

The internet as a network

A **computer network** is when two or more computers or devices are connected together to allow them to communicate

The **internet** is a huge computer network. It links devices together from all over the world. The devices can communicate, including by accessing webpages

The internet as a network

A **web browser** is the piece of **software** you open to look at web pages

Google Chrome



Firefox



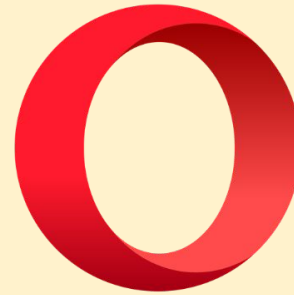
Safari



Microsoft Edge



Opera



The internet as a network

When you use your **web browser** to view a website, you send a request over the internet to the **web server**

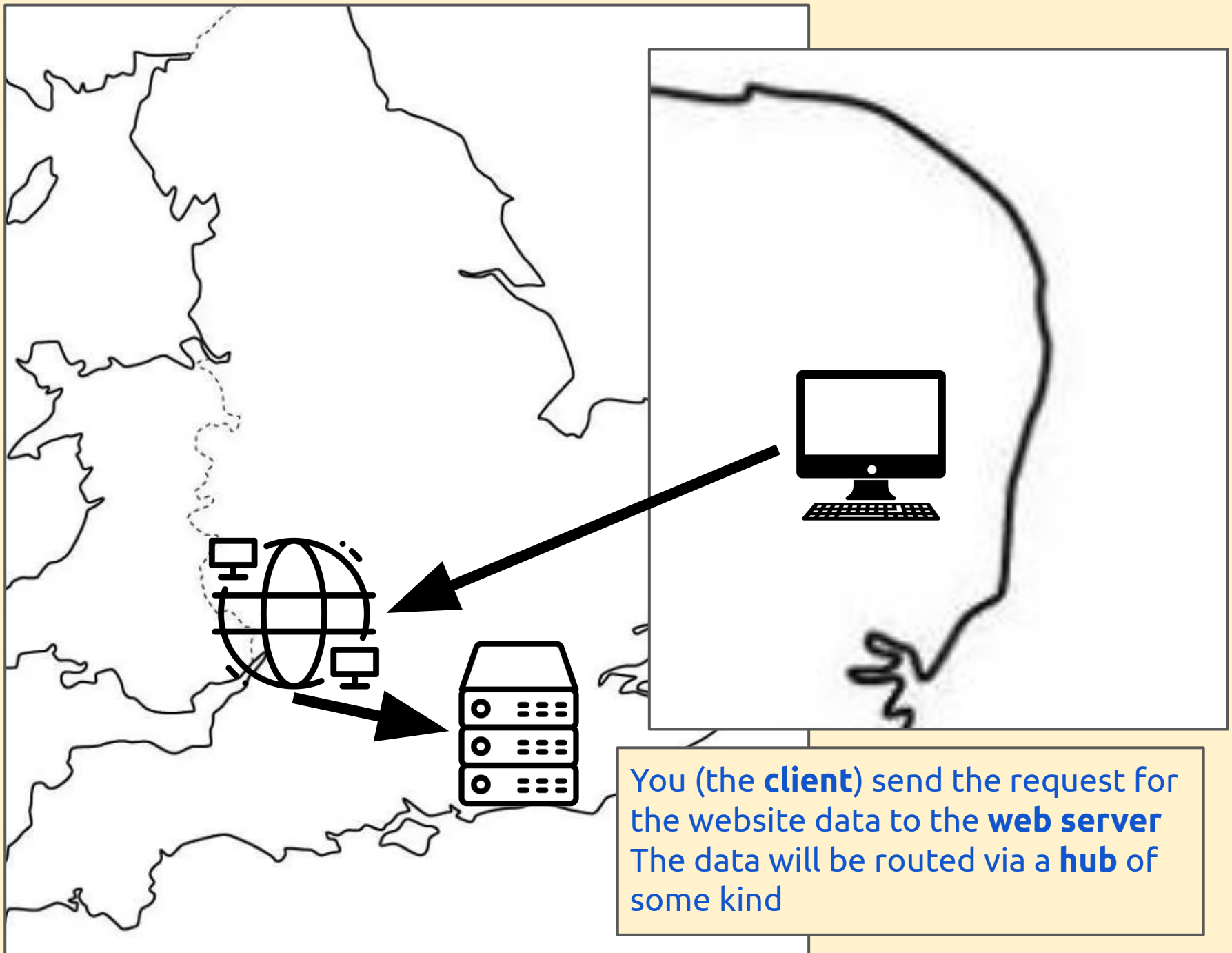
The **web server** is a specialised computer where the pages that make up a website are stored

