

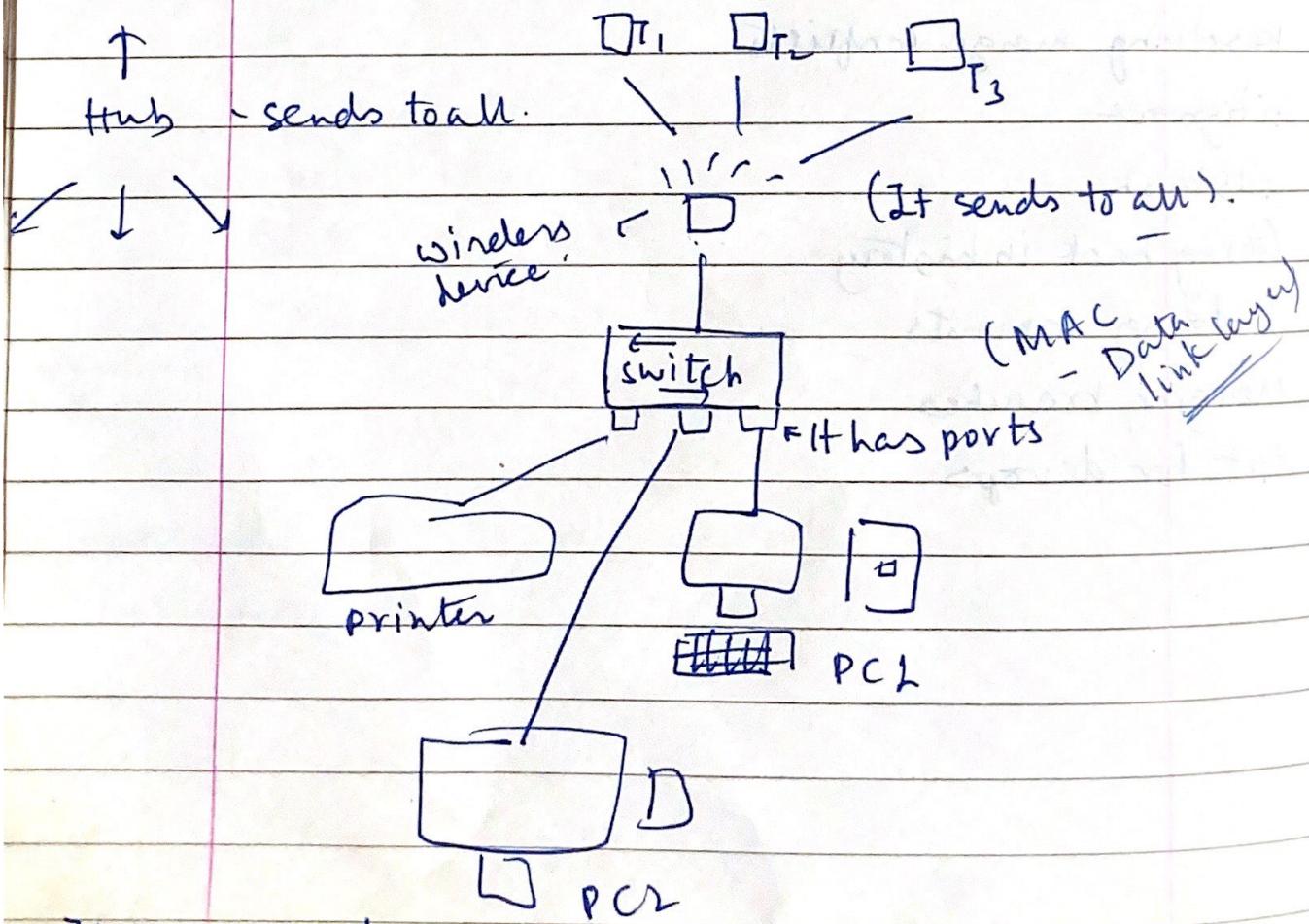
- switches → has good brain & collects the mac address.
- hub → it's dumb → sends to all.
- CAM Table - layer 1 → electric signals, wire, etherne
layer 2 → Mac Address
layer 3 → IP Address

- CISCO command →

```
# enable
# Show mac-addresses table
```

`!# ping` ↴
IP Address of receiver.

