



What is the DNS? - how it works

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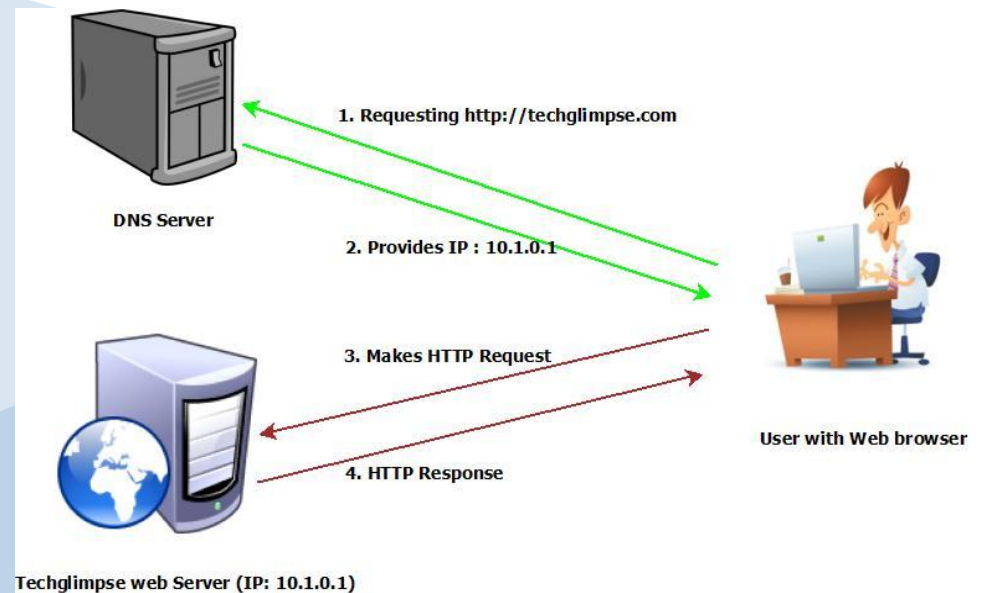
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Other Stakeholders

What is the Domain Name System (DNS)?

What is the Domain Name System?

- The **D**omain **N**ame **S**ystem or DNS maps domain names to IP addresses. eg. www.example.com -----> 192.168.23.1
- Domain names must be unique.
- The DNS is a distributed database



Let's look at a typical domain name.

www.example.com

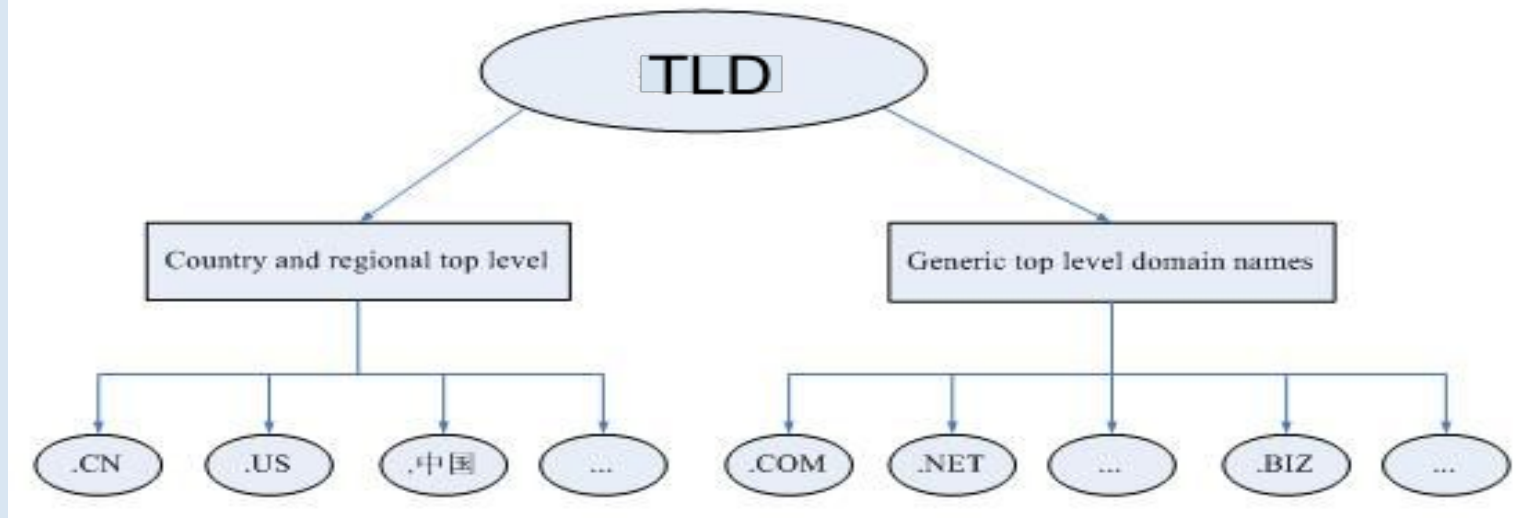
- “com” is the First Level Domain or Top Level Domain (TLD)
- “example” is the Second Level Domain
- “www” is the Third Level Domain



