Per-priority Flow Control
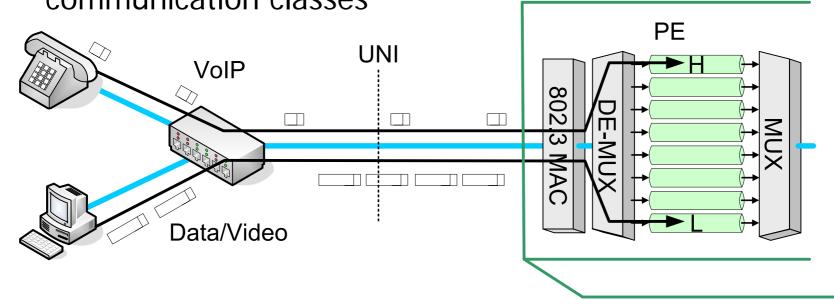
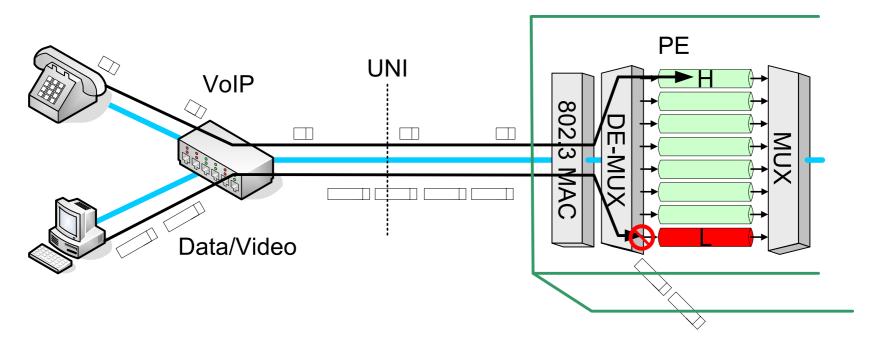July 2004

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Background

- Network applications are changing
  - Data communications
  - Multimedia applications
    - Voice over IP
    - Video streaming, High Definition Video
- 802.1Q priority tag enables the support of differentiated communication classes
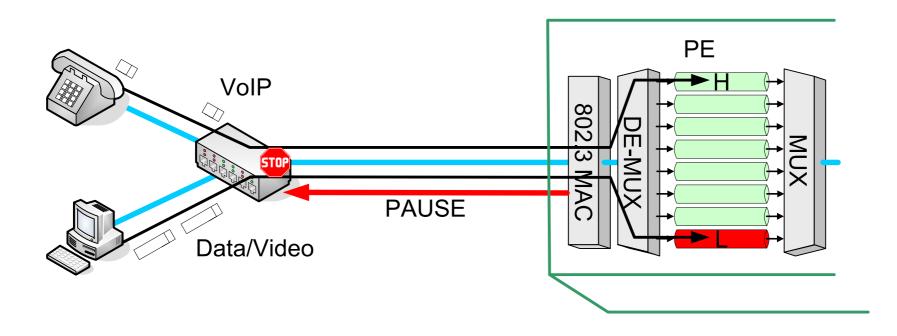
Problem

- Some video applications generate long bursty traffic
  - Average rate = 3 ~ 30 Mbps
  - Peak rate = Wire rate (e.g., 100 Mbps)
  - Maximum burst length = 80 ~ 400 Kbytes!
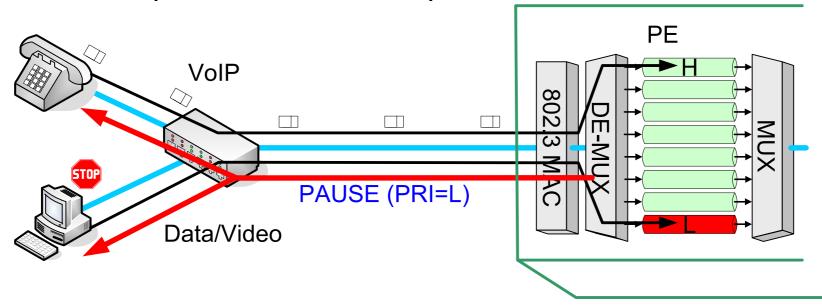- Buffer length in PE Bridge is limited, so it leads overflow

Current Solution

- 802.3 PAUSE could be used for flow control
- However, it suspends all traffic
- So, it fatally impacts on quality of high priority and delay sensitive applications such as VoIP

Proposed Solution

- Per-priority flow control solves this problem
  - Mechanisms for flow control should be implemented per-priority, not per-network IF
- A slight additional protocol and logic for 802.1Q priority queue are required
- Little impacts on current implementations

Question

- Problem is clear and need to be solved
- Proposed solution is very simple and probably no other solution
- However, proposed solution needs PC NIC support, that is, it needs replacement of PC NICs
- Sufficient interests are needed