- wireless devices → is like hub but its good.

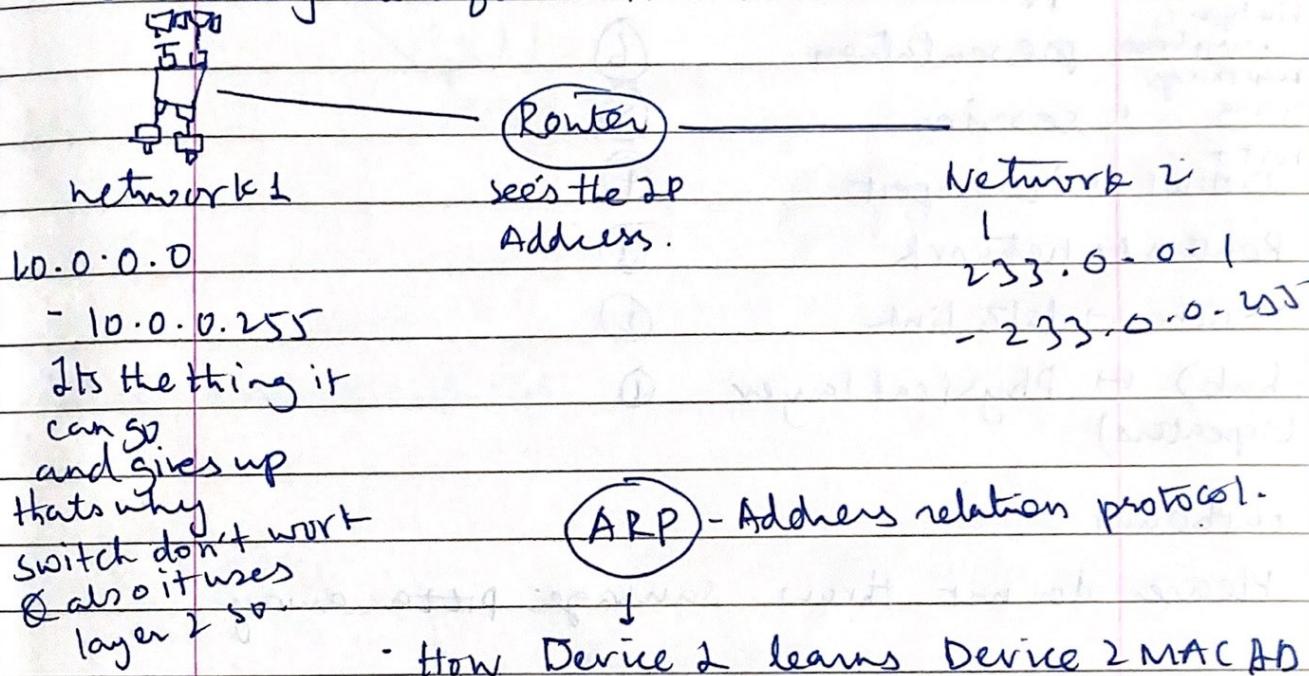


It connects and enable the talks, commu. possible with devices.

Router (Network Layer)

• Router

- It's more about layer 3 → the IP Addresses.
- we already know from - How Internet work video.



ARP - Address relation protocol.

- How Device 2 learns Device 2 MAC AD

FF-FF-F-F

↓
Broadcasting

must know MAC ID of

If it don't know

will use.

(who belongs to 10.1.1.2). → frames will be sent to all ports but receives to the perfect device & remembers the mac address.

