

# AWS – ROUTE53

BY

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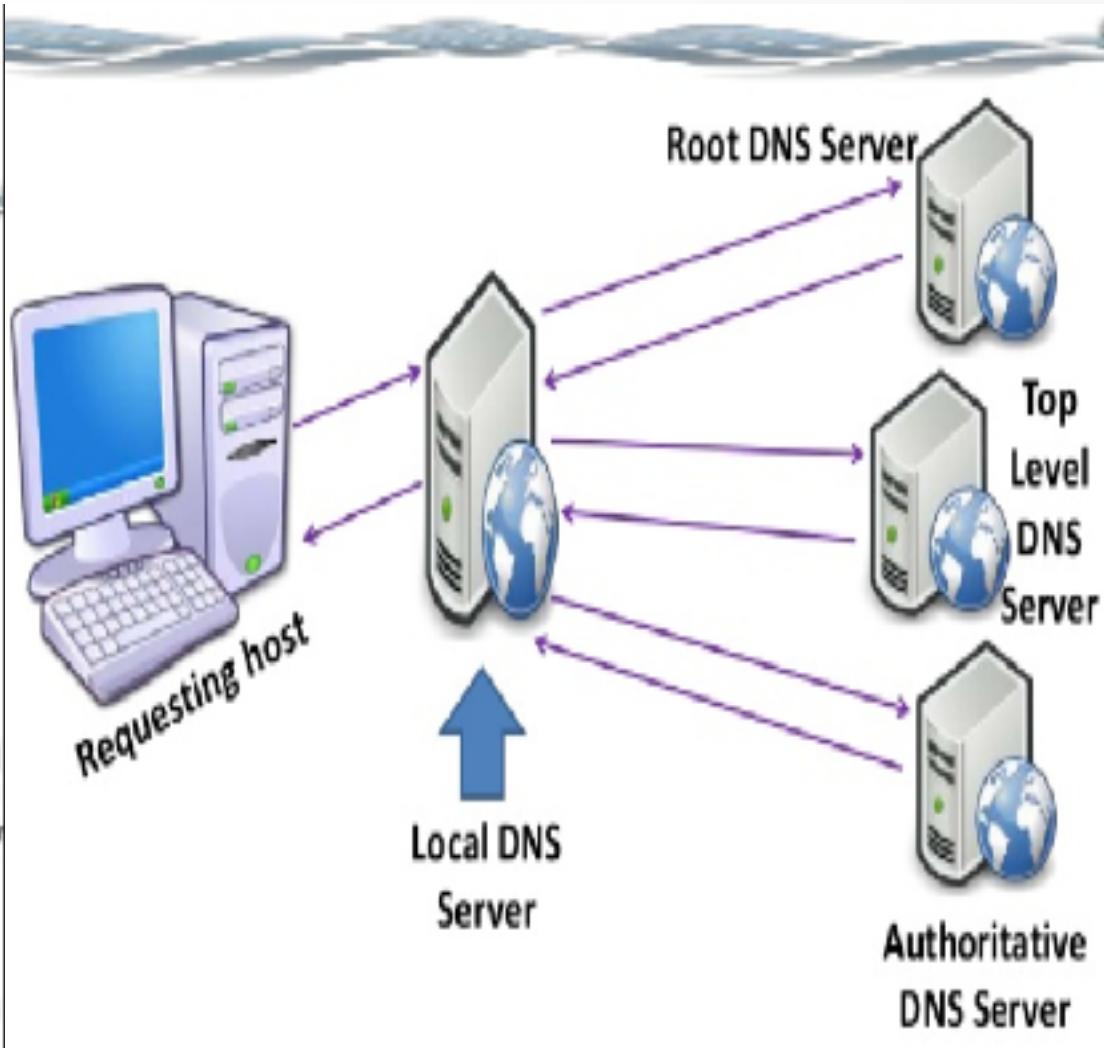
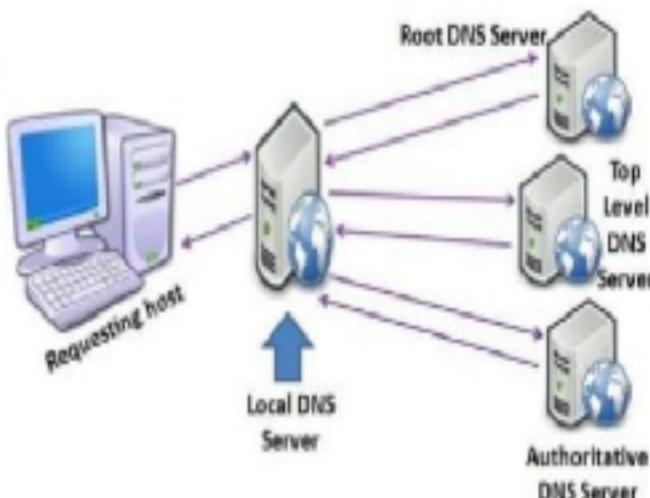
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## 1. DNS

### What is DNS?

- DNS stands for Domain Name System
- DNS is a hierarchical naming system for domain services, or any resource connected with internet or private network.
- The DNS translates Internet domain and host names to IP addresses.



# IPV4 VS IPV6

	Internet Protocol version 4 (IPv4)	Internet Protocol version 6 (IPv6)	IP CLASSES ADDRESS RANGE				
	USES	CLASSES	IP RANGE	SUBNET MASK	PREFIX MASK	HOST PER SUBNET	
<b>Deployed</b>	1981	PUBLIC IP DISTRIBUTION ADDRESS	CLASS-A 0-128	255.0.0.0	/8	16777216	
	1999		CLASS-B 128-191	255.255.0.0	/16	65536	
			CLASS-C 192-223	255.255.255.0	/24	256	
			MULTICAST P	224-239	/4		
<b>Address Size</b>	32-bit number	RESEARCH PURPOSE	CLASS-E 240-255		/12		
	128-bit number						
<b>Address Format</b>	Dotted Decimal Notation: 192.149.252.76	NOTE:					
	Hexadecimal Notation: 3FFE:F200:0234:AB00: 0123:4567:8901:ABCD						
<b>Prefix Notation</b>	192.149.0.0/24	PRIVATE IP ADDRESS RANGE	CLASS-A 10.0.0.0-10.255.255.255				
	3FFE:F200:0234::/48		CLASS-B 172.16.0.0-172.31.255.255				
			CLASS-C 192.168.0.0-192.168.255.255				
			Universal loopback Address 127.0.0.1				
<b>Number of Addresses</b>	$2^{32} = 4,294,967,296$	Automatic Private IP Addressing	169.254.0.0 to 169.254.255.255				
	$2^{128} = \sim 340,282,366,$ 920,938,463,463,374, 607,431,768,211,456						

# TOP LEVEL DOMAINS



## IP Address Assignments

- Every network interface adapter on a network must have
  - The same network identifier as the others on the network
  - A unique host identifier
- The Internet Assigned Numbers Authority (IANA) assigns network identifiers, but you typically obtain network addresses from an Internet service provider (ISP).
- Network administrators assign host identifiers.

## DOMAIN REGISTRERS

Because all of the names in a given domain name have to be unique there needs to be a way to organize this all so that domain names aren't duplicated. This is where domain registrars come in. A registrar is an authority that can assign domain names directly under one or more top-level domains. These domains are registered with InterNIC, a service of ICANN, which enforces uniqueness of domain names across the Internet. Each domain name becomes registered in a central database known as the WhoIS database.

Popular domain registrars include GoDaddy.com, 123-reg.co.uk etc.

## SOA RECORDS

The SOA record stores information about;

- The name of the server that supplied the data for the zone.
- The administrator of the zone.
- The current version of the data file.
- The number of seconds a secondary name server should wait before checking for updates.
- The number of seconds a secondary name server should wait before retrying a failed zone transfer.
- The maximum number of seconds that a secondary name server can use data before it must either be refreshed or expire.
- The default number of seconds for the time-to-live field on resource records.

# NS RECORDS & A RECORDS

- NS STANDS FOR NAME SERVER RECORDS AND ARE USED BY TOP LEVEL DOMAIN SERVERS TO DIRECT TRAFIC TO THE CONTENT DNS SERVER WHICH CONTAINS THE AUTHORITATIVE DNS RECORDS.
- A RECORDS :
  - AN “A” RECORD IS THE FUNDAMENTAL TYPE OF DNS RECORD AND THE “A” IN A RECORD STANDS FOR “ADDRESS”.
  - THE “A” RECORD IS USED BY A COMPUTE TO TRANSLATE THE NAME OF THE DOMAIN TO THE IP ADDRESS.
  - FOR EXAMPLE <HTTP://WWW.KESHAVKUMMARI.COM> MIGHT POINT TO HTTP://13.126.193.140

# TTL & CNAMEs

- **TTL:**
  - THE LENGTH THAT A DNS RECORD IS CACHED ON EITHER THE RESOLVING SERVER OR THE USERS OWN LOCAL PC IS EQUAL TO THE VALUE OF THE “TIME TO LIVE”(TTL) IN SECONDS.
  - THE LOWER THE TIME TO LIVE, THE FASTER CHANGES TO DNS RECORDS TAKE TO PROPAGATE THROUGHOUT THE INTERNET.
- **CNAMEs :**
  - A CANONICAL NAME(CNAME) CAN BE USED TO RESOLVE ONE DOMAIN NAME TO ANOTHER.
  - FOR EXAMPLE, YOU MAY HAVE A MOBILE WEBSITE WITH THE DOMAIN NAME <HTTP://M.KESHAVKUMMARI.COM> THAT IS USED FOR WHEN USERS BROWSE YOUR DOMAIN NAME ON THEIR MOBILE DEVICES.
  - YOU MAY ALSO WANT THE NAME <HTTP://MOBILE.KESHAVKUMMARI.COM> TO RESOLVE TO THIS SAME ADDRESS.

# ALIAS RECORDS

- ALIAS RECORDS ARE USED TO MAP RESOURCE RECORD SETS IN YOUR HOSTED ZONE TO **ELASTIC LOAD BALANCERS, CLOUDFRONT DISTRIBUTIONS, OR S3 BUCKETS** THAT ARE CONFIGURED AS WEBSITES.
- ALIAS RECORDS WORK LIKE A CNAME RECORD IN THAT YOU CAN MAP ONE DNS NAME([WWW.EXAMPLE.COM](http://WWW.EXAMPLE.COM)) TO ANOTHER “TARGET”DNS NAME(ELB1234.ELB.AMAZONAWS.COM).
- KEY DIFFERENCE – A CNAME CAN NOT BE USED FOR NAKED DOMAIN NAMES(ZONE APEX).
- YOU CAN NOT HAVE A CNAME FOR `HTTP://CKK.COM` , IT MUST BE EITHER AN A RECORD OR AN ALIAS.

