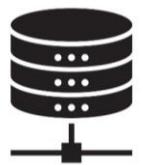
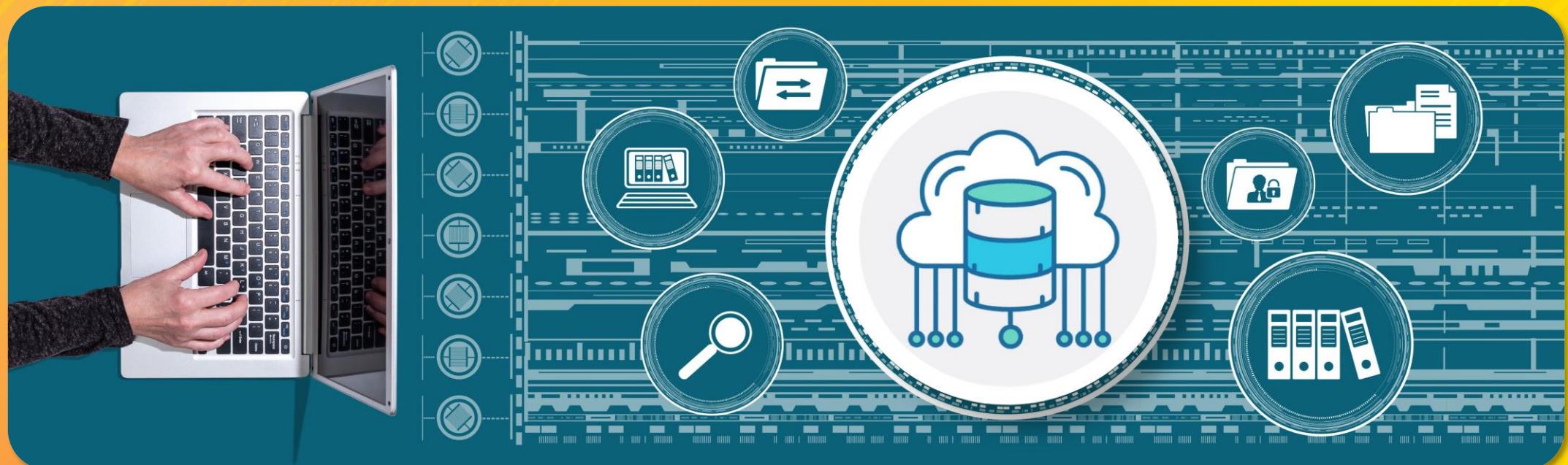
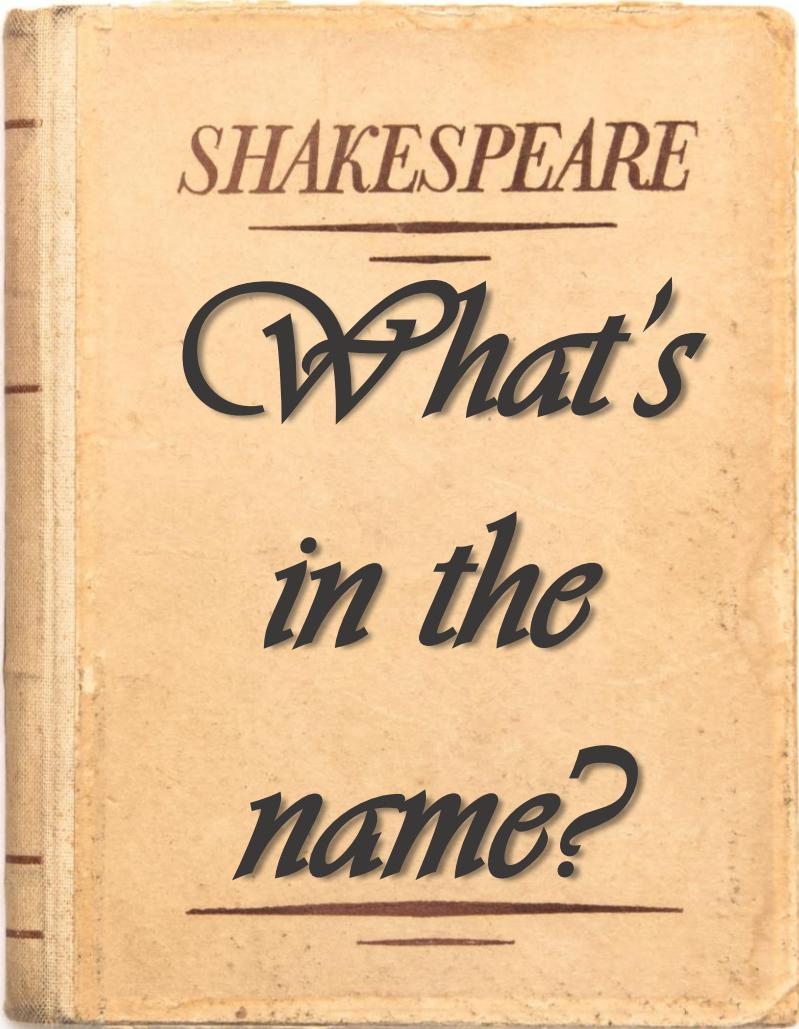




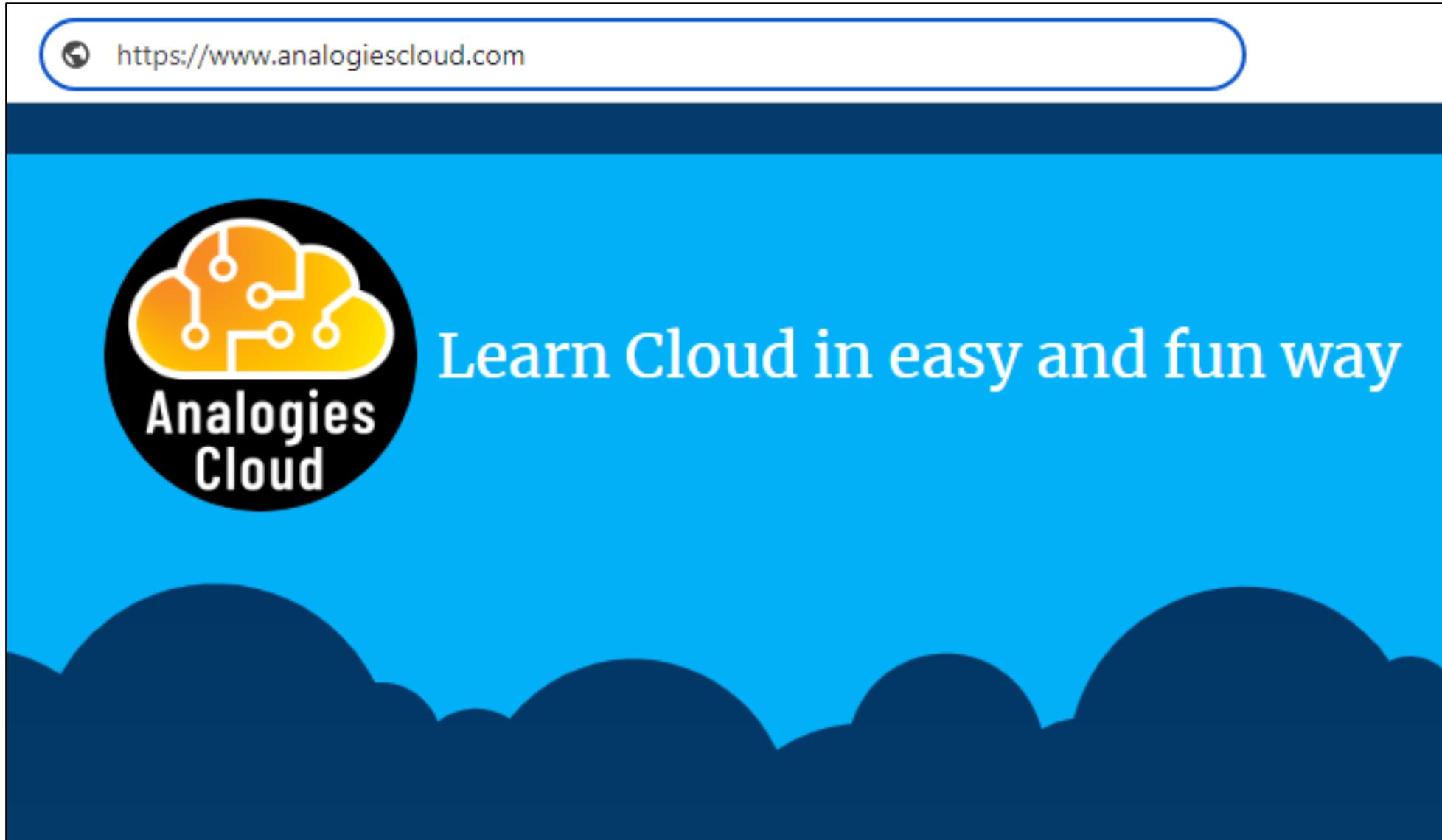
Amazon Route 53





A lot

What is a domain name?



What is DNS?



