802.17 presentations

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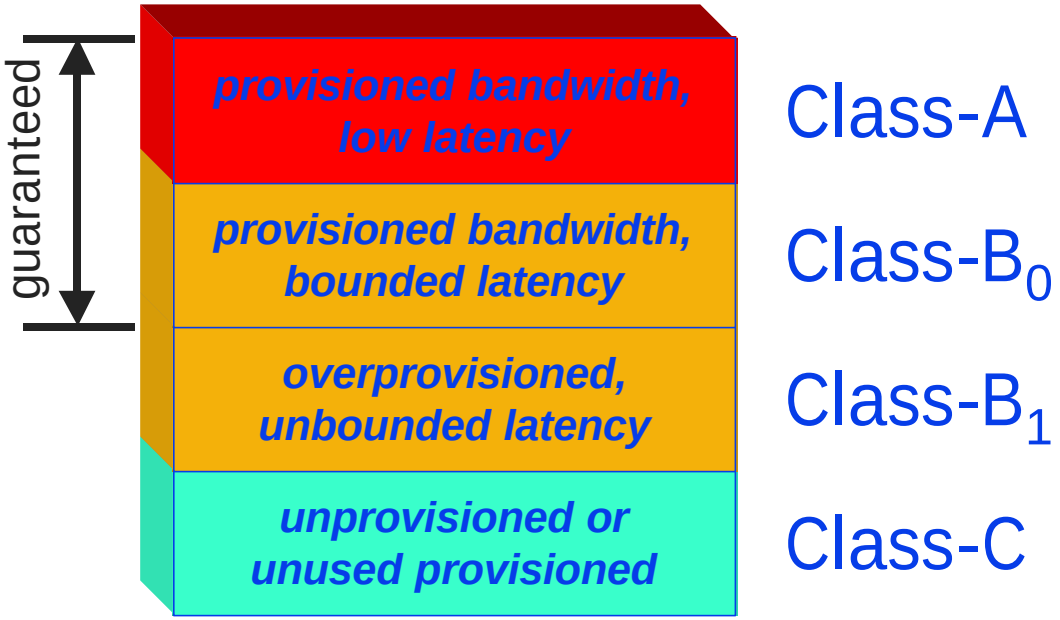
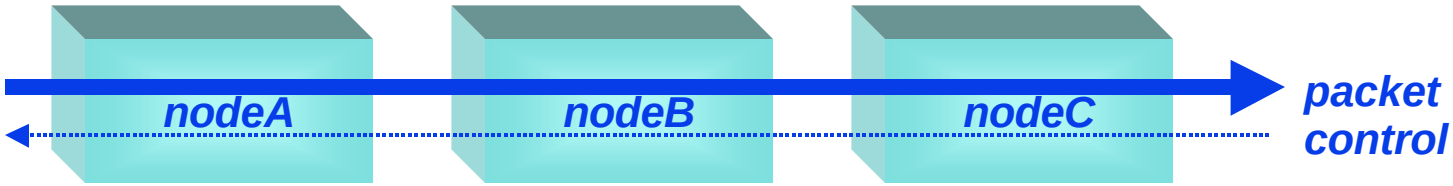
Flow control

