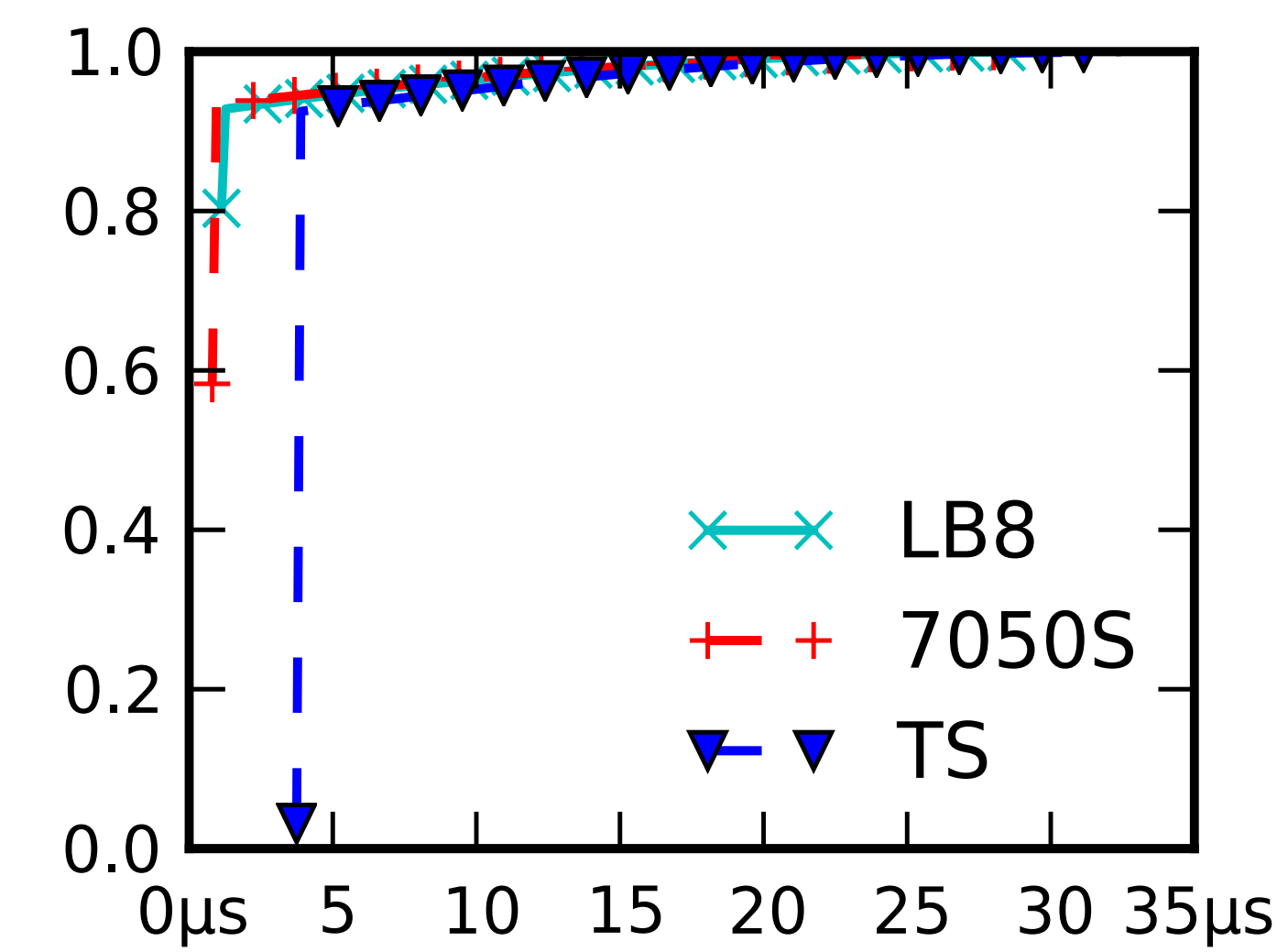
