

Domain Name System



Brock Tubre

TECHNICAL INSTRUCTOR

Domain Name System (DNS)

Similar to how your phone contacts are translated to phone numbers.

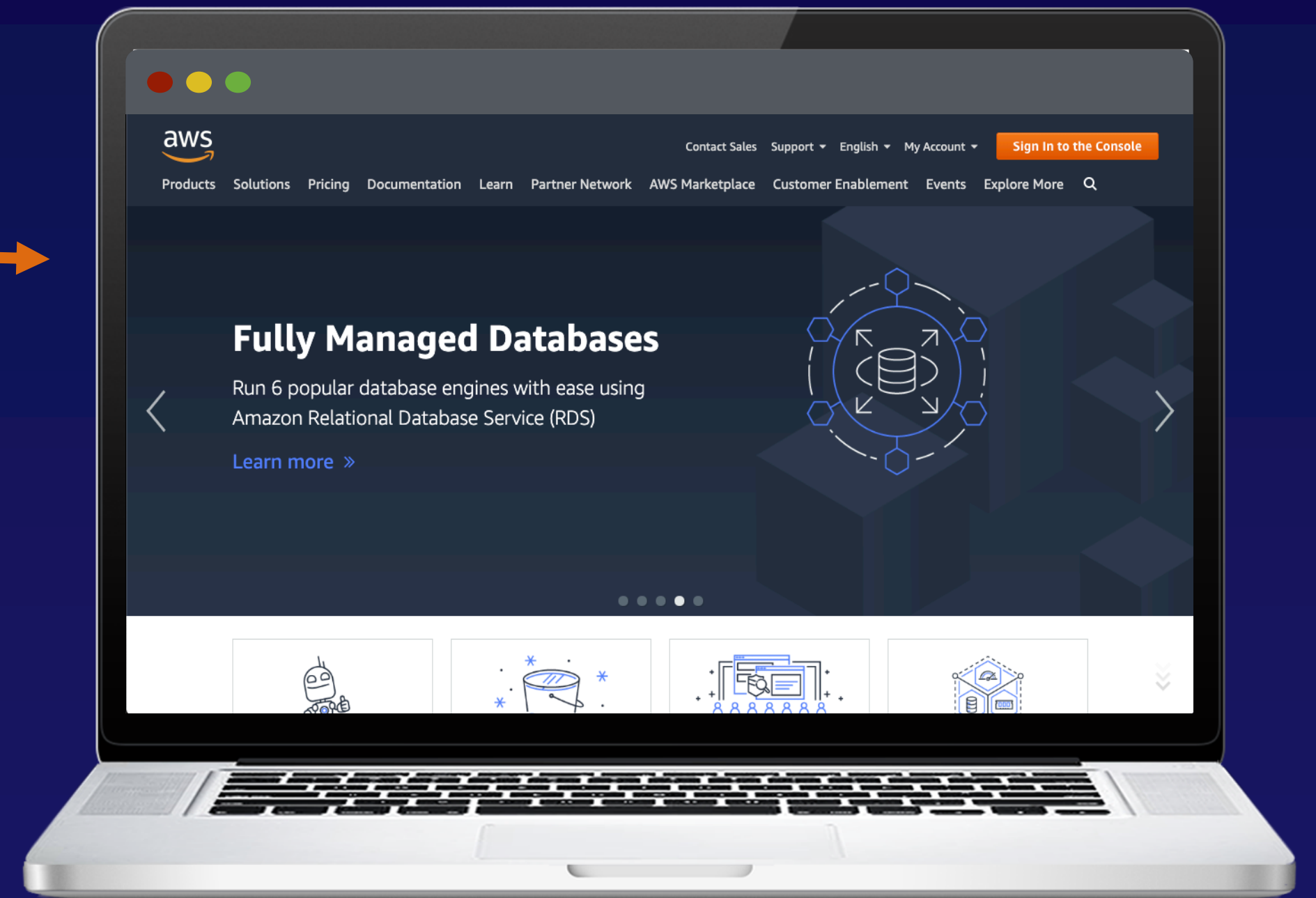
A globally distributed service that translates domain names to IP addresses. DNS is the foundation for how people use the internet.



Domain Name System



13.249.110.193



aws.amazon.com

Top-Level Domains

Generic

- .org
- .net
- .guru
- .cloud

aws.amazon.com



TLD

Geographic

- .in
- .au
- .be
- .mx

aws.amazon.com



SLD

Second-Level Domains



aws.amazon.com

Subdomain

Subdomain Of

aws.amazon.com . ← root

Subdomain	Subdomain Of
com	root

aws.amazon.com

Subdomain	Subdomain Of
com	root
amazon	com

aws.amazon.com

Subdomain	Subdomain Of
com	root
amazon	com
aws	amazon

Fully Qualified Domain Name





Name Servers

Translates the domain name to an IP address.