Arbitration classes

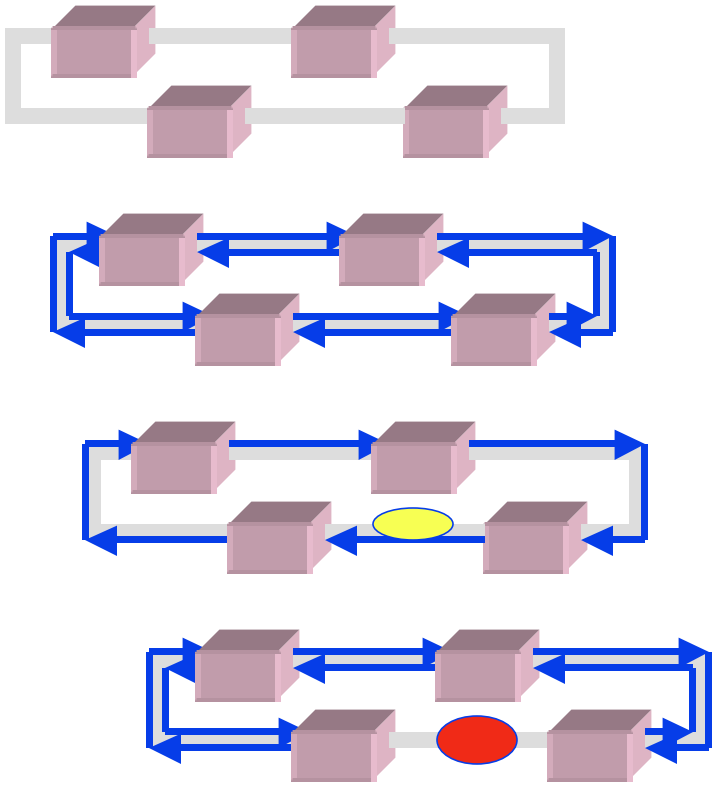


Opposing run arbitration



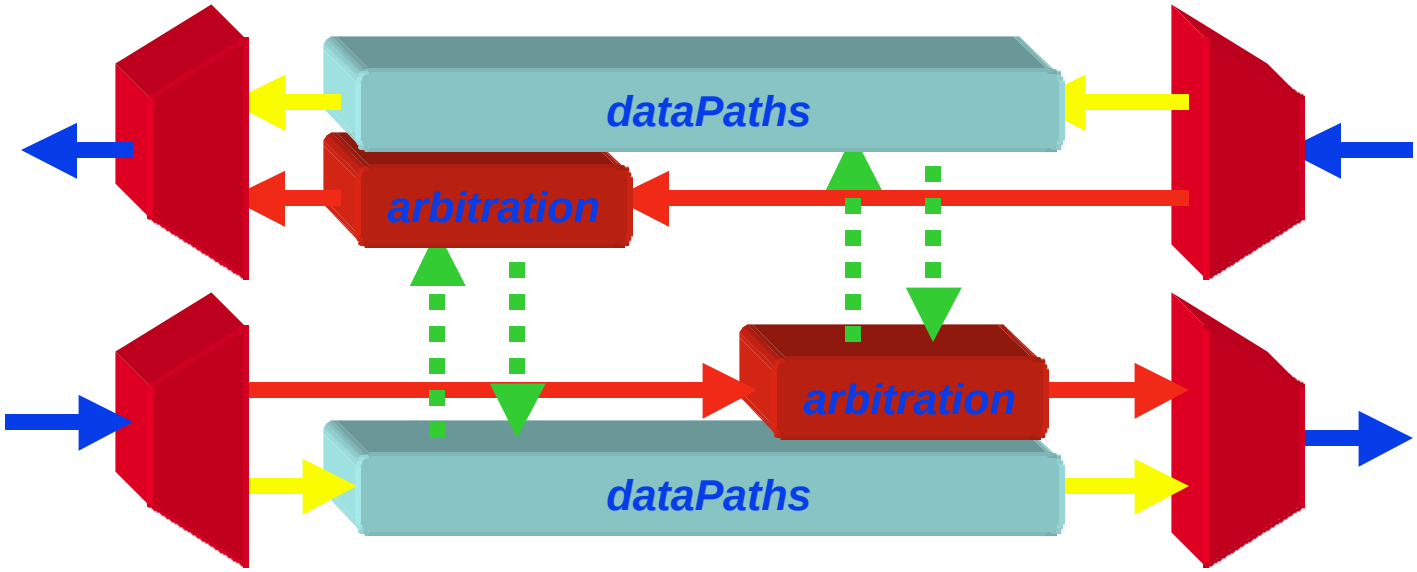
- Data packets flow in one direction
- Arbitration control flows in the other*

Supported topologies



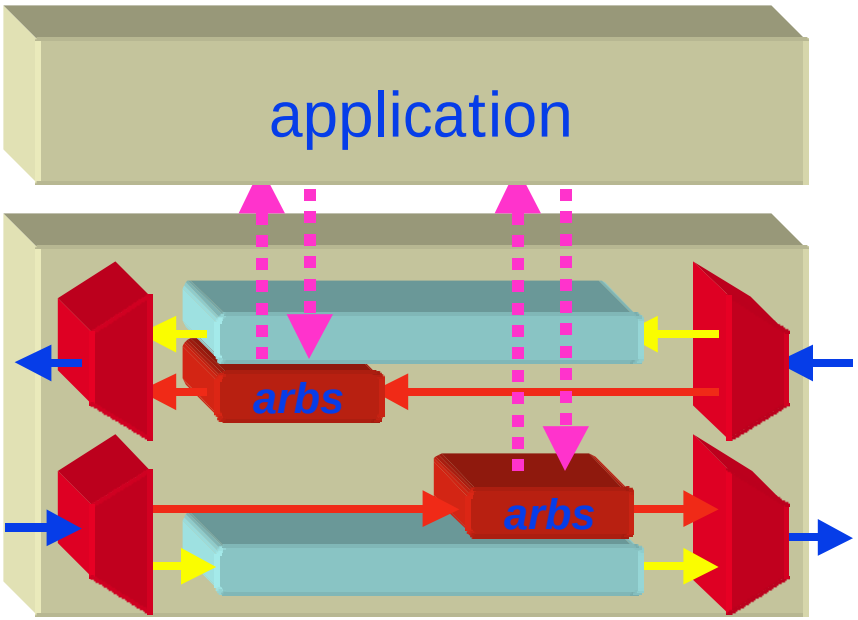
- A physical ring
- Dual ringlets
- Single ringlet
- Duplex ringlet

