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CS 118

Homework 4

Problem 1

1. The shortest path between R1 and P is the path with a cost of 4. The **largest** packet size that is guaranteed to get through without fragmentation is 512. (Note that the smallest packet size is 0, as per the question, but I think that’s a typo).

Explanation for the last equation: Find the neighbor N for which the distance from R to P is minimized. Then, compute the minimum maximum packet size in that route, which is precisely .

Diagram

Description automatically generated

Diagram, schematic

Description automatically generatedDiagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

At time t = 4, all estimates converge.

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Problem 2

Add bioeng, ece, me to link state packets

1. LSP sent by R4:

Table

Description automatically generated with medium confidence

LSP sent by R5:

Table

Description automatically generated

LSP sent by R6:

Table

Description automatically generated with medium confidence

1. LSP sent by R4 after the links R4-R2 and R4-R3 crash:

Table

Description automatically generated with medium confidence

Diagram

Description automatically generated

Add bioeng and mechanical engr to the tree

Add dashed line between R5 and R6

Diagram

Description automatically generated

Look at your own link state packet first. Look at your own neighbors link state packets. Look at their neighbors, and so on. You will never look at R1, R2, R3 because they are unreachable from R4’s neighbors.

Even R5 and R6 both have (wrong) link states from R2 and R3, it still concludes that ECE is unreachable because the link state from R4 (that indicates the crash) was received more recently and with a new sequence number.