Internet Start After World War 2nd

World War 2nd

ALLIES

US, Russia, China, Britain

AXIS

Germany, Japan, Italy

Russia

SPUTNIK
First ManMade
Satellite

USA

Agency
ARPANET
Advance Research
Project Agency Net.

ARPANET

Login
LO transferd

1983 TCP/IP

Team Berner li 1990s

WWW

HTTP

HTML

DNS

IPV4 32 Bit

Ping Google.com

How Data Transferd

Suraj ---------- Whatsapp ---------- Sudheer

Hey

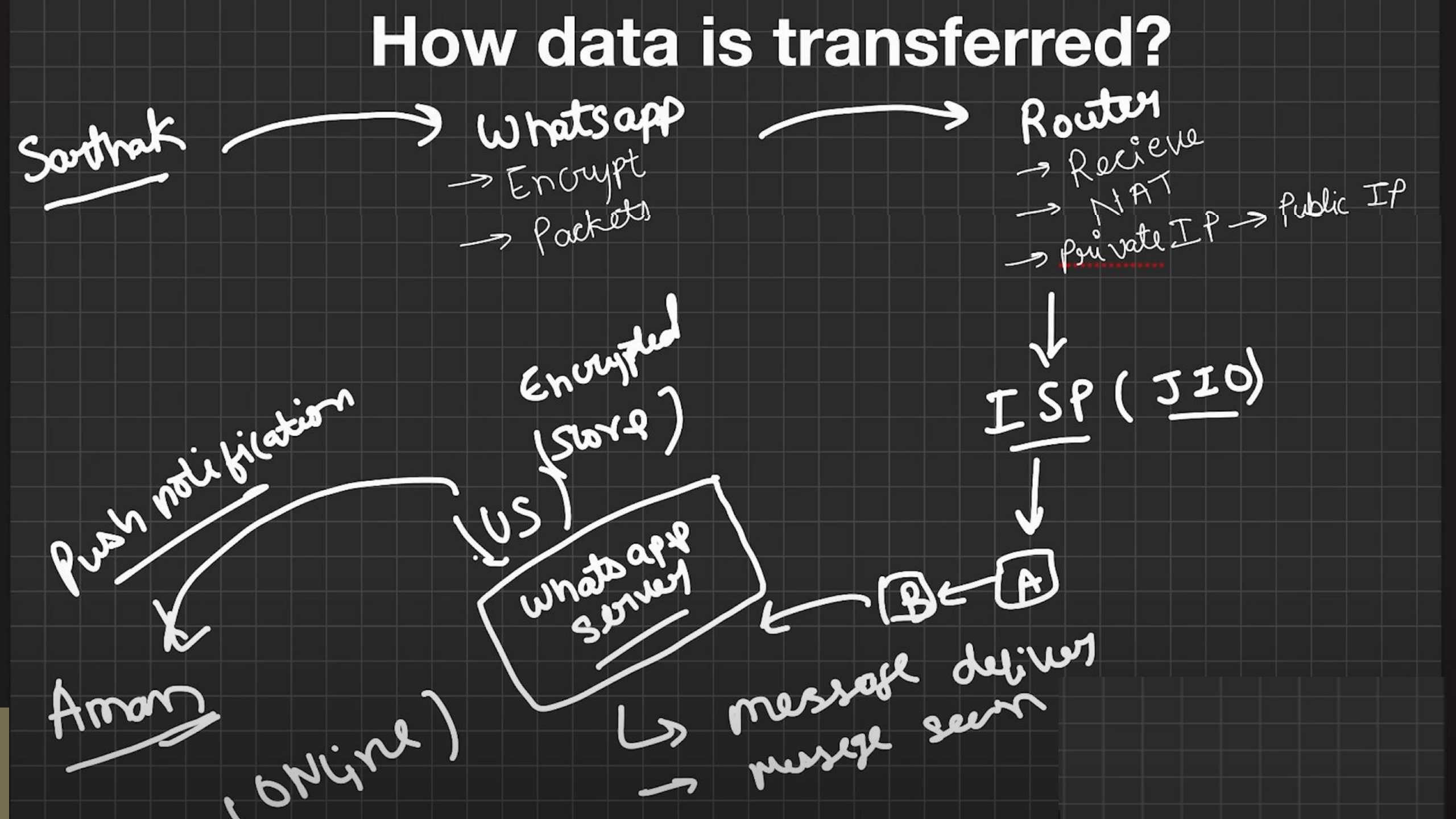
Breakdown into Packets

End-to-End Encripyted Encription/Decripytion

Packets

Headers : Receiver IP, Sender Ip
Meta Data: timestamp

How data is transferred?