# ALIAS RECORDS

- ALIAS RESOURCE RECORD SETS CAN SAVE YOU TIME BECAUSE AMAZON ROUTE 53 AUTOMATICALLY RECOGNIZES CHANGES IN THE RECORD SETS THAT THE ALIAS RESOURCE RECORD SET REFERS TO.
- FOR EXAMPLE, SUPPOSE AN ALIAS RESOURCE RECORD SET FOR EXAMPLE.COM POINTS TO AN ELB LOAD BALANCER AT LB1-123.AP-SOUTH-1.ELB.AMAZONAWS.COM.
- IF THE IP ADDRESS OF THE LOAD BALANCER CHANGES, AMAZON ROUTE 53 WILL AUTOMATICALLY REFLECT THOSE CHANGES IN DNS ANSWERS FOR EXAMPLE.COM WITHOUT ANY CHANGES TO THE HOSTED ZONE THAT CONTAINS RESOURCE RECORD SETS FOR EXAMPLE.COM

## REGISTER A DOMAIN

- FROM GODADDY OR AWS OR VARIOUS OTHER VENDORS.



HostGator

bluehost

The bluehost logo features a blue square grid icon followed by the word "bluehost" in a lowercase, sans-serif font.

namecheap



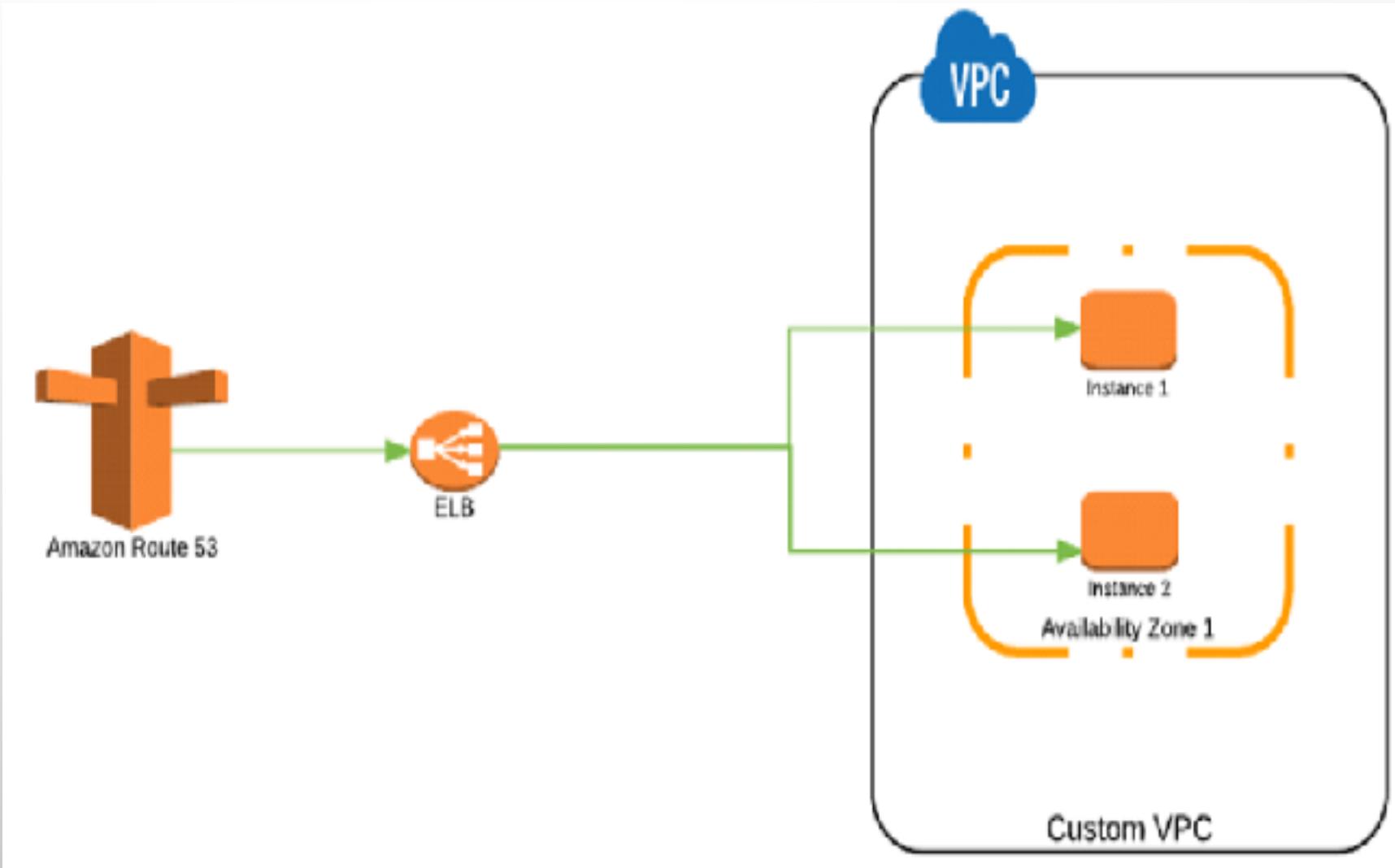
iPage



Go Daddy®

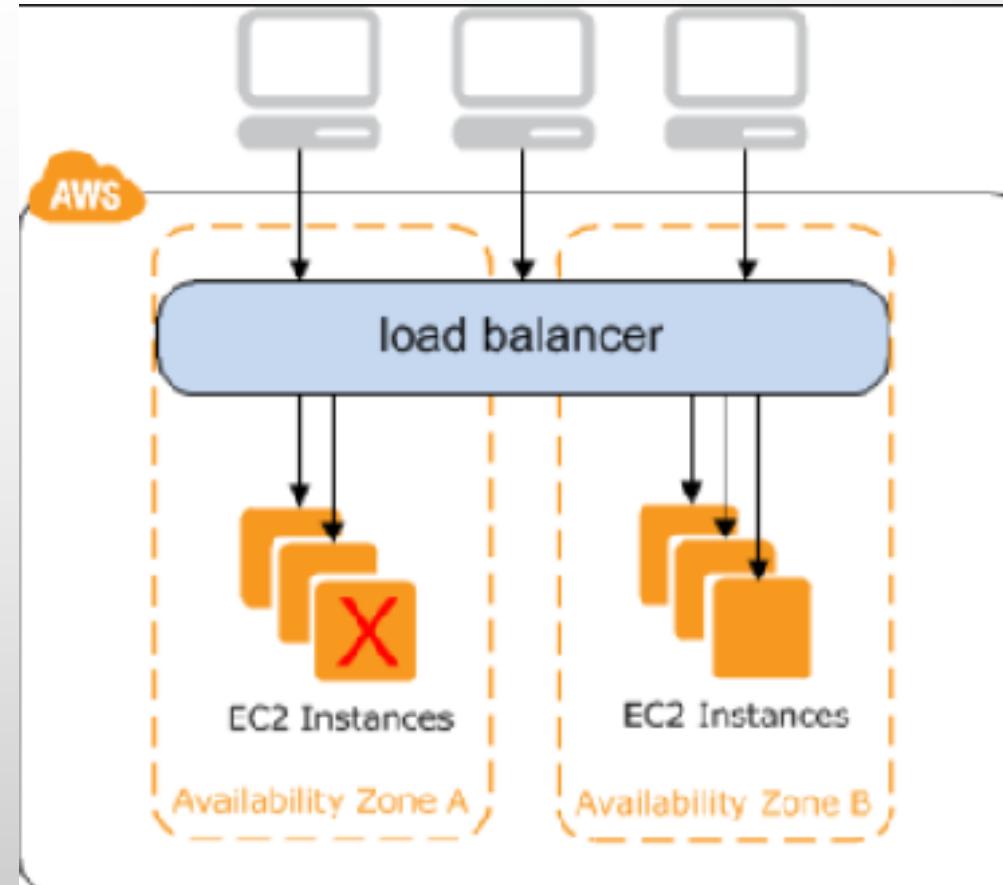
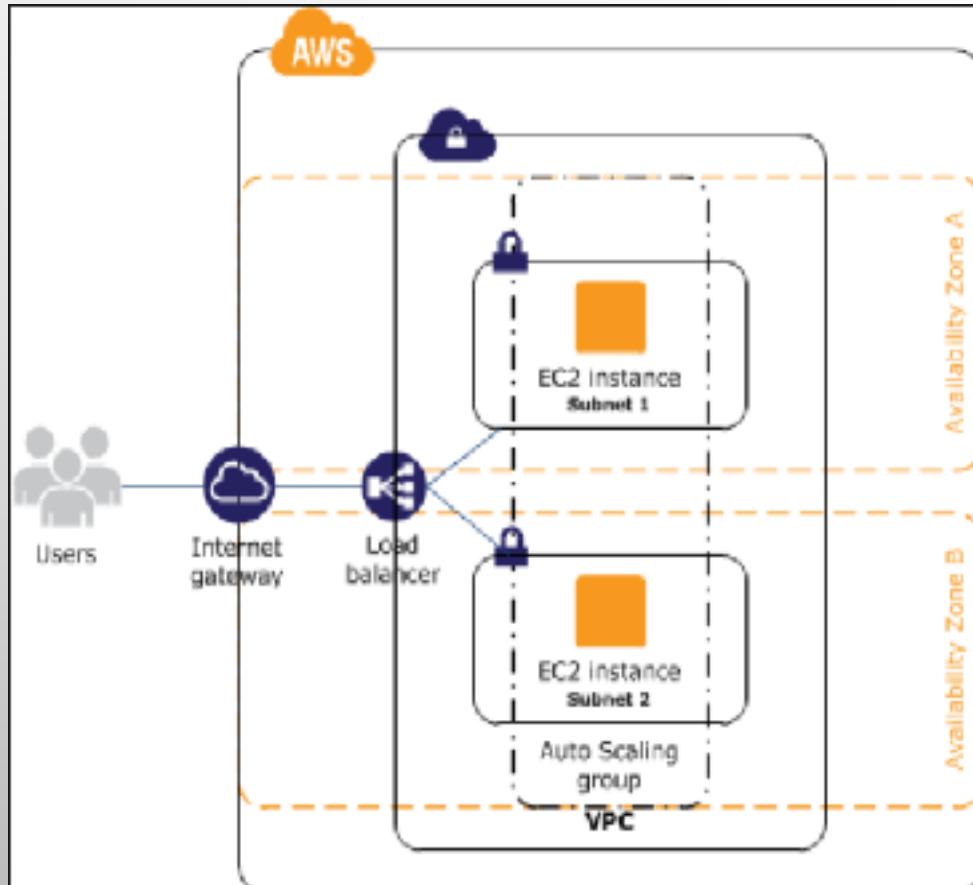
# SIMPLE ROUTING POLICY LAB

- SIMPLE
- WEIGHTED
- LATENCY
- FAILOVER
- GEOLOCATION



# LAB – SETUP ELB & EC2 INSTANCES

- CREATE A ELB-1 & ELB-2 ON TWO DIFFERENT AVAILABILITY ZONES AND CREATE 3 EC2 INSTANCES AND ADD 2 INSTANCES IN ONE ELB-1 AND ONE IN ELB-2.



## LAB : CREATE TWO EC2 INSTANCE AND ONE ELB, USE THE EC2 INSTANCE SECURITY GROUP TO ELB AND ADD TWO EC2 INSTANCE TO ELB.

