Computer Networks
Jacobs University Bremen
Dragi Kamov

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Homework 2

Problem 2.1

Solution:

a) **The network has been turned on and a spanning tree is being established.**

(i) **Identify the root bridge and the root port of all non-root bridges**
According to the problem *"...use the bridge with the lowest ID or the port with the lowest ID."*, that's why we choose **B1** as the root bridge.
Non-root bridges:

B2: 2.2 B3: 3.1 B4: 4.2 B5: 5.1 B6: 6.1 B7: 7.1 B8: 8.2

(ii) **Identify the designed port for each segment**

Segment A: 4.1	Segment C: 2.1	Segment E: 2.3	Segment G: 6.2	Segment I: 7.2	Segment K: 8.3
Segment B: 1.1	Segment D: 1.2	Segment F: 3.3	Segment H: 4.3	Segment J: 1.3	Segment L: 2.4

(iii) **Identify the ports that will be blocked**

Segment A: None	Segment D: None	Segment G: 5.2	Segment J: None
Segment B: None	Segment E: None	Segment H: None	Segment K: 6.3
Segment C: 3.1	Segment F: None	Segment I: 5.3	Segment L: 8.1

b) **Bridge B1 fails and a new spanning tree is established**

(i) **Identify the root bridge and the root port of all non-root bridges**
In this case our secondary root bridge is **B2**.
Non-root bridges:

B3: 3.2 B4: 4.1 B5: 5.1 B6: 6.1 B7: 7.1 B8: 8.1

(ii) **Identify the designated port for each segment**

Segment A: 3.1	Segment D: Disconnected	Segment G: 6.2	Segment J: Disconnected
Segment B: Disconnected	Segment E: 6.1	Segment H: 4.3	Segment K: 6.3
Segment C: 2.1	Segment F: 3.3	Segment I: 5.3	Segment L: 2.4

(iii) **Identify the ports that will be blocked**

Segment A: None	Segment D: Disconnected	Segment G: 5.2	Segment J: Disconnected
Segment B: Disconnected	Segment E: None	Segment H: None	Segment K: 8.3
Segment C: None	Segment F: None	Segment I: 7.2	Segment L: None

Problem 2.2

Solution:

a) Looking at the capture file properties, I can see that 106280 packets have been captured, and the total bytes is 19689056.
Looking at the endpoint statistics I could see that the broadcast traffic was 52837 packets and 6826K bytes.
That means 49.71% of all packets are broadcast packets, and 34.67% of all bytes transferred are broadcasted.

b) The MAC address sending bridge PDUs is 00:0c:30:80:d5:55. It is sending to 01:80:c2:00:00:00. The frequency of bridge PDUs being sent is the same as Hello Time which is 2. The root bridge priority is 24576 with a MAC address 50:57:a8:04:33:40.

c) Other protocols that use LLC encapsulation are: IPX SAP, DTP, IPX RIP, ZIP, CDP, DTP, and (only 00:c0:ee:62:b7:07) BROWSER.