

1.3 EXCHANGING DATA · 1.3.3

Networks: characteristics, protocols & standards

LANs vs WANs, topologies, what protocols are, and why standards matter. Spec 1.3.3(a).

01 LAN vs WAN

● LAN

Small area (one site). Organisation owns the hardware. High speed.

● WAN

Large area. Uses third-party infrastructure. Internet is a WAN.

Benefits Share files, hardware, central backup, communication.

02 Topologies

Star All devices → central switch. Fast; switch is a single point of failure.

Mesh Many paths between devices. Very resilient; lots of cabling.

03 Protocols & standards

Protocol A set of **rules** for transmitting data (format, speed, error checking, start/end).

Why Without shared rules, devices can't understand each other; lets different makers' kit communicate.

Examples TCP/IP, HTTP, HTTPS, Ethernet.

Standards Agreed specs → **interoperability** between manufacturers.

FINAL PASS BEFORE THE EXAM

Rapid exam tips

Six slips on networks questions.

01

A protocol is a **set of rules** for communication — not the cable or the connection.

02

"Why protocols matter" → without shared rules, devices **can't understand each other**.

03

LAN = small area, you own the hardware. **WAN** = large area, third-party infrastructure.

04

Name LAN protocols when asked: **TCP/IP, HTTP(S), Ethernet**.

05

Mesh = multiple paths (resilient); **star** depends on the central switch.

06

Standards exist for **interoperability** across different manufacturers.