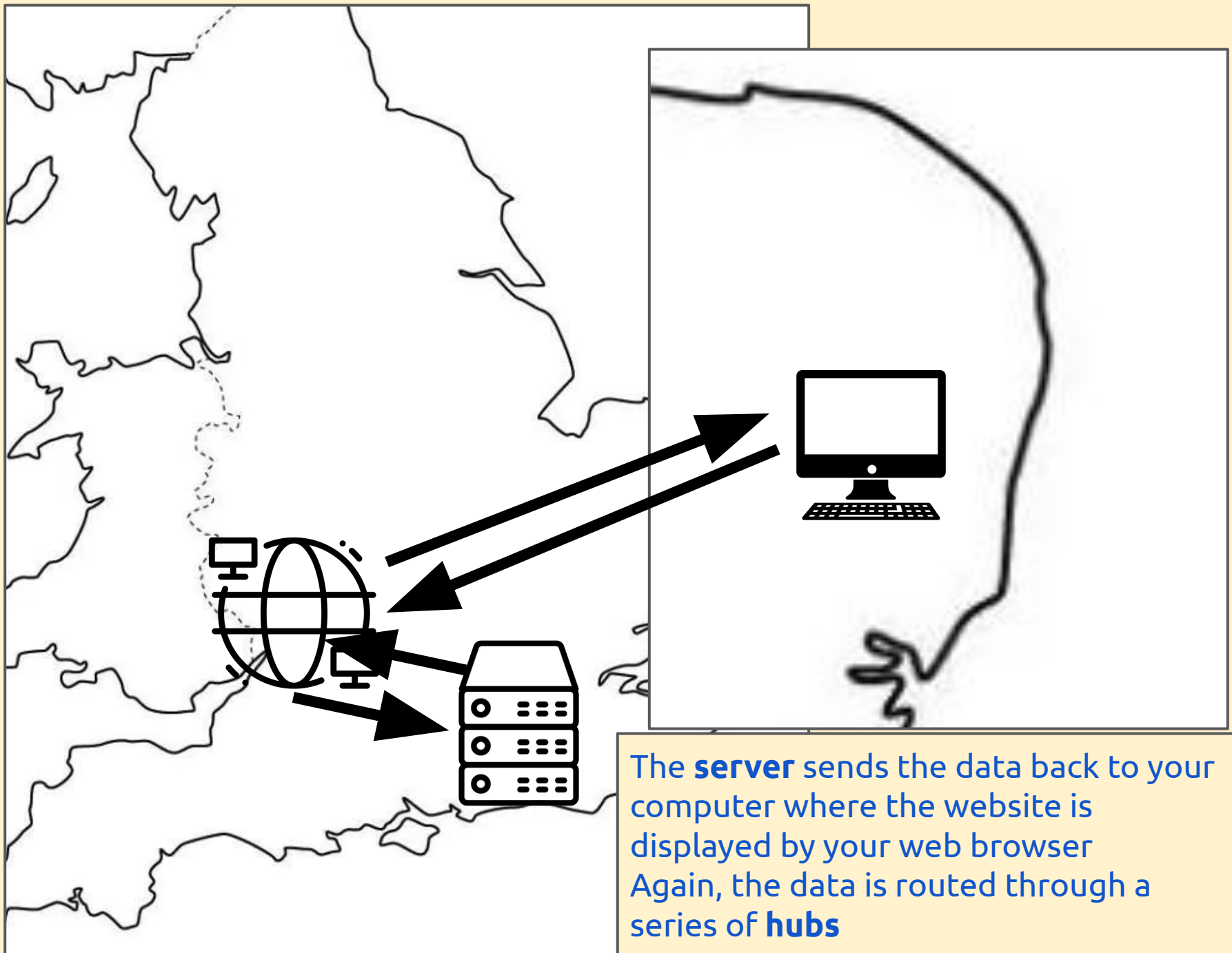
The **web server** sends back the data about the website to your **browser**, which builds the page on your computer

