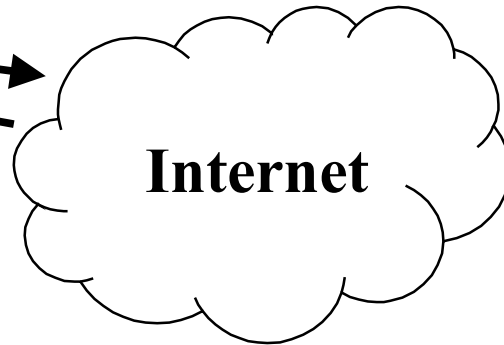
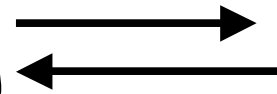


How do computers find each other?

Computer1



Computer 2



Different kinds of addresses

- Have domain name (e.g. *www.usc.edu*)
 - global, human readable name
- DNS translates name to IP Address (e.g. 128.125.19.146)
 - global, understood by all networks
- Finally, we need local net address
 - e.g., Ethernet (*08-00-2c-19-dc-45*)
 - local, works only on a particular network

Domain Naming System (DNS)

Computer 1

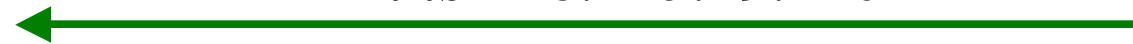
**Local
DNS server**



What's the IP address for www.usc.edu?



It is 128.125.19.146



DNS address manually configured into OS

Finding Ether address: Address Resolution (ARP)



*Broadcast: who knows the
Ethernet address for 128.125.51.41?*



Ethernet



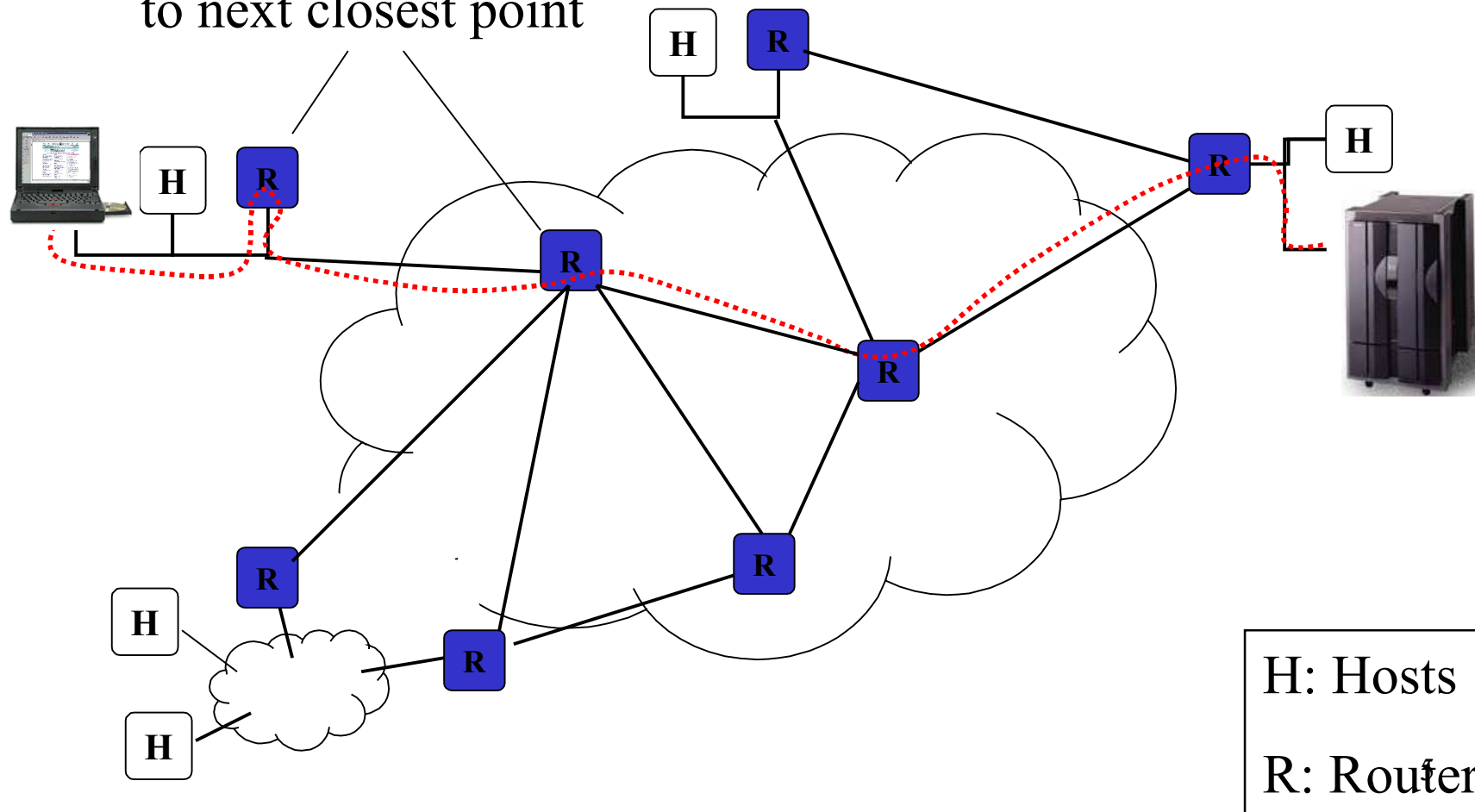
*Broadcast: Yes, it is
08-00-2c-19-dc-45*



Ethernet

Packet travelling through the Internet

Routers send packet to next closest point



How do the routers know where to send data?

- Forwarding tables at each router populated by routing protocols.
- Original Internet: manually updated
- Routing protocols update tables based on “cost”
 - exchange tables with neighbors or everyone
 - use neighbor leading to shortest path