Click Load Balancer Actions

Search or filter by name or ARN of security groups

Name	ARN	Status	VPC ID	Availability Zones	Type
MySG-1	arn:aws:iam::123456789012:role/lambda-mySG-1	Active	vpce-12345678	us-east-1a, us-east-1a	AWS

Load balancer: MyELB-1

Description Instances Health Check Users Monitoring Tags Migration

Automation Building: Enabled (Edit)

EC2 instances

Instance ID	Name	Availability Zone	Status	Actions
i-02c5e0779e82	wwwserver-1	us-east-1a	Running	Remove from Load Balancer
i-03f7f1008690	wwwserver-2	us-east-1a	Running	Remove from Load Balancer

All Availability Zones

Availability Zone	Subnet ID	Subnet CIDR	Instance Count	Healthy?	Actions
us-east-1a	subnet-0e38873	172.31.0.0/20	1	Yes	Action
us-east-1a	subnet-0d0f9	172.31.0.0/20	1	Yes	Action

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
webserver2	i-00189127f599ff8e5	t2.micro	ap-south-1a	running	2/2 checks ...	None	ec2-52-66-108-16.ap-s...	52.66.108.16
webserver1	i-02b05be2277fe9f68	t2.micro	ap-south-1b	running	2/2 checks ...	None	ec2-13-127-164-112.ap...	13.127.164.112

[Back to Hosted Zones](#) [Create Record Set](#) Import Zone File Delete Record Set Test Record Set

Record Set Name: Any Type: Aliases Only Weighted Only

Displaying 1 to 2 of 2 Record Sets

Name	Type	Value	Health Target Health	Health Check ID
www.keshavkummar.com	A	ELB-1-811314659.ap-south-1.elb.amazonaws.com	green	-
hostedoutlook.com	NS	ns-1411.awsdns-16.org.	-	-
hostedoutlook.com	NS	ns-157.awsdns-19.com.	-	-
hostedoutlook.com	NS	ns-672.awsdns-22.net.	-	-
hostedoutlook.com	NS	ns-1653.awsdns-20.co.uk.	-	-

[Edit Hosted Zone](#)

**Hosted Zone:** ap-south-1.elb.amazonaws.com  
**Type:** A - IPv4 addresses  
**Aliases:** No  
**Alias Targets:** null  
**Alias Hosted Zone:** ap-south-1.elb.amazonaws.com

You can also type the domain name for the resource. Examples:  
 - CloudFront distribution domain name: ELB-1-811314659.amazonaws.com  
 - Elastic Load Balancer DNS name: example-1.us-east-1.elb.amazonaws.com  
 - SSL certificate endpoint: elb-ssl-1.us-east-1.elb.amazonaws.com  
 - Route 53 endpoint: www.example-1.us-east-1.elb.amazonaws.com  
[Learn More](#)

**Simple** This record only contains values in this section. Learn More

**Load balancer:** MyELB-1 **DNS name:** MyELB-1-811314659.ap-south-1.elb.amazonaws.com

**Description** Instances Health Check Listeners Monitoring Tags View

### Basic Configuration

Name: MyELB-1  
 \* DNS name: MyELB-1-811314659.ap-south-1.elb.amazonaws.com (A Record)

Go to browser and check :

ELB : MyELB-1-811314659.ap-south-1.elb.amazonaws.com  
 EC2 WebServer-1 : 13.127.164.112  
 EC2 WebServer-2 : 52.66.108.16  
 Public Domain of Godaddy : http://keshavkummar.com

CREATE A ONE MORE EC2 INSTANCE IN OTHER AZ AND CREATE A ONE MORE ELB AND ADD THIS EC2 INSTANCE TO IT.

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#instance:ec2InstanceState

Services Resource Groups Actions

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

1 to 1

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
WebServer	i-076d5a5f168e538b8	t2.micro	us-east-2b	running	2/2 checks	None	ec2-18-219-33-250.us-east-2.compute.amazonaws.com	18.219.33.250
hot_mn_dev	i-0801ca4db3f2013ff	t2.micro	us-east-2c	stopped	None	None	-	-

Instance: i-076d5a5f168e538b8 (WebServer\_3-Ohio-ELB) Public DNS: ec2-18-219-33-250.us-east-2.compute.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID	i-076d5a5f168e538b8	Public DNS (IPv4)	ec2-18-219-33-250.us-east-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	18.219.33.250
Instance type	t2.micro	IPv6 IPs	-
Classic IP	-	Private DNS	ip-172-31-19-15.us-east-2.compute.internal
Availability zone	us-east-2b	Private IPs	172.31.19.15
Security groups	WebServer3-11B [1] view inbound rules	Secondary private IPs	-

<https://us-east-1.console.aws.amazon.com/elb/v2/home?region=us-east-2#LoadBalancerName>

Services Resource Groups Actions

Create Load Balancer Actions

Filter by tags and attributes or search by keyword

Name	DNS name	Status	VPC ID	Availability Zones	Type
MyOhioELB	MyOhioELB-922079806.us-east-2.elb.amazonaws.com	Up	vpc-70e70118	us-east-2a, us-east-2b	classic

Load balancer: MyOhioELB

Description Instances Health Check Listeners Monitoring Tags Migration

**Basic Configuration**

Name:	MyOhioELB	Creation time:	February 9, 2016 at 11:45:03 AM UTC+1
* DNS name:	MyOhioELB-922079806.us-east-2.elb.amazonaws.com (A Record)	Hosted zone:	Z3AAUJGE08KTTL2
		Status:	0 of 4 instances in service

<https://us-east-1.console.aws.amazon.com/elb/v2/home?region=us-east-2#LoadBalancerName>

<https://us-east-1.console.aws.amazon.com/elb/v2/home?region=us-east-2#LoadBalancerName>

Services Resource Groups Actions

Create Load Balancer Actions

Filter by tags and attributes or search by keyword

Name	DNS name	Status	VPC ID	Availability Zones	Type
MyOhioELB	MyOhioELB-922079806.us-e...	Up	vpc-70e70118	us-east-2a, us-east-2b	classic

Load balancer: MyOhioELB

Description Instances Health Check Listeners Monitoring Tags Migration

Connection draining: Enabled, 300 seconds [Edit](#)

Edit Instances

Instance ID	Name	Availability Zone	Status	Actions
i-01638a176883300	WebServer-2-Ohio-ELB	us-east-2b	UnderService (1)	Remove from Load Balancer

# DOWNLOAD VPN AND TEST THE CONNECTION

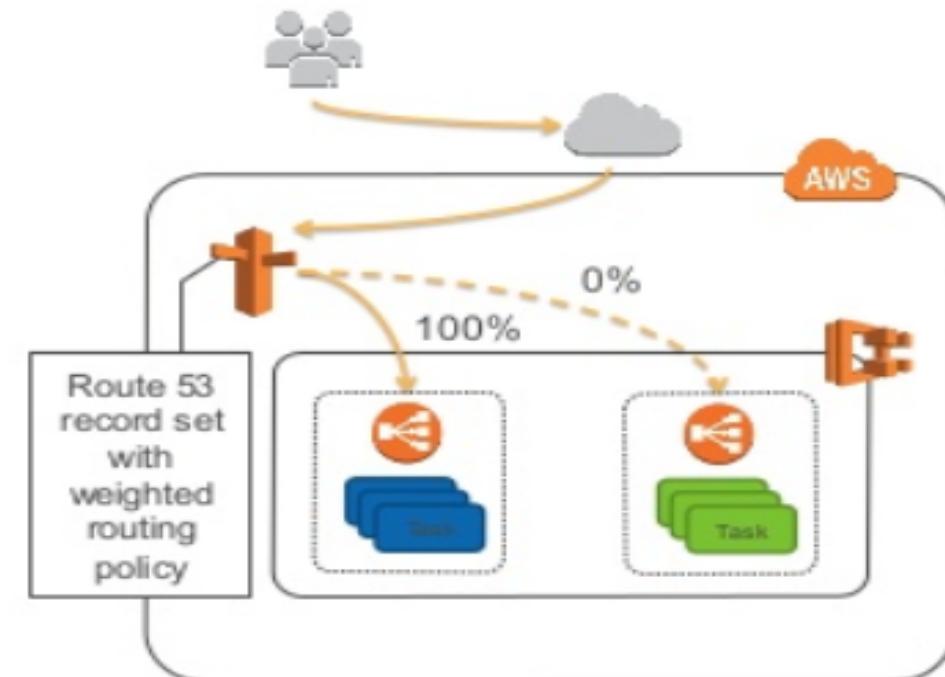


## 2. WEIGHTED

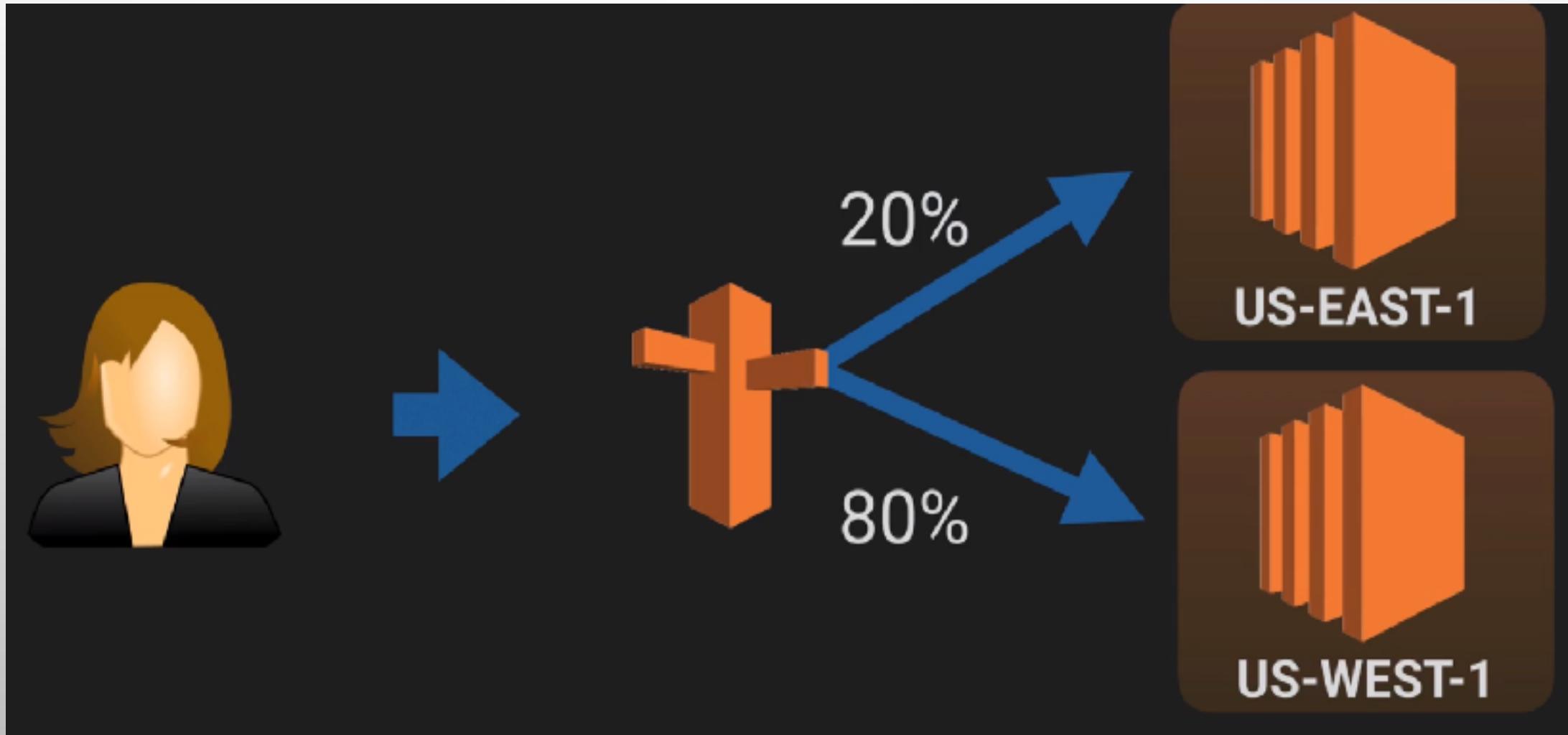
### Scheduling Containers: Long-Running App