The internet as a network

Every computer on the internet has an **IP address**. This stand for Internet Protocol and is a number to identify the device on the network.

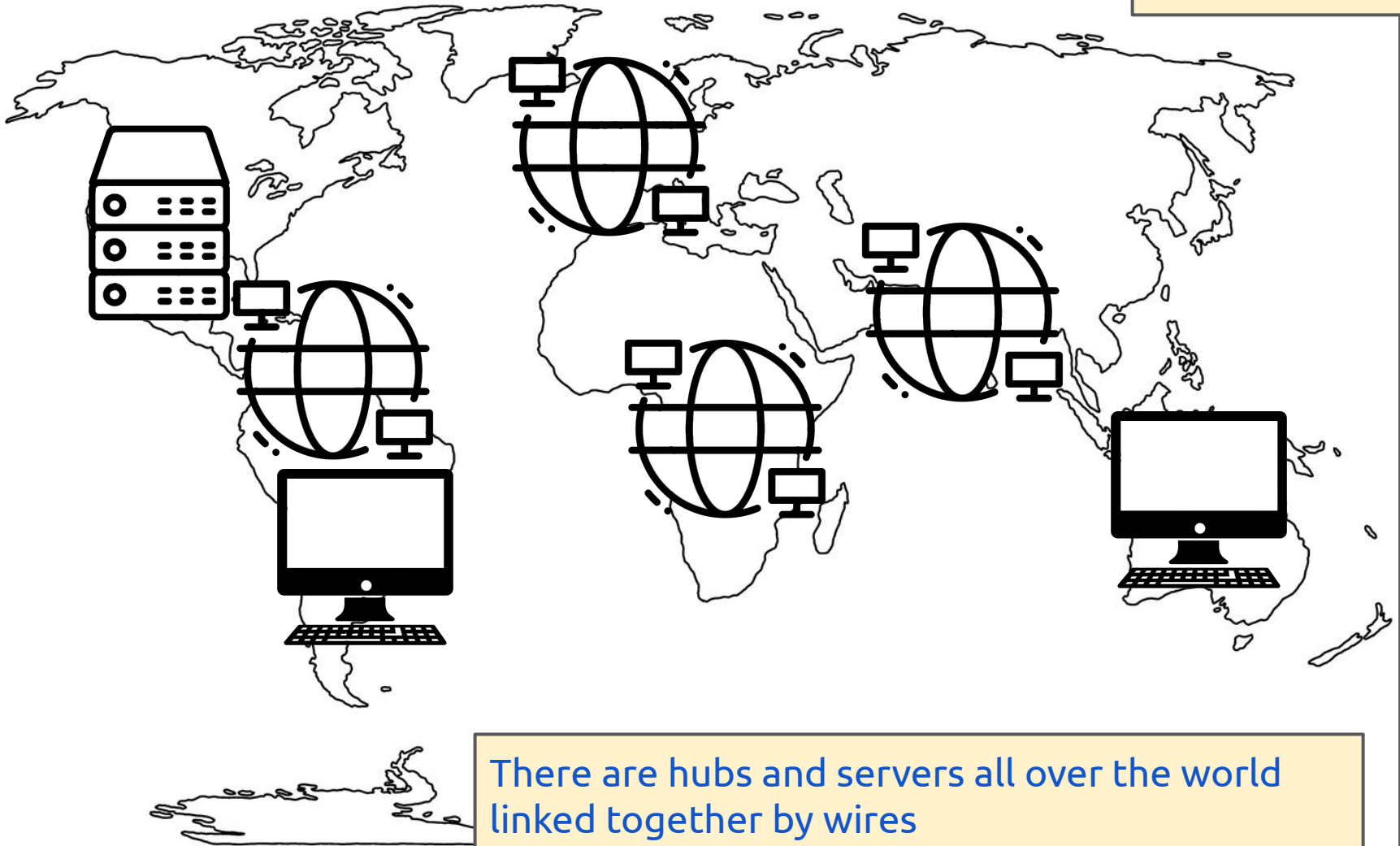
Example IP address: 68.178.157.132





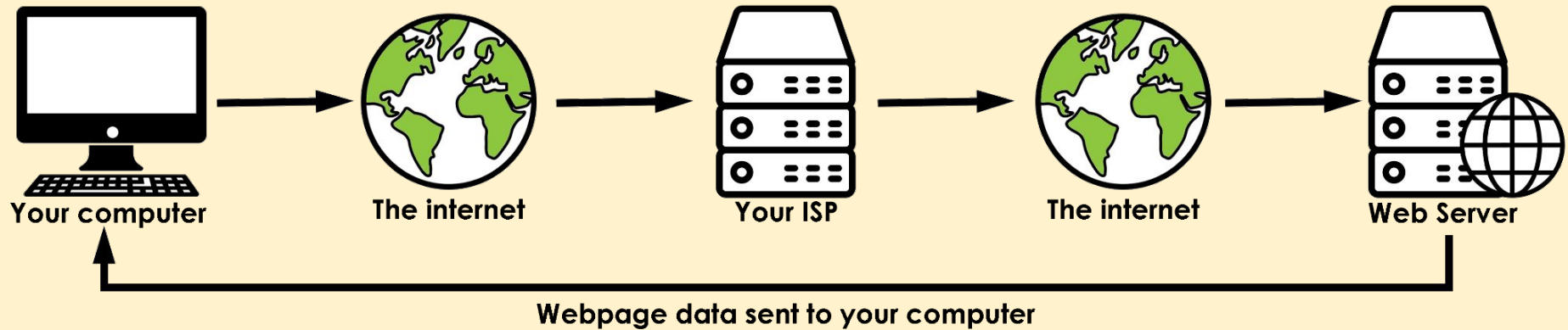
The **server** sends the data back to your computer where the website is displayed by your web browser
Again, the data is routed through a series of **hubs**

There are a lot more hubs and servers than are shown here!



There are hubs and servers all over the world linked together by wires
That means that computers from all over the world can view websites and send e-mail using the internet

