Computers

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2.2 Modern history

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2.2.1 Mobile computing

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Figure 1: my first figure.

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3 language

Computer and communication networks to provide a wide range of services, from simple networks of computers to remote-file access, digital libraries, videoconferencing, and networking billions of users and devices. Before exploring the world of computer and communication networks, we need to study the fundamentals of packet-switched networks as the first step. Packet-switched networks are the backbone of the data communication infrastructure. Therefore, our focus in this chapter is on the big picture and the conceptual aspects of this backbone:

Basic definitions in data networks

Types of packet-switched networks

Packet size and optimizations

We start with the basic definitions and fundamental concepts, such as messages, packets, and frames, and packet switching versus circuit switching. We learn what the Internet is and how Internet service providers (ISPs) are formed. We then proceed to types of packet-switched networks and how a message can be handled by either connection-oriented networks or connectionless networks. Because readers must get a good understanding of packets as data units, packet size and optimizations are also discussed.

3.1 Scripting language

Communication networks have become essential media for homes and businesses. The design of modern computer and communication networks must meet all the requirements for new communications applications. A ubiquitous broadband network is the goal of the networking industry. Communication services need to be available anywhere and anytime. The broadband network is required to support the exchange of multiple types of information, such as voice, video, and data, among multiple types of users, while satisfying the performance requirement of each individual application. Consequently, the expanding diversity of high-bandwidth communication applications calls for a unified, flexible, and efficient network. The design goal of modern communication networks is to meet all the networking demands and to integrate capabilities of networks in a broadband network.

3.1.1 JavaScript

Packet-switched networks are the building blocks of computer communication systems in which data units known as packets flow across networks. The goal of a broadband packet-switched network is to provide flexible communication in handling all kinds of connections for a wide range of applications, such as telephone calls, data transfer, teleconferencing, video broadcasting, and distributed data processing. One obvious example for the form of traffic is multirate connections, whereby traffic containing several different bit rates flows to a communication node. The form of information in packet-switched networks is always digital bits. This kind of communication infrastructure is a significant improvement over the traditional telephone networks known as circuit-switched networks.

3.1.2 PHP

Circuit-switched networks, as the basis of conventional telephone systems, were the only existing personal communication infrastructures prior to the invention of packet-switched networks. In the new communication structure, voice and computer data are treated the same, and both are handled in a unified network known as a packet-switched network, or simply an integrated data network. In conventional telephone networks, a circuit between two users must be established for a communication to occur. Circuit-switched networks require resources to be reserved for each pair of end users. This implies that no other users can use the already dedicated resources for the duration of network use. The reservation of network resources for each user results in an inefficient use of bandwidth for applications in which information transfer is bursty.

3.1.3 VBScript

Packet-switched networks with a unified, integrated data network infrastructure known as the Internet can provide a variety of communication services requiring different bandwidths. The advantage of having a unified, integrated data network is the flexibility to handle existing and future services with remarkably better performance and higher economical resource utilizations. An integrated data network can also derive the benefits of central network management, operation, and maintenance. Numerous requirements for integrated packed-switched networks are explored in later chapters:

Having robust routing protocols capable of adapting to dynamic changes in network topology

Maximizing the utilization of network resources for the integration of all types of services

Providing quality of service to users by means of priority and scheduling

Enforcing effective congestion-control mechanisms that can minimize dropping packets

3.2 Programming Language

Circuit-switched networking is preferred for real-time applications. However, the use of packet-switched networks, especially for the integration and transmission of voice and data, results in the far more efficient utilization of available bandwidth. Network resources can be shared among other eligible users. Packet-switched networks can span a large geographical area and comprise a web of switching nodes interconnected through transmission links. A network provides links among multiple users facilitating the transfer of information. To make efficient use of available resources, packet-switched networks dynamically allocate resources only when required.

3.2.1 Interpreted

A packet-switched network is organized as a multilevel hierarchy. In such networks, digital messages are fragmented into one or more smaller units of messages, each appended with a header to specify control information, such as the source and the destination addresses. This new unit of formatted message is called a packet, as shown in Figure 1.1. Packets are forwarded to a data network to be delivered to their destinations. In some circumstances, packets are also required to be attached together or further fragmented, forming a new packet known as a frame. Sometimes, a frame may be required to have multiple headers to carry out multiple tasks in multiple layers of a network, as shown in the figure.

