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Communication Systems Group (CSG)

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Exercises in PMMC

Exercise 7

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1) ISO QoS Framework (QFw)

1.1) Describe the four elements of the QFw QoS concept.

1.2) What is the difference between a *lowest quality acceptable limit* and a *lower threshold*?

2) ITU-T G.1000

2.1) Name and describe the four view points incorporated by the G.1000 model.

2.2) How differ the QoS concerns of a customer and an operator?

3) ATM QoS

3.1) Which traffic parameters are defined by the ATM forum? Describe each parameter in one sentence respectively.

3.2) Which QoS parameters are defined by the ATM forum? Describe each parameter in one sentence respectively.

4) Bukets

4.1) How long is a packet at most delayed when traversing a leaky bucket with a size of β (packets) and a rate of ρ packets/s.

4.2) Let T be a token bucket that can store up to Q packets and has a token generation rate of ρ tokens/s and a bucket size of β (tokens). Let L be a leaky bucket with a size of β' packets and rate of ρ' packets/s. How do the parameters Q, ρ, and β have to be chosen, such that T generates the same traffic pattern as L.

4.3) A host sends 12 MBytes of data at a rate of 2 MByte/s via a link that is controlled by a token bucket. The token bucket generates tokens at a speed of 1 MB/s, i.e., each second arbitrarily small tokens are generated that allow to send 1 MB in total. Further, the token bucket can store tokens that allow for 4 MB of data to be send and the token bucket is completely filled with tokens when the host starts sending the file.
How long does it take for all data to traverse the token bucket?

5) QoS Monitoring

5.1) What is QoS Monitoring and what is typically monitored.

5.2) Describe each step of QoS Monitoring briefly.