Assalam-u-alaikum

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This is my 7th video of DevOps

TCP/IP Model

The **TCP/IP model(**Transmission Control Protocol/Internet Protocol**)** is a concise version of the OSI model. It contains five layers, unlike seven layers in the OSI model

5 layers of TCP/IP Model

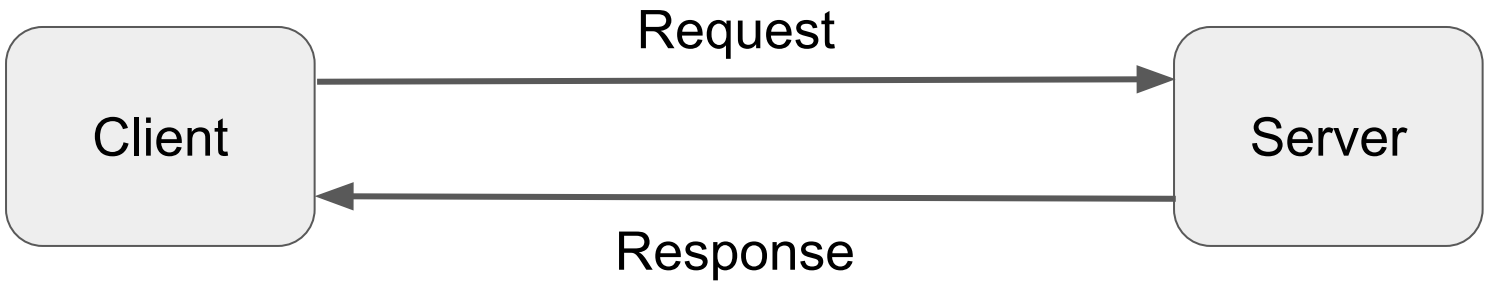
1. Application Layer
2. Transport Layer
3. Network Layer
4. Data Link Lyer
5. Physical Layer

1. Application Layer

Purpose: User interaction, **Example:** Whatsapp, Browsers, **Where:** Devices, Protocols, Client and Server Architecture.

Client-server Architecture

TCP/IP uses the **client-server** model of communication. This model has two parts. Client part and the server part. These parts will run different processes. They communicate with each other.

