

## 2 Communication 通讯

### 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 different 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.

**peer-to-peer network 对等网络**

a model in which all computers are of equal status and data is distributed. Each computer is responsible for its own security and they communicate to share resources.

**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**

a network topology using a single central cable, to which all devices are attached.

**end system 端系统**

a computer or server connected to a network.

**star topology 星形拓扑**

a network topology in which each end-system is linked to a central device.

**mesh topology 网状拓扑**

a network topology containing direct links between devices.

**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 and provides an interface to wireless network.

**Ethernet 以太网**

a protocol for data transmission over wired network using CSMA/CD. Data is transmitted in frames. Each frame has a source and destination address and error checking data.

**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 enables data packets to be routed between different networks.

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

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

**cloud** 云

Accessing a service/files/software on a remote **server**.

**private cloud 私有云**

owned by and only accessible to an organisation, being offered either over the Internet or a private internal network.

**public cloud 公有云**

owned by a cloud service provider over the public Internet, accessible to anyone with the appropriate credentials.

**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.

**public IP address 公网 IP 地址**

an IP address visible to any device on the Internet.

**private IP address 私有 IP 地址**

an IP address only visible to devices within the LAN.

**static IP address 静态 IP 地址**

an IP address allocated to a device, and does not change each time the device is connect to the network.

**dynamic IP address 动态 IP 地址**

the IP address allocated to a device that may be different each time it is connected to the network.

**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.

**Network Address Translation (NAT) 网络地址转换**

a technique used by routers to allow multiple devices in a private LAN to share a single public IP address.

**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.