

# Building websites

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- A brief history of the Internet and the World Wide Web



“I created the Internet!”

The Internet started as the Arpanet in 1966 - operational in 1969

- It was created by the Defense Advanced Research Projects Agency (DARPA)

By the early 70's it was being used by universities

- Email and file transfer programs were quickly developed
- By the 80's Internet accessible bulletin boards started to pop up

In the 80's various researchers were experimenting with browsers

- These were all local browsers only capable of accessing data on the computer or network they were located on

Al Gore's involvement was his role in Congress to make sure research money kept up with the pace of development

In 89 Tim Berners-Lee a computer scientist at CERN took a further step

- He developed the first web server - designed to serve files to any browser on the Internet
- He redesigned the existing web browsers to work with remote web servers and named the design World Wide Web and his new browser was called WorldWideWeb

Then in 92 NCSA developed the Mosaic browser which became the first widely adopted web browser

In 94 Netscape Communications releases Netscape Navigator - a proprietary browser - you had to pay for it

In 95 Microsoft licenses Mosaic to create Internet Explorer

# Basics:

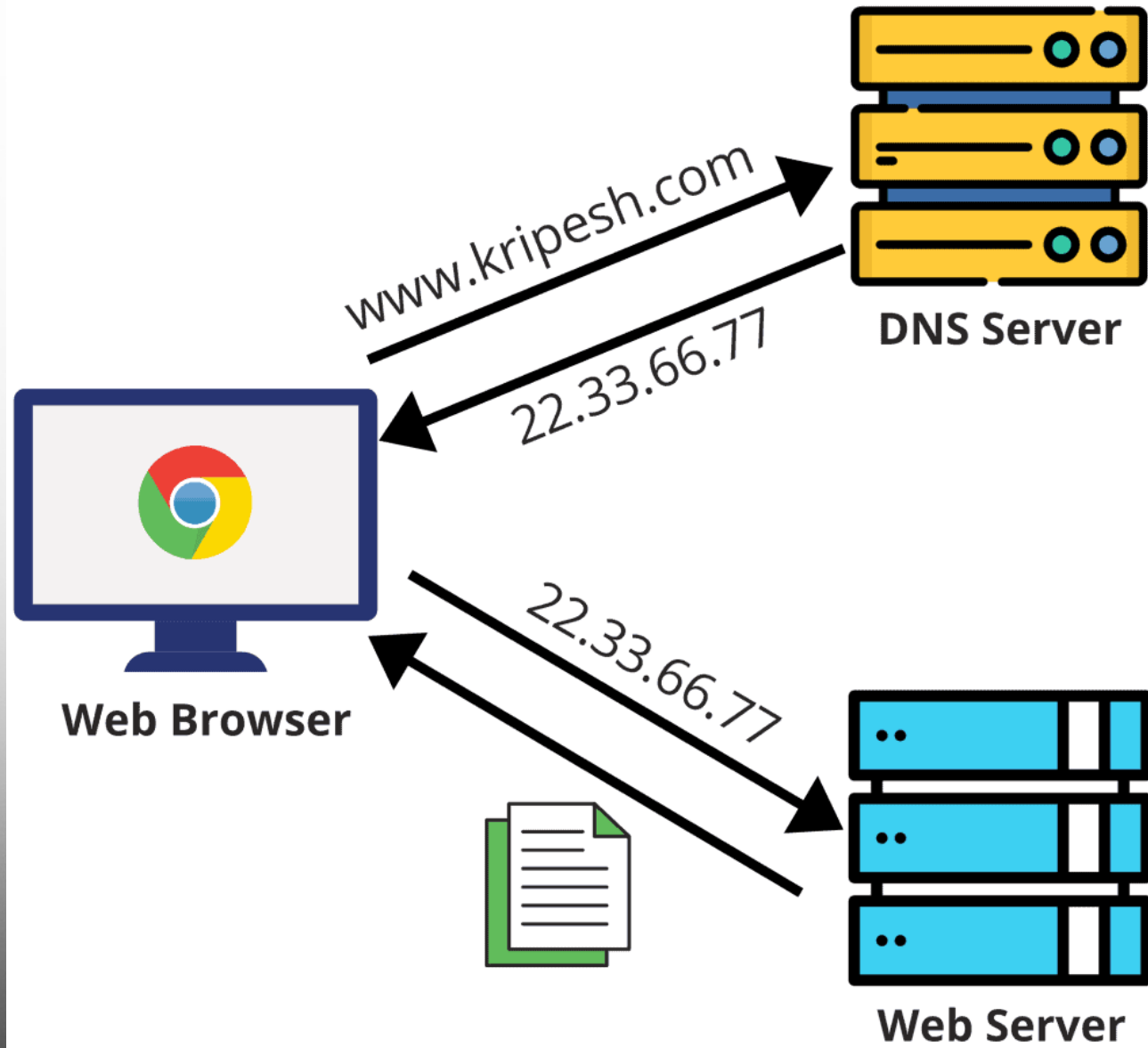
- there are many underlying technologies that makes even the most basic websites work.
  - TCP/IP
  - DNS
  - Webserver
  - Website
  - Browsers

