

what is networking ?

- **Networking** is the process of connecting two or more computers or devices so they can communicate, share data, and use resources like the internet, files, printers, and applications.
- **Example:**  
When your phone connects to Wi-Fi and opens a website, it is using networking to send and receive data.
- **IP Address (Internet Protocol Address)**  
An IP address is a unique numerical label assigned to a device on a network to identify it and enable communication between devices over the internet or a local network.
- **MAC Address (Media Access Control Address)**  
A MAC address is a permanent, unique hardware identifier assigned to a network interface card (NIC) by the manufacturer to identify a device within a local network.
- **DNS (Domain Name System)**  
DNS is a system that translates human-readable domain names (like websites) into IP addresses so that computers can locate and communicate with each other on the internet.
- **TCP (Transmission Control Protocol)**  
TCP is a connection-oriented communication protocol that ensures reliable, ordered, and error-free delivery of data between devices.
- **UDP (User Datagram Protocol)**  
UDP is a connectionless communication protocol that sends data without guaranteeing delivery, order, or error checking, prioritizing speed over reliability.

[illegible]

## ➤ TLS:

No.	Time	Source	Destination	Protocol	Length	Info
95	4.374858	173.222.52.33	10.6.13.133	TLSv1.2	344	New Session Ticket, Change Cipher Spec, Encrypted Handshake Message
96	4.375730	10.6.13.133	173.222.52.33	TLSv1.2	388	Application Data
98	4.416431	173.222.52.33	10.6.13.133	TLSv1.2	60	Application Data
105	4.548457	10.6.13.133	52.156.123.84	TLSv1.2	269	Client Hello (SHI=geo.prod.do.dsp.mp.microsoft.com)
107	4.637310	52.156.123.84	10.6.13.133	TLSv1.2	1110	Server Hello, Certificate, Server Key Exchange, Server Hello Done
109	4.639153	10.6.13.133	52.156.123.84	TLSv1.2	212	Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
116	4.727252	52.156.123.84	10.6.13.133	TLSv1.2	105	Change Cipher Spec, Encrypted Handshake Message
117	4.727253	52.156.123.84	10.6.13.133	TLSv1.2	123	Application Data
119	4.728072	10.6.13.133	52.156.123.84	TLSv1.2	141	Application Data
120	4.728073	10.6.13.133	52.156.123.84	TLSv1.2	228	Application Data
121	4.728074	10.6.13.133	52.156.123.84	TLSv1.2	92	Application Data
127	4.807774	52.156.123.84	10.6.13.133	TLSv1.2	92	Application Data
129	4.807776	52.156.123.84	10.6.13.133	TLSv1.2	631	Application Data
148	5.590470	10.6.13.133	104.208.203.90	TLSv1.2	232	Client Hello (SHI=client.wms.windows.com)
155	5.660513	104.208.203.90	10.6.13.133	TLSv1.2	1217	Server Hello, Certificate, Server Key Exchange, Server Hello Done
156	5.663197	10.6.13.133	104.208.203.90	TLSv1.2	212	Client Key Exchange, Change Cipher Spec, Encrypted Handshake Message
157	5.735236	104.208.203.90	10.6.13.133	TLSv1.2	105	Change Cipher Spec, Encrypted Handshake Message
158	5.738184	10.6.13.133	104.208.203.90	TLSv1.2	414	Application Data
160	5.738188	10.6.13.133	104.208.203.90	TLSv1.2	71	Application Data
161	5.738189	10.6.13.133	104.208.203.90	TLSv1.2	301	Application Data
163	5.839328	104.208.203.90	10.6.13.133	TLSv1.2	324	Application Data

Frame 121: Packet, 92 bytes on wire (736 bits), 92 bytes captured (736 bits) on 0  
 Ethernet II, Src: Intel\_ac:97:df (24:77:03:ac:97:df), Dst: Cisco\_54:95:22 (00:02:ba:54:95:22)  
 Internet Protocol Version 4, Src: 10.6.13.133, Dst: 52.156.123.84  
 Transmission Control Protocol, Src Port: 52430, Dst Port: 443, Seq: 635, Ack: 2553, Len: 38  
 Transport Layer Security

