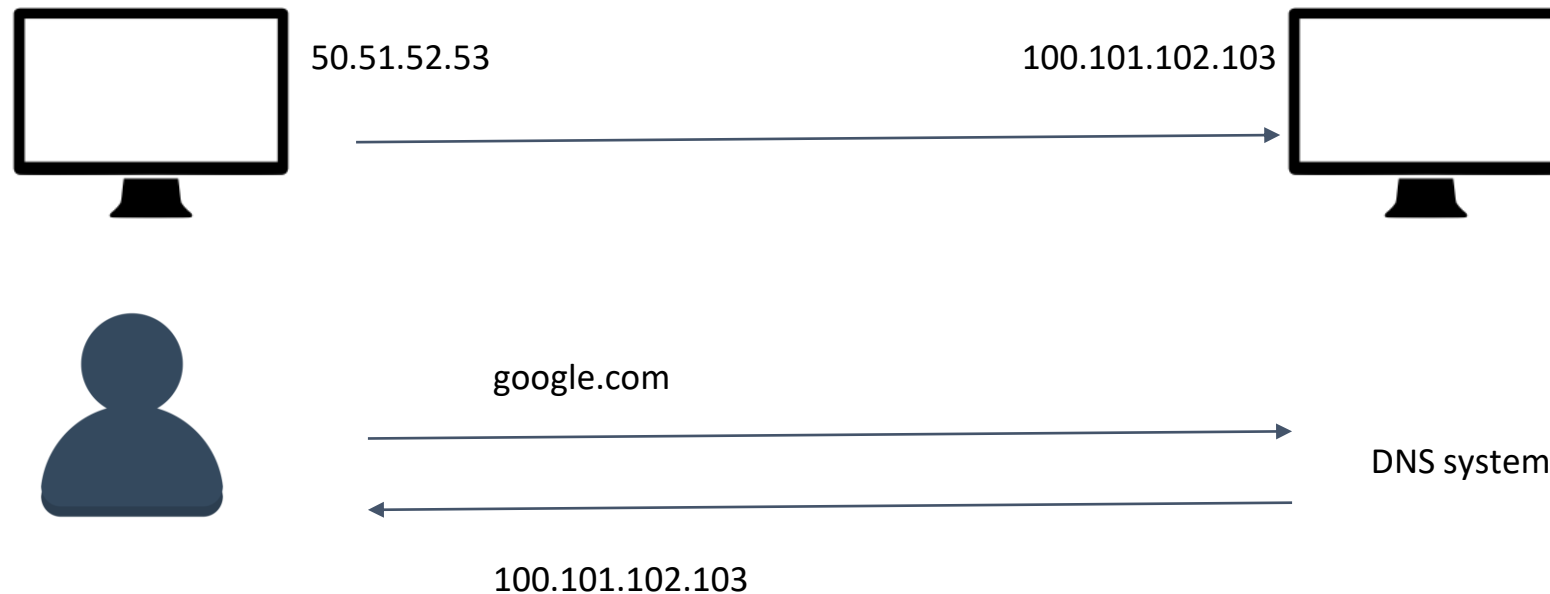# Route 53

Contents

- Route53 Introduction

- CNAME vs A Record

- Routing Policy

- Migrate 3rd domain to Route53

Route 53

DNS (Domain Name System)?

- Computers talk with each other by using IP addresses

- DNS translates from human-readable domain to IP addresses

50.51.52.53   100.101.102.103

google.com

DNS system

100.101.102.103

Route 53

- **Route** 66 is the 1st cross-state street and **53** is port of DNS service

- AWS Managed DNS service

Concepts

- **DNS Resolver (Ex. Google Resolver 8.8.8.8, 8.8.4.4)**

  ◦ Receive requests from clients (browser) and send to DNS service

- **Name Servers**

  ◦ Contain DNS information (mapping Domain <-> IP address or other Name Servers)

- **TTL**

  ◦ How long the results from DNS service cached in DNS resolver

Concepts (cont.)

- **Record**

  ◦ How do you route for a domain (A, Alias, CNAME…)

  ◦ Example.

