

Components Of Computer Networking

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Abstract: Computer networking- Topology-Wired and wireless technologies- Routers- Switches- Bridges and firewalls-Internet-Intranet (Difference between internet and intranet).

Keywords: Topologies, Networking devices, Internet and Intranet, various protocols.

I. INTRODUCTION

A digital telecommunication network that allows nodes to share data (resources) is known as a computer network or data network. Data links get established by the use of cable media such as wires or optic cables, or wireless media such as WIFI.

Network nodes are devices that originate, route and terminate the data in computer networks.

II. COMPONENTS

A. NETWORK CABLES

Network cables are used to connect computers.



B. DISTRIBUTORS

A computer can be connected to another one via a serial port but if we need to connect many computers to produce a network, this serial connection will not work.



1) Internal Network Cards

Motherboard has a slot for internal network card where it is to be inserted.



2) *External Network Cards*

External network cards are of two types: Wireless and USB based.



C. *Universal Serial Bus (USB)*

USB card is easy to use and connects via USB port. Computers automatically detect USB card and can install the drivers required to support the USB network card automatically

The Operating System is a program with the following features –

- An operating system acts as an interface between the software and the computer.



D. *Objectives of Operating System*

The objectives of the operating system are –

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

E. *Characteristics of Operating System*

Here is a list of some of the most prominent characteristic features of Operating Systems –

- **Memory Management** – Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** – Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** – Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** – Allocates and de-allocates the resources and decides who gets the resources.

- **Security** – Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** – Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** – Records delays between the request for a service and from the system.
- **Interaction with the Operators** – Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** – Production of dumps, traces, error messages, and other debugging and error-detecting methods.
- **Coordination Between Other Software and Users** – Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

F. Internet

It is a worldwide/global system of interconnected computer networks. It uses the standard Internet Protocol (TCP/IP). Every computer in Internet is identified by a unique IP address. IP Address is a unique set of numbers (such as 110.22.33.114) which identifies a computer's location.

A special computer DNS (Domain Name Server) is used to provide a name to the IP Address so that the user can locate a computer by a name. For example, a DNS server will resolve a name <https://www.tutorialspoint.com> to a particular IP address to uniquely identify the computer on which this website is hosted.



Internet is accessible to every user all over the world.

G. Intranet

Intranet is the system in which multiple PCs are connected to each other. PCs in intranet are not available to the world outside the intranet. Usually each organization has its own Intranet network and members/employees of that organization can access the computers in their intranet.



Each computer in Intranet is also identified by an IP Address which is unique among the computers in that Intranet.

H. Similarities between Internet and Intranet

- Intranet uses the internet protocols such as TCP/IP and FTP.
- Intranet sites are accessible via the web browser in a similar way as websites in the internet. However, only members of Intranet network can access intranet hosted sites.
- In Intranet, own instant messengers can be used as similar to yahoo messenger/gtalk over the internet.

I. Differences between Internet and Intranet

- Internet is general to PCs all over the world whereas Intranet is specific to few PCs.
- Internet provides a wider and better access to websites to a large population, whereas Intranet is restricted.
- Internet is not as safe as Intranet. Intranet can be safely privatized as per the need.

J. Routers

A router is a type of device which acts as the central point among computers and other devices that are a part of the network. Computers and other devices are connected to a router using network cables

**K. Network Card**

Network card is a necessary component of a computer without which a computer cannot be connected over a network. It is also known as the network adapter. Most branded computers have network card pre-installed. Network cards are of two types: Internal and External Network Cards.

REFERENCES

- [1] "Data and Computer Communication" by William Stallings.
- [2] "Data Communication and networking" by Behrouz A Forouzan.
- [3] "Computer Networks" by Andrew S Tanenbaum.
- [4] "Computer Networks 5th edition" by Tanenbaum.