

SUBJECT: Computing

UNIT: Networks and the Internet



IP addresses

These are used to send data between devices across a network. They are similar to a postal address used to send a letter

Public IP addresses are unique and allow devices to access the internet directly.

Private IP addresses allow devices to connect to the network, which then connects to the internet.

Private IP addresses work like an internal phone network with extension numbers. Two different networks can use the same private IP addresses, reducing the need for unique IP addresses.

Switch

A device on a network that sends data to the correct device.

We use a switch to connect the devices on a network.

Data is sent from a device to the switch. The switch reads the destination IP address of the data and sends it to the right device.

Large networks may have more than one switch and the data passes through more than one switch on its way to the destination IP address.

Domain name

The name typed into a browser to access a website.

DNS server

Similar to a contacts list, a DNS server matches the domain name typed into a web browser with its IP address, so that a browser can contact the server to access and display a web page.

Packet switching

Data is split into small parts called packets to be sent across a network to another computer. Packets may use different routes to reach their destination, known as packet switching. The packets are reassembled by the destination computer.

Advantage: If a packet goes missing, or is damaged, then just one packet needs to be re-sent. Having the packet numbers makes it easy to identify which one is missing. This is much less work!

Disadvantage: Each packet must have a header added to it which includes: packet number, IP address of recipient, IP address of sender. Adding this data to every packet increases the total amount of data sent by about 3%.

The Internet: networks join together to form the internet, which connects over 50 billion devices worldwide.

Cloud computing

Running programs and storing file on the internet. Many services enable us to do things online such as stream music and videos, communicate, play games and shop.

Wired connection

A method of connecting to a network using a cable, often referred to as an ethernet cable.

Wireless connection

A method of connecting to a network using Wi-Fi or mobile data. Wi-Fi uses radio waves transmitted to and from a wireless access point to send data through the air.