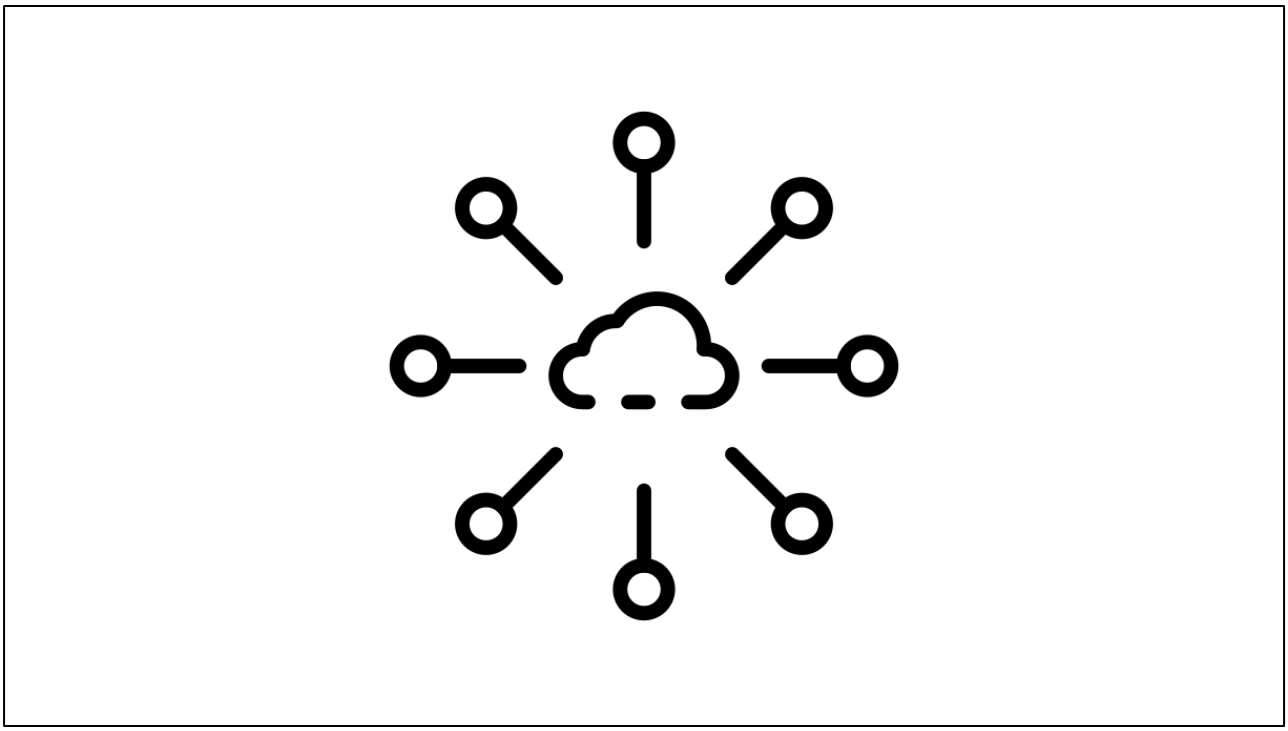
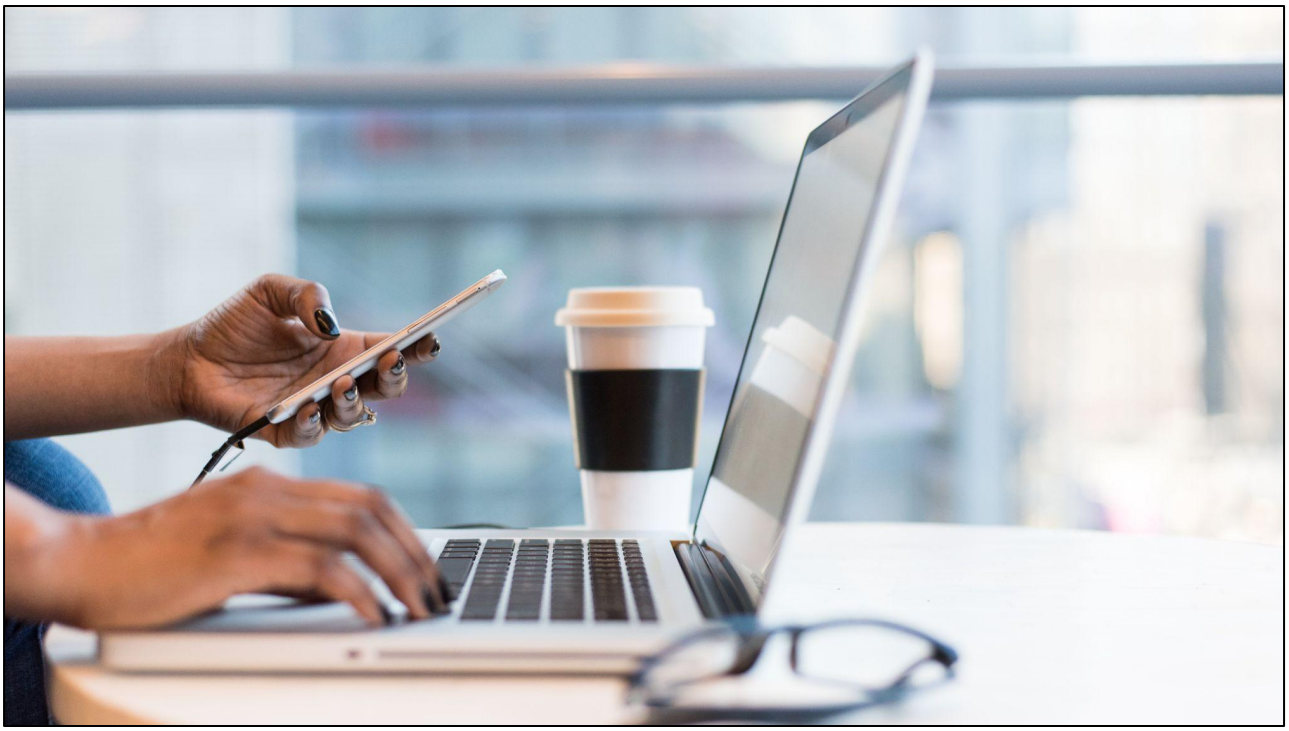
Web Fundamental 1: DNS



