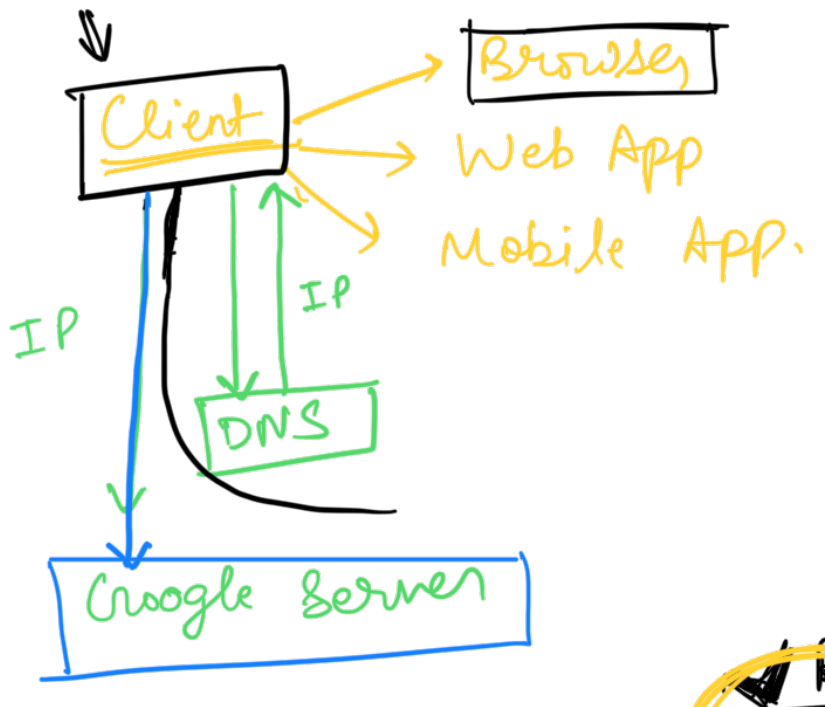
How Internet Works.

