

Host Your Own Website Workshop

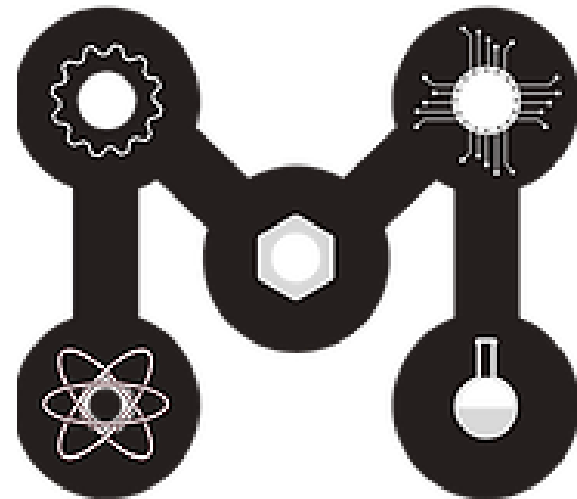
Finally a place to store all those memes

Hosted by:



IEEE

UW Madison




More Workshops This Year!



<https://making.engr.wisc.edu>

← → ↻ ⓘ https://making.engr.wisc.edu

UNIVERSITY of WISCONSIN-MADISON

 **GRAINGER ENGINEERING DESIGN INNOVATION LAB**

HOME GET INVOLVED ^ EQUIPMENT POLICIES v ABOUT US v QUESTIONS & CONTACT INFO

Location

Events

Join the Makerspace email list

Teach Your Class at the Makerspace

Host your Event at the Makerspace

←

IMITLESS

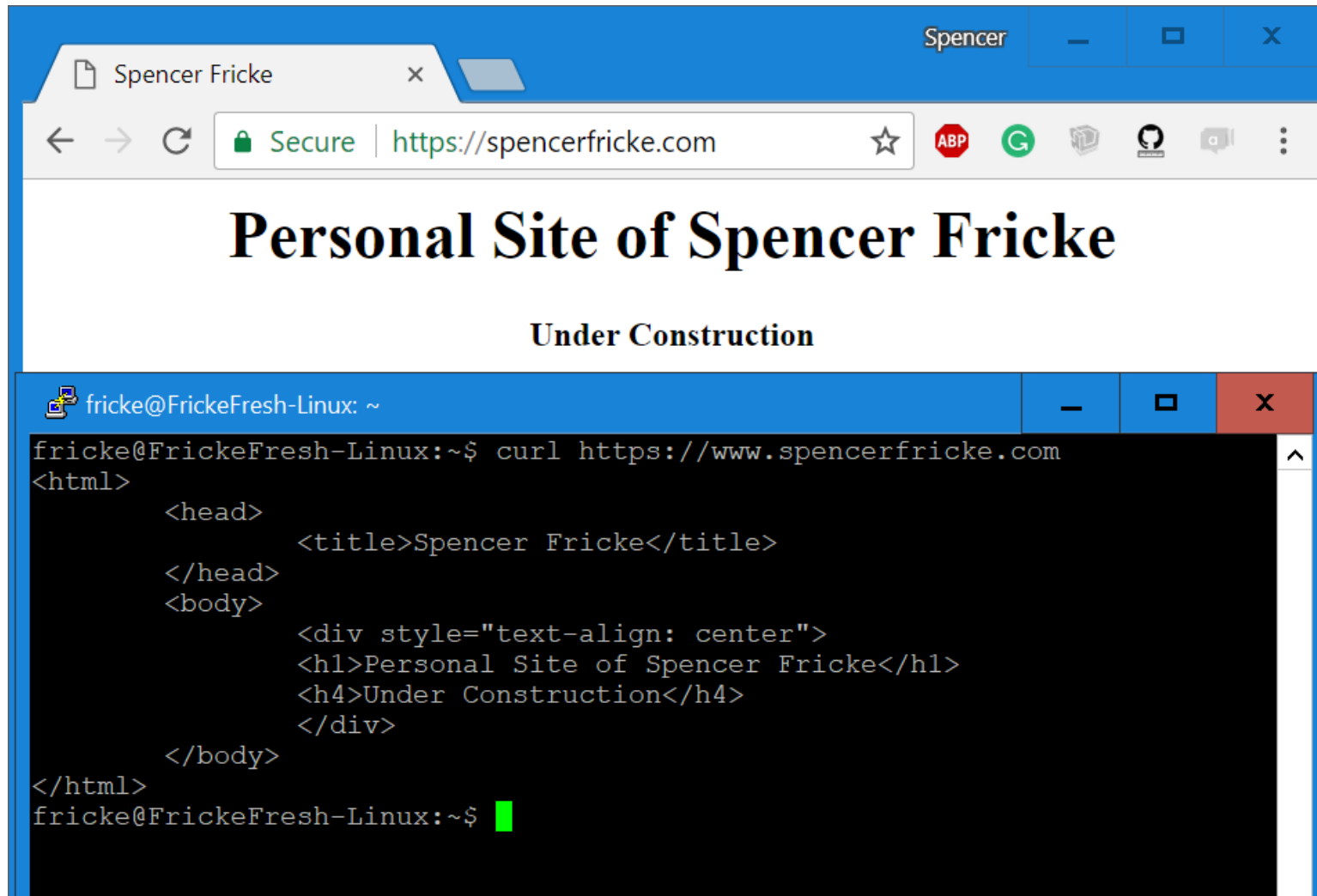
What makes up a webpage

- HTML (Hyper Text Markup Language)
 - CSS (Cascade Style Sheet)
 - JS (JavaScript)
-
- **HTML** creates the **structure** of the page
 - **CSS** adds the **styling**
 - **JS** brings **programmatically functionality**

The Browser

- Just a program
 - Knows how to display HTML and CSS
 - “Compiles” and runs the JavaScript code
 - Works on about every device
- Don't need browser to **get** webpage...
 - only to **display** it

Website is just text at core



The image illustrates that a website is fundamentally just text. It shows a web browser window displaying a personal site and a terminal window showing the raw HTML source code of that same site.

Web Browser Window:

- Tab: Spencer Fricke
- Address Bar: [Secure | https://spencerfricke.com](https://spencerfricke.com)
- Page Content:

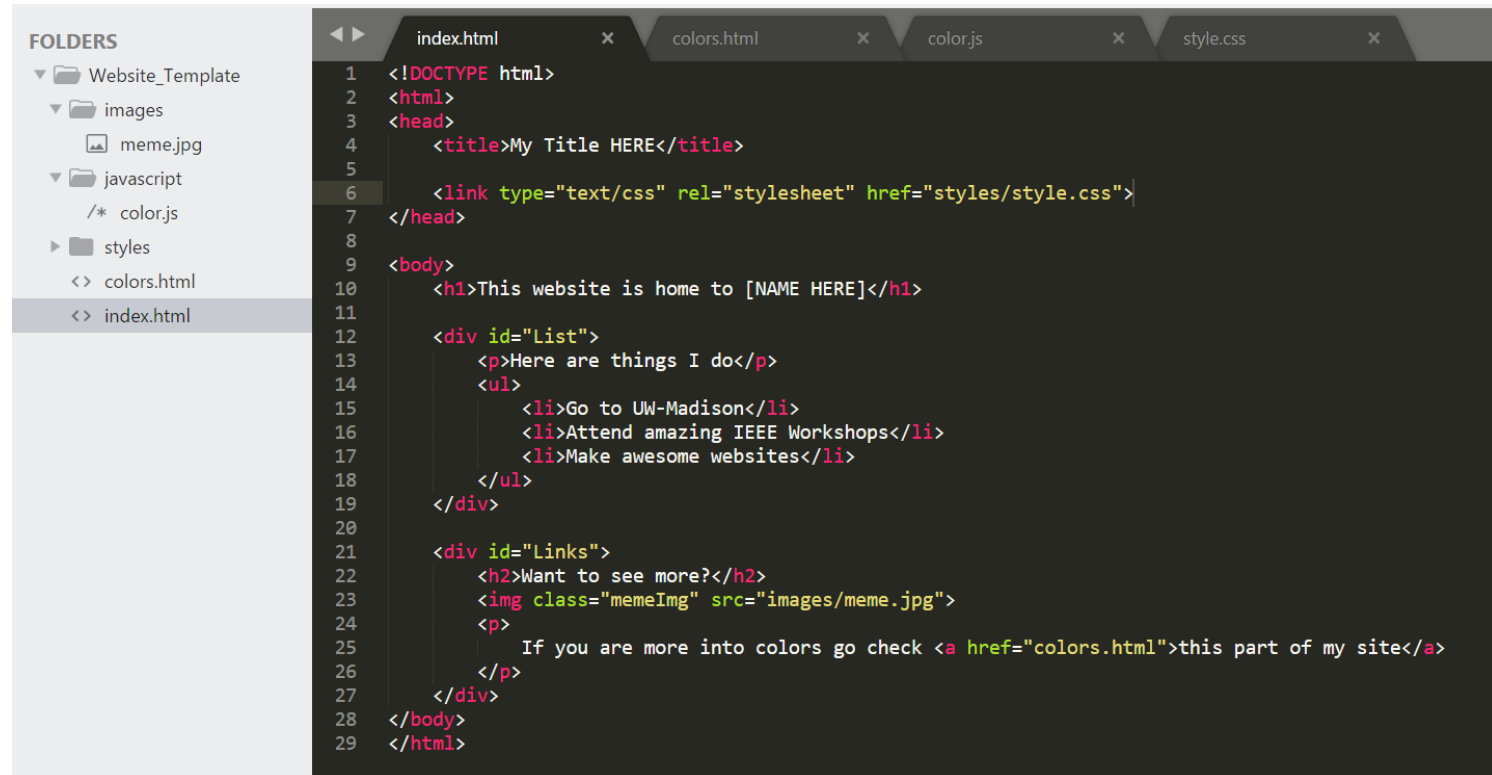
Personal Site of Spencer Fricke

Under Construction

Terminal Window:






```
fricke@FrickeFresh-Linux: ~  
fricke@FrickeFresh-Linux:~$ curl https://www.spencerfricke.com  
<html>  
  <head>  
    <title>Spencer Fricke</title>  
  </head>  
  <body>  
    <div style="text-align: center">  
      <h1>Personal Site of Spencer Fricke</h1>  
      <h4>Under Construction</h4>  
    </div>  
  </body>  
</html>  
fricke@FrickeFresh-Linux:~$
```