The internet as a network

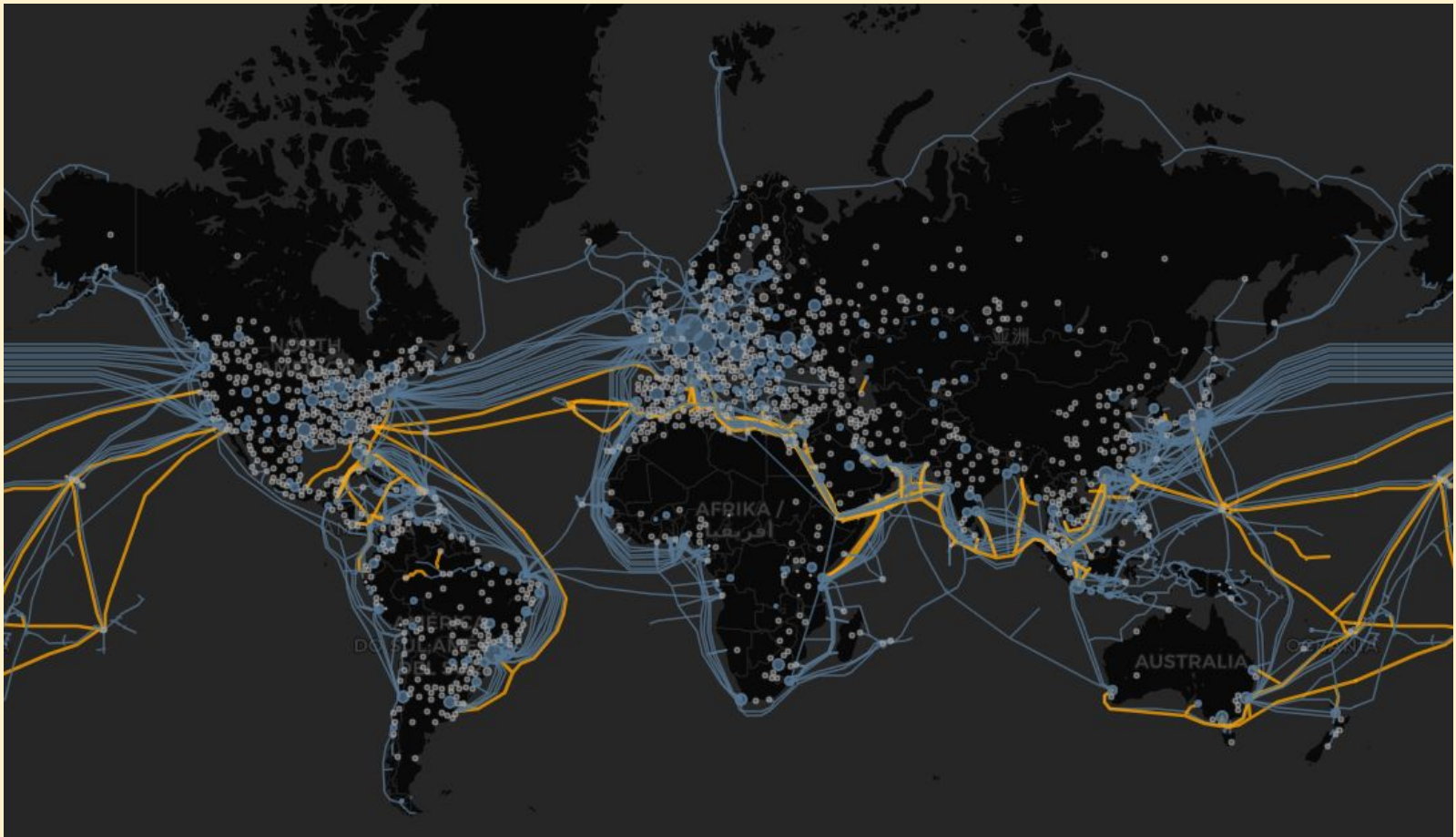


The request goes to your **Internet Service Provider (ISP)** first, and then across the internet to the **web server** where the website is stored

Web Servers are located all over the world. The one my website is stored on is in Slough, just to the west of London

The internet as a network

This map shows global internet connections



The internet as a network

Parts of the world are connected using cables

There are two types of cables:

Copper cables: copper is a good conductor of electricity. These are traditional cables but are slow and use copper which is non-renewable

Fibre-optic cables: these are made of a glass shell and use pulses of light from LEDs or lasers. More modern and expensive but much quicker

The internet as a network

Your **internet connection speed** depends on lots of things

This includes the type of connection you have and the **bandwidth** of the connection

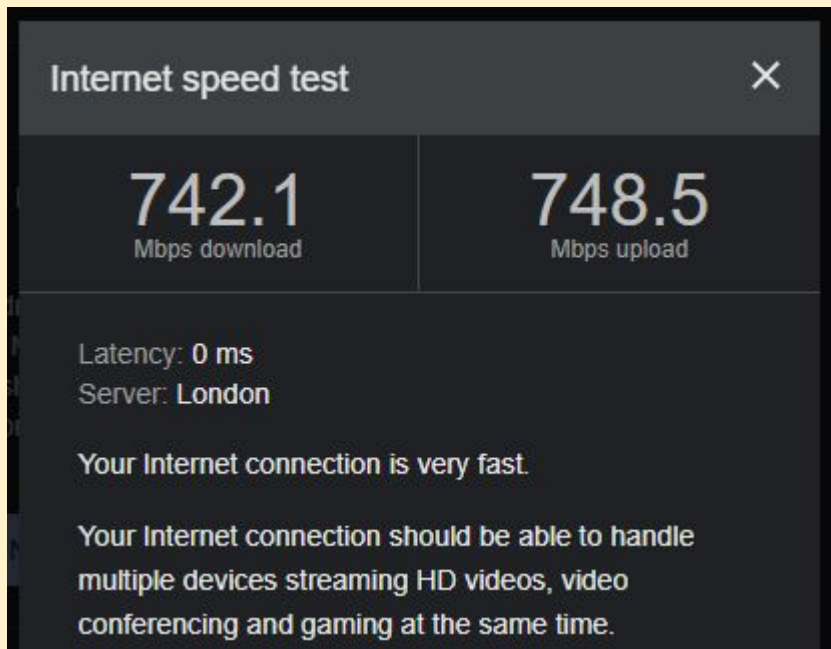
The **bandwidth** is how much data can move down a connection