#### Blue-Green Deployments

- Define two ECS services
- Each service is associated w/ ELB
- Both ELBs in Route 53 record set with weighted routing policy, 100% primary, 0% secondary
- Deploy to blue or green service and switch weights



## WEIGHTED ROUTING POLICIES



# WEIGHTED ROUTING POLICIES – CONFIGURED 70%

/console.aws.amazon.com/route53/home?region=ap-south-1#resource-record-sets:Z26UQPSEIUBR93

Resource Groups    Create Record Set    Import Zone File    Delete Record Set    Test Record Set

Record Set Name:  Any Type  Aliases Only  Weighted Only

Displaying 1 to 3 out of 3 Record Sets

Name	Type	Value	Evaluate Target Health	Health Check ID
keshavkumari.com.	A	ALIAS dualstack.myelb-1-811314659.ap-south-1.elb.amazonaws.com.	No	
keshavkumari.com.	NS	ns-1411.awsdns-48.org. ns-157.awsdns-19.com. ns-672.awsdns-20.net. ns-1653.awsdns-14.co.uk		
keshavkumari.com.	SOA	ns-1411.awsdns-48.org. awsdns-hostmaster.amazon.com.		

Edit Record Set

Name: keshavkumari.com

Type: A – IPv4 address

Alias:  Yes  No

Alias Target: dualstack.myelb-1-811314659.ap-south-1.elb.amazonaws.com

Alias Hosted Zone ID: ZP97RARLXTN7K

You can also type the domain name for the resource. Examples:  
- CloudFront distribution domain name: d111111abcd10.cloudfront.net  
- Elastic Beanstalk environment NAME: example.elasticbeanstalk.com  
- Elb Load balancer DNS name: example1.us-west-1.elb.amazonaws.com  
- S3 website endpoint: s3-website-us-east-2.amazonaws.com  
- Resource record set in this hosted zone: www.example.com

Learn More

Routing Policy:  Weighted

Route 53 responds to queries based on weighting that you specify in this and other record sets that have the same name and type. Learn More

Weights: 70

Set ID: mymumbaiSite

Description of this record set that is unique

Save Record Set

# CONFIGURING ROUTING POLICY ON ELB-2

https://console.aws.amazon.com/route53/home?region=ap-south-1#resource-record-sets:226UQPSEIUBF93

Resource Groups

Back to Hosted Zones Create Record Set Import Zone File Delete Record Set Test Record Set

Record Set Name: keshavkumari.com. Any Type: A Aliases Only Weighted Only

Displaying 1 to 4 out of 4 Record Sets

Name	Type	Value	Evaluate Target Health	Health Check ID
keshavkumari.com.	A	ALIAS dualstack.myohioelb-922079806.us-east-2.elb.amazonaws.com.	No	
keshavkumari.com.	A	ALIAS dualstack.myelb-1-811314659.ap-south-1.elb.amazonaws.com.	No	
keshavkumari.com.	NS	ns-1411.awsdns-46.org. ns-157.awsdns-19.com. ns-672.awsdns-20.net. ns-1853.awsdns-14.co.uk.		
keshavkumari.com.	SOA	ns-1411.awsdns-46.org. awsdns-hostmaster.amazon.com.		

Edit Record Set

Name: keshavkumari.com.

Type: A – IPv4 address.

Alias: Yes

Alias Target: dualstack.myohioelb-922079806.us-east-2.elb.amazonaws.com.

Alias Hosted Zone ID: Z3AAADJ0X6KTTL2

You can also type the domain name for the resource. Examples:  
- CloudFront distribution domain name: d111111abcd8.cloudfront.net  
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com  
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com  
- S3 website endpoint: s3-website.us-east-2.amazonaws.com  
- Resource record set in this hosted zone: www.example.com

Learn More

Routing Policy: Weighted

Route 53 responds to queries based on weighting that you specify in this and other record sets that have the same name and type. Learn More

