

Networking Fundamentals

- IP Version 4 Addresses and Networks
- TCP Ports and Sockets
- IP Version 6 Addresses and Networks
- DNS

Client Server Programming

- Think about this in the context of HTTP

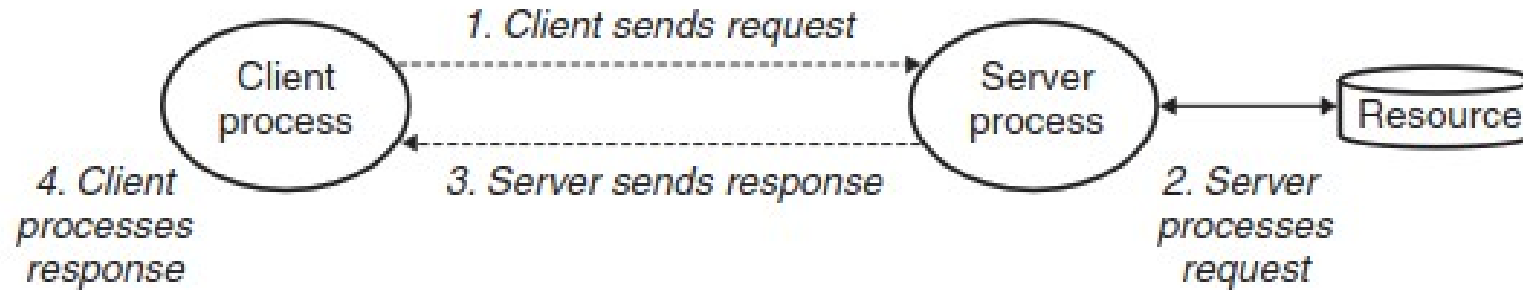
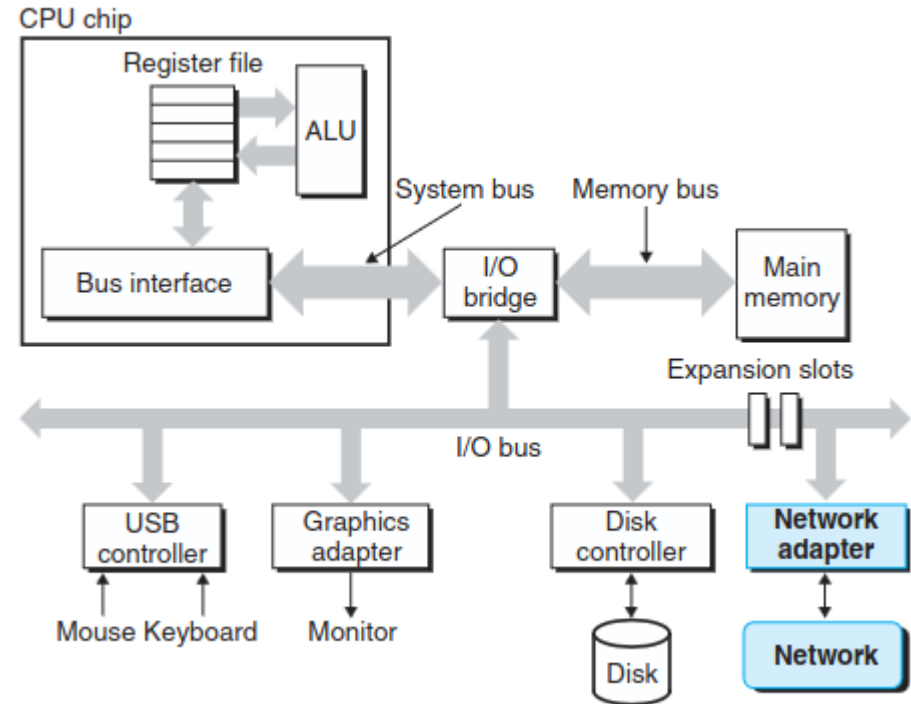


Figure 11.1 A client-server transaction.

