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Suggestion for a simple QoS Metric

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Quantification of per-flow QoS

Service Level Agreements (SLAs) include QoS guarantee

- Must be able to quantify breach of SLA beyond Yes / No

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Background and Motivation

QoS can be provided with different techniques

overprovisioning, DiffServ, MPLS, IntServ, ...

“Degree” of QoS achieved varies depending on

technique employed, network dimensioning, traffic mix...

Assumption:
any QoS technique can deliver almost any “degree” of QoS

- setting up simulation to understand the problem
- Need to quantify per-flow QoS beyond Yes / No

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QoS performance guarantee in SLS

- Service Level Specifications (SLS):
  standardized technical description of a SLA
  (draft-tequila-sls-00)
  - contains „performance guarantee“, coupled to a flow description, with
    - guaranteed throughput
    - packet loss
    - delay
    - jitter
  - e.g. (delay = 10 ms, time interval = 5 min, quantile = 10E-3)
    - probability (ingress-to-egress delay > 10 ms) < 10E-3,
      for any measurement period of 5 minutes.

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Suggestion for a per-flow QoS Metric

Requirement: simplicity

minimum or no dependency on user perception

per-flow QoS Metric

measure percentage of packets satisfying all of the performance guarantee criteria

if ***n*** % of packets of a flow satisfy all criteria of the performance guarantee,
the flow received ***n***% QoS

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Discussion

- Is this QoS metric too simple?
  - 80% QoS might be fine for web browsing, but intolerable for IP telephony
    - include more application specific information?
- The QoS metric is „per-flow“, application (flow) specific information can be added later
- application specific information already included in performance guarantee
  - e.g. for real-time flows the bounds on delay and jitter are set tighter than for non-realtime flows