

On the Design of High-Speed Switch Fabrics

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Abstract

Bandwidth demand in Internet is growing at a very fast rate. While links can provide the requested bandwidth, the situation is much more critical for routers. This talk will address the main problems arising in the design of high-speed switch fabrics, which are a critical subsystem in current IP routers. After presenting the past evolution and some successful architectures, this talk will review current constraints imposed by available technology, and will address the fundamental problems faced by switch designers: flow control in the presence of long round-trip time, congestion control under loads approaching saturation, and providing QoS with very limited resources.