ITSS Daily lessons

Port 80, port 443, HTTP,HTTPS

**Mailbox servers**

POP3- post office protocol used in old computers.(supports only one way synchronization)

Modern protocols uses 2 way configuration and synchronization

**IMAP –** Internet Message access protocol

Stores msgs in remote server. Can access it using multiple clients and read the same info.

Because of IMAP , gmail can be accessed from mobile, laptop, anywhere.

**SMTP ,** - simple mail transfer protocol –

Communication protocol allows to send and receive data. Used by mail servers.

Eg – gmail, yahoo.

**AAA:** Authentication Authorization and Accounting

**Authentication:** Proving whom you are and what you claim to be

Eg – Username , password

**Authorization:** checking what level of access /privilege the user has once authenticated

**Accounting**- Keeping track of /log of everything.

Remote Terminal access server:

Telnet – unsecure remote terminal emulation , uses port 23

SSH – uses port 22. Secure remote terminal emulation

RDP(Remote Desktop Protocol) – GUI based host access and control uses port 3389

Internet and Embedded Appliances

Proxy serv er – manages user access from local network to internet websites

Can apply content filtering and time restrictions’

Legacy systems:

Vendor no longer active. Product is deprecated

Lack of support , risk from uncatchable vulnerabilities

IoT – Internet of things

Smart speaker, smart homes (fridge, TV)

**Network Trouble shooting:**

Identify the problem, Establish a theory and test theory

Verify configuration – verify network name /SSID , verify support for Wifi or 802.11 standard

Low RF frequency strength - check signal strength and check for flapping between access points

Wireless signal issues – scan for channel overlap with other WLANs, access environment for interference resources.

Trouble limited connectivity:

Notification of connection error in OS

Physical link is operational but IP configuration is faulty

Static address vs automatic addressing (APIPA 169.254.X.X)

Establish scope of network problem

Single host.

**Virtulization and Cloud concepts:**

Client side virtualization –( software used Hyper Visors VM). (Hyper V) developed by MS used for both client and server side. Guest o/s and VM is Completely dependent on host hardware.

Resource allocation

Emulation

Guest O/S

Cloud concepts

Different types of client side virtualization

1.Sandboxes

2. install legacy application and operating systems

3. test software across different platforms

4. Training

Server Side Virtualization

Better hardware utilization and flexibility

Application Virtualization

Install software to server and stream to clients

Container Virtulization:

Run apps within an isolated workspace.

Eg:

Oracle VM

VM ware

Virtulization Resource Requirements

CPU platform

System RAM

Mass storage space

Network

Guest OS security

Manage patches and security apps on each guest

Host security’;

Increase risk hardware FAILURES

Hypervisor security:

Manage patches and security of hypervisor

Isolate hosts from guest and isoloate guest from other guests

Cloud computing concepts;

Private:

Public

IAAS – Infrastructure as a service

PAAS – Platform as a service

SAAS – Software as a service

Cloud vs on premisses

Hybrid:

**Cloud characteristics:**

Metered Utlization

High availability

Scalability

Rapid elasticity

Shared resources

**Mobile Display Types**

1. LCD (Liquid crystal displays)

Twisted nematic – fast response times

Inplane-switching- better viewing angles, and best overall quality

Vertical alignment- Best contast ratio

1. LED backlights
2. Cold cathode fluorescent bulb and inverter backlights
3. OLED (organic LED) displays

No separate backlight and can use flexible plastics.

**Mobile display components**

Digitizer functions -convert analog touch events to digital input

Glass layer and screen protectors

Rotating and removable screens – Accelarometers and gyroscopes

Keyboard covers for hybrid laptop /tablets

**Mobile Device Accessories**

Touchpads, trackpads,drawing pads

Touch pens – use instead of fingers to operate touch screen, drawing annotating with compatible apps

Microphone , speakers, camera and webcam – Placement of built in devices, connector for peripheral devices.

**Wifi networking**

Enabling and disabling – airplane mode

Antenna – connector/placement

**Cellular Data Network :**

GSM – Global system for mobile communications

SIM – subscriber identity module

CDMA – code division Multiple access - PRL preferred roaming list

Cellular networking data indicators –

G/E or 1X (50-400 kpbs)

3G(3 mbps) and H/H+(42 mbps)

4G and 4G+ (20 -90 Mbps)

5G (50 – 300 Mbps)

Mobile hotspots and Tethering

**Mobile Device Wired connection methods**

Laptop ports

Smartphone and tablets

Usb -c for modern devices

Micro/mini USB for legacy devices

Lightning for apple devices

Serial interfaces

Universal asynchronous receiver transmitter (UART)

Serial data over USB/Bluetooth

Bluetooth wireless connections

Enable pairing , test connectivity

Near field communication wireless connection

Use mobile devices as payment card – wallet apps

Pair/configure connectivity between devices

**Port replicator and docking stations**

Port replicator – provision additional wired ports for laptops

Docking station – port replicator plus support for removable drives and adapter cards

Smart phone and tablet docks

Connect peripheral devices and use as a desktop

Mobile apps

Ios apps – app store , developer tools

Android apps -google play , third party stores

Permissions

Single user devices

Multiple app account for digital identities

Google workspace , apple icloud Microsoft 365

Types of data to synchronize:

Contacts, calender mail, pictures , music, video,Apps

Passwords