Computer Networks
Jacobs University Bremen
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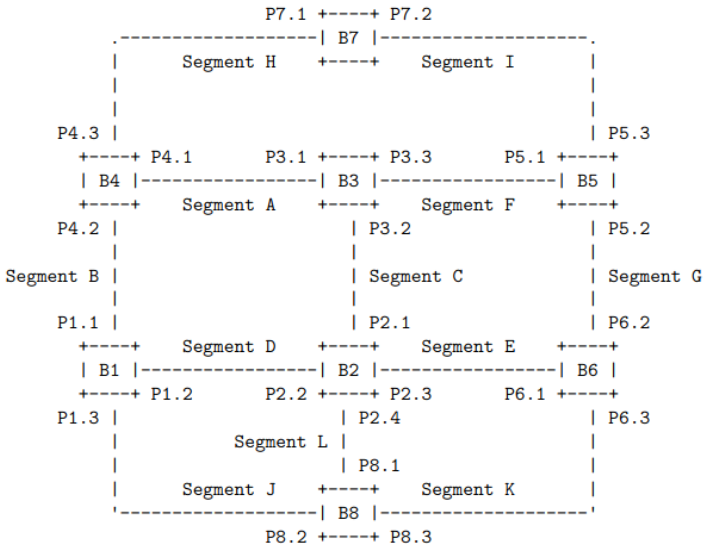
Homework 2

Problem 2.1

Solution:

a)



i) Since it is given that all bridges have the same priority, and the costs of all network segments is the same, we select as the root bridge the one with the lowest ID, namely B1. Since bridges B4, B2, and B8 are directly connected with the root bridge, P4.2, P2.2, and P8.2 are root ports. Since B7 has the shortest path to connect to the root via B4, P7.1 is also a root port. Using the same logic as above, the other root ports are: P3.2(B3 connects via B2 as it has lower ID than B4), P5.1, and P6.1.

ii) Since all ports facing root ports are called designated ports, we have that P1.1, P1.2, P1.3, P2.1, P2.3, P3.3, P4.3. In the remaining segments (L, A, G, I, K) the port on the side of the bridge with the lowest ID will be a designated port, so the other designated ports are P2.4, P3.1, P5.2, P5.3, P6.3.

iii) All the left ports will be Blocked ports so the blocked ports are P4.1, P6.2, P7.2, P8.1, P8.3.

b) Assuming bridge B1 fails.

i) With the same logic as above, the root bridge will be B2 and the and the root ports will now be P3.2, P4.1, P5.1 P6.1, P7.1, P8.1.

ii) Again using the same logic as in point a) we get the designated ports: P2.1, P2.3, P2.4, P3.1, P3.3, P4.3, P5.2, P5.3, P6.3.

iii) All the remaining ports will be blocked, so the blocked ports are: P7.2, P6.2, and P8.3.

Problem 2.2

Solution:

a) Looking at the capture file we can see that a total of 106280 packets have been captured, making a total of 19689056 bytes. Looking at the endpoint statistics, we can tell 52,873 packets have been broadcasted, making a total of 6,826 bytes. The broadcast packages make about 49.75% and broadcast bytes about 0.035%.

b) The MAC address sending the bridge is 00:0c:30:80:d5:55 and the one to which the PDUs are sent is 01:80:c2:00:00:00. Checking the times at which the packets are sent, we can say they are sent almost every 2 seconds. The root Identifier is 24576/5/50:57:a8:04:33:40.

c) Yes, indeed there are many other protocols using LLC encapsulation. They are: 'IPX TIP', 'IPX SAP', NBIPX, DTP, BROWSER, ZIP, and CDP.