# TCP/IP

- TCP/IP (Transmission Control Protocol and Internet Protocol)
- This is already set up for you if you are watching this zoom call or YouTube video, and is the technology that transmits data from a webserver to your web browser.
- TCP is the language the internet uses to send data.
- IP is responsible for where data needs to be sent and ensures that packets of data are sent and received to their intended place.

# DNS

- DNS (Domain Naming Service)
- DNS works hand in hand with IP, and is the technology that translates a URL (Uniform Resource Locator), like "www.ibm.com" into an IP address for the server hosting the site you are trying to reach.
- If you are building a website you will probably want a domain name where people can find you.
- You will need to adjust the DNS zone file for you own domain.





# Webservers

- A website has to be hosted on a server that is accessible to the world wide web (WWW) so it is accessible to everyone. Although, there are websites hosted privately that are not available to WWW, but only to closed group of computers on a local network. These are considered "intranets".
- A webserver is bit of software that makes it possible to deliver files to multiple computers at the same time.
- Apache, NginX and Microsoft IIS are example of webserver software.

# Website

- The website is a collection of files that make up the information you want to present to the World Wide Web. These can be simple HTML (HyperText Markup Language) files and images or more complex script files such as PHP or ASP files.
- Most modern websites will also use database backends to store data and scripting enhancements to make the website seem more dynamic as people visit the site at different times.

# Browsers

- Web Browser (Edge, Chrome, Safari, Firefox etc...)
- The web browser is the software that runs on your computer or device that parses the files hosted on the web server.
- The bad news is that most browsers parse files slightly differently, so there might be slight changes to the way a website might look when using one browser over another. This has gotten better over the years, but it still happens.

# Building a website

- Things you will need:
  - Domain – (This is part of the DNS discussed earlier). You can buy a domain name from a domain registrar like [godaddy.com](http://godaddy.com), [hover.com](http://hover.com) or [networksolutions.com](http://networksolutions.com)
  - Webserver host – This is the webserver that stores your website files and makes them publicly available. These are typically offered to purchase by the same company where you buy your domain, but can be run on your own server like a Raspberry Pi.
  - Website – These are the files and images that make up your site. You will need some way to create your files. Fortunately, many website hosts have tools for creating your website from a browser.

# Files

- When you go to any website your browser initially looks for a file called “index.htm” or “index.html” or “index.php”.
- This “index” file is considered the landing page of most websites.
- If you use any other name for your landing page your viewers might have problems finding the landing page.

# Files – HTML

- HTML files are simple text files that are made up of nested tags and have a “.htm” or “.html” extension attached to them. A very basic HTML file would look similar to this:

- `<!DOCTYPE html>`

```
<html>
```

```
<head><title>This is the Page Title</title></head>
```

```
<body><h1>This is big text you see in the page</h1>
```

```
<p>This is smaller text.</p>
```

```
<a href=https://www.ibm.com>This is a link</a></body>
```

```
</html>
```

# Files – HTML

- As with other technologies, web technologies are constantly evolving. However, there are a few basic elements that HTML files are capable of easily displaying. Text, Colors and Images. Other items can be added to web pages, but we are going to focus on the basics here.
- Text is just that, words on a page. You can adjust the font, size, color as well as attributes like underlines, italics and bolding. Text can also be justified to the right left or center of the page.
- Color refers to the background color of the page.

# Files – Images

- There are three basic types of images that can be displayed. JPEG, PNG and GIFS.
- You would chose the image format based on what you are trying to achieve with the image. The difference in these formats has narrowed over the years, but generally JPEG files can be compressed more and can be made to display on the page more quickly. PNG files can have transparency, but cannot be compressed so as to use less storage and bandwidth. GIFs can also have transparency, but can also have multiple frames stored in the file, so can display short movie clips or animations.



# Finding more info

- There are several good tutorials online to learn basic coding.  
The one that I like is: <https://www.w3schools.com/>