Users



www.analogiescloud.com



192.0.2.11

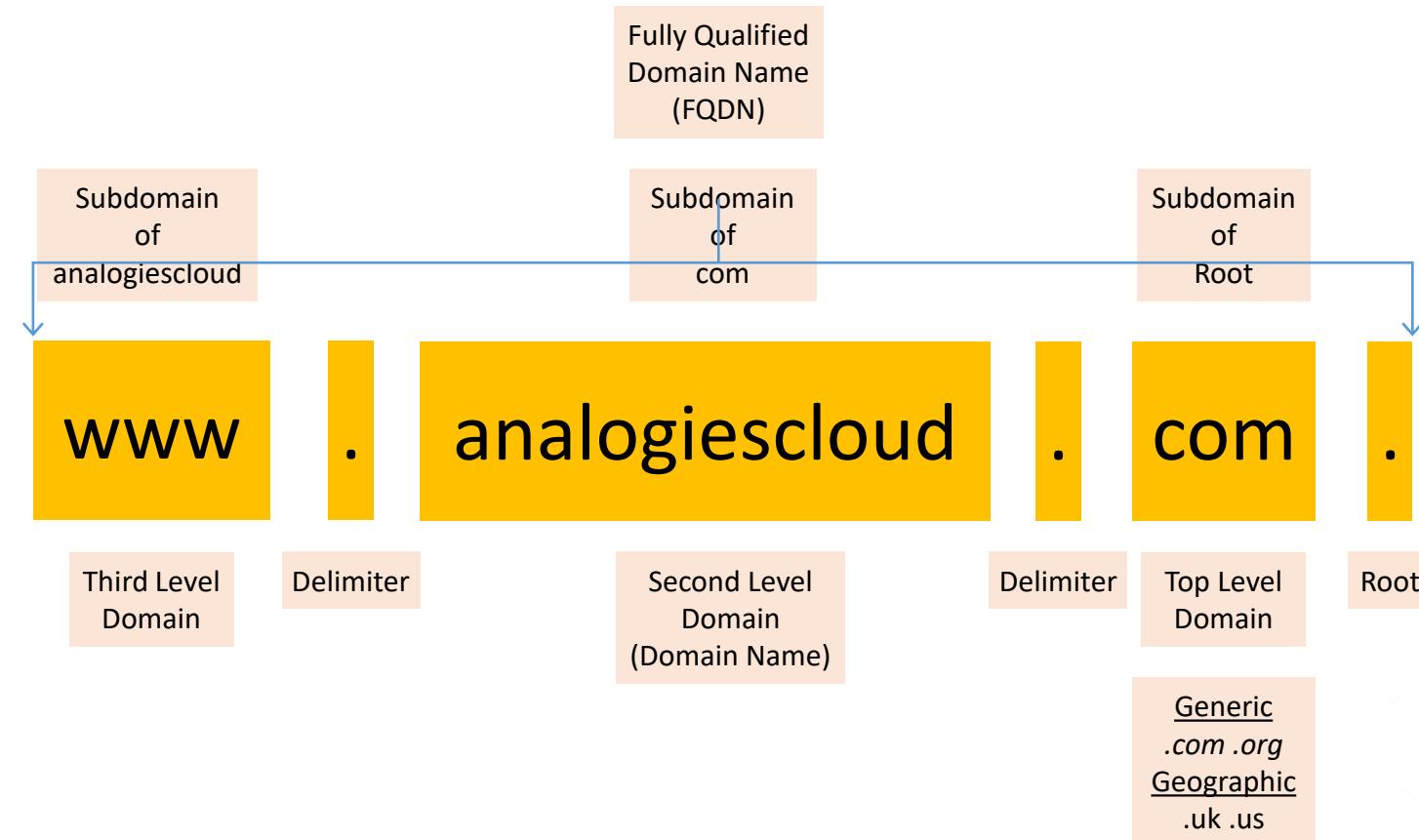
OR

2001:db81:ec2:1::1

What is a domain name?

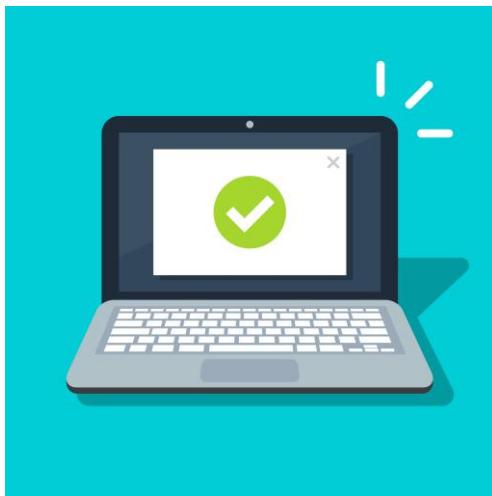
www . analogiescloud . com .

What is a domain name?