    - A record: example.com <-> 50.51.52.53

    - CNAME record: blog.example.com <-> blog.hoanguyen.com

- **Hosted Zone**

  ◦ Manages Records for a domain name. One domain <-> One Hosted Zone

Route 53 feature

- Manage your own existing domain or create new domain

- Private domain name that can be resolved by resources in your VPCs

- Health Check to targets

- Routing policy: Simple, Failover, Geolocation, Latency, Weighted, multi value

CNAME vs Alias

CNAME vs Alias

- **AWS resources** (S3, CloudFront, LB, Global Accelerator...) expose a DNS name

 Ex. xyzt.cloudfront.net, lbxyzt.eu-west-1.amazonaws.com,...

- **Alias**

  ◦   Target a domain name to a DNS name of AWS resources
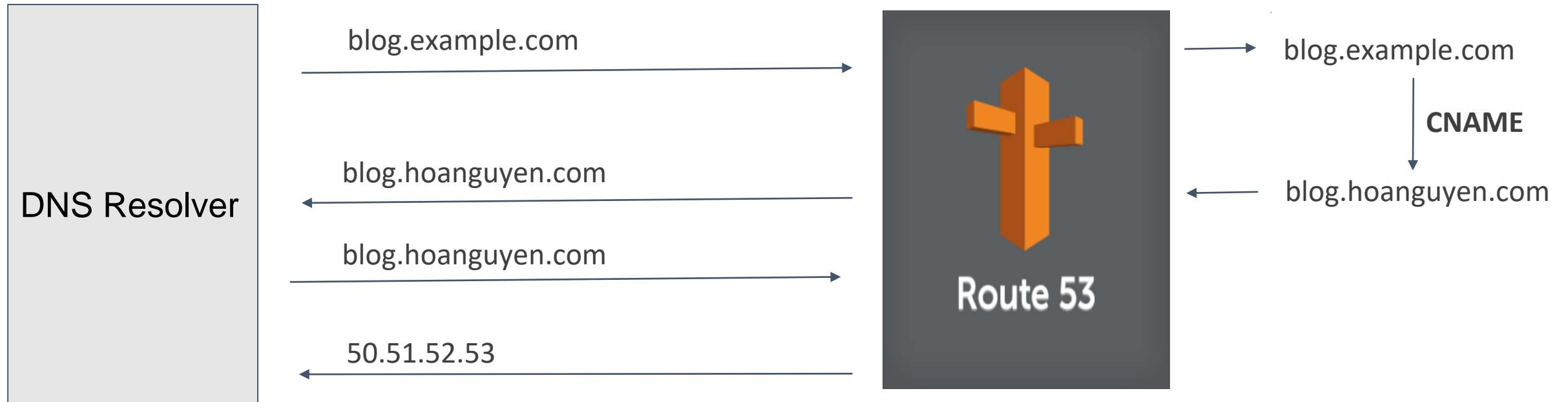
  ◦   Ex. blog.example.com -> xyzt.cloudfront.net

