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Technical Writing Assignment

When we hit https://www.techtonicgroup.com/ what happens?

When navigating to https://www.techtonicgroup.com/ , the client and the server begin a conversation. The browser must first contact the DNS server and request the IP address for the site. Once the initial request is received, the DNS server will go through each level of the domain to find the correct IP address. The IP address is found and relayed back to the browser, which then sends out an HTTP GET request to Techtonic Group's web server. The server then sends an HTML response back to the browser and rendered.

From start to finish how does that data reach you to be rendered in the browser?

First, a TCP/IP connection must be established between the client and the server. The TCP/IP is an internet protocol that determines the language in which two computers will communicate. This takes place after the DNS server finds the IP address for https://www.techtonicgroup.com/. The client will send a synchronization packet (SYN) to the server to check its availability for new connections. Assuming the server is open, an acknowledgement packet (ACK) will be sent back to the client. The client then sends a final ACK packet to the server, and the connection has been established. A GET request is sent from the client to the server, which, once the request is approved, begins sending data packets of code. Data packets are small chunks of code that can be sent through the internet faster than if it had been one large block of code. This will then be rendered in the browser.

What code is rendered in the browser?

The code that is rendered in the browser is HTML, which lays the foundation for the website. Then CSS is rendered, which gives the site a more appealing look and feel. Lastly, JavaScript code is rendered for any widgets or additional functions of the site.

What is the server-side code's main function?

The main function of the server-side code is to handle requests from clients and send a response. So, when we navigate to https://www.techtonicgroup.com**/**, Techtonic Group's server receives the request, and responds by sending code to be rendered on the client's side.

What is the client-side code's main function?

The main function of the client-side code is to send requests to the server based on user input and interpret code to form an appealing and functional website. Let's say we decide to click on the 'News' button at the top of Techtonic Group's site. The client must communicate to the server that we are trying to navigate to a different section of the site, and then render the response on the user's browser.

How many instances of the client-side assets (HTML, CSS, JS, Images, etc.) are created?

The term 'assets' refers to all images, videos, and PDF's. There is one instance of HTML that lays the foundation for Techtonic Group's website. One instance of CSS styles the website in a visually appealing way. I was able to count 15+ instances of JavaScript that create buttons, embedded maps, and a user input field under the 'Contact Us' header, and there are 44 images and one video on the site.

How many instances of the server-side code are available at any given time?

This is entirely dependent on the server's CPU capacity to handle new requests from clients. For example, Google's server has the ability to handle an incredible number of requests, as it is one of the world's most widely used sites. If the same amount of users of Google all tried to access Techtonic Group's site, the server would be overloaded with requests and users would have a hard time loading the site. So, there are a limited number of instances of server-side code available at any given time.

What is runtime?

Runtime refers to when code is being currently executed. When we navigate to https://www.techtonicgroup.com/, the site is in runtime. The site needs to be able to respond to user input during runtime, and handle requests to the client at any time.

How many instances of the the databases connected to the server application are created?

While I am still a bit unclear as to what instances of a database are, my educated guess would be any connection to an outside source of information that is not stored on the server. This would encompass all links to other servers. If this is in fact the definition, then Techtonic Group's site has one instance that connects the server to Twitter, another for LinkedIn, and three instances that connect the server application to the Google Maps database.