

Characterization of Computational Sharing Networks and their Resources

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Opinion Article

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DESCRIPTION

A group of computers sharing resources that are available on or distributed by network nodes is known as a computer network. Over digital links, the computers communicate with one another using standard communication protocols. These connections are made up of telecommunication network technologies, which are based on physically wired, optical, and wireless radio-frequency means and may be set up in a number of different network topologies.

Personal computers, servers, networking equipment and other specialised or general-purpose hosts can all function as nodes in a computer network. They can have related names and are identifiable by network addresses. After being assigned, hostnames act as recognisable labels for the nodes and are rarely updated. Network addresses are used by communication protocols like the Internet Protocol to locate and identify the nodes.

Computer networks can be described using a variety of factors, including the signal transmission medium, bandwidth, communications protocols used to organise network traffic, network size, topology, traffic management system and organizational goals.

Many different applications and services are supported by computer networks, including access to the World Wide Web, digital video and audio, the shared use of application and storage servers, printers, fax machines, and email and instant messaging software.

Due to its reliance on the theoretical and applied aspects of the allied fields of computer science, computer engineering, and telecommunications, computer networking may be viewed as a subset of these fields. The evolution of computer networking was impacted by a variety of technological advances and historical events.

Through the use of diverse technologies including email, instant messaging, internet telephony, audio and video telephone conversations and video conferencing, a computer network expands interpersonal connections through electronic means. Sharing of network and computational resources is possible through networks. Users have access to and control over the resources made available by networked devices, such as printing a file on a shared

network printer or using a shared storage device. Authorized users can access information stored on other networked computers due to a network's capacity to share files, data and other forms of information. To complete tasks distributed computing makes advantage of computing resources across a network.

Most contemporary computer networks make use of packet-based transmission-based protocols. A packet-switched network transports structured data in the form of network packets.

When using packets, users can more effectively share the transmission medium's bandwidth than when using circuit switching on the network. If the link is not compromised, while one user is not transmitting packets, the link can be filled with packets from other users.

The physical connection technologies of packet networks often impose a maximum transmission unit on the size of packets (MTU). Before being transferred, a lengthier message might be broken up into smaller packets, which are then put back together to form the original message.

The topology of a network's interconnections has a much greater impact on a network's throughput and dependability than the actual physical or geographical locations of its nodes and links do. As a result, the network topology, which is a map of the logical relationships between network hosts, is how most network diagrams are organized.