Computer Networks

What is the Internet?

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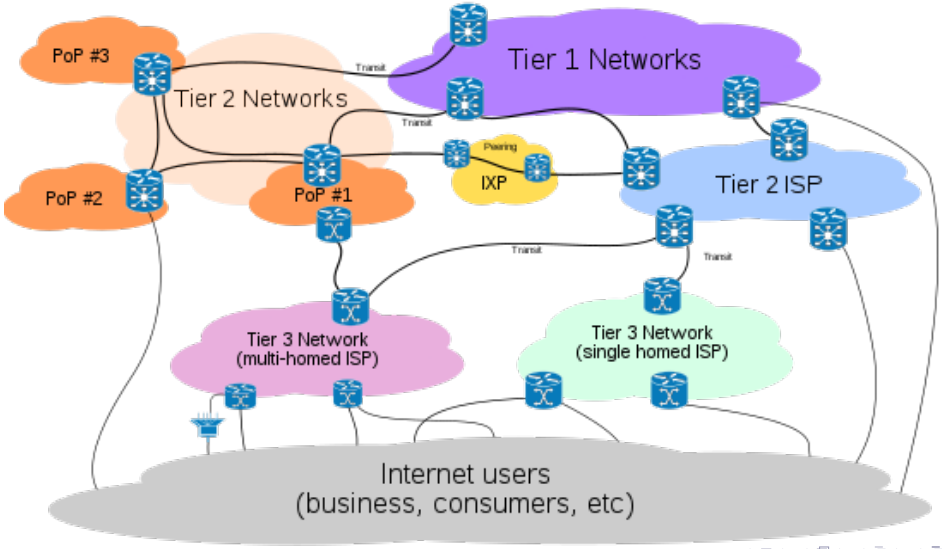
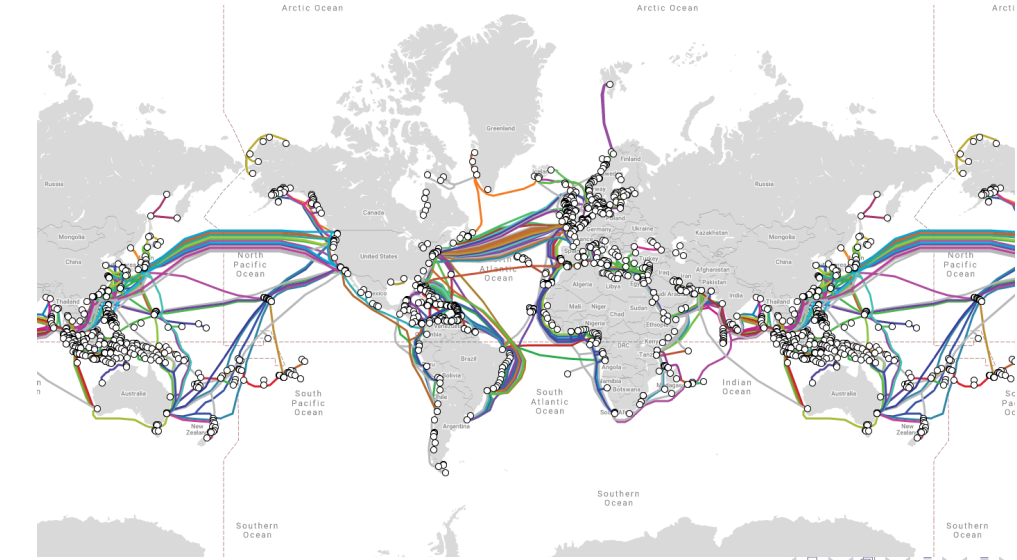
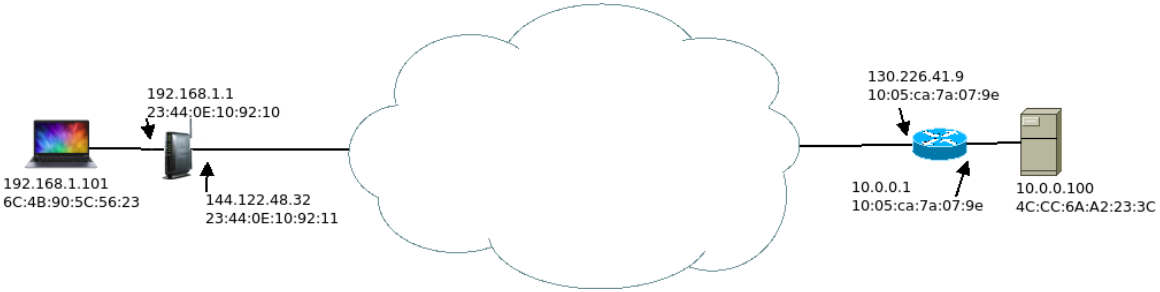
Internet is not Some Magical Mystery Land



