1. https://www.studocu.com/en-us/document/california-state-polytechnic-university-pomona/computer-networks/ch-4-6-knowledge-checks/47634006

ROUTING VERSUS FORWARDING.

Which of the following statements correctly identify the differences between routing and forwarding. Select one or more statements.

- [ ] *Forwarding* refers to determining the route taken by packets from source to destination, and is implemented in the control plane.
- [ ] *Forwarding* refers to determining the route taken by packets from source to destination, and is implemented in the data plane.
- [x] *Forwarding* refers to moving packets from a router's input to appropriate router output, and is implemented in the data plane.
- [x] *Routing* refers to determining the route taken by packets from source to destination, and is implemented in the control plane.
- [ ] *Forwarding* refers to moving packets from a router's input to appropriate router output, and is implemented in the control plane.
- [ ] *Routing* refers to moving packets from a router's input to appropriate router output, and is implemented in the data plane.
- [ ] *Routing* refers to moving packets from a router's input to appropriate router output, and is implemented in the control plane.
- [ ] *Routing* refers to determining the route taken by packets from source to destination, and is implemented in the data plane.

That's Correct!

CHECK →

1/2

APPROACHES TOWARDS IMPLEMENTING THE CONTROL PLANE.

Match the name of the approach towards implementing a control plane with a description of how this approach works.

QUESTION LIST:

Per-router control plane.

3

Software-defined networking (SDN).

1

ANSWER LIST:

A. A (typically) remote controller gathers information from routers, and then computes and installs the forwarding tables in routers.

B. Individual routing algorithm components - with a component operating in each and every router - interact with each other in the control plane. The individual routing algorithm component executing in a given router computes the local fowarding table fir that router.

C. The network operator installs forwarding tables using the Simple Network Management Protocols (SNMP).

That's Correct!

← CHECK

2/

2. https://www.studocu.com/en-us/document/california-state-polytechnic-university-pomona/computer-networks/ch-4-6-knowledge-checks/47634006

WHAT'S A "GOOD" PATH?

What is the definition of a "good" path for a routing protocol? Chose the best single answer.

- ○ A low delay path.
- ◉ Routing algorithms typically work with abstract link weights that could represent any of, or combinations of, all of the other answers.
- ○ A path that has little or no congestion.
- ○ A high bandwidth path.
- ○ A path that has a minimum number of hops.

That's Correct!

CHECK →

1/5

DIJKSTRA'S LINK-STATE ROUTING ALGORITHM.

Consider Dijkstra's link-state routing algorithm that is computing a least-cost path from node a to other nodes b, c, d, e, f. Which of the following statements is true. (Refer to Section 5.2 in the text for notation.)

- ☐ Following the initialization step, if nodes b and c are directly connected to a, then the least cost path to b and c will never change from this initial cost.
- ☑ The values computed in the vector D(v), the currently known least cost of a path from a to any node v, will never increase following an iteration.
- ☐ The values computed in the vector D(v), the currently known least cost of a path from a to any node v, will always decrease following an iteration.
- ☑ Suppose nodes b, c, and d are in the set N'. These nodes will remain in N' for the rest of the algorithm, since the least-cost paths from a to b, c, and d are known.
- ☑ In the initialization step, the initial cost from a to each of these destinations is initialized to either the cost of a link directly connecting a to a direct neighbor, or infinity otherwise.

That's Correct!

← CHECK →

2/5

WHAT TYPE OF ROUTING?

Match the name of a general approach to routing with characteristics of that approach.

QUESTION LIST:

Centralized, global routing.

C

Decentralized routing.

B

Static routing.

D

Dynamic routing.

A

ANSWER LIST:

A. Routing changes quickly over time.

B. An iterative process of computation, exchange of informatoin with neighbors. Routers may initially only know link costs to directly-attached neighbors.