Command ifconfig

Show ip route

TCP / IP and OSI

OSI → Open System Interconnect

All people seem to need data Processing

HTML etc. → Application (7)

file type - encryption presentation (6)

- keep things going + session (5)

Port + Protocol → transport (4)

Routers → network (3)

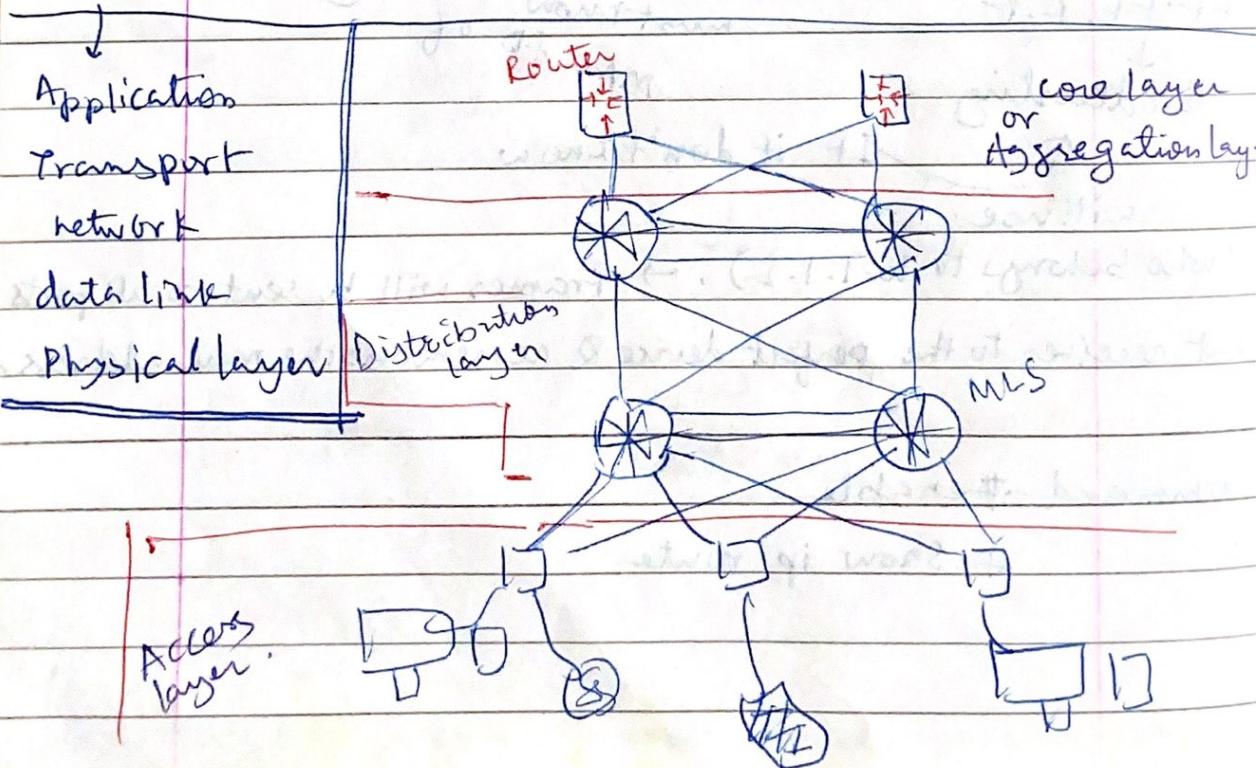
switches → data link (2)

(hub) → Physical layer (1)
(repeaters)

