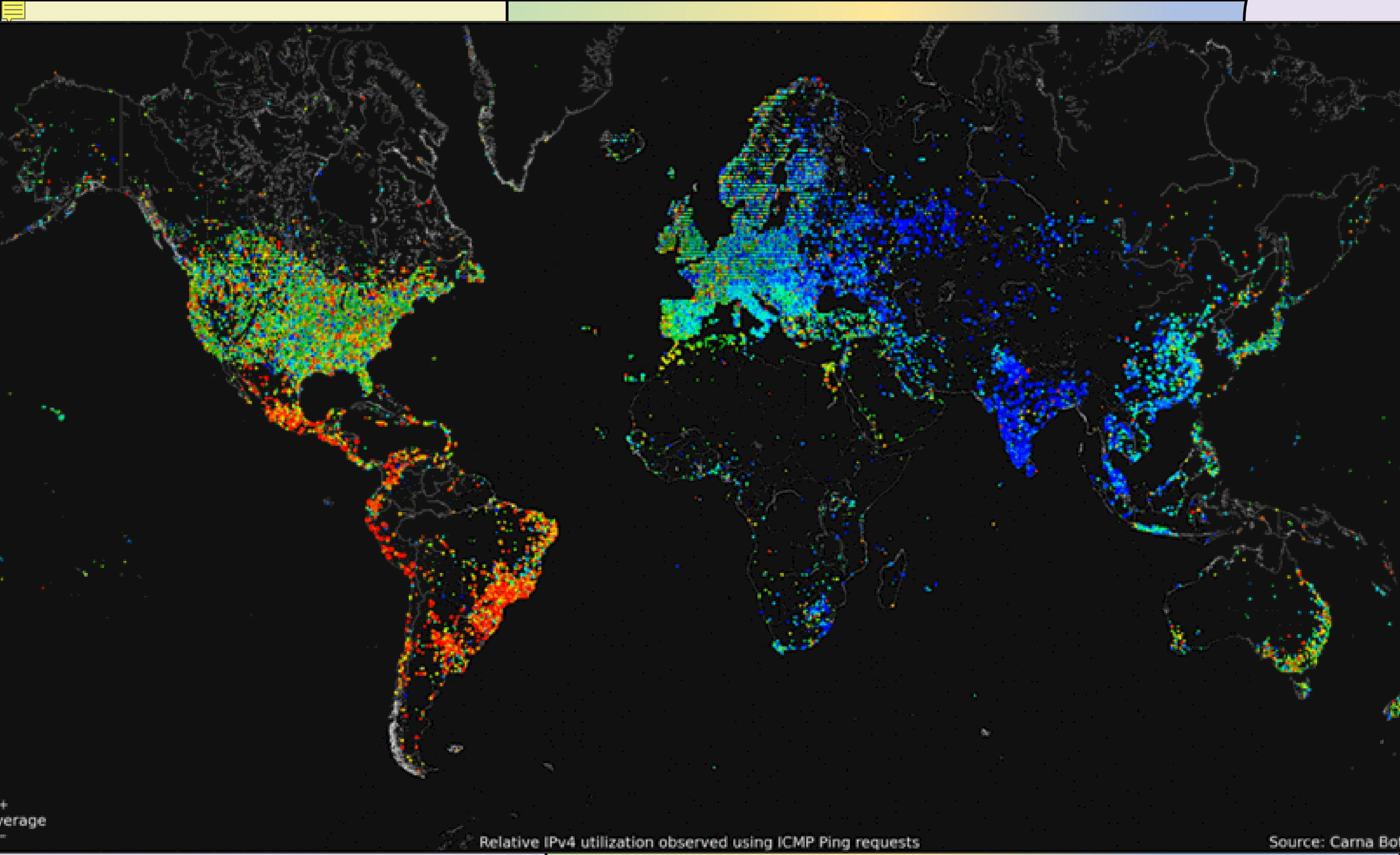
# The Internet & WWW

Where we are and how we got here…

Tim Berners-Lee's internet was to be "a collaborative medium, a place where we [could] all meet and read and write."