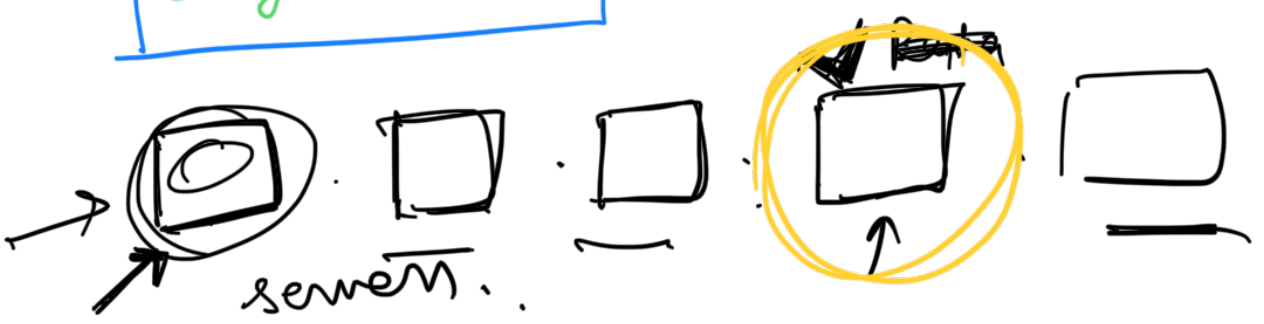
→ CN ✓

→ HLD

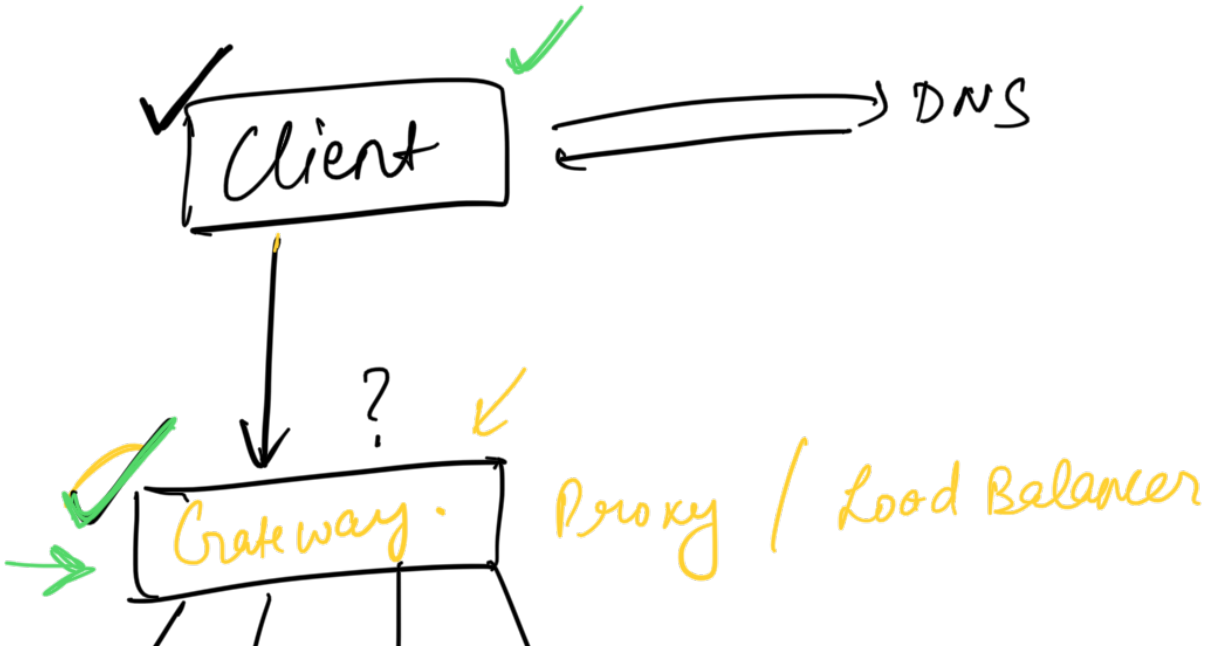
Google →

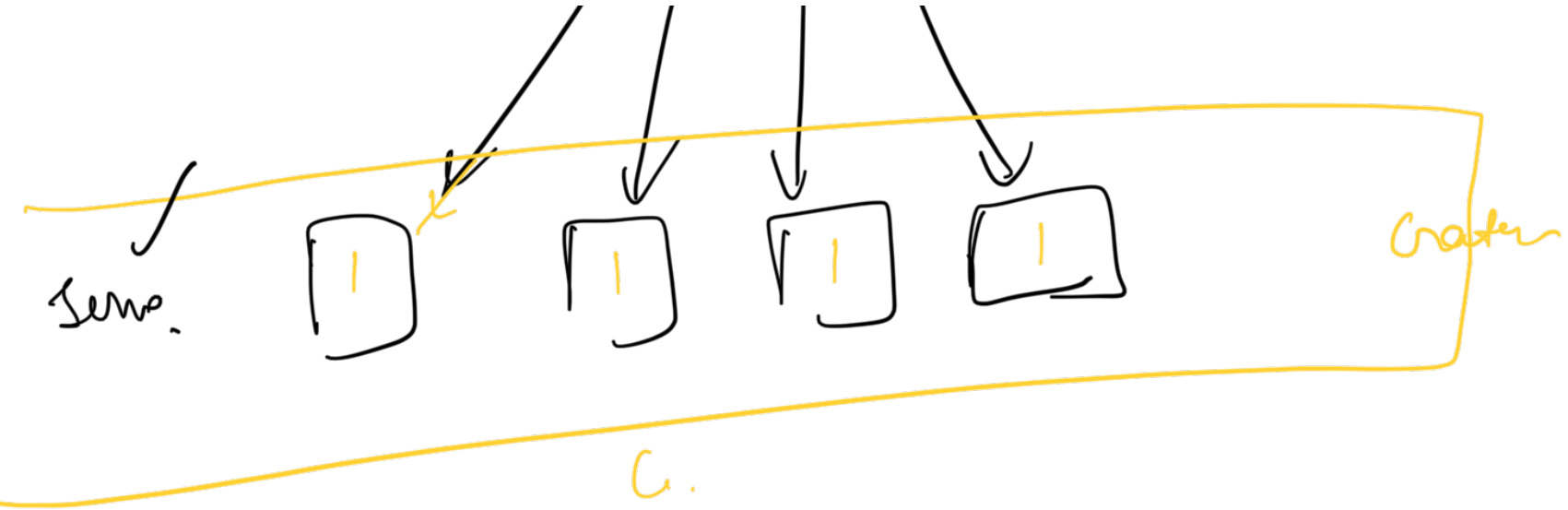
DNS
Server
Client
DB
Code
Load Balancer
Proxy.