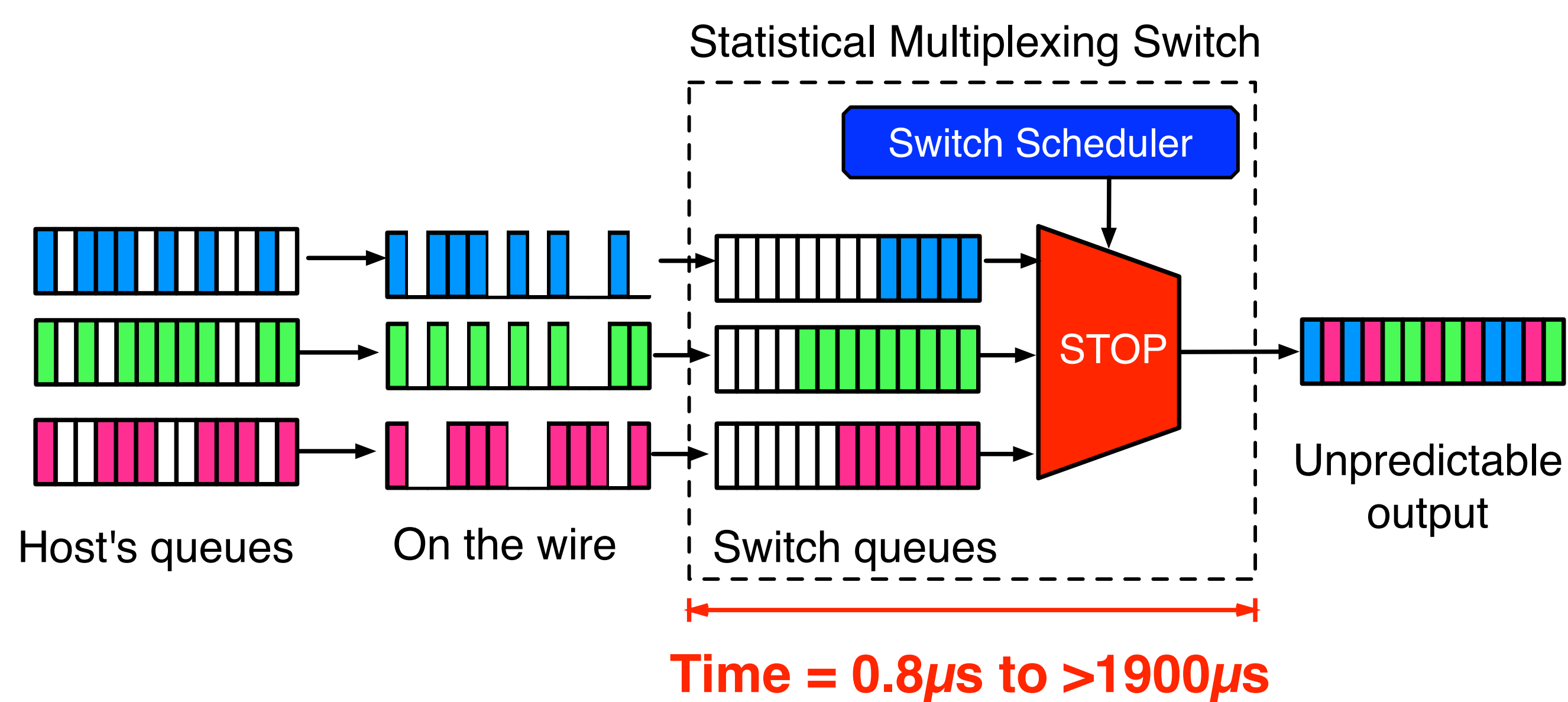


