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week5 HW

P17 on page 512

P17. Recall that with the CSMA/CD protocol, the adapter waits K \* 512 bit times after

a collision, where K is drawn randomly. For K = 100, how long does the adapter

wait until returning to Step 2 for a 10 Mbps broadcast channel? For a 100 Mbps broadcast channel?

10mbps wait time = 100\* 512bits / (10 \* 106bit/sec) = 5.12msec

100mbps wait time = 100\* 512bits / (100 \* 106bit/sec) = 0.512msec

P23, P24, and P25 on page 513 (Figure 6.15 is on page 467)

P23. Consider Figure 5.15. Suppose that all links are 100 Mbps. What is the maximum

total aggregate throughput that can be achieved among the 9 hosts and

2 servers in this network? You can assume that any host or server can send to any other host or server. Why?

It can accept all of the data into total throughput so, the maximum throughput would be

100 \* 11 (9 hosts and 2 servers) = 1100mbps.

P24. Suppose the three departmental switches in Figure 5.15 are replaced by

hubs. All links are 100 Mbps. Now answer the questions posed in problem P23.

The maximum output of each hub is 100 Mbps and the servers have 200mbps combined. The total throughput is 3\*100mbps + 200mbps = 500mbps.

P25. Suppose that all the switches in Figure 5.15 are replaced by hubs. All links

are 100 Mbps. Now answer the questions posed in problem P23.

The 9 hosts and 2 servers lie in the same collision domain meaning the maximum total throughput is 100mbps.