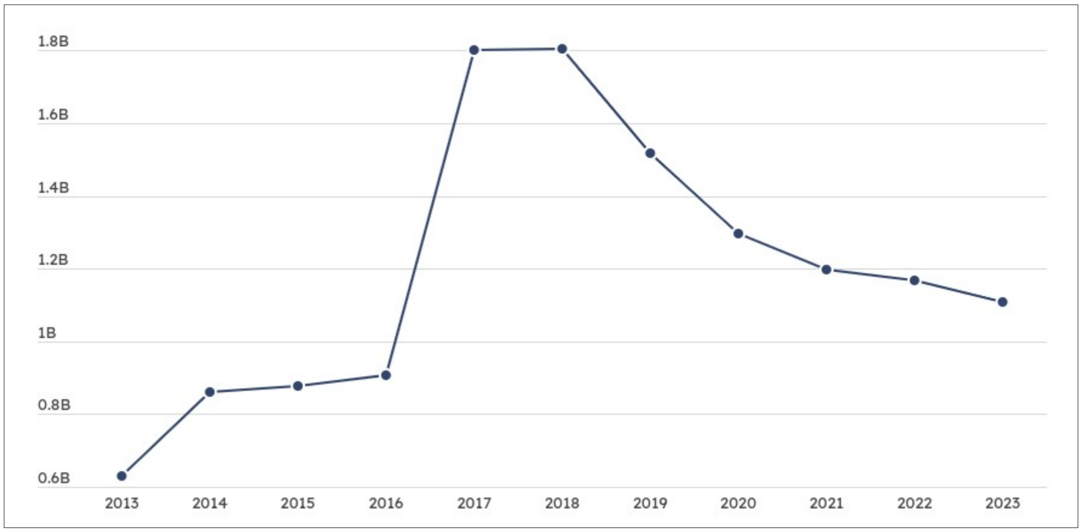
Domain Name System (DNS)

In 1991, British physicist Tim Berners-Lee at CERN in Switzerland published the first website. It was about the World Wide Web project. Hosted at CERN on Tim's own computer, the site's address was http://info.cern.ch. You can still visit this address and view the original website as it was viewed at that time (the second option). At the end of 1992, there were ten websites online and, after CERN made the W3 technology publicly available in 1993, the internet started to grow. By 1994, there were about 3,000 sites, one of which was "Yahoo!", originally called "Jerry and David's Guide to the World Wide Web". When the Google website was created (1997), there were already over two million websites. Today (2024), there are about 1.1 billion websites. In 2018 there were about 1.9 billion websites.



Number of websites (2013-2023)
Source: https://themeisle.com/blog/how-many-websites-are-there/

The "Domain Name System" (DNS) is a database which contains all the hostnames and IP addresses of all websites on the world wide web. The list is duplicated on all servers around the world. Every website has an IP address (the address of a server), and to access a website, we use its "hostname". So, when you type a website name into your browser, your computer accesses the DNS database to find the IP address of the server for that website, and then, using the internet, it connects you to the website. Some websites allow direct IP access, but most don't. The DNS "translates" a website name into the IP address of a server. For example:

Hostname	Server IP address	Server location
www.insl.com.br	191.6.211.15	Brazil
www.bbc.com	151.101.92.81	UK
www.yahoo.com	69.147.88.7	USA

There are many ways to discover the IP address of a website, for example by using a "DNS Lookup" tool. One example is: https://www.nslookup.io/

When a new website is created, the database entry for that site must be added to the DNS database, and if a website is moved to a different server, then the database must be updated with its new IP address. The database must then be propagated around the world to all servers. This can take 72 hours. Due to frequent changes, propagation is happening constantly.

If a server contains many websites, then software on the server (Network Address Translation – NAT) directs you to the correct website.