

Layers

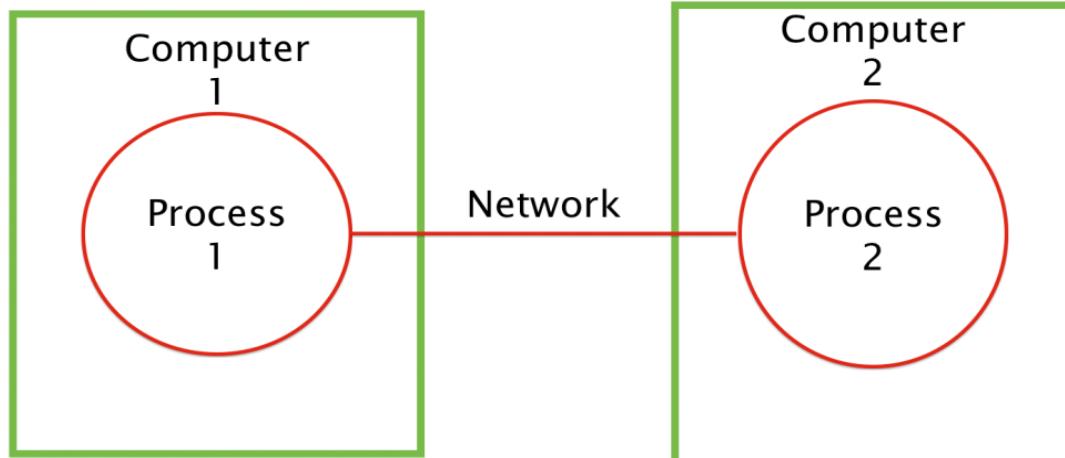
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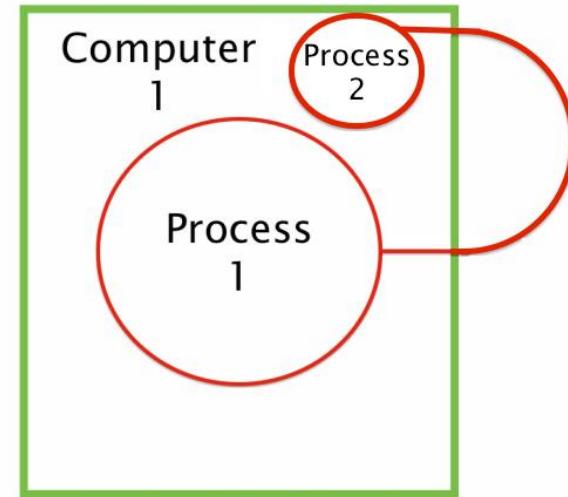
Inter Process vs Intra Process

Inter process



[Image Source: https://austingwalters.com/wp-content/uploads/2014/05/Screen-Shot-2014-05-07-at-3.20.19-PM1-1024x486.png](https://austingwalters.com/wp-content/uploads/2014/05/Screen-Shot-2014-05-07-at-3.20.19-PM1-1024x486.png)

Intra Process



[Image Source: https://austingwalters.com/wp-content/uploads/2014/05/Screen-Shot-2014-05-07-at-3.20.19-PM1-1024x4862.png](https://austingwalters.com/wp-content/uploads/2014/05/Screen-Shot-2014-05-07-at-3.20.19-PM1-1024x4862.png)