IPV4 IPV6

4.3 Billions Devices

$3.4*10^{38}$

Port Number

65,535
0-1023 (System Ports)
1024-49151 (Application Ports)
49152-65,535(Temporary Ports)

DNS : Domain Name System

admin.suraj.com
Subdomain,Second,top

Types of network

PAN
LAN
CAN
MAN
WAN

Network Type	Range/Area	Speed	Usage	Khasiyat (Pros)	Buraiya (Cons)
PAN (Personal)	1–10 meters	Low	Personal devices (phone, watch)	Low cost, easy to use, wireless	Very short range, low security
LAN (Local)	1 building/room	High (100 Mbps–1 Gbps)	Home, schools, offices	Fast, secure, easy sharing	Limited to small area, failure risk
MAN (Metro)	City level	Medium	Cable TV, universities	Connects LANs, city-wide use	Costly, complex, traffic overload
WAN (Wide)	Global	Medium–Low	Internet, MNCs	Long-distance sharing, global use	Expensive, slow, security risk
CAN (Campus)	College/corporate campus	High	Universities, tech parks	Secure, high performance	Costly setup, limited coverage

VPN

by Proxy Hide IP

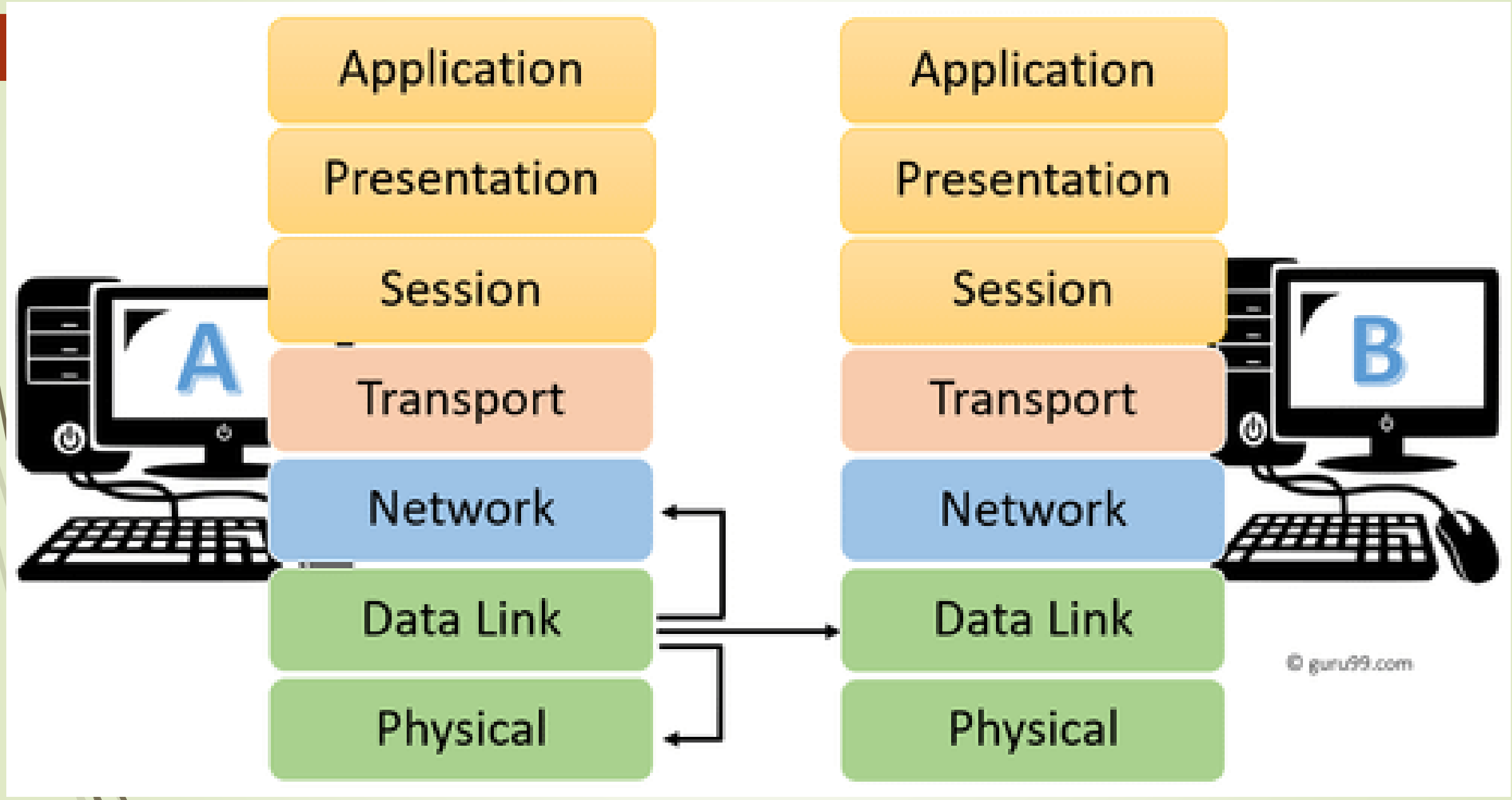
Topologies

BUS
RING
Star
Mesh
Tree
Hybrid

OSI Model

Open System Interconnection

Developed by ISO > 1984


Application
Presentation
Session
Transport
Network
Data Link
Physical
A
Application
Presentation
Session
Transport
Network
Data Link
Physical
B
© guru99.com

Application: DNS>IP HTTP, SMTP, FTP
Presentation: Translation, Compression, Encryption
Session Layer: Time Interval, Checkpoints
Transport: Segmentation, Packet Form, Sequencing, Acknowledgement, Resend
Network: IP Assign, Routing,
Data link Layer: MAC Address, Port No.