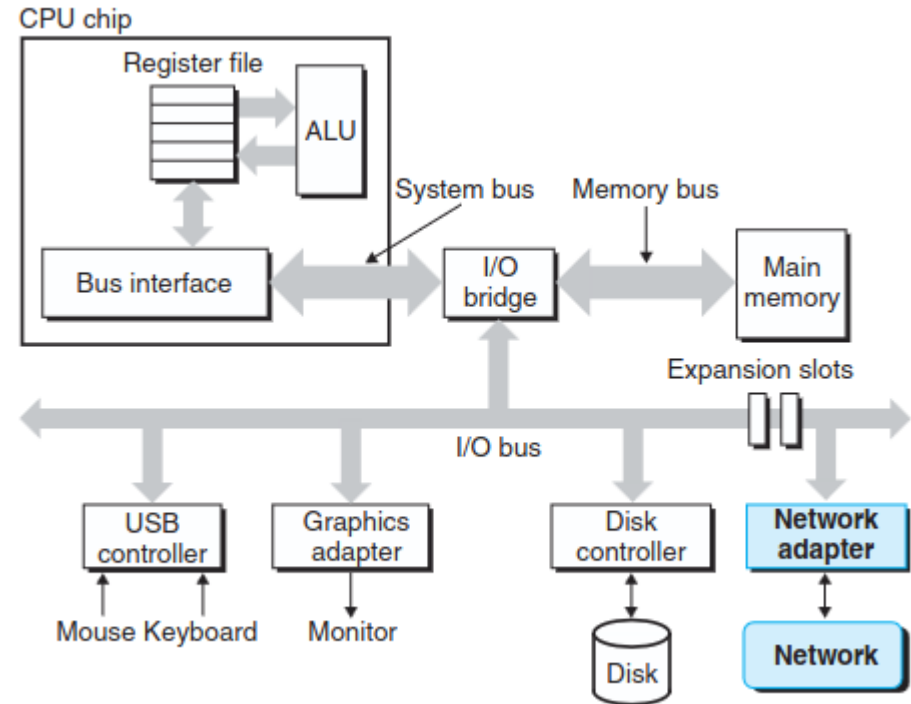
Outgoing and Incoming

- This is a slow operation
- V6 is a bit slower



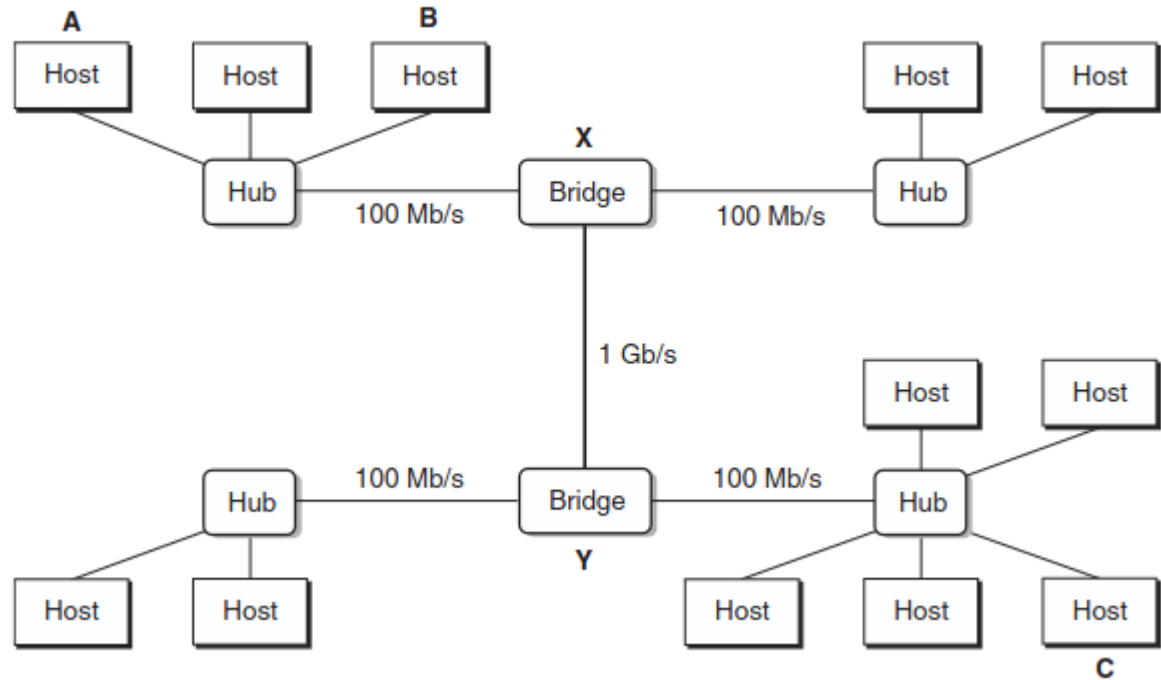
Outgoing and Incoming

- This is a slow operation
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Outside the box

- Hubs are old
- Bridges are old
- Replace with switch



Out on the Internet

- Routers know where things are
- Advertised and default routes (BGP)

