OSNW

QUIZ - 9

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Q.1. Explain the reason why transport protocol use larger size sliding windows as compared

A Transport layers is responsible for transmitting the data over the entire network while the data link layer is responsible for transmitting data between two links in a network. A larger sliding window is needed for transport layer because

- it holds data of unacknowledged segments
- Receiver may not buffer the data
- Host may need a substantial amount of buffer space for which buffer allocation is used.
- The checksum protects segment and not frames.

Q.2 Explain the issue of regulating the sending rates to obtain desirable bandwidth controlling

A: We desire bandwidth levels to converge quickly when traffic patterns change When the network is not fast enough, it causes congestion and thus sender may be regulated. This causes issue if two flows increase or decrease their bandwidth in similar manner when network is signalled, they will not converge to fair allocation.

- The Additive Increase Multiplicative Decrease (AIMD) control law ensures that the path converges no matter what the starting point.

With explicit feedback, the routers signal to slow but not how tell by how much.

In the absence of congestion, the sender should increase the rate of input data.

In the presence of congestion, the sender is signalled to decrease the rate

The bandwidth allocations are additively increased and multiplicatively decreased. This combination of linear growth with exponential reduction helps control rates to converge and get desirable bandwidths.

Q.3 Consider the following network. Distance vector routing is used and the following vectors have just come

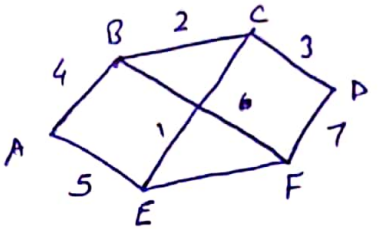
A: A B C D E F

B: to C: (5, 0, 8, 12, 6, 2)

D to C: (16, 12, 6, 0, 9, 10)

E to C: (7, 6, 3, 9, 0, 4)

Cost of link: C-B : 6
C-D : 3
C-E : 5




C's new routing table:

| Dest. | New delay | Outgoing line |
|---|---|---|
| A | 11 | B |
| B | 6 | B |
| C | 0 | – |
| D | 3 | D |
| E | 5 | E |
| F | 8 | B |

A B C D E F (Adding the new cost links with distance vector)

via B: (11, 6, 14, 18, 7, 12, 8)

via D: (19, 15, 9, 3, 12, 13)

via E: (12, 11, 8, 14, 5, 9)

Taking minimum for each from C gives the routing table

Q4: Explain the issue of round robin fair queuing packet scheduling algorithm

A: Fair queuing round robin has routers with separate queues for each flow. When it becomes idle, the queues are scanned in round robin. The issue is that it gives more bandwidth to hosts that use large packets than hosts with smaller packets.

Byte by byte round robin improves performance:

- Compute virtual time that is the number of round at which each packet would finish being sent.
- This gives all hosts same priority
- The packets are sorted in order of the finishing time before being sent
- Each round drains a byte from all the queues that have data to send

This gives simulation of byte by byte instead of packet-by-packet and overall improves performance over fair queuing round robin.