OSI

MODEL

Prepared by Prof. Am

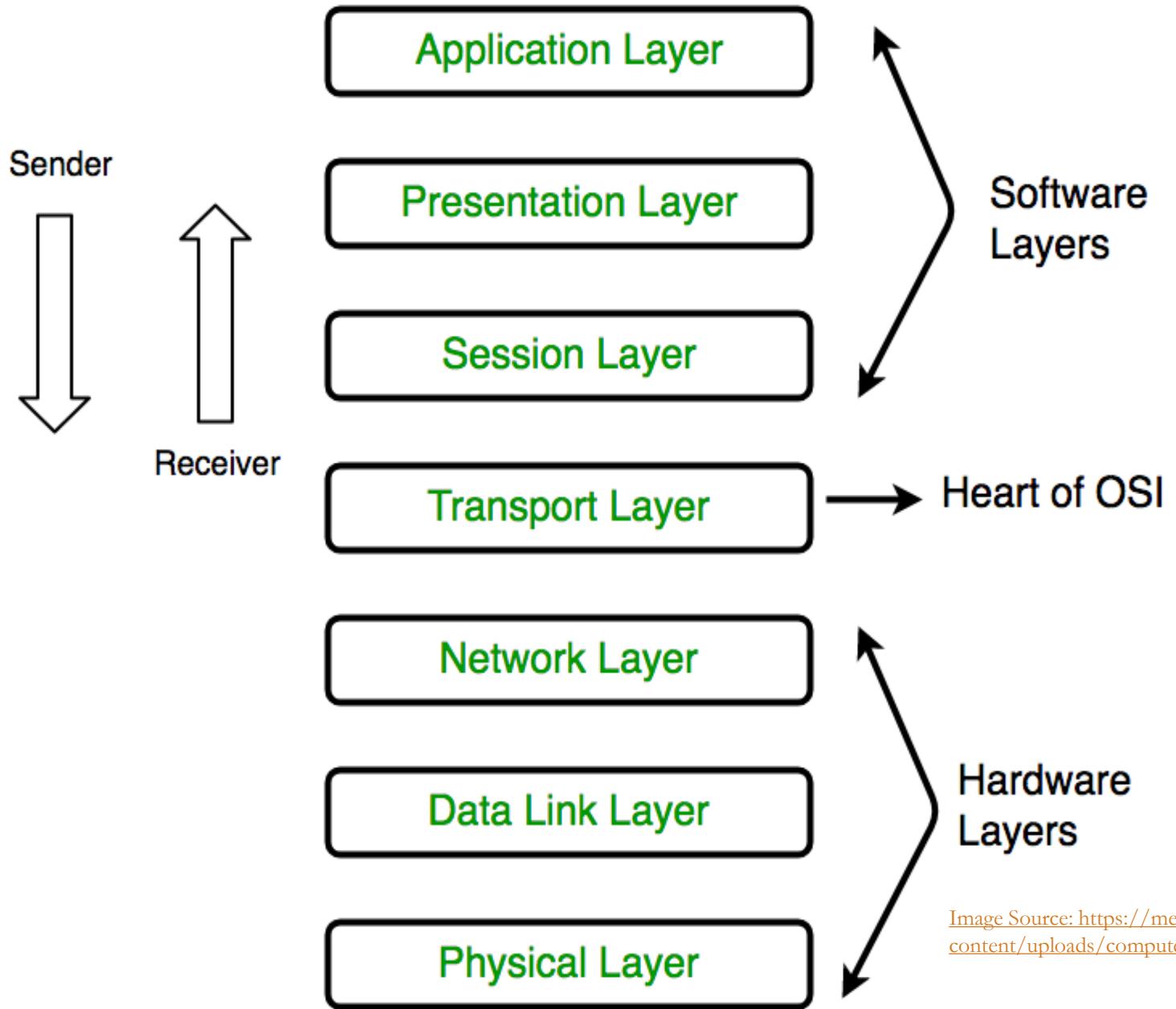
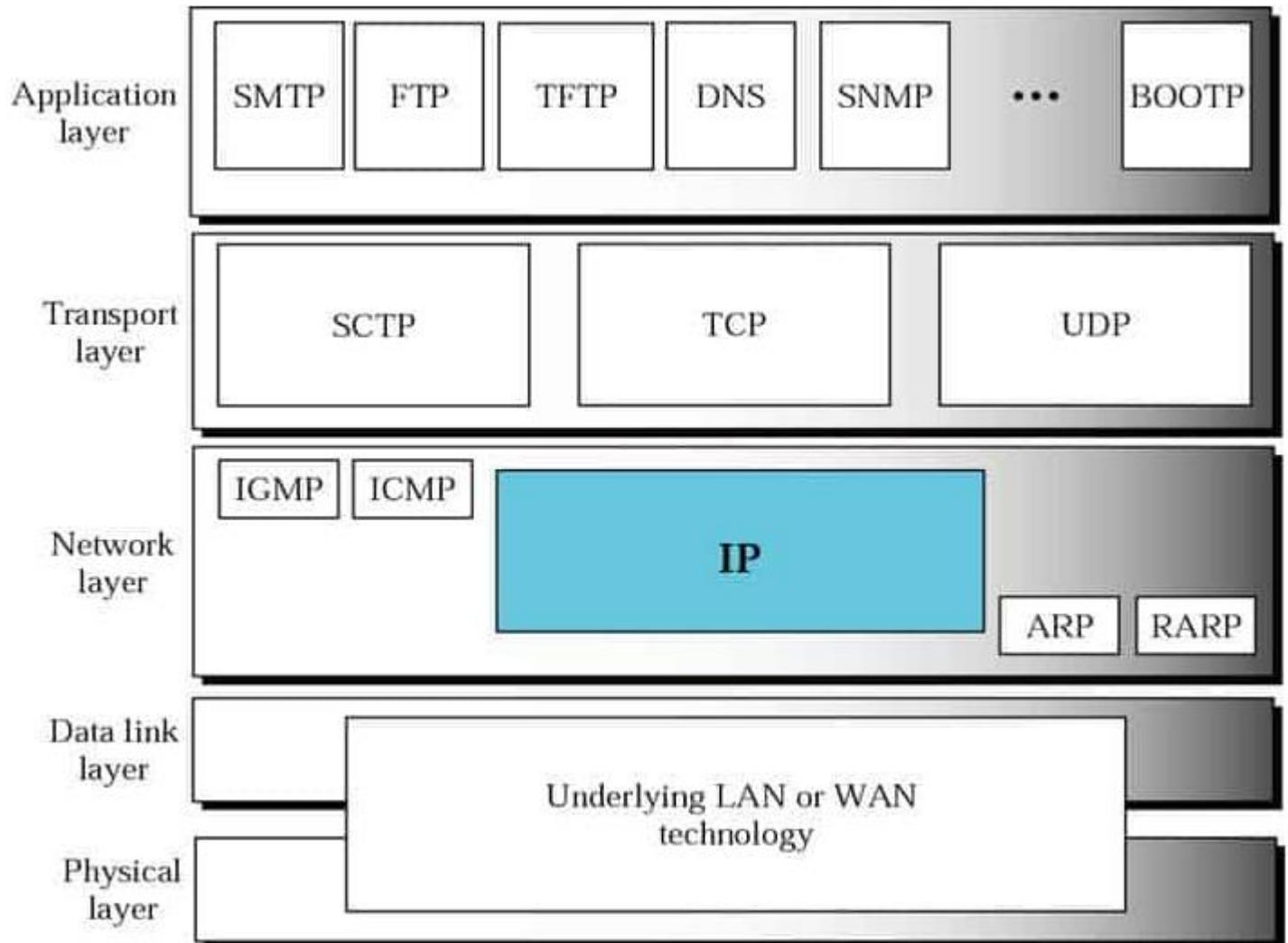


Image Source: <https://media.geeksforgeeks.org/wp-content/uploads/computer-network-osi-model-layers.png>

TCP/IP Suite



Basic Addressing in networking

- Port Address
- IP Address
- MAC Address

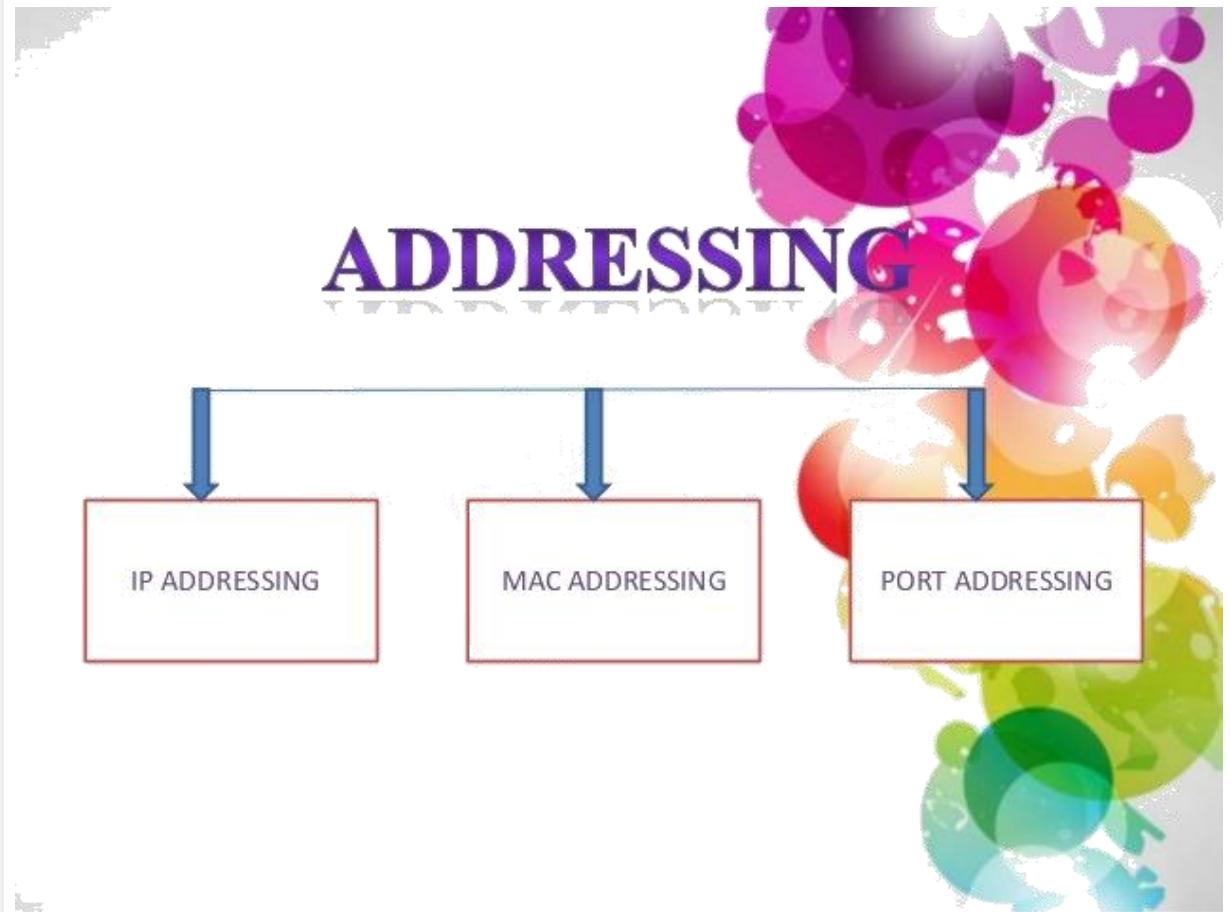


Image Source: <https://image.slidesharecdn.com/networking-140220075923-phpapp01/95/addressing-in-networking-ipmacport-addressing-3-638.jpg?cb=1392883276>