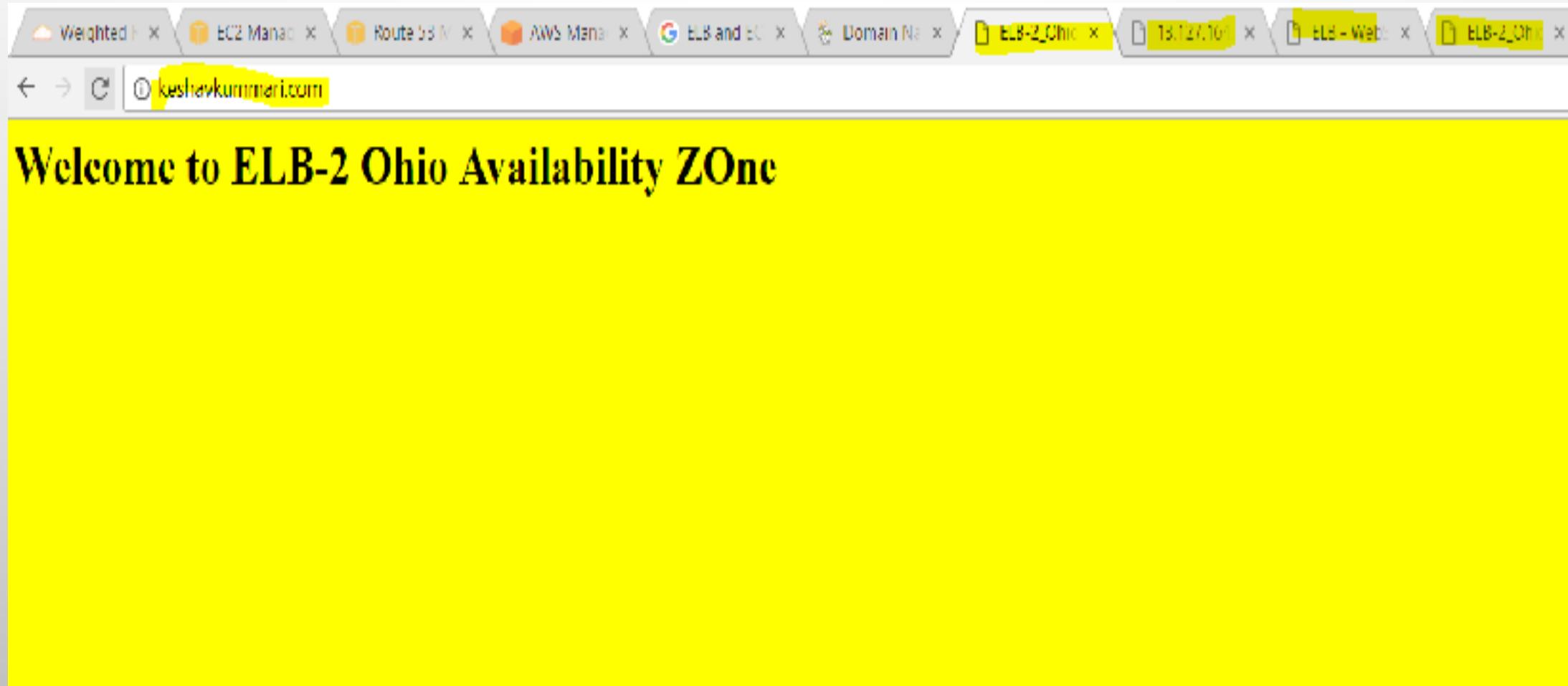
Weight: 30

Set ID: MyOhioSite

Description of this record set that is unique

Save Record Set

NOW TRAFIC IS ROUTING TO TWO DIFFERENT ELB'S & AZ AS WELL

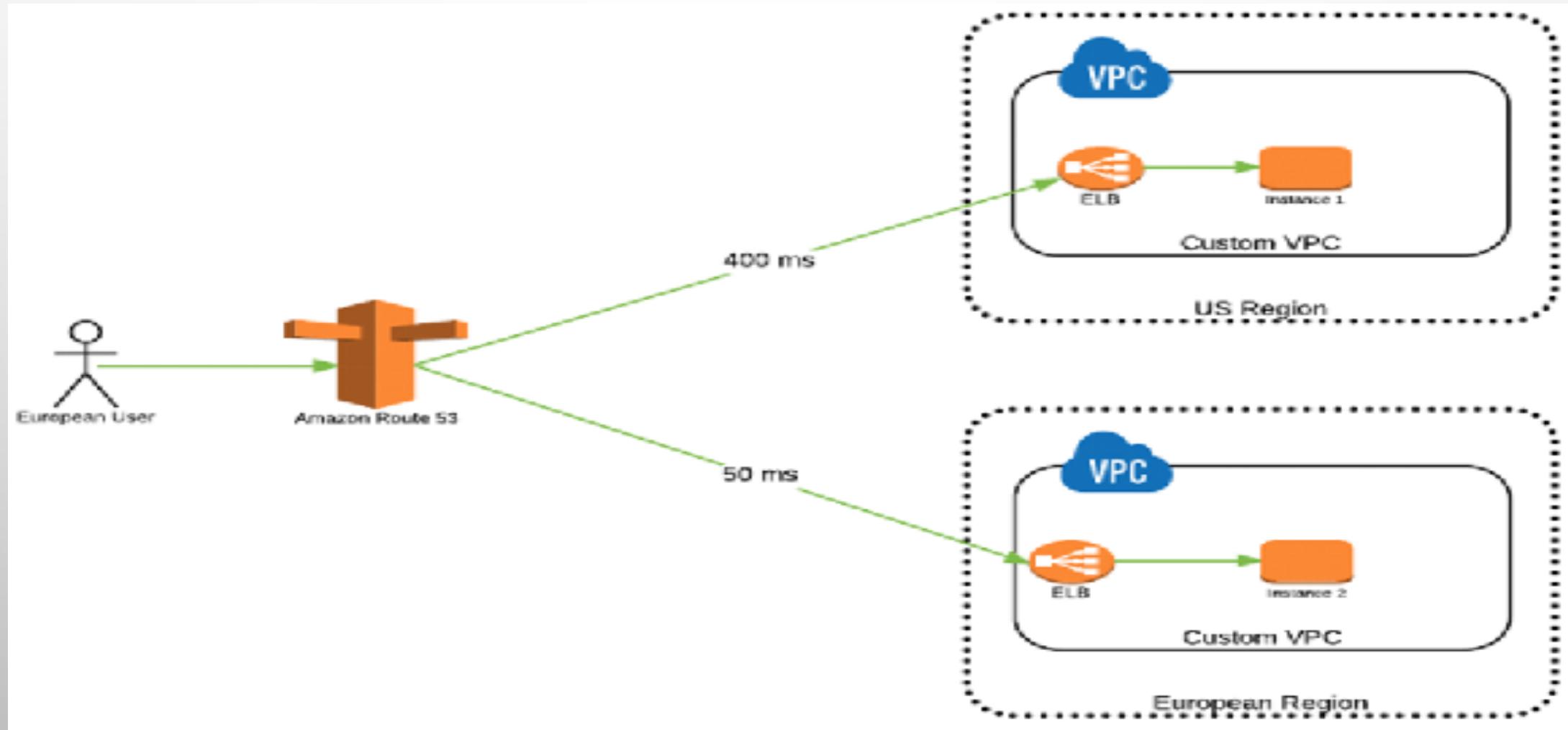


### 3. LATENCY

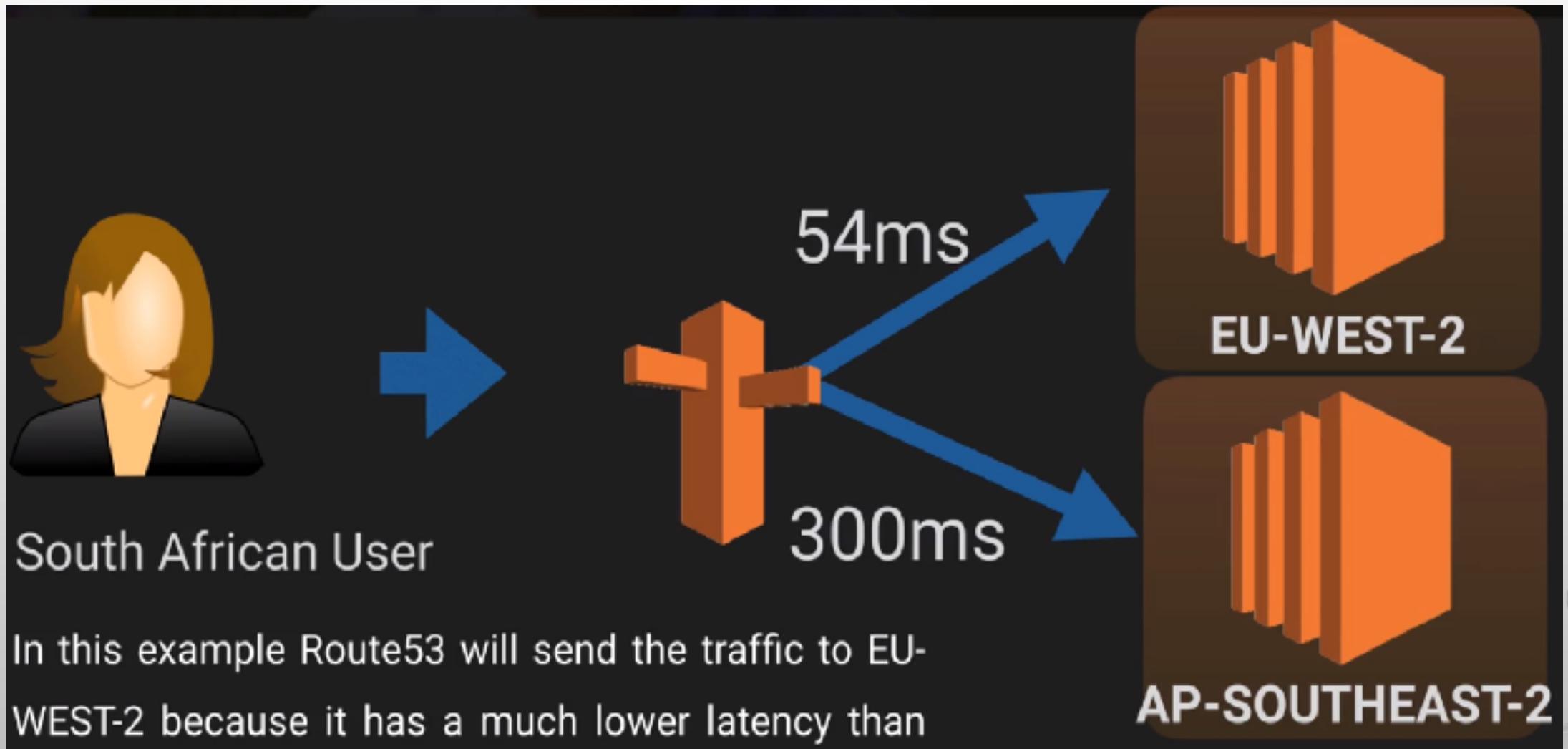
Latency based routing allows you to route your traffic based on the lowest network latency for your end user (ie which region will give them the fastest response time).

To use latency-based routing you create a latency resource record set for the Amazon EC2 (or ELB) resource in each region that hosts your website. When Amazon Route 53 receives a query for your site, it selects the latency resource record set for the region that gives the user the lowest latency. Route 53 then responds with the value associated with that resource record set.

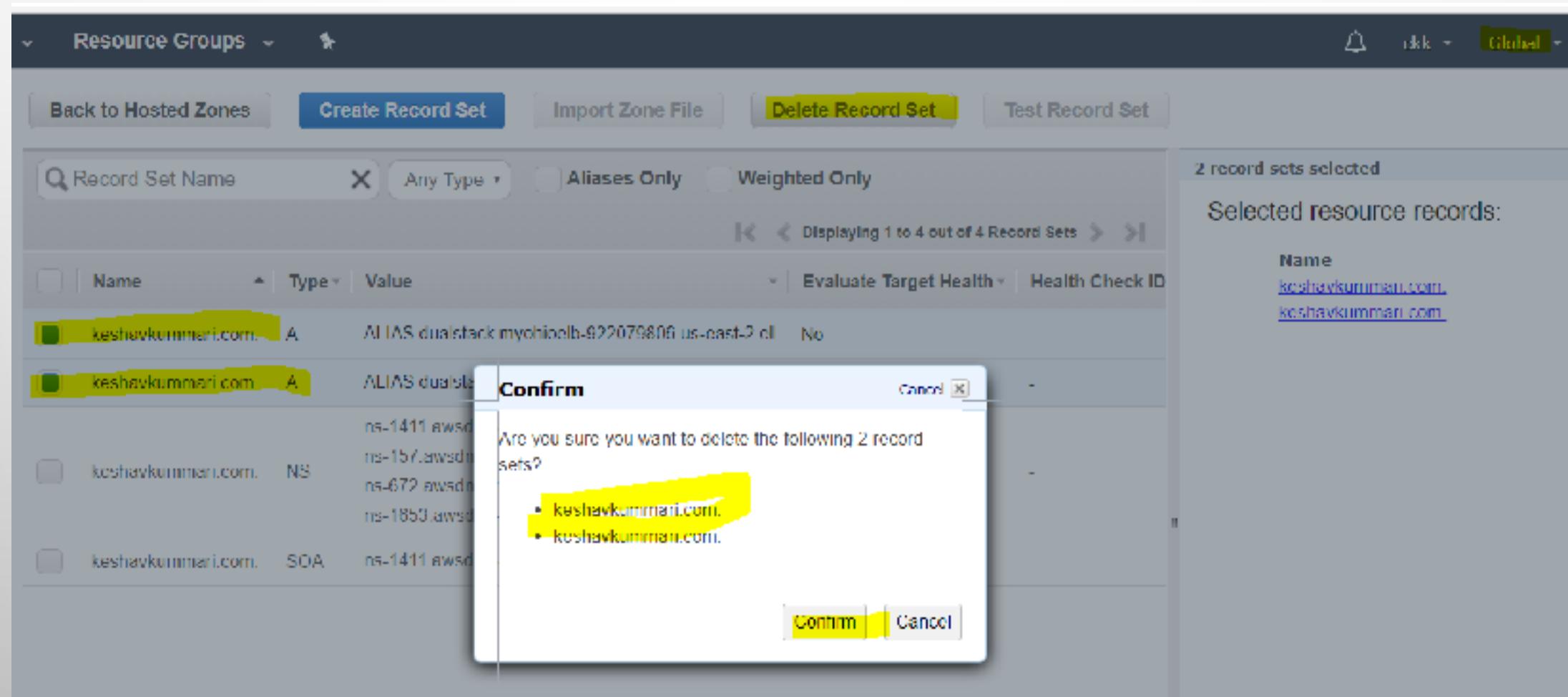
# LATENCY



## EXAMPLE - LATENCY



**BEFORE CONTINUING THE LATENCY TRY TO DELETE EXISTING A RECORDS**



# CREATE A RECORD SET IN ROUTE53 FOR ELB-1

Resource Groups    ckk    Global    Support

Back to Hosted Zones    Create Record Set    Import Zone File    Delete Record Set    Test Record Set

Record Set Name:  Any Type     Aliases Only     Weighted Only

Displaying 1 to 3 out of 3 Record Sets

Name	Type	Value	Evaluate Target Health	Health Check ID
keshavkumari.com.	A	ALIAS dualstack.myelb-1-811314659.ap-south-1.elb	No	-
		ns-1411.awsdns-48.org. ns-157.awsdns-19.com. ns-672.awsdns-20.net. ns-1653.awsdns-14.co.uk.	-	-
keshavkumari.com.	NS	ns-1411.awsdns-48.org. awsdns-hostmaster.amazon	-	-
keshavkumari.com.	SOA	ns-1411.awsdns-48.org. awsdns-hostmaster.amazon	-	-

Edit Record Set

Name: keshavkumari.com.

Type: A – IPv4 address

Alias: Yes

Alias Targets: dualstack.myelb-1-811314659.ap-sout

Alias Hosted Zone ID: ZP97RAFLXTN2K

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d111111atcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

Learn More

Routing Policy: Latency

Route 53 responds to queries based on regions that you specify in this and other record sets that have the same name and type. Learn More

Region: ap-south-1

Set ID: MyMumbaiRegion

Description of this record set that is unique

Save Record Set

# CREATE A RECORD SET IN ROUTE53 FOR ELB-2

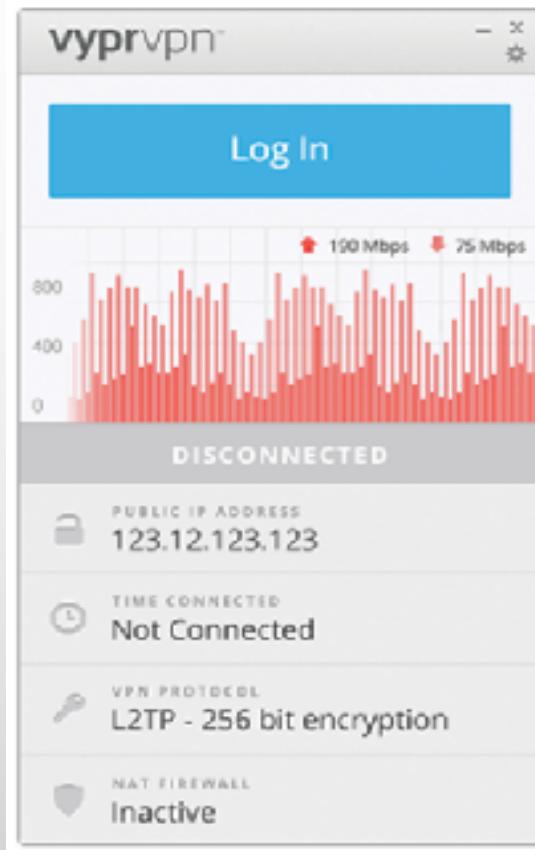
The screenshot shows the AWS Route 53 console interface. The top navigation bar includes 'Resource Groups', 'Global', and 'Support' buttons. Below the navigation is a toolbar with 'Back to Hosted Zones', 'Create Record Set' (which is highlighted in blue), 'Import Zone File', 'Delete Record Set', and 'Test Record Set'. On the left, there's a search bar for 'Record Set Name' and filters for 'Any Type', 'Aliases Only', and 'Weighted Only'. The main area displays a table of existing record sets for the domain 'keshavkummar.com.':