verage
Relative IPv4 utilization observed using ICMP Ping requests
Source: Carna Bo

# Internet Services

World Wide Web

Email

File Transfer

Web 2.0 applications:

- Social Media
- Forums (reddit.com)
- Search Engines
- Interactive Gaming

Web 3.0

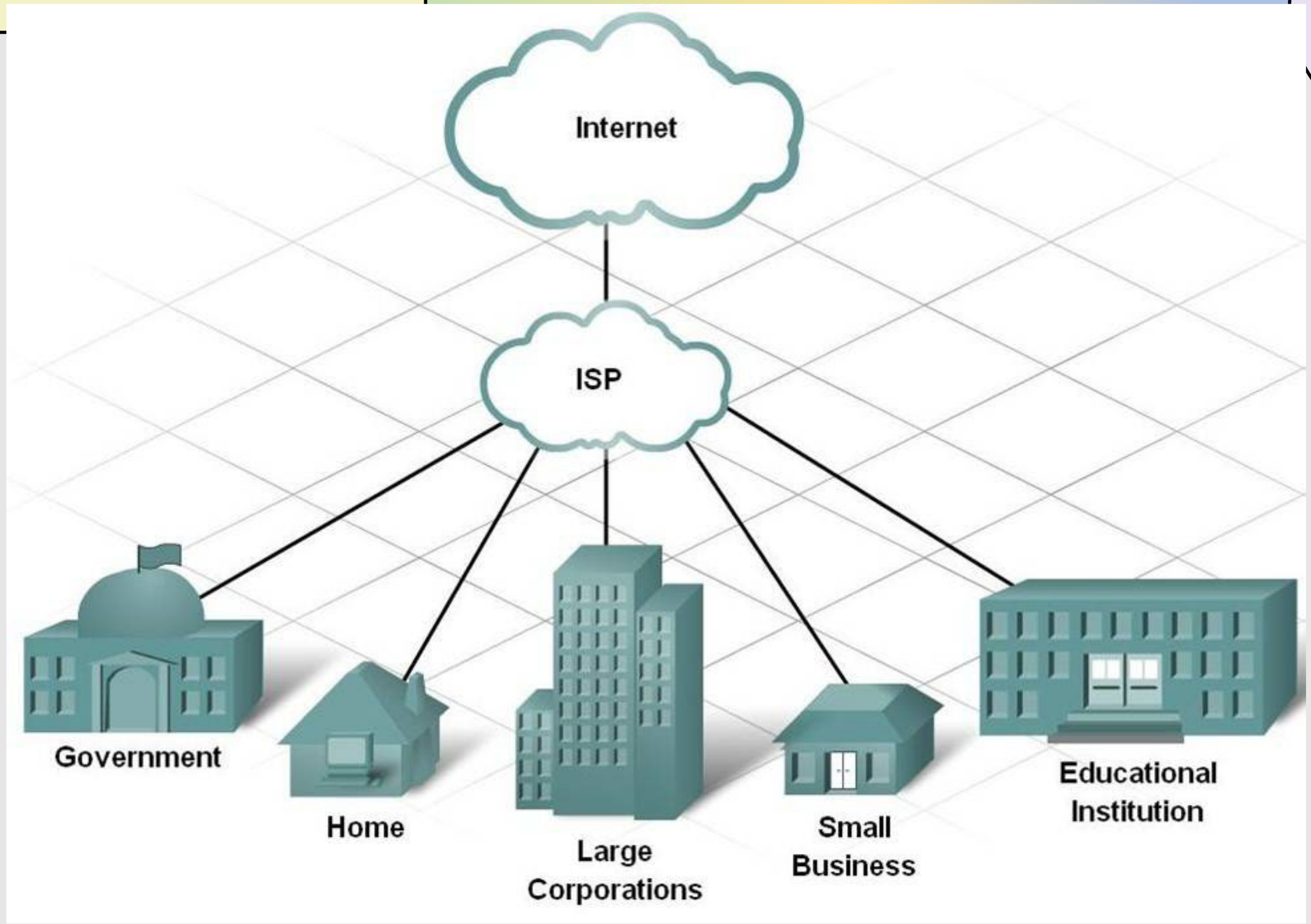
- IoT
- VR/AR

# Protocols

A protocol is a set of platform-independent communication standards