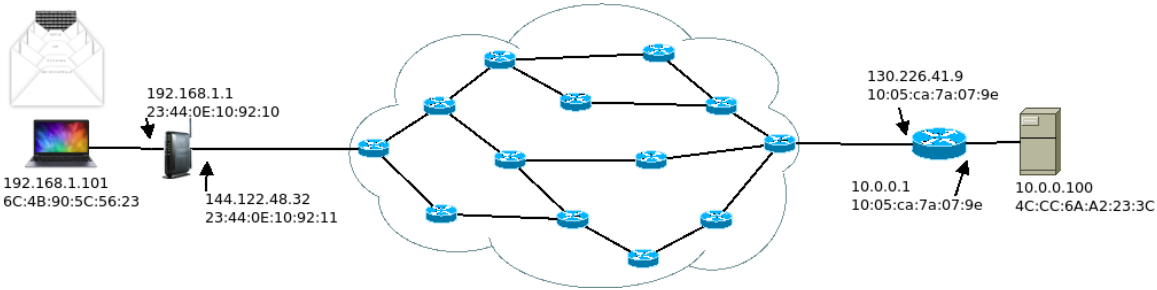
Internet is not Some Magical Mystery Land



Routing The Rough Idea



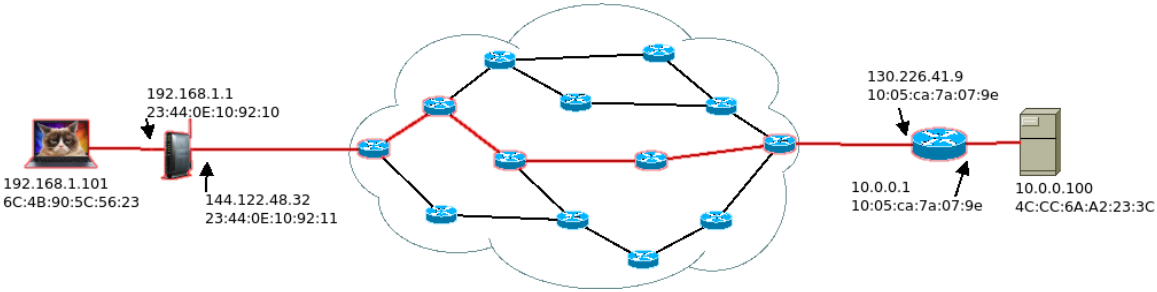
Routing The Rough Idea



Big Question

How is the path determined?

What constitutes the path?

