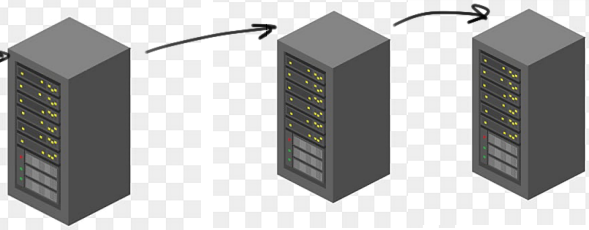
Networks: Week 1

1. Host: Device sends and recieves traffic

laptops, servers



www.site.com

Definition of server and client are both Relative!!

Clients: Initiates a requests

Server: Just a computer w/software that knows how to respond to specific traffic.

---

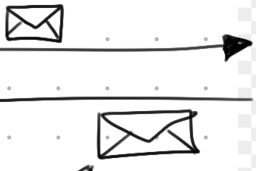
2. **IP address:** Identify every host.

0101.1001.0001.0000.1111.0101.1010.0100

136 . 2 . 17 . or 0-255

32-bits

72.45.198



136.22.17

packet

Packet
SRC IP
DST IP

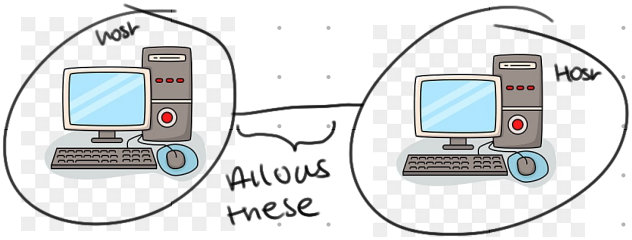
New York		London	
Sales	10.30.55	Sales	10.40.40
Marketing	10.30.50	Marketing	10.40.30
Engineering	10.30.20	Engineering	10.40.20

e.g 10.30.55/27 → New York sales team

So there is a hierarchy Each team sits in a Network.

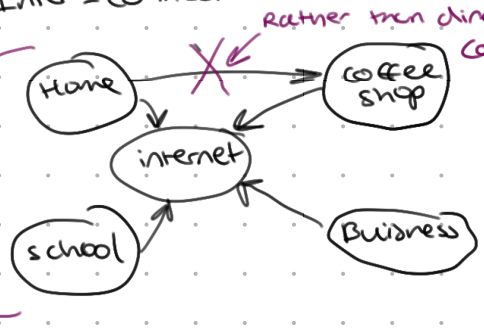
---

3. **Network:** Does the transportation between hosts. Requires group of hosts that need similar connectivity



to exchange automatically

internet: Inter-connected Networks



efficient

5.

Data travelling long distances start too decay? (R)

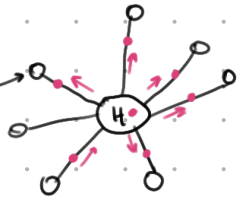
Solution = Repeater: Regenerates Signals.

---

6. (H) = Hub: Multi-port Repeater

inefficient! ☹ Bad

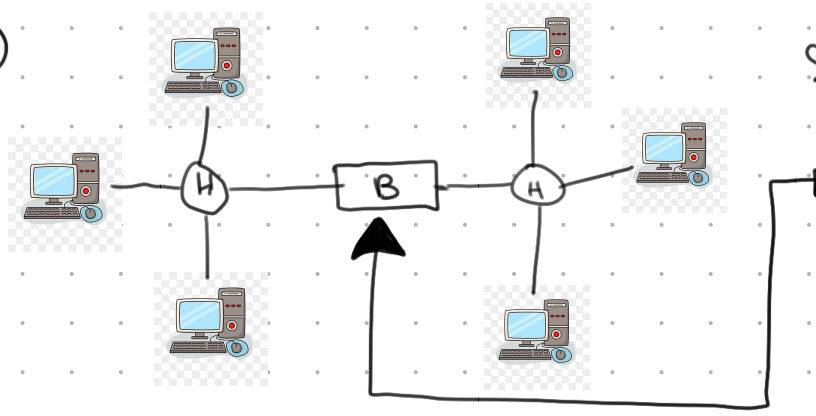
Easier too add new devices



Problem: Packet is sent. Hub duplicates, and sends it too everyone!.