Each Internet service requires a specific suite of communications protocols in order to function properly.

- World Wide Web (HTTPS)
- E-Mail (SMTP, IMAP, POP3)
- File Transfer (FTP)


Internet
ISP
Government
Home
Large
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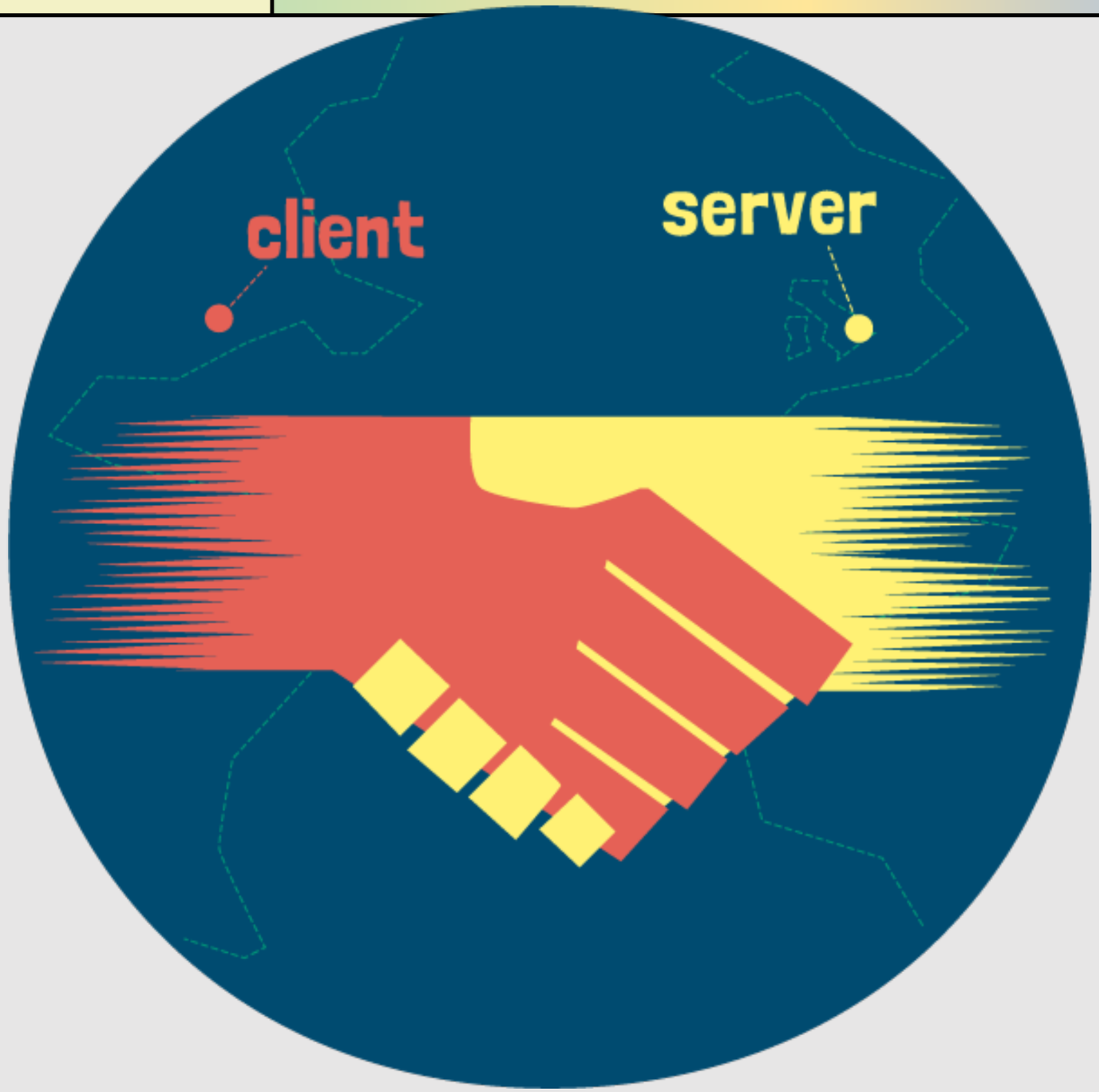