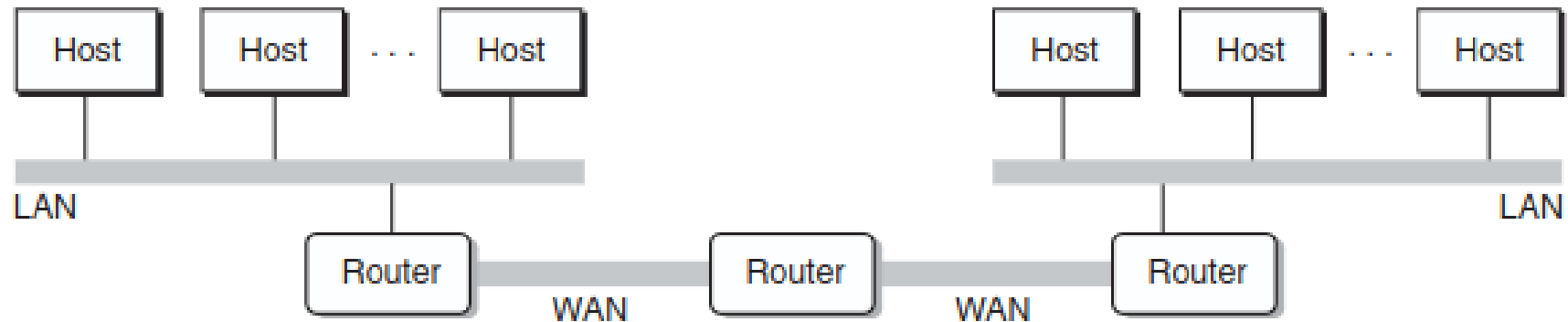


Figure 11.6 A small internet. Two LANs and two WANs are connected by three routers.

How things flow

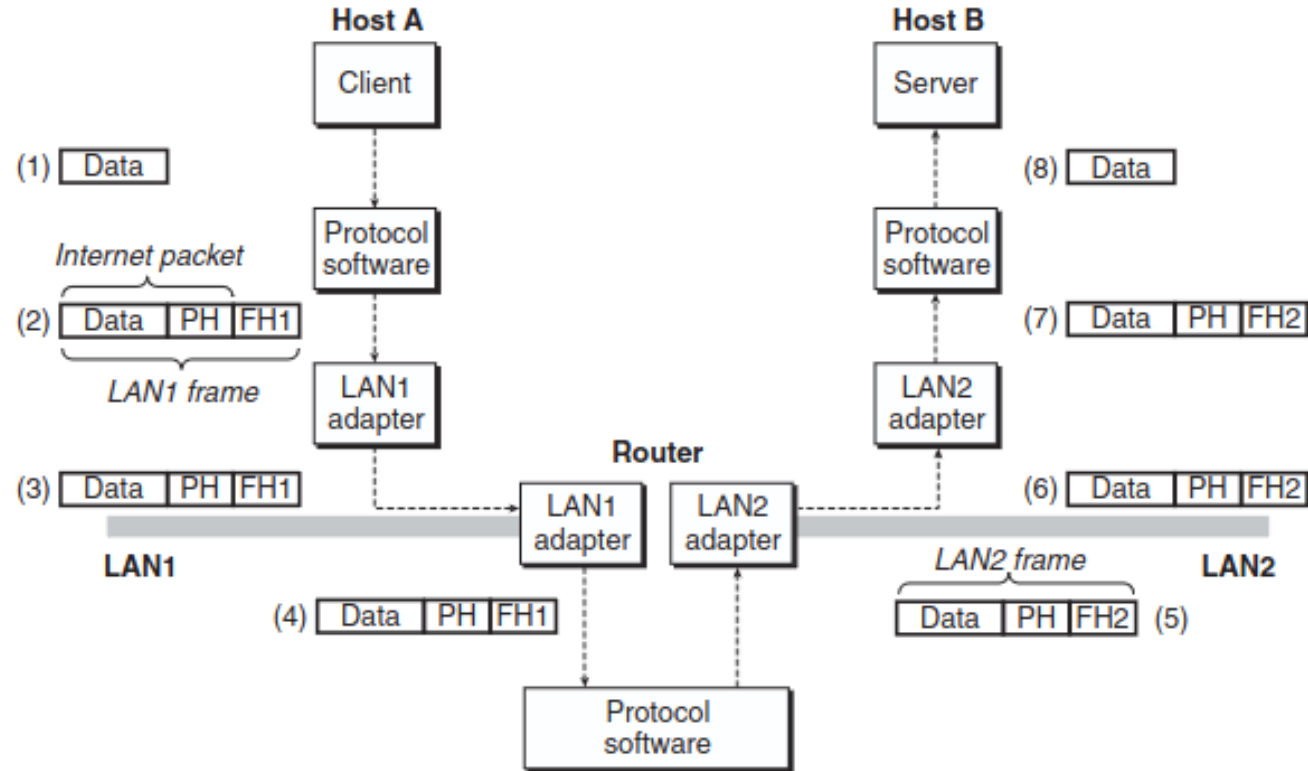


Figure 11.7 How data travel from one host to another on an internet. PH: internet packet header; FH1: frame header for LAN1; FH2: frame header for LAN2.

Manual Page Review

- Connect(2) – uh oh ... “2” means syscall
- Bind(2) -- again?
- Socket(2) – wait what?
- Accept(2) – oh boy ... are we going to look at the kernel again?

Manual Page Review

- Ip(7) -- Internet Protocol: ipv4 hints and tricks
- Ipv6(7) – Internet Protocol ipv6 hints and tricks
- Socket(7) – C programming layer for sockets in IP
- Tcp(7) -- The Transmission Control Protocol
- Udp(7) – The User Datagram Protocol
- Ip(8) – Command line interface to all things networking