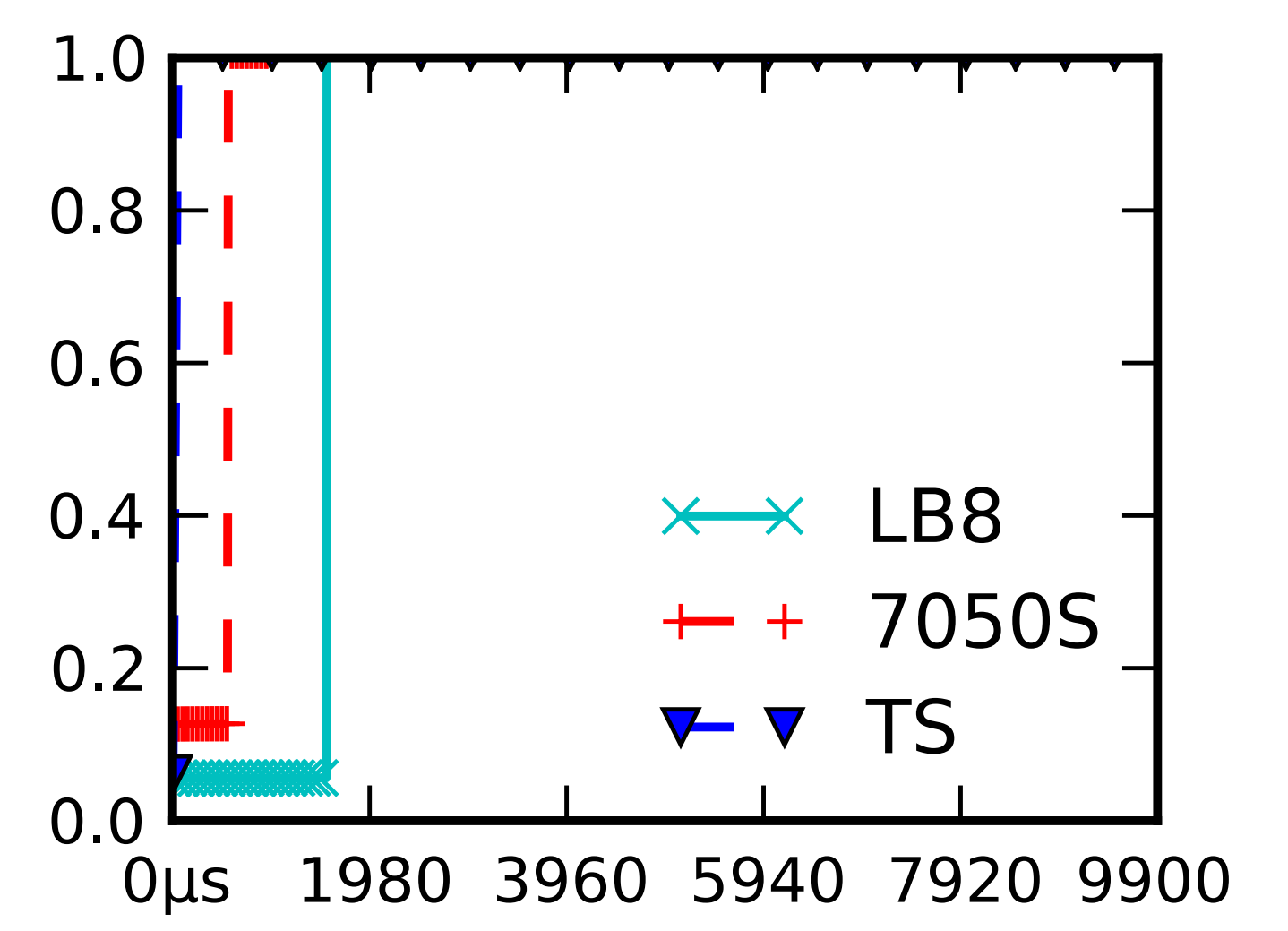
R2D2: Bufferless, Switchless Data Center Networks Using Commodity Ethernet Hardware