Every internet connected device is assigned an IP address. We can use these addresses to access a specific computer.

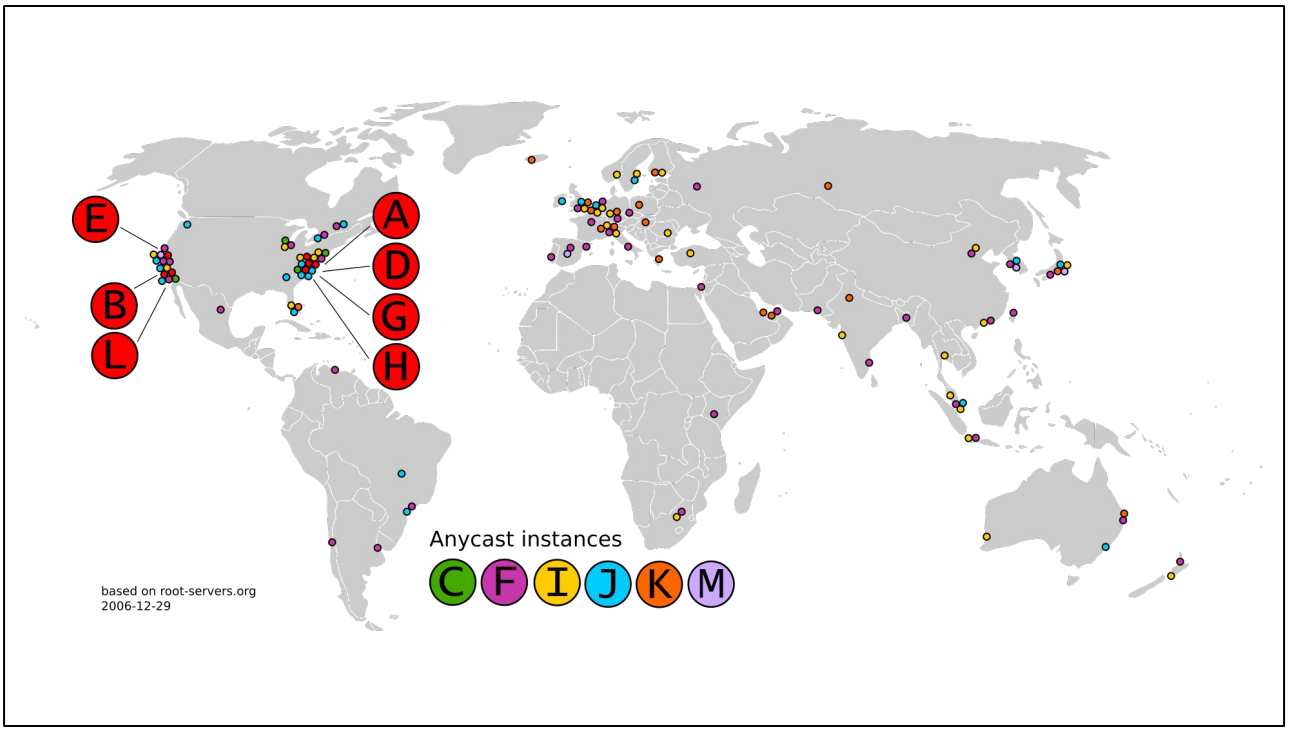
Asking for a website by the URL is like saying “Driver, take me home!” If the driver doesn’t know what your home is, they can’t take you there.