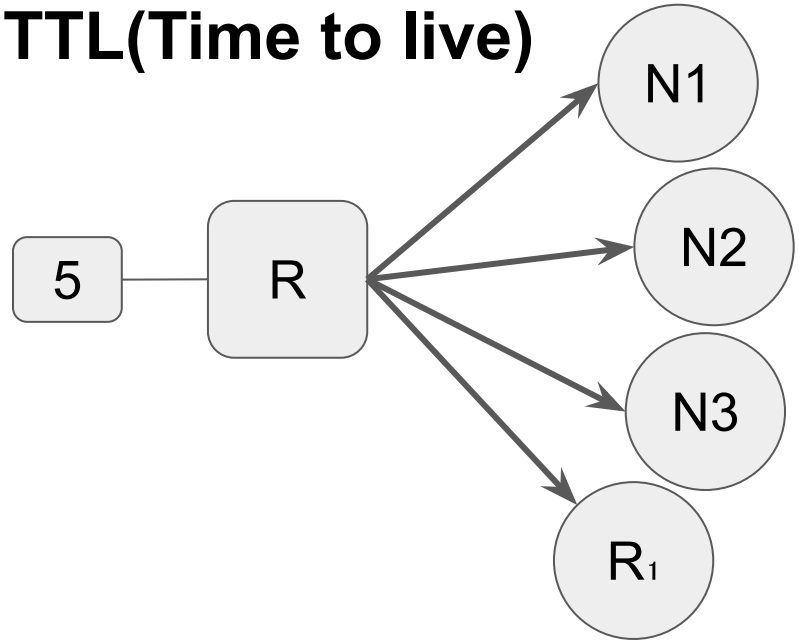


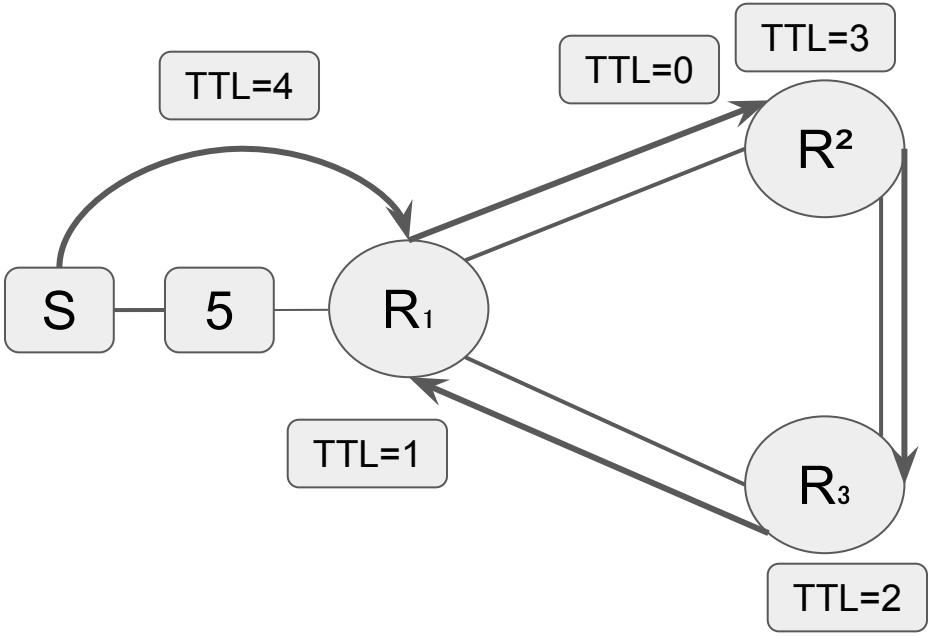
A **client** is a computer hardware device or software that accesses a service made available by a server.

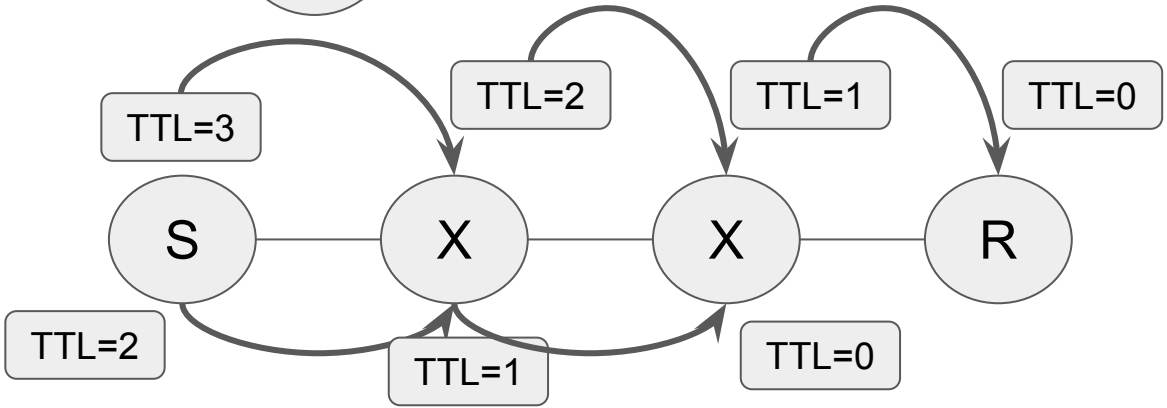
A **server** is a physical computer dedicated to run services to serve the needs of other computers. Depending on the service that is running, it could be a file server, database server, or a web server.

Collection of servers present in a big company called Data center.

TTL(Time to live)







What is Ping?

