The need for routing

Dividing the local network video

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Now we need routing

***In most cases we want to be able to connect beyond our local network***

**Devices outside of out network** are so called remote hosts

**When we want to access device outside of our network**, the help of routers is needed

A router is a ***networking device that connects multiple layer 3, IP networks***

At distribution layer, routers direct traffic and perform other functions critical to efficient network operation

**They are able to decode and read the messages that are sent to them, unlike switches which make their forwarding decisions based on layer 2 (MAC address), routers make their based on the layer 3 (IP address)**

The packet format contains the IP addresses of the destination and source hosts, as well as msg data being sent.

The router reads the network portion of the destination IP address and uses it to find which one of the attached networks is the best way to forward the msg to the destination

Anytime the router portion of IP addresses of source and destination hosts do not mach, a router must be used to forward the msg.

If a host located on network 1.1.1.0 needs to send a message to a host on network 5.5.5.0, the host will forward the message to the router. The router receives the message, de-encapsulates the Ethernet frame, and then reads the destination IP address in the IP packet. It then determines where to forward the message. It re-encapsulates the packet back into a new frame, and forwards the frame on to its destination.

If a host located on

