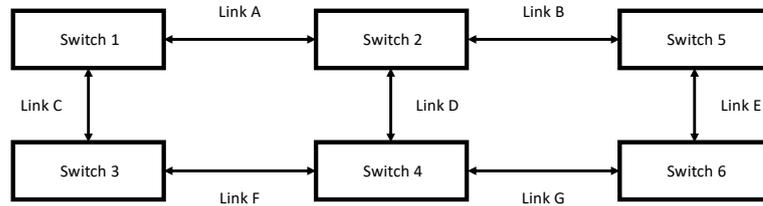


4 Computer Networking (awm22)



The network illustrated above represents an Ethernet Layer-2 network that uses spanning-tree to compute forwarding tables. Assume all links have a link-weight of one.

[Note: Tie-breaking/leader-elections use the switch identifier from this diagram.]

(a) Compute the steady state routing/forwarding table for Switch 3.

[4 marks]

(b) Noting which switches recompute a solution, enumerate the changed forwarding tables in switches of this network resulting from the complete failure and removal of link D.

[9 marks]

(c) Following the removal of Link D, a new link H is added between Switch 1 and 4; however, this link fails frequently.

Denied access to monitor the network-traffic, outline a diagnostic strategy to identify the faulty Link H, making clear how the network-operator might use interrogation of network switch forwarding tables.

[4 marks]

(d) Now suppose the switches do not permit interrogation of switch forwarding tables and that the link status information is untrustworthy. Outline other techniques that might be used to identify the failed link.

[3 marks]