

Electrical and Computer Engineering Colloquium

Title: Turbo I/O Acceleration in Server Architectures
Speaker: Professor Laxmi Bhuyan, University of California, Riverside
When: Tuesday, November 20, 2007, 1:00 - 2:00 PM
Where: Ball Building, Room 412

Abstract: The faster growth of network bandwidth compared to that of the CPU performance has led to a growing mismatch between the transmission bandwidth and packet processing speed. To make things worse, the memory system performance improves at an even slower pace than that of the CPU. It is known that network protocol stack in the operating system is the crucial bottleneck in processing I/O requests in servers. This talk presents detailed timing behavior and architectural characteristics of the TCP/IP protocol while executing in the CPU. We investigate various architectural techniques for incorporation in the server architectures to enhance I/O processing speed. They consist of instruction and cache optimization, and design of hardware copy engines among others.

Biography: Laxmi Narayan Bhuyan is Professor and Chairman of Computer Science and Engineering Department at the University of California, Riverside (UCR). Prior to joining UCR in January 2001, he was a professor of Computer Science at Texas A&M University (1989-2000) and Program Director of the Computer System Architecture Program at the National Science Foundation (1998-2000). He has also worked as a consultant to Intel and HP Labs.

Dr. Bhuyan received his Ph.D. degree in Computer Engineering from Wayne State University in 1982. His current research interests are in the areas of network computing, multiprocessor architectures, router and web server architectures, parallel and distributed processing, and performance evaluation. He has published more than 150 journal and conference papers.

Dr. Bhuyan currently serves as the Editor-in-Chief of the IEEE Transactions on Parallel and Distributed Systems. He is a Fellow of the IEEE, a Fellow of the ACM, a Fellow of the American Association for the Advancement of Science, and a Fellow of the World Innovation Foundation. He has also been named as an ISI Highly Cited Researcher in Computer Science. He has received other awards such as Halliburton Professorship at Texas A&M University, and Senior Fellow of the Texas Engineering Experiment Station. He was also awarded the IEEE CS Outstanding Contribution Award in 1997.

Coffee and cookies will be served, starting from 12:30 pm. So, come early and treat yourself to some refreshment while it lasts!

For more information, contact Oliver Ibe, oliver_ibe@uml.edu, or call 978-934-3118.