

CHAPTER 24 : Congestion Control and Quality of Service

Solutions to Selected Review Questions

Review Questions

1. *User-related* attributes define how fast the user wants to send data. *Network-related attributes* define network characteristics.
2. *Differentiated Services* was developed to handle the shortcomings of IntServ. The main processing was moved from the core of the network to the edge of the network. Also, the *per-flow service* was changed to *per-class service*.
3. In *congestion control*, the load on a network is prevented from exceeding the capacity. *Quality of service* refers to the characteristics that a flow of data seeks to attain. If there is good congestion control, then the QoS is also good and vice versa.
4. When *IntServ* is used at the IP level, a signaling system is needed to set up the needed virtual circuit. The *Resource Reservation Protocol* is this signaling system.
5. Congestion can be alleviated by *back pressure*, *a choke point*, and *explicit signaling*.
6. *Open-loop* congestion control policies try to prevent congestion. *Closed-loop* congestion control policies try to alleviate the effects of congestion.
7. The following policies can help to prevent congestion: *a good retransmission policy*, *use of the selective-repeat window*, *a good acknowledgment policy*, *a good discard policy*, and *a good admissions policy*.
8. A flow of data can be described by its *reliability*, *delay*, *jitter*, and *bandwidth*.
9. Frame Relay uses the *BECN* bit and the *FECN* bit to control congestion.
10. *Scheduling*, *traffic shaping*, *admission control*, and *resource reservation* can improve QoS.
11. The data rate of *bursty data* changes suddenly in a very short period of time.

12. A *traffic descriptor* is a qualitative value that describes a data flow.
13. *Traffic shaping* is a mechanism to control the amount and rate of traffic sent to the network. The *leaky bucket* method and the *token bucket* method can shape traffic.
14. The attributes are *access rate*, *committed burst size*, *committed information rate*, and *excess burst size*.
15. The *average data rate* is always less than or equal to the *peak data rate*.
16. The TCP send window size is determined by the *receiver* and by the *congestion on the network*.