CHAPTER – 10 Link-State Routing Protocols

1 **Of the steps given, what is the final step in the link state routing process?**

- successors are placed into the routing table
- SPF computes best path to each destination network
- LSPs are flooded to all neighbors to converge the network
- DUAL algorithm is run to find best path to destination networks

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2 **What two events will cause a link state router to send LSPs to all neighbors? (Choose two.)**

- [ ] 30 seconds timer expires
- [x] whenever the network topology changes
- [ ] immediately after the Bellman-Ford algorithm has run
- [ ] immediately after the DUAL FSM has built the topology database
- [x] upon initial startup of router or routing protocol

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3 **What feature do modern link-state protocols provide to minimize processing and memory requirements?**

- splitting routing topologies into smaller areas
- assigning lower process priorities to route calculations
- using update timers to restrict routing updates
- strict split horizon rules to reduce routing table entries

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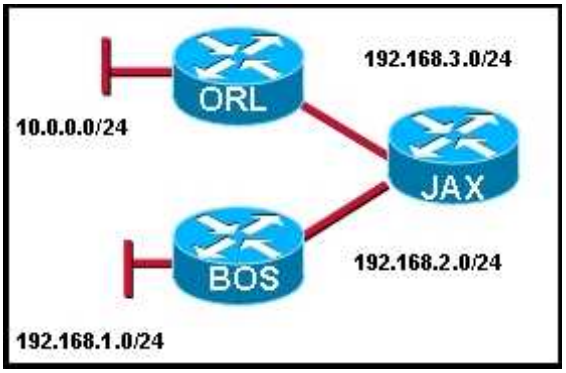

Refer to the exhibit. What does JAX do with link-state packets from ORL?

- sends out its updated routing table to both ORL and BOS routers
- sends out the individual link-state packets out the interface connected to BOS
- queries BOS to see if it has a better route
- only adds it to the local routing table and performs no other actions

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5 **What speeds up convergence in a network using link-state routing?**

- updates triggered by network changes
- updates sent at regular intervals
- updates sent only to directly connected neighbors
- updates that include complete routing tables

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6 **What two statements correctly describe the link state routing process? (Choose two.)**

- [x] all routers in the area have link state databases
- [x] each router in the area floods LSPs to all neighbors
- [ ] LSPs use the reserved multicast address of 224.0.0.10 to reach neighbors
- [ ] routing loops are prevented by running the Diffusing Update Algorithm (DUAL)
- [ ] Reliable Transport Protocol (RTP) is the protocol used by for the delivery and reception of LSPs

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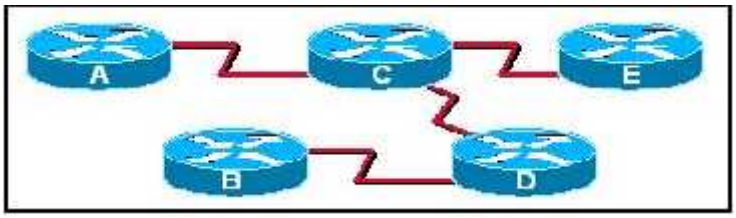

Refer to the exhibit. When Router D is configured to use a link-state routing protocol and is added to the network, what is the first thing that it does to begin learning the network topology?

- ( ) It sends LSP packets to Routers B and C.
- ( ) It sends LSP packets to all routers in the network.
- ( ) It sends Hello packets to all routers in the network.
- ( ) It sends information about its directly connected neighbors to Routers A and E.
- ( ) It sends information about its directly connected neighbors to all routers in the network.
- (•) It learns about its directly connected networks when its interfaces reach the up state.

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8 **A new network administrator is given the task of selecting an appropriate dynamic routing protocol for a software development company. The company has over 100 routers, uses CIDR and VLSM, requires fast convergence, and uses both Cisco and non-Cisco equipment. Which routing protocol is appropriate for this company?**

- ( ) RIP version 2
- ( ) IGRP
- ( ) EIGRP
- (•) OSPF
- ( ) BGP

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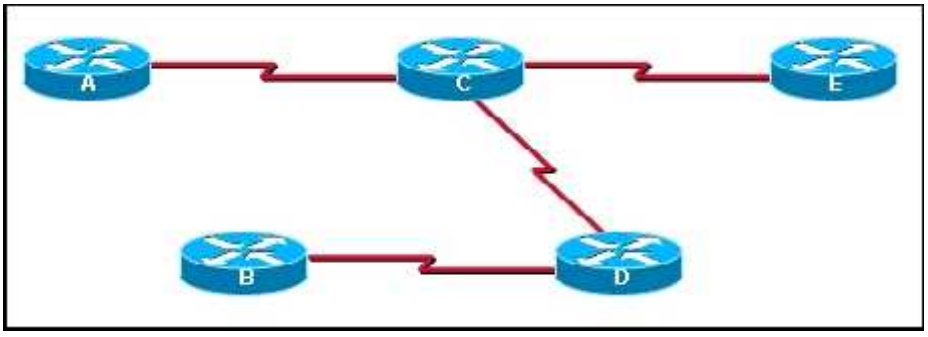

Refer to the exhibit. If all routers and interfaces are configured to use a link-state routing protocol, from which routers will router D receive hello packets?

