2 Communication and Network Technologies
通讯与网络技术

2.1 Networks Including the Internet 网络，包括互联网

wide area network (WAN) 广域网

a network connecting computers on diff erent sites, possibly thousands of kilometres apart.

local area network (LAN) 局域网

a network connecting computers in a small geographical area, usually privately owned.

Internet 互联网

the largest WAN in the world. Massive network of networks made up of computers and other devices. Use TCP/IP communication protocols.

World Wide Web (WWW) 万维网

the most important service running on the Internet. A collection of multimedia web pages, written in HTML, stored on websites, and specified by URLs. Use a client-server model and the HTTP/HTTPS protocol to access.

Wi-Fi

also known as wireless LAN (WLAN) or wireless Ethernet.

client-server model 客户端-服务器模型

an architecture where specific client devices connect to and run applications on dedicated servers on a network. Server receives and processes the requests from the clients, and clients send requests to the server and output the response.

server 服务器

a system providing a specific function/service to clients. Examples of services include: web, email, file access, print, etc.

thin-client 瘦客户端

a client that only provides input and receives output from the application. It needs connection to a network to work.

thick-client 胖客户端

a client that carries out at least some of the processing itself, so that it can also work in offline mode.

topology 网络拓扑

the configuration of a network that defines how the various devices on the network are connected.

bus topology 总线拓扑

contains one shared link to which all devices are attached.

end system 端系统

a computer or server connected to a network.

mesh topology 网状拓扑

contains direct links between devices.

star topology 星形拓扑

each end-system is linked to a central device.

hybrid network

a collection of connected LANs where some of them have different topologies or supporting technologies.

cable 线缆

a transmission using copper wire or fibre-optic, such as twisted pair cable, coaxial cable or fibre-optic cable.

bandwidth 带宽

a measure of the amount of data that can be transmitted per second.

wireless 无线

a transmission using radio, microwave or infrared.

repeater 中继器

a device that connects two cables and provides a full-strength signal to the second cable.

gateway 网关

a device that connects two LANs using different protocols.

Bridge 网桥

a device that connects two segments of a LAN using the same protocols.

Network Interface Card (NIC) 网卡

a component used to identify the end-system.

Ethernet 以太网

a protocol for data transmission over wired network using CSMA/CD.

collision 冲突

two messages from different sources trying to transmit along the same channel.

carrier-sense multiple access with collision detection (CSMA/CD) 载波监听多点接入／碰撞检测

a method used in Ethernet to detect and resolve collision.

switch 交换机

a connecting device that connects two or more devices, and allow them to communicate with each other by receiving transmissions and forwarding them to their destination.

Wireless Access Point (WAP) 无线热点

the connecting device in a Wi-Fi LAN that allows a central device connecting to other devices by sending and receiving radio signals. Also allow wireless enabled devices to connect to a wired network.

router 路由器

a device that acts as a node on the Internet.

public switched telephone network (PSTN) 公共交换电话网络

wired network for conventional telephone to make calls or send faxes.

private cloud 私有云

owned by and only accessed by an organisation.

public cloud 公有云

owned by a cloud service provider for general access.

Bit streaming 比特流

Transfer sequence of bits over the Internet at high speed. Bits arrive in the same order as they were sent. It requires fast broadband connection some

form of buffering.

On-demand

when the bit stream content is transmitted at a time chosen by the user.

Real-time

when the bit stream content is transmitted as it is produced.

Bit rate 比特率

the number of bits transmitted per second.

Internet Protocol (IP) 互联网协议

assign an address (IPv4 or IPv6) to each device connected to the internet.

IPv4 address IPv4 地址

a 32-bit long, hierarchical address of a device on the Internet. Commonly written as four denary numbers (0~255 each) separated by three periods. The first part is a netID and the second part is a hostID.

IPv6 address IPv6 地址

128-bit long. Commonly written as eight chunks of hexadecimal numbers (four digits each) separated by seven colons.

Subnetting 子网

divide network into two or more sub-networks. It reduces the traffic in a network, improves network security and allow for easier ### maintenance.

Domain name service (DNS) 域名服务

a hierarchical distributed database installed on domain name servers that is responsible for mapping a domain name to an IP address. Also known as domain name system.