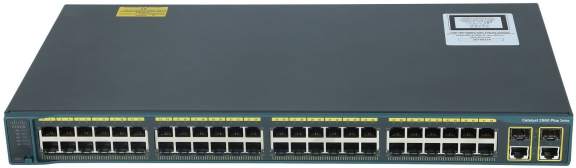


Components

L2 Switch

L3 Router

Lines are blurred



Routing: Hardware and Layers

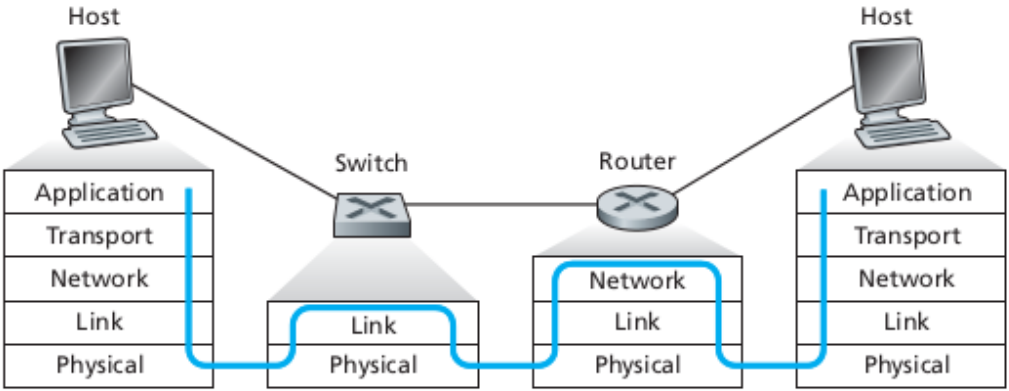
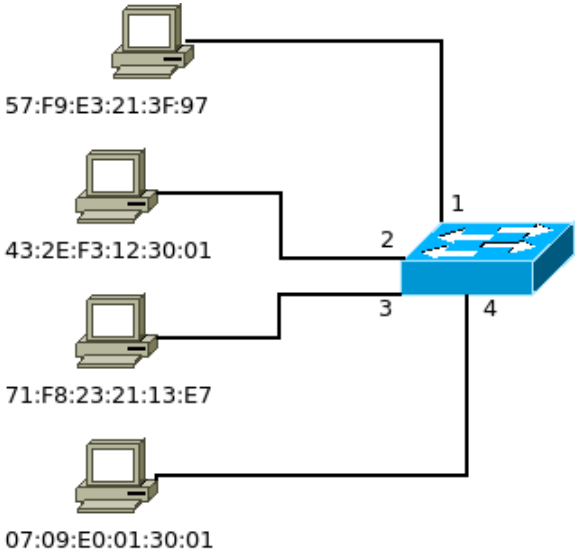
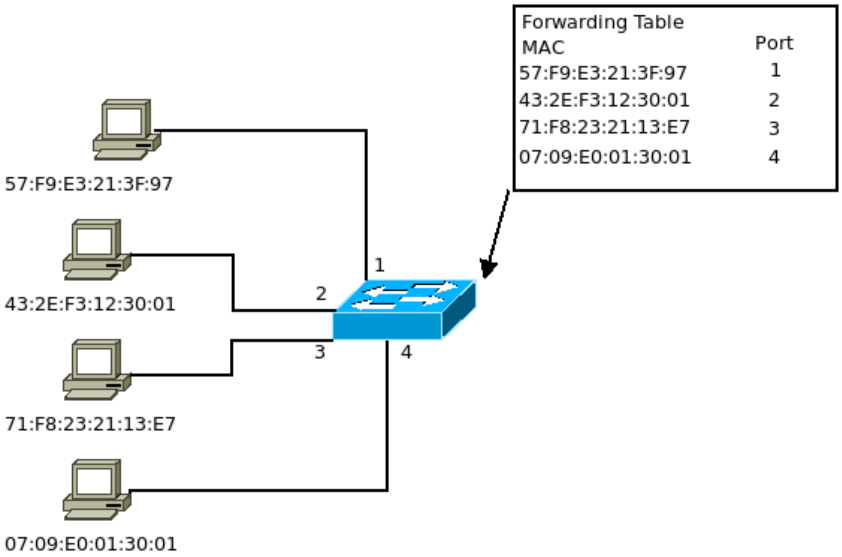