DNS is like an address book, it is how the network of computers can translate “take me to google” into an IP address

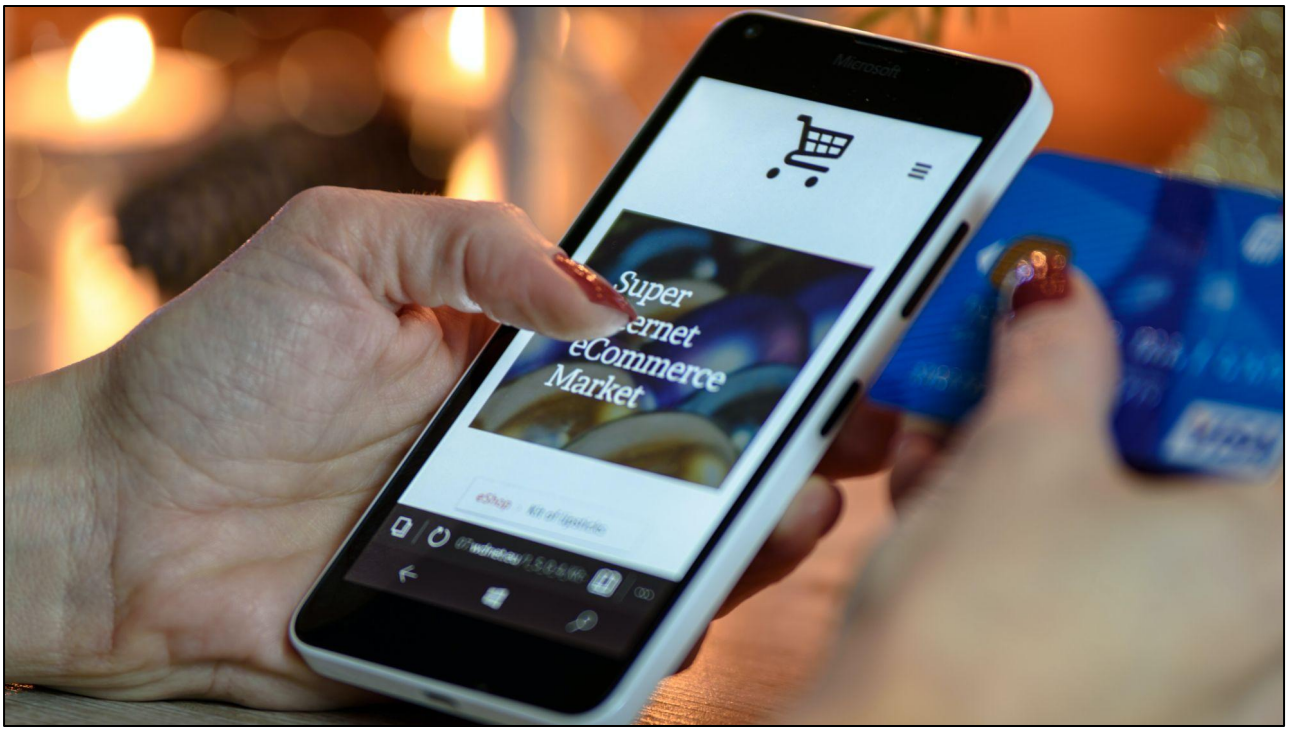


The first thing that happens when you type a URL (Uniform Resource Locator) into your browser is it checks the local DNS (domain name system) cache. If your computer has already been to this IP before, it may have saved the location for faster access

If there is not a local DNS entry available, your system will then query the public recursive name server (private service) or isp domain name server. These services are meant to expedite the process of accessing a site.



If there is no record for the domain on your isp's name server, it will forward the request to one of 13 root servers. There are actually more than 13 machines, but there are only 13 addresses to access them (kinda like offices in an office building).



Root server's don't hold the IP addresses, but they do know how to get you to the correct record. The actual record is managed by the Top Level Domain or TLD server. The top level domain is the end of the url, like ".com" There are over 1000 top level domains, so it's important to have this intermediary layer

To Review

- All internet connected devices are given an IP (internet protocol) address
- Accessing a website requires you to connect to the IP of the company hosting the site
- IP addresses are associated with a nickname, this is the URL
- The URL or Uniform Resource Locator is associated with the IP address, and there are databases that manage this information
- These databases are decentralized through a special, highly secure infrastructure. This system is called the DNS or Domain Name System