Ports Classification

- Ports 0–1023 – system or well-known ports
- Ports 1024–49151 – user or registered ports
- Ports 49152–65535 – dynamic / private / ephemeral ports

Port vs IP vs MAC

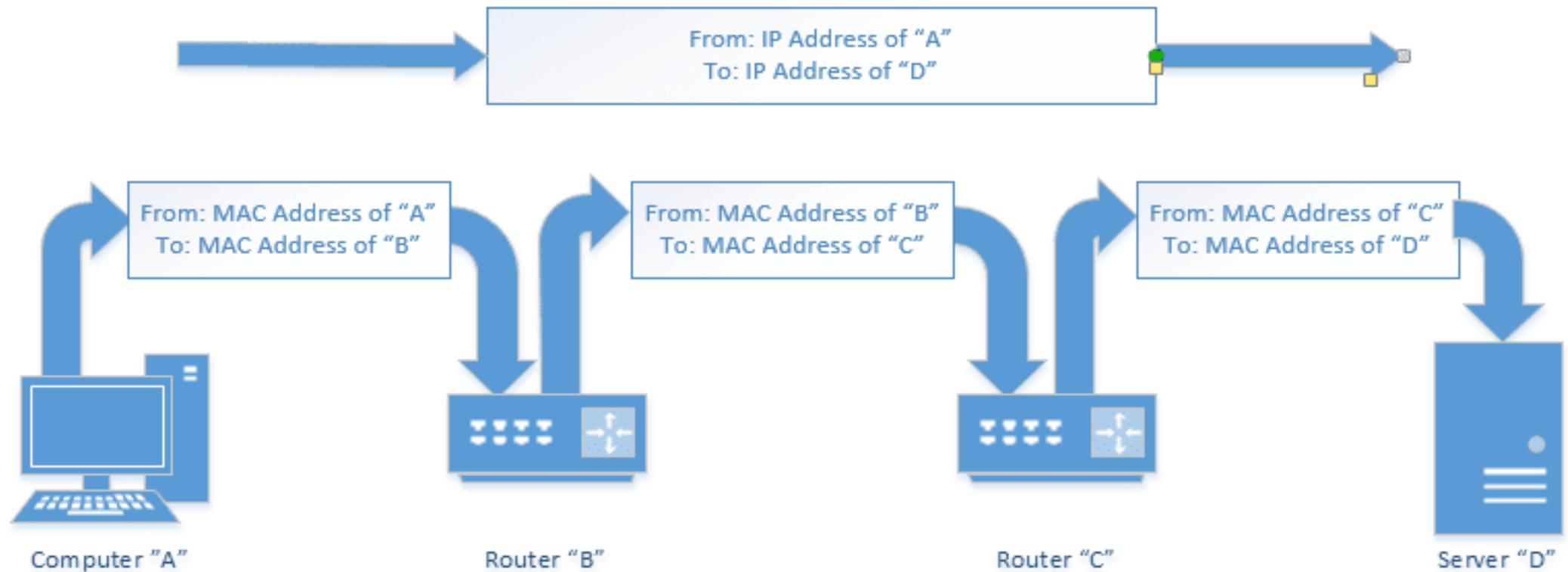
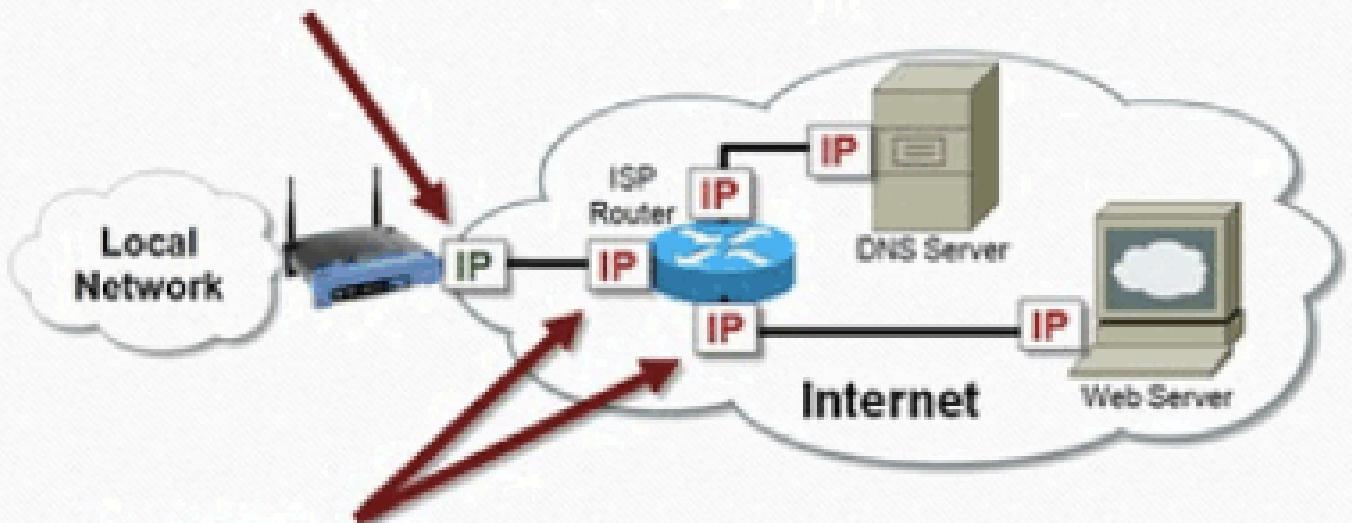


Image Source: <https://askleo.askleomedia.com/wp-content/uploads/2009/01/macaddress.png>

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Static vs Dynamic IP Allocation

- **Dynamic** IP addresses periodically change
 - Typically assigned to ISP customers



- **Static** IP addresses never change

Image: <https://whatismyipaddress.com/dynamic-static>

Application Layer Protocols: DNS

URL-----> IP



Image: <https://extassisnetwork.com/tutoriales/wp-content/uploads/que-es-dns-min.jpg>