Domain names cont'd...

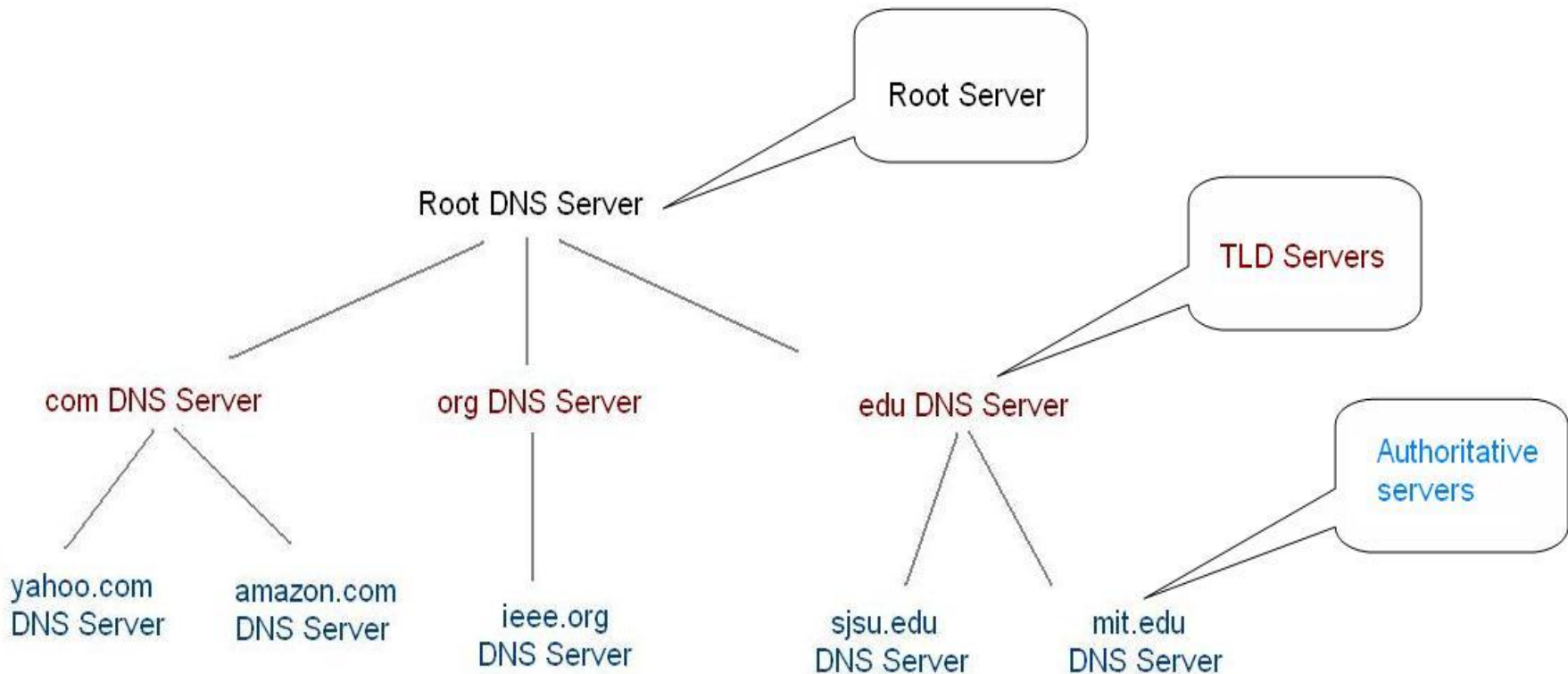
- Each Top Level Domain (TLD) is managed by a specific organization called a Registry Operator under contract with ICANN.
- Top Level Domains (TLDs) are divided into two types;
- gTLDs -- Generic Top Level Domains and
- ccTLDs -- Country Code Top Level Domains

