Multi-region Applications with Route 53

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Module Overview

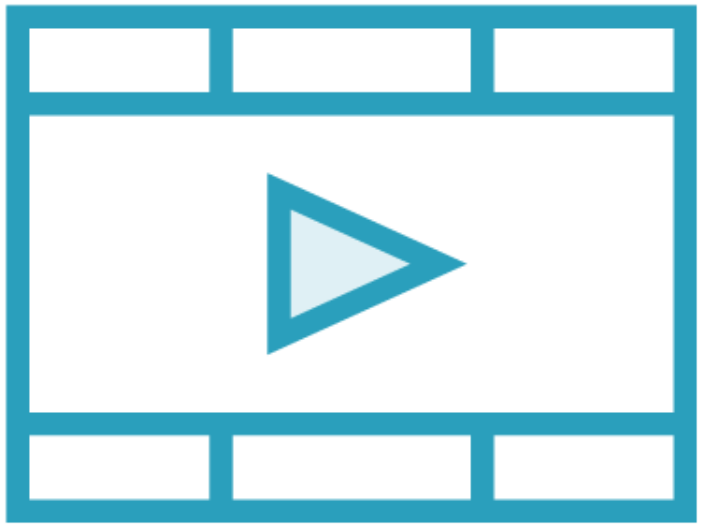
Deploying a multi-region application

Active-active redundancy using weighted resource records

Active-passive redundancy using failover resource records

Route 53 health checks

