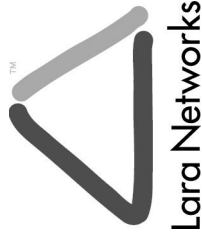
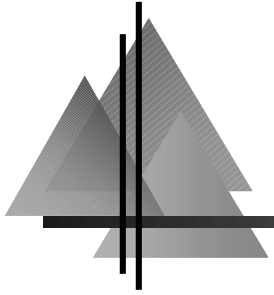


Lara Networks

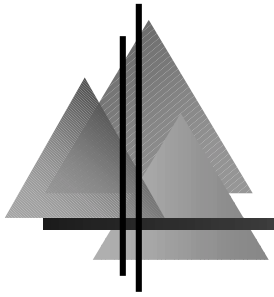
Technology Solutions for a Better Internet™



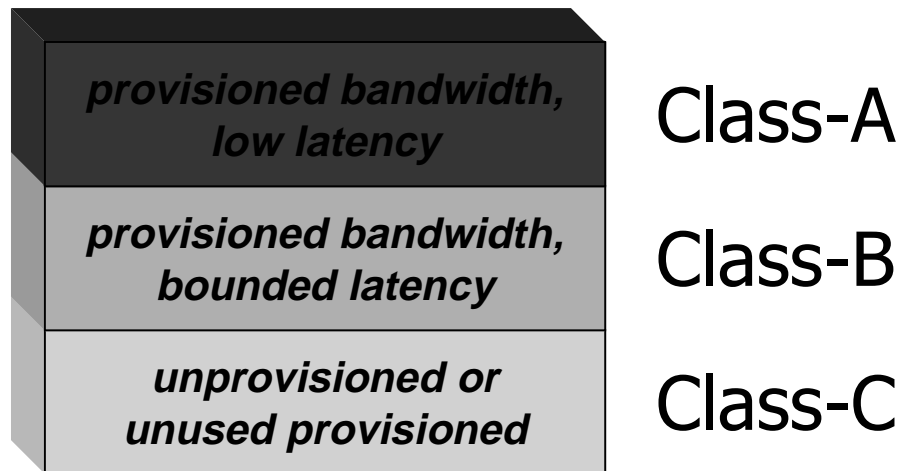


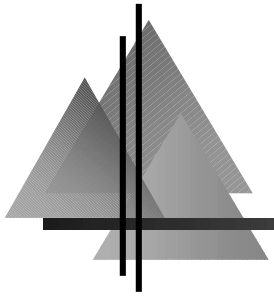
Lessons of the past...

- Flow control mandates 2-out-of-3
 - Low latency transmissions
 - Fair bandwidth allocation
 - High bandwidth utilization
- Feedback control systems
 - Low latency signaling
 - Control passes asynchronous packets
 - Separate synchronous queues
- Other observations
 - Local control => global perversions
 - Fairness is inherently "approximate"
 - Strange beating sequences DO OCCUR