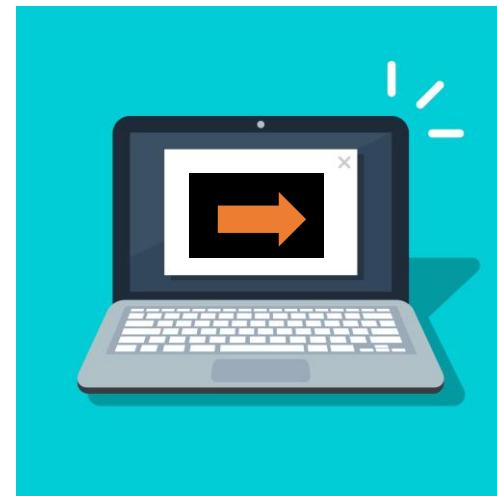


Name Servers

- Authoritative

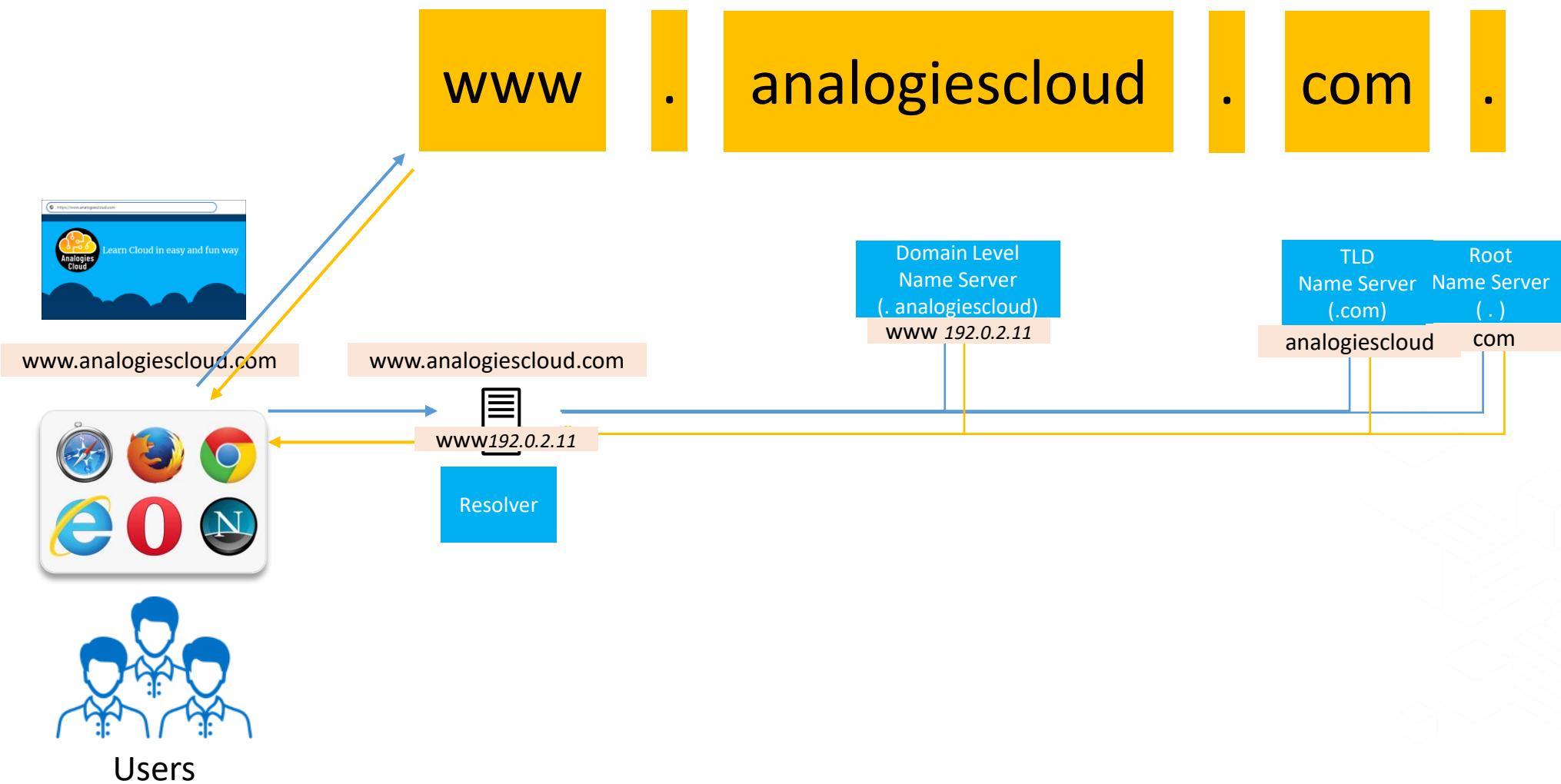


- Non-authoritative



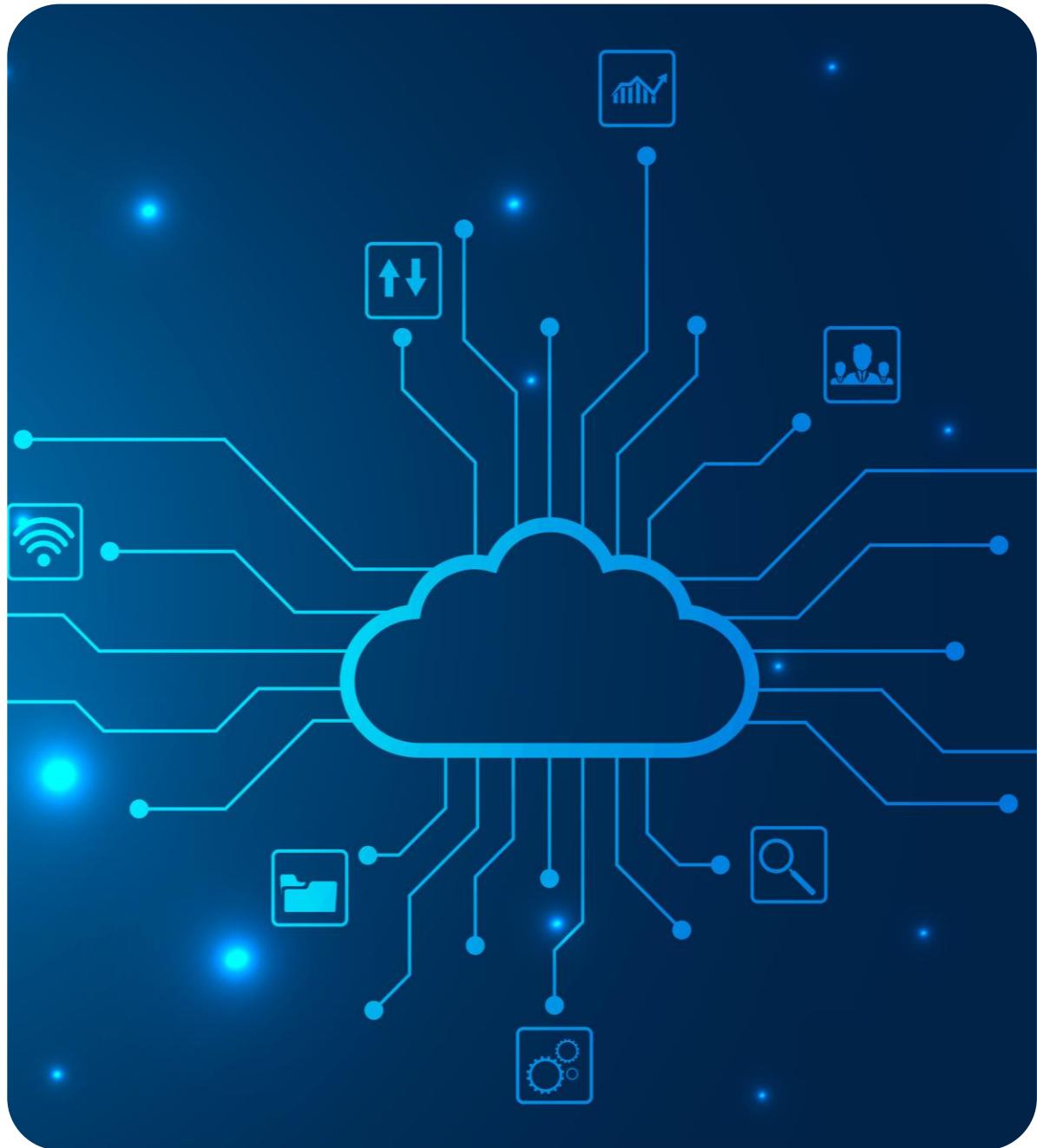
TTL – time to live

How to resolve that domain name?



Common record types

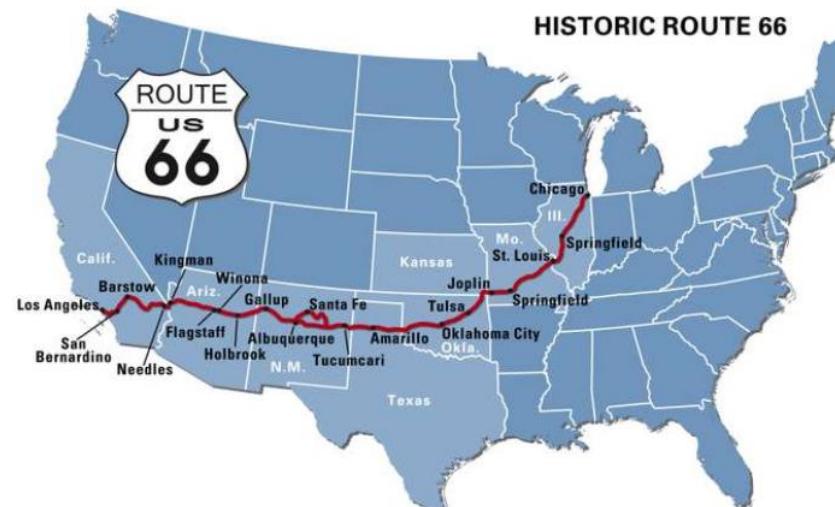
Record	Description
A	Routes traffic to an IPv4 address
AAAA	Routes traffic to an IPv6 address
CNAME	Routes traffic to another domain name
MX	Specifies mail servers
TXT	Used to verify email senders and application specific values
PTR	Maps an IP address to a domain name
SRV	Application-specific values that identify servers



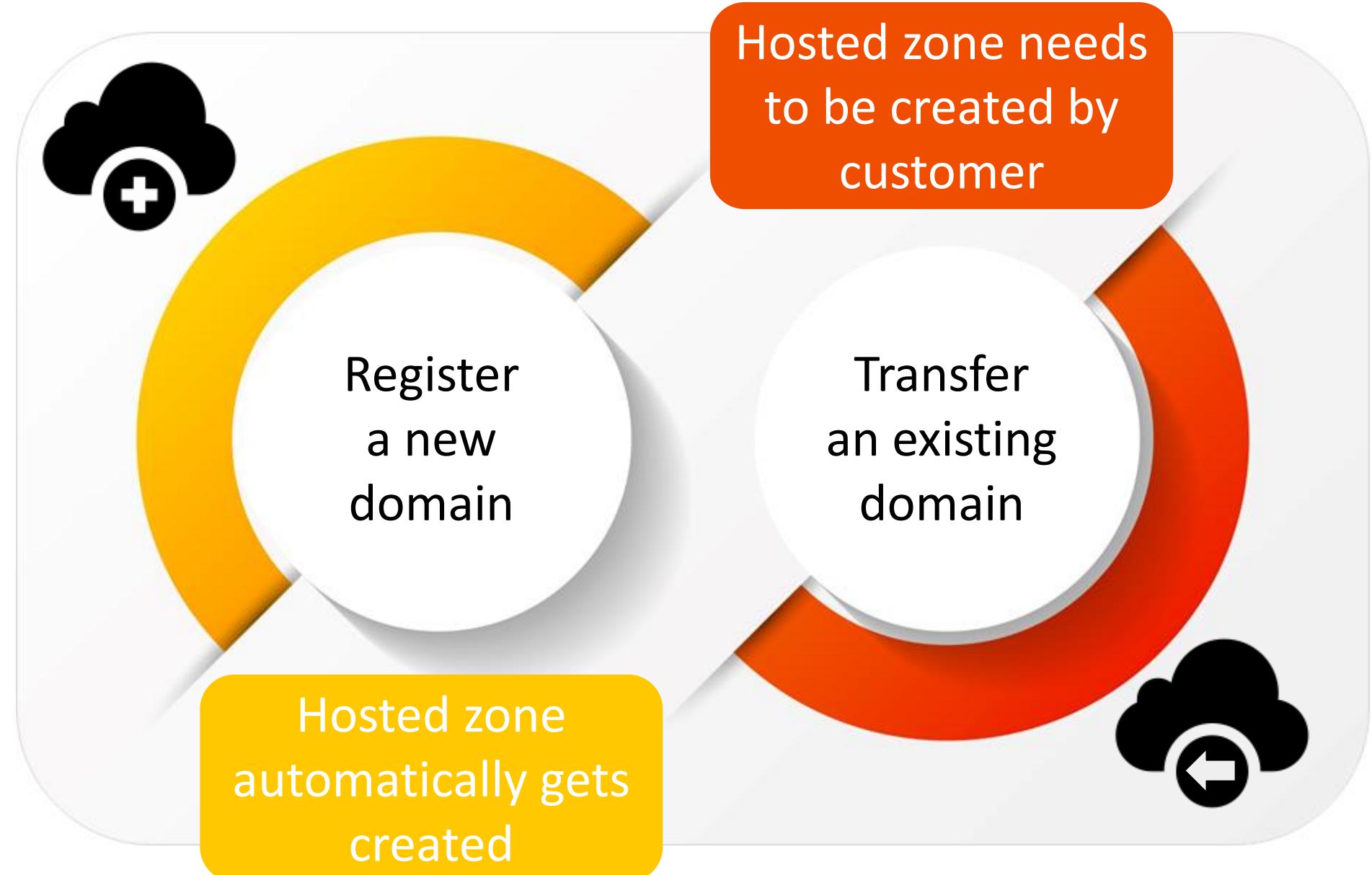
Amazon Route 53

Amazon Route 53

- Domain name registration services
- Public authoritative DNS
- Private hosted zones
- Route 53 Resolver
- Integration with on-premises DNS environments
- DNS Firewall



Amazon Route 53 – Getting Started



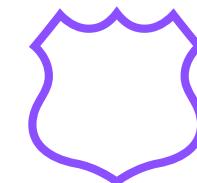
Hosted zones: Public and private



Hosted zones: Public and private

Public hosted zone

- Route to Internet facing resources
- Resolve from the Internet
- Provides Internet reachable nameservers
- Can be delegated from parent zones
- Global routing policies



