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A CSE Department  
Colloquium Series

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**Who:** BRAD PENOFF (UNIVERSITY OF BRITISH COLUMBIA)

**What:** SCTP versus TCP for MPI

**When:** MON, OCT 24, 5:00 PM, IN DL 480; PIZZA AFTERWARD!



SCTP (Stream Control Transmission Protocol) is a recently standardized transport level protocol with several features that better support the communication requirements of parallel applications; these features are not present in traditional TCP (Transmission Control Protocol). These features make SCTP a good candidate as a transport level protocol for MPI (Message Passing Interface). MPI is a message passing middleware that is widely used to parallelize scientific and compute intensive applications. TCP is often used as the transport protocol for MPI in both local area and wide-area networks. Prior to our work, SCTP had not been used for MPI. We compared and evaluated the benefits of using SCTP instead of TCP as the underlying transport protocol for MPI. We redesigned LAM-MPI, a public domain version of MPI, to use SCTP. I will describe the advantages and disadvantages of using SCTP, the necessary modifications to the MPI middleware to use SCTP, and the performance of SCTP compared to a stock implementation that uses TCP (see <http://www.cs.ubc.ca/labs/dsg/mpi-sctp>).

Brad Penoff earned a BS in CSE from The Ohio State University in 2001, doing several projects with the Europa research group and collaborating with the Department of Linguistics on his senior thesis. After working three years at Sun Microsystems in Silicon Valley and Dublin, Ireland, he returned to school where he is now finishing his MS in computer science at the University of British Columbia (UBC) in Vancouver, Canada. He focuses on message passing implementations used for performing parallel processing. In addition to the various jobs at OSU, Sun, and UBC, Brad has done software engineering and support work at Argonne National Laboratory and Lucent Technologies.

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