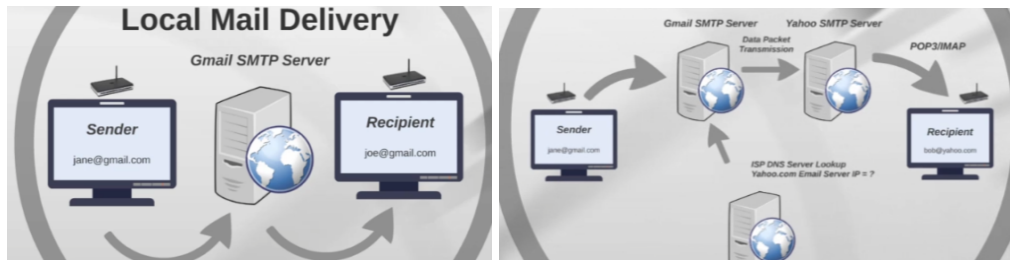


Internet - network of cables: transmission of Data Packets

Internet is actually set of protocols(set of rules to communicate between machines)

- tcp(Transmission Control Protocol) - Facilitates the transmission of data packets, ensures no info missing
- Ip - Route info to the proper address
- http/https - facilitates communication between a web browser and web server.
- smtp(Simple Mail Transfer Protocol) - standard protocol for email transmission



- ftp(file transfer protocol)

Data packet example:

header — sender & receivers IP address, Protocol, Packet Number

payload — Data

trailer — Data to show end of Packet, Error Correction

Bandwidth — the speed at which data packets can be transmitted (capacity measured by bitrate | latency)

Web Server — A computer that hosts a website or Web application

Domain Name Server - list of domain names and their corresponding IP address.

Internet Service Provider

Google.com → modem query ip address using isp dns, if isp fails to locate ip in their dns records, then isp query other authoritative dns servers → send 74.125.224.72 back to modem to browser → browser sends a request such as GET to the server(IP) → If request is successful the proper data packets will be sent back to the browser.

HTTPS Protocol- Data Packets are Encrypted using SSL(secure socket layer using Security Certificate) or TLS(transport security layer)

Security Certificate - requires installation on the web server, can be purchased from a reputable vendor

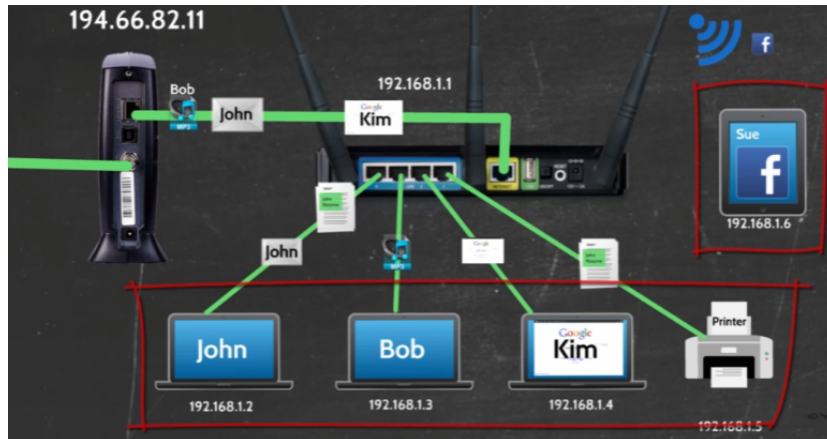


Network Basic

LAN (local area network) - A group of computers that share a common communications line within a relatively small area. So LAN is typically confined to a single room or building.

modem external ip (194.66.82.11)

router offers unique local ip address to each device.

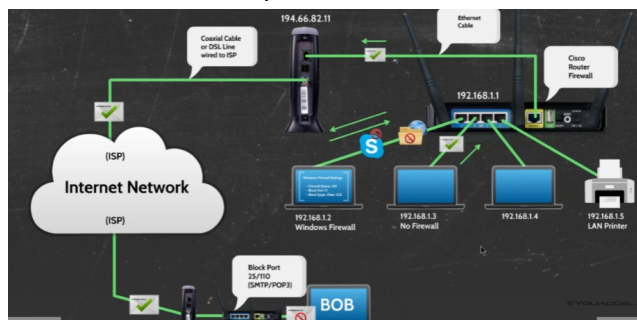


WAN(Wide Area Network) - network that spans across big areas such as cities, states & nations. So we can see the Internet(world wide network) as the largest WAN in existence.

Router

Can open and close Network ports: ex. port 21(ftp), 80(http), 25 (smtp)

HW/SW FireWalls - prevents unauthorized access in network (settings)



Small Web Dev Project process



Cloud Hosting

- Revolutionary Technology
- Very Flexible
- Full Control
- Highly Scalable
- Almost Zero Downtime
- Per Second/Hour Billing
- Pay only for what you Use
- Hardware is Scalable (Virtually)

Virtual Private Server

- Much better resource allocation than shared hosting
- Few Sites on a Single Server
- Servers are Powerful
- More Bandwidth
- Fair Control over Configuration
- Self-Managed or Managed
- Restricted to existing Hardware

Dedicated Hosting

- All server resources dedicated to your Web Application
- Servers are Powerful
- More Bandwidth
- Full Control over Configuration
- Self-Managed or Managed
- Custom Server Hardware Configurations

Shared Hosting

Hosting company allocates a certain amount of resource to your website. Resource allocation based on Subscription Plan.
Very Easy to use. Hosting Company takes care of all management and configuration. - Turn Key Package

Testing Server Setup

Why do we need one?

- Allows us to test web application locally, rather than uploading to live production server.
- Important because any issues can be resolved without causing disruptions on the live server.
- PHP & MySQL Require a testing server to function
- Client Side languages do not require a testing server (HTML, CSS, jQuery, JavaScript)
- Pre-Packaged Solutions: WAMP (Windows) MAMP (MAC)

Server Configuration & Services



Production Server Setup

- A Live Production server allows a Web Application to be viewed by Internet Users.
- Large Scale Cloud Hosting Providers: Amazon Web Services, Microsoft Azure, Google Cloud Platform. - More Expensive
- Smaller Scale Providers: Linode, Digital Ocean. - Cheaper
- Both providers (small and large scale) offer reliable and scalable cloud hosting solutions.
- Server Configuration process is the same on any Virtual Machine.