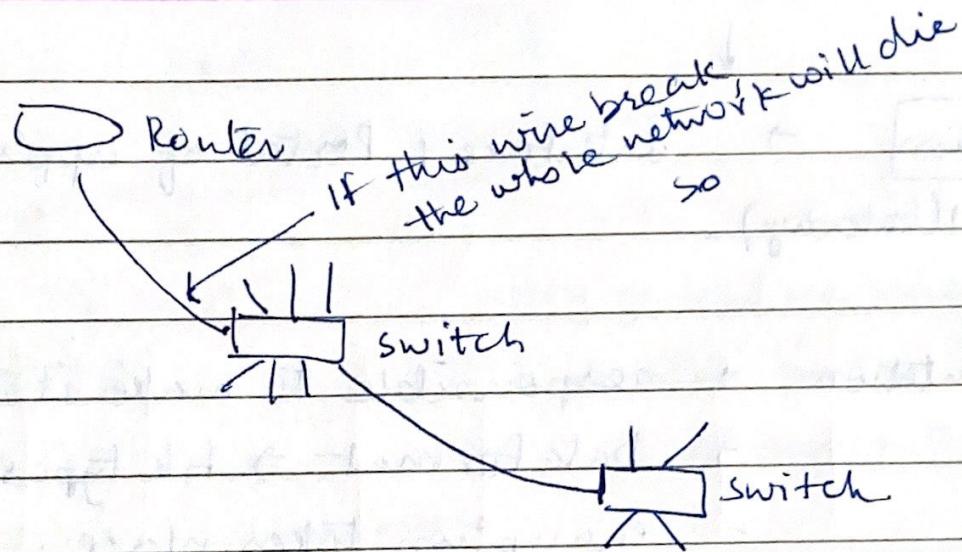
outbound

Please do not throw sausage pizza away.

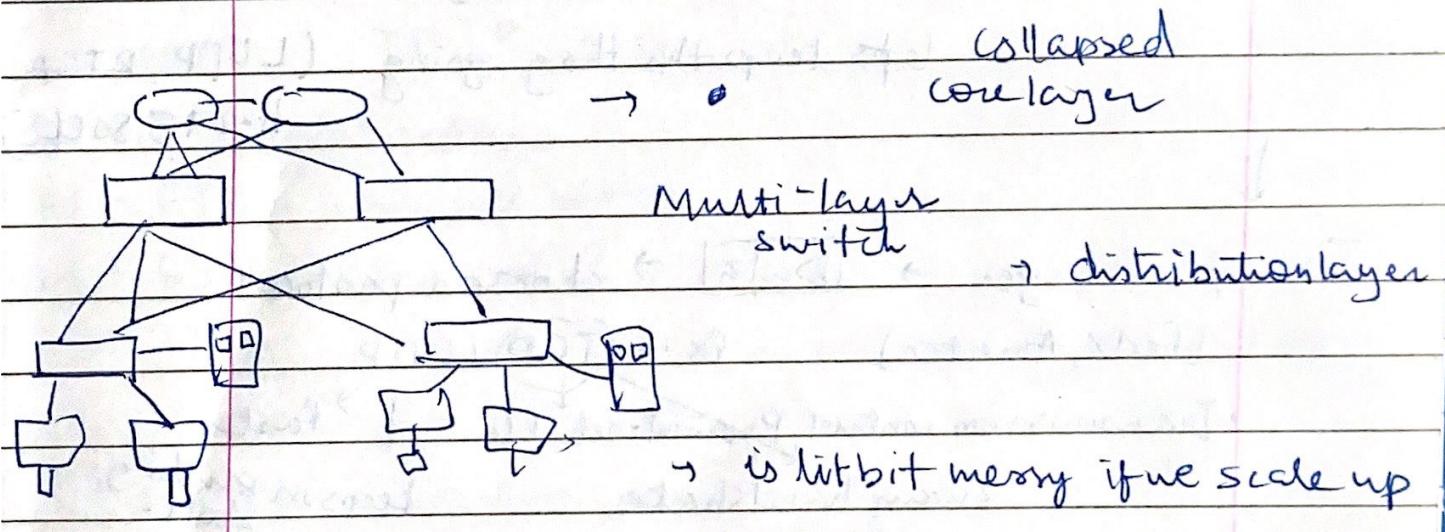
TCP / IP → Internet protocol suite → have only 5



Bad Network

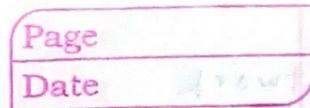


2 Tier - network architech.



Application layer

www.youtube.com



Application

→ Interface / Portal of application

→ (Gateway)

Presentation → responsible to make it presentable

→ Data format → file types (HTML)
(XML, JPEG)

- encryption takes place.

Session layer → open up the communication b/w browser and Server.