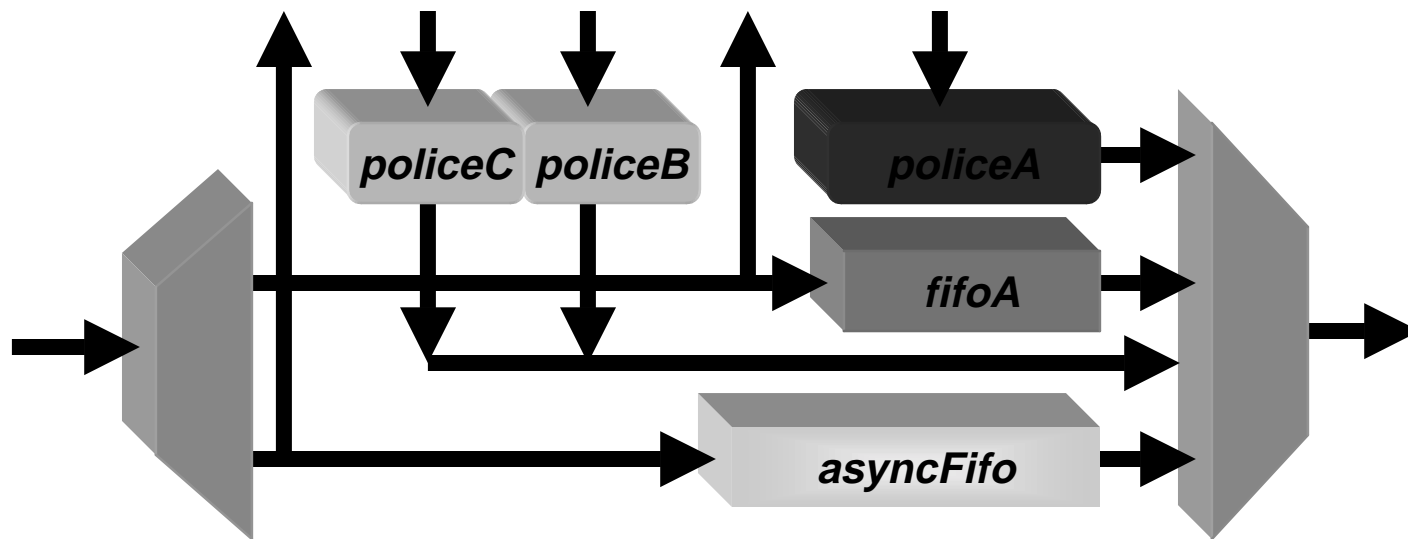


Arbitration classes

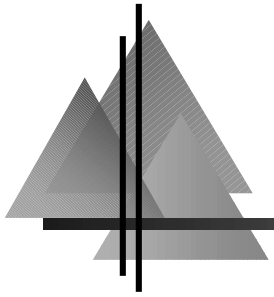




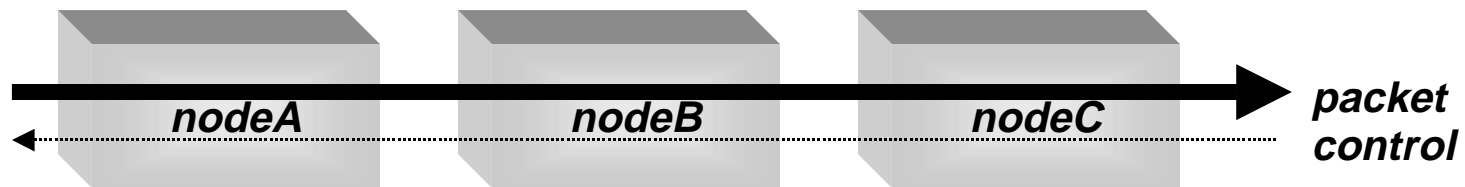
Arbitration related components



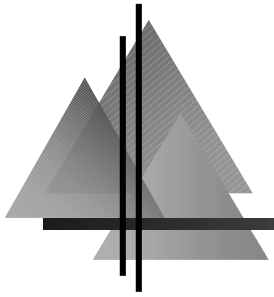
- Distinct sync and async paths
- Load dependent policing



