THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

A Benes Packet Network

by

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   The Chinese University of Hong Kong

Abstract

Benes networks are constructed with simple switch modules and have many advantages, including small latency and requiring only an almost linear number of switch modules. As circuit-switches, Benes networks are rearrangeably non-blocking, which implies that they are full-throughput as packet switches, with suitable routing. Routing in Benes networks can be done by time-sharing permutations. However, this approach requires centralized control of the switch modules and statistical knowledge of the traffic arrivals. We propose a backpressure-based routing scheme for Benes networks, combined with end-to-end congestion control. This approach achieves the maximal utility of the network and requires only four queues per module, independently of the size of the network.

Biography

Longbo Huang is currently an assistant professor in the Institute for Interdisciplinary Information Sciences (IIIS) at Tsinghua University, Beijing, China. He received his Ph. D. degree from the Electrical Engineering department at the University of Southern California in August 2011, and worked as a postdoctoral researcher in the Electrical Engineering and Computer Sciences department at the University of California at Berkeley from July 2011 to August 2012. Prior to his Ph.D., Longbo received his B.E. degree from Sun Yat-sen (Zhongshan) University, Guangzhou, China, and his M.S. degree from Columbia University, New York City, both in EE. His research interests are in the areas of Stochastic Network Optimization, Data Center Networking, Smart Grid, Processing Networks and Queueing Theory.

** ALL ARE WELCOME **

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