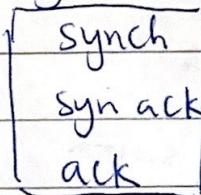
• lets keep this thing going. (L2TP, RTCP, H-245, SOCKS)

Transport layer → Data → choose a protocol

(FedX, Amazon)

Ex :- TCP / UDP

• Transmission control Protocol-reliable
3 way handshake ↓ faster
keep on sending stuff



and

→ Ports - 443 → HTTPS

→ HTTPS : 443, looks like 173.194.191.167:443

FTP : 21

SSH : 22

RDP : 33 89

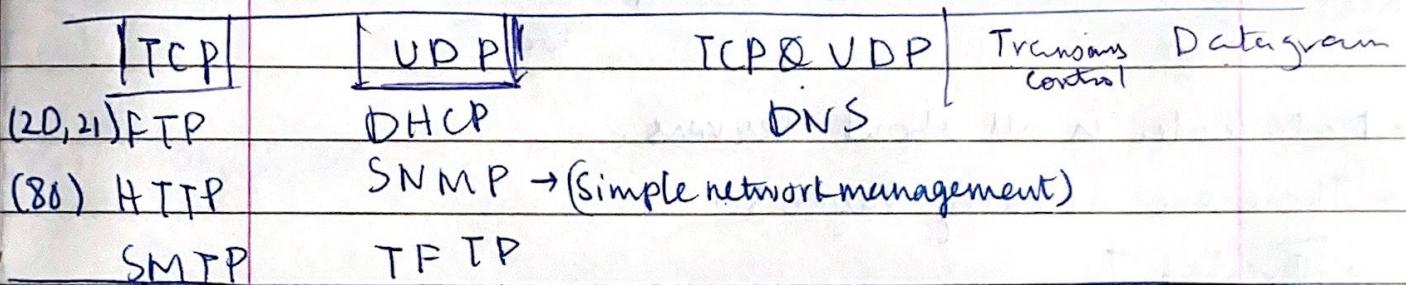
0-63,535 → Ports

~~6 - 1023 → Reserved Ports.~~

- Telnet - 23
 - SMTP - 25
 - 80 - HTTP
 - SFTP - 115
 - NTP - 123

Hey yt send me back to
blah blah port.

• Ephemeral port → temporary



1) 20 - FTP - Data Transfer

21 - FTP - Command control

22 - SSH - Secure shell

23 - Telnet - Remote log in service, unencrypted test msg.

25 - SMTP - E-mail routing

53 - DNS - Domain name system

80 - HTTP -) used in www. (Hypertext Transfer P)

110 - POP3 - used by email clients to retrieve email.

119 - NNTP - Netw. news transfer protocol

123 - NTP - Netw. Time P

143 - IMAP - Internet msg access Pro -

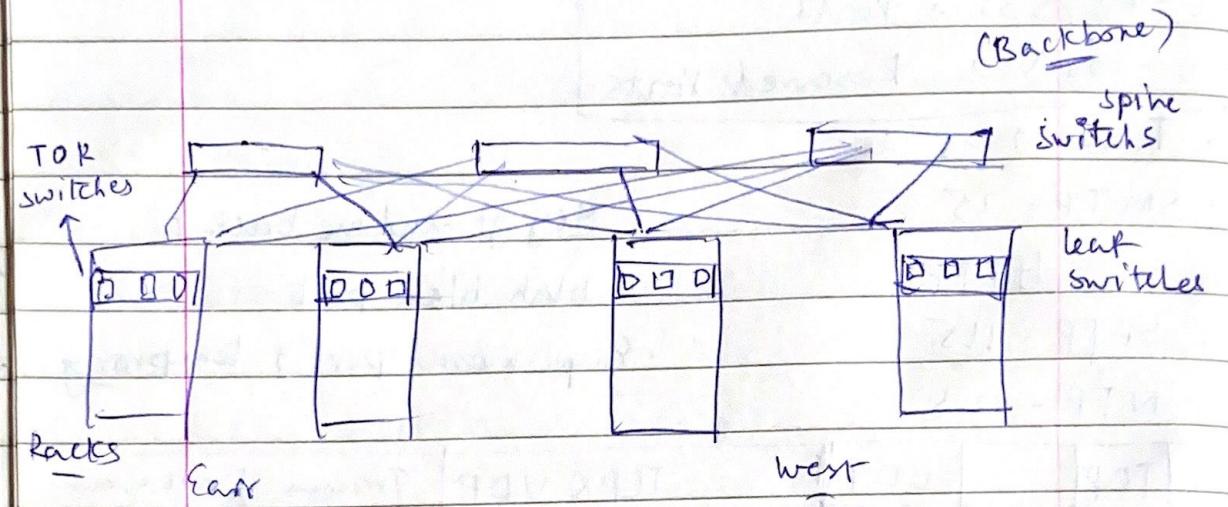
161 - SNMP - Simple network management P

194 - IRC - Internet relay chat

443-HTTPS - HTTP Secure, HTTP over TLS/SSL

- How the network works in Data Center!