- **CNAME**

  ◦   Target a domain to another domain

 ◦   Ex: blog.example.com -> blog.hoanguyen.com

Alias Routing

DNS Resolver

blog.example.com

50.51.52.53

blog.example.com

xyzt.cloudfront.net

CNAME Routing

DNS Resolver

blog.example.com

blog.hoanguyen.com

blog.hoanguyen.com

50.51.52.53

Route 53

blog.example.com

CNAME

blog.hoanguyen.com
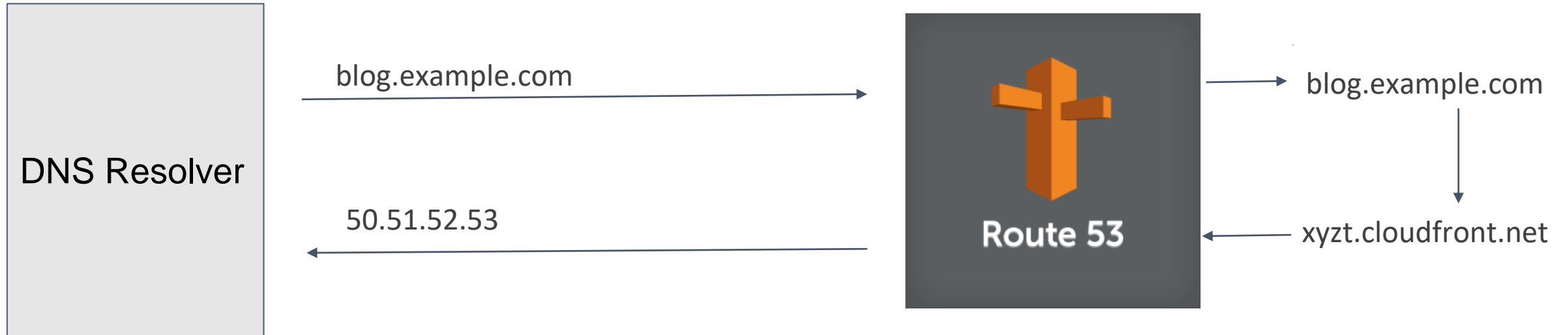
Routing Policy

Simple Routing Policy

- If you need redirect domain to single resource (web server)

- Cannot create Records with same name (Only one allow)

- If multiple values are returned from Route 53, client (web browser) will pick one randomly