Websites are just files



The screenshot shows a code editor with a file explorer on the left and a code editor on the right. The file explorer shows a folder structure for a website template. The code editor shows the content of the `index.html` file, which includes a DOCTYPE declaration, HTML and head tags, a title, a link to a stylesheet, and a body with a main heading, a list of activities, and a section for links to other parts of the site.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>My Title HERE</title>
5
6   <link type="text/css" rel="stylesheet" href="styles/style.css">
7 </head>
8
9 <body>
10  <h1>This website is home to [NAME HERE]</h1>
11
12  <div id="List">
13    <p>Here are things I do</p>
14    <ul>
15      <li>Go to UW-Madison</li>
16      <li>Attend amazing IEEE Workshops</li>
17      <li>Make awesome websites</li>
18    </ul>
19  </div>
20
21  <div id="Links">
22    <h2>Want to see more?</h2>
23    
24    <p>
25      If you are more into colors go check <a href="colors.html">this part of my site</a>
26    </p>
27  </div>
28 </body>
29 </html>
```

<input type="checkbox"/> Name	Date modified	Type
 images	10/11/2017 11:09 PM	File folder
 javascript	10/11/2017 11:05 PM	File folder
 styles	10/11/2017 11:02 PM	File folder
 colors.html	10/11/2017 11:08 PM	Chrome HTML Docu...
 index.html	10/11/2017 11:14 PM	Chrome HTML Docu...

How to edit site

- Need a Text Editor
 - Get a good one to save you time
- My top two suggestions:
 - Sublime Text 3
 - Great for editing files and lots of support
 - Atom
 - Has built in server to let your view webpages severed from server