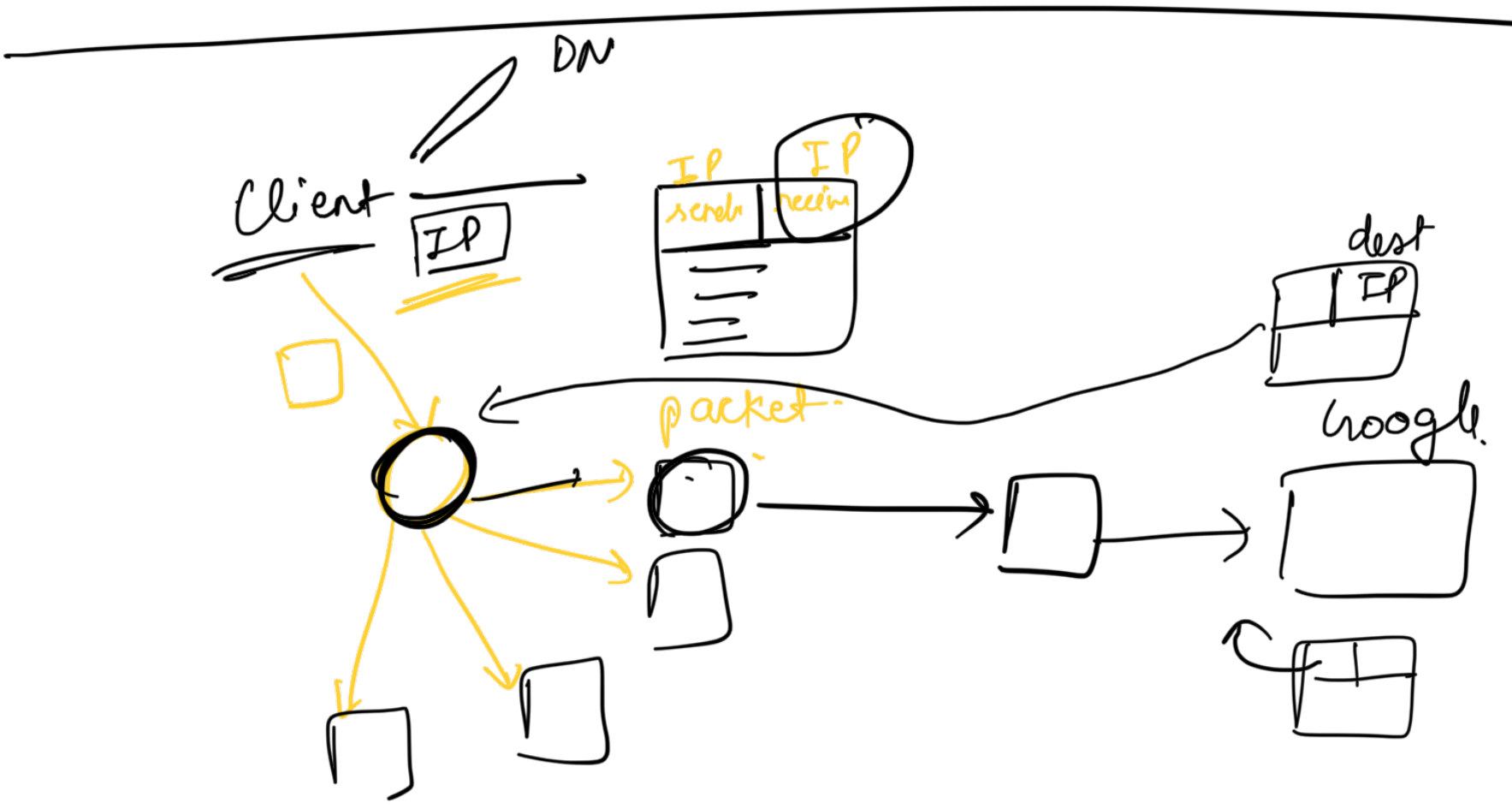




1.) Security
2.) Bulky data on client
3.) Load Balance.







IPV4 → Logical Address

0/1 | 0-255 | 0-255 | 0-255

8 | 8 | 8 | 8 → 32

8 bits

2^4 → 0 — 255

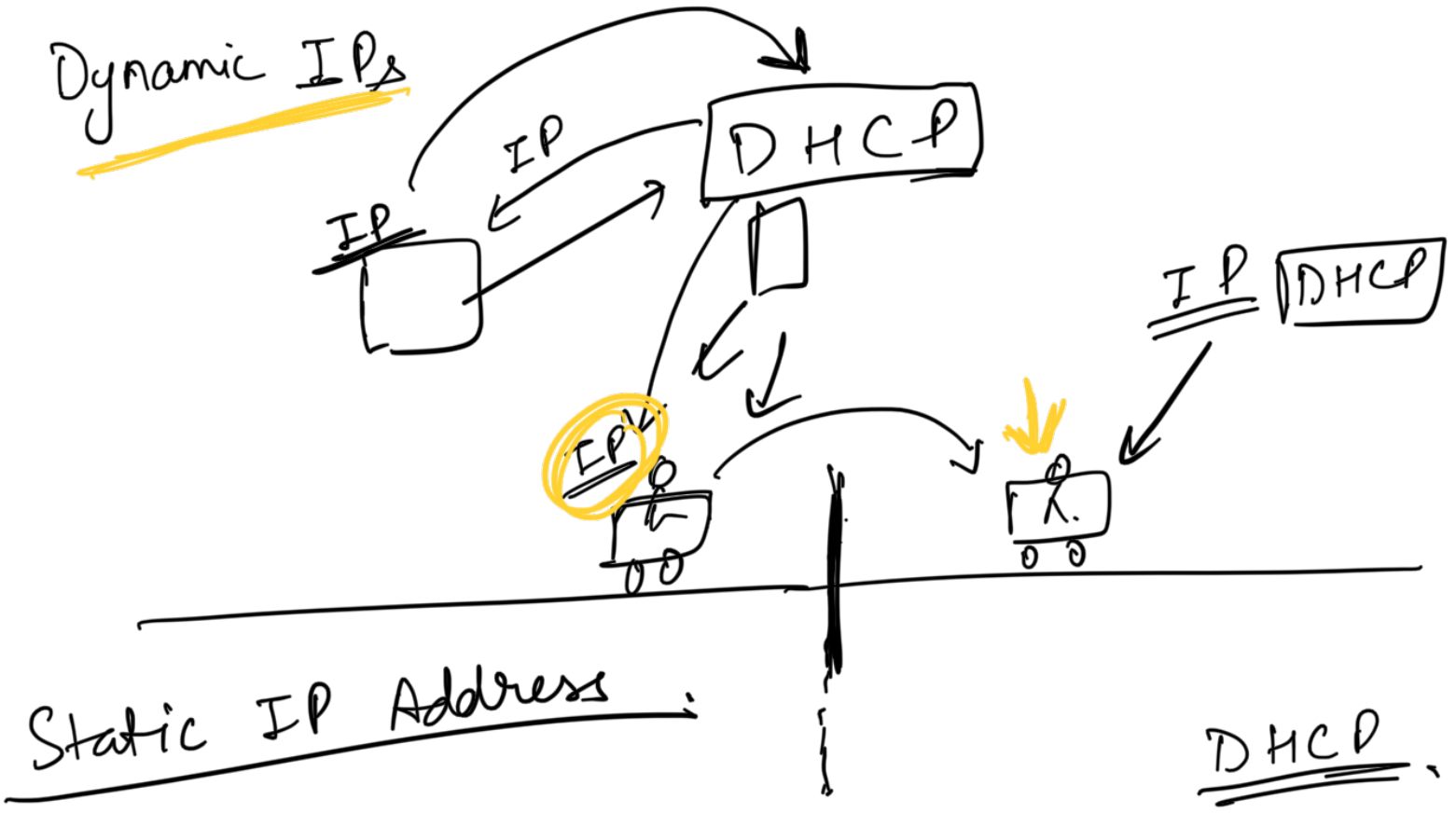
2^{32} ≈ 4 Billion

HW.