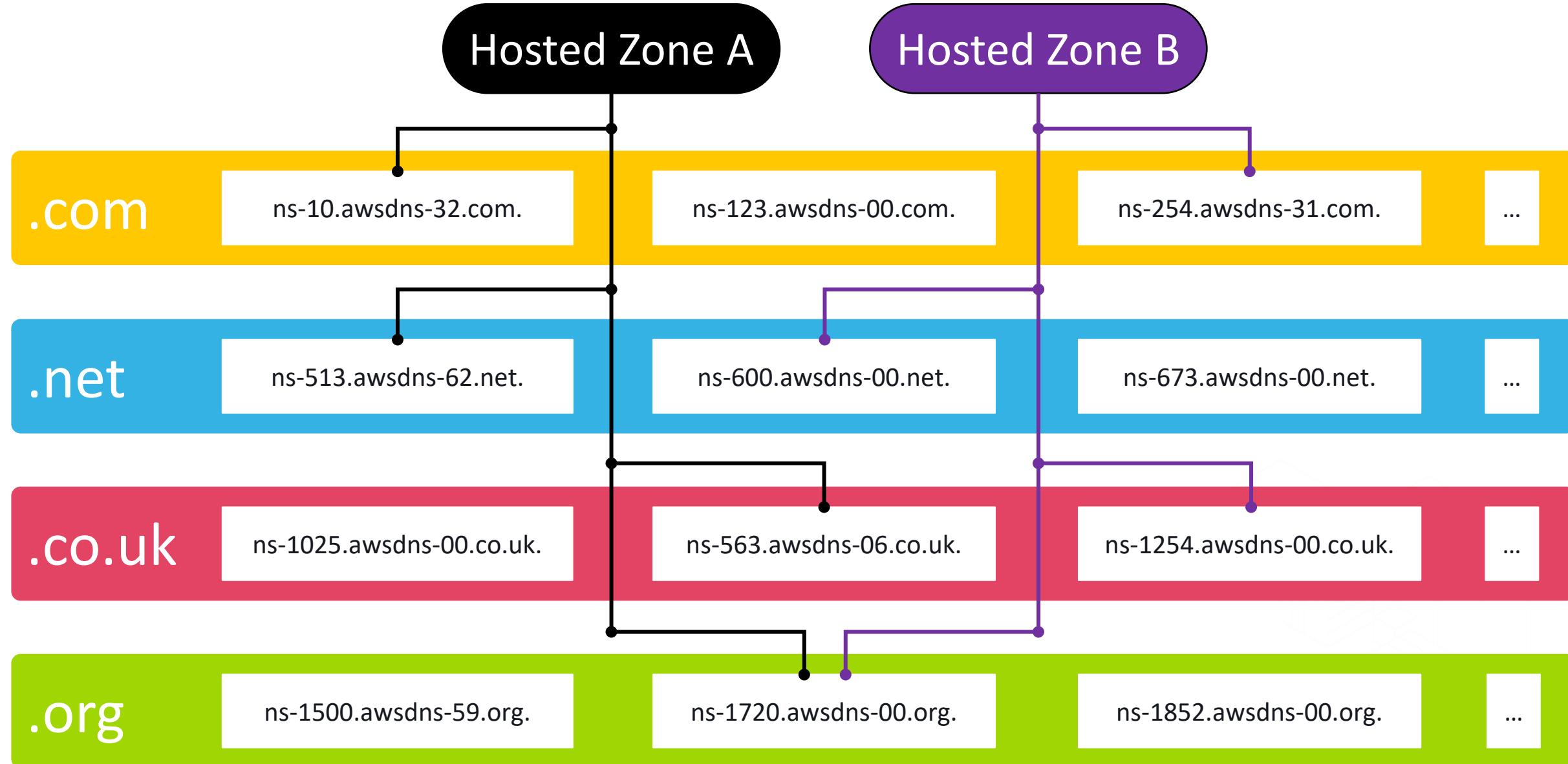
Hosted
zone

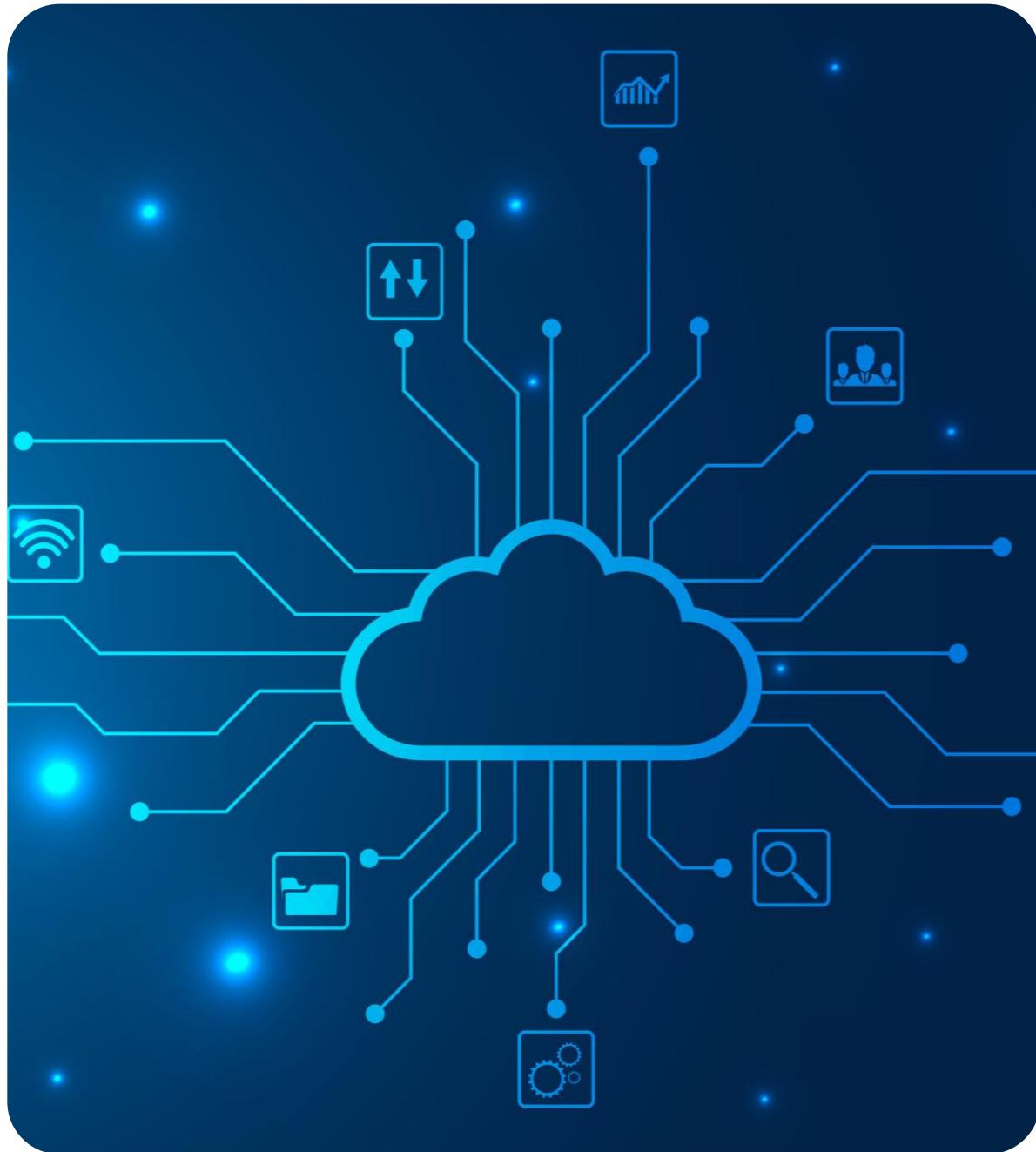
Private Hosted Zone

- Route to VPC resources
- Resolve from inside the VPC (or private on-premises network)
- Reachable using forwarding rules and endpoints
- Does not support delegation
- Integrated with Route 53 Resolver



Route 53 architecture – name server stripes





Amazon Route 53 Health Checks

Route 53 health checks

- Route 53 health checks monitor the health and performance of your application's servers, or endpoints, from a network of health checkers in locations around the world.
- You can specify either a domain name or an IP address and a port to create HTTP, HTTPS, and TCP health checks that check the health of the endpoint.



 All other passports

 Fast track

By invitation only

UK/EU Passports

Including Switzerland and the European Economic Area



 ePassport gates

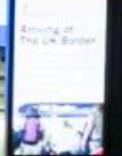


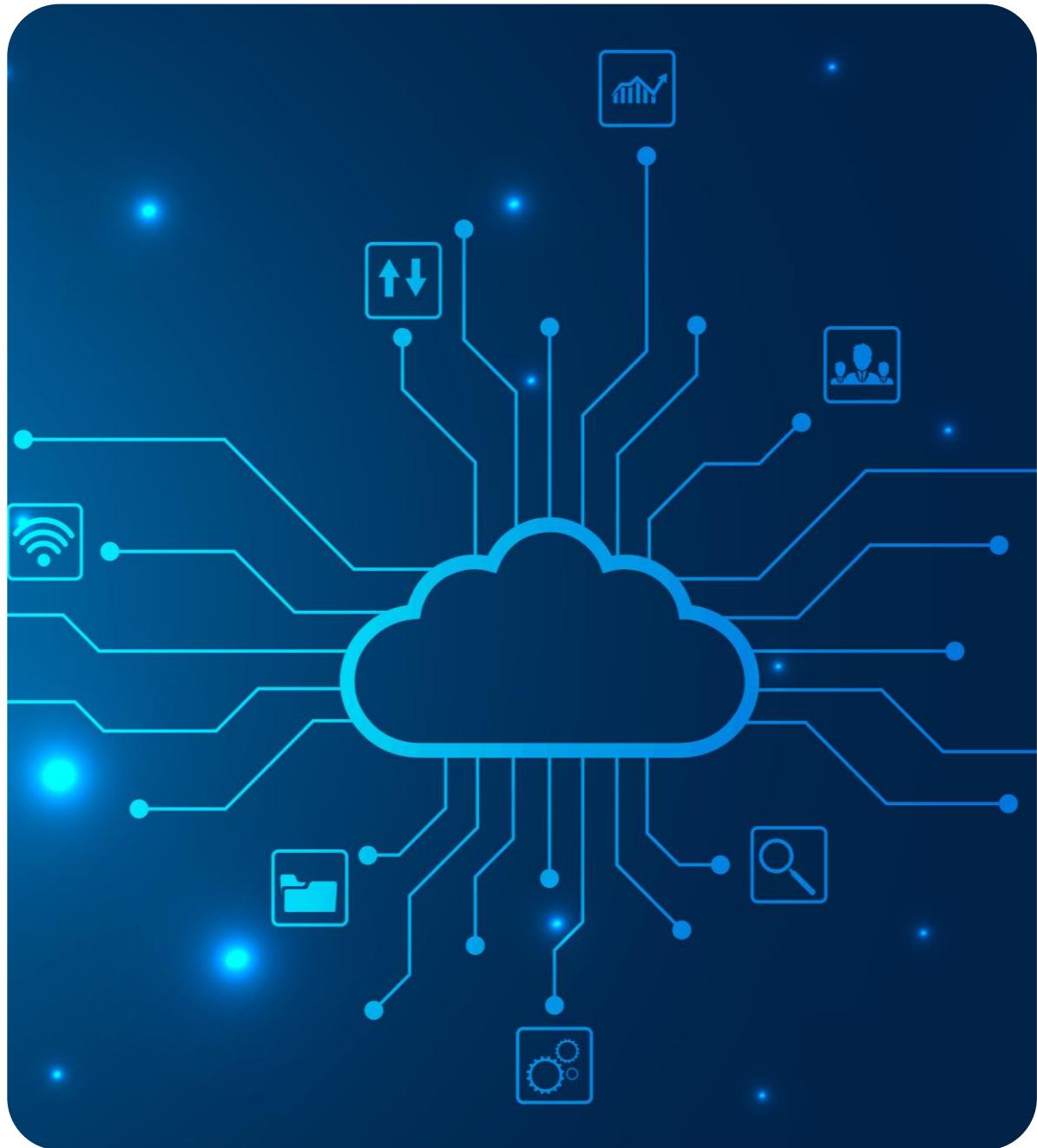
UK Border

Border control information



Border control information





Routing Policy

Routing Policy

- When you create a record, you choose a routing policy, which determines how Amazon Route 53 responds to queries:
 - Simple routing policy
 - Failover routing policy
 - Geolocation routing policy
 - Geoproximity routing policy
 - Latency routing policy
 - IP-based routing policy
 - Multivalue answer routing policy
 - Weighted routing policy

- Simple routing
Use if you want all of your clients to receive the same response(s).



