

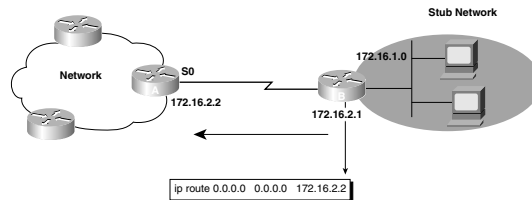
where a packet is routed if no other suitable path can be found. Static routes are also used when routing to a stub network. A *stub network* is a network accessed by a single route. Often, static routes are the only way on to or off of a stub network. Static routes are also used for security reasons or when the network is small.

Examining Static Route Configuration

The **ip route** command configures a static route in global configuration mode. This command manually sets the routing table. This table entry will not accept dynamic changes as long as the path is active.

ip route network [mask] {address | interface} [distance] [permanent]

- **address**—IP address of the next-hop router.
- **interface**—Interface to the destination network. Must be a point-to-point interface.
- **distance** (Optional)—Defines the administrative distance.
- **permanent** (Optional)—Specifies that the route will not be removed, even if the interface shuts down.

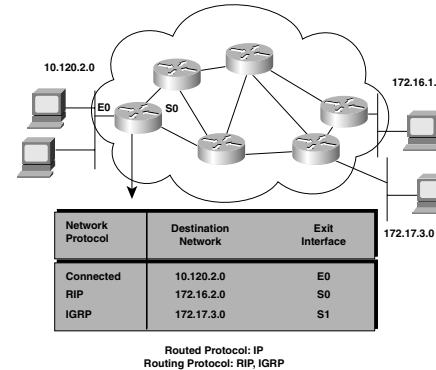


A default route is a special type of static route. Use a default route when the route is not known or when storing the needed information is unfeasible.

Routing Summary

- Routing is the process of sending packets from one location to another. A router needs to know the destination address, source address, initial possible routes, and best path to route packets.
- Routing information is stored in the router's routing table.
- Static routes are user-defined, whereas dynamic routes are learned by the router running a routing protocol.
- Use the **ip route** command to configure a static route.
- A default route is used for situations in which the route is not known or when it is unfeasible for the routing table to store sufficient information about the route.

Dynamic Routing Overview



Routing protocols are used to determine paths between routers and to maintain routing tables. Dynamic routing uses routing protocols to disseminate knowledge throughout the network. A routing protocol defines communication rules and interprets network layer address information. Routing protocols describe the following:

- Routing update methods
- Information contained in updates
- When updates are sent
- Paths to other routers

