What is Communication? Describe the Effectiveness of Data Communication

Step 1:

Data and communication are the two words that make up the phrase "data communication." Any text, image, music, video, or multimedia file can be considered data. Sending and receiving data constitutes the act of communication. Data exchange between two or more networked or connected devices is referred to as data communication.

The communicating devices must be a part of a communication system composed of a mix of hardware (physical equipment) and software for data communications to take place (programs). Delivery, accuracy, timeliness, and jitter are the four key qualities that determine how well a data communications system performs.

Step 2:

Overall, by exchanging data and common resources among numerous computers, data communication enables firms to save costs and increase efficiency. In addition, the network may be linked together using cables, phone lines, or infrared beams, which is less expensive and lowers costs.

Delivery, accuracy, timeliness, and jitter are the four key qualities that determine how well a data communications system performs. I. Delivery: Data must be delivered to the proper location by the system. The designated device or user must get the data, and only that device or user.

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Data must be sent to the right location by the system. The designated device or user must get the data, and only that device or user.

Accuracy:

The data must be accurately sent by the system. Data that has been tampered with during transmission and is not restored is useless.

Timeliness:

Data delivery from the system must be prompt. Late data delivery is meaningless. When it comes to video and audio, timely delivery entails sending the data as soon as it is created, in the same order, and without any noticeable delays. Real-time transmission is the term for this type of distribution.

Jitter:

The term "jitter" describes the variance in packet arrival times. It is the uneven delay in audio or video packet delivery. For illustration, suppose that video packets are transmitted every 3D milliseconds. Uneven video quality results if some packets arrive with a 3D-ms delay while others arrive with a 4D-ms delay.

What is Network? Describe the Network Criteria

Step 1:

A group of devices joined by media links is referred to as a "network." A computer, printer, or any other device that can send and/or receive data produced by other nodes on the network is referred to as a "node." Communication channels are a common name for the connections between the devices.

A network is a collection of connected devices.

Communication between connected devices is referred to as networking.

Step 2:

Network criteria:

A network must be able to satisfy a variety of requirements. mainly because it enhances network performance. Performance, Reliability, and Security are the most crucial.

Performance: Transit and reaction times are two examples of performance metrics.

The length of time needed for a message to get from one device to another is known as the transit time.

The period of time between a request and a response is known as the response time.

A network's performance is influenced by a variety of variables, such as:

How many people utilise it

The medium of transmission

Hardware and software connected

Reliability:

Network dependability is measured in addition to delivery accuracy by failure frequency, the amount of time it takes a link to recover from a failure, and the network's resilience in a disaster.

Security

Data protection from viruses and unauthorised access is a concern for network security.

There are various levels at which protection can be achieved. User identification codes and passwords are at the bottom of the hierarchy. Techniques for encrypting data are at a higher level.

Since the network can be accessed from numerous locations, computer viruses may be present.

c) What is WAN? Write a Short note about it

step 1:

Wide area network, usually referred to as WAN, is a sizable information network that is not connected to a particular location. Through a WAN provider, WANs can make it easier for devices all around the world to communicate, share information, and do much more.

A wide area network (WAN) is a privately owned, geographically dispersed telecommunications system that links numerous local area networks (LANs). A local area network, or LAN, is made up of a number of connected computers and networking hardware that are often located close together geographically.

Step 2:

Voices, data, photos, and videos can all be transmitted across a wide geographic area using the WAN (Wide Area Network) network type. Combinations of LAN and MAN are used to produce WAN. Hubs, switches, routers, fibre optics, and modems are used to convey the data.

WANs are not geographically constrained in the same way that a LAN would be. A WAN is not restricted to a single location because a LAN can be established anywhere in the world and connected to it.

WAN connection types

Both wired and wireless technologies can be used for WAN connections. The following are examples of wired WAN services:

Multiprotocol Label Switching (MPLS)

T1s

Carrier Ethernet

commercial broadband internet links