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Port 53

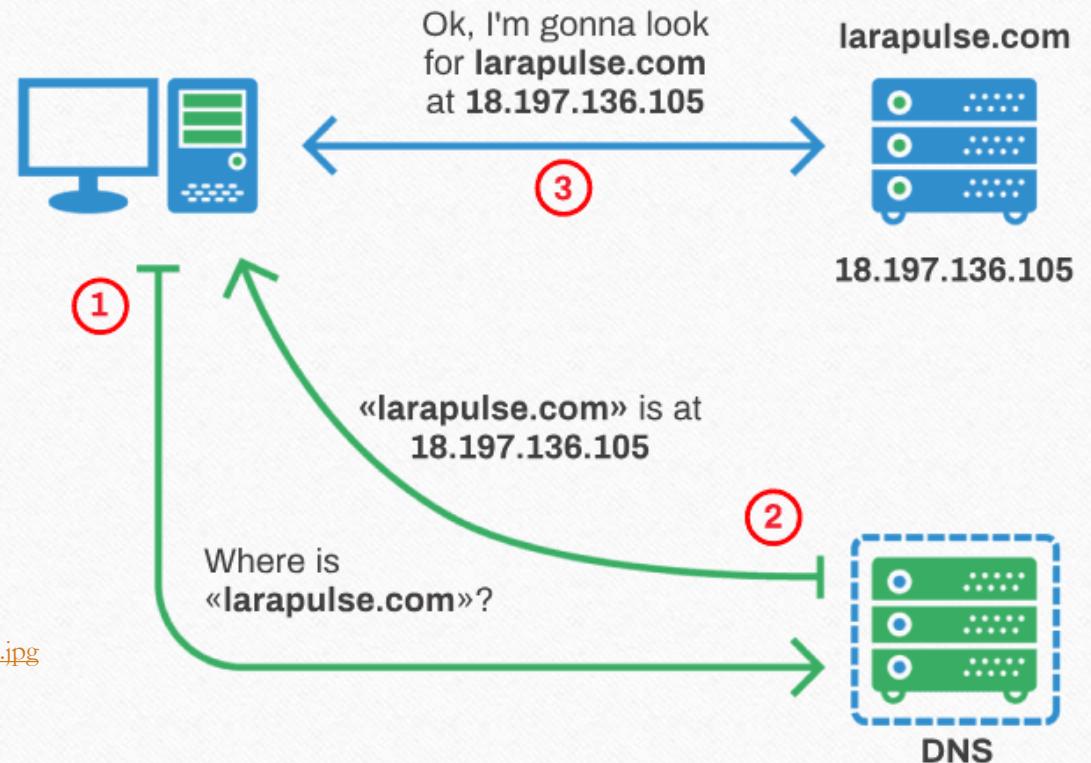
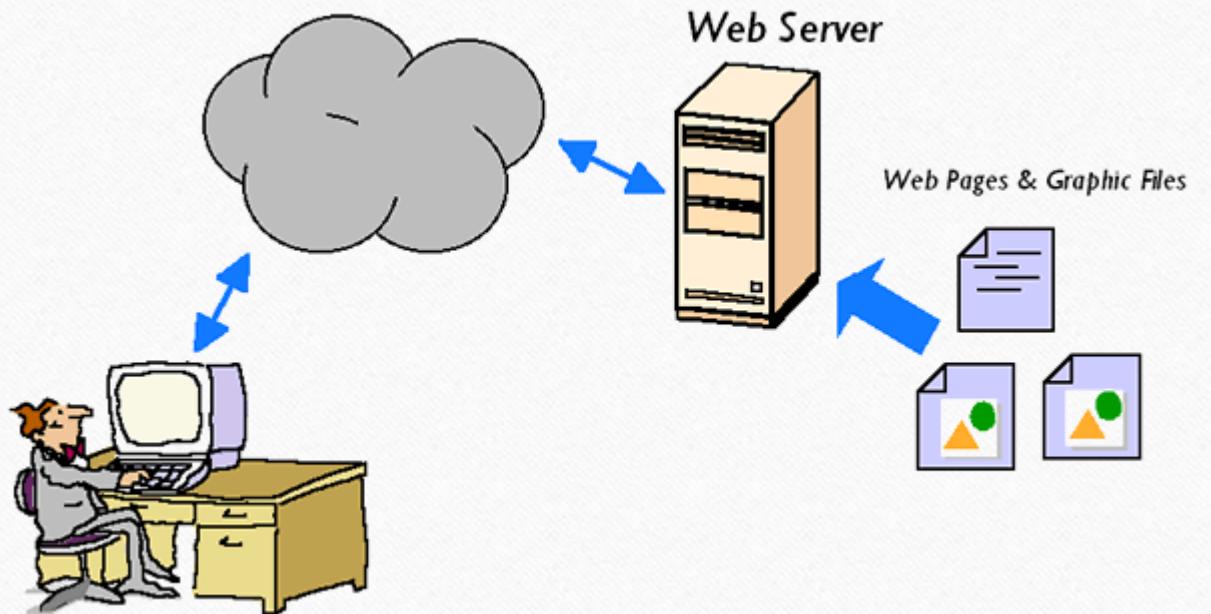


Image: <https://blog.larapulse.com/files/original/images/2d/10>

Application Layer Protocols: HTTP

Accessing Web Services

Port 80



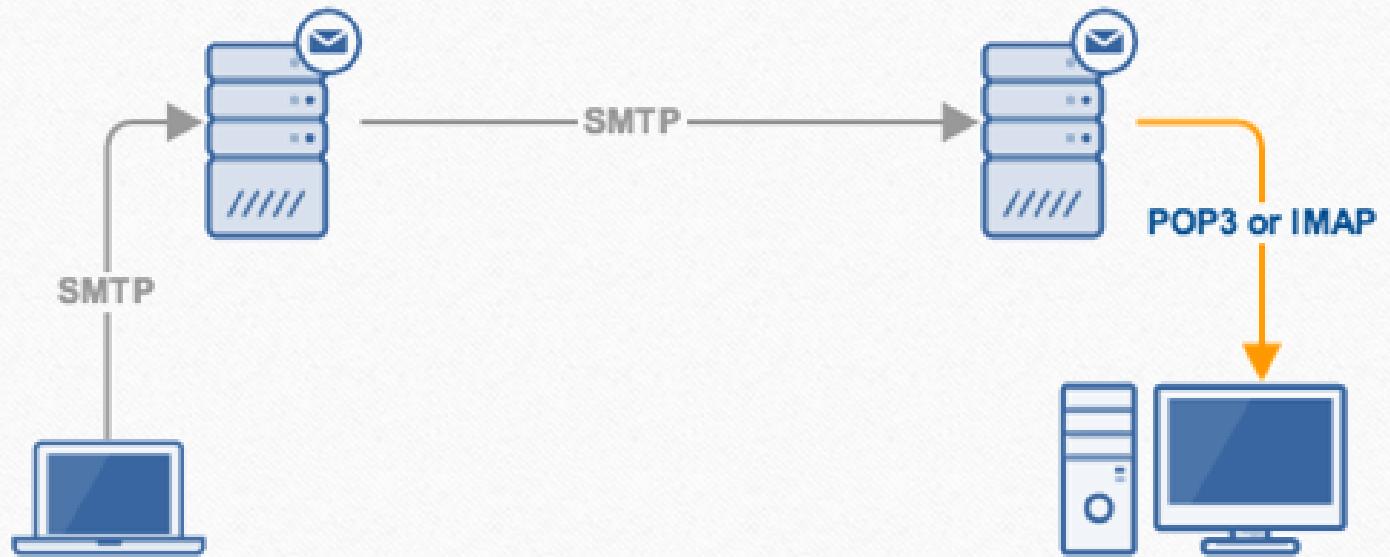
[Image: https://stegpearl.com/web-server/](https://stegpearl.com/web-server/)