blog.example.com

50.51.52.53

DNS Resolver

blog.example.com

50.51.52.53

Route 53
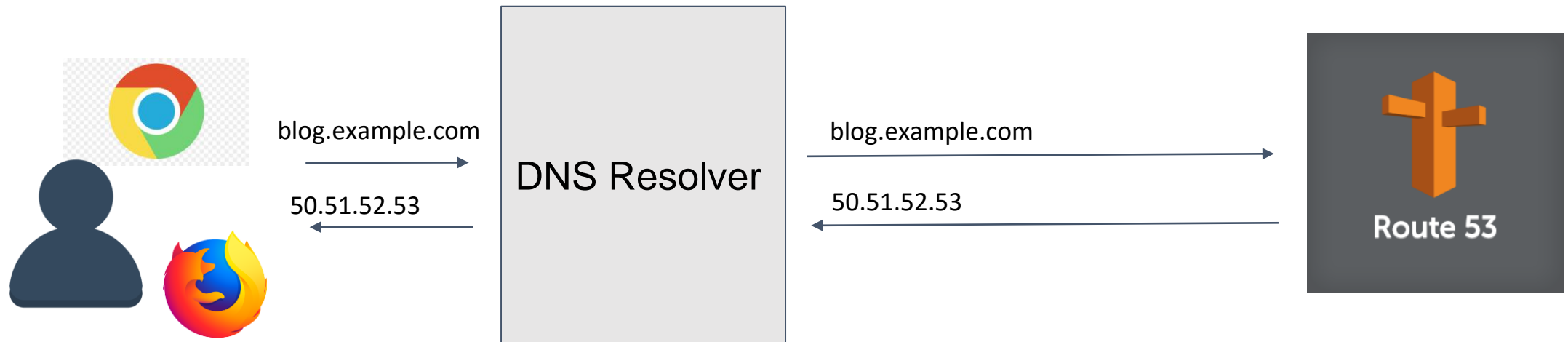
Weighted Routing Policy

- Allows to split traffic to specific endpoints based on weights assigned

- Helpful to test new app version, load balancing

- Can associate with Health Check

blog.example.com

Route 53

70%
40.41.42.43

20%
50.51.52.53

10%
60.61.62.63
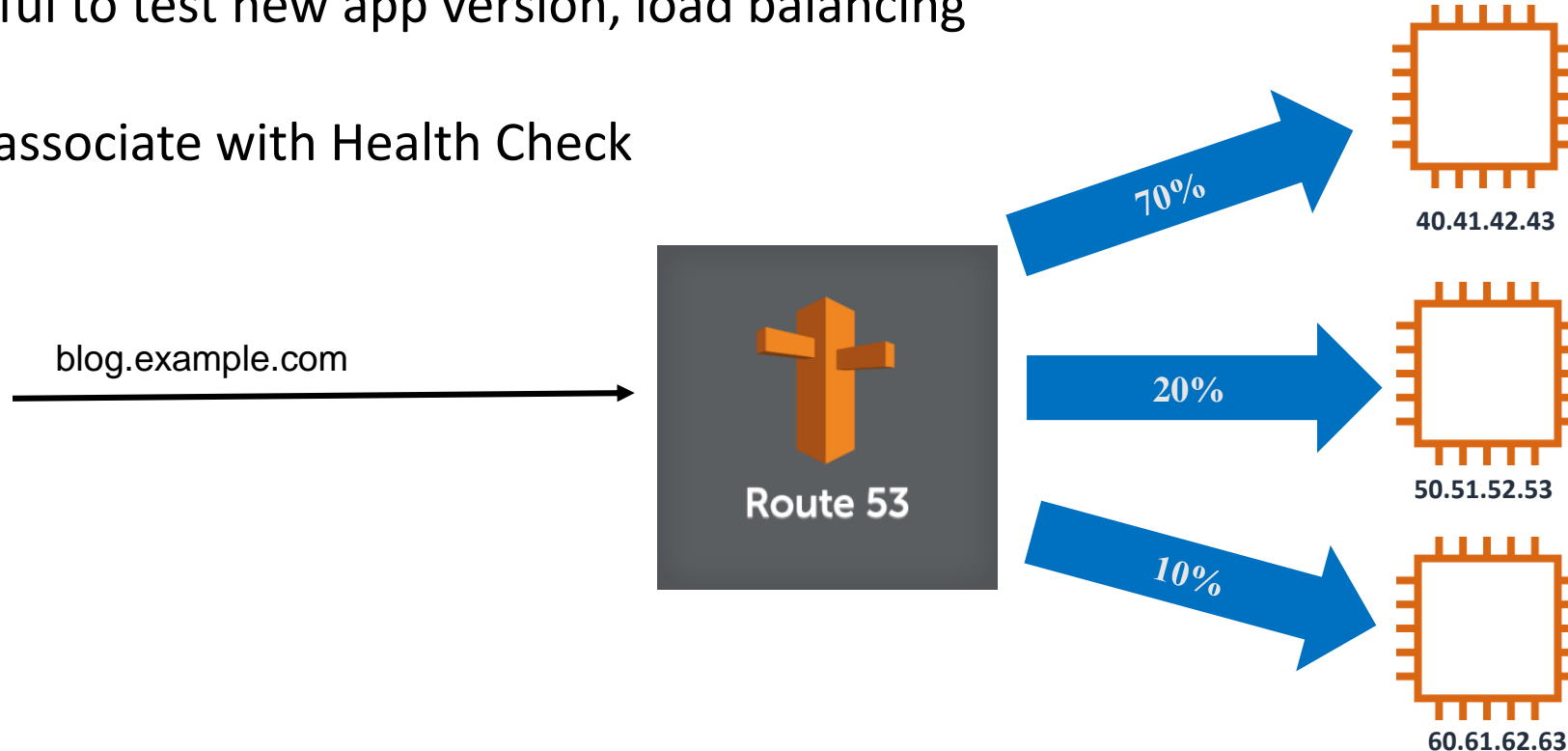
Latency Routing Policy

- Redirect to the resource that has lowest network latency for end users

- For application that needs latency connection is top priority

- Latency can change overtime due to Network connectivity and routing

  - Ex. Spain users can be redirected to US at this time, but next time can be Singapore

Latency Routing Policy (cont.)

