

1.3 EXCHANGING DATA · 1.3.3

Network hardware, client–server & peer-to-peer

The kit that builds a network, plus the two ways to organise it. Spec 1.3.3(d)(e).

01 Hardware

NIC Connects a device to the network; holds its **MAC address**.

Switch Sends data to the **one** target device by MAC (on a LAN).

Hub Older; **broadcasts** to every device. Wasteful.

Router Connects **different networks**; routes packets by IP.

Gateway Connects networks using **different protocols**.

WAP Wireless access — Wi-Fi connection to the network.

Media Wired (copper, fibre) or wireless (radio).

02 Client–server vs P2P

● Client–server

Central server: security, storage, backup. Costly; single point of failure.

● Peer-to-peer

Equal peers, no server. Cheap, resilient; hard to secure/back up.

C/S for Schools, businesses, big orgs.

P2P for Small home nets, file sharing.

03 Switch vs router vs gateway — one line each

Switch Within a LAN · forwards by **MAC** · to one device.

Router Between networks · routes by **IP** · same protocols.

Gateway Between networks using **different protocols** · translates.

FINAL PASS BEFORE THE EXAM

Rapid exam tips

Six slips on hardware & network-model questions.

01

Switch = **one device** by MAC; hub = **all devices** (broadcast).

02

Switch works **within** a LAN; router connects **different networks**.

03

Router = same protocols; **gateway** = different protocols.

04

NIC holds the **MAC address** that identifies a device on a LAN.

05

Client-server strength = **central** security, storage & backup.

06

Always give the **downside** too: C/S cost + single point of failure; P2P hard to secure.