IPV6

2010 → 8 Billion.

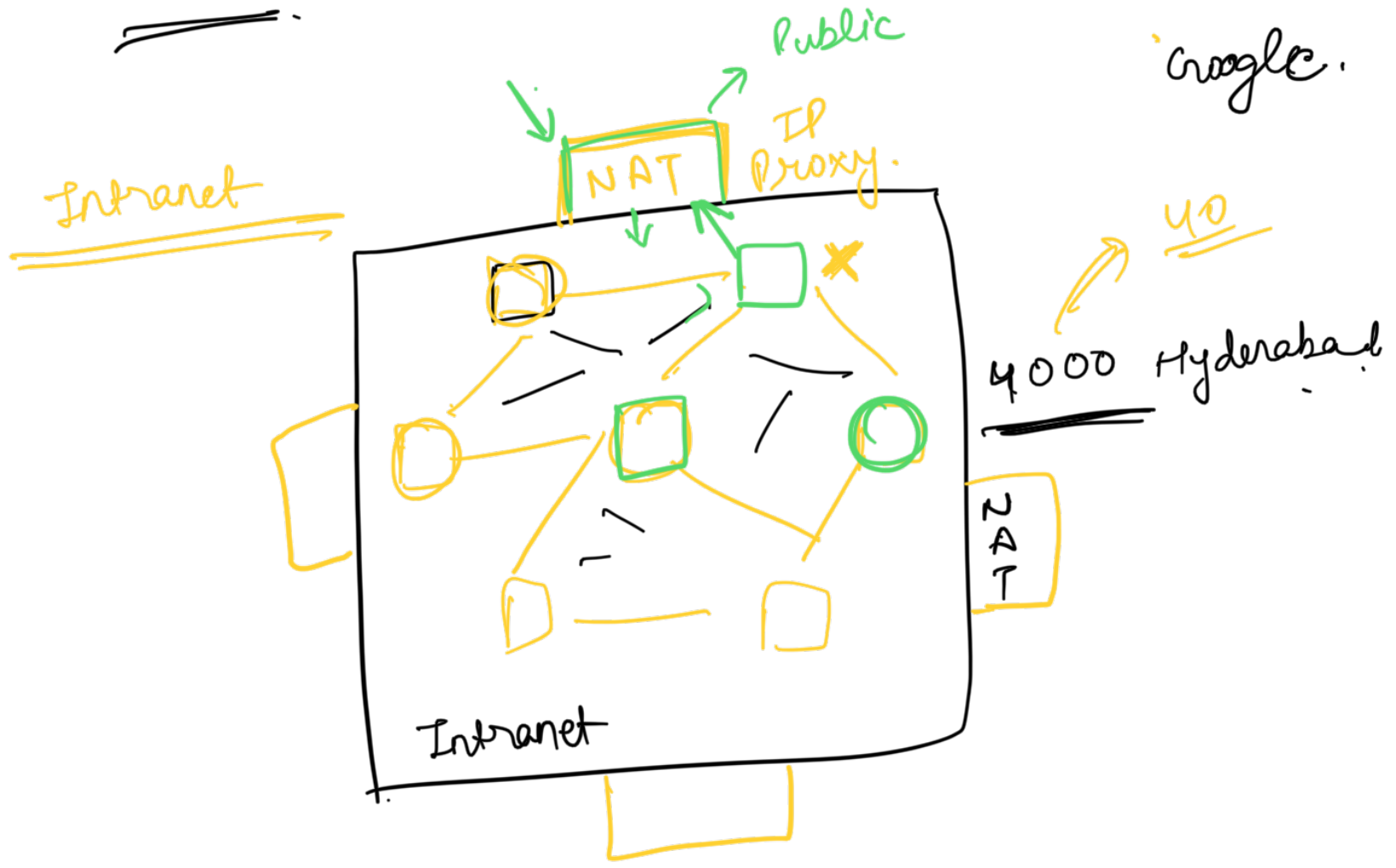
Dynamic IPs



Static IP Address.

DHCP.

⇒ NAT - Network Address Translation.



Google.

Prime IP Address →

Public IP → unique IP

Server
Static

200

Static

VPN / Reverse Proxy

IP

local → 127.0.0.1

192.168.1.1

private

DHC

TNfy → 10

TCS → 10.