Application Layer Protocols: SMTP, POP,

IMAP
Port 220

Port 25 Port 110

Sending and Receiving Mails

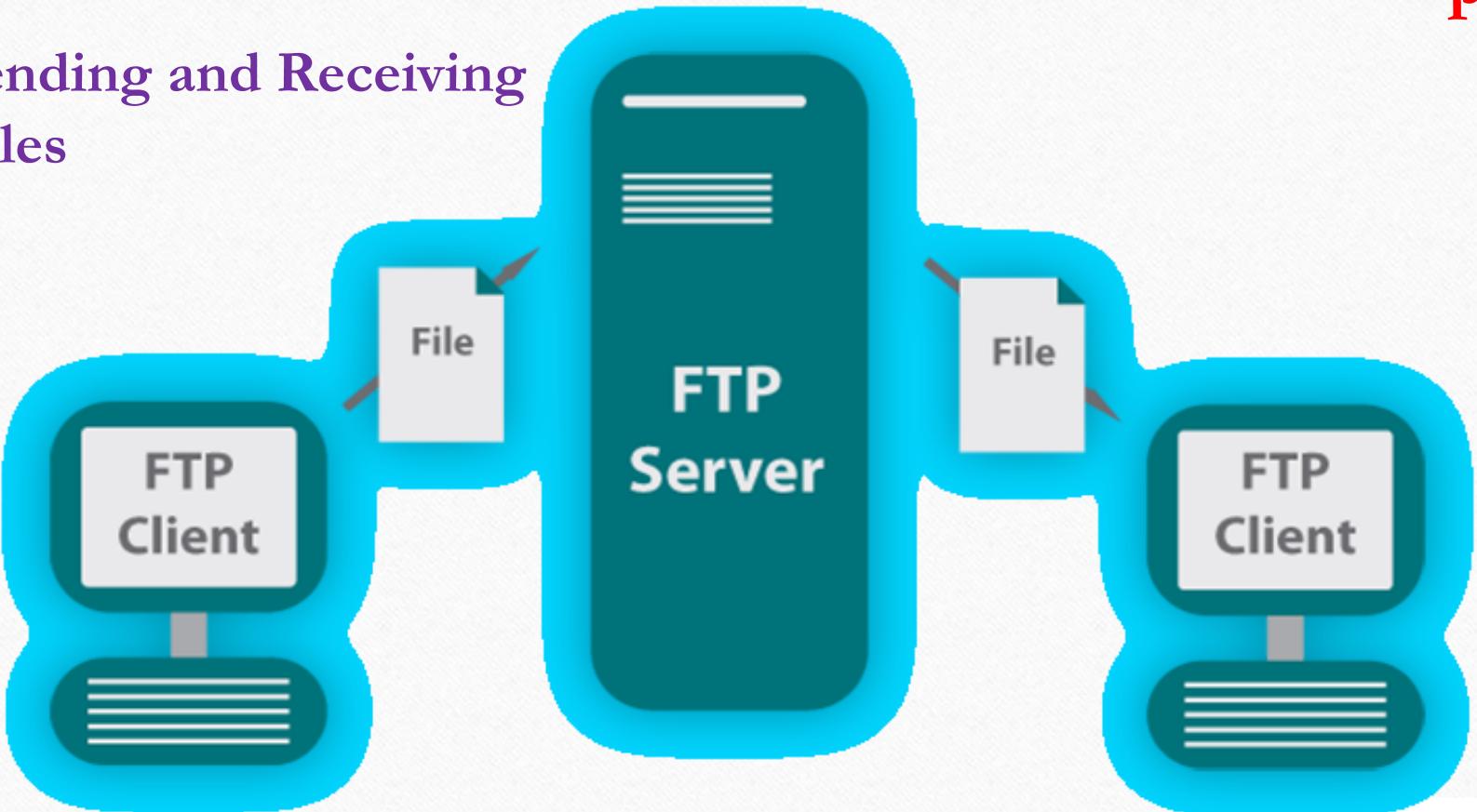


[Image: https://kknews.cc/code/52ybok6.html](https://kknews.cc/code/52ybok6.html)

Application Layer Protocols: FTP

Port 20/21

Sending and Receiving
Files



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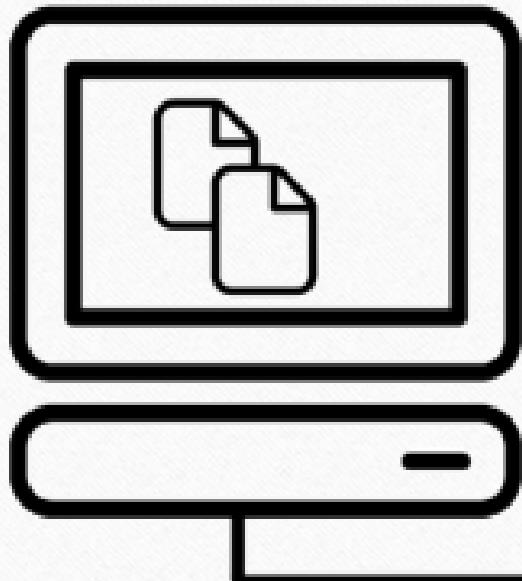
[Image: https://blog.ipswitch.com/what-is-file-transfer-protocol-ftp](https://blog.ipswitch.com/what-is-file-transfer-protocol-ftp)