Using lots of **bandwidth** on one job can slow down the connection for others on the network

The internet as a network

Bandwidth is measured in **bits per second**

You can check your bandwidth with a speed test
- search using Google for “speed test”



This test shows a very fast connection. The speeds are measured in Mbps - megabits per second

There are 1 million bits in a megabit

The internet as a network

Lots of different data is sent over the internet - webpages, music, video, e-mail etc...

Computers need to know what sort of data they're dealing with

To do this we use **network protocols**

The internet as a network

A **network protocol** is a set of rules that lays out how data will be organised

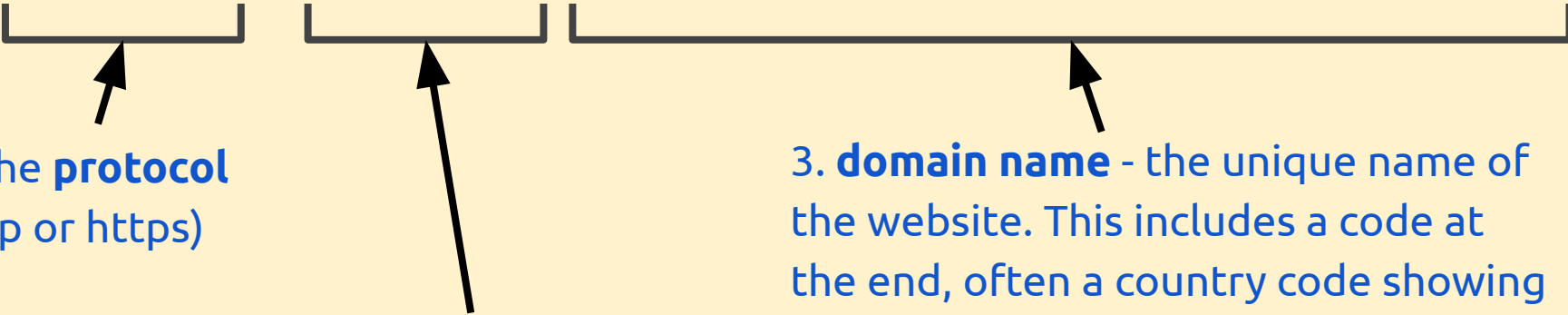
For webpages this is done using the **HTTP** and **HTTPS** protocols

These form part of the **Uniform Resource Locator (URL)**

The internet as a network

The **Uniform Resource Locator** (URL) is the website address. It is made up of 3 parts separated by dots:

<http://www.bluesquarething.co.uk>



1. The **protocol**
(http or https)

2. **www** for World Wide
Web showing it's a website

3. **domain name** - the unique name of
the website. This includes a code at
the end, often a country code showing
where the website is based

The internet as a network

HTTP stands for **HyperText Transfer Protocol**

HyperText is the language that websites are written in

HTTPS adds **Secure** on the end. This shows that the website is more secure

This is important if you're entering personal details or paying for something

The internet as a network

The **World Wide Web** (the www bit of a URL) is the part of the internet that deals with websites

But the internet deals with lots more: email, multiplayer games, video services, music services and lots of other things

The World Wide Web dates from 1991, but the internet (the network of computers) is much older. It got started in about 1969