

WEEK - 6

Introduction to troubleshooting and the future of networking

General Terminologies :

- **Error Detection** : The ability for a protocol or program to determine that something went wrong.
- **Error Recovery** : The ability for a protocol or program to fix it.

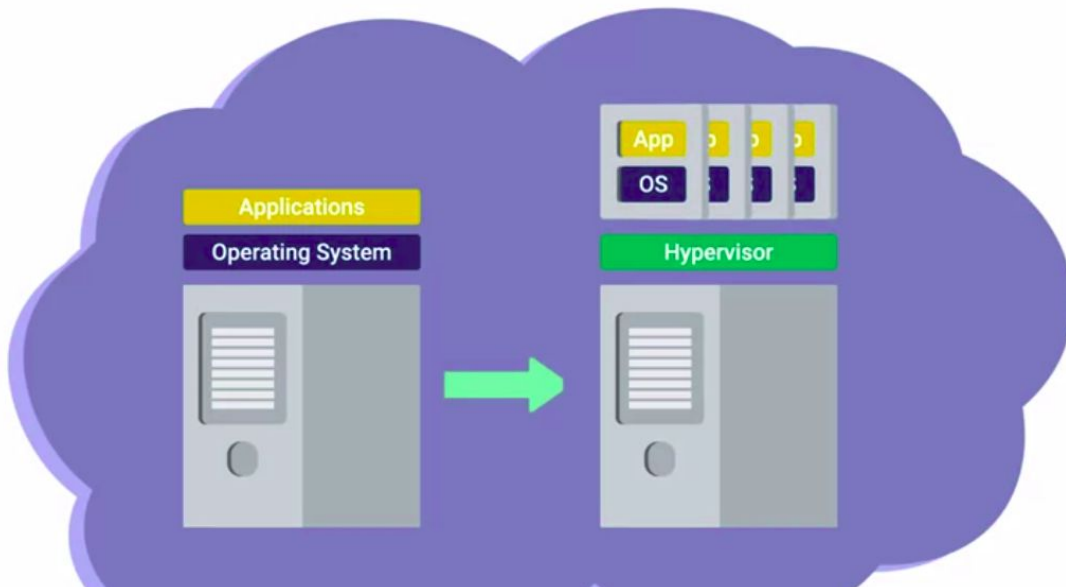
Verifying Connectivity

- **Ping** : It is an Internet Connect Message Protocol (ICMP). Ping lets you send a special type of ICMP message called an “**echo request**”. If the destination is up and running and able to communicate on the network, it'll send back an ICMP echo reply message type.
- **Traceroute** : A utility that lets you discover the path between two nodes, and gives you information about each hop along the way.

Cloud Computing

A technological approach where computing resources are provisioned in a shareable way, so that lots of users get what they need, when they need it. Heart of cloud computing is a technology known as hardware virtualization. Hardware virtualization is a core concept of how cloud technologies work.

- **Virtualization** : A single physical machine called a **host**, could run many individual virtual instances called **guests**.
- **Hypervisor** : A piece of software that runs and manages virtual machines, while also offering these guests a virtual operating platform that's indistinguishable from actual hardware.



- **Types of Cloud**

- **Public cloud** : A large cluster of machines run by another company.
- **Private cloud** : Used by a single large corporation & generally physically hosted on its own premises.

WEEK - 6

- **Hybrid cloud** : A term used to describe situations where companies might run important on private cloud, less sensitive things in a public cloud.

IPv6 Addressing & Subnetting

The big difference between IPv4 & IPv6 is the number of bits reserved for an address.

- **IPv4** : 32 bits (Four Octets of decimal : $8 \text{ bits} * 4 = 32 \text{ bits}$)
- **IPv6** : 128 bits (8 Groups of 16 bit each : $16 \text{ bits} * 8 = 128 \text{ bits}$)

Two rules are followed to shorten the IPv6 addresses

1. Remove leading zeros from every octets.
2. Replace zero with “:”.

Eg : 2001:0db8:0000:0000:0000:ff00:0012:3456

First rule :

2001:db8:0:0:0:ff00:12:3456

Second rule :

2001:db8::ff00:12:3456