


Quality of Service
Lecture 4

Date: Spring
Duration: 15 min.

- There is only one correct answer for each multiple choice question.
- Each correct answer adds 1 point.
- Each incorrect answer has a penalty of $\frac{1}{3}$ points.
- No score is awarded for unanswered questions, neither positive nor negative.
- Mark out your answers with an “X”. Make sure that the “X” reaches the corners of the rectangle. 
- No score is awarded if you mark more than one answer.
- Pad your NIA with 0s on the left to complete the NIA field.

Write your personal data clearly.

Last name:	
First name:	
Group:	

Permutation: A

NIA:

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	A	B	C	D		A	B	C	D
1					8				
2					9				
3					10				
4					11				
5					12				
6					13				
7									

- 1.- Imagine a system with four queues Q1, Q2, Q3, Q4. The value of the deficit counter (in bytes) is 100, 50, 200 and 800. The quantum sizes are 800, 600, 400 and 200. Finally, the sizes of the head-of-line (HOL) packets are 1000, 500, 300 and 900. Which queues will be served in the next round?
 - (a) All the other answers are wrong.
 - (b) Q2, Q3 and Q4..
 - (c) Q1 and Q2.
 - (d) Q1 and Q4.
- 2.- If queue A contains packets of 500 bytes and queue B contains packets of 1000 bytes and we set a WRR scheduler to serve the queues in the order ABA in each round, how is the bandwidth distributed? (Assume that there is always a packet to be served in each of the queues).
 - (a) A: 33 %, B: 67 %.
 - (b) A: 50 %, B: 50 %.
 - (c) A: 75 %, B: 25 %.
 - (d) A: 25 %, B: 75 %.
- 3.- What queueing strategy is recommended to prioritize real-time (e.g. VoIP) traffic?
 - (a) General Processor Sharing.
 - (b) Strict priority queueing.
 - (c) Deficit Round Robin.
 - (d) Weighted Deficit Round Robin.
- 4.- How can we emulate a behaviour that is close to strict priority queueing with preemption in low speed link?
 - (a) Duplicating the number of queues.
 - (b) Using an interleaver.
 - (c) Policing TCP traffic.
 - (d) Policing VoIP traffic.
- 5.- Which of the following strategies allows us to control the share of bandwidth devoted to each of the queues?
 - (a) Preemptive strict priority.
 - (b) Deficit Weighted Round Robin.
 - (c) Weighted Round Robin.
 - (d) Non-preemptive strict priority.
- 6.- Why fragmenting and interleaving are not used in high-speed lines?

- (a) QoS is never used in high speed lines.
- (b) The fragments might break due to the high speed.
- (c) The delay of transmitting a packet is ver short.
- (d) High speed lines never transmit packets larger than 300 bytes.

7.- What is an advantage of strict priority queueing?

- (a) If a packet misbehave, is immediately policed.
- (b) A single queue is needed and the order of the packets is changed according to their priority.
- (c) All the traffic classes are protected from high delay and jitter, even if the offered load exceeds the interface bandwidth.
- (d) The prioritized class is protected from high delay and jitter, as long as the prioritized traffic is a small fraction of the interface bandwidth.

8.- What happens in WDRR when a queue is empty?

- (a) The last packet of the queue with highest occupancy is moved to the empty queue.
- (b) The first packet of the other queues is dropped.
- (c) The deficit counter is reset to zero.
- (d) The deficit counter is doubled.

9.- Where can we find a TX-ring

- (a) Between the policer and the shaper.
- (b) Between the scheduler and the transmission line.
- (c) Between the classifier and the queues.
- (d) Between the marker and the meter.

10.- Which queuing discipline is fair in terms of number of packets transmitted?

- (a) Non-preemptive strict priority queuing.
- (b) Preemptive strict priority queueing.
- (c) Deficit round robin when the length of the packets is different.
- (d) Round Robin.

11.- Which queueing discipline can starve low priority queues?

- (a) General Processor Sharing.
- (b) Round Robin.
- (c) Strict priority.
- (d) Deficit round robin.

12.- What should we do to prevent packet re-ordering?

- (a) Distribute the packets of a class of service among the different queues.
- (b) Use a policer to control the amount of traffic that is directed to each of the queues.
- (c) Have a different queue for each class of service.
- (d) Map all the packets of the same class of service to the same queue.

13.- Why is the General Processor Sharing approach not used in practice?

- (a) Because it is an idealized fluid model and packets cannot be treated as fluid.
- (b) Because it is a fluid model and packets might leak from one queue to another.
- (c) Because it requires a digital input.
- (d) Because it is not fair.