Physical Layer:Encoding, Bits, Radio Waves > Means Raw Data Transmission

How Computer Communicate

Client Server Architecture
Peer to Peer

Protocols
Set of Rules

Types of Rules

1. HTTP and HTTPS

   hyper text transmission Protocol

   Application Layer Protocol

HTTP+Security HTTPS>Encriyption

IP (Internet Protocol)

Network Layer Protocol

Source IP > Destination IP

TCP (Transmission Control Protocol)

Packets
Sequencing
ACK
Resend

UDP (User Datagram Protocol)

Fast travel
Sequencing X
ACK X

TCP

- Bank
- E-Com

UDP

- Live
- Game
- Video Call
- Voice Call

Feature / Protocol	TCP	UDP	HTTP	HTTPS	IP
Full Form	Transmission Control Protocol	User Datagram Protocol	HyperText Transfer Protocol	HyperText Transfer Protocol Secure	Internet Protocol
Layer	Transport Layer	Transport Layer	Application Layer	Application Layer	Network Layer
Connection Type	Connection-Oriented	Connectionless	Connectionless	Connectionless	Connectionless
Reliability	Reliable (acknowledgment, retry)	Not Reliable (no checks)	Not Reliable	Not Reliable (uses TCP for that)	Not Reliable
Speed	Slower	Faster	Fast	Slower than HTTP	Very Fast
Data Order	Maintains Order	Doesn't Maintain Order	Not Applicable	Not Applicable	Doesn't Maintain Order
Error Handling	Yes	No	No	No (uses SSL/TLS for encryption)	No
Security	No	No	No	✅ Encrypted (SSL/TLS)	No
Use Cases	Email, Web, File Transfer	Video calls, Gaming, Streaming	Browsing websites	Secure websites, Banking	Routing data between networks
Port Example	Port 80 (with HTTP), 443 (HTTPS)	Port 53 (DNS), 67 (DHCP)	Port 80	Port 443