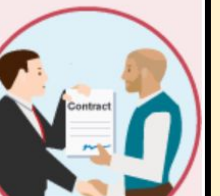
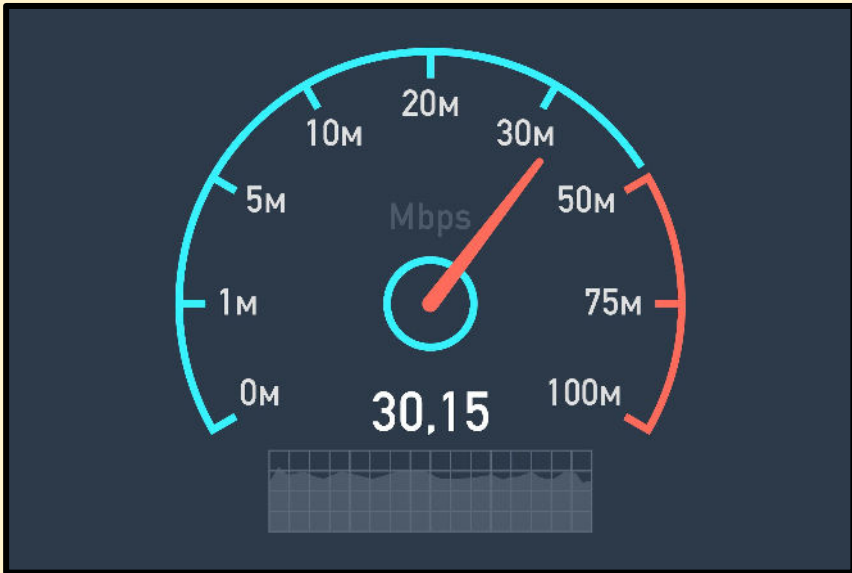


Introduction to Networks

Key Words		Networks	Network Performance
bandwidth	The amount of data that can transfer through a communications channel over a given period of time.	A network is a group of interconnected computers/ devices. The two main types of network are WAN and LAN. Advantages  Share files  Share internet connection and devices  Communication  Roaming profile Disadvantages  Reliance on networked resources  Expensive hardware  Risk of viruses and hacking  Specialist staff often required	 Network performance is about response time - how fast a message can be sent or how quickly a document can be retrieved. The performance of a network can be affected by various factors: - the number of devices on the network. The more users there are on a network the more data is likely being transmitted. This means it can take longer as you have to wait your turn for your packets to travel across the network - the bandwidth of the transmission medium. WiFi generally has less bandwidth than wired connections. Wired connections (ethernet) can be different speeds (10Mbps, 100Mbps, Gigabit). - network latency. You can get bottlenecks in parts of your network, either because of a faulty switch, or due to the design of your network. - the number of transmission errors - the type of network traffic
collision	The result of two devices on a network trying to communicate with each other simultaneously.		
latency	The time taken for data to travel from one point to another.		
network	A group of interconnected computers or devices.		
node	Any device connected to a network.		
stand alone	A device that is not connected to a network or other device.	Types of Networks	
topology	The structure, or layout, of a network.	LAN - Local Area Network (LAN) is a network that is geographically confined to one building or site. - Examples include networks employed by small businesses, schools, colleges, universities and in homes. - LANs are owned and maintained by the organisation. WAN - Wide Area Network (WAN) is a network that is spread over a wide geographical area. - It can cover more than one site, or be spread across a country, or even the world. - The infrastructure is owned by the organisation providing the WAN	
transmission error	An error that occurs when data is sent over a network, often caused by interference or a weak signal.		
transmission media	How data is carried from point A to point B physically, either by cable or wirelessly.		

Quizizz



Extended Reading



Exam Questions



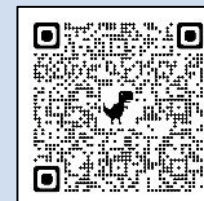
Video



Revision Techniques



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Specification

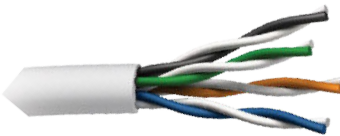
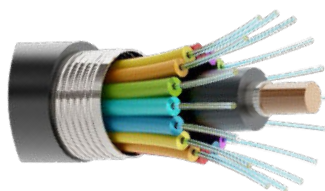


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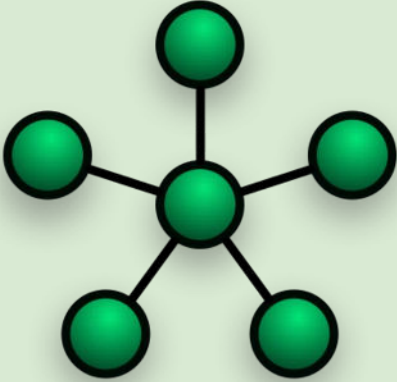
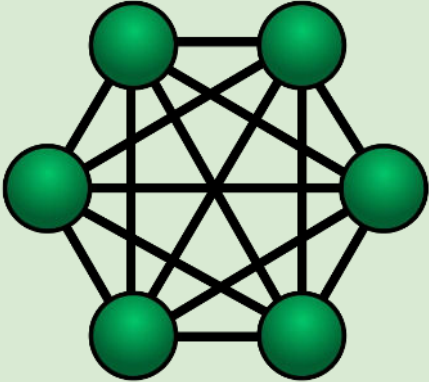
Introduction to Networks

Network Hardware

To connect a computer or device to a network, a number of hardware components are required.

Name	Description	Image
Wireless Access Point (WAP)	A device that connects computers to a network using Wi-Fi.	
router	A device that sends data packets between networks.	
switch	An intelligent device for connecting computers and other network capable devices together to form a network.	
Network Interface Card (NIC)	Provides the electrical signals for sending and receiving data on a network.	
Unshielded Twisted Pair (UTP)	A cable made from pairs of copper wires twisted around each other.	
fibre-optic cable	A cable using light to transmit data over long distances.	

Network Topologies

Name	Star	Mesh
Description	Each node connects to a central switch.	Each node is connected with every other node.
Advantages	If one node fails, the other nodes are unaffected. It is high-performing as no data collisions can occur. Easy to add new nodes to the network.	Messages should always get through as they have many possible routes on which to travel New nodes can be added without interruption or interfering with other nodes. A failure of one node does not impact on data transmission.
Disadvantages	The whole network fails if the switch fails as no node can communicate. Can have high setup costs and switches are expensive to buy and maintain.	Full mesh networks can be impractical to set up because of the high number of connections needed. Many connections require a lot of maintenance
Diagram		

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Extended Reading



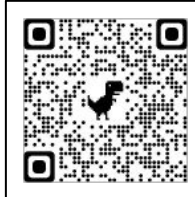
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