What you need for Public Webpage

- Domain Name
- Server to hold your web files
 - Also need to have public IP

What is a Server?

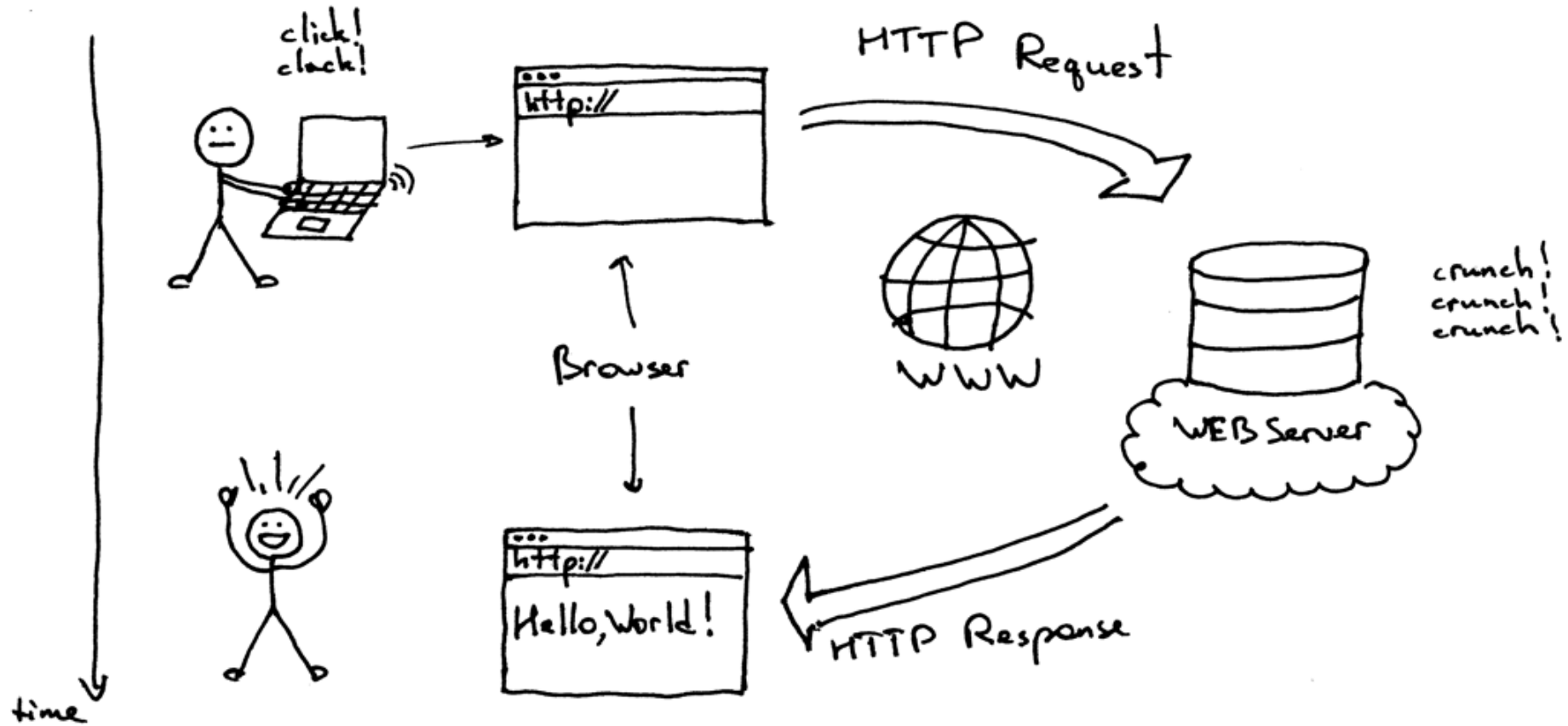


- Any “Computer” with a way to store data, run processes, and can connect to other computers can be a Server

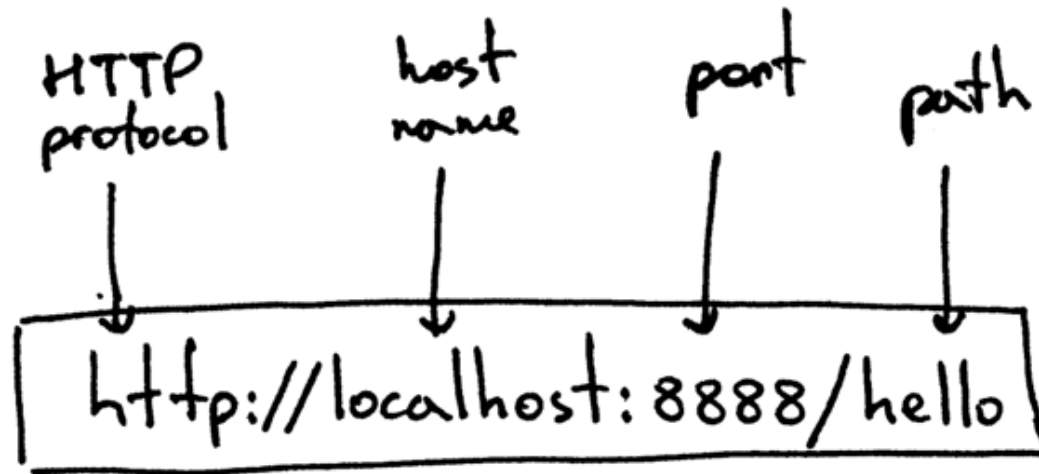
Connect to Server

- HTTP
 - Stands for Hypertext Transfer Protocol
 - Way of sending text to servers and getting a response back from them

How Loading a Website Works

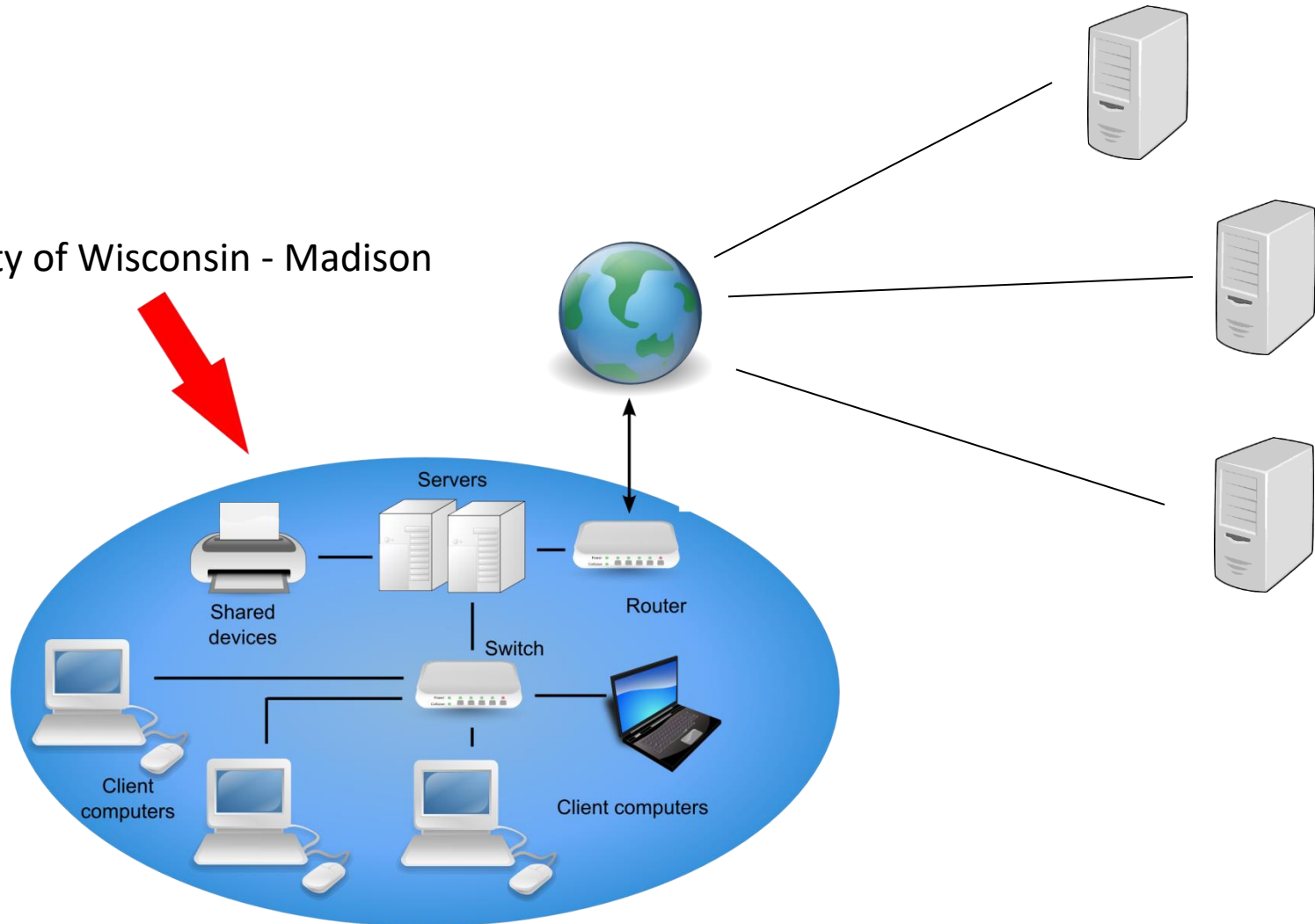


How Loading a Website Works



How Internet Works

University of Wisconsin - Madison



IP Addresses

- 127.0.0.1 is your computer
 - Also called **localhost**
- 192.168.1.100 is IP on local network (in this case)
 - Can't get too from another network