Name	Type	Value	Evaluate Target Health	Health Check ID
keshavkummar.com.	A	ALIAS dualstack.myelb-1.811314659.ap-south-1.elb	No	-
<b>keshavkummar.com.</b>	<b>A</b>	<b>ALIAS dualstack.myohioelb-922079806.us-east-2.elb</b>	<b>No</b>	-
keshavkummar.com.	NS	ns-1411.awsdns-48.org. ns-157.awsdns-19.com. ns-672.awsdns-20.net. ns-1053.awsdns-14.co.uk.	-	-
keshavkummar.com.	SOA	ns-1411.awsdns-48.org. awsdns-hostmaster.amazon	-	-

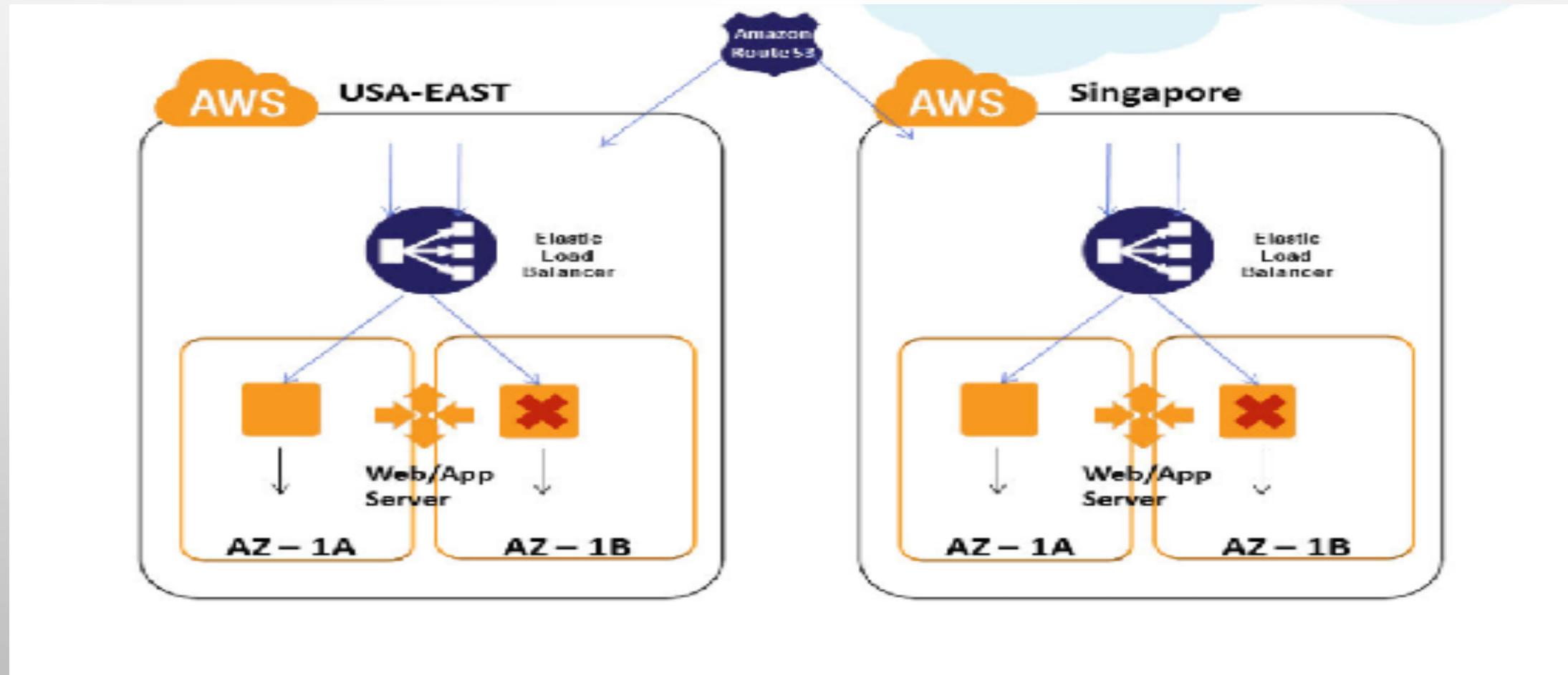
To the right, a modal window titled 'Edit Record Set' is open for the second record set. The 'Name' field is set to 'keshavkummar.com.'. The 'Type' is set to 'A – IPv4 address'. The 'Alias' section is set to 'Yes' with the target 'dualstack.myohioelb-922079806.us-east-2.elb'. The 'Alias Hosted Zone ID' is listed as '23AADJGX6KTTL2'. Below this, there's a note about examples and a 'Learn More' link. The 'Routing Policy' is set to 'Latency'. The 'Region' is 'us-east-2' and the 'Set ID' is 'MyOhioELB'. A description field is present but empty. At the bottom right of the modal is a 'Save Record Set' button.

# DOWNLOAD VPN AND TEST THE CONNECTION

- CHECK THE CONNECTION LATENCY



## 4. FAILOVER



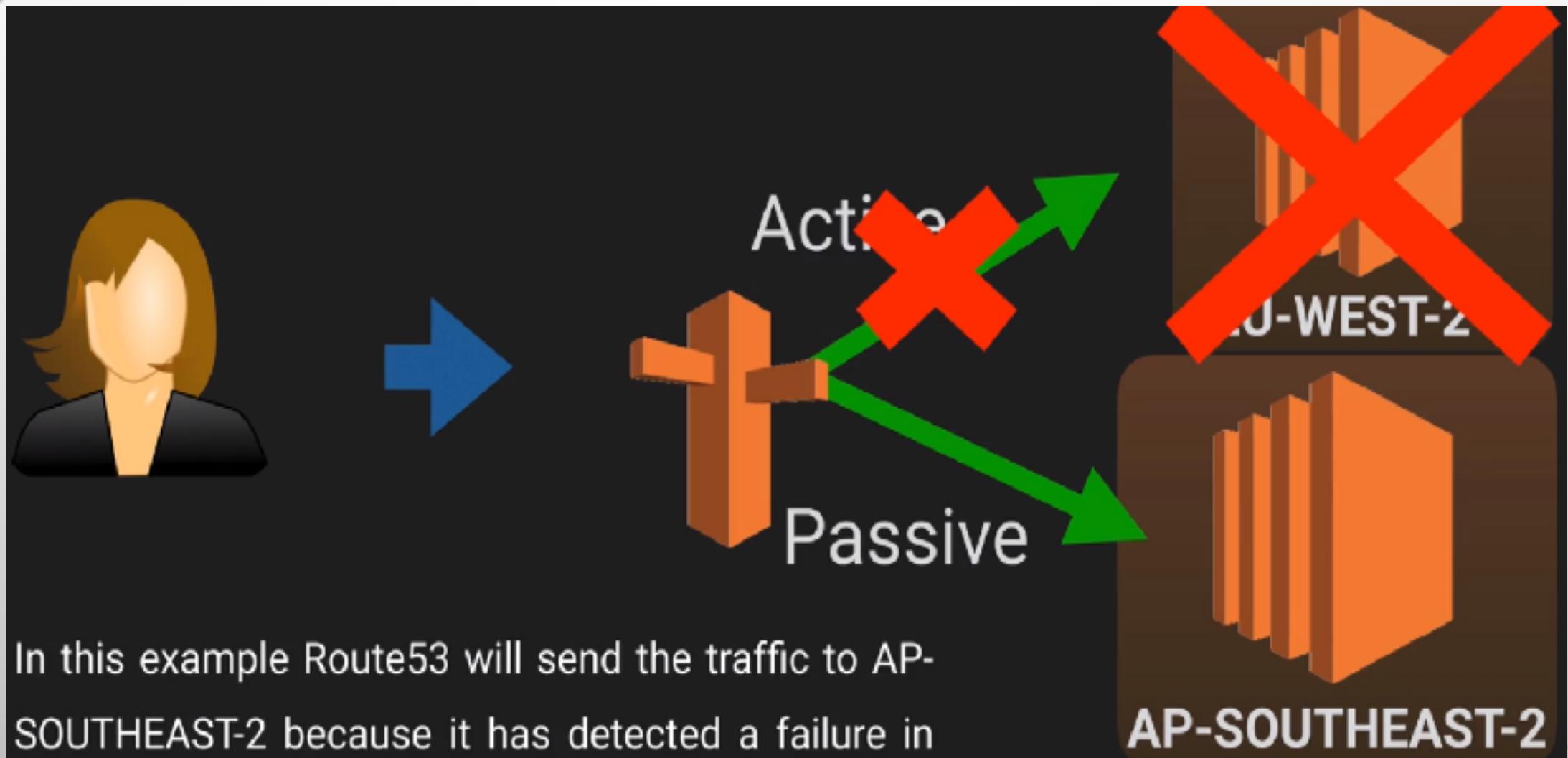
# FAILOVER ROUTING POLICIES

Failover routing policies are used when you want to create an active/passive set up. For example you may want your primary site to be in EU-WEST-2 and your secondary DR Site in AP-SOUTHEAST-2.

Route53 will monitor the health of your primary site using a health check.

A health check monitors the health of your end points.

## EXAMPLE



# BEFORE WE SETUP FAILOVER, FIRST WE SHOULD SET UP HEALTH CHECK

- GO TO ELB-1 AND COPY THE DNS(I.E. **MYELB-1-811314659.AP-SOUTH-1.ELB.AMAZONAWS.COM**)

The screenshot shows the 'Create health check' interface in the AWS CloudWatch Metrics section. It consists of two main tabs: 'Configure health check' (selected) and 'Advanced configuration'.

**Configure health check:**

- Name:** MyHealthCheckA
- What to monitor:** CloudWatch Metrics (selected)
- Monitor an endpoint:** Multiple CloudWatch health checks will try to establish a TCP connection with the following URL to determine its availability.
  - Specify endpoint:** Conditions (selected)
  - Protocol:** HTTP
  - Domain name:** MYELB-1-811314659.AP-SOUTH-1.ELB.AMAZONAWS.COM
  - Port:** 80
  - Path:** /logo

**Advanced configuration:**

- Request interval:** Standard (30 seconds) (selected)
- Failure threshold:** 1
- String matching:** No (selected)
- Latency graphs:** Off
- Invert health check status:** Off
- Health checker regions:** Use recommended (selected)
- Regions:** US East (N. Virginia), US West (N. California), US West (Oregon), EU (Ireland), Asia Pacific (Singapore), Asia Pacific (Sydney), Asia Pacific (Tokyo), South America (Sao Paulo)

**URL:** http://MYELB-1-811314659.AP-SOUTH-1.ELB.AMAZONAWS.COM:80

**Health check type:** Basic - no additional options selected (New Pricing)

**Buttons:** Cancel, Next Step

Services ▾ Resource Groups ▾ ⭐

✓ Health check with id a9d8b97c-1925-4dea-931a-e19b048cdaac has been created successfully

Create health check

Delete health check

Edit health check

## CREATE A HEALTH CHECK ON ENTIRE WEBSITE

AWS Services Resource Groups ⚙

### Create health check

Step 1: Configure health check Step 2: Get notified when health check fails

Get notified when health check fails

If you want CloudWatch to send you an Amazon SNS notification, such as an email, when the status of the health check changes to unhealthy, create an alarm and specify where to send notifications.