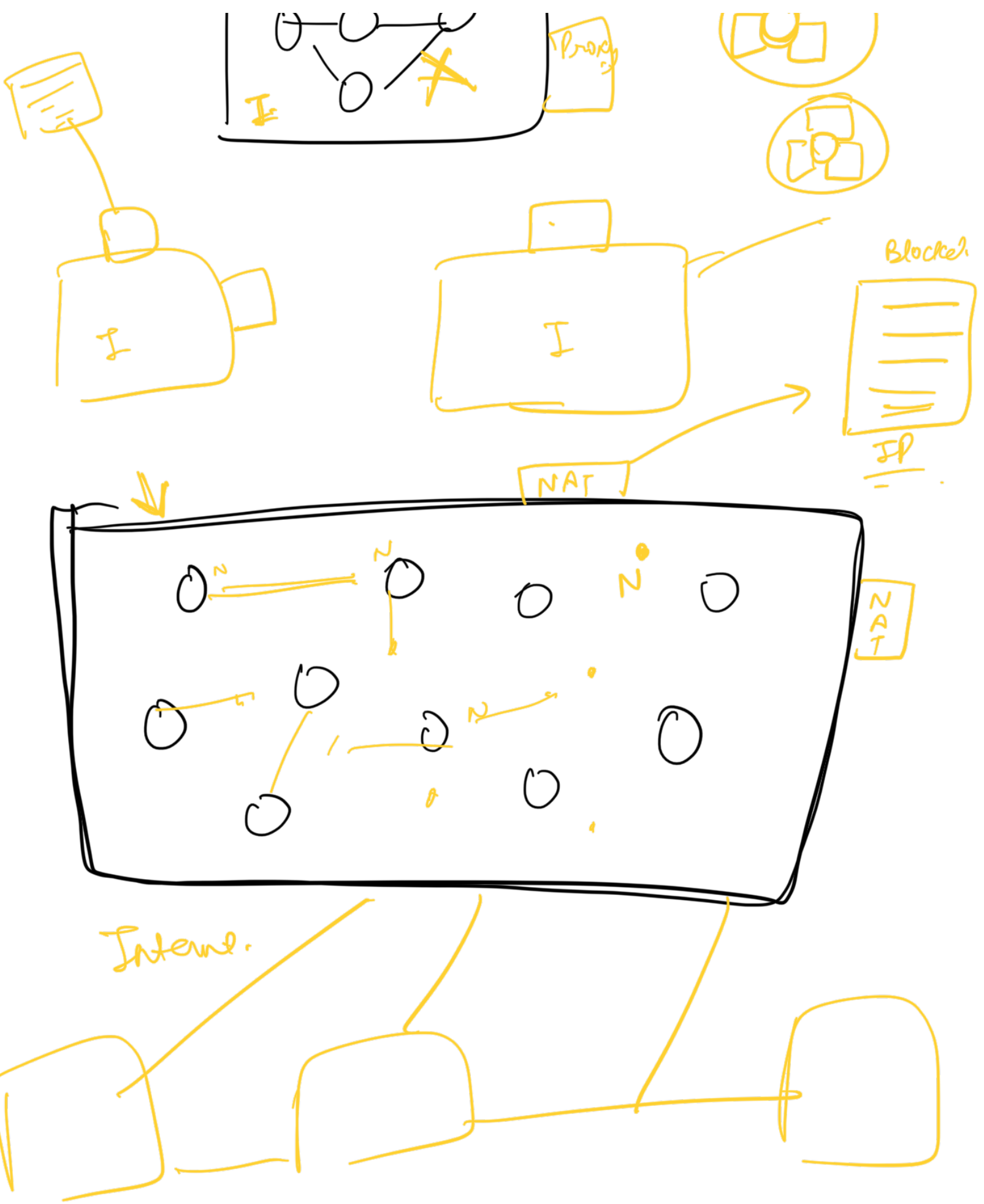
Intranet >> Internet ✓

Latency ∝ distance

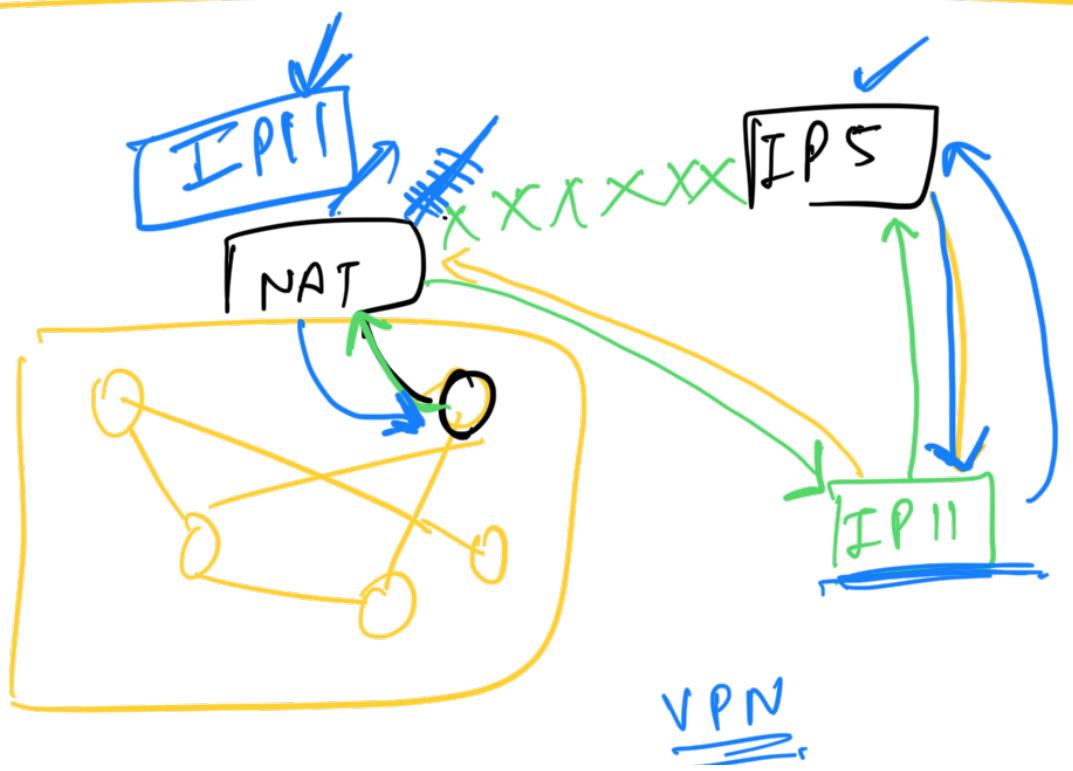
IP