Global Infrastructure
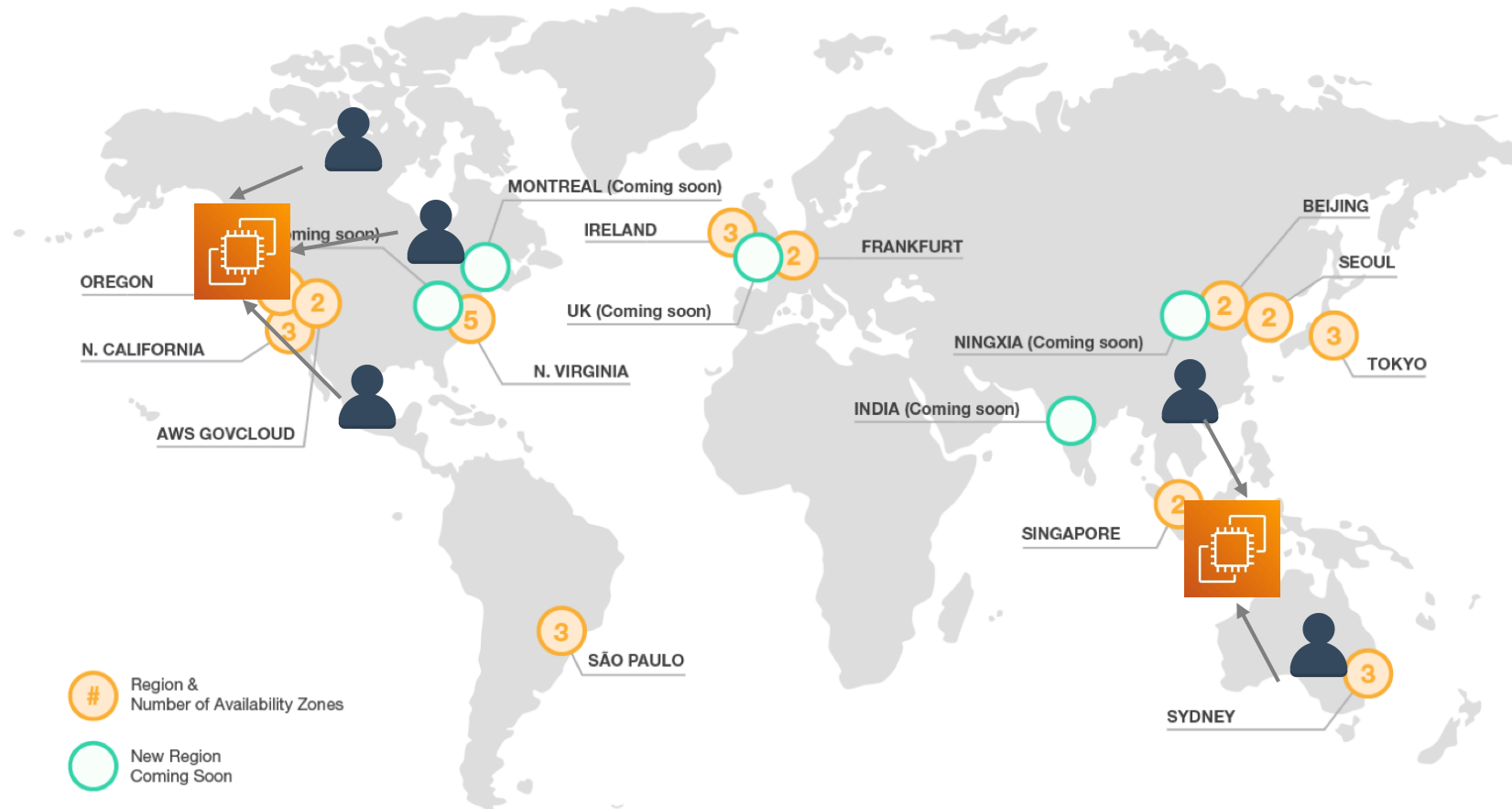
Geolocation Routing Policy

- Redirect to the resource based on the geographic location of user

- For application that needs to be localized content, languages

- If there is not match location, it should be used to default policy

Geolocation Routing Policy (cont.)