Create alarm  No

CloudWatch sends you an Amazon SNS notification whenever the status of this health check is unhealthy for one minute.

Send notification to  Existing SNS topic  New SNS topic

Topic name: MyWebSiteIsDown

Recipient email addresses: testuser@amazonaws.com

Separate multiple addresses with a comma, a newline, or a space.

\* Required

Cancel Previous **Create health check**

# ALERT

Veilig https://console.aws.amazon.com/route53/healthchecks/home#

aws Services Resource Groups

Dashboard Hosted zones Health checks Create health check Delete health check Edit health check

Filter by keyword

	Name	Status	Description	Alarms
■	MyProductionSite	Unknown	http://keshavkumari.com:80/index.html	⚠ 1 of 1 in INADEQUATE
■	MyMumbaiHealthCheck	2 hours ago now	Healthy	No alarms configured.

# GO TO ROUTE53 AND CONFIGURE ELB-1

Record Set Name  Any Type  Aliases Only  Weighted Only

Displaying 1 to 4 out of 4 Record Sets

Name	Type	Value	Evaluate Target Health	Health Check ID
keshavkumari.com.	A	ALIAS dualstack.myelb-1-811314659.ap-south-1.elb	Yes	-
keshavkumari.com.	A	ALIAS dualstack.myohioelb-922079806.us-east-2.elb	Yes	-
keshavkumari.com.	NS	ns-1411.awsdns-48.org. ns-157.awsdns-19.com. ns-672.awsdns-20.net. ns-1653.awsdns-14.co.uk.	-	-
keshavkumari.com.	SOA	ns-1411.awsdns-48.org. awsdns-hostmaster.amazon	-	-

Edit Record Set

Name: keshavkumari.com.

Type: A – IPv4 address

Alias:  Yes  No

Alias Target: dualstack.myelb-1-811314659.ap-sout

Alias Hosted Zone ID: ZP97RAFLXTNZK

You can also type the domain name for the resource. Examples:

- CloudFront distribution domain name: d111111abcdef8.cloudfront.net
- Elastic Beanstalk environment CNAME: example.elasticbeanstalk.com
- ELB load balancer DNS name: example-1.us-east-1.elb.amazonaws.com
- S3 website endpoint: s3-website.us-east-2.amazonaws.com
- Resource record set in this hosted zone: www.example.com

Learn More

Routing Policy: Failover

Route 53 responds to queries using primary record sets if any are healthy, or using secondary record sets otherwise. Learn More

Failover Record Type:  Primary  Secondary

Set ID: Primary

Evaluate Target Health:  Yes  No

Associate with Health Check:  Yes  No

## STOP 2 EC2 INSTANCE FROM ELB-1 AND CROSS CHECK THE ALERT AND WEBSITE

https://ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name

ces Resource Groups Actions

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Pub
webserver2...	i-00189127f599ff8e5	t2.micro	ap-south-1a	stopped		None	...	-
webserver'...	i-02b05be2277fe9fb6	t2.micro	ap-south-1b	stopped		None	...	-

← → C [www.keshavkummar1.com](http://www.keshavkummar1.com)

# Welcome to ELB-2 Ohio Availability ZOne

Health	Health Check	Last Check	Status	Description	
<input type="checkbox"/>	MyProductionSite	18 minutes ago	3 minutes ago	Unhealthy	<a href="http://www.keshavkummar1.com:80/index.html">http://www.keshavkummar1.com:80/index...</a>
<input type="checkbox"/>	MyMumbaiHealthCheck	2 hours ago	3 minutes ago	Unhealthy	<a href="http://MyELB-1-811314659.ap-south-1.el...">http://MyELB-1-811314659.ap-south-1.el...</a>

## GO TO YOUR MAIL BOX AND CROSS CHECK THE MAIL ALERT

The screenshot shows a Gmail inbox with a blue header bar. On the left, there's a sidebar with icons forCompose, Inbox (13), Starred, Important, Sent Mail, Drafts (2), Categories, and Jessrah. The main area displays an email from "AWS Notifications <no reply>@sns.amazonaws.com" with the subject "AWS Notification - Subscription Confirmation". The email body contains the following text:

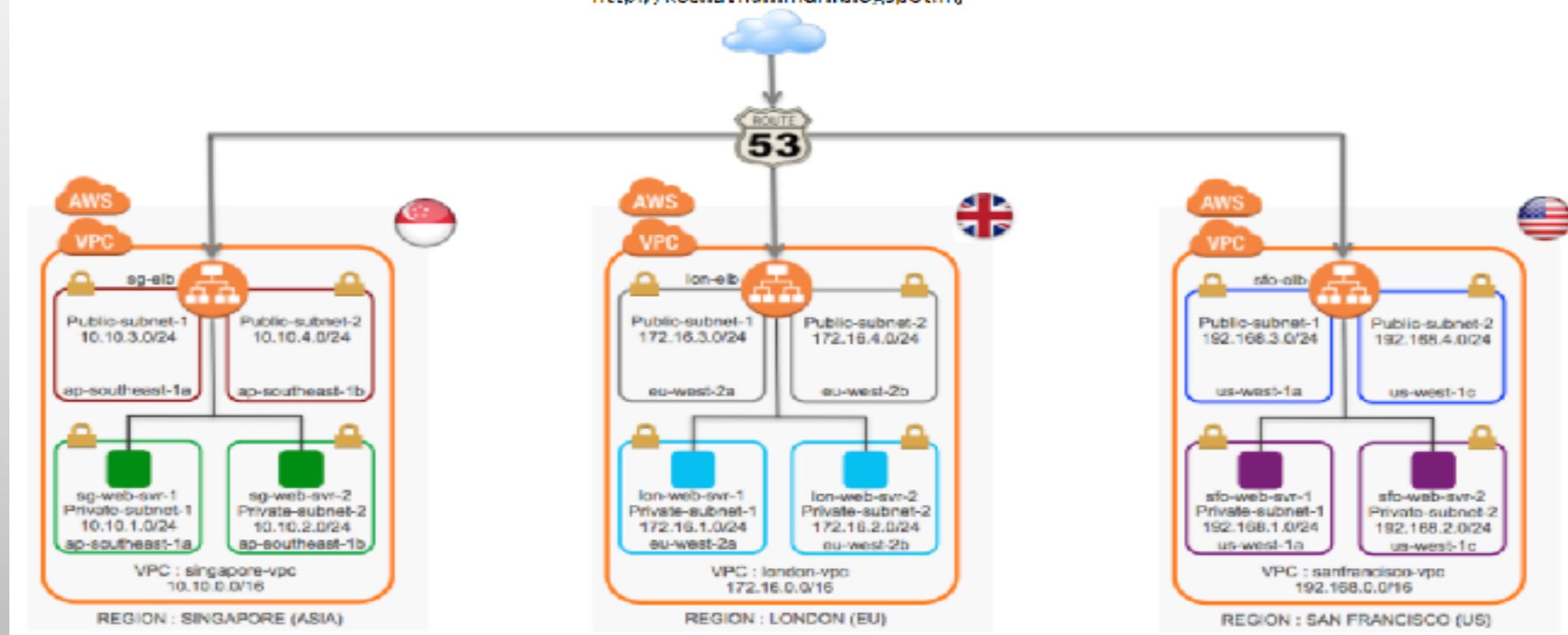
You have chosen to subscribe to the topic:  
am:aws:sns:us-east-1:726584800293:MyWebSiteIsDown

To confirm this subscription, click or visit the link below (if this was in error no action is necessary).  
[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to [sns-opt-out](#).

# 5. GEOLOCATION

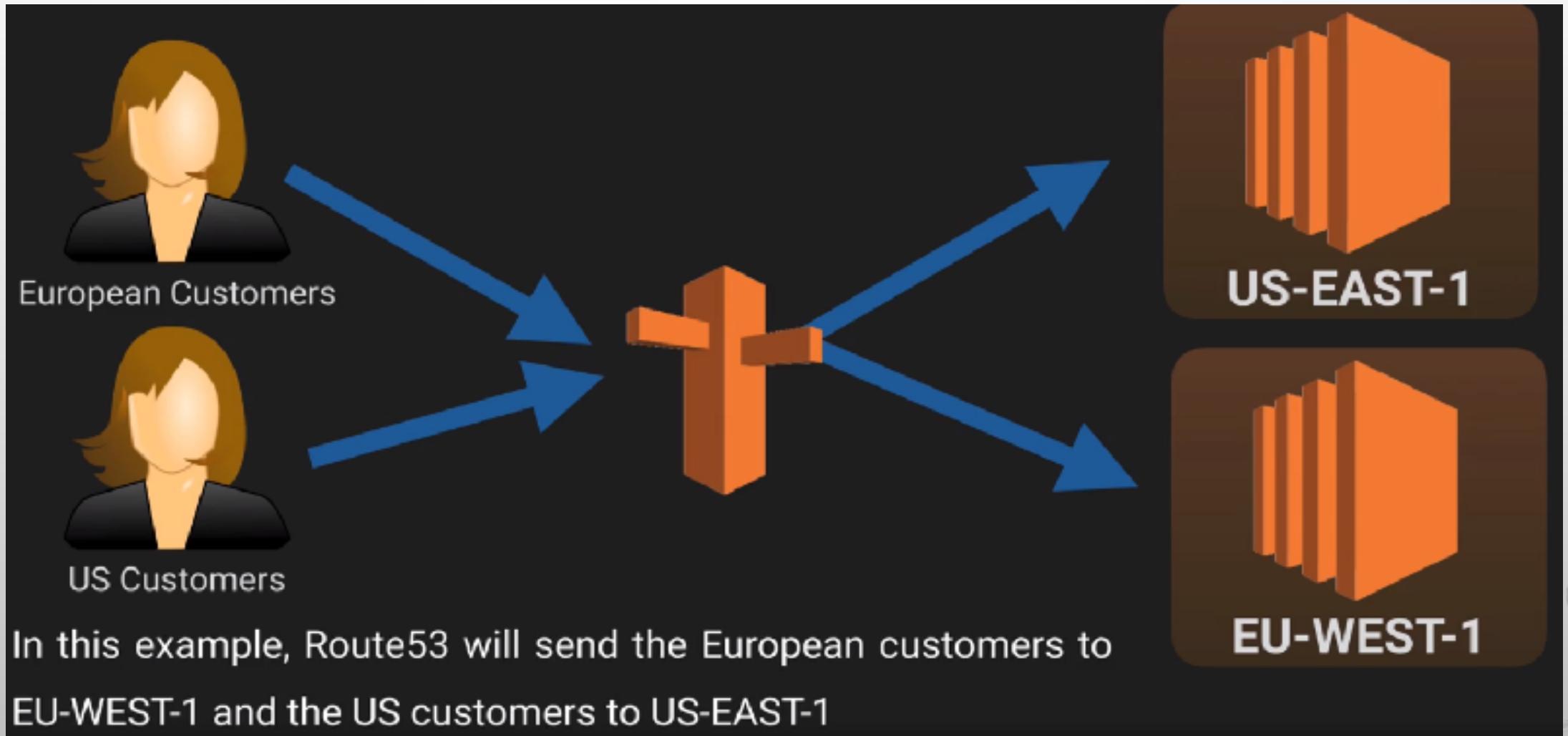
LAB : Route53 Geolocation Routing Policy for Elastic Load Balancing  
<http://kushavkumari.blogspot.in/>



## GEOLOCATION

Geolocation routing lets you choose where your traffic will be sent based on the geographic location of your users (ie the location from which DNS queries originate). For example, you might want all queries from Europe to be routed to a fleet of EC2 instances that are specifically configured for your European customers. These servers may have the local language of your European customers and all prices are displayed in Euros.

