What is a DNS server?

A DNS server (aka name server, nameserver, and domain name system server) is a computer server that contains a database of public IP addresses and their associated hostnames, and in most cases, serves to resolve, or translate, those common names to IP addresses as requested.

It's a translator from hostname to IP address

DNS servers run special software and communicate with each other using special protocols.

Why are they used?

It's much easier for humans to remember *facebook.com* than to remember 31.13.75.36. But for computers, numbers are easier. So, when we enter *facebook.com* in our web browsers, it's converted to the correspondent IP address. But then how does the computer know the IP of each website? DNS servers are represented by a tree, starting with root DNS servers, and spanning down, so depending on where your device is in that tree, it searches the closest DNS servers for the required info, going all the way up to root servers and back down if "what you're looking for is far away".

What Is Authoritative Name Server?

An authoritative name server provides actual answer to your DNS queries such as – mail server IP address or web site IP address (A resource record). It provides original and definitive answers to DNS queries. It does not provide just cached answers that were obtained from another name server. Therefore, it only returns answers to queries about domain names that are installed in its configuration system. There are two types of Authoritative Name Servers:

- Master server (primary name server) – A master server stores the original master copies of all zone records. A host master only makes changes to master server zone records. Each slave server gets updates via special automatic updating mechanism of the DNS protocol. All slave servers maintain an identical copy of the master records.
- Slave server (secondary name server) – A slave server is exact replica of master server. It is used to share DNS server load and to improve DNS zone availability in case master server fails. It is recommended that you should at least have 2 slave servers and one master server for each domain name.

**DNS Server Performance:**

**The performance of a DNS server can be expressed in both availability and resolution time. During the project, I will be using the command dig on Unix system-based scripts to analyze the DNS services availability for ccTLD authorative servers, as well as query resolution time.**

MENOG Region:

After much research, I came up with a conclusion that the countries of the MENOG region are the following:

| | |
|---|---|
| Bahrain (BH) | Iran (IR) |
| Iraq (IQ) | Jordan (JO) |
| Kuwait (KW) | Lebanon (LB) |
| Oman (OM) | Palestine (PS) |
| Qatar (QA) | Saudi Arabia (SA) |
| Syria (SY) | Turkey (TR) |
| United Arab Emirates (AE) | Yemen (YE) |

Countries of Europe:

| | | | | | |
|---|---|---|---|---|---|
| Albania | Andorra | Armenia | Austria | Azerbaijan | Belarus |
| Belgium | Bosnia and Herzegovina | Bulgaria | Croatia | Cyprus | Czech Republic |
| Denmark | Estonia | Finland | France | Georgia | Germany |
| Greece | Hungary | Iceland | Ireland | Italy | Kazakhstan |
| Kosovo | Latvia | Liechtenstein | Lithuania | Luxembourg | Macedonia |
| Malta | Moldova | Monaco | Montenegro | Netherlands | Norway |
| Poland | Portugal | Romania | Russia | San Marino | Serbia |
| Slovakia | Slovenia | Spain | Sweden | Switzerland | Turkey |
| Ukraine | United Kingdom | Vatican City | | | |