0000 00 02 ba 54 95 22 24 77 03 ac 97 df 08 00 45 00 ...T."Su...E  
 0010 00 de 82 1a 40 00 00 06 b1 14 0a 06 0d 85 34 9c ...N...4  
 0020 7b 54 cc ce 01 bb 5b 4c 01 47 87 47 3f ed 5b 18 ...[...G...P  
 0030 00 ff 7f 74 00 00 17 03 03 00 21 00 00 00 00 ...?...I...  
 0040 00 00 03 5f 84 07 9d 0d 91 fa dc 3f ca 73 68 03 ...?...sh...  
 0050 93 2e d5 6c 2a 81 b1 f7 85 9d aa 8b ...1...

## ➤ TCP 3-Way Handshake:

No.	Time	Source	Destination	Protocol	Length	Info
28	0.156966	10.6.13.133	10.6.13.3	TCP	66	52427 → 389 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
29	0.156969	10.6.13.3	10.6.13.133	TCP	66	389 → 52427 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
35	0.159844	10.6.13.133	10.6.13.3	TCP	66	52428 → 88 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
36	0.159846	10.6.13.3	10.6.13.133	TCP	66	88 → 52428 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
80	4.227463	10.6.13.133	173.222.52.33	TCP	66	52429 → 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
81	4.267669	173.222.52.33	10.6.13.133	TCP	66	443 → 52429 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1396 SACK_PERM WS=128
102	4.466912	10.6.13.133	52.156.123.84	TCP	66	52430 → 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
103	4.549205	52.156.123.84	10.6.13.133	TCP	66	443 → 52430 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1396 SACK_PERM WS=128
123	4.756187	10.6.13.133	23.192.223.206	TCP	66	52431 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
124	4.793144	23.192.223.206	10.6.13.133	TCP	66	80 → 52431 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1396 SACK_PERM WS=128
145	5.514847	10.6.13.133	104.208.203.90	TCP	66	52432 → 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
146	5.589189	104.208.203.90	10.6.13.133	TCP	66	443 → 52432 [SYN, ACK] Seq=0 Ack=1 Win=8192 Len=0 MSS=1396 WS=1 SACK_PERM
156	14.222837	10.6.13.133	10.6.13.3	TCP	66	52433 → 88 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
157	14.222840	10.6.13.3	10.6.13.133	TCP	66	88 → 52433 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
204	14.232483	10.6.13.133	10.6.13.3	TCP	66	52434 → 88 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
205	14.232485	10.6.13.3	10.6.13.133	TCP	66	88 → 52434 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
214	14.235093	10.6.13.133	10.6.13.3	TCP	66	52435 → 88 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
215	14.235094	10.6.13.3	10.6.13.133	TCP	66	88 → 52435 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
231	14.434042	10.6.13.133	10.6.13.3	TCP	66	52436 → 445 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
232	14.434044	10.6.13.3	10.6.13.133	TCP	66	445 → 52436 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
233	14.435322	10.6.13.133	10.6.13.3	TCP	66	52437 → 445 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM

Frame 103: Packet, 66 bytes on wire (528 bits), 66 bytes captured (528 bits) on 0  
 Ethernet II, Src: Cisco\_54:95:22 (00:02:ba:54:95:22), Dst: Intel\_ac:97:df (24:77:03:ac:97:df)  
 Internet Protocol Version 4, Src: 52.156.123.84, Dst: 10.6.13.133  
 Transmission Control Protocol, Src Port: 443, Dst Port: 52430, Seq: 0, Ack: 1, Len: 0

0000 24 77 03 ac 97 df 00 02 ba 54 95 22 08 00 45 00 ...T."...E  
 0010 00 34 53 29 40 00 06 06 fa 1f 34 9c 7b 54 0a 06 ...45)@f...4(T...  
 0020 0d 85 01 bb cc ce 87 47 35 f4 5b 4b fe cd 80 12 ...G...S[K...  
 0030 ff ff c1 e0 00 00 02 04 05 74 01 03 03 08 01 01 ...t...  
 0040 04 02