Diagram for Internet Domain Name System



Structure of the Domain Name System

- The DNS processes domain names following their hierarchical structure. At the highest level of the domain name system is the Root zone. This root zone is managed by ICANN.



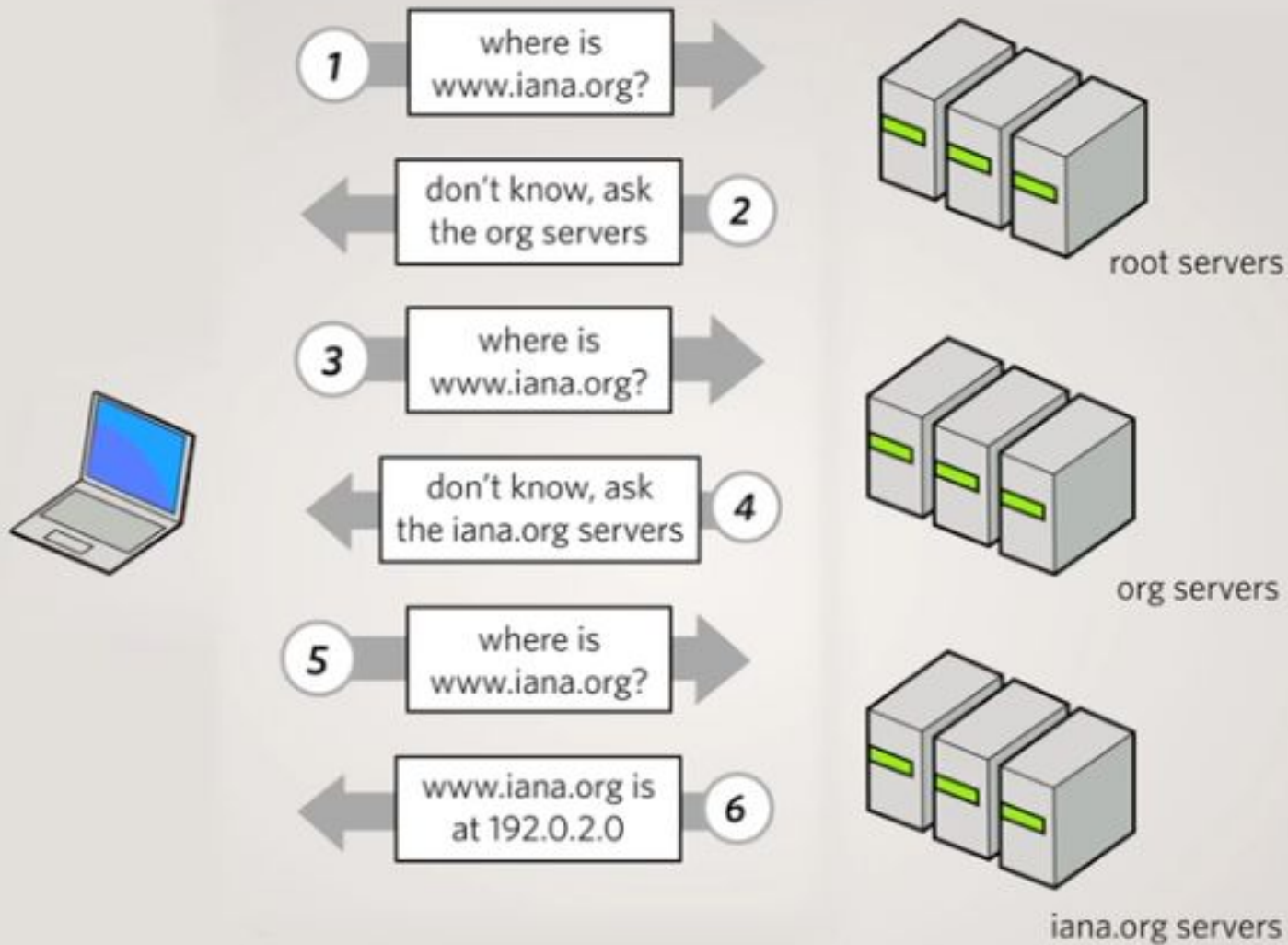
How does the Domain Name System work?

