QoS BEST-PRACTICES
AT–A–GLANCE

A successful QoS deployment includes three key phases:

1) Strategically defining the business objectives to be achieved via QoS

2) Analyzing the service-level requirements of the traffic classes

3) Designing and testing QoS policies

1) STRATEGICALLY DEFINING THE BUSINESS OBJECTIVES TO BE ACHIEVED BY QOS

Business QoS objectives need to be defined:

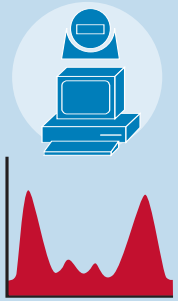
- Is the objective to enable VoIP only or is video also required?
- If so, is video-conferencing or streaming video required? Or both?
- Are there applications that are considered mission-critical? If so, what are they?
- Does the organization wish to squelch certain types of traffic? If so, what are they?
- Does the business want to use QoS tools to mitigate DoS/worm attacks?
- How many classes of service are needed to meet the business objectives?

Because QoS introduces a system of managed unfairness, most QoS deployments inevitably entail political repercussions when implemented. To minimize the effects of non-technical obstacles to deployment, address political/organizational issues as early as possible, garnishing executive endorsement whenever possible.

2) ANALYZE THE APPLICATION SERVICE-LEVEL REQUIREMENTS

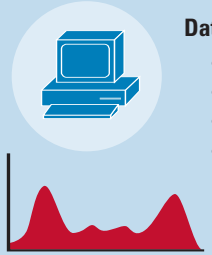
Voice

- Predictable Flows
- Drop + Delay Sensitive
- UDP Priority
- 150 ms One-Way Delay
- 30 ms Jitter
- 1% Loss
- 17 kbps-106 kbps VoIP + Call-Signaling



Video

- Unpredictable Flows
- Drop + Delay Sensitive
- UDP Priority
- 150 ms One-Way Delay
- 30 ms Jitter
- 1% Loss
- Overprovision Stream by 20% to Account for Headers + Bursts



Data

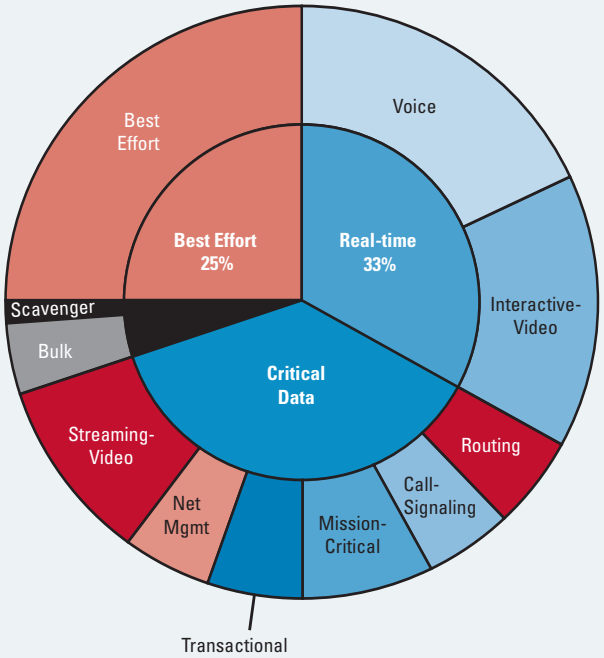
- No "One-Size Fits All"
- Smooth/Bursty
- Benign/Greedy
- TCP Retransmits/ UDP Does Not

3) DESIGN AND TEST THE QoS POLICIES

Application	L3 Classification PHB	DSCP
Routing	CS6	48
Voice	EF	46
Interactive-Video	AF41	34
Streaming Video	CS4	32
Mission-Critical	AF31	26
Call-Signaling	CS3	24
Transactional Data	AF21	18
Network Mgmt	CS2	16
Bulk Data	AF11	10
Scavenger	CS1	8
Best Effort	0	0

Classify, mark, and police as close to the traffic-sources as possible; following Differentiated-Services standards, such as RFC 2474, 2475, 2597, 2698 and 3246.

Provision queuing in a consistent manner (according to hardware capabilities).



Thoroughly test QoS policies prior to production-network deployment.

A successful QoS policy rollout is followed by ongoing monitoring of service levels and periodic adjustments and tuning of QoS policies.

As business conditions change, the organization will need to adapt to these changes and may be required to begin the QoS deployment cycle anew, by redefining their objectives, tuning and testing corresponding designs, rolling these new designs out and monitoring them to see if they match the redefined objectives.

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