WHAT HAPPENS WHEN WE TYPE A URL ?

BY

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- *If you are in any technical profession, I am sure someone at some point has asked you this question. Whether you are an engineer, developer, marketer, or even in sales, it is always good to have a basic understanding of what is going on behind our browsers and how information is transferred to our computers via the internet.*
- *Let's imagine that you want to access maps.google.com to check the exact time it would take for you to get to your dinner reservation from work.*
- *The browser displays the HTML content in phases. First, it will render the bare bone HTML skeleton. Then it will check the HTML tags and send out GET requests for additional elements on the web page, such as images, CSS stylesheets, JavaScript files, etc. These static files are cached by the browser, so it doesn't have to fetch them again the next time you visit the page. In the end, you'll see maps.google.com appearing on your browser.*

FRIST UNDERSTAND URL AND DNS

- *DNS(Domain Name System) is a database that maintains the name of the website (URL) and the particular IP address it links to. Every single URL on the internet has a unique IP address assigned to it. The IP address belongs to the computer which hosts the server of the website we are requesting to access. For example, www.google.com has an IP address of 209.85.227.104. So if you'd like, you can reach www.google.com by typing http://209.85.227.104 on your browser. DNS is a list of URLs, and their IP addresses, like how a phone book is a list of names and their corresponding phone numbers.*
- *The primary purpose of DNS is human-friendly navigation. You can easily access a website by typing the correct IP address for it on your browser, but imagine having to remember different sets of numbers for all the sites we regularly access? Therefore, it is easier to remember the name of the website using a URL and let DNS do the work for us by mapping it to the correct IP.*
- *To find the DNS record, the browser checks four caches.*

STEPS

- *Browser checks cache for DNS entry to find the corresponding IP address of website.*
  It looks for following cache. If not found in one, then continues checking to the next until found.
    - *Browser Cache*
    - *Operating Systems Cache*
    - *Router Cache*
    - *ISP Cache*
- *If not found in cache, ISP's (Internet Service Provider) DNS server initiates a DNS query to find IP address of server that hosts the domain name.*
  The requests are sent using small data packets that contain information content of request and IP address it is destined for.
- *Browser initiates a TCP (Transfer Control Protocol) connection with the server using synchronize(SYN) and acknowledge(ACK) messages.*
- *Browser sends an HTTP request to the web server. GET or POST request.*
- *Server on the host computer handles that request and sends back a response. It assembles a response in some format like JSON, XML and HTML.*
- *Server sends out an HTTP response along with the status of response.*
- *Browser displays HTML content*
- *Finally, Done.*

THANK YOU

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