client
server

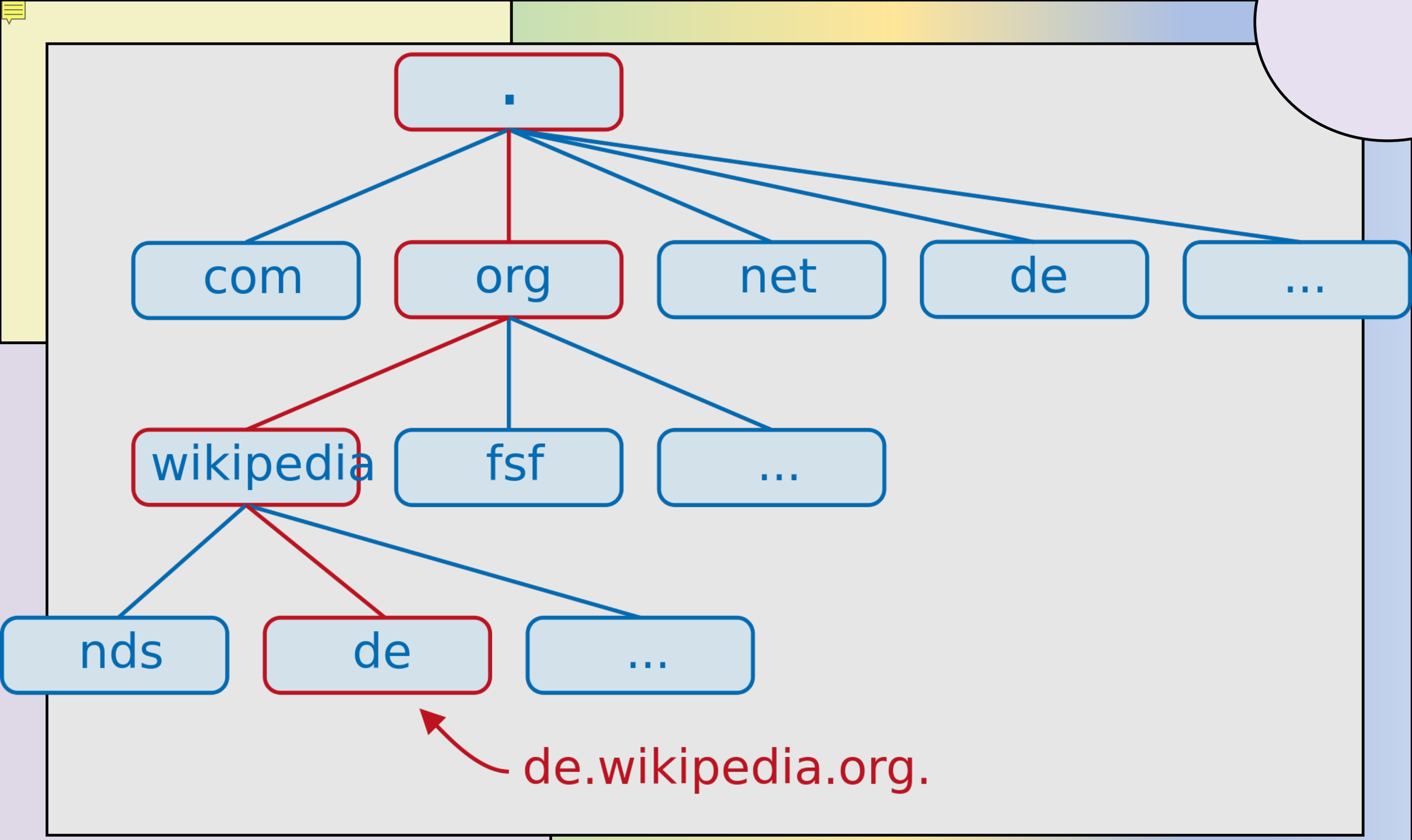
# The TCP/IP Protocol

# IP Addresses

**Dynamic IP addresses** are typically leased to individuals by their ISP.

- A server computer at the ISP uses **Dynamic Host Configuration Protocol** (DHCP) to maintain a reservoir of IP addresses that are leased to users when they log on. The address is released back into the pool of addresses either when the lease expires or when the user logs off.