- Weighted
Use when you have multiple resources that do the same job, and you want to specify the proportion of traffic that goes to each resource. For example: two or more EC2 instances.



- Geolocation
Use when you want to route traffic based on the location of your users.



- Latency
Use when you have resources in multiple AWS Regions and you want to route traffic to the Region that provides the best latency.



- Failover
Use to route traffic to a resource when the resource is healthy, or to a different resource when the first resource is unhealthy.



- Multivalue answer
Use when you want Route 53 to respond to DNS queries with up to eight healthy records selected at random.



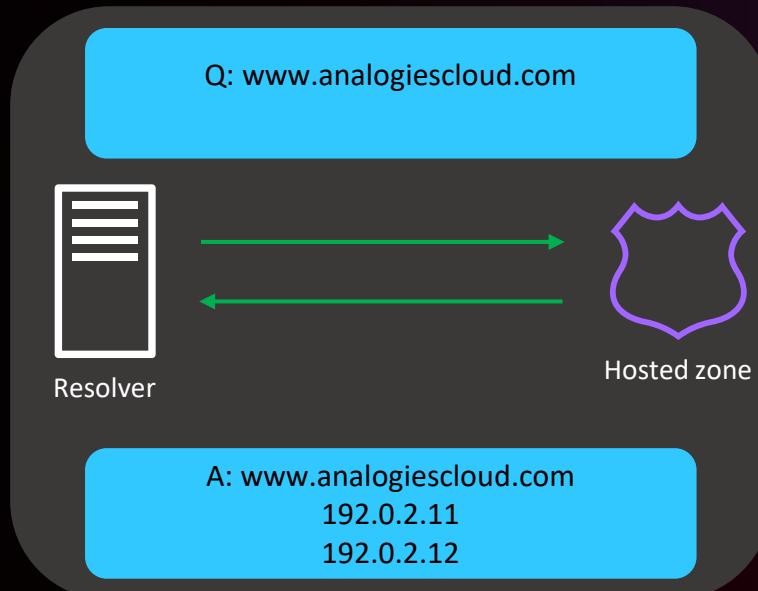
- IP-based
Use to route traffic to locations of IP address ranges in CIDR notation.



- Geoproximity
Use when you want Route 53 to route DNS queries to a certain geographic location.

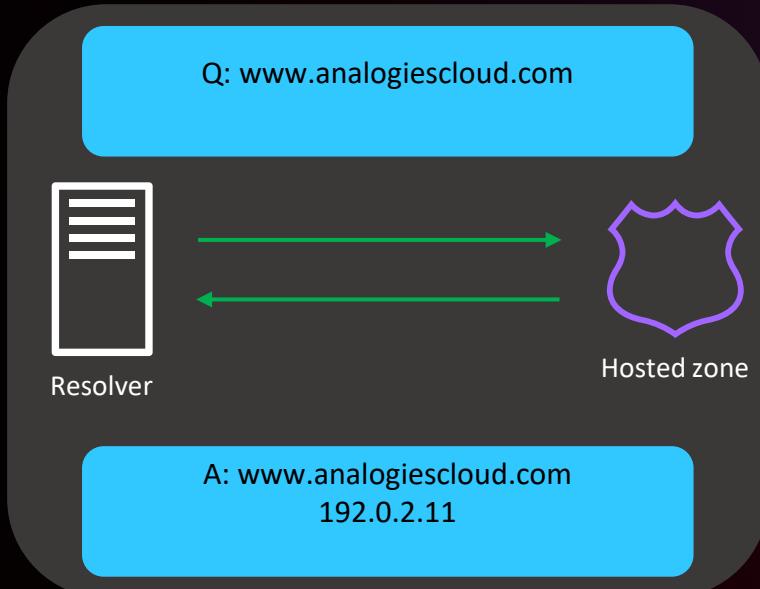


Simple Routing



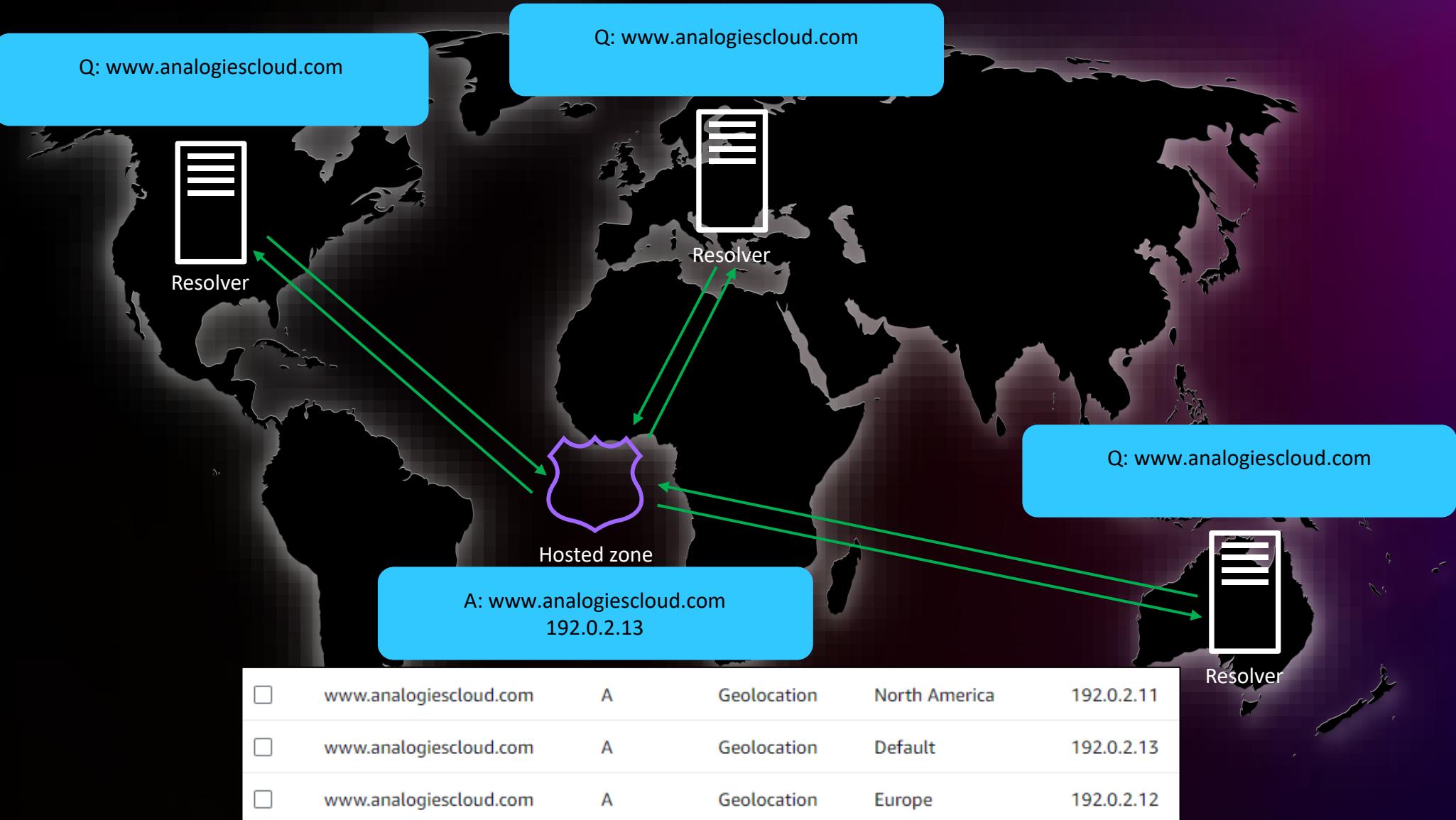
<input type="checkbox"/>	Record name	Type	Routin...	Value/Route traffic to	TTL (seconds)
<input type="checkbox"/>	analogiescloud.com	NS	Simple	ns-30.awsdns-03.com. ns-1519.awsdns-61.org. ns-1707.awsdns-21.co.uk. ns-713.awsdns-25.net.	172800
<input type="checkbox"/>	analogiescloud.com	SOA	Simple	ns-30.awsdns-03.com. aws...	900
<input type="checkbox"/>	www.analogiescloud.com	A	Simple	192.0.2.11 192.0.2.12	300