Matthew P. Grosvenor Malte Schwarzkopf Robert N. M. Watson Andrew W. Moore

Statistical multiplexing uses queueing, which causes unpredictable long latency tails

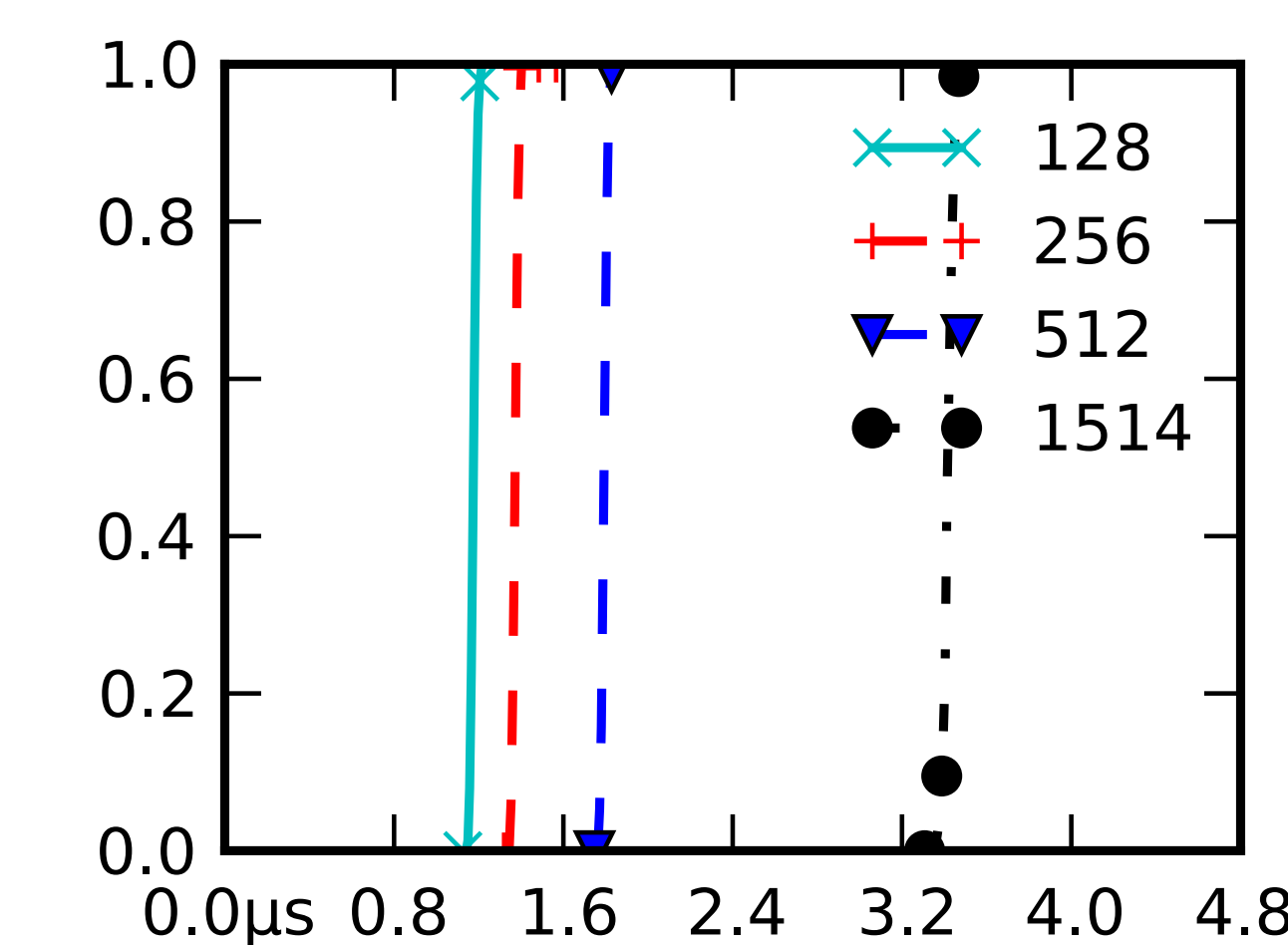
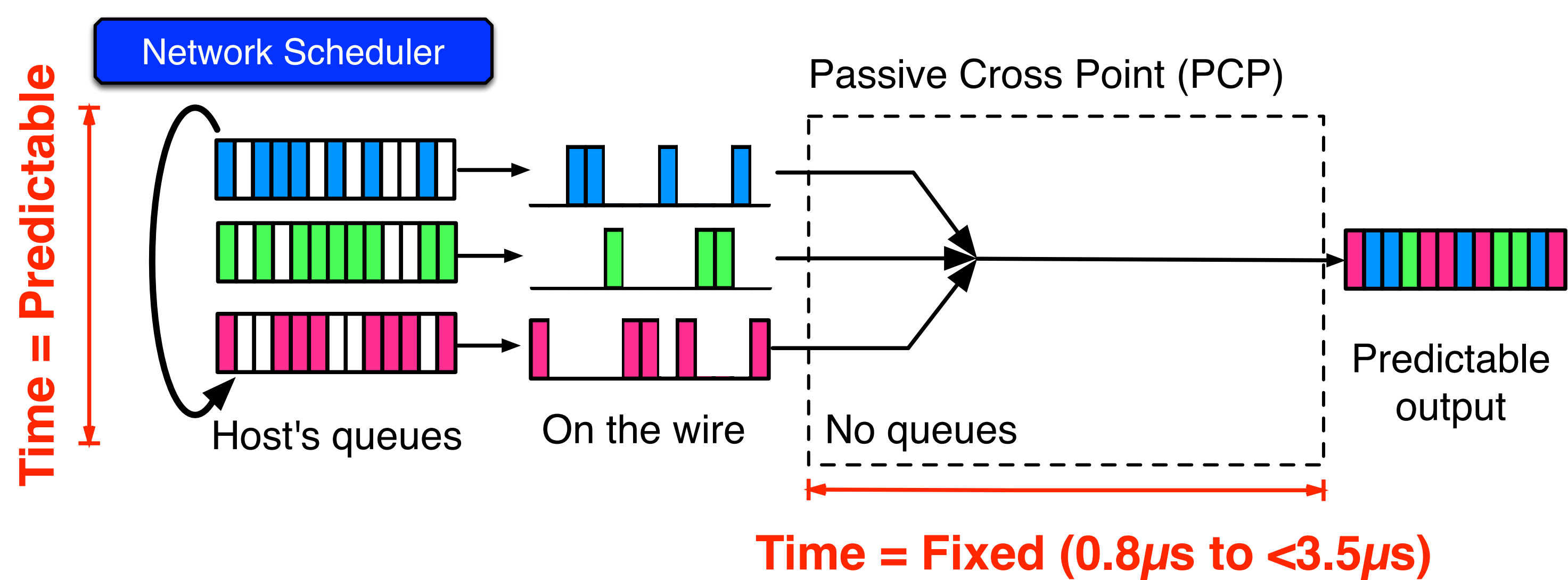