```

enol
Link encap:Ethernet (Wd00:12:34:56:78:9A)
inet addr:192.168.1.100 Bcast:192.168.1.255 Mask:255.255.255.0
inet6 addr: fe80::1234:5678:9abc:1234 ScopeLink
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:104045 errors:0 dropped:0 overruns:0 frame:0
TX packets:114051 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:194747190 (194.7 MB) TX bytes:140750211 (140.7 MB)
Interrupt:10 Memory:df300000-df320000

enp10s0
Link encap:Ethernet (Wd00:12:34:56:78:9B)
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
Interrupt:17

lo
Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
inet6 addr: ::1/128 ScopeHost
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:6776700 errors:0 dropped:0 overruns:0 frame:0

```

IP Addresses

- Each local network has a “Public Facing IP”

← → ↻ ⓘ www.whatismyipublicip.com

 **WHAT IS MY PUBLIC IP**

Home [Whois Lookup](#) [Speed Test](#) [Pi](#)
[To](#)
 [Go](#)

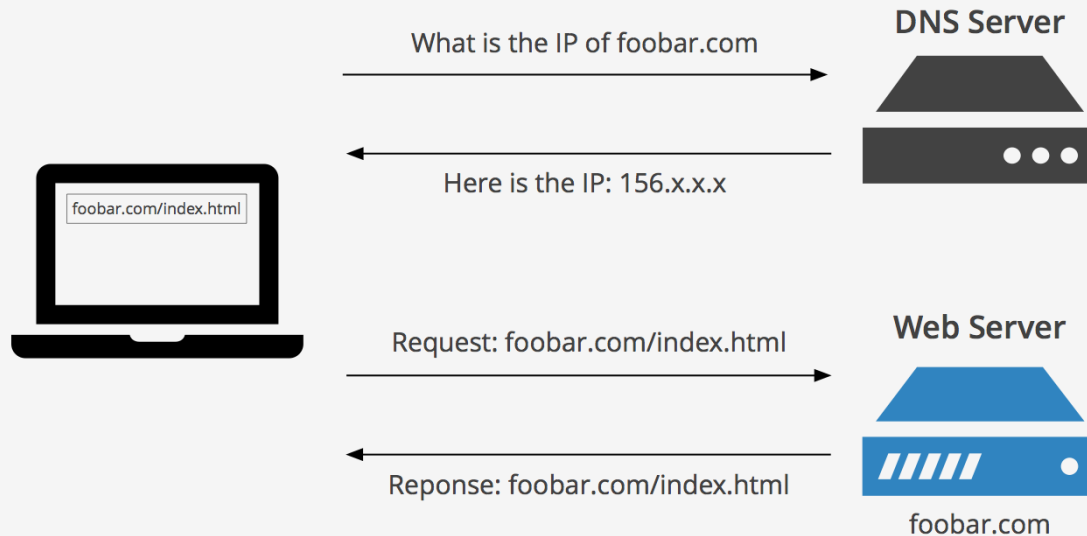
Your Public IP Address Is:

72.33.2.45

Country:	United States
Region:	Wisconsin
City:	Madison
Latitude:	43.075291
Longitude:	-89.411412



What is a Domain



What Is a DNS Server?

How much does it cost?



...if you are a student

Getting a Domain name

- Domain companies LOVE giving 1-year promotions
