**Class 4:**

Reference model ( OSI ) / TCP IP Model ? Behroz Frouzan ppt ch 2

Logical/Physical ?

Server and Client Machine ; Service hosting ; Port address ; Domain/hosting/DNS

Upstreams ?

Tw

Pie

URLs ? nslookup ?

Facebook access by IP

**IP Address:**

An IP address is a unique address that identifies a device on the internet or a local network. IP stands for "Internet Protocol.

**OSI MODEL**

**Application:** services to user- Telnet, SSH etc. Ports

**Presentation**: format, encryption, decryption etc.

**Session:** Timestamping, synchronization, RFC, SQL

**Transport**: TCP/UDP, Error Correction , assembly /de assembly

**Network Layer**: IP, Routing Protocol

**Data Link**: MAC, logical link layer

**Physical**:cable

**Ports**

HTTP:80

FTP:21

SMTP:25

Telnet:23

Internet: Network of Networks

**IP addressing:**

**Private**

10.0.0.0 – 10.255.255.255,

172.16.0.0 – 172.31.255.255,

192.168.0.0 – 192.168.255.255

**Class 10 - - 06/04/2022**

Gateway / Default Gateway

Gateway is a devise used to connect two different types of Network.

Switch / Router

**Switch** is layer 2 device

**Router** is Layer 3 device (Routing Table/Smart Path etc)

TPlink Emulator:

Assignment MAC Address / IP Address Snapshot on wireless connectivity

**DNS-** Domain Name Server -Translate Domain names like [www.google.com](http://www.google.com) to IP addresses. It’s a phone book of

**DHCP:** Dynamic Host Configuration Protocol- Which assign IP’s Dynamically from the Pool of IP’s.

**ARP:**

Address Resolution Protocol (ARP) is a protocol or procedure that connects an ever-changing Internet Protocol (IP) address to a fixed physical machine address, also known as a media access control (MAC) address, in a local-area network (LAN).

**Reverse Address Resolution Protocol** (RARP) is a protocol a physical machine MAC address a local area network (LAN) can use to request its IP address.

**Firmware:**

Firmware is a software program or set of instructions programmed on a hardware device

**SSID**: Service set identifier / WIFI name

**NAT**: Network address Translation – Private IP to Public IP & Public IP to Private

Natting:

**Patting:** Port based allocation: **PAT, Private IP addresses are translated into the public IP address via Port numbers**.

**ping** : A ping (Packet Internet or Inter-Network Groper) used to test the reachability of the host

**tracert:**

The TRACERT diagnostic utility determines the route to a destination by sending Internet Control Message Protocol (ICMP) echo packets to the destination

**TTL:** time to live : hop counter

**Nslookup:**

Command-line tool, which is principally used to find the IP address that corresponds to a host, or the domain name that corresponds to an IP address

**MAC Address:**

MAC Address is a 12-digit hexadecimal number (6-Byte binary number), which is mostly represented by Colon-Hexadecimal notation. First 6-digits (say 00:40:96) of MAC Address identifies the manufacturer, called as OUI (**Organizational Unique Identifier**). IEEE [Registration Authority Committee](http://standards.ieee.org/develop/regauth/index.html) assign these MAC prefixes to its registered vendors.

**ACL:** An access control list (ACL) is a list of rules that specifies which users or systems are granted or denied access to a particular object or system resource.

**EGress/Ingress**

Egress in the world of networking implies traffic that exits an entity or a network boundary, while Ingress is traffic that enters the boundary of a network.

**Class 11 Practicle**

**Bandwidth:** bandwidth is the maximum rate of data transfer across a given path.

**Utorrent mechanism** :works on a Peer to peer communication protocol.

**Class 12**

**Website:** A website is a group of globally accessible, interlinked web pages which have a single domain name

**WebApp**: A Web application (Web app) is an application program that is stored on a remote server and delivered over the Internet through a browser interface

A web application is a software or program which is accessible using any web browser

**Domain:** A **domain** name is your website's equivalent of a physical address.

**Subdomain:** A **subdomain** name is a piece of additional information added to the beginning of a website's domain name

**Directory:** A **directory** is a location for storing files on a computer.

**Subdirectory**: A directory below another directory in a hierarchy.

**Hardware basic components:** Motherboard CPU , RAM, ROM, Cache, and Flash. Ports graphic card.

**OS basic component:** kernel, API or application program interface, user interface & file system, hardware devices and device drivers.

**Class 26 Monday**

Lock example / maker / braker / tester

**Systems:**  A **system** in computing is a general term for a computer or other piece of technology and all of its dependencies.

**Security triad ;** Confidetiality , Integrity & Availability

Systems methodlogy / Methodology: Phases of a Penetration Test

**CyberSecurity:**

**InfoSec:**

**CyberSpace:**

A non-physical space made up of computers, their systems, programs, and software and users such as programmers, data analysts, and computer technicians, to name but a few.

**Hacking:** hacking is the activity to identify the weaknesses in a computer system or network to gain access to personal data.

Hacker / Attacker:

Types of Hackers:black hat or white hat.

**Black Hat:** whose intention is malicious.

**White Hat:** Ethical, to identify vulnerabilities.

PT / Penetration Testing / Security Analyst / Researcher:

**Class 27 Revision**

Network devices

**Firewall:** a network security device to monitor & incoming & outgoing network traffic

**IDS:** Intrusion Detection System: detect suspicious activity & generate alter.

**IPS:** Intrusion Prevention system:

**Class 33 Introduction to Hacking**

EH Content start

Module # 1

Infosec Threats: a vulnerability that can be exploited called threat.

Attack Vectors: An attack vector is a method or pathway used by a hacker to access or penetrate the target system

Simple VPNs