Application Layer Protocols: Telnet

Port 23

Remote Access Service

Telnet client



telnet protocol

**Telnet server
(telnetd)**

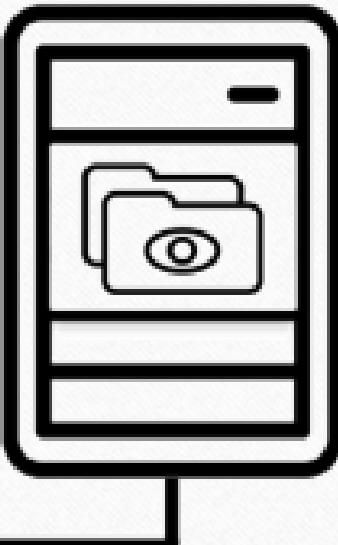


Image: <https://www.ssh.com/ssh/telnet>

Application Layer Protocols: DHCP

Port 67

Dynamic IP allocation

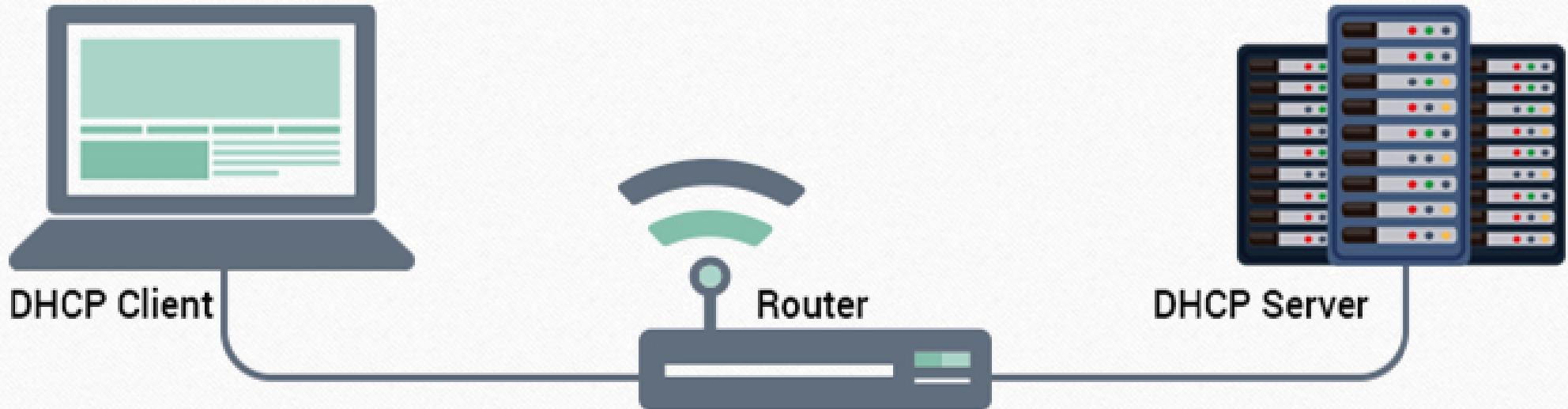
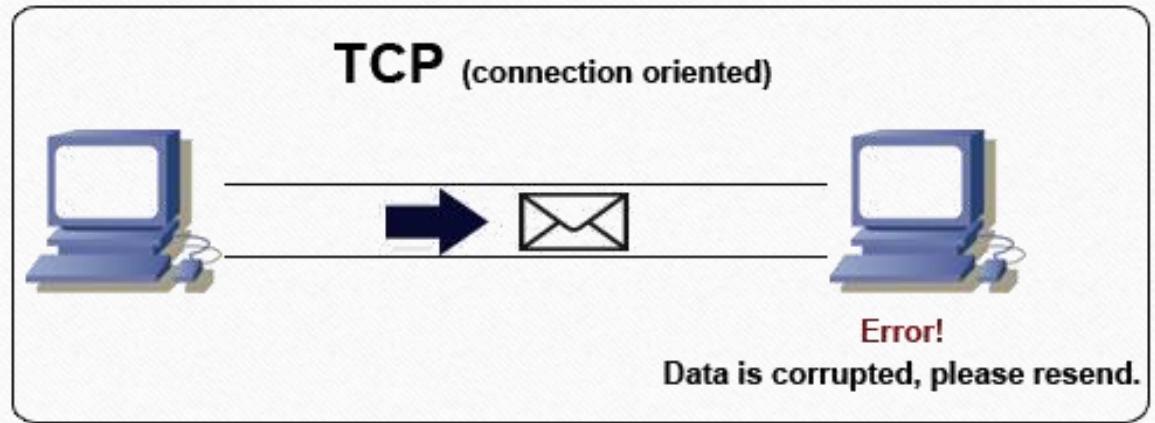


Image: <https://www.iplocation.net/dhcp>

Transport Layer Protocols: TCP and UDP

Connection
Oriented Reliable



Connection less
Unreliable

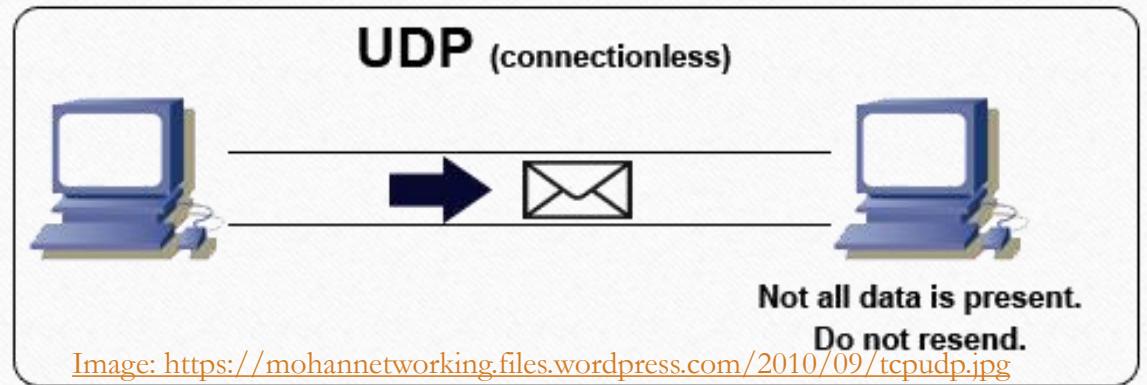
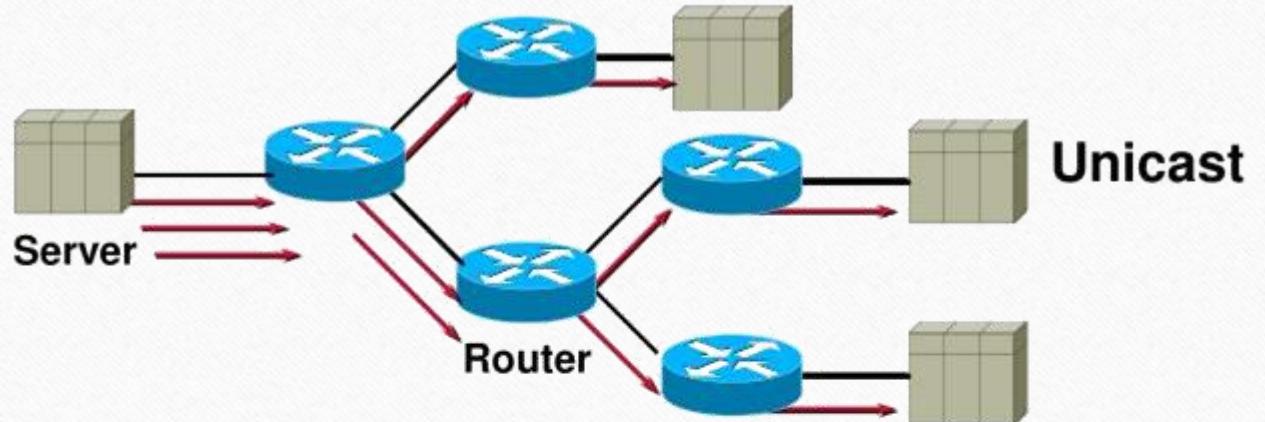