3.2.2 Compiled

The Internet is the collection of hardware and software components that make up our global communication network. The Internet is indeed a collaboration of interconnected communication vehicles that can network all connected communicating devices and equipment and provide services to all distributed applications. It is almost impossible to plot an exact representation of the Internet, since it is continuously being expanded or altered. One way of imagining the Internet is shown in Figure 1.3, which illustrates a big-picture view of the worldwide computer network.

3.3 System Programming

To connect to the Internet, users need the services of an Internet service provider. Each country has international or national service providers, regional service providers, and local service providers. At the top of the hierarchy, national Internet service providers connect nations or provinces together. The traffic between each two national ISPs is very heavy. Two such ISPs are connected together through complex switching stations called network access points (NAPs). Each NAP has its own system administrator.

In contrast, regional Internet service providers are smaller ISPs connected to a national ISP in a hierarchical chart. A router can operate as a device to connect to ISPs. Routers operate on the basis of one or more common routing protocols. In computer networks, the entities must agree on a protocol, a set of rules governing data communications and defining when and how two users can communicate with each other.

Table 1: Ideentify teamviewe

Systemprogram	*Language*
Java	Java Script
VB	Visual Programming
HTML	Web page
C++	C code

4 Discussion

If a packet arrives at or leaves from a queueing node of a computer network, the state of the node's buffer changes, and thus the state of the queue changes as well. In such cases, as discussed in Appendix C, if the system can be expressed by a Markov process, the activity of the processin terms of the number of packetscan be depicted by a state machine known as the Markov chain. A particular instance of a Markov chain is the birth-and-death process.

In a birth-and-death process, any given state i can connect only to state i - 1 with rate i or to state i + 1 with rate ?i, as shown in Figure 11.3. In general, if A(t) and D(t) are the total number of arriving packets and the total number of departing packets, respectively, up to given time t, the total number of packets in the system at time t is described by K(t) = A(t) - D(t). With this analysis, A(t) is the total number of births, and D(t) is the total number of deaths. Therefore, K(t) can be viewed as a birth-and-death process representing the cumulative number of packets in a first-come, first-served service discipline, you can find this in table1.

5 Remark

Chemical, biological, or solar sensors can be networked together as a sensor network to strengthen the power of sensing. A sensor network is controlled through a software core engine. The network is typically wireless but may also be wired. Sensor networks are designed to be self-configuring such that they can gather information about a large geographical area or about movements of an object for surveillance purposes.

Sensor networks can be used for target tracking, environmental monitoring, system control, and chemical or biological detection. In military applications, sensor networks can enable soldiers to see around corners and to detect chemical and biological weapons long before they get close enough to cause harm. Civilian uses include environmental monitoring, traffic control, and providing health care monitoring for the elderly while allowing them more freedom to move about.

20.1.1. Clustering in Sensor Networks The region being sensed is normally partitioned into equally loaded clusters of sensor nodes, as shown in Figure 20.1. A cluster in a sensor network resembles a domain in a computer network. In other words, nodes are inserted in the vicinity of a certain predefined region, forming a cluster. Different types of sensors can also be deployed in a region. Thus, a sensor network is typically cluster based and has irregular topology. The most effective routing scheme in sensor networks is normally based on the energy (battery level) of nodes. In such routing schemes, the best path has the highest amount of total energy. The network of such sensing nodes is constructed with identical sensor nodes, regardless of the size of the network. In Figure 20.1, three clusters are interconnected to the main base station, each cluster contains a cluster head responsible for routing data from its corresponding cluster to a base station.

Group	No	PID	Job		RA		SD		ST		SI		SAM		DB		DB		UC	
			Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
XA-YB	1	604	3																	
Average																				
XA-YB	1	604	3																	
Average																				
XA-YB	1	604	3																	
Average																				
XA-YB	1	604	3																	
Average																				
T.Ave																				
Standard Deviation																				
Minimum																				
Maximum																				

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