- ( ) A and E
- (•) B and C
- ( ) A, B, C, and E
- ( ) C only

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10 **What action does a link-state router take immediately upon receipt of an LSP from a neighboring router?**

- (•) floods the LSP to neighbors
- ( ) calculates the SPF algorithm
- ( ) runs the Bellman-Ford algorithm
- ( ) computes the best path to the destination network

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11 **Which database or table must be identical on all link-state routers within area in order to construct an accurate SPF tree?**

- ( ) routing table
- ( ) adjacency table
- (•) link-state database
- ( ) neighbor table
- ( ) topology database

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12 **Which algorithm is run by link-state routing protocols to calculate the shortest path to destination networks?**

- ( ) DUAL
- (•) Dijkstra
- ( ) Bellman-Ford
- ( ) Diffie-Hellman

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13 **What are two advantages of using a link-state routing protocol instead of a distance vector routing protocol? (Choose two).**

- [ ] The topology database eliminates the need for a routing table.
- [x] Each router independently determines the route to each network.
- [ ] Link-state protocols require less router processor power than distance vector protocols.
- [x] After the initial LSP flooding, they generally require less bandwidth to communicate changes in a topology.
- [ ] Frequent periodic updates are sent to minimize the number of incorrect routes in the topological database.

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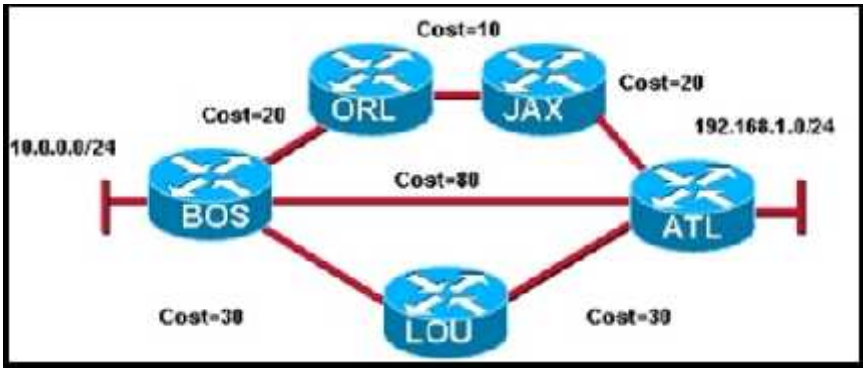

Refer to the exhibit. Which statement correctly describes the path traffic would take from the 10.0.0.0/24 network to the 192.168.1.0/24 network if a link-state routing protocol was in use?

- ( ) BOS -> ATL because this path is the least hops
- ( ) BOS -> ATL because this path is highest cost
- (•) BOS -> ORL -> JAX -> ATL because this path is the lowest cost
- ( ) traffic would load balance across all links

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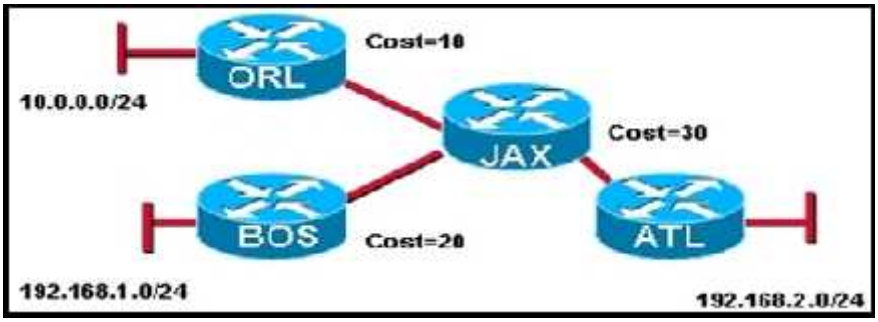

Refer to the exhibit. What kind of information would be seen in an LSP sent from router JAX to router ATL?

- ○ hop count
- ○ uptime of the route
- ◉ cost of the link
- ○ a list of all the routing protocols in use

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16 **When are link-state packets sent to neighbors?**

- ○ every 30 seconds
- ○ every 180 seconds
- ○ after the holddown time expires
- ◉ when a link goes up or down
- ○ when a routing loop occurs

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17 ~~**To achieve network convergence, what three steps does each link state router take? (Choose three.)**~~

- ☐ ~~use automatic summarization to reduce the size of routing tables~~
- ☑ ~~build a Link State Packet (LSP) containing the state of each directly connected link~~
- ☑ ~~flood the LSP to all neighbors, who then store all LSPs received in a database~~
- ☐ ~~recalculate the number of hops to each network in the routing table~~
- ☑ ~~construct a complete map of the topology and compute the best path to each destination network~~
- ☐ ~~use the DUAL FSM to select efficient, loop-free paths, and insert routes into the routing table~~

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18 **Why is it difficult for routing loops to occur in networks that use link-state routing?**

- ○ Each router builds a simple view of the network based on hop count.
- ○ Routers flood the network with LSAs to discover routing loops.
- ◉ Using the SPF algorithm over identical link-state databases avoids creating loops.
- ○ Routers use hold-down timers to prevent routing loops.

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19 **Which two routing protocols use Dijkstra's shortest path first algorithm? (Choose two.)**

- ☐ RIPv1
- ☐ RIPv2
- ☑ IS-IS
- ☐ BGP
- ☐ EIGRP
- ☑ OSPF