60.61.62.63

50.51.52.53

**Default Policy
(Not match any location)**

70.71.72.73
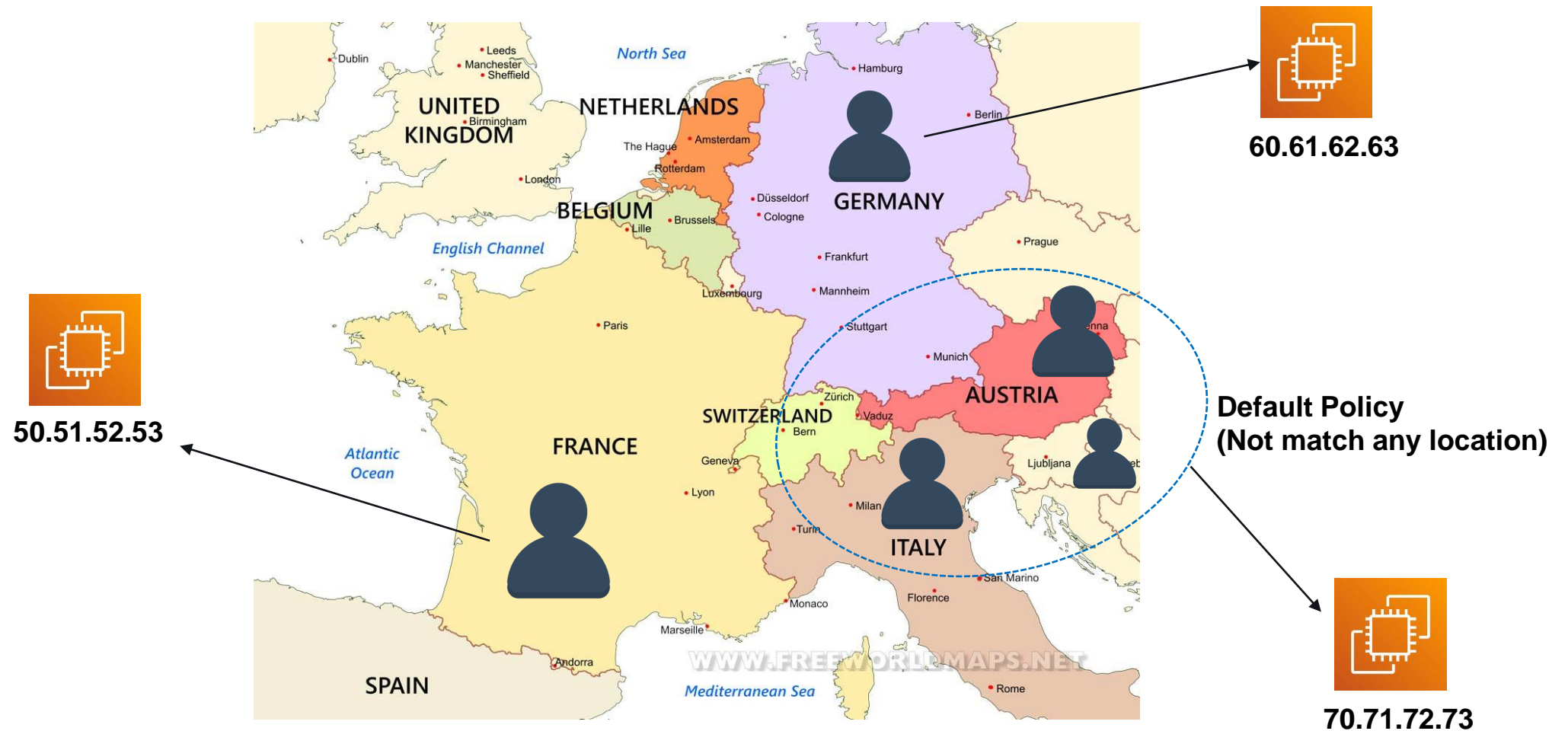
Multi-Values Routing Policy

- Routing traffic to multiple resouces

- Allows to associate Health Check with records (More advanced than Simple routing)

- Up to 8 healthy records are returned for each DNS query

Name	Type	Value	Set	TTL	HealthCheck
blog.example.com	A	50.51.52.53	endpoint1	60	enpoint1_hc
blog.example.com	A	60.61.62.63	endpoint2	60	enpoint2_hc
blog.example.com	A	70.71.72.73	endpoint3	60	enpoint3_hc

Failover Routing Policy

- Allow routing traffic to:

    - A resource (Active) when the resource is healthy

    - Difference resource (Passive, StandBy) when the first resource is unhealthy

- A Health Check monitors the health of resource endpoints

Failover Routing Policy (cont.)
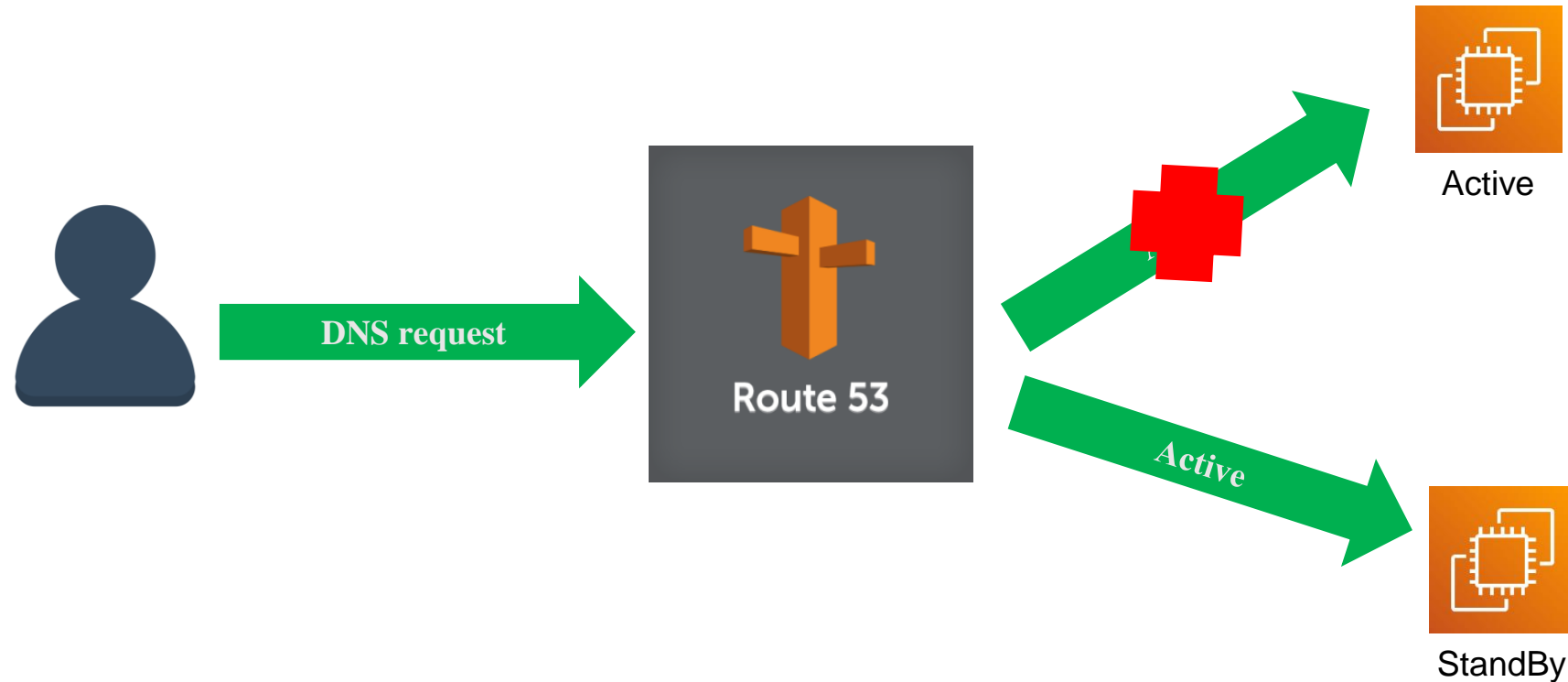
- Migrate 3ʳᵈ domain to Route53

Domain name registrar

- Domain name registrar is company, organization that manages the reservation of Internet **domain names**

- Famous Domain Name Registrar

    - GoDaddy

    - Google Domain

    - Namecheap

- Route53 is A Domain Name Registrar

3rd Domain Name Registrar with Route53

- Steps needed to manage 3rd domain name with Route53

  1. Create a Hosted Zone in Route53 correspondence with domain name

  2. Take note Name Servers of Hosted Zone

  3. Update Name Servers on 3rd Domain Name Registrar (Using Name Servers take note at step 2)

  4. Enjoy Route53