C. All routers have complete topology, and link cost information.

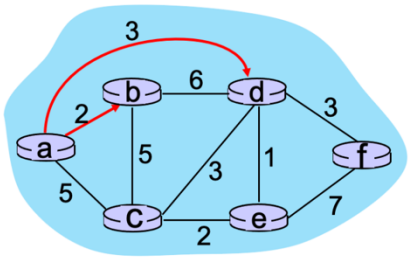
D. Routes change slowly over time.

That's Correct!

← CHECK →

DIJKSTRA'S LINK-STATE ROUTING ALGORITHM (PART 1).

Consider the graph shown below and the use of Dijkstra's algorithm to compute a least cost path from a to all destinations. Suppose that nodes b and d have already been added to N'. What is the next node to be added to N' (refer to the text for an explanation of notation).



[Note: You can find more examples of problems similar to this here.]

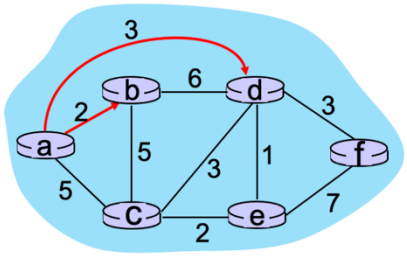
- c
- f
- e

That's Correct!

← CHECK →

DIJKSTRA'S LINK-STATE ROUTING ALGORITHM (PART 2).

Consider the graph shown below and the use of Dijkstra's algorithm to compute a least cost path from a to all destinations. Suppose that nodes b and d have already been added to N'. What is the *path cost* to the next node to be added to N' (refer to the text for an explanation of notation).



[Note: You can find more examples of problems similar to this here.]

- 6
- 4
- 5
- 7

That's Correct!

← CHECK

5/5

3. https://www.studocu.com/en-us/document/california-state-polytechnic-university-pomona/computer-networks/ch-4-6-knowledge-checks/47634006

ROUTING WITHIN OR AMONG NETWORKS.

Match the terms "interdomain routing" and intradomain routing" with their definitions. Recall that in Internet parlance, an “AS” refers to “Autonomous System” – a network under the control of a single organization.

QUESTION LIST:

Interdomain routing.

B

Intradomain routing.

C

ANSWER LIST:

A. Forwarding packets between two interfaces in different but adjacent subnetworks.

B. Routing among different ASes (“networks”).

C. Routing among routers within same AS (“network”).

D. Forwarding packets between two physically connected interfaces in a common subnetwork.

That's Correct!

CHECK →

1/

OPEN SHORTEST PATH FIRST (OSPF).

Check the one or more of the following statements about the OSPF protocol that are true.

- [ ] The Open Shortest Path First (OSPF) Internet routing protocol implements a Bellman-Ford distance-vector routing algorithm.
- [x] OSPF is an intra-domain routing protocol.
- [x] OSPF implements hierarchical routing
- [ ] OSPF is an interdomain routing protocol.
- [x] OSFP uses a Dijkstra-like algorithm to implement least cost path routing.

That's Correct!

← CHECK →

2/3

OPEN SHORTEST PATH FIRST (OSPF).

Consider the OSPF routing protocol. Which of the following characteristics are associated with OSPF (as opposed to BGP)?

- [ ] Is an inter-domain routing protocol.
- [x] Finds a least cost path from source to destination.
- [ ] Policy, rather than performance (e.g., least cost path), determines paths that used.
- [x] Is an intra-domain routing protocol.
- [x] Floods link state control information.

That's Correct!

← CHECK

3

6. https://www.studocu.com/en-us/document/california-state-polytechnic-university-pomona/computer-networks/ch-4-6-knowledge-checks/47634006

ICMP: INTERNET CONTROL MESSAGE PROTOCOL.

Which of the statements below about ICMP are true?

- [x] ICMP is used by hosts and routers to communicate network-level information.
- [ ] ICMP communicates information between hosts and routers by marking bits in the IP header.
- [ ] ICMP messages are carried in UDP segments using port number 86.
- [x] ICMP messages are carried directly in IP datagrams rather than as payload in UDP or TCP segments.
- [x] The TTL-expired message type in ICMP is used by the traceroute program.

That's Correct!

CHECK

1/1