tokyo (1982-86).

He is an IEEE Life Fellow, an IEICE Fellow, was elected to the Engineering Academy of Japan (1992), and received the 2005 Eduard Rhein Technology Award.

He is the author or coauthor of three books, "Modeling and Analysis: An Introduction to System Performance Evaluation Methodology" (Addison-Wesley, 1978), "System Modeling and Analysis: Foundations of System Performance Evaluation" (Pearson/Prentice Hall, 2009), and "Probability, Random Processes and Statistical Analysis" (Cambridge University Press, 2012). He was the founding editor-in-chief of "An International Journal: Performance Evaluation" (North Holland/Elsevier).