Latency CDF: Merging 500Mb/s + 5Gb/s flows through various switches [256B packets]

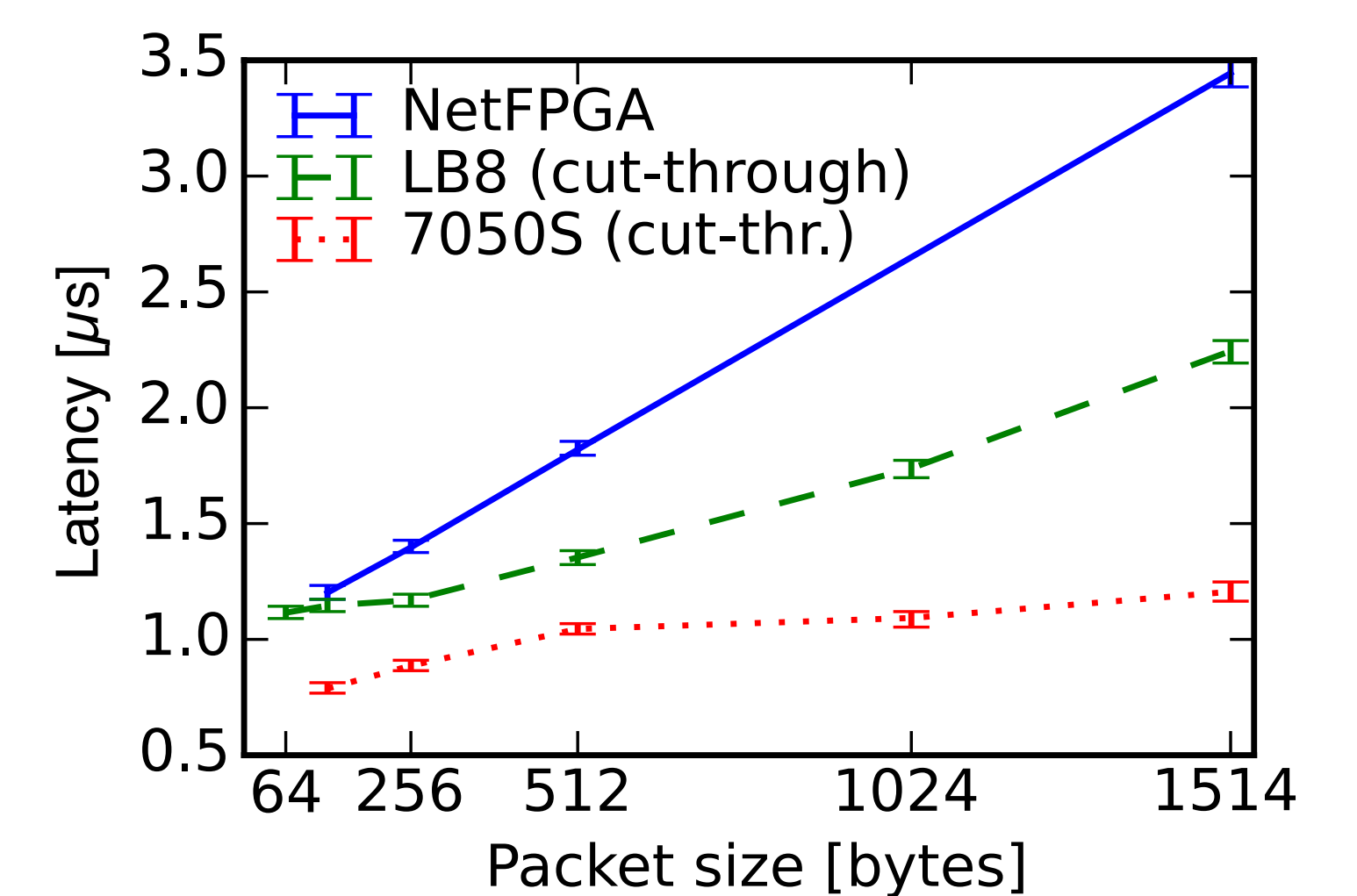


Latency CDF: Merging 2x 10Gb/s flows through various switches [256B packets]

Explicit network scheduling allows us to deterministically multiplex without long tails