**Static IP addresses** are *required* for server computers that host websites since a permanent IP address allows the site to be found anytime someone is looking for it on the Internet.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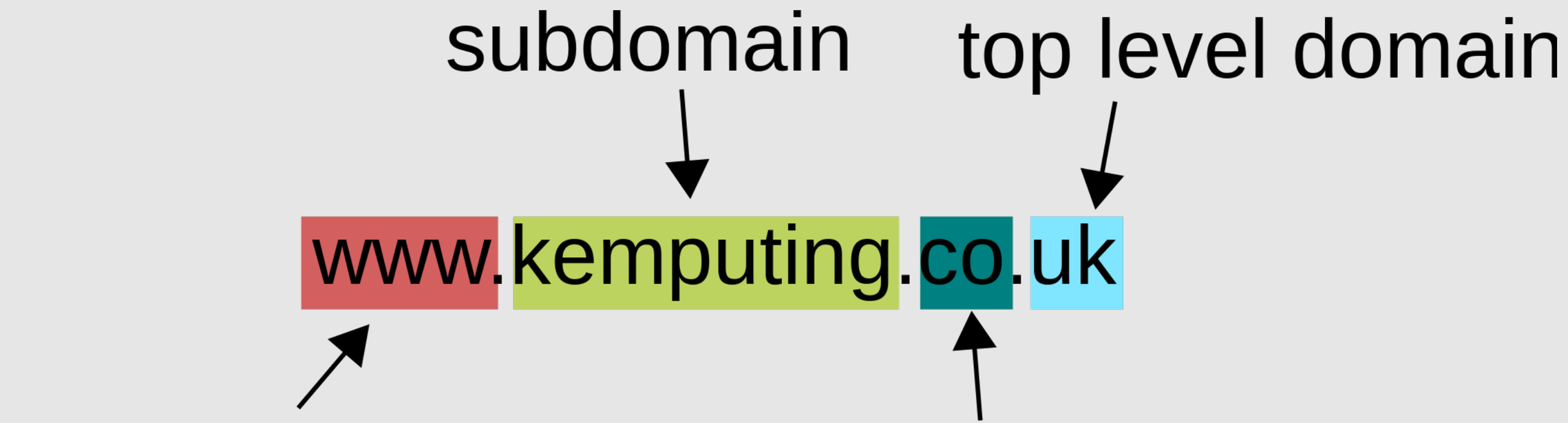

subdomain
top level domain
www.kemputing.co.uk
name of server
second level domain

# Domain Name System

Entering a domain name into the address bar of a browser retrieves the ***Index*** *Page* (a.k.a. home page) of the organization's website which typically contains links to the other documents within the site.