- It follows leaf-spine architecture

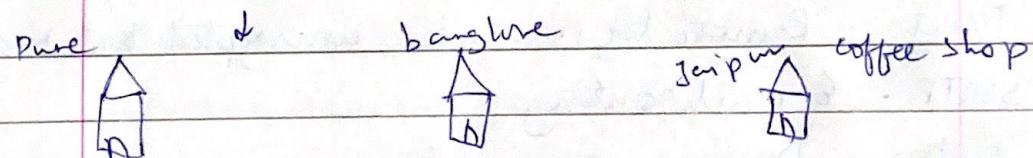


- Data center is all about servers.

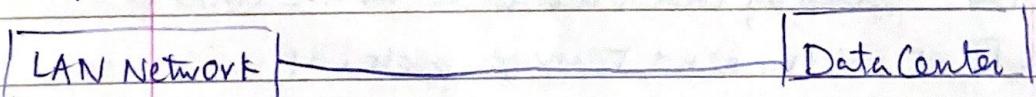
- There are actually layer 3.

- Overlay
underlay

- WAN, it's not the internet sometimes.



corporate office



How do we make the communication happens?

- leased line → expensive.

T₁ → 1.54 mbps

E₁ → 2.048 mbps

T₃ → 43.73 mbps

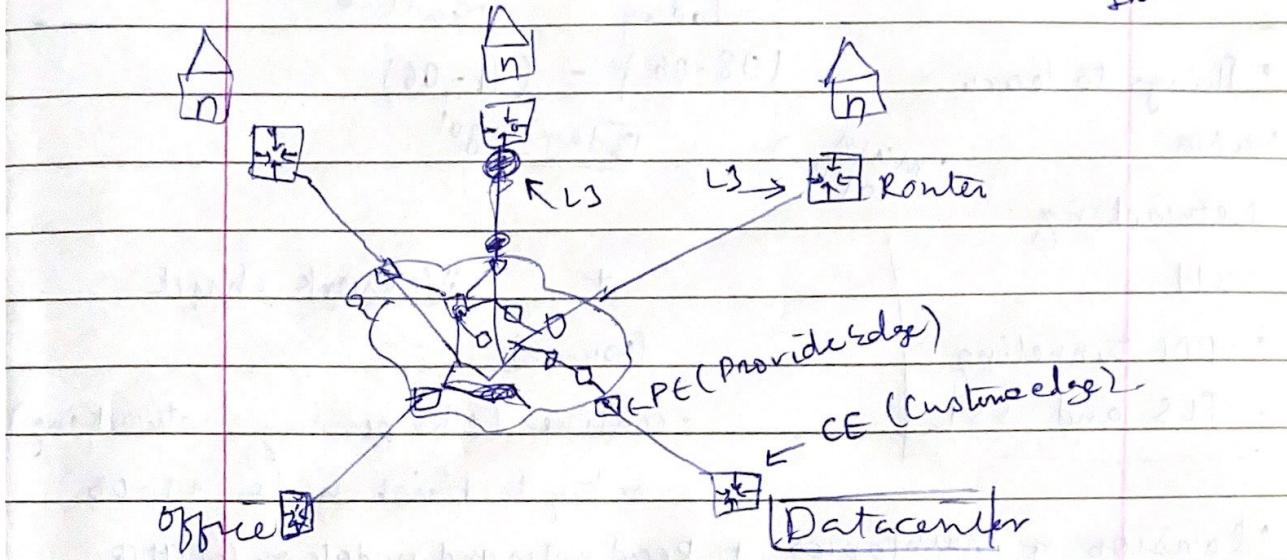
E₃ → 34.368 mbps

- MPLS
multi-protocol label switching

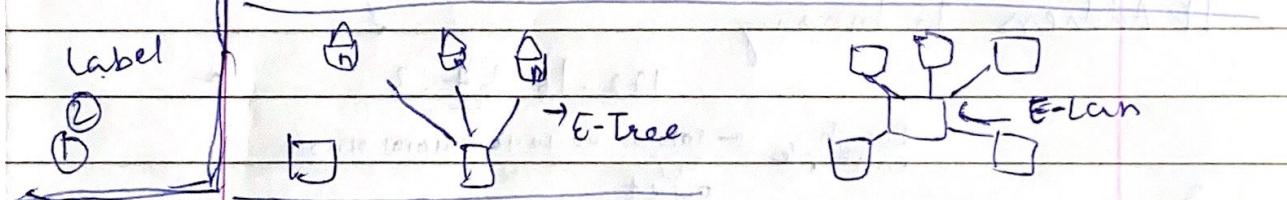
Page
Date