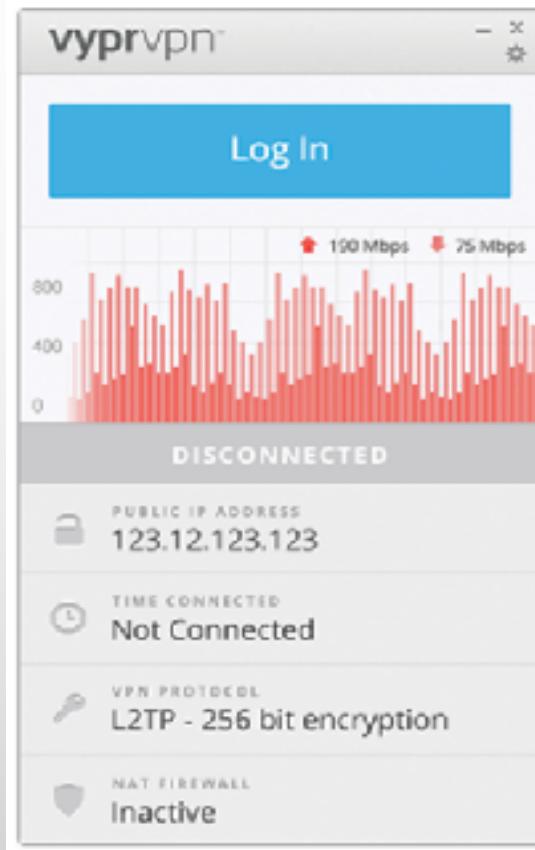
# GEOLOCATION



# GO TO ROUTE53

# DOWNLOAD VPN AND TEST THE CONNECTION

- CHECK THE CONNECTION FROM DIFFERENT COUNTRY:

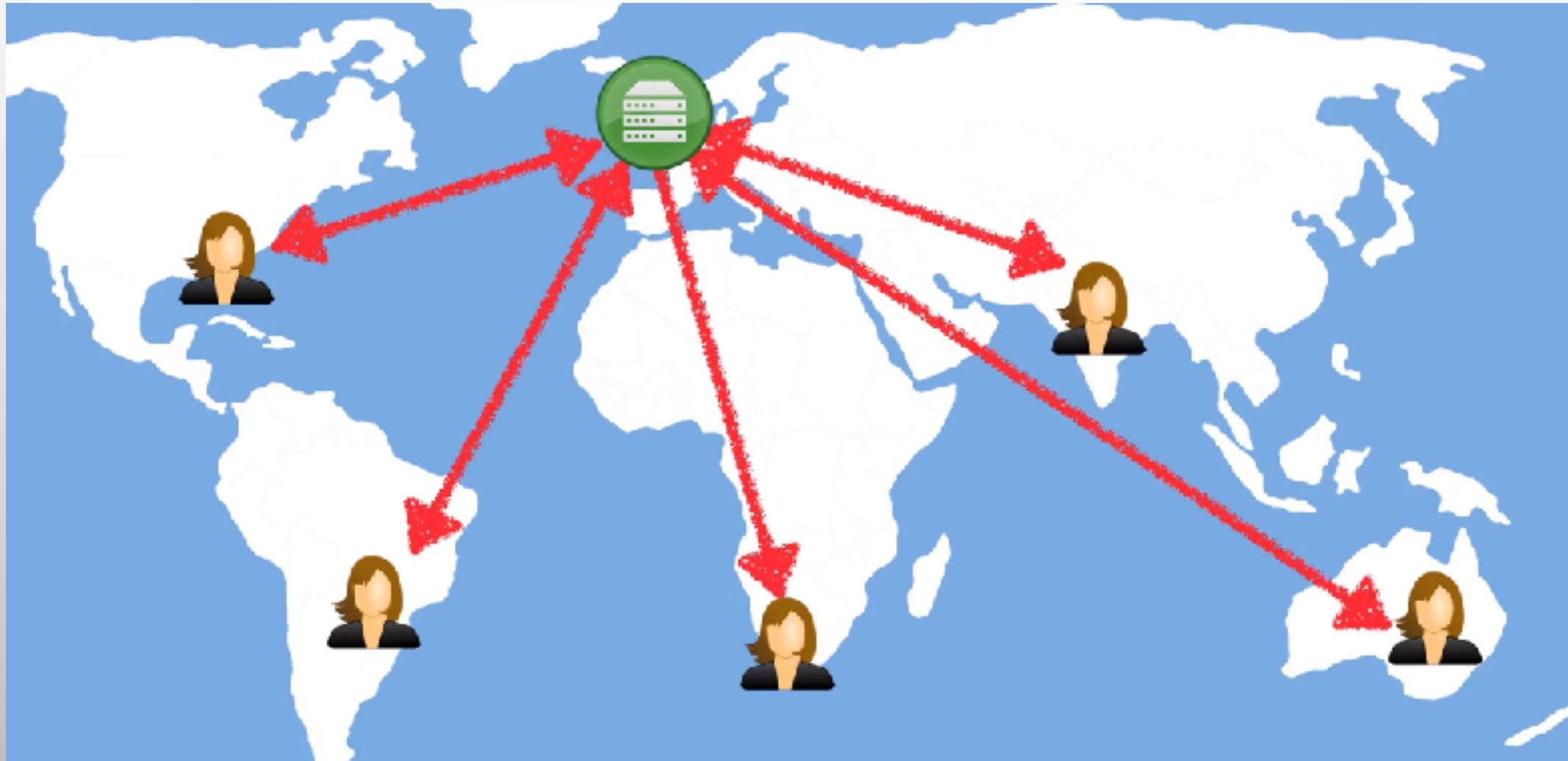


## WHAT IS A CDN?



**A content delivery network (CDN) is a system of distributed servers (network) that deliver webpages and other web content to a user based on the geographic locations of the user, the origin of the webpage and a content delivery server.**

# CDN EXAMPLE



## WHAT IS CLOUDFRONT?



**Amazon CloudFront can be used to deliver your entire website, including dynamic, static, streaming, and interactive content using a global network of edge locations. Requests for your content are automatically routed to the nearest edge location, so content is delivered with the best possible performance.**



**Amazon CloudFront is optimized to work with other Amazon Web Services, like Amazon Simple Storage Service (Amazon S3), Amazon Elastic Compute Cloud (Amazon EC2), Amazon Elastic Load Balancing, and Amazon Route 53. Amazon CloudFront also works seamlessly with any non-AWS origin server, which stores the original, definitive versions of your files.**

# CLOUDFRONT KEY TERMINOLOGY

- WEB DISTRIBUTION - TYPICALLY USED FOR WEBSITES.
- RTMP - USED FOR MEDIA STREAMING

## How CloudFront Works

### User to CloudFront

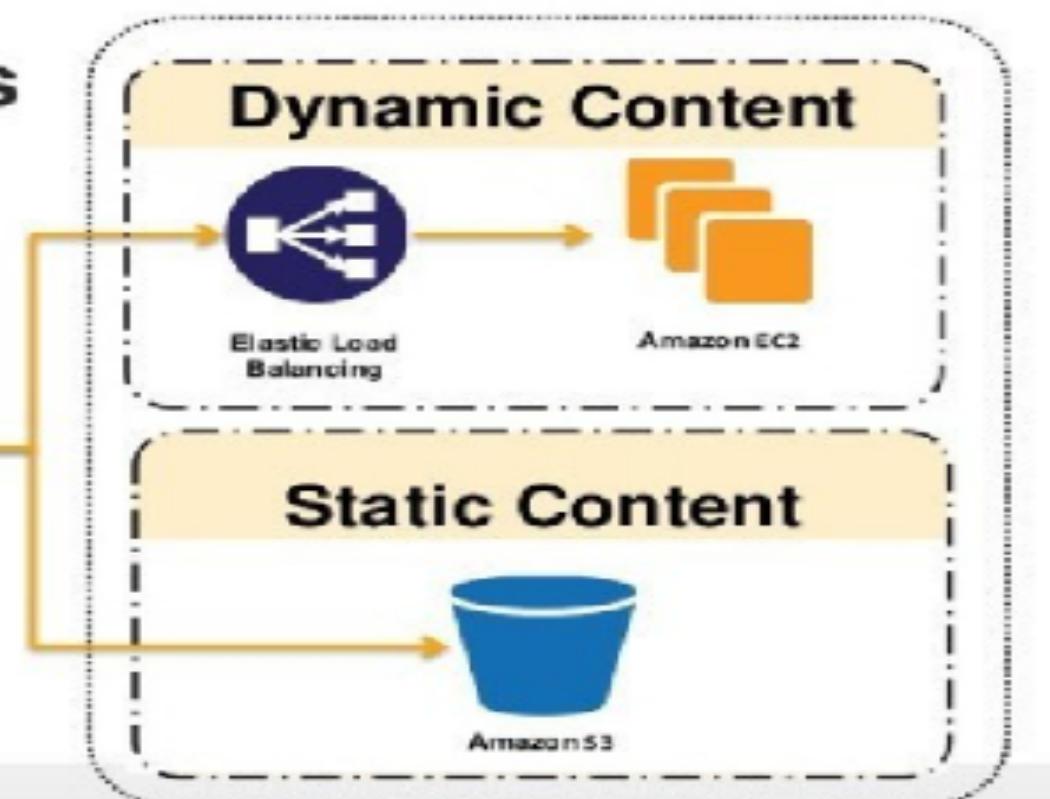
Routing based on lowest latency  
TCP Optimizations  
Persistent Connections



Amazon CloudFront

### CloudFront to Origin

Separation of static and dynamic content  
Persistent connections to each origin  
Network paths monitored for performance



- Edge Location - This is the location where content will be cached. This is separate to an AWS Region/AZ
- Origin - This is the origin of all the files that the CDN will distribute. This can be either an S3 Bucket, an EC2 Instance, an Elastic Load Balancer or Route53.
- Distribution - This is the name given the CDN which consists of a collection of Edge Locations.

## CDN EXAMPLE-2