- The Home Page of a website ***requires a specific filename*** such as index.html, index.htm (or default.htm – deprecated)

- **The home page of your website must be named : index.htm**
- The root file in each folder should also be named index.htm

# Uniform Resource Locator (URL)

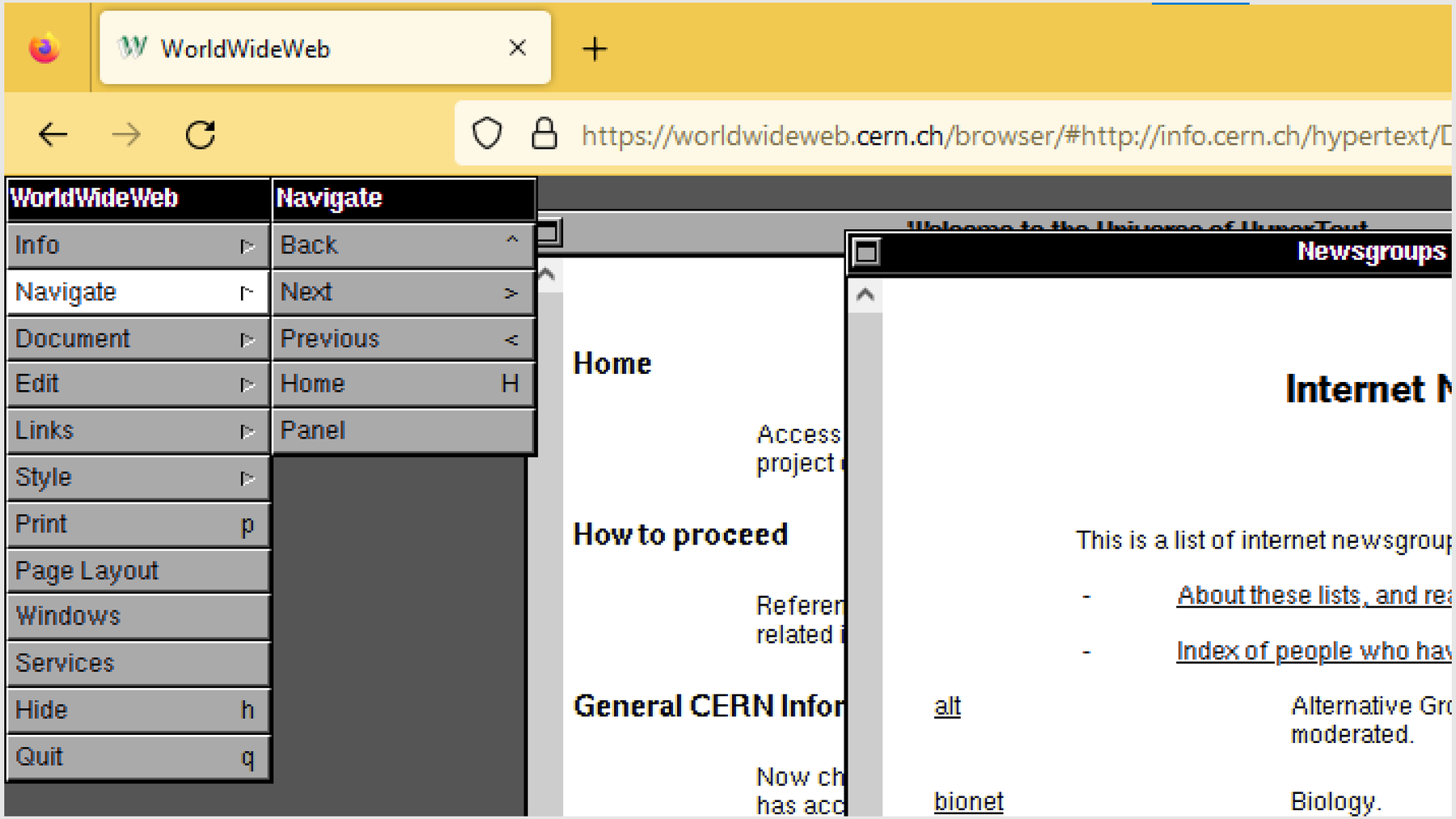
A URL targets a specific page within a site by including the fully qualified path to the file.

