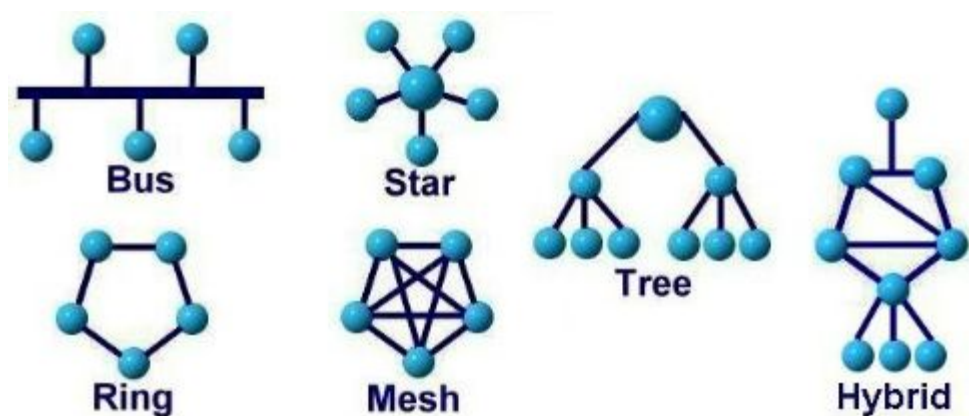


Vocabulary and Definitions

- **URL** - Universal Resource Locator
- **Topology (of a network)** - Physical and Logical design of a network
 - **Bus** : 1 Main cable that all computers "plug" into (No redundancy)
 - **Mesh** : Each computer is connected to every other computer in the network (Redundancy)
 - **Ring** : Computers attach to two other computers, creating a "ring" (No redundancy)
 - **Star** : Computers connect to switch / hub (Redundancy)
 - **Hybrid** : A mix of different topologies



Network Topologies

- **MAC** - Media Access Control
- **Frame** - Contain :
 - MAC address of the sender and receiver
 - Data
 - CRC (Cyclic Redundant Check)
- **UTP** - Unshielded Twisted Pair
- **LAN** - Local Area Network
 - They are physically close to each other.
 - The group of computers inside it are a broadcast domain.
- **MAN** - Metropolitan Area Network
 - Sits between LAN and WAN
- **WAN** - Wide area Network
 - Spread group of LANs, to not clog up the network with broadcasts



- **Routers** - network device that forwards packets based on IP, also connects a LAN to a WAN
- **TCP/IP** - Suite of network
 - **IP address** - Unique ID for a computer in the network
 - Group of protocols that make the internet of today "work"
 - TCP and IP do ~95% of the work, however there are more protocols.
 - **Default Gateway** - LAN side of your Router
 - Routers have 2 IP addresses, one for the LAN side and another for the WAN side
- **DNS** - Dynamic Name Service
 - Translates IP address to FQDN (Fully Qualified Domain Name) and vice versa.
 - EX: www.google.com --> 1.210.60.3
- **TLDs** - The internet has regulated domain names and domain name qualifiers. Here are some examples :
 - **.com** - General Business
 - **.org** - Non profit Organization
 - **.edu** - Education
 - **.gov** - Government
 - **.net** - Internet Organization
- **DHCP** - Dynamic Host Configuration Protocol
 - Assigns automatically an IP address
- **Workgroups** - Most basic and simplistic form of networks inside Windows
- **Domain** -
 - More complex network
 - Administered by a server, that controls permissions of users and the machines inside the domain
- **Homegroup** -
 - Windows 7 feature, to share data
 - Common password for all users
 - No users
 - You can only be in one Homegroup at the same time
- **Bandwidth** - Bit-rate of available or consumed information capacity expressed typically in metric multiples of bits per second
- **Node** - Any device that has a network connection
- **NetBIOS** - Networked basic input/output system

CAT Ratings

- All cables have a CAT rating that determines the speed they support and their max. frequency

Level	Speed	Speed cont.
3	10 Mbps	
5e	1000 Mbps	
6	1000Mbps @ 100m	10 Gbps @ 55m
6a	10 Gbps @ 100m	

UTP Cabling Color Chart

Pin	T568A	T568B
1	White/Green	White/Orange
2	Green	Orange
3	White/Orange	White/Green
4	Blue	Blue
5	White/Blue	White/Blue
6	Orange	Green
7	White/Brown	White/Brown
8	Brown	Brown

*Bold fields represent the pins and wires that change depending on the connector standard (A / B)

Connecting to the internet

- (Fields in the Windows Network configuration screen)
 - **IP address** - The IP address you want your computer to have
 - **Subnet Mask** - Identifies what part of your IP address is the Network ID
 - **Default Gateway** - The IP of your router (LAN side)
 - **DNS** - The IP address of the DNS server you want to use
 - **Backup DNS** - A backup in case the first DNS does not work

References :

- Mike Meyers - CompTIA A+ Certification All-In-One Exam Guide 8th edition
- Images :
 - Topologies : <http://networking.layer-x.com/pic/fig001.jpg>