What happens when I type www.example.com in my browser?

The simplified domain name lookup process;

1. Your Internet Service Provider's (ISP's) DNS server queries the “**root servers**” for the information. There are 13 root servers which have copies distributed around the world.
2. The root server will refer the DNS server to the “**.com**” Top Level Domain (TLD) nameservers .
3. The .com TLD server will refer us to the DNS servers responsible or authoritative for “**example.com**”
4. The DNS servers authoritative for example.com will give us the IP address for www.example.com”
5. The ISP DNS server tells your browser the IP address of www.example.com and saves this reply in case another user on the ISP's asks the same question.
6. Your browser asks the IP address to download a webpage

The domain name lookup process



Stakeholders in the Domain Name System.

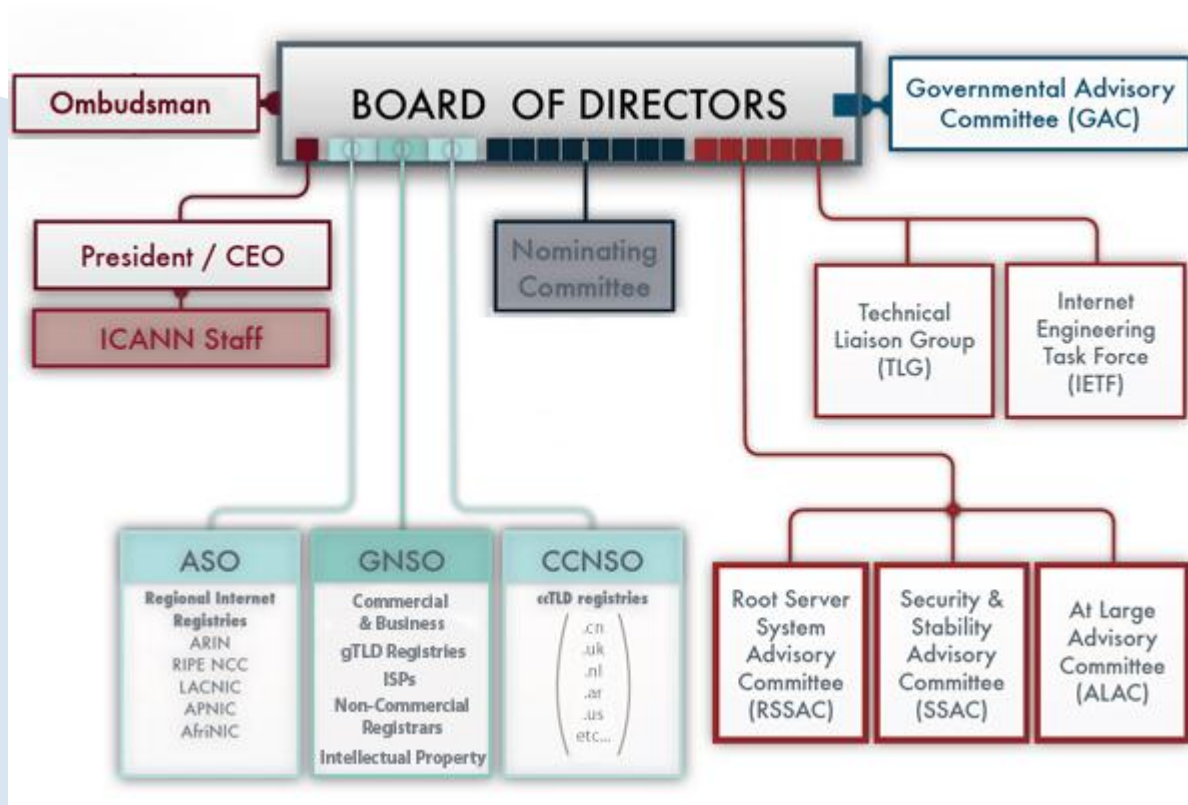
To ensure the continued interoperability of the Internet's unique identifier systems, ICANN performs a number of functions.

