

2 Communication – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)
protocol	协议	_____
World Wide Web	万维网	_____
domain name	域名	_____
Domain Name System	域名系统	_____
Ethernet	以太网	_____
twisted-pair	双绞线	_____
fibre-optic	光纤	_____
network interface card	网络接口卡	_____
switch	交换机	_____
router	路由器	_____

Recall

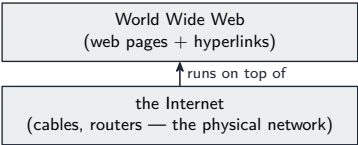
In **Part 1** you met LAN vs WAN, client-server vs peer-to-peer, network topologies, bandwidth, and protocols. Part 2 looks at the internet and the web, how a name becomes an address, wired vs wireless links, and the hardware that joins a LAN.

New ideas

Read these first. Each idea has a short worked example. Then do the Practice.

■ 1 The internet and the World Wide Web

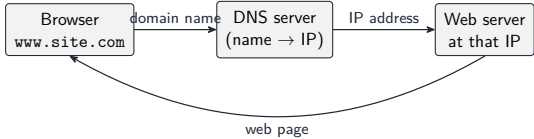
The **internet** is a global *network of networks* that all use the same **protocol** 协议 family (TCP/IP). The **World Wide Web** 万维网 is just one service running on it — linked pages, found by their address (URL) and viewed in a browser. Email and file transfer are other internet services, not part of the web. Every device has an IP address (IPv4 is four numbers 0–255, e.g. 192.168.1.10).



Worked example. When you send an email and open a web page, both travel over the internet — but only the web page is part of the World Wide Web; email is a separate service.

■ 2 Names and addresses (DNS)

A web address contains a **domain name** 域名 (like `example.com`). The **Domain Name System** 域名系统 (DNS) turns that name into the numeric IP address the browser actually connects to — so people remember names, not numbers.

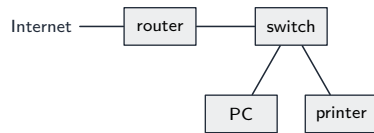


Worked example. You type `example.com`; the DNS returns its IP address (say 93.184.216.34), and the browser then connects to that number.

■ 3 Wired, wireless and LAN hardware

- **wired** (**Ethernet** 以太网 over **twisted-pair** 双绞线 or **fibre-optic** 光纤 cable): faster, more reliable, more secure.
- **wireless** (Wi-Fi): no cables and devices can move, but slower and easier to intercept.

Key devices: a **network interface card** 网络接口卡 (NIC) connects a device to the network; a **switch** 交换机 sends each message only to the port for its destination; a **router** 路由器 joins a LAN to the internet and forwards data using IP addresses.



Watch out: a switch sends a message only to the *one* device it is meant for — do not confuse it with a router, which connects your whole LAN out to the *internet*.

Practice

2.1 State what an IP address is used for. [1]

2.2 State one difference between the internet and the World Wide Web. [2]

2.3 State what each does: (a) a switch, (b) a router. [2]

2.4 Explain what the DNS does when you type a web address. [2]

2.5 Give one advantage of a wired connection and one advantage of a wireless connection. [2]

2.6 Explain *why* the DNS makes the internet easier for people to use. [2]

2.7 Challenge. A café offers free Wi-Fi to its customers. Give one advantage and one security risk of using wireless here rather than wired cables. [2]
