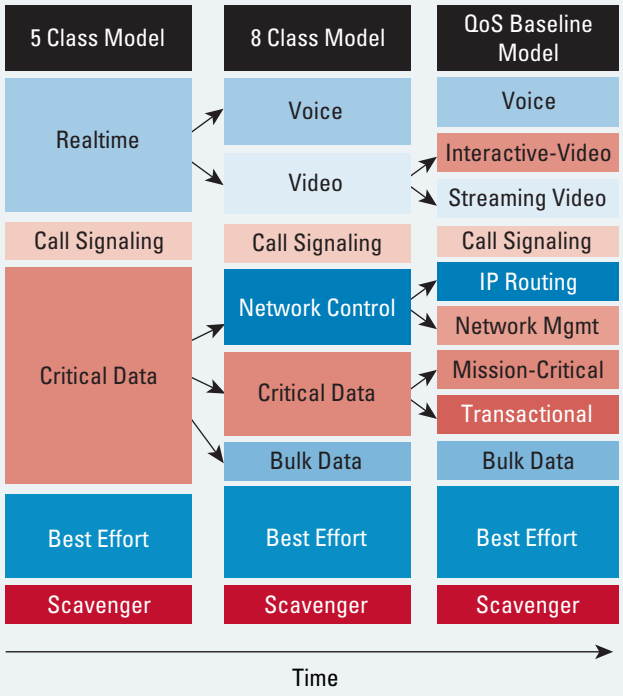
WAN QoS DESIGN
AT–A–GLANCE

In an enterprise network infrastructure, bandwidth is scarcest—and thus most expensive—over the WAN. Therefore, the business case for efficient bandwidth optimization via QoS technologies is strongest over the WAN.

WAN QoS policies need to be configured on the WAN edges of WAN Aggregator (WAG) routers and Branch routers. WAN edge QoS policies include queuing, shaping, selective-dropping, and link-specific policies.

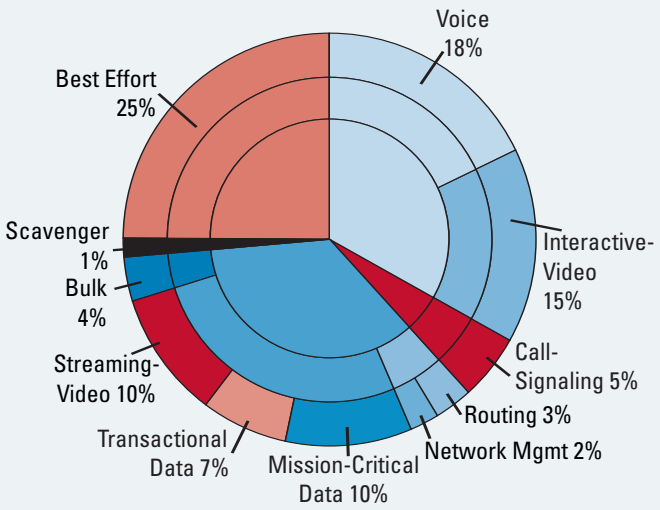
The number of WAN classes of traffic is determined by the business objectives and may be expanded over time.



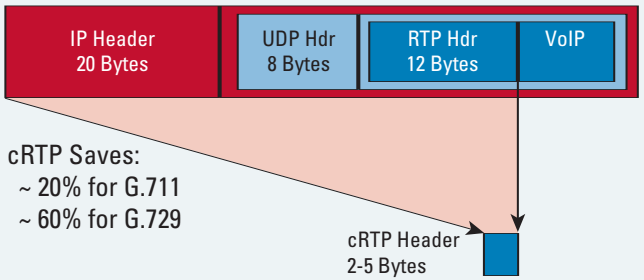
WAN links can be categorized into three main speed groups:

- Slow-Speed (≤ 768 kbps)
- Medium-Speed (>768 kbps & ≤ T1/E1)
- High-Speed (≥ T1/E1)

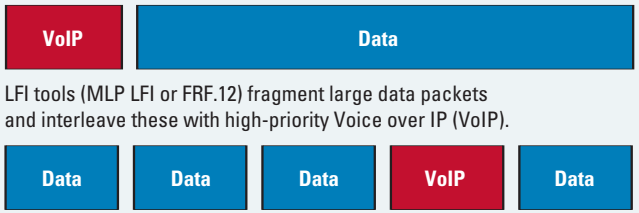
Queuing Models for 5/8/11 Classes of Service



WAN QoS Tools: RTP Header Compression (cRTP)



WAN QoS Tools: Link Fragmentation and Interleaving



LFI tools (MLP LFI or FRF.12) fragment large data packets and interleave these with high-priority Voice over IP (VoIP).

LINK-SPECIFIC DESIGN RECOMMENDATIONS

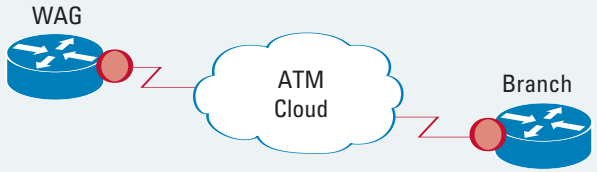
Leased-Line (MLP) Link

- Use MLP link fragmentation and interleaving (LFI) and cRTP on Slow-Speed links

Frame Relay Link

- Use Frame-Relay traffic shaping
  - Set CIR to 95% of guaranteed rate
  - Set Committed Burst to CIR/100
  - Set Excess Burst to 0
- Use FRF.12 and and cRTP on Slow-Speed links

ATM Link



- Use MLP LFI (via MLPoATM) and cRTP on Slow-Speed links
- Set the ATM PVC Tx-Ring to 3 for Slow-Speed links

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