Figure 5.24 ♦ Packet processing in switches, routers, and hosts

How a Switch Works



How a Switch Works

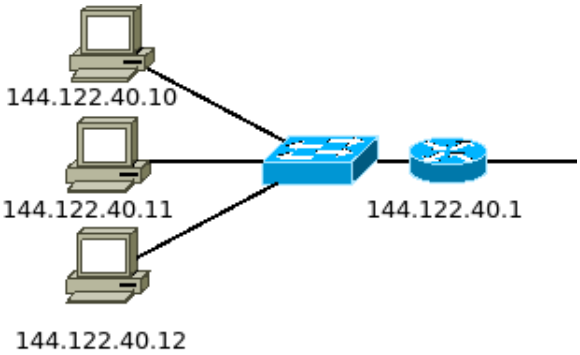


Brief Reminder: IP Addressing

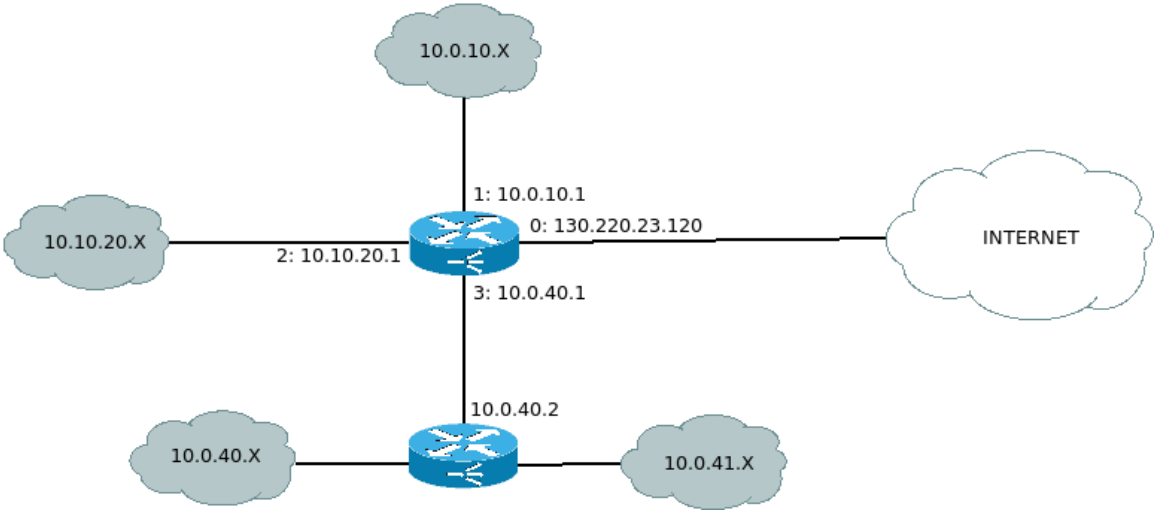
IP address

Prefix: A Network
Suffix: A Node

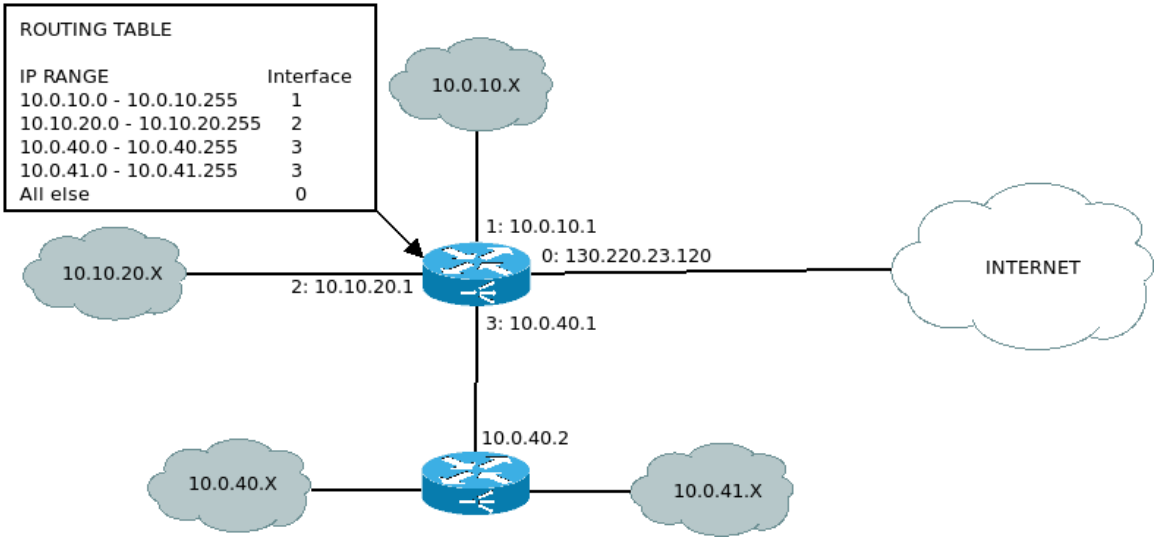
144.122.98. 32