Image: <https://mohannetworking.files.wordpress.com/2010/09/tcpudp.jpg>

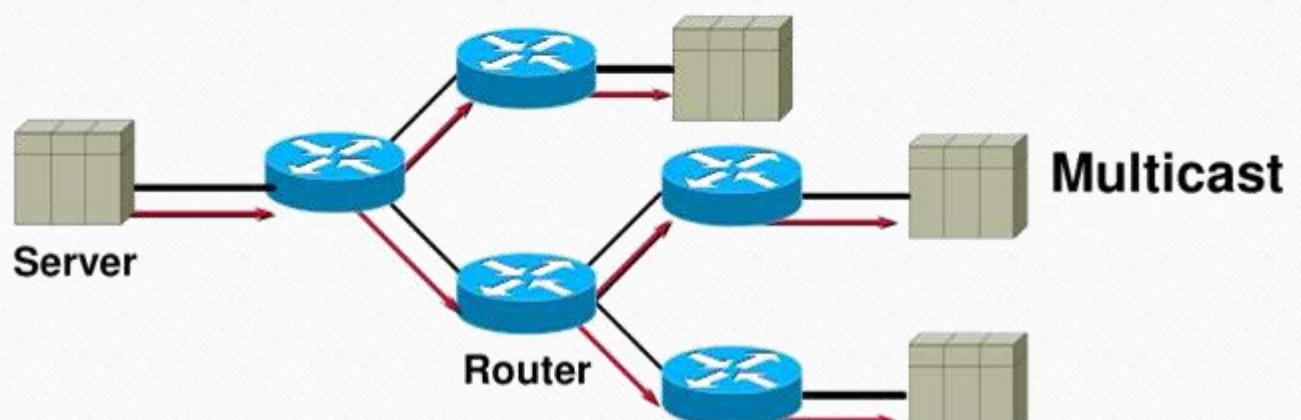
Network Layer: IP and IGMP

IP



Unicast

IGMP



Multicast

Network Layer: ICMP

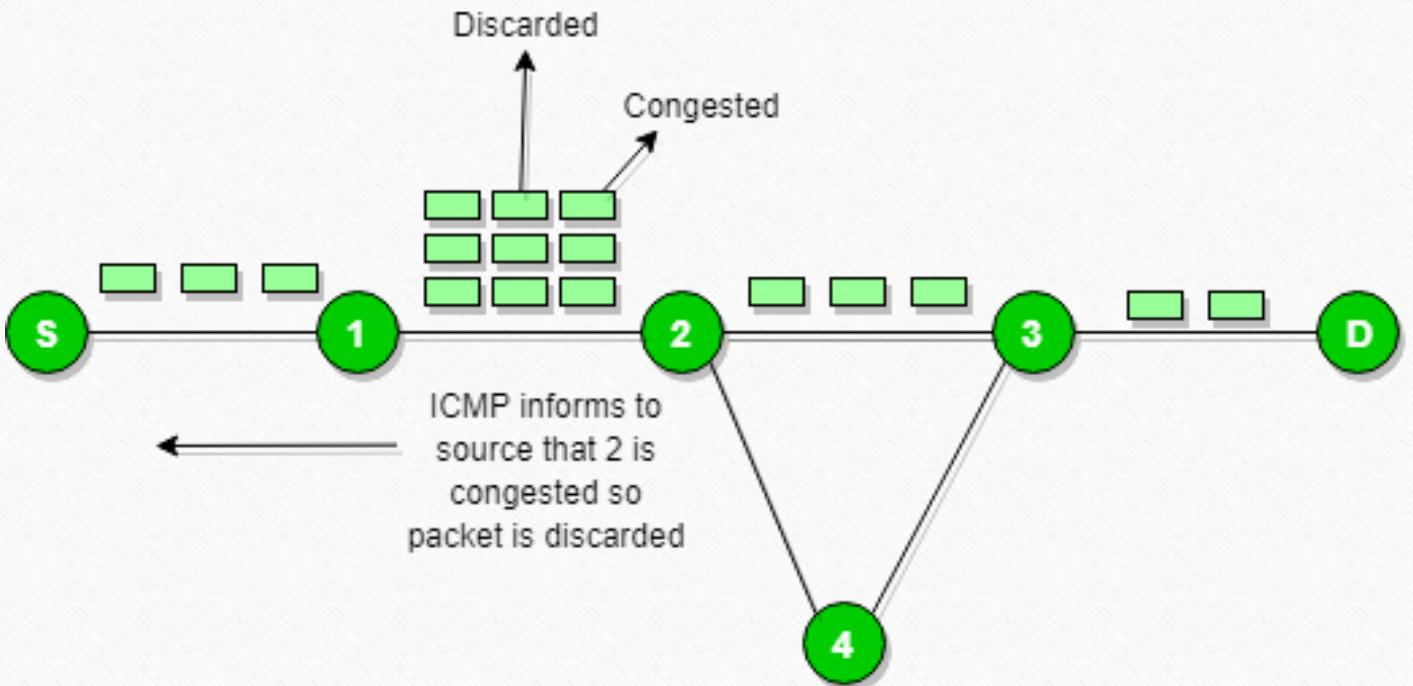


Image: <https://media.geeksforgeeks.org/wp-content/uploads/1-73.png>

Network Layer: Routing Protocols

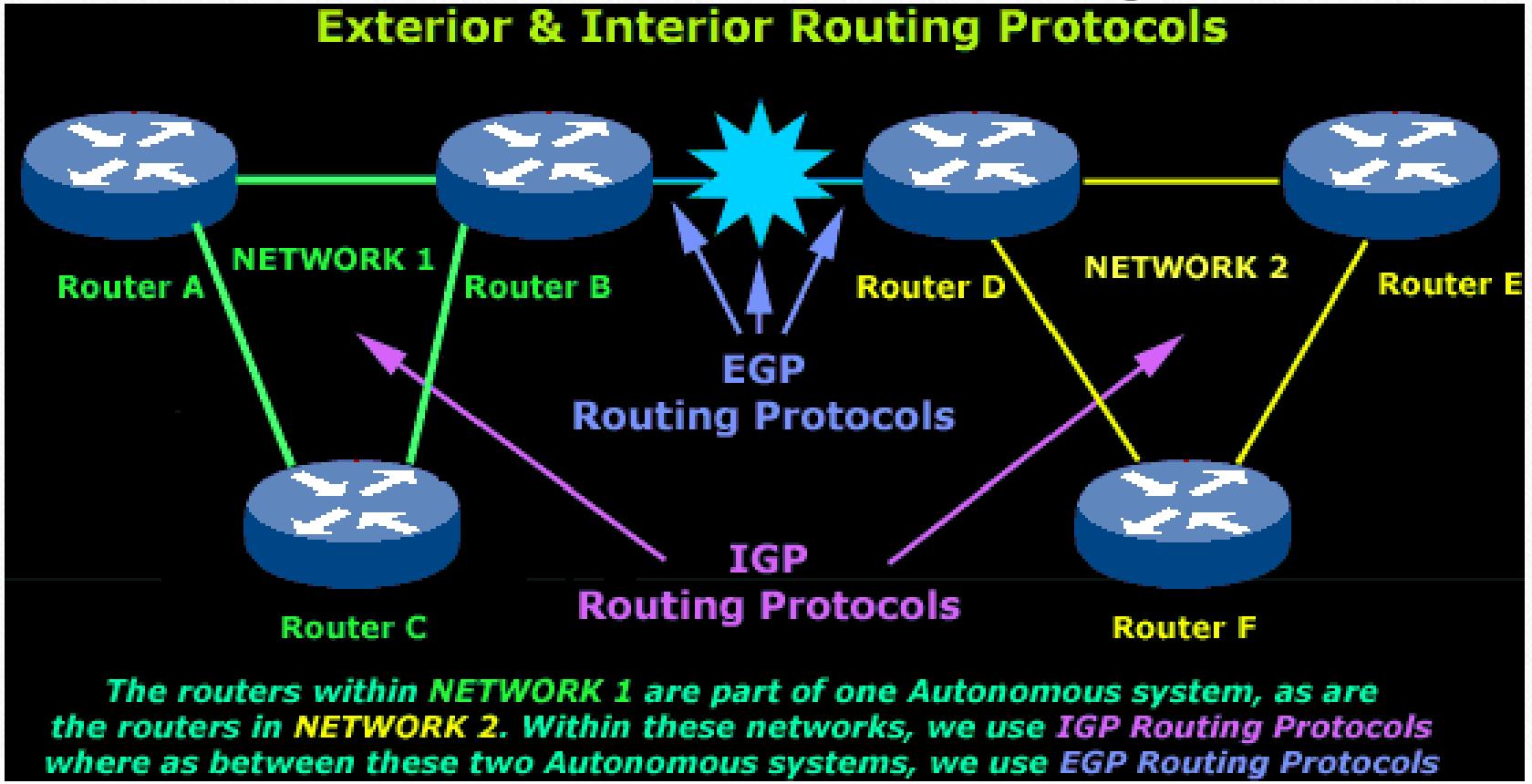