Weighted

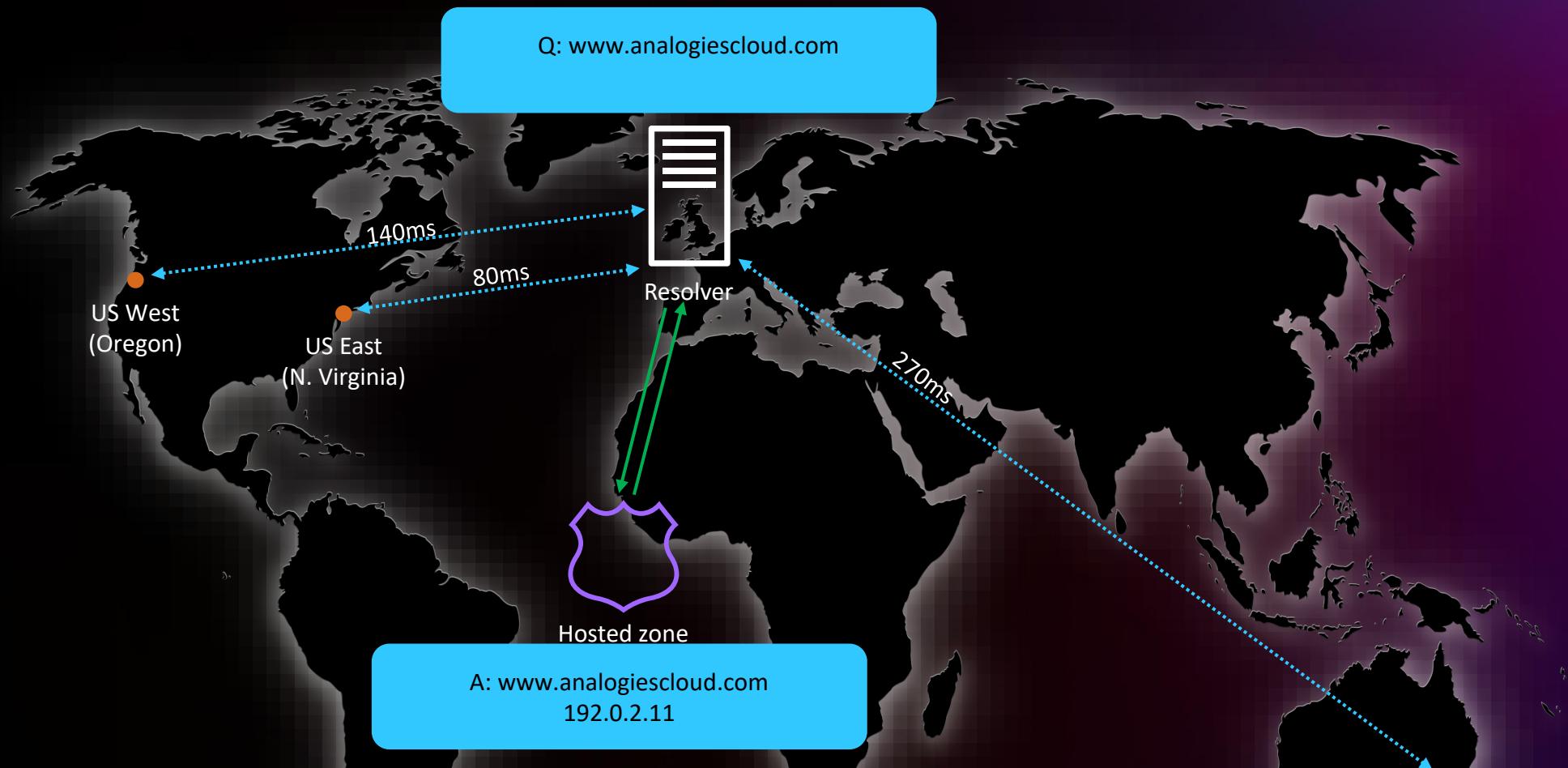


	Record name	Type	Routin...	Differentiator	Value/Route traffic to
<input type="checkbox"/>	analogiescloud.com	NS	Simple	-	ns-30.awsdns-03.com. ns-1519.awsdns-61.org. ns-1707.awsdns-21.co.uk. ns-713.awsdns-25.net.
<input type="checkbox"/>	analogiescloud.com	SOA	Simple	-	ns-30.awsdns-03.com. awsdn...
<input type="checkbox"/>	www.analogiescloud.com	A	Weighted	40	192.0.2.12
<input type="checkbox"/>	www.analogiescloud.com	A	Weighted	50	192.0.2.11

Geolocation

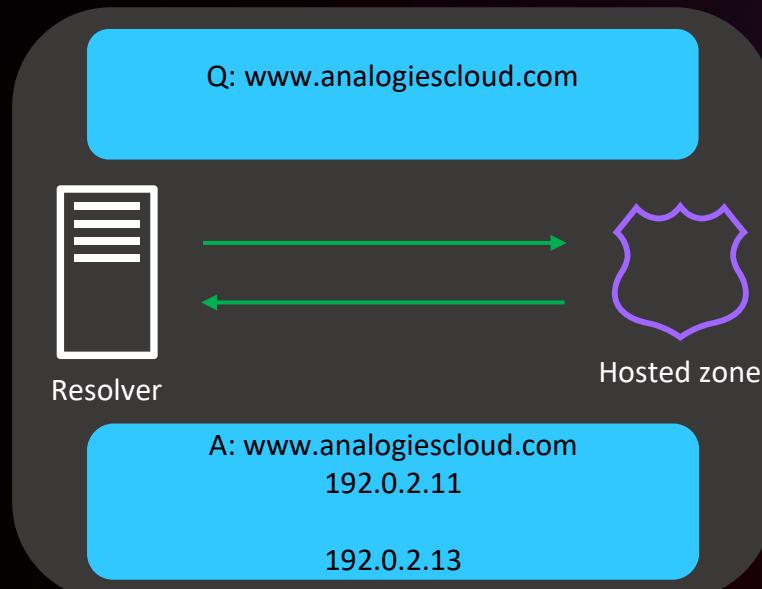


Latency



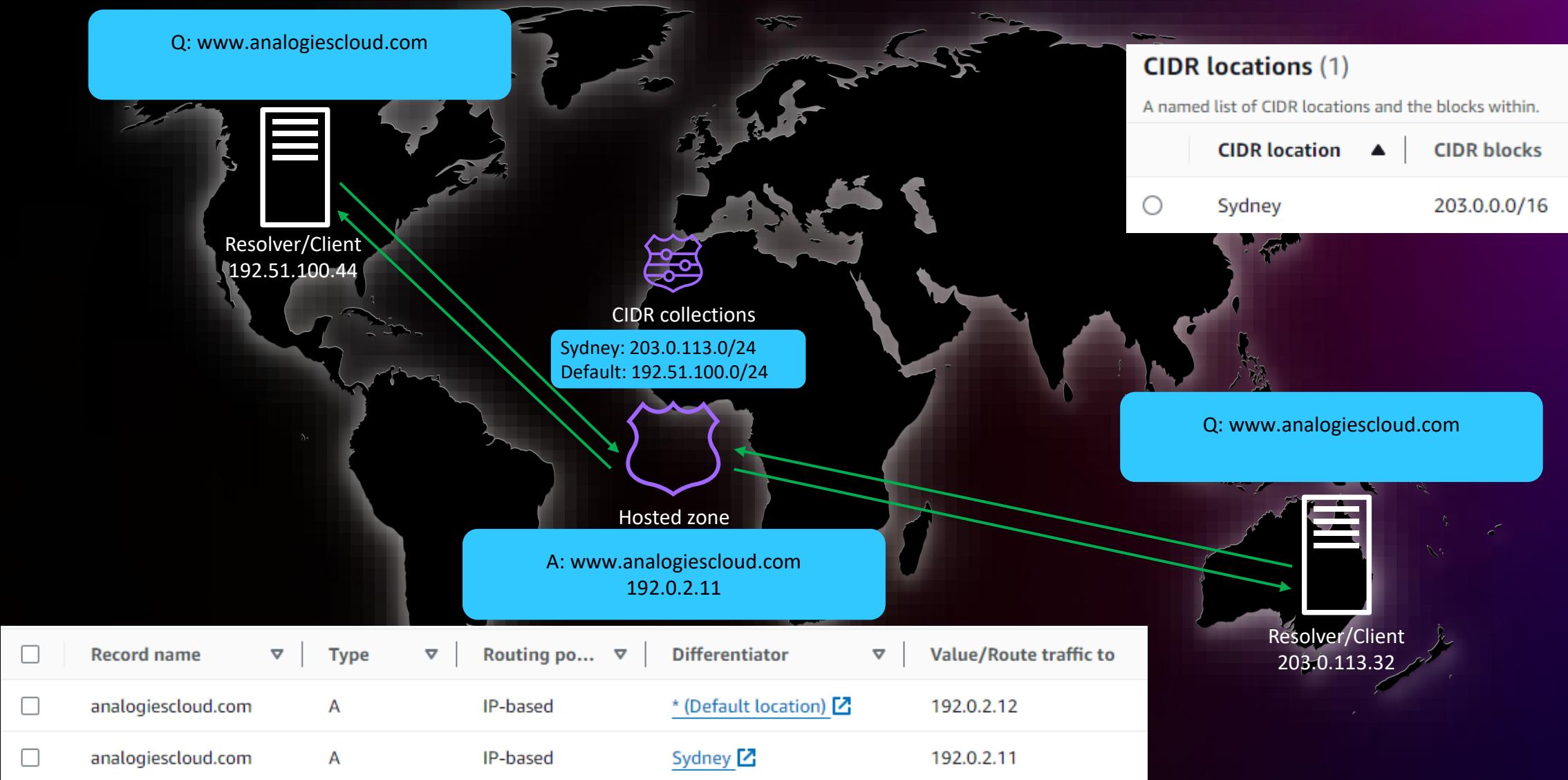
www.analogiescloud.com	A	Latency	US East (N. Virginia)	192.0.2.11
www.analogiescloud.com	A	Latency	US West (Oregon)	192.0.2.12
www.analogiescloud.com	A	Latency	Asia Pacific (Sydney)	192.0.2.13

Multivalue answer

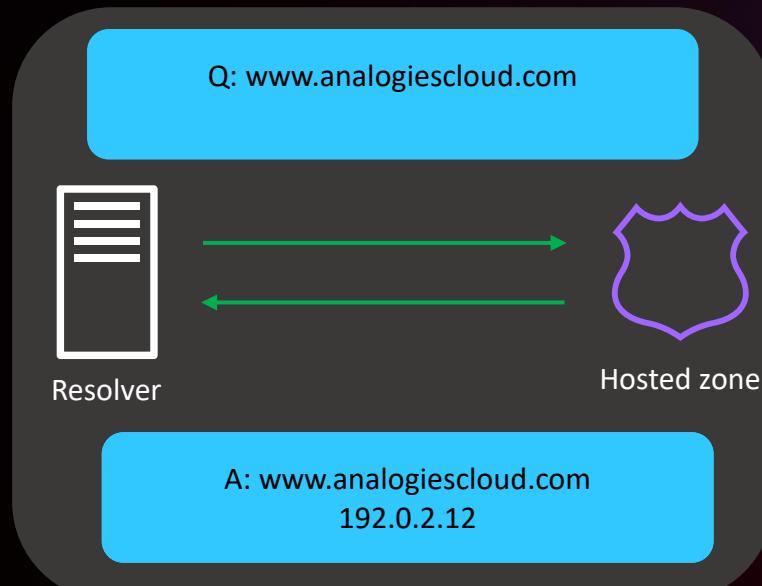


<input type="checkbox"/>	www.analogiescloud.com	A	Multivalue answer	192.0.2.11
<input type="checkbox"/>	www.analogiescloud.com	A	a day ago 2 minutes ago	Unhealthy
<input type="checkbox"/>	www.analogiescloud.com	A	Multivalue answer	192.0.2.13

IP-based routing



Failover

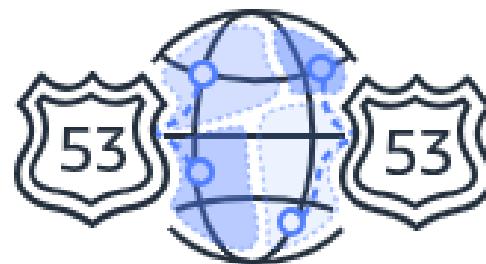


<input type="checkbox"/>	www.analogiescloud.com	<div style="width: 80%; background-color: green; height: 10px;"></div> <small>a day ago</small> <small>3 minutes ago</small>	Healthy	Failover	Primary	192.0.2.11
<input type="checkbox"/>	www.analogiescloud.com	A	Failover	Secondary	192.0.2.12	

