Traffic Management Using Packet Scheduling

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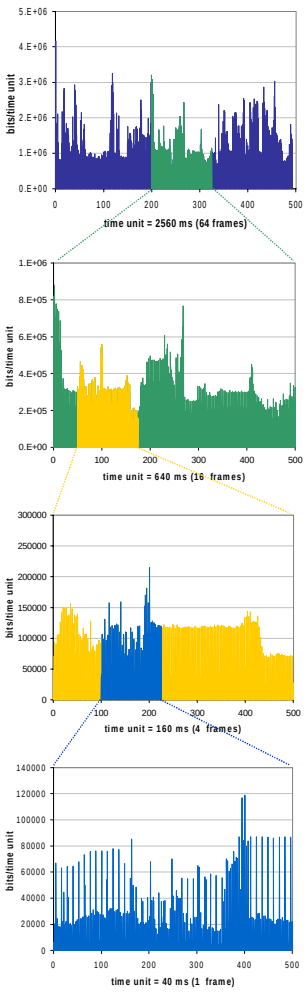


MPEG-1 teleconferencing trace

Packet service disciplines affect important network performance parameters:

- throughput
- delay and delay-jitter
- loss-rate

Example algorithm: Virtual Clock

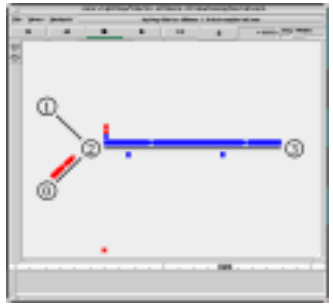
$$VC(i,j) \leftarrow max\{a(i,j), VC(i,j)\} + Vtick(i)$$

- $VC(i,j)$ - Virtual Clock stamp
- $a(i,j)$ - arrival time for packet j on connection i
- $Vtick(i)$ - average packet interarrival time on connection i

Scheduler stamps packets with $VC(i,j)$ and transmits them by the order of increasing stamp values.

Input to simulator from genuine trace

NS network simulator

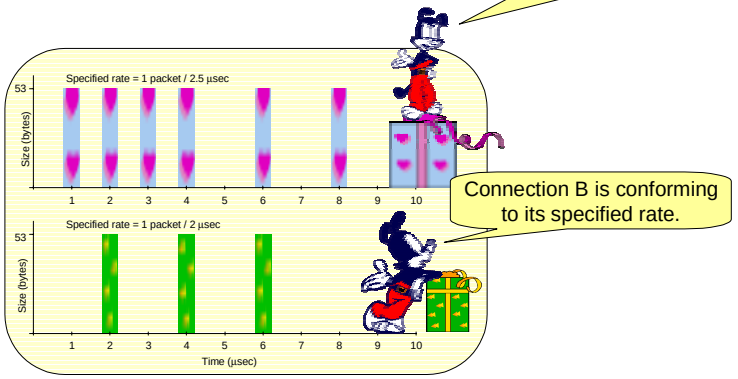


Further work is to explore network performance with:

- genuine traffic traces
- traffic shaping
- statistical multiplexing
- various service disciplines

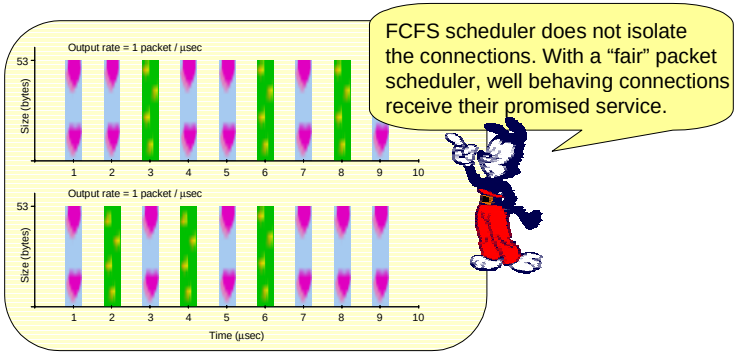
Connection A

Connection B



A
B
First Come First Served (FCFS) scheduler

A
B
"Fair" scheduler



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