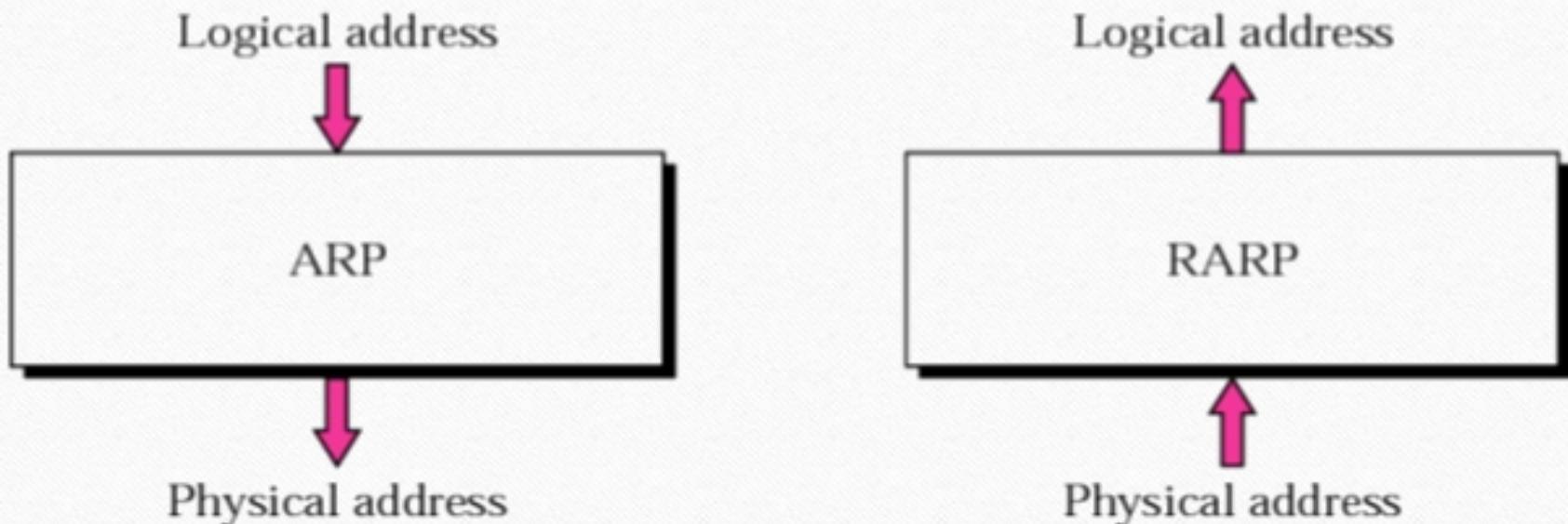


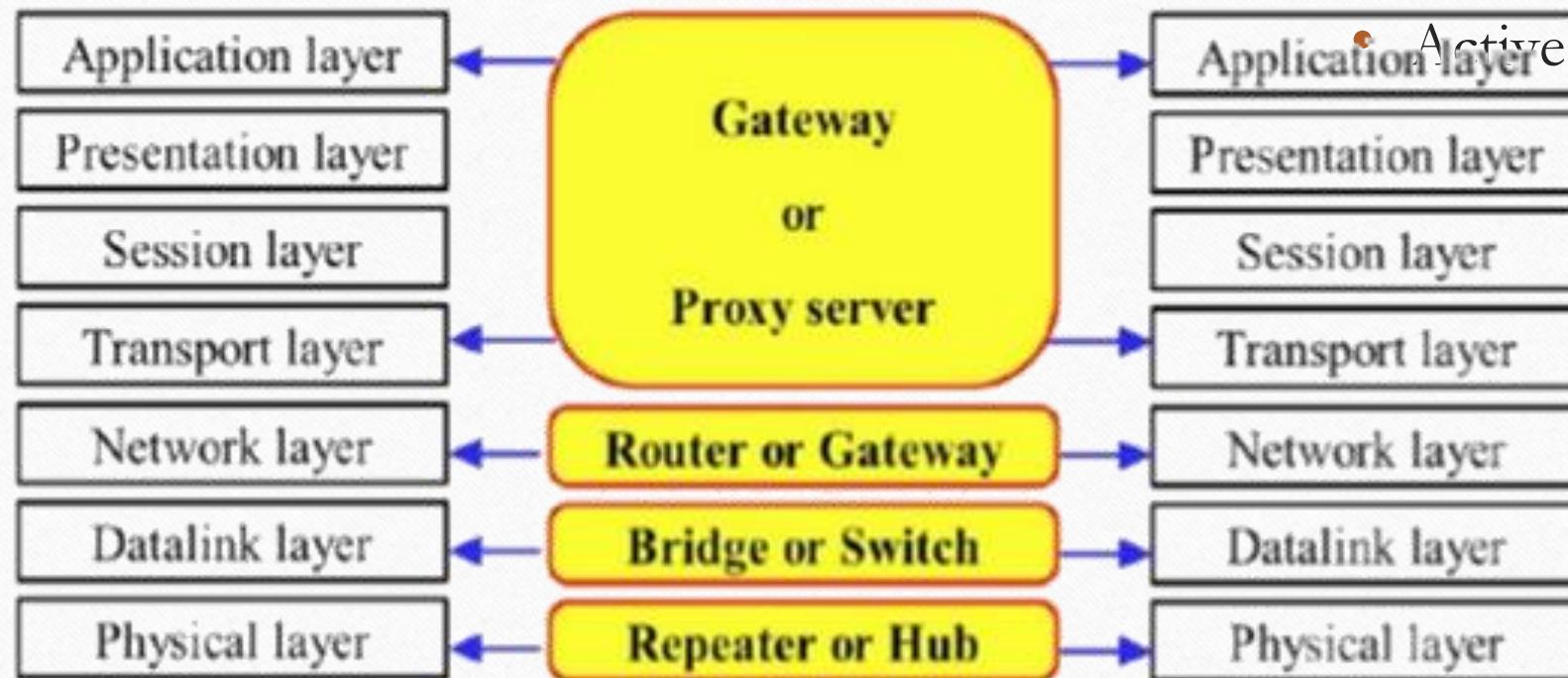
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Network Layer: Routing Protocols



Reference: Tcp/Ip Suite by Forouzan

Devices and Layers



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Thank You

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