

2 Communication – Part 1

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)
network	网络	_____
local area network	局域网	_____
wide area network	广域网	_____
bandwidth	带宽	_____
server	服务器	_____
client	客户端	_____
peer-to-peer	对等网络	_____
topology	拓扑	_____
packet	数据包	_____
protocol	协议	_____

Recall

At IGCSE you used networks. Bring this with you:

- A **network** 网络 connects computers so they can share data and resources.
- You met the internet and wireless connections.

At AS we look at how networks are arranged and the rules that let devices talk to each other.

New ideas

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

■ 1 Types of network

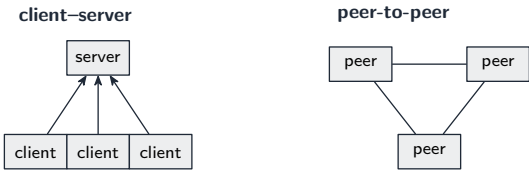
- A **local area network** 局域网 (LAN) covers one site — a school or an office.
- A **wide area network** 广域网 (WAN) joins sites over long distances; the internet is the largest WAN.
- The **bandwidth** 带宽 of a link is how much data it can carry each second.



Worked example. The computers in one school form a LAN; when the school connects to a bank’s computers across the country, that long-distance link is part of a WAN.

■ 2 Client–server and peer-to-peer

- In a client–server network a powerful **server** 服务器 stores files and services, and many **client** 客户端 machines request them.
- In a **peer-to-peer** 对等网络 network the computers share directly, with no central server.

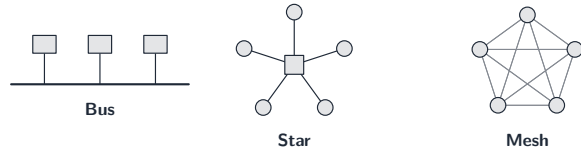


Worked example. A school’s shared drive is client–server (one server holds the files); two phones sending a photo straight to each other is peer-to-peer (no server in between).

Watch out: the internet is a WAN, not a LAN — and “the web” (web pages) is just one *service* that runs on the internet, not the internet itself.

■ 3 Topologies and protocols

The **topology** 拓扑 is the shape of the connections — for example a *bus* (one shared line) or a *star* (every device joined to a central switch).



Data travels in small **packet** 数据包 units. A **protocol** 协议 is an agreed set of rules that lets different devices communicate — for example TCP/IP on the internet.

Worked example. On a star network each computer has its own cable to the switch, so if one cable breaks, only that one computer drops off and the rest keep working.

Practice

2.1 State what is meant by the bandwidth of a connection. [1]

2.2 State one difference between a LAN and a WAN. [2]

2.3 Give one difference between a client-server network and a peer-to-peer network. [2]

2.4 Explain what a protocol is, and give one example. [2]

2.5 Give one advantage of a star topology. [1]

2.6 Explain *why* a star topology keeps working for the other computers when one cable fails, but a bus can fail for everyone. [2]

2.7 **Challenge.** A small office of five computers wants to share files but cannot afford a dedicated server. Suggest which network type suits them and give a reason. [2]