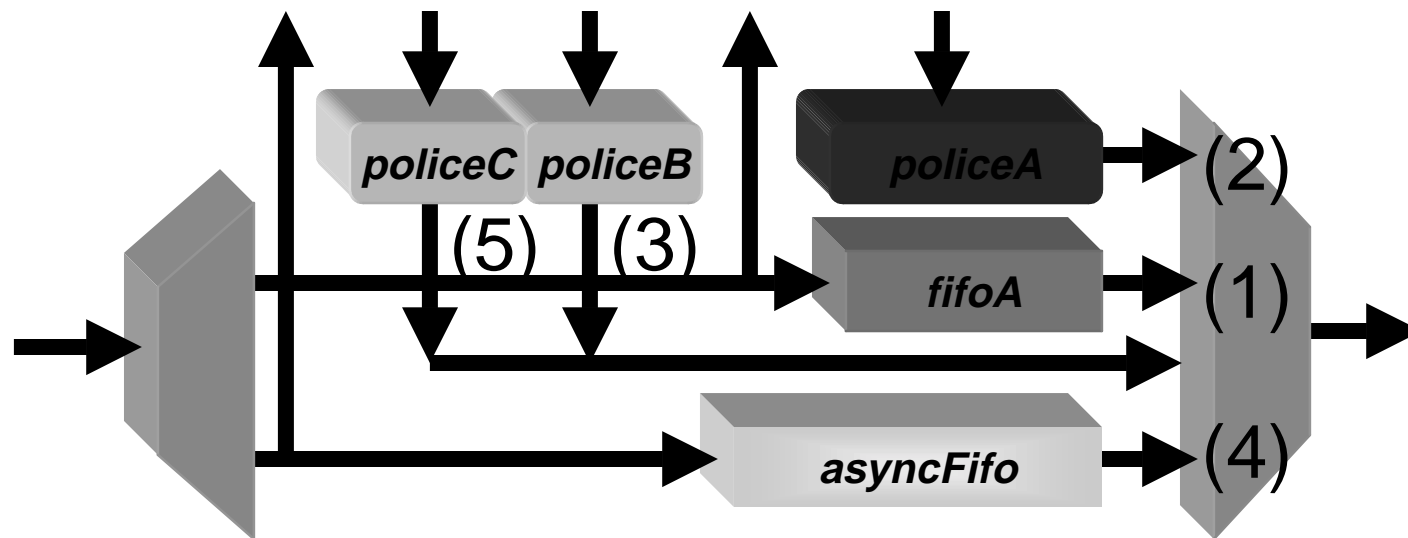
Opposing arbitration



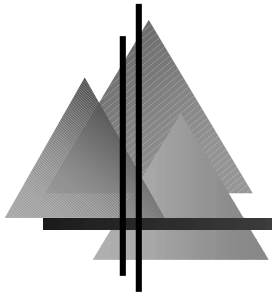
- Data packets flow in one direction
- Arbitration control flows in the other*



Prioritized transmissions

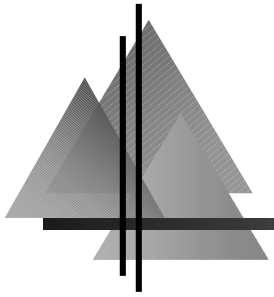


- Priorities for class-A traffic
- Prioritizes for class-B traffic



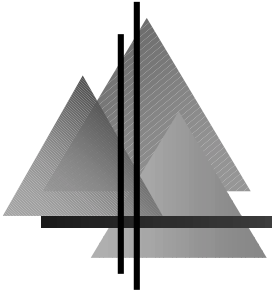
Prioritized transmissions

	warnings		transmissions		
	LO	HI	none	LO	HI
>3/4	send	send	A,F	A,F	A,F
>1/2	send	pass	A,F	A,F	A
>1/4	pass	--	A,B,P,F	A	
>0	--	--			
=0	--	--	A,B,P,C		

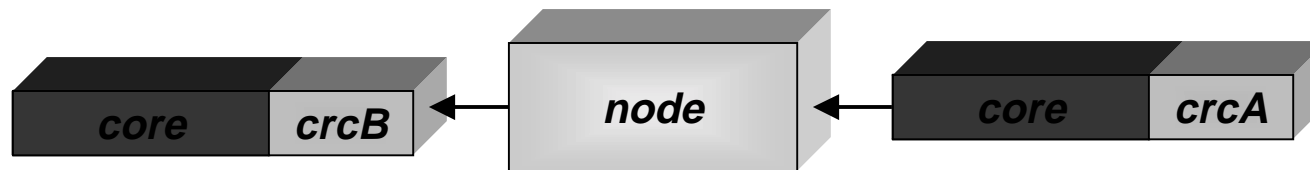


Arbitration notes

- Dual levels
 - Class-A, pre-emptive low latency
 - Class-B, less latency sensitive
- Jumbo frames
 - Affect asynchronous latencies
 - NO IMPACT on synchronous latency
- Cut-through vs store-and-forward
 - Either should be allowed
 - Light-load latency DOES matter



Cut-through CRCs



- Corrupted packet remains corrupted
- Error logged when first detected
- ```
if (crcA!=crc&&crcA!=crc^STOMP) {
 errorCount+= 1;
 crcB= crc^STOMP;
}
```

