­­**P1 – Web Architecture and Components**

**Internet Service Provider**An Internet Service Provider, or ISP, is a company that sells access to the internet as a service. One computer can only connect to its own network, other computers on that network, and if a gateway or bridge is setup, networks connected to that network.  
ISP’s are connected to every online service, allowing users to access the whole of the internet.  
Usually this is subscription-based, on a monthly or yearly basis, and the ISP will provide physical access (a copper or optic-fibre wire to the house), and a router to allow devices in the house to connect wirelessly.  
Speed and data allowance depends on the ISP, the subscription, the physical connection (from ISP to customer), and the geographic

**Web Hosting Services**Web Hosters allow anybody to host and publish content on the internet, without requiring physical hardware or even a domain. Customers can pay for access to a datacentre, which hosts the services and websites of thousands of customers. They can then upload and publish content, and issues such as connection speeds, traffic, and uptime are taken care of.  
For higher fees, customers get more features, such as higher traffic or more control over published content.  
Most Web Hosting Services allow for a free sub-domain (for example., website.webhoster.com), or one bought from a registrar (such as www.website.com).

**Domain Structure**  
Domains are the end part of a URL that shows the country the site is based in, or the type of service it is. Examples include .com, .co.uk and .net. some domains, such as .tk, are free. Domains are bought from domain name registrars, which keep track of who owns each domain.

**Domain Name Registrar**Domain Name Registrars are organisations that buy and sell website names. Usually procing is based on the domain, but sometimes also on the length (short URL’s are more desirable as visitors are more likely to remember them). Domain price varies by demand – common domain names, such as .com, .co.uk, .net and .io are in high demand and cost a lot of money. Whereas less common names are cheaper (such as .gh).

**World Wide Web**The World Wide Web is a set of documents on the internet that are available to anybody with an internet connection – web pages. While the World Wide Web exists *on* the internet, the internet contains more than just web pages.

**Internet**  
The internet is a global WAN (Wide-Area Network), made of billions of interconnected networks, computers and servers. Some of the computers contain parts of the World Wide Web (i.e., website servers), and other parts are users computers or private devices that communicate over the internet. When two users play an online game, their computers connect to each other via the internet.

**Email**Email is a set of protocols that allow users to send messages to one another near-instantly. The heart of email is SMTP – this stands for Simple Mail Transfer Protocol, and it is how mail is sent and received between servers. POP3 and IMAP are client protocols, which recipients of the emails use to retrieve emails from the server.  
Emails can contain a lot of information, such as a list of recipients (not all of which can reply to the email; this what cc and bcc are for), a subject, text, images and hyperlinks. For this reason they are the preferred method of communication within organisations and businesses.

**Proxy Server**  
A proxy server is a way of indirectly connecting to another computer or network. Rather than sending traffic straight to the recipient, it is sent to a proxy server, which then forwards the request. This prevents the recipient from knowing anything about the sender, as they can only see the proxy.  
This can be used to bypass network restrictions, as when a client accesses a blocked site, the filter only sees them attempting to connect to the (usually) unblocked proxy. The proxy then forwards the request to the site server, and sends the webpage from the server back to the client. Because traffic between the proxy and client is encrypted, the traffic is secure and cannot be blocked.  
Another use of proxies is as ‘relays’. Rather than a single server handling the strain of many clients, proxies can act as ‘clones’ of the server, distributing load.

**Browser**  
A web browser is a piece of software that a user utilises to ‘surf the web’ – view, download and interact with web pages and services. Often, a browser will come bundled with the OS of the computer.

**TCP/IP**  
TCP/IP is the protocol computers use to connect over the internet. The TCP protocol and assembles and reads outgoing/incoming packets, and the IP protocol routes them to their destination over the internet.

**Application Layer**  
The application layer is at the top of the set of protocols that are used in internet browsing. The application layer is the application that the user interacts with, such as the web browser or a download tool.

**Flow Diagram**  
