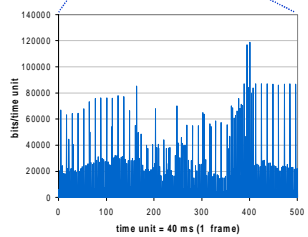
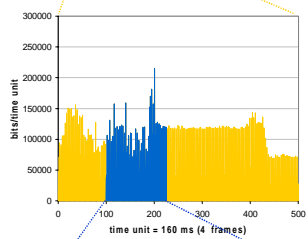
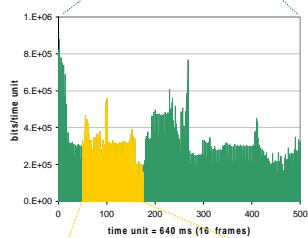
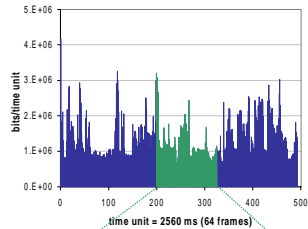


# Traffic Management Using Packet Scheduling

Velibor Markovski (vmarkovs@cs.sfu.ca)  
 Communication Networks Laboratory, Simon Fraser University



MPEG-1 teleconferencing trace

Packet service disciplines affect important network performance parameters:

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

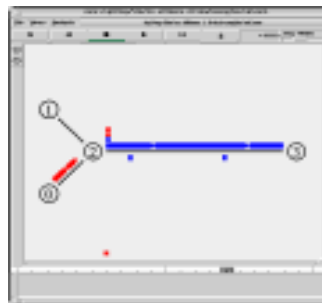
Example algorithm: Virtual Clock

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

- $VC(i,j)$  - 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.

NS network simulator



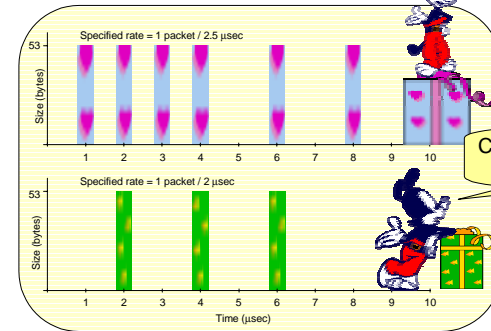
Input to simulator from genuine trace

Further work is to explore network performance with:

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

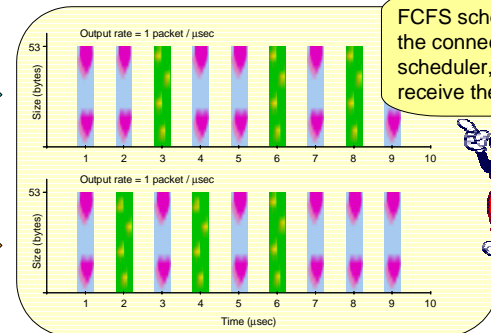
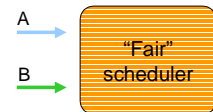
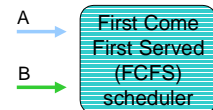
Connection A

Connection B



Connection A is greedy. It sends more packets than initially specified.

Connection B is conforming to its specified rate.



FCFS scheduler does not isolate the connections. With a "fair" packet scheduler, well behaving connections receive their promised service.

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Communication Networks Laboratory

Dr. Stephen Hardy    Nazy Alborz    Michael Jiang  
 Dr. Ljiljana Trajkovic    Allison Gau    Velibor Markovski  
 Tejinder Randhawa    Jeff Guo    Milan Nikolic  
 Edward Lo    Bernard Han

Communication Networks Laboratory  
<http://www.ensc.sfu.ca/research/cnl>

The ASI Exchange  
 March 9, 1999