- [Namecheap](#) gives students 1 free domain
- Domain.com gives a free year with MLH code
- Domain names can be used to redirect to other websites
 - But the address will change in the browser

How to check a domain

<http://domcomp.com>

New

Renew

Transfer

Prices updated: 46 hours ago

myAwesomeWebsite



Cheapest



Second



Third

.com	\$0.85		GoDaddy	\$0.99		1&1	\$3.99		Directnic	+ 21 more
.net	\$3.99		Directnic	\$7.99		Espace2001	\$8.99		1&1	+ 21 more
.org	\$0.99		1&1	\$6.99		GoDaddy	\$9.79		NameSilo	+ 20 more
.info	\$0.99		1&1	\$1.69		NameSilo	\$1.99		Namecheap	+ 20 more
.me	\$2.00		Crazy Domains	\$2.40		Easyspace	\$2.88		Namecheap	+ 20 more
.io	\$32.88		Namecheap	\$32.96		Espace2001	\$39.95		DreamHost	+ 14 more
.link	\$2.00		Uniregistry	\$3.00		Espace2001	\$7.99		Directnic	+ 12 more
.click	\$2.00		Uniregistry	\$5.80		Espace2001	\$8.59		NameSilo	+ 12 more
.help	\$22.12		Porkbun	\$22.16		Espace2001	\$22.99		NameSilo	+ 12 more

Have Domain, now what?

- Need to direct it
 - Give a “A Record” to the IP of server
- Set “Nameservers”
 - Tell it where to find IP
 - Namecheap and Domain.com have this supported
- Use a CDN like Cloudflare
 - Free (for non-business websites)
 - Can prevent DDoS attacks
 - Shows detailed analytics

Where to host server

