Simulation of a Fair Queue Algorithm

Queuing Philosophies

- Drop Packets - simple, unfair
- Bit Round Robin - fair, impractical
- Packet Round Robin - unfair if sizes differ
- Preemptive on Finish times - starvation

Definition:

- R(t) = R(t0) + P, where R is no. rounds
- F = S + P, where F is finishing time
- Preemptive algorithms run solely on F
- Non Preemptive algorithms run on S

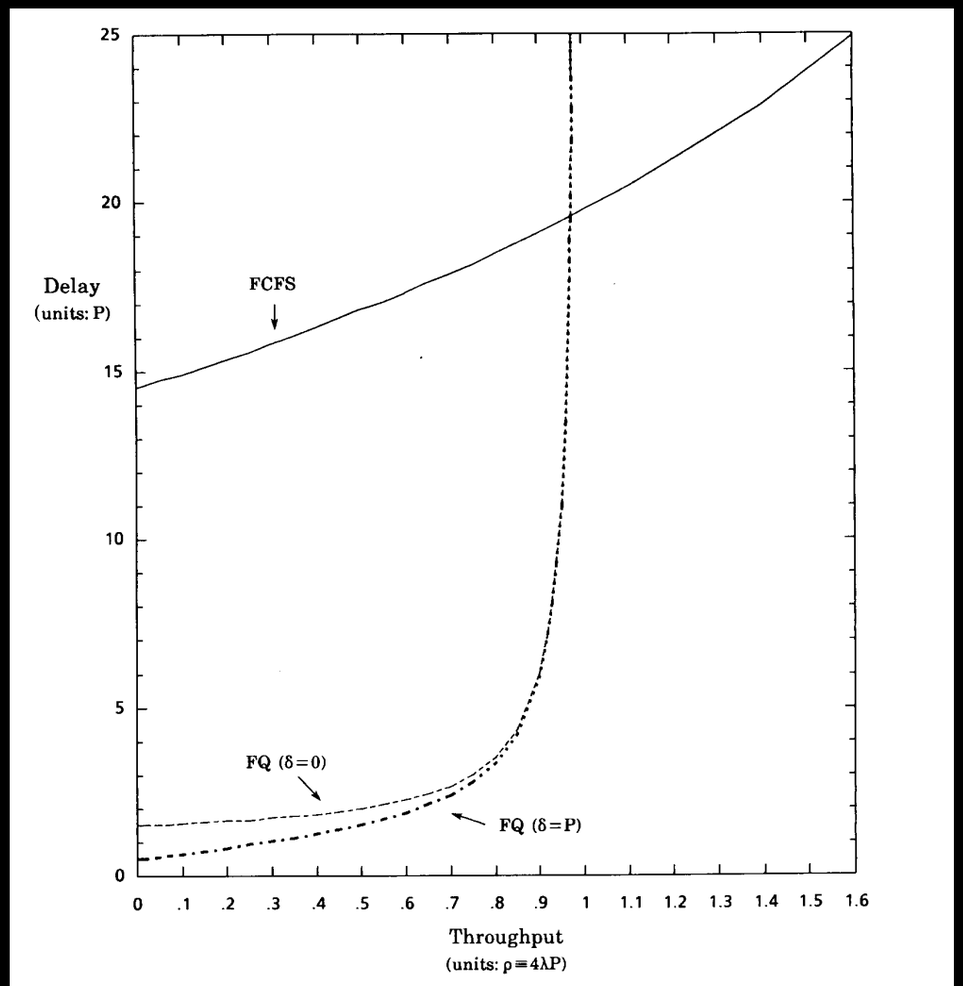
Promptness Bid:

- Bid = P + MAX($F_{(i-1)}$,R($t_{(i)}$) - A)
- Bid depends on:
  - Finish time of previous $F_{(i-1)}$
  - Arrival time of present R($t_{(i)}$)
  - Promptness parameter A

An almost Fair Queue:

- If conversation is inactive:
  - Scheduling Decisions are determined by ‘A’
  - Bid varies with history of user
  - Users who have underused BW will get immediate service time

Simulation:



- 1 Telnet, 3FTP

Simulation:

- Benchmark for FTP and Telnet workloads
- Compared to FCFS
- Scenarios: (FTPs, Telnets, Gateway)
  - 2,2,1; 6,2,1; 1,1,ill-behaved; 4,multi-node;
  - FQ creates a Firewall, tunable through ‘A’