- For example, the domain name camosun.bc.ca/biz will automatically load the School of Business Home Page. This domain name is redirected to a specific URL on the https://camosun.ca website.
- http://camosun.ca/learn/school/business/current-students/index.html
- A URL such as: https://www.adobe.com/ca/products/dreamweaver.html will load the *dreamweaver.html* file located in the ca*/products/* folders on the adobe.com website.

# Web Browsers

1. A Web browser is an application such as Chrome, Firefox or Edge that you use to access Internet services.
2. Browsers are designed using “open architecture” which allows third party authors to write “plug-in” applications to extend the browser’s functionality.
   - e.g. Adobe Acrobat, OneTab, ChromeCast, StayFocusd…

# Tim's HyperMedia Browser




https://worldwideweb.cern.ch/browser

# Web Browsers - Rendering

1. The browser sends a request for a web page to a Web server.
2. The server then returns the elements of the requested page to the IP address from which the request originated.
3. The downloaded data includes an HTML file and may also include image files, audio files, and video files.
4. The browser interprets the code in the HTML file and the page is laid out in the browser window according to the HTML instructions.

Web browser

1. The browser requests a web page

2. The server sends the page and the cookie

The cookie

**Hello World!**

Web server

3. The browser requests another page from the same server

The cookie

# Web Servers

Knowing the configuration of server software is critically important for website development, as the specific software installed on the server will determine what you can do as a developer, and the required methodology.

# How is the Student.Camosun.bc.ca Server configured?

- As a student in ABT 294, you have access to the student web server.
- You *will* have your own folder (i.e. AndyW) with which you will publish your completed in-class, lab and project work.
- Each site that you create will have its own folder published separately on the web (you will need an absolutely URL to access each site you authenticate).

" Web for all. Web on everything.

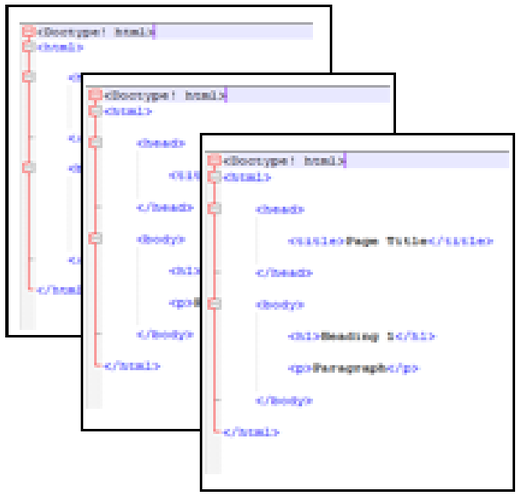
– W3C Mission Statement

" We're designing unknown content with unknown collaborators on an infinite and unknowable canvas, across operating systems, interfaces, writing-modes, & languages...

" Define some constraints. Let the language work out the details.

– Keith J Grant

HTML files + CSS file(s) + images



\+

JavaScript, PHP, SQL,JSON...

on a

Web Server


# Integrated Development Environment (IDE)

W.Y.S.I.W.Y.G. editor:

CodePen

W3Schools

Inspect Element (F12) in your browser

**Ctrl+Shift+del(ete)**
– clears the cache in most modern browsers
**Ctrl+t**
– opens a new tab in the current window
**Ctrl+w**
– closes the current tab
**Ctrl+shift+t**
– reopens the most recently closed tab
**Ctrl+f**
– find in the page (works in most software applications)
**Ctrl+1**
– goes to the first tab
**Ctrl+9**
– goes to the last tab
**Alt+F4**
**–** closes the active software application in Windows