

## **How The Web Works**

Let's learn something!





- This lecture will discuss the following:
  - How the web works
  - What do we mean by "Full-Stack"
  - A brief overview of the course tech
  - Why we chose Django for the course
  - Let's get started!





 Before we can begin to learn about all the technologies in this course, we need to understand how the web works and what constitutes the "Full-Stack"



- So what happens when your at home and you open up your browser and visit a website?
- Let's breakdown the basic steps!





 You start off by typing the URL into your browser.







 Your computer then sends this request as a packet, which includes the IP address of the website you want.







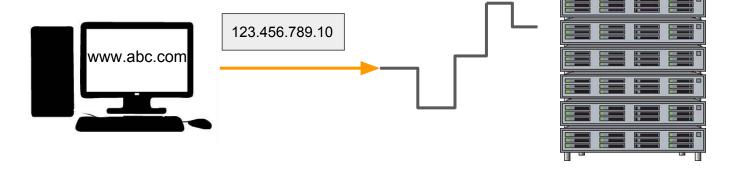
 It sends this request through wires, or a satellite which eventually links to wires using your ISP.







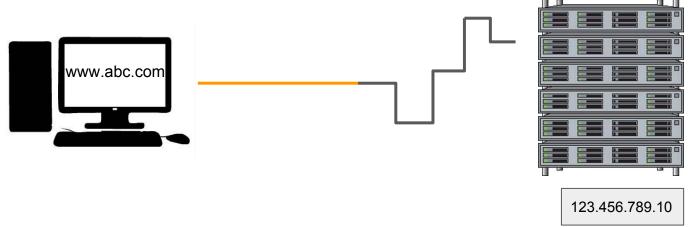
 Your ISP will then re-route the request to the appropriate server location, using the IP address as the guide.







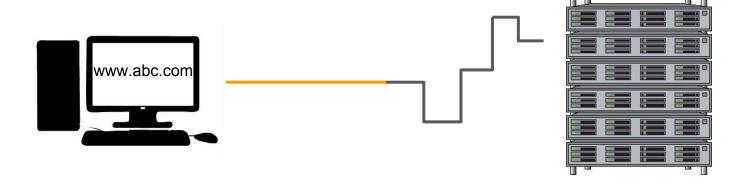
 Once your request reaches the server, it can send back the website you asked for.







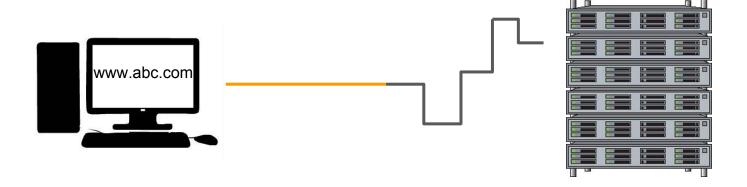
 However a full website with content is too big to send as a single packet of data.







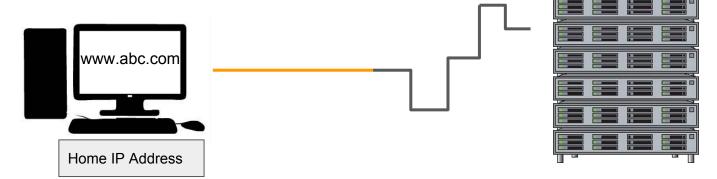
 To solve this, the server sends back the website split up into many packets







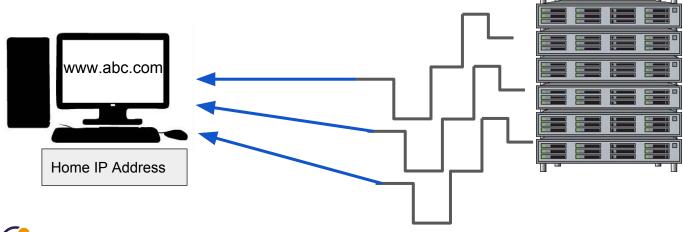
 The packets come with instructions on how to get back to you and reassemble once they reach you.







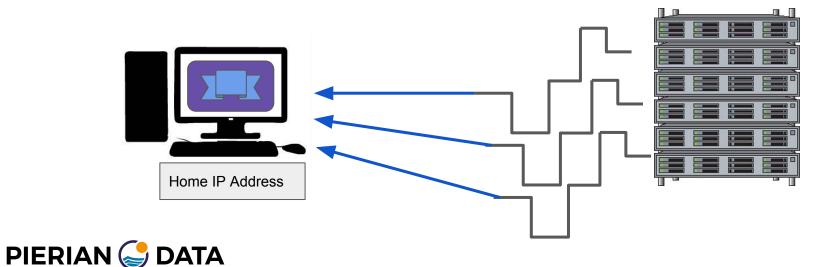
 The packets don't care how they get to you, just the final location.





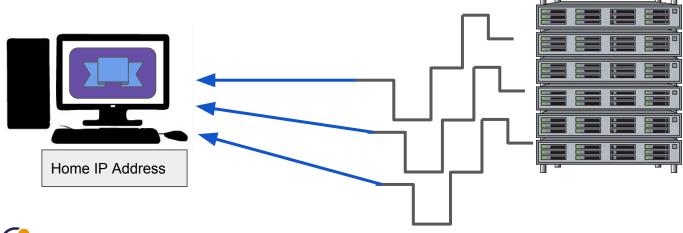


 Once the packets reach you, they are reassembled to show the page.





 All of this moves at close to the speed of light, so it happens very fast.







- This is a higher level explanation, but for our purposes it is all we need to know for now.
- Let's continue by discussing what the term "Full-Stack" means.



- There are two main components of a website
  - The Front-End
  - The Back-End





- The Front-End is what you see as a user on the website.
- The Back-End is the technology used to actually decide what to show you on the Front-End.



- The Front-End revolves around three technologies:
  - o HTML
  - CSS
  - Javascript



 You will hear about Front-End technologies such as jQuery and Bootstrap, but those are all built using the previous three.





- HTML HyperText Markup language
- Every website will have HTML, it is the structure of a page.
- You can view it by right-clicking and selecting "View Page Source"





- CSS Cascading Style Sheets
- CSS is the actual styling of the website.
- Colors, fonts, borders, etc is all defined by CSS.
- CSS is not mandatory, but almost all sites have it.





- Javascript allows you to add interactivity to the website, including programming logic.
- Any site with interactivity uses Javascript in some way, otherwise the site is "static".



- The first half of the course focuses on the Front-End.
- The Front-End always uses those three technologies.
- However the Back-End is where a multitude of options come up!





- The Back-End of a site has three components:
  - The Language
  - The Framework
  - The Database



- Technologies such as Php, Node.js, Ruby/Rails, Java, Python, etc. are all viable options for a website.
- So how do we decide which to choose?





- Our course Back-End uses:
  - Python as the language
  - Django as the Framework
  - SQLite as the Database





- Python is a great language to learn, it's simple, powerful, and has many libraries.
- Django is the most popular framework for Python, it's fast, secure, and scalable.
- SQLite comes with Django and Python making it an easy choice.





 As we continue along with the course we will be discussing each of these topics in much more detail, but for now you should have a high-level view of what we use in this course to turn you into a Full-Stack Web Developer with Django!



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## Let's get started!

