Basic DNS

Introduction

The domain name system (DNS) is an application-layer protocol for mapping domain names to IP addresses. It servers as a phone book for the Internet, so computers can look up for IP addresses from domain names.

Humans are good at memorizing compute names, such as www.google.com, www.gmail.com etc., but computers need IP addresses in order to communicate with one another. Therefore, given a name, a computer needs to find out the corresponding IP address, before it can communicate with the intended computer.

Translating names to IP address (and vice versa) is primary task of the Domain Name System (DNS).

DNS Connection process

Step I: Requesting website information.

when you ask your computer to resolve a website it looks in its local DNS cache.

Step II: Contact Recursive DNS servers.

If the information is not stored locally, your computer contacts Recursive DNS servers.

Step III: Query the Root Name Servers.

If Recursive DNS servers don't have information they contact Root Name servers.

Step IV: Ask the TLD name servers.

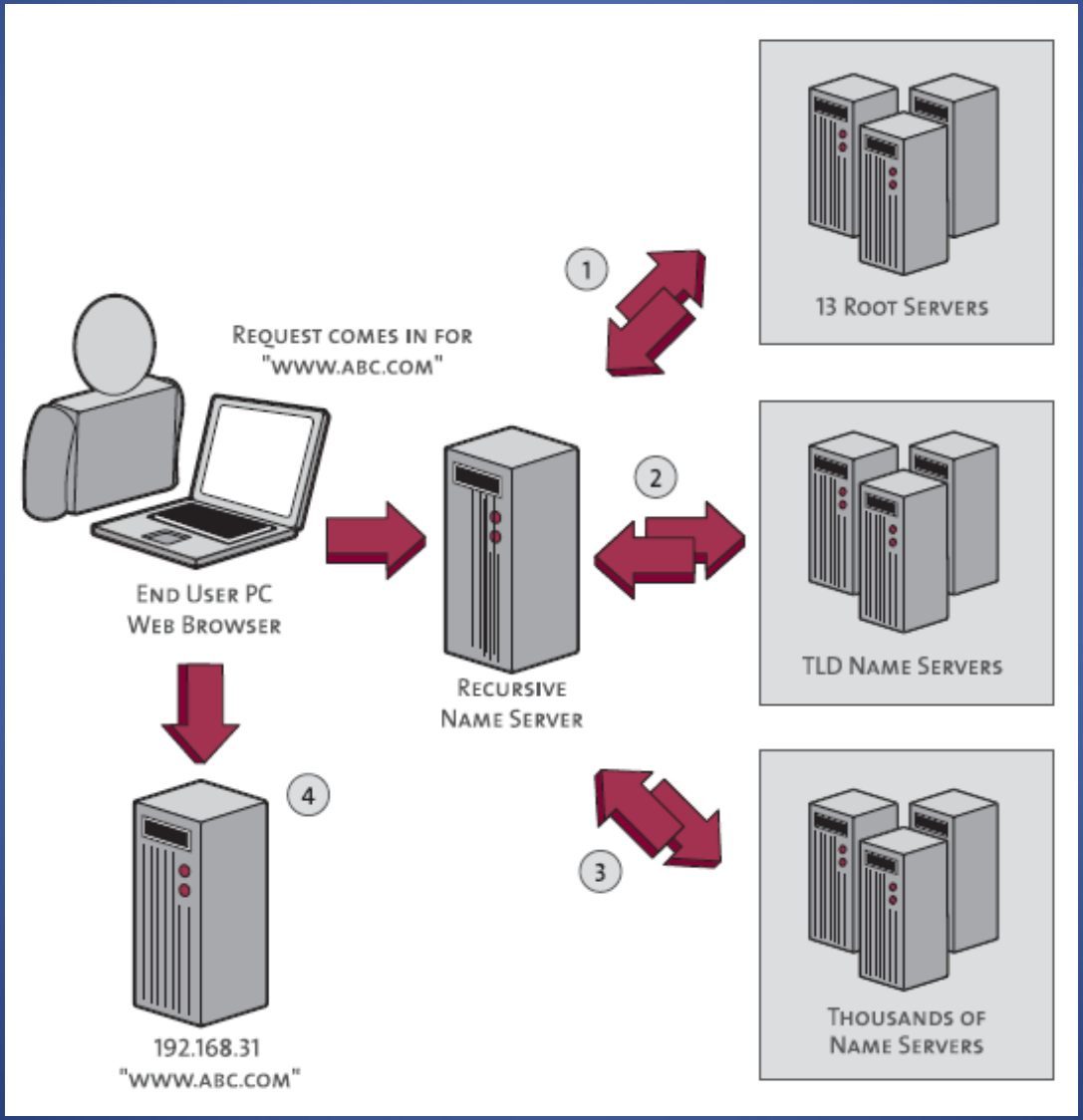
Root name servers reads our query form right to left and forwards query to TLD name servers. These name servers don't have the information we need but it refer us to the name servers that do have information.

Step V: Ask authoritative DNS server.

Step VI: Retrieve the record and store in Local DNS cache.

Step VII: Direct the user to the specific website.

Example


13 Root Servers
1
Request comes in for
"www.abc.com"
End User PC
Web Browser
Recursive
Name Server
2
TLD Name Servers
3
Thousands of
Name Servers
4
192.168.31
"www.abc.com"