Name servers respond to queries and do most of the work in the DNS. Name servers can be authoritative and non-authoritative.

Authoritative and Non-Authoritative Name Servers



Authoritative



Non-Authoritative

Authoritative and Non-Authoritative Name Servers



Authoritative

Provides answers to queries they know about.

Non-Authoritative

Points to other servers or serves cached content from other name servers' data.

Route 53 Authoritative DNS System



Authoritative

Provides answers to queries they know about.



Provides direct updates to manage public DNS names.



Answers DNS queries, translates domain names into IP addresses.

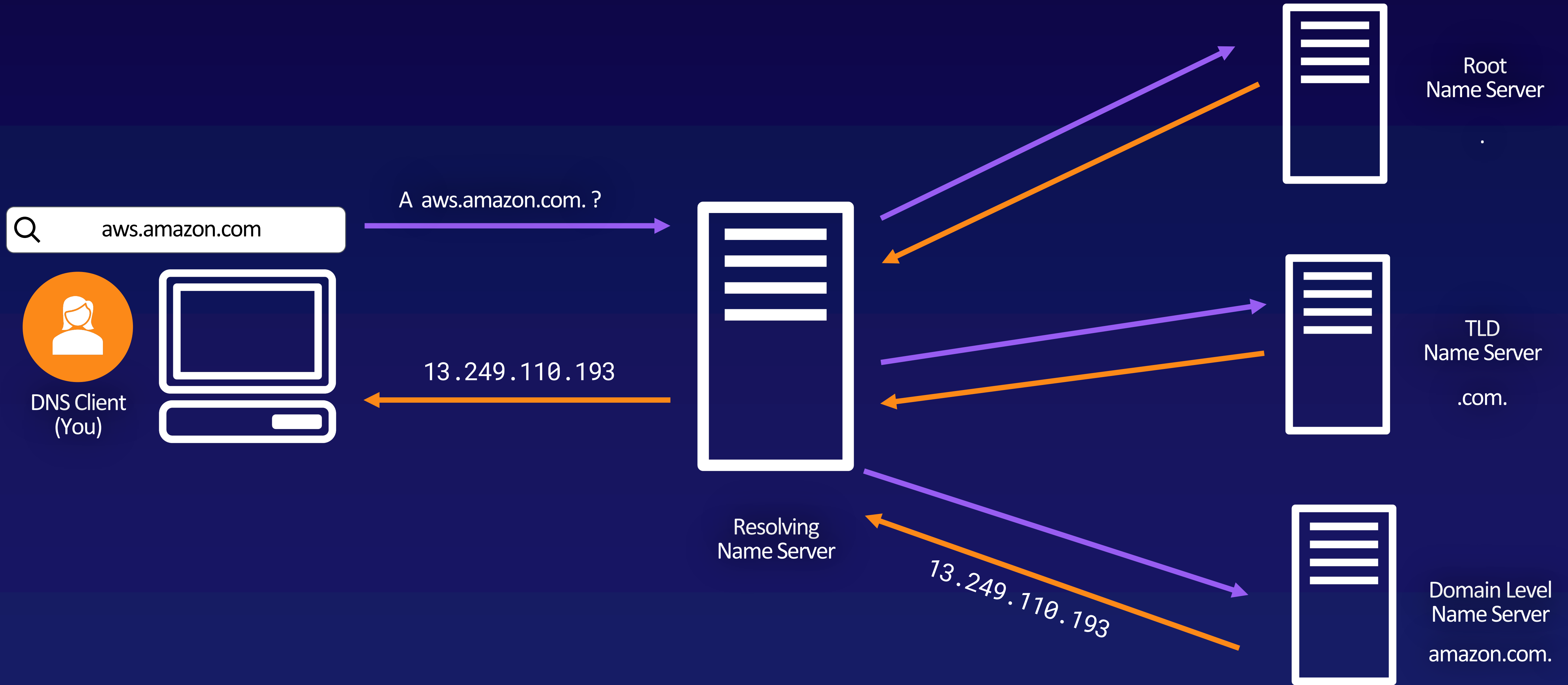
Zones

Zones

A zone is a container that holds important information about how to route traffic for domain names (example.com) and its subdomains (test.example.com).



DNS Resolution



1

Checks Locally

Your computer first looks to try and resolve the address locally. It looks at the host files configured locally and any stored in cache.

2

Forwards Request

If nothing is found, the request is sent to the resolving name server. Typically this is your ISP, your router, or configured in your LAN.

3

Waits for a Response

Resolving name servers take care of all requesting queries which are transparent to the client. Once an IP address is found, it is returned to the client.

Record	Record Type
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Record Types

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PTR	Pointer record is a reverse A record lookup. Maps an IP address to a host.

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Record Types

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SPF	Send Policy Framework
SRV	Service locator