- management of the Internet's unique identifiers.
- coordination of policies determined by the five RIRs for allocating and assigning sets of unique numerical identifiers needed to make the IP system work consistently around the world.
- managing (through PTI) the distribution and allocation of IP address “blocks” to the RIRs.

Therefore, ICANN oversees the assignment of both IP addresses and domain names.

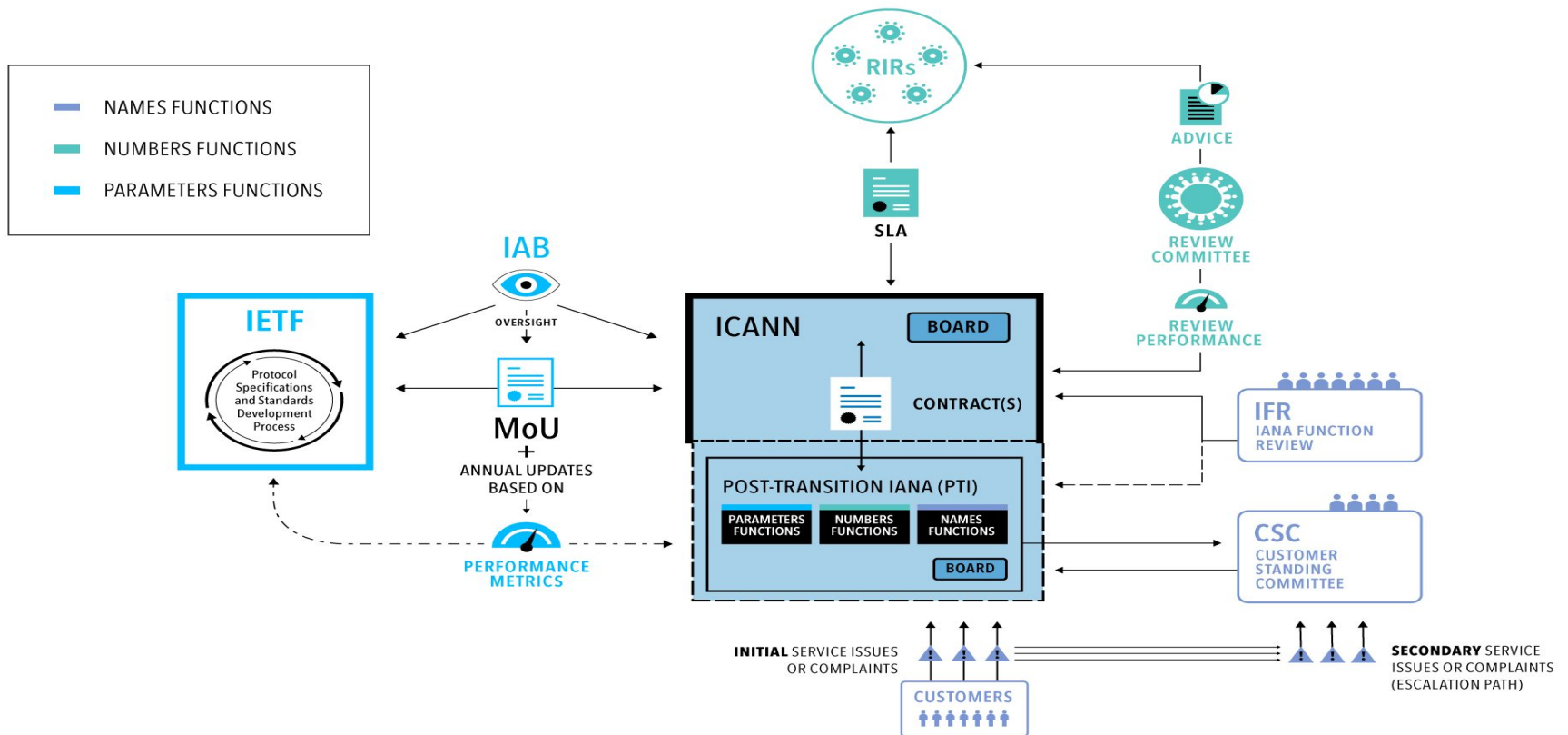
The ICANN Community

ICANN is made up of different communities, representing different interests on the Internet and all contribute to any final decisions that ICANN makes.



PTI and ICANN

