

First-Year Companion Guide 2nd Edition

Chapter 11 (25)

Check Your Understanding

1. Which of the following best describes one function of Layer 3, the network layer, in the OSI model?
 - A. It is responsible for reliable network communication between nodes.
 - B. It is concerned with physical addressing and network topology.
 - C. It determines which is the best path for traffic to take through the network.
 - D. It manages data exchange between presentation layer entities.
2. What function allows routers to evaluate available routes to a destination and to establish the preferred handling of a packet?
 - A. Data linkage
 - B. Path determination
 - C. SDLC interface protocol
 - D. Frame Relay
3. How does the network layer forward packets from the source to the destination?
 - A. By using an IP routing table
 - B. By using ARP responses
 - C. By referring to a name server
 - D. By referring to the bridge
4. What are the two parts of an network layer address that routers use to forward traffic through a network?
 - A. Network address and host address
 - B. Network address and MAC address
 - C. Host address and MAC address
 - D. MAC address and subnet mask
5. Which of the following best describes a routed protocol?
 - A. Its address provides enough information to allow a packet to be forwarded from host to host.
 - B. It provides information necessary to pass data packets up to the next-highest network layer.
 - C. It allows routers to communicate with other routers to maintain and update address tables.
 - D. It allows routers to bind MAC and IP addresses together.
6. Which of the following best describes a routing protocol?
 - A. A protocol that accomplishes routing through the implementation of an algorithm
 - B. A protocol that specifies how and when MAC and IP addresses are bound together
 - C. A protocol that defines the format and use of fields within a data packet
 - D. A protocol that allows a packet to be forwarded from host to host
7. What is one advantage of distance-vector algorithms?
 - A. They are not likely to count to infinity.
 - B. You can implement them easily on very large networks.
 - C. They are not prone to routing loops.
 - D. They are computationally simple.
8. Which of the following best describes a link-state algorithm?
 - A. It recreates the exact topology of the entire internetwork.
 - B. It requires minimal computations.
 - C. It determines distance and direction to any link on the internetwork.
 - D. It uses little network overhead and reduces overall traffic.

9. Why do routing loops occur?
 - A. Slow convergence occurs after a modification to the internetwork.
 - B. Split horizons are artificially created.
 - C. Network segments fail catastrophically and take other network segments down in a cascade effect.
 - D. Default routes were never established and initiated by the network administrator.
10. Which of the following best describes balanced hybrid routing?
 - A. It determines best paths, but topology changes trigger routing table updates.
 - B. It uses distance-vector routing to determine best paths between topology during high-traffic periods.
 - C. It uses topology to determine best paths but does frequent routing table updates.
 - D. It uses topology to determine best paths but uses distance vectors to circumvent inactive network links.
11. What is a network with only one path to a router called?
 - A. Static network
 - B. Dynamic network
 - C. Entity network
 - D. Stub network
12. Which best describes a default route?
 - A. Urgent-data route manually entered by network administrator
 - B. Route used when part of the network fails
 - C. Route used when the destination network is not explicitly listed in the routing table
 - D. Preset shortest-distance route that does not need to consider any other metric
13. Which of the following are metrics commonly used by routers to evaluate a path?
 - A. EMI load, SDLC connections, deterioration rate
 - B. Bandwidth, load, reliability
 - C. Distance, hub count, SN ratio
 - D. Signal count, loss ratio, noise
14. What metric measures the passage of a data packet through a router?
 - A. Exchange
 - B. Hop
 - C. Transmittal
 - D. Signalling
15. Which best describes convergence?
 - A. Messages simultaneously reach a router and a collision occurs.
 - B. Several routers simultaneously route packets along the same path.
 - C. All routers in an internetwork have the same knowledge of the structure and topology of the internetwork.
 - D. Several messages are being sent to the same destination.
16. What do distance-vector algorithms require of routers?
 - A. Default routes for major internetwork nodes in case of corrupted routing tables
 - B. That they periodically send its routing table to its neighbours
 - C. Fast response times and ample memory
 - D. That they maintain a full database of internetwork topology information
17. What is the situation called in which packets never reach their destination but instead cycle repeatedly through the same group of network nodes?
 - A. Split horizon
 - B. End-to-end messaging
 - C. Convergence
 - D. Routing loop

18. How can the count to infinity problem be reduced?
A. By using routing loops
B. By defining a minimum hop count
C. By using hold-down timers
D. Both B and C
19. Why are hold-down timers useful?
A. They help prevent a router from immediately using an alternate route that might be the failed route.
B. They force all routers in a segment to synchronize switching operations.
C. They reduce the amount of network traffic during high-traffic periods.
D. They provide a mechanism for bypassing failed sections of the network.
20. What happens if routers have different sets of LSAs?
A. A check sum procedure is initiated, and faulty routing tables are repaired.
B. Routes become unreachable because routers disagree about a link.
C. A comparison is forced and subsequent convergence on a single routing table occurs.
D. A broadcast message is sent with the master copy of the routing table to all routers.

Answers

1. C 2. B 3. A 4. A 5. A 6. A 7. D 8. A 9. A 10. A 11. D
12. C 13. B 14. B 15. C 16. B 17. D 18. D 19. A 20. B