

22 Jan 2026
Wednesday

Rewatch
18 Jan 2026

Date _____
Page No. _____



[Class 2:]

Client Server Architecture & Internet Protocols

- Example

myshop.com A 203.0.113

Jarred Sumner → creator of Bun 4 when someone types

+wt => @jarredSumner

myshop.com, DNS looks at the A record and says:

6:10 → DDOS attack

(Distributed Denial of Service)

4 "Go to IP address 203.0.113"

8:20 → NS record

- Use case

Direct browser to actual server hosting your site

[11:34 → 41:30]

Q what is SPF record

Q what is DMARC record

⇒ CNAME Record

(Canonical Name Record)

12:47 → TCP & UDP search

• purpose: Maps one domain name (alias) to another domain name

15:00 → 43:00
piyush sir explaining

DNS record.

• think of it as:

⇒ A record (Address Record)

A "nickname" or shortcut pointing to the real name

• purpose: Maps a domain name to an IP address (IPv4)

- Example

• think of it as:

The "home address" of your website

www.myshop.com

CNAME

myshop.com



↳ When someone types www.myshop.com, DNS sees the CNAME record and says:

Example

Suppose you own myshop.com. Your DNS zone might have these NS records:

↳ "This is just another name

for myshop.com. Go check myshop.com NS ns1.hostingprovider.com its A record."

myshop.com NS ns2.hostingprovider.com

↳ Use case:

commonly used for subdomain (ns1, hostingprovider.com) and

(www, blog, shop) so they all point to main domain.

↳ They hold all the other

records (A, MX, CNAME, etc.) for myshop.com

→ NS record

↳ NS stands for "Name server"

record.

↳ It's a type of DNS record that tells the internet which servers are authoritative for your domain.

↳ When someone types myshop.com, the internet first checks the NS records to know which servers to ask for the IP address.

↳ Think of it like:

↳ What happens step-by-step

↳ Your domain name

(e.g. example.com) is the company name

① You type myshop.com in your browser

↳ The NS record is the "reception desk" that knows where to send visitors

② The DNS system checks the NS records for myshop.com



46:30 - 52:00

Question - Answer

- ③ It sees: "ASG
ns1.hostingprovider.com OR
ns2.hostingprovider.com".

Cloudflare generously provides help against attacks

- ④ Those servers then provide the A record (eg 203.0.113)

52:00 - 1:20:00

Another Session

- ⑤ Your browser connects to that IP → website loads.

Client - Server Architecture

→ Key Points

- NS records don't give the IP directly (They just say which server knows IP)

- NS record = pointer to DNS server that manage your domain.

- without NS records, your domain wouldn't know where to look up its IP or email settings.

- changing NS records = changing who manages your DNS (Example GoDaddy / Cloudflare)

Server

↳ central

Authority

↳ source of

truth

Responsibility

→ Business logic

→ Authentication

→ Data storage

→ Security

Client

↳ closer to user

↳ untrusted

↳ UI

1:20:00 -

Protocols (HTTP)

TCP

→ Reliable

→ Ordering

→ loss detection

→ retransmission

→ flow control

→ congestion

UDP

→ less reliable

→ no retransmission

→ no ordering

→ no congestion



- ↳ What is syn - Acknowledge
- ↳ What is 3-way handshake → HTTP keeps information flowing across the internet.
- ⇒ HTTP (Hypertext Transfer Protocol)

- foundation of data communication
- without HTTP (or its secure version HTTPS), your browser wouldn't know how to fetch or display web content.
- It is a protocol (rule) that defines how web browsers and servers communicate

- HTTP is :
 - (i) stateless → no memory of past requests
 - (ii) text-based → natural human-readable messages
 - (iii) request-response → browser asks, server answers
- Example:

↳ Browser sends :

GET / index.html

↳ Server replies

200 OK + HTML file

4:54:16

⇒ protocol

(standardized rules)

23/dan/26

Friday

• A protocol is a standardized set of rules for formatting, transmitting & processing data across network

without protocol, devices wouldn't know how to send or read messages.

(unrelated notes : 9am to 1pm)

• Examples

HTTP → rules for browsing websites

TCP/IP → rules for sending data reliably

Q Why HTTP is considered Internet's heartbeat?

• Everytime you browse internet, HTTP is protocol carrying those req-resp

DNS → rules for finding website names



TCP : (Transmission control Protocol)

• Used for →

↳ live streaming,

↳ online gaming

↳ video calls

• Connection-oriented :

like making a phone call,

both sides "handshake"

before talking.

⇒ Quick Analogy

TCP : registered mail

(safe, confirmed delivery,)

but slower

• Reliable : ensures data

arrives in order, without

loss

UDP : regular mail

(fast, but not guaranteed it

arrives)

⇒ SYN-ACK and 3-way handshake

• Used for :

↳ web browsing (HTTP/HTTPS)

→ SYN-ACK

They are flags (bits) used in

TCP handshake process to

establish a reliable connection

b/w two devices.

⇒ UDP : (User Datagram Protocol)

→ 3-way handshake

• Connectionless →

like sending a postcard,

no handshake, just send it

① Syn (synchronize)

• Unreliable → data may get

lost or arrive out of order

client sends a syn packet

• Faster → less overhead,

to server

good for speed

This means

"I want to start a connection"

"here's my sequence number"



(2) SYN - ACK

(Synchronize + Acknowledge)

- server replies with a SYN - ACK packet
- This means "

"Got your request, here's my sequence number, & I acknowledge yours".

Cryptography

AES / RSA / DES / SHA

[2:08:54 - 2:23:30]

Question - Answer

[2:24:00 -]

Extra Fun Class

(3) ACK (Acknowledge)

→ UDP's reliability

- client sends back an ACK packet

↳ websockets / WebRTC

- This means

DTLS / SCTP

"I confirm your sequence

number, connection established"

DTLS → provides security in UDP

SCTP → provides reliability

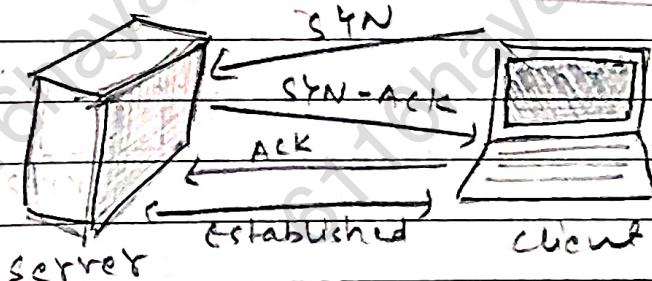
↳ It provides stream of data

- SYN → "Hello, can we talk?"

• SYN - ACK → "Yes, I hear you. " Due to these DTLS & SCTP
can we talk?"

we have more use of UDP

- ACK → "confirmed, let's talk" (Twitter space / zoom)



Q How structure Blogs?

- ① What is problem? exactly
- ② How history solved it
- ③ How new way to solve it

[1:35:00 - 1:56:00]

Question - Answer

[2:47:00 - class over]

(OSI layers).

DELTAL Notebook TLS

[2:47:10 - 3:27:48]

Extra Stuff