Public Technical Identifiers (PTI) is an affiliate of ICANN that is responsible for performing the IANA functions and delivering the IANA Services, on behalf of ICANN.



Other Stakeholders

Registries, Registrars and Registrants

Domain Registry Operators

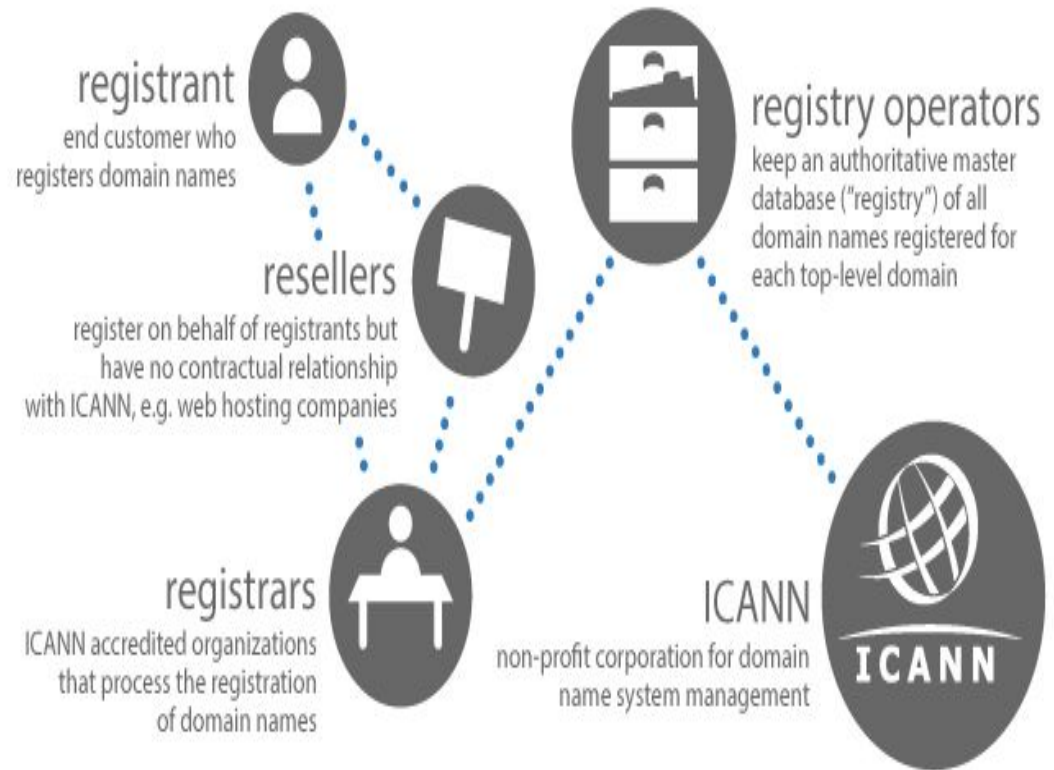
Responsible for maintaining the registry for each TLD under their management e.g VeriSign is the Registry Operator for the .com TLD.

Registrars

Organizations accredited by ICANN and certified by the registry operators to sell domains.

Registrant

End customers who registers domain names.



domain registry process



Thank You and Questions

Reach us at:

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