
Scheduling in Terabit Packet Switches

by **Aleksandra Smiljanić, AT&T Labs**

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About the Speaker

Aleksandra Smiljanić (M '96) received M.A. and Ph.D. degrees in electrical engineering from Princeton University in 1996 and 1999, respectively. She completed B.Sc. in electrical engineering at Belgrade University in 1993. She has worked for AT&T Labs since 1999 on scheduling protocols. She has taught several courses at Princeton and Belgrade Universities. She received the Best Paper awards for the papers presented at the IEEE Workshop on High Performance Switching and Routing 2000, and IEICE/IEEE Workshop on High Performance Switching and Routing 2002, respectively. She is a recipient of the Aleksandar Damjanović Prize as the best student in her class at Belgrade University, 1993.

About the Talk

In this talk, a scheduling algorithm for high-capacity packet switches and its performance will be described. Packet switches with input buffers have been built to provide terabit switching capacity. The sequential greedy scheduling (SGS) algorithm designed for these switches is scalable due to its linear structure and minimal control information exchanged among inputs. The SGS algorithm switches packets without blocking them through a fabric with the speed up of two. Namely, a switch run by the SGS algorithm will pass arbitrary traffic pattern as long as its outputs are not overloaded. Consequently, the SGS algorithm allows agile bandwidth reservations in a high-capacity packet switch. Modified SGS supports switching of multicast traffic as well. Multicast packets are forwarded through a switch, so that their transmission is balanced over the switch ports. In this way, a switch with a moderate speed-up transports contents whose popularities change arbitrarily in magnitude and over time.

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