B

Proxy

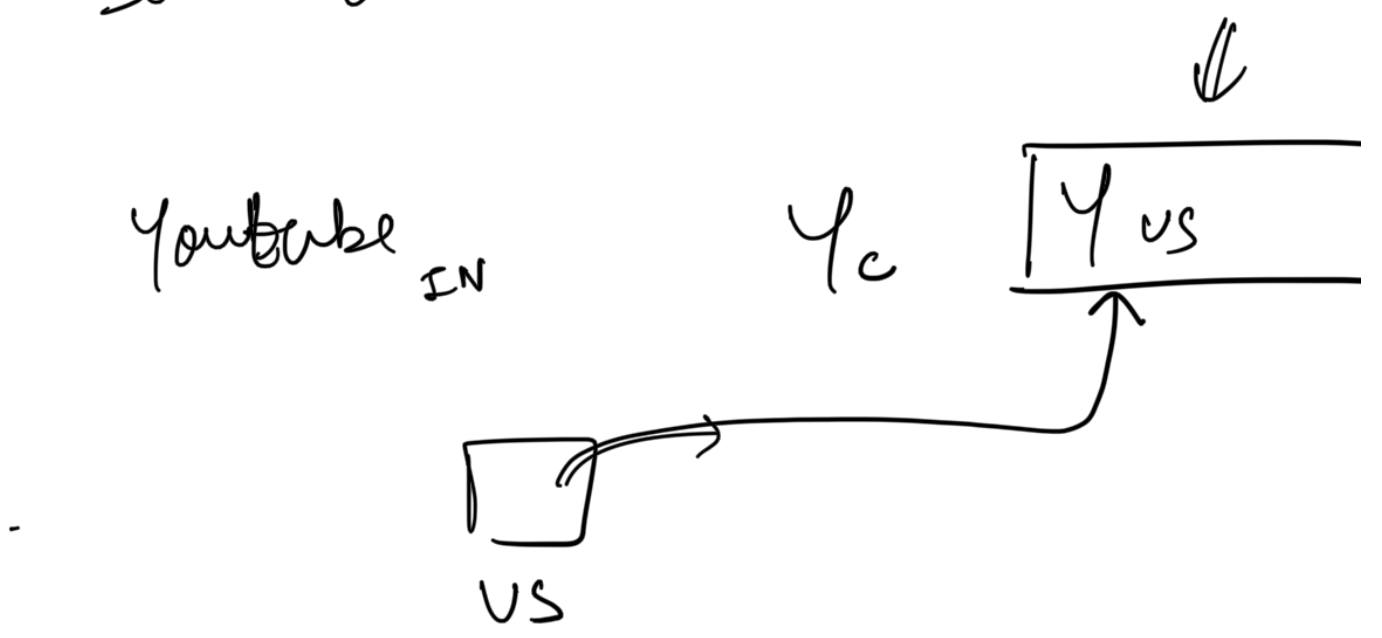


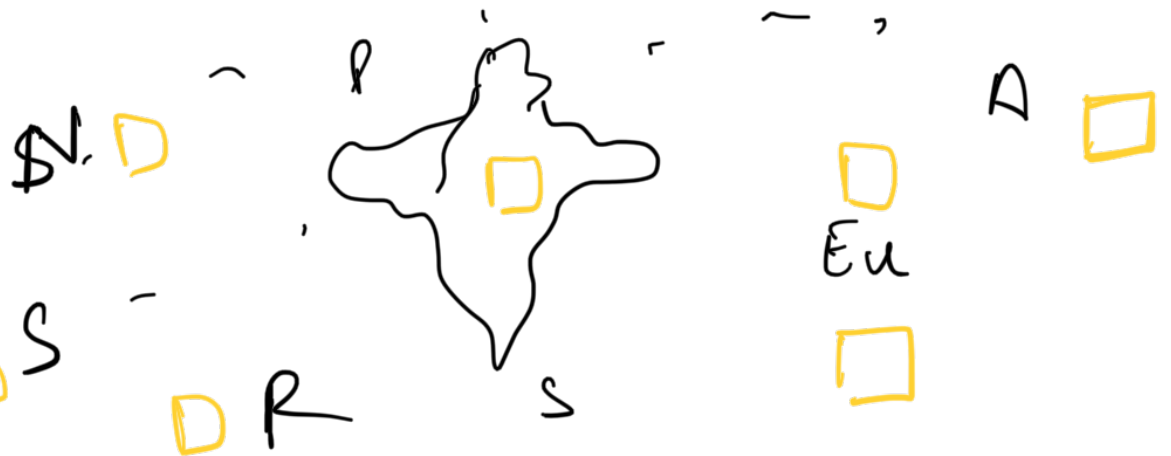
Internet → N/w of N/w.



Tunnelling.

