

## INTERNETWORKING II

### Chapter 11 Study Guide Answers

What is the Network Layer of the OSI model is responsible for?

**IP addressing, routing, switching**

Which part of an IP address does the router use for path determination?

**the network part**

Describe the difference between a "routing" protocol and a "routed" protocol.

**A routed protocol is used for exchanging data packets on a network (usually between hosts and devices); a routing protocol is used between routers to exchange routing tables or LSAs.**

What are some advantages of dynamic routing?

**Changes are automatically updated by routers (low administrative overhead); offers more flexibility than static routing (preferred routes can be determined, but so can alternate routes), loadsharing can also be initiated so packets go out over more than one path.**

What are some disadvantages of dynamic routing?

**it tends to reveal everything known about the network (security)**

What is a big disadvantage of static routing?

**administrative overhead: any time the topology changes, the administrator must reconfigure the network to reflect the change.**

A "stub network" contains how many paths to a router?

**one**

What are the most commonly used metrics that routers use to evaluate a path?

**hop count, bandwidth, delay, cost, load, reliability, ticks**

What is convergence?

**When all routers in a network/internetwork have the same topology in their routing tables (they all know the same thing). This gives an accurate, consistent view of the network.**

Distance-vector algorithms send what to its neighbors?

**routing tables**

What is a routing loop?

**when a packet loops continuously around the network.**

What are hold-down timers used for and how are they useful?

**they are basically timers that time when a routing update arrives at the router; if the router receives another update from the same neighbor before the hold-down timer expires about the same path, then the updated routing table is discarded and those routes are ignored.**

**Hold down timers help keep routing tables (i.e., routing paths) “good.” They help prevent routing loops because they prevent a router from immediately using an alternate route that could include erroneous information.**

List some link-state algorithms and how these types of metrics differ from distance-vector algorithms.

**Every time the network is updated by an LSA, link-state algorithms recalculate best paths and update the router’s routing table based on these.**

Name some protocols that use link-state algorithms.

**OSPF**

What happens when routers have different sets of LSAs?

**routes can become unreachable because different routers are running different routing tables (the network is not converged).**

Which protocol uses a hybrid routing protocol?

**EIGRP, IS-IS**

What is a default route and when is it used?

**it is the route used by the router when the destination network is not explicitly listed in the routing table**

What is a split horizon?

**It is a way to prevent routing loops in distance-vector routing protocols. It says a routing update can't go out the same port it came in on (in other words, it can't be sent back to the router that sent it originally). (Also, see hold-down timers)**