A ping is a signal sent to the host that requests a response. It serves two primary purposes:

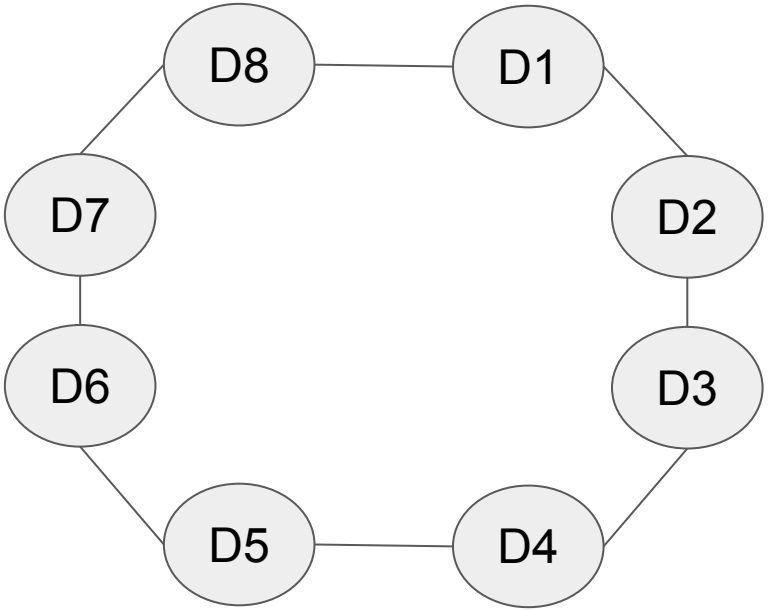
1. to check if the host is available and
2. to measure how long the response takes.

What is ping time?

The time it takes for a small data set to be transmitted from your device to a server on the Internet and back to your device again is called ping time. The ping time is measured in milliseconds (ms).

There is another way through which applications are connected from end system.

Peer to Peer Architecture(P2P)



Advantage

Decentralized system

Hybrid Network Architecture

Hybrid networks are the networks that are based on both peer-to-peer & client-server relationship.

Hybrid networks provide all of the centralized services of servers, but they also allow users to share and manage their own resources within the workgroup.

Protocols:

- **Web Protocols:**
  - **TCP/IP(**Transmission Control Protocol/Internet Protocol**)**
    TCP/IP is set of standardized rules that allow computers to communicate on a network such as the internet.
    - HTTP(Hypertext Transfer Protocol)
    - DHCP(Dynamic Host Configuration Protocol)
    - FTP(File Transfer Protocol)
    - SMTP(Simple Mail Transfer Protocol)
    - POP3 & IMAP(Post Office Protocol 3 & Internet Message Access Protocol)
    - SSH(Secure Shell)
    - VNC(Virtual Network Computer)

- **Telnet(TE**rmina**L NET**work**)**

  Telnet(TN) is a networking protocol and software program used to access remote computers and terminals over the Internet. It manages the account/device remotely. It is working on port 23.

- **UDP(U**ser **D**atagram **P**rotocol**)**

  UDP is a connectionless or stateless protocol. It does not maintain the state of data. That's why data may be lost in this protocol.

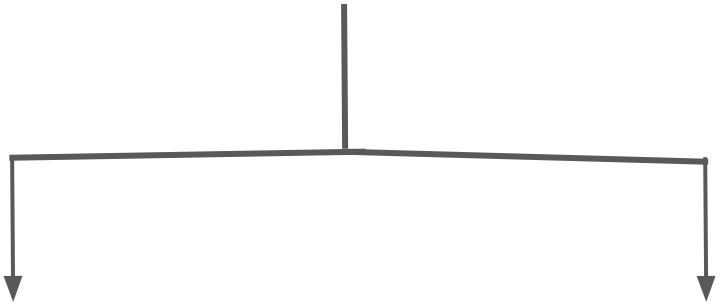
Process:

Processes are basically the programs which are dispatched from the ready state and are scheduled in the CPU for execution.

Thread:

Thread is the segment of a process means a process can have multiple threads and these multiple threads are contained within a process.

Program: WhatsApp



Process:	Send a message	Record a video
Thread:	Setup the page	Open the camera
Thread:	Enter the text	Open the night mode

Socket

A **socket** is a **two way** communication between softwares running on the network. Its an interface b/w a process and the internet.
A socket is identified by an IP address concatenated with a port number like, 192.168.9.5:80

Ports:

Ports are used for identifying the applications.

Ephemeral Ports:

Ephemeral ports are used for identifying the different instances/processes of an application. Like one browser application contains many tabs. For each tab separate ephemeral port will be used.

What we have learned?

TCP/IP Model

Client Server & Peer to Peer Architecture

Web Protocols

Process, Threads, & Ports etc

That’s It

I hope you will like this video.

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