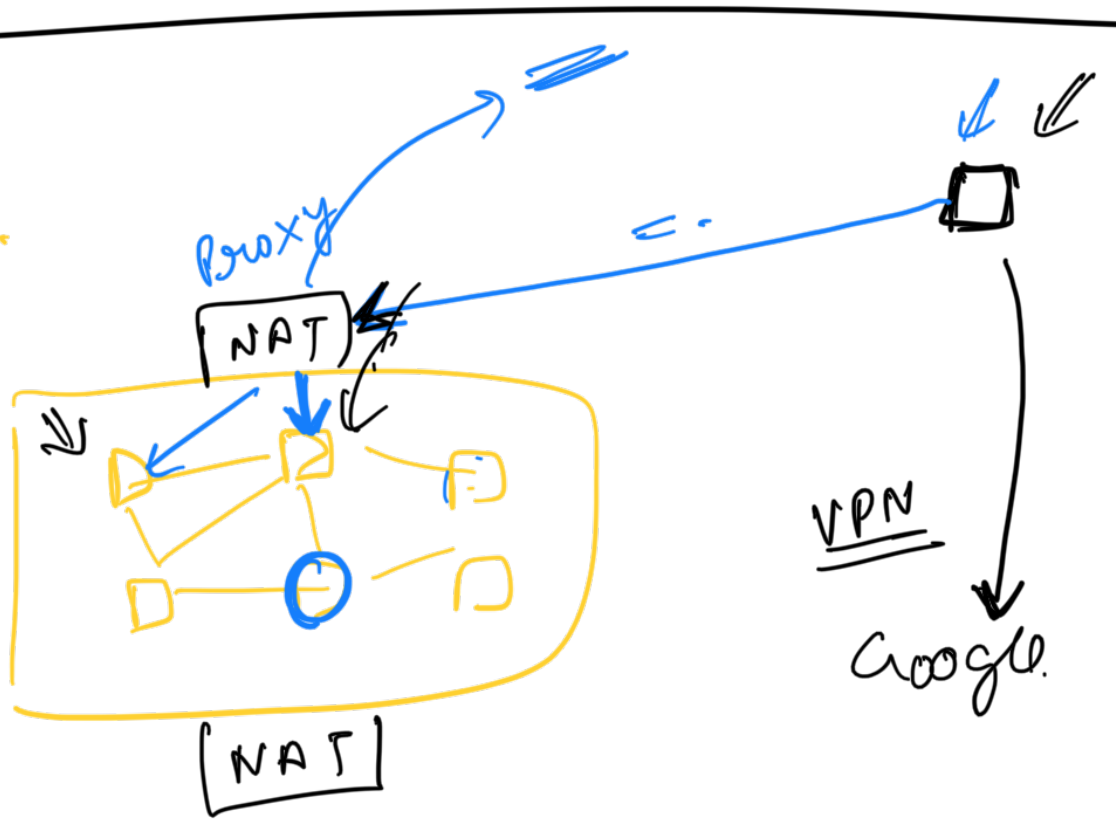
Sol → distributed VPN.





Office VPN.

Reverse Proxy.



Latency ∝ Distance.

Sender → Router

⇓ 10110...