How a Router Works



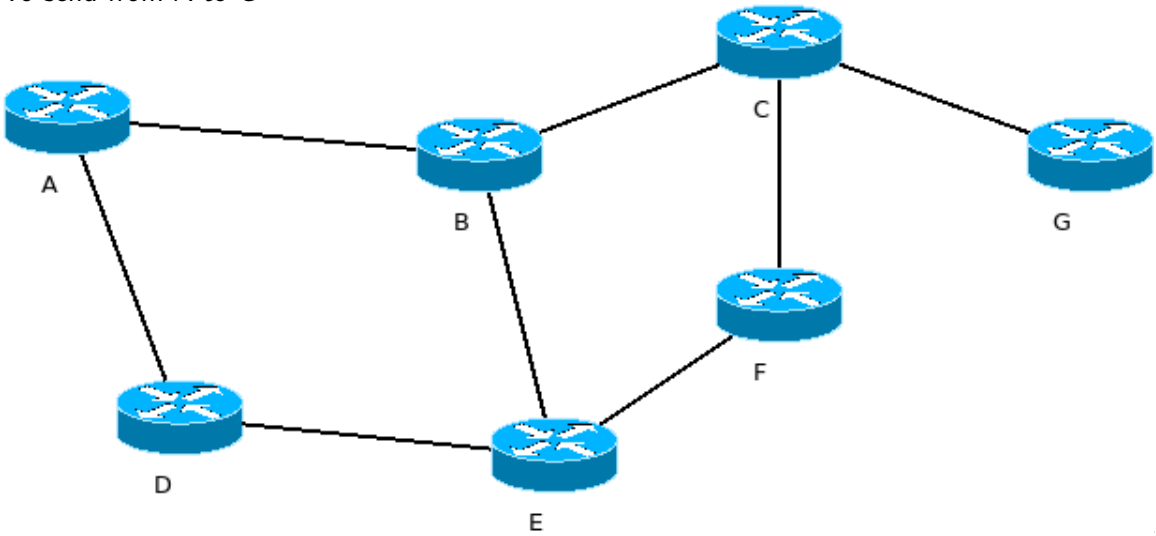
How a Router Works



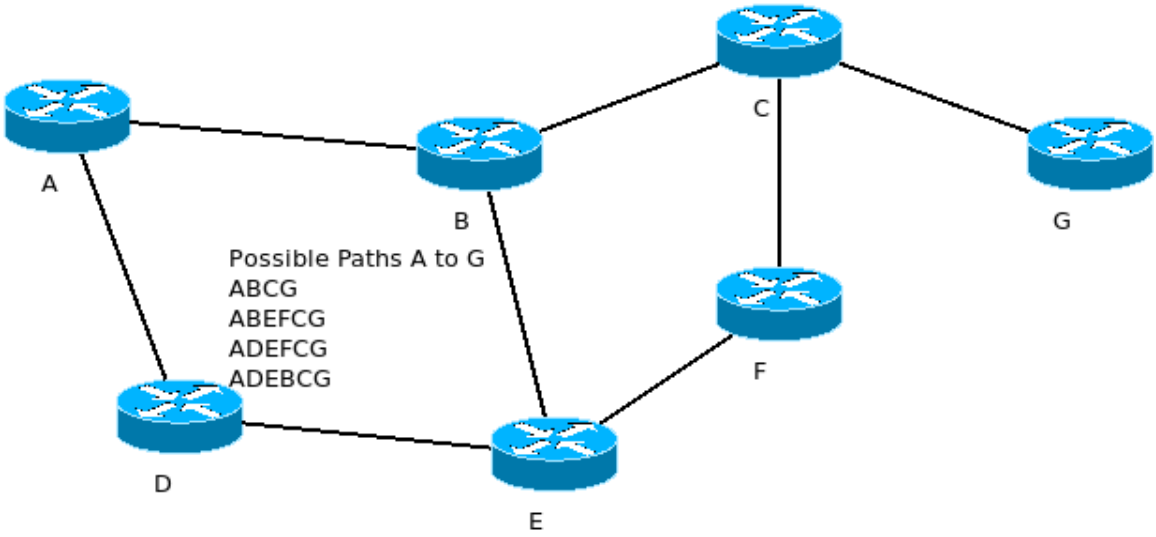
Forwarding in Layer 2 and Layer 3

Next Hop Forwarding

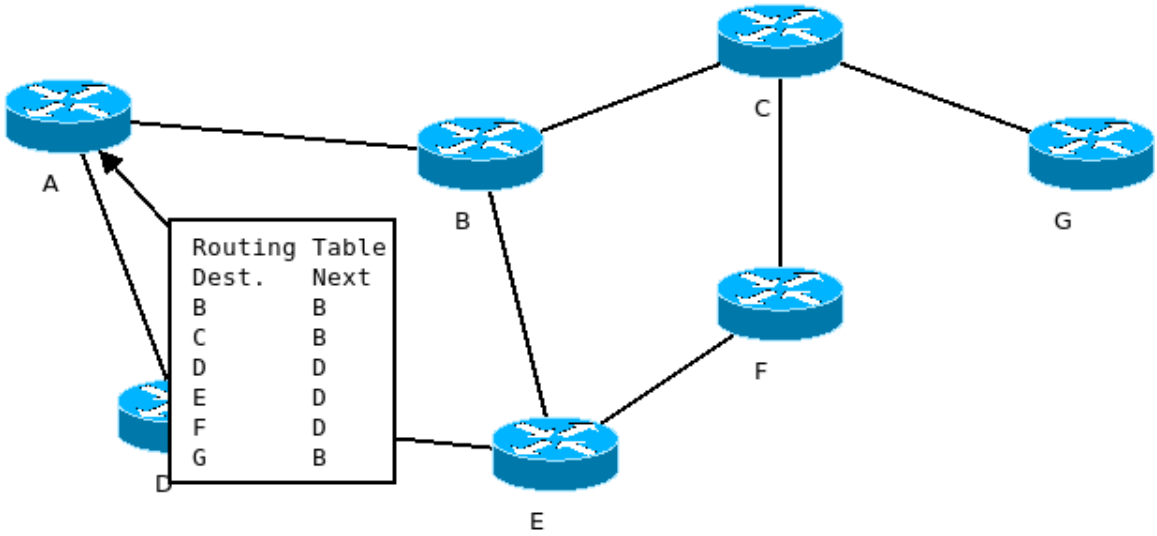
To send from A to G



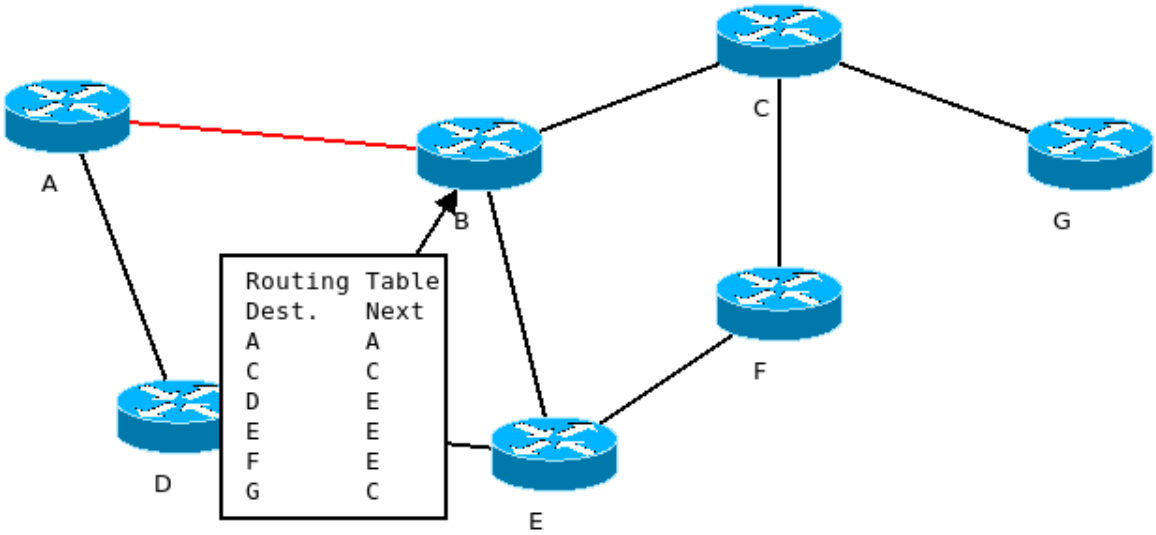
Next Hop Forwarding



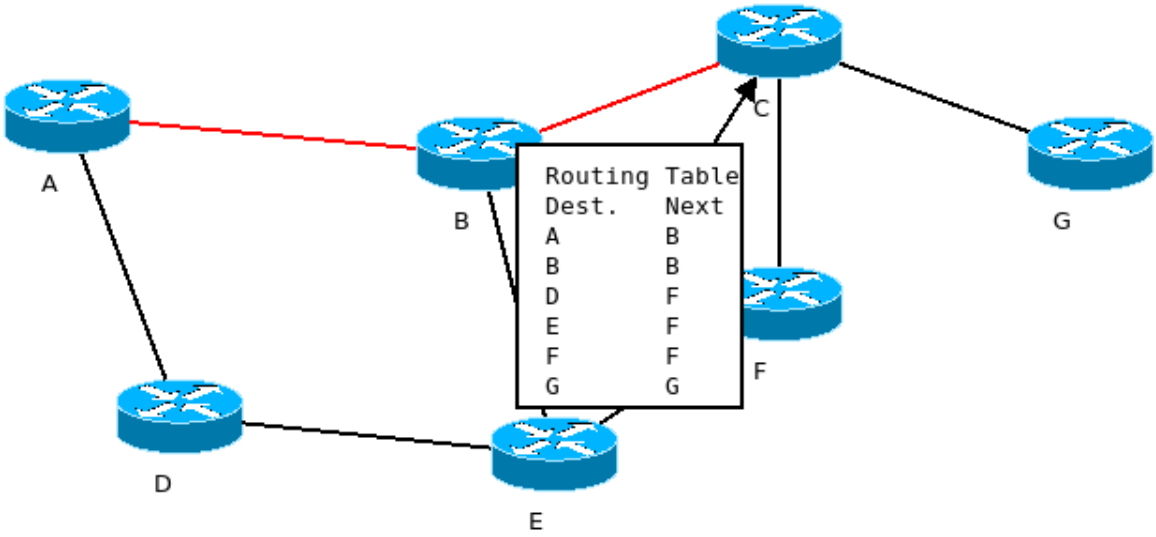