Geoproximity

○ Geoproximity

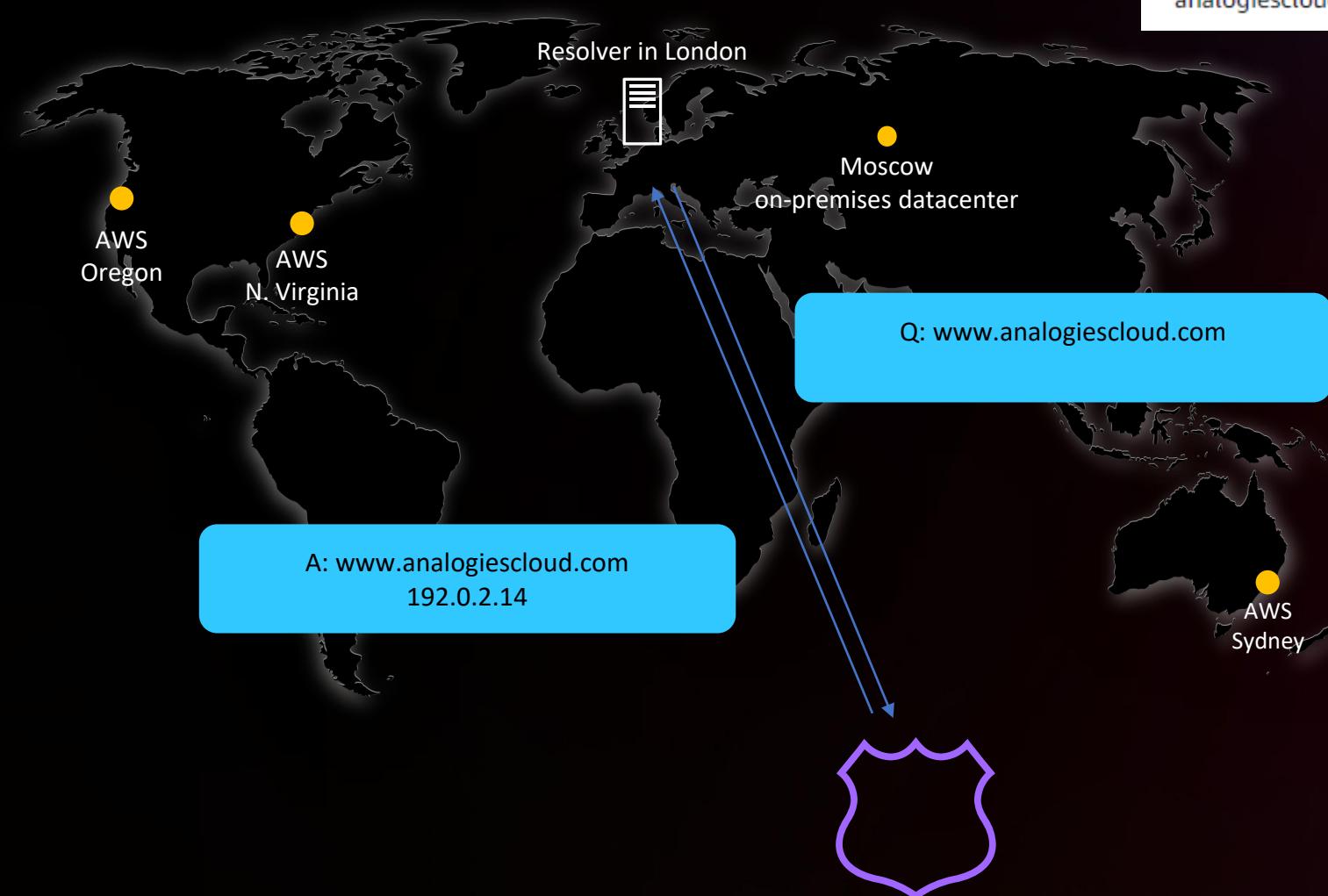
Use when you want Route 53 to route DNS queries to a certain geographic location.



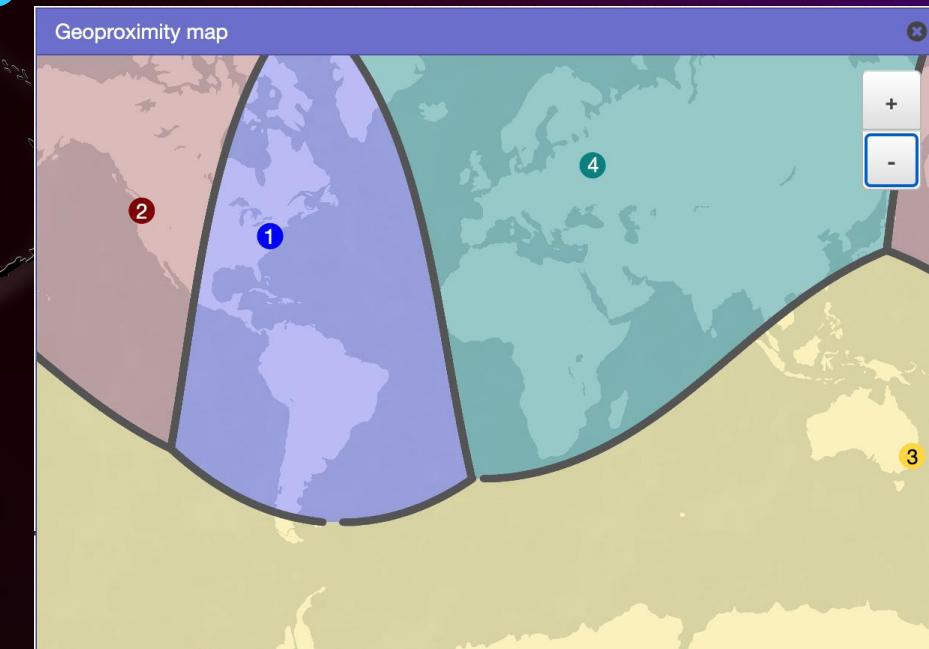
Geoproximity



Geoproximity



Record name	Type	Routing ...	Value/Route traffic to
analogiescloud.com	A	Simple	Traffic policy record



Use-cases

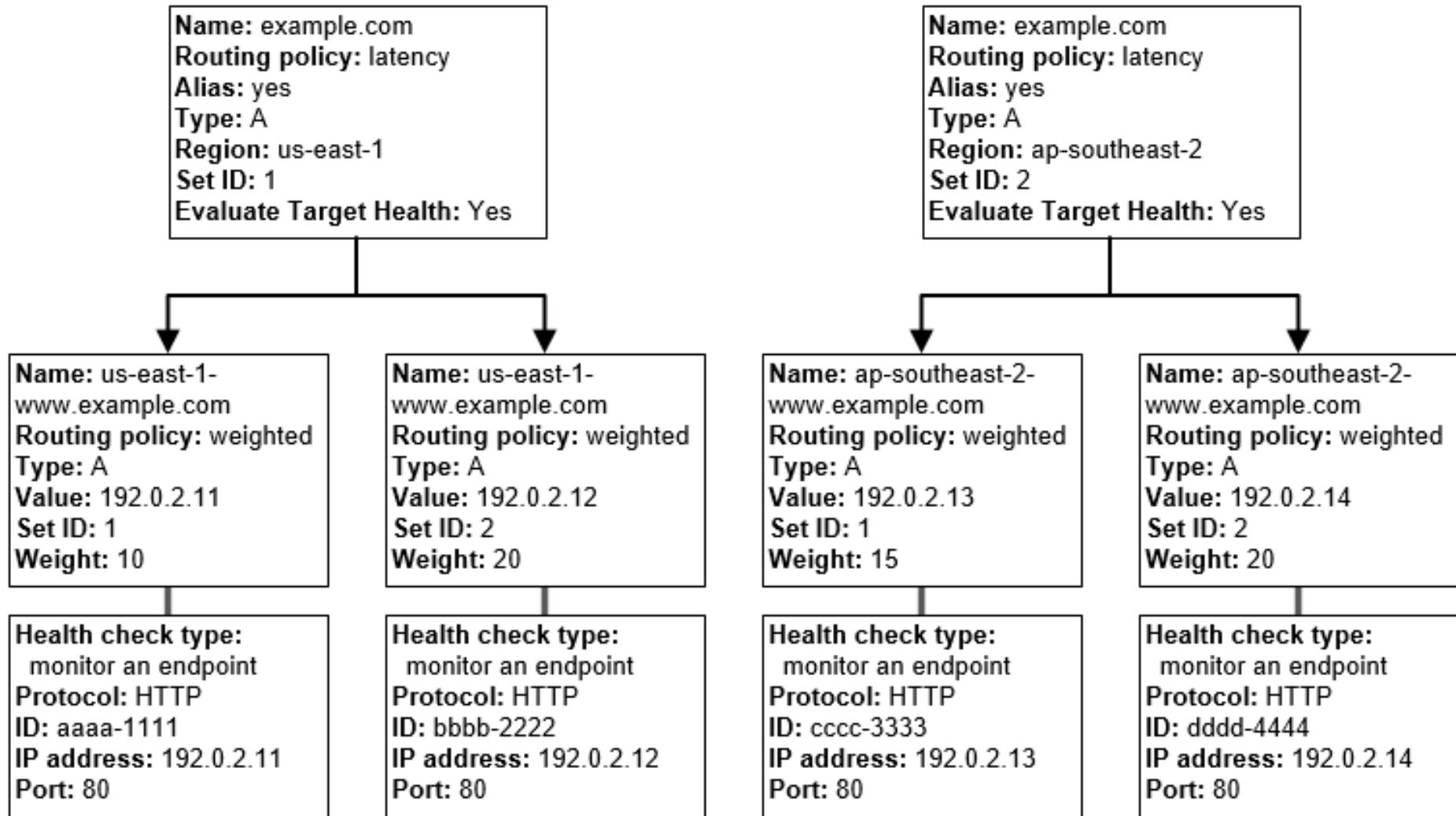
Policy	Use-case
Simple routing policy	Ideal for setting up a basic web server, landing page, or a static website.
Failover routing policy	Creating a backup site in case the primary site experiences issues, maintaining service availability.
Geolocation routing policy	Tailoring content or services for users in different geographic locations, ensuring compliance with regional data laws.
Geoproximity routing policy	Route traffic based on the physical location of a resource closest to the user. Optionally extend or decrease the area the resource covers.
Latency routing policy	Optimizing performance for applications hosted in multiple geographic locations, such as global CDNs.
IP-based routing policy	To perform routing relying on specific knowledge of the customers and networks, for example end users from a specific ISP to a dedicated endpoint.
Multivalue answer routing policy	Load balancing across multiple resources, increasing availability, and redundancy.
Weighted routing policy	Load balancing between resources, A/B testing, and gradual deployment of new features.