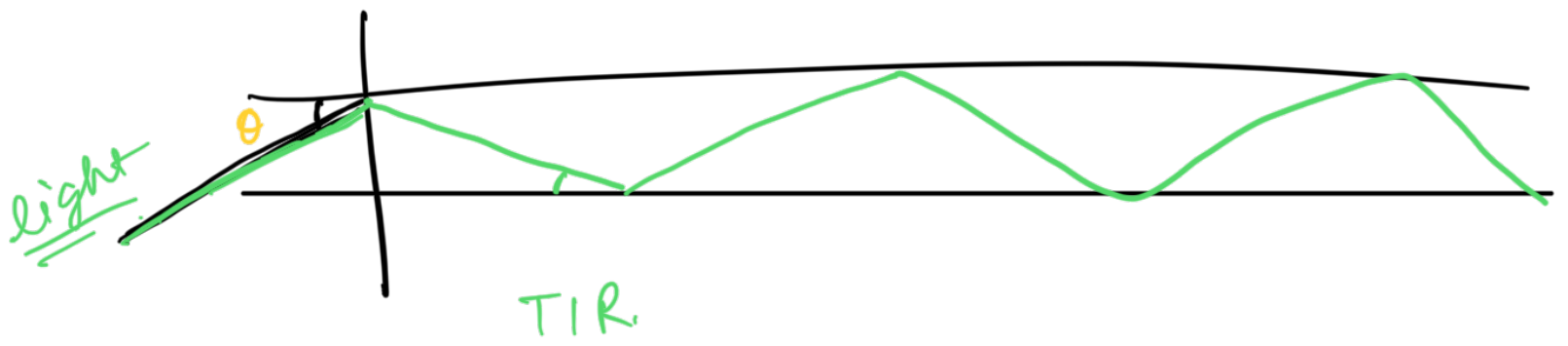
Receiver

⇓

Bits

0 / 1

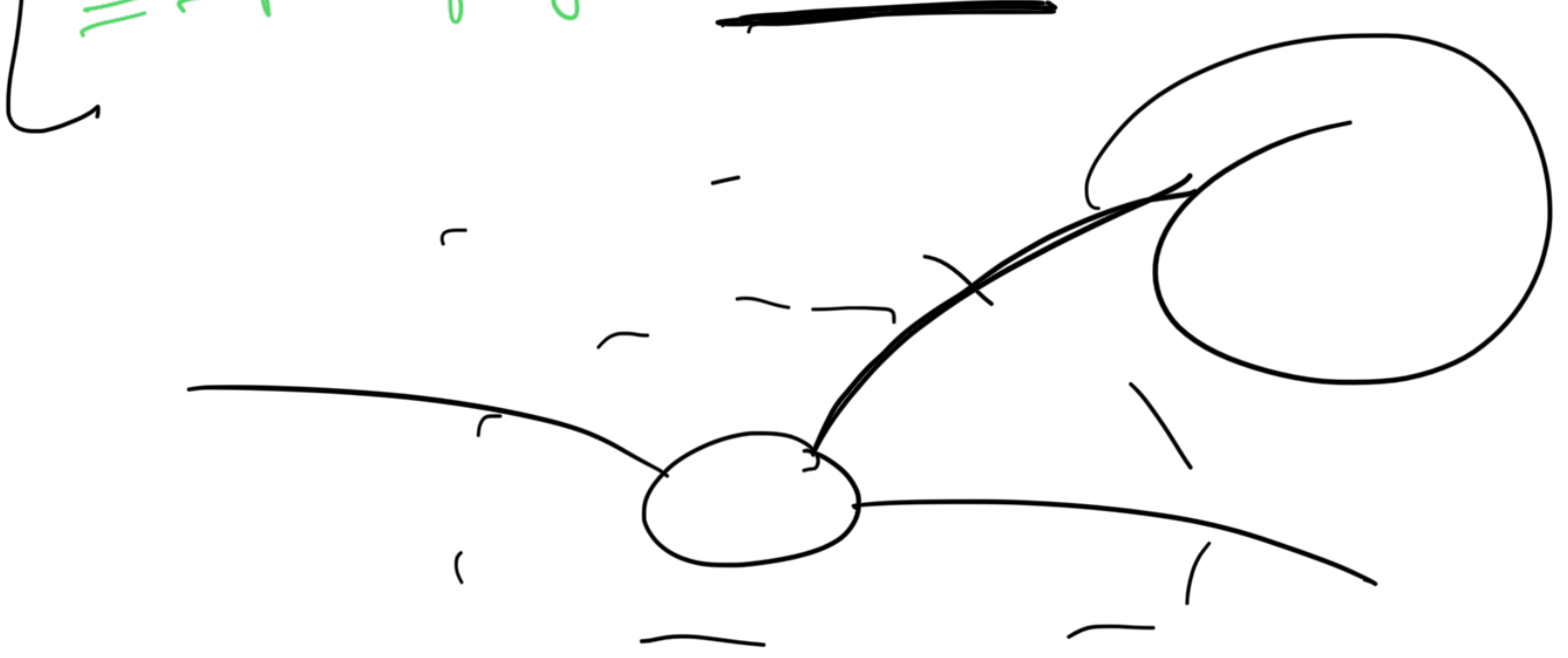
- Router → Radio Waves.
- Physical → Electric Waves [Copper Wires] — Ethernet.
- Optical fibre → light waves.

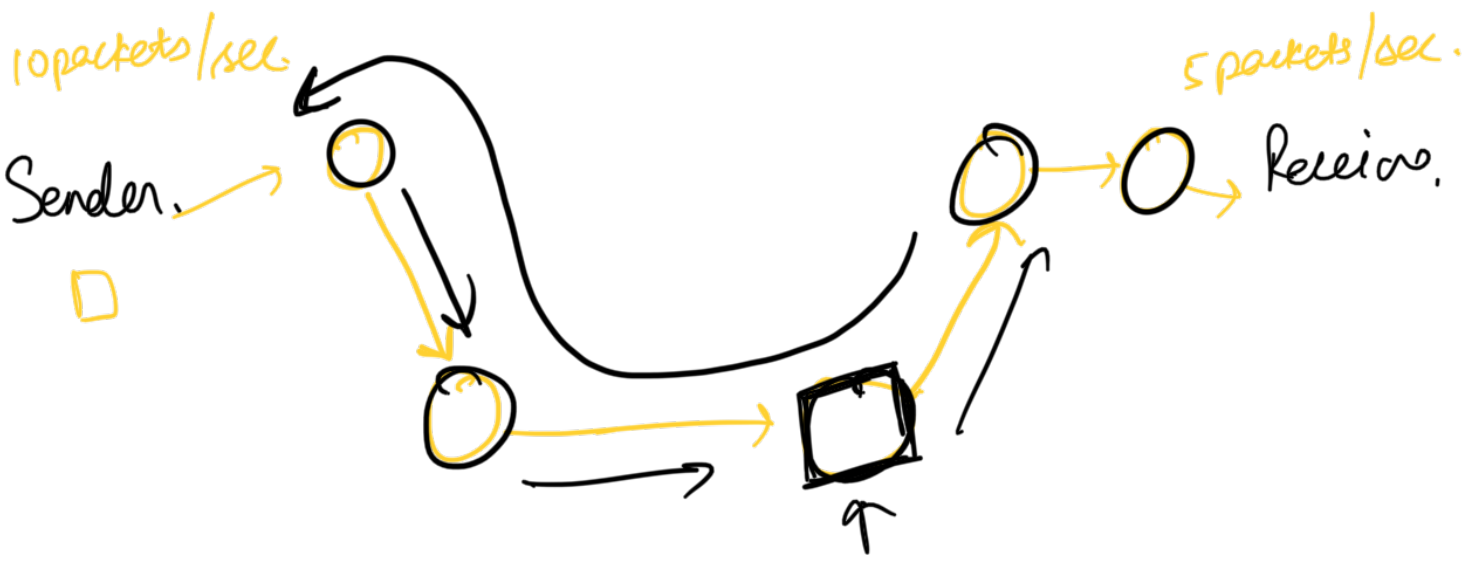


TIR.

1.) No loss.

2.) Speed of light → 3×10^8 m/s.





Limitation of H/W.