What is DNS ?

so DNS or Domain Name System is somewhat similar to your phone book or your contacts app where you store the numbers of the people. Similarly DNS stores the IP addresses of websites.

How DNS works ?

suppose you are trying to visit a website academy.networkchuck.com in your browser. if you have been to that website before your browser remembers its IP address which is stored in its cache. Considering it's your first time visiting the website your browser doesn't know which Ip to visit so the stub resolver in your device sends request to a DNS resolver to find out the IP address of that website. The following explanation is generated by ChatGPT 4o mini.

link ⟶ https://chatgpt.com/share/05550066-265f-4cc7-ae4c-d9bf3adbb0a2

Stub Resolver

Imagine you have a friend, Sam, who needs to find out where a certain store is located in our big city. Sam is kind of like a **stub resolver**. Sam knows that he needs to find out the address of a store, but he doesn't know how to find it himself. So, he asks a guide
who's like a DNS resolver.

The **stub resolver** is like Sam:

- **What it does**: It asks a DNS resolver to find out the address of a website (or store) for it.
- **How it works**: When you type a website name into your browser, the stub resolver in your computer or device sends a request to a DNS resolver to find out the IP address of that website.

DNS (Domain Name System)

Now, let's say the DNS resolver is like a well-informed guide who knows all about the city's addresses. When Sam (the stub resolver)

asks the guide (the `DNS resolver`) for the address of the store, the guide has to find it by looking it up in a big book of addresses.
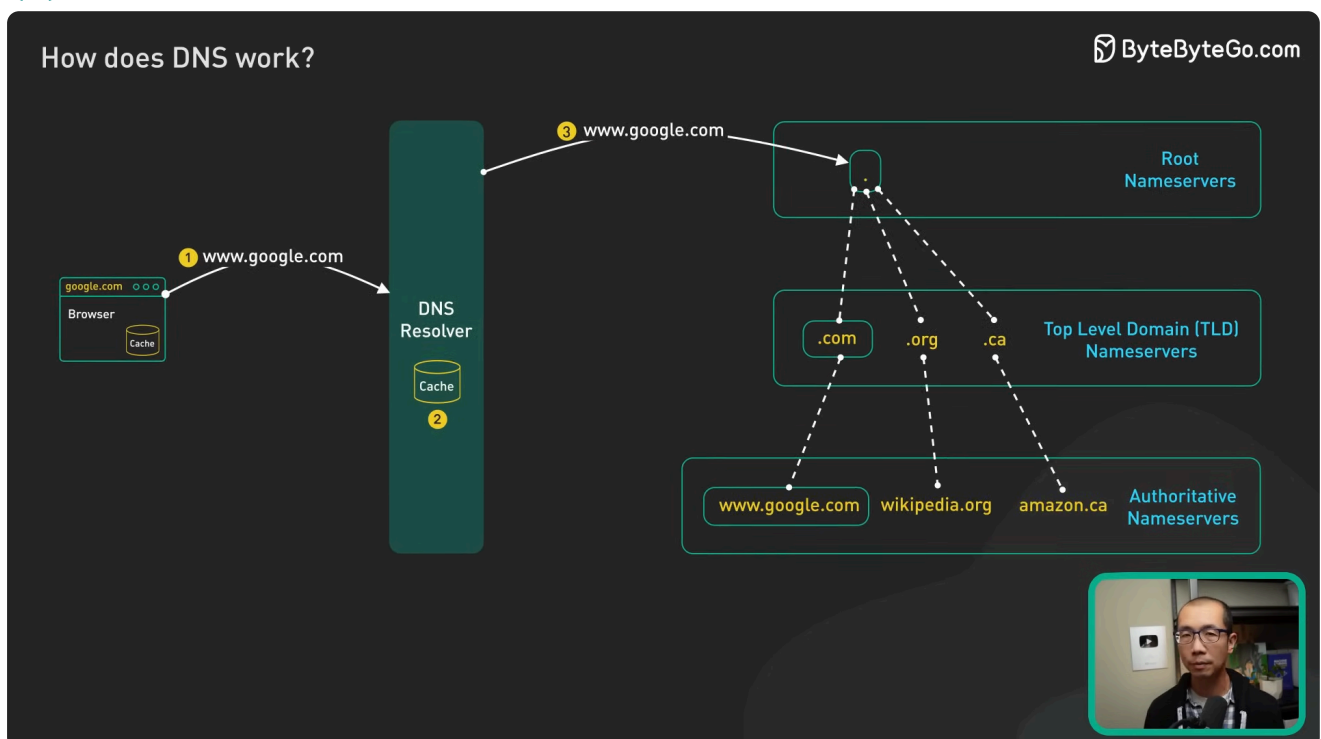
Here's how the guide (`DNS resolver`) works:

1. **Ask the Guide:** Sam (stub resolver) asks the guide (`DNS resolver`) for the address of "google.com."
2. **Check the Big Book:** The guide looks up "google.com" in the big book (DNS records). If the address is not in the book, the guide might ask other guides (DNS servers) for help.
3. **Find the Address:** Once the guide finds the address, it tells Sam (the stub resolver) the IP address, like `142.250.190.46`.
4. **Return the Address:** Sam then knows the address and can send a message to Google's servers.
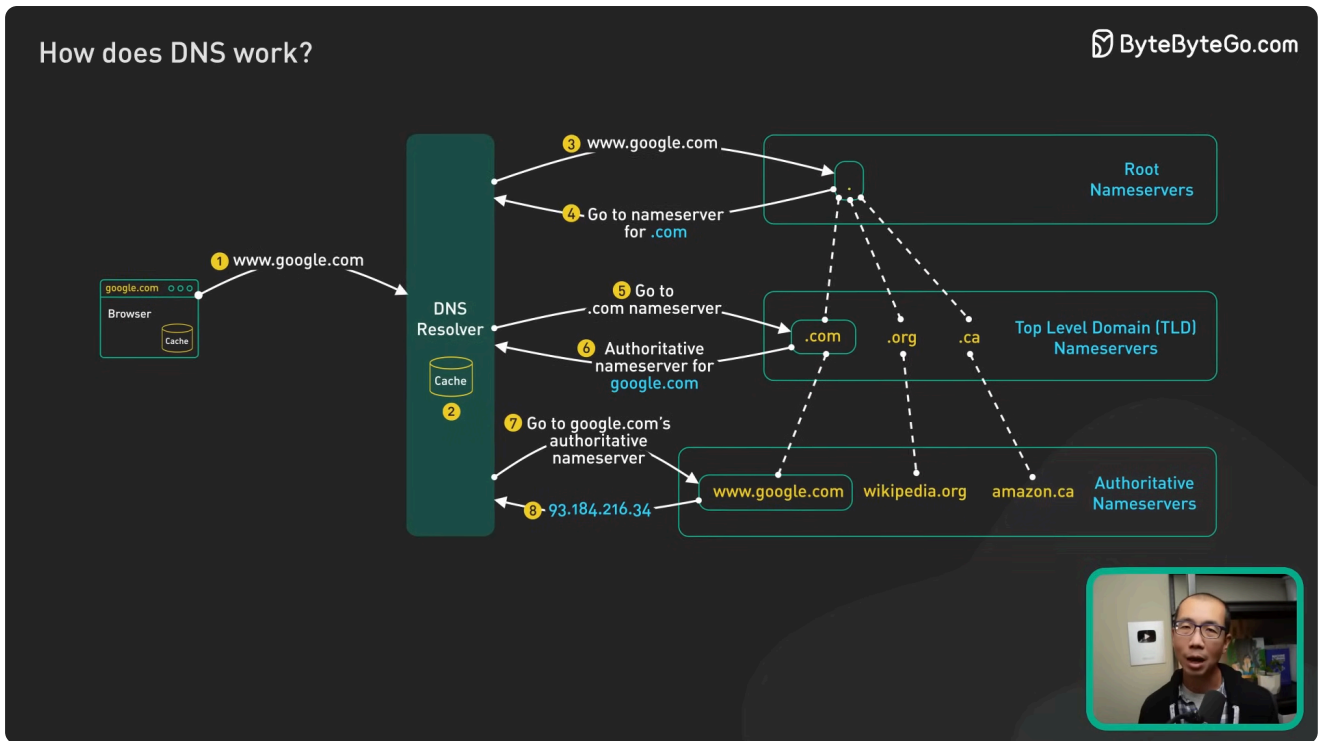
Summary

- **Stub Resolver:** Your computer's way of asking for the IP address.
- **DNS:** The whole system that looks up and translates website names into IP addresses. It involves multiple servers, each with a part of the big book of addresses.

So, when you want to visit a website, your stub resolver (your computer) asks the DNS system (the guide and the book) to find the IP address. Once it has the IP address, it can then talk to the website's servers and get the information you want.

(i)

(ii)

https://youtu.be/27r4Bzuj5NQ ⟵ link to the source