IPS → gives you connection

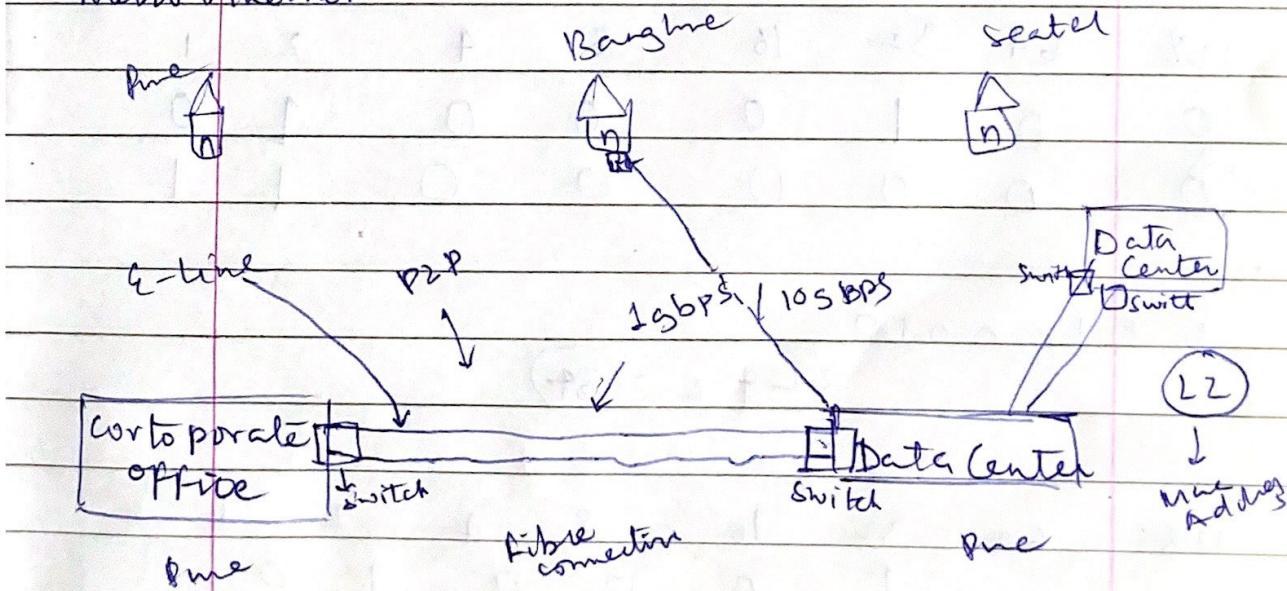
(It's not Internet)



VPN → Virtual private network.



- ## • Metro Ethernet



- They only connect main offices with this

(32 bit value)

IP Address to binary

172.16.34.3

Rough example $\leftarrow 10101100 \cdot 00 \cdot 1010 \cdot 000101 \cdot 0111011$
octet

3

34

34 ✓

$\frac{3}{2}$

1

128

64

32

16

8

4

2

1

0

0

1

0

0

0

1

0

Binary
 \rightarrow

0

0

0

0

0

1

1

0 0 1 0 0 0 1 0

32 + 2 = **34**

128

64

32

16

8

4

2

1

0

0

1

0

0

0

1

0