- Digital Ocean
 - \$50 of credit for students (\$5/month for lowest tier)
- AWS
 - About \$100 credit for students
- Azure
 - About \$200 credits for students
- Your computer
 - Can host a Raspberry Pi from apartment
- Many of free host sites (GitHub.pages, wordpress, etc)
 - Will display their domain when on page

Static or Served page

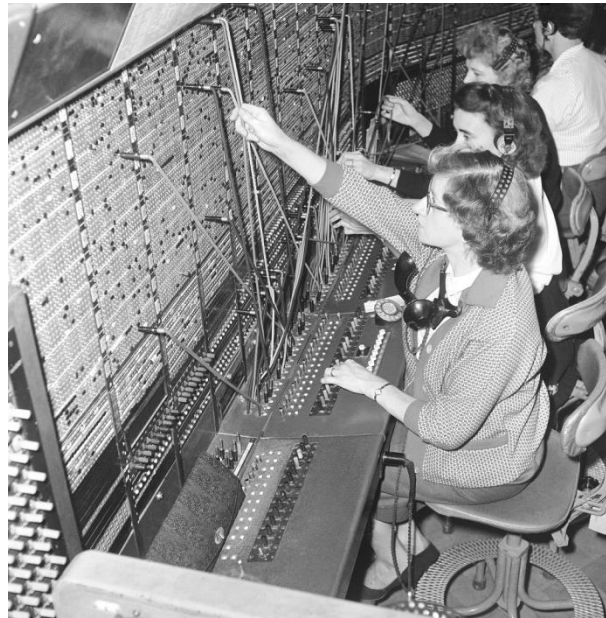
- Want webpage to talk to other sites/servers?
 - Need to serve page from server
- Static pages just download and display files
- Served pages have connection with server
- Cross-Origin Policy
 - Can't just randomly call other servers if static

Starting a server is easy

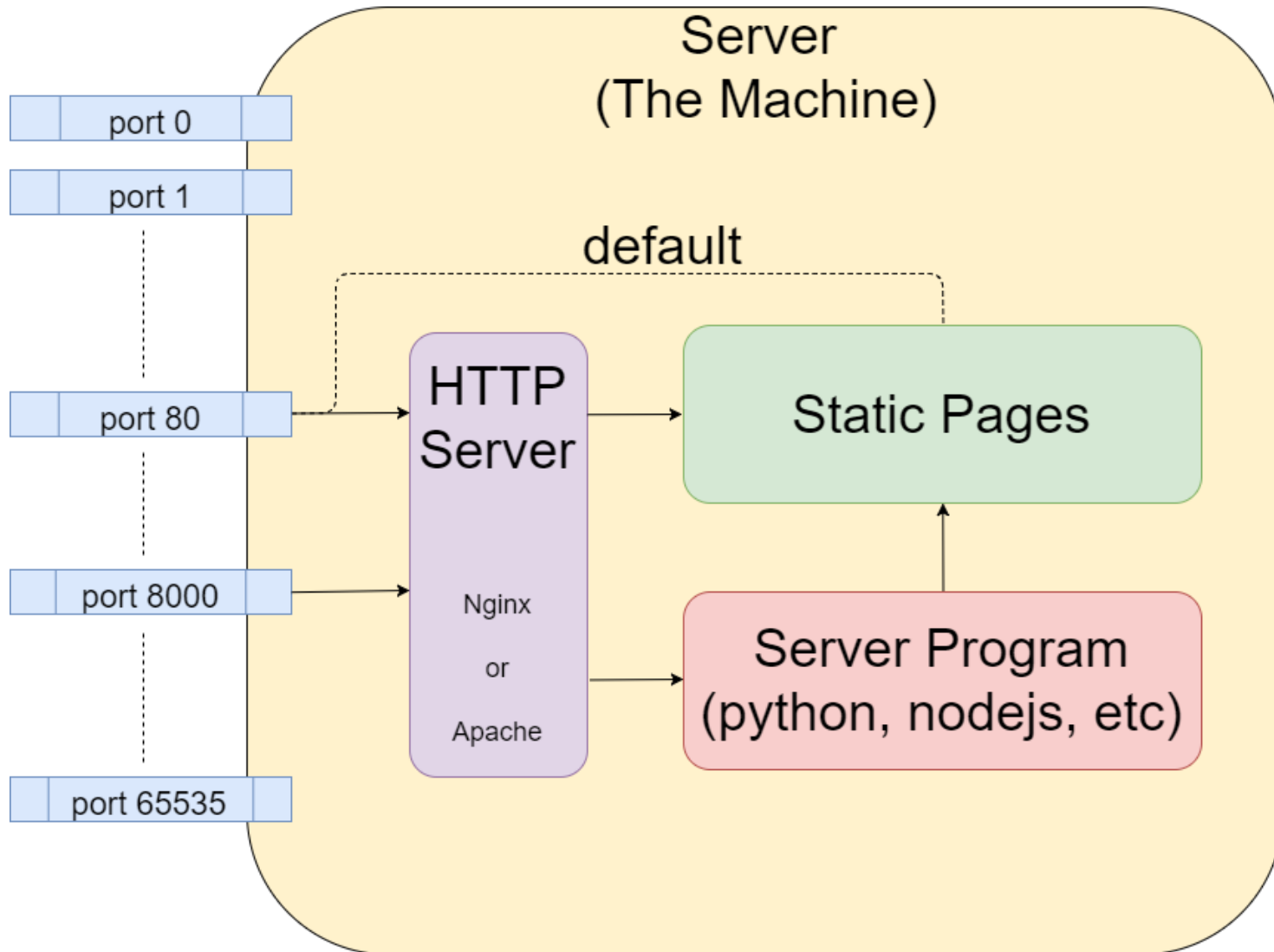
- Can do in with one line
 - in Python
 - in Node.js
 - in Golang
 - ...
- Maintaining it becomes more of the issue

Will want HTTP Server

- Nginx or Apache
 - Both HTTP Server
 - Redirect to port where Server code is running



Ok, I am so lost



Decide What You Want First

- Do I need to update this site constantly?
 - Is someone updating the site?
- Do I want my domain displayed?
- Is my website static or have functionality
- How much do I want to spend
 - In money
 - In my time

Time to get some practice!

tinyurl.com/WebsiteWorkshopIEEE

[Note: it's case sensitive]