Next Hop Forwarding



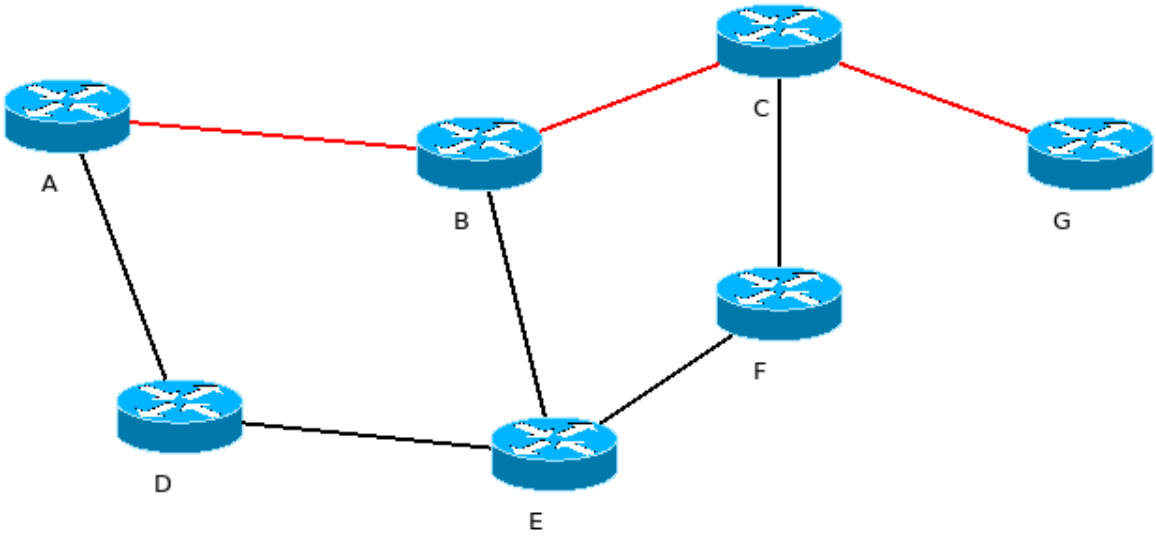
Next Hop Forwarding



Next Hop Forwarding



Next Hop Forwarding



Trace Route

Populating Routing Tables: Routing Algorithms

Consider the size of the Internet.

How would you populate the Routing Tables.

Populating Routing Tables: Routing Algorithms

Consider the size of the Internet.

How would you populate the Routing Tables.

- Internal Routing (OSPF, RIP)
- External Routing (BGP)

Populating Routing Tables: Routing Algorithms

Consider the size of the Internet.

How would you populate the Routing Tables.

Considerations:

- Number of Hops
- Congestion
- Speed of circuit