Internal MAC arbitration signals



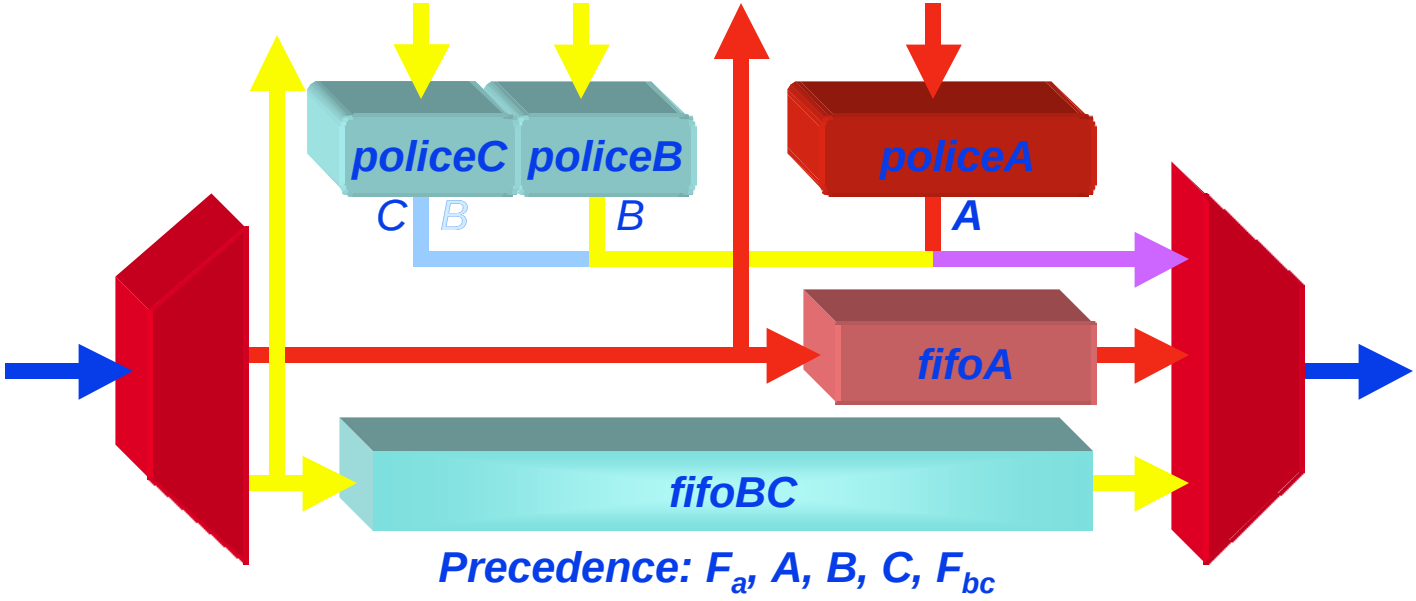
- Arbitration affects opposing run
- My congestion affects upstream node
- Downstream congestion affects me

External MAC arbitration signals



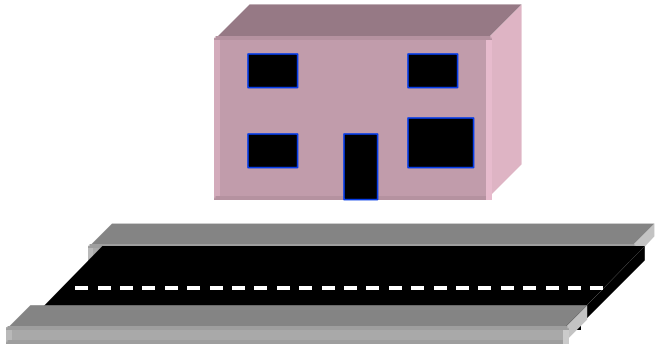
- MAC receives information
  - MAC FIFOs are $$, latency++, inflexible
- Application receives information
  - Allows reordering and run selection