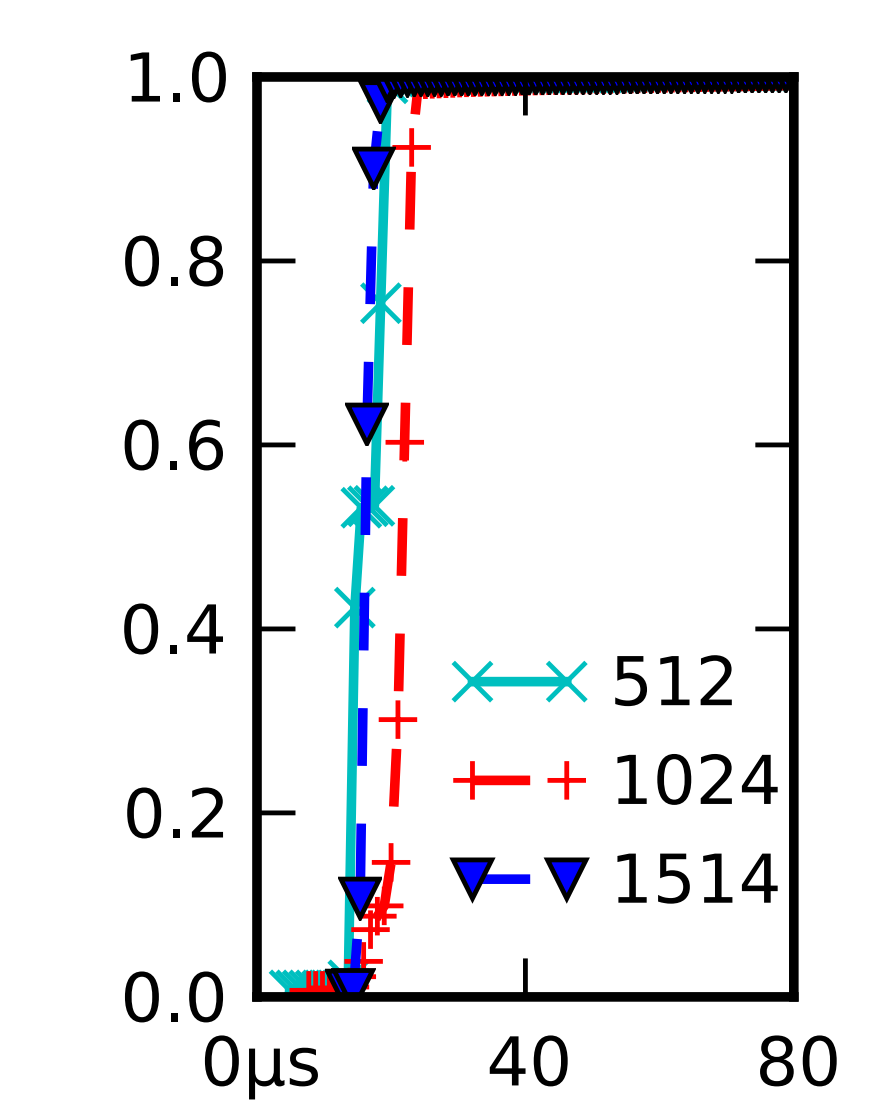
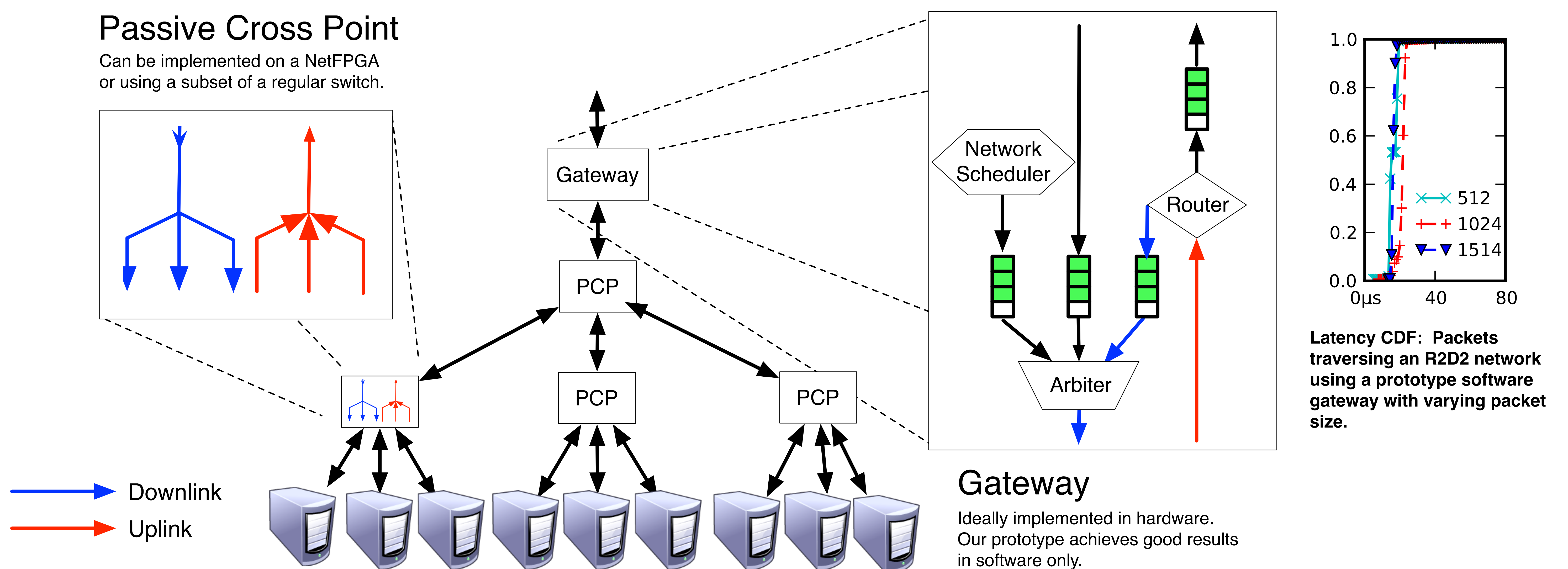


Latency CDF: NetFPGA 10G PCP at varying packet sizes.



Uncontended latency vs packet size, measured through several PCP prototypes.

The Resilient Realtime Data Distributor (R2D2) network architecture



Latency CDF: Packets traversing an R2D2 network using a prototype software gateway with varying packet size.

Come talk to us about **bandwidth, scheduling policies and applications** for R2D2!