We don't want this

(7)

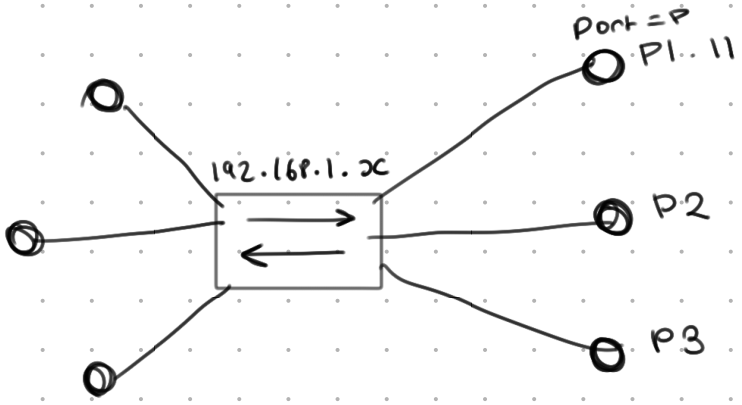


solution: Bridges

Bridges only have 2 ports: they sit between Hub-connected hosts

---

(8) = Switches: Combination of Hubs + Bridges - Helps keep data strictly between those ports.

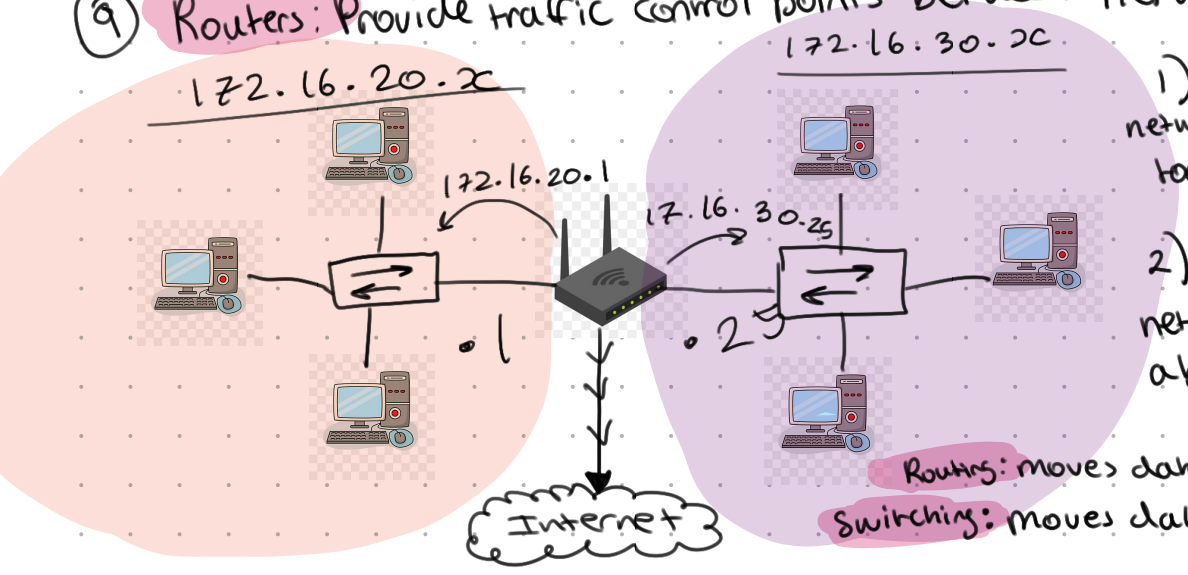


Switches learn which ports belong to which hosts.

Keeps data strictly between those ports

---

(9) Routers: Provide traffic control points between networks.



1) Routers learn which networks they are allocated too = Route

2) Routing Table: All networks a router knows about.

Routing: moves data between networks

Switching: moves data within networks

Proxies

firewalls

other network devices

Gateway: A hosts way of sending info out of their local network

e.g IP=172.16.20.33

Gateway=172.16.20.1