Arbitration related components



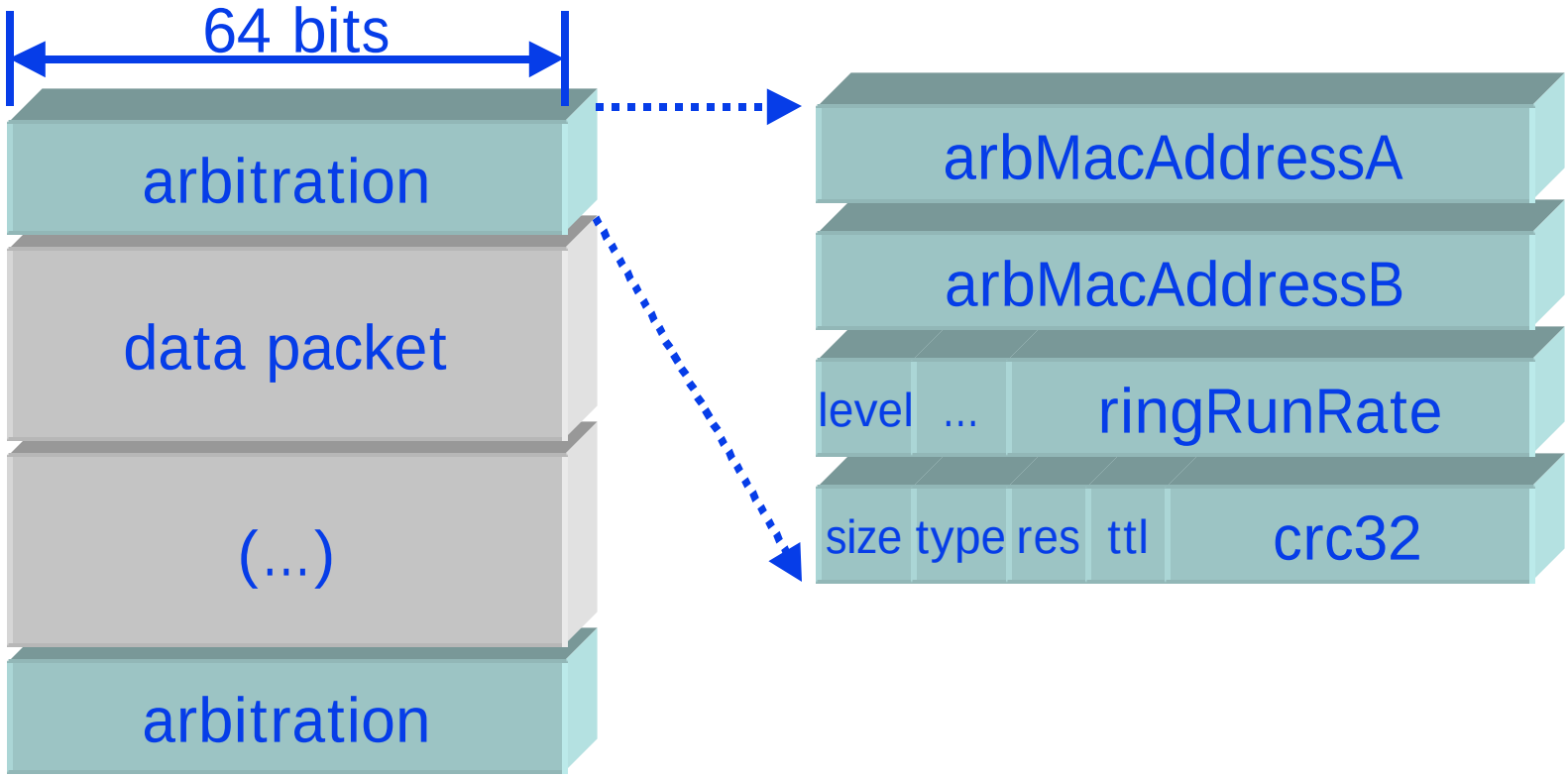
- Distinct class-A & class-B/C paths
- Load dependent policing

Limits of scalability



- Geosynchronous
  - Terrestrial
    - The metro area
      - To the curb
        - To the home

Arbitration packets



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
  - Separate class-A queue is necessary
- Other observations
  - Local control => global perversions
  - Fairness is inherently “approximate”
  - Strange beating sequences DO OCCUR

Arbitration summary

- Dual levels
  - Class-A, provisioned low latency
  - Class-B_0, provisioned bounded latency
  - Class-B_1, overprovisioned “bounded” latency
  - Class-C, unprovisioned unbounded latency
- 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