When to use which policy?

- I want to failover between resources:
 - Failover policy
 - Health checks
- I want to load-balance traffic across different targets:
 - Weighted policy
 - Multivalue answer
- I want to select targets based on performance:
 - Latency-based
 - Geoproximity
- I want to customize answers based on country / state:
 - Geolocation
- I want to customize answers based on IP address range:
 - IP based routing

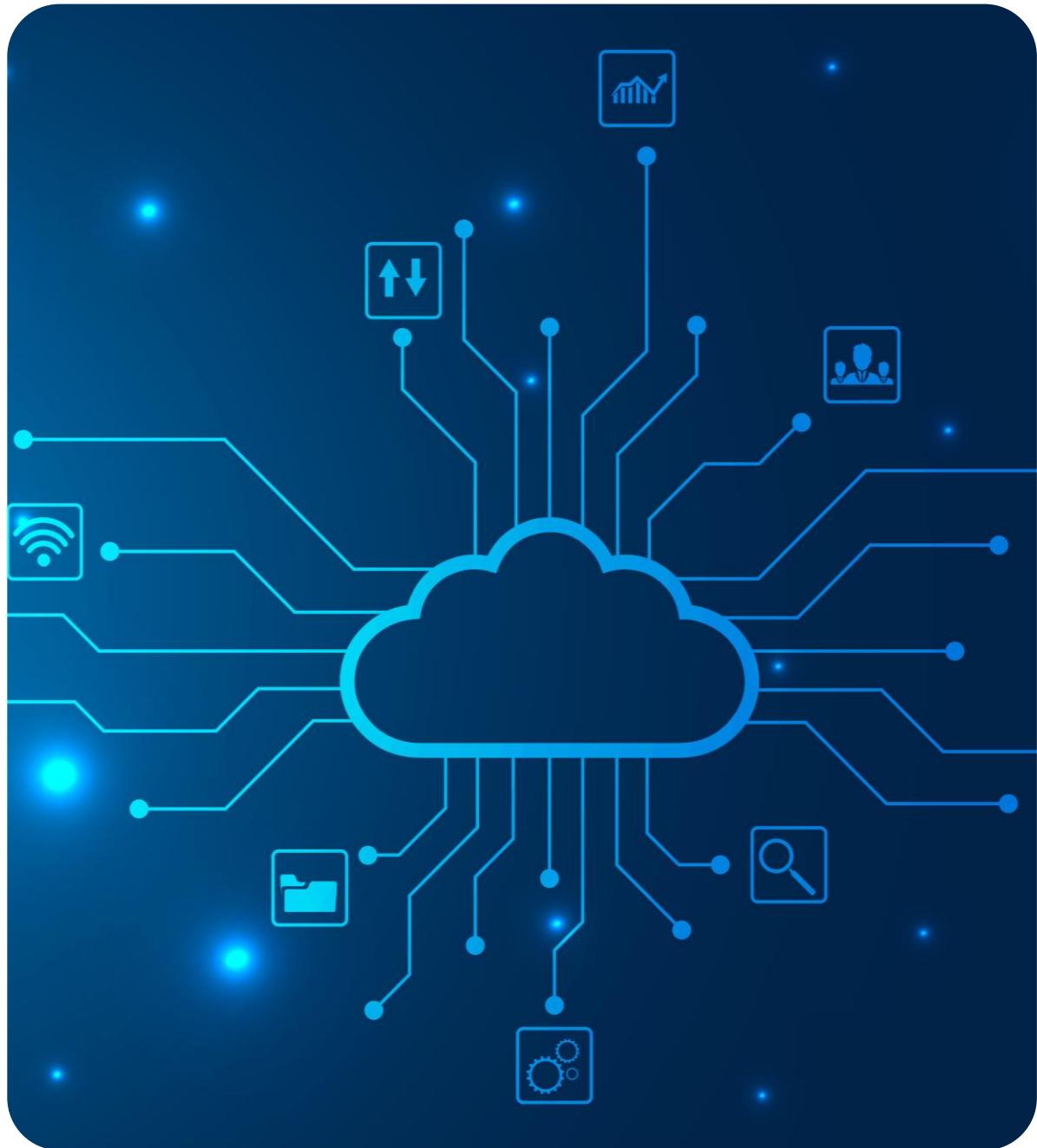
I want it all :
- Traffic policy

Nested Policies



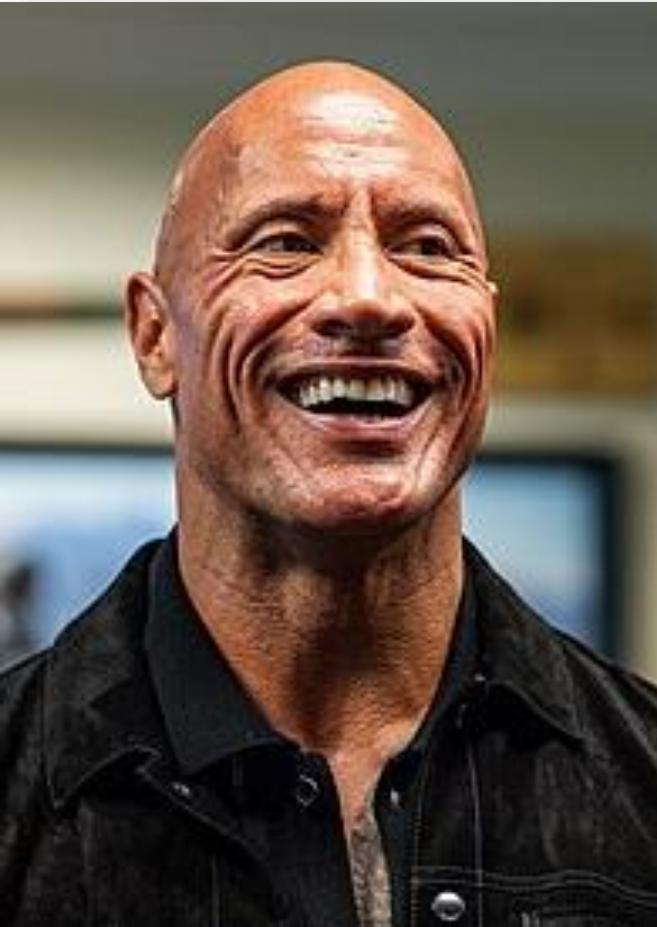
Use-cases

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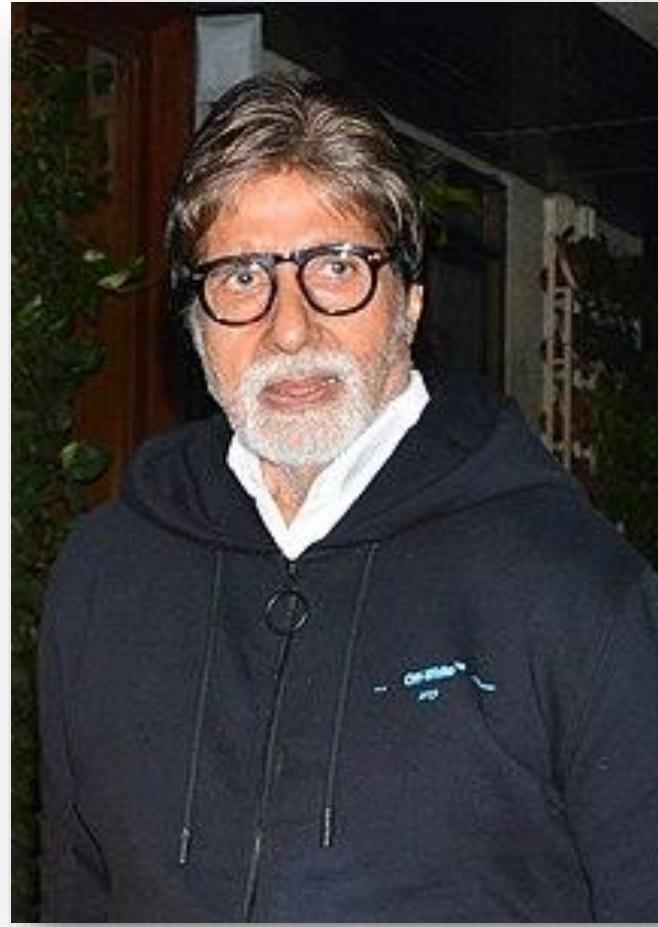


CNAME vs. Alias

What is in the name?



- Dwayne Johnson
 - The Rock



- Amitabh Bachchan
 - Big B

User Friendly Names



- CNAME (Canonical Name)
 - Alias
- ALB01-427293918.
eu-west-1.elb.
amazonaws.com
-
- The diagram shows the fully qualified domain name (FQDN) **ALB01-427293918.eu-west-1.elb.amazonaws.com**. Below it, an Application Load Balancer (ALB) is represented by a purple circle containing a server icon, with the text **Application Load Balancer** underneath. An arrow points from the ALB to an orange rectangular icon representing an **Amazon EC2 Instance**, with the text **Amazon EC2 Instance** underneath.

	CNAME	Alias
Maps	A hostname to any other hostname	A hostname to an AWS resource
IP Resolution	CNAME >> Domain then Domain >> IP	Alias >> IP
Supported record types	Any	A or AAAA only
Works for Root Domain (also known as Zone Apex)	No	Yes
Native Health Check	No	Yes
Recognizes changes in resource's IP addresses	No	Yes
Charges	Charged per query	Free
Appearance in <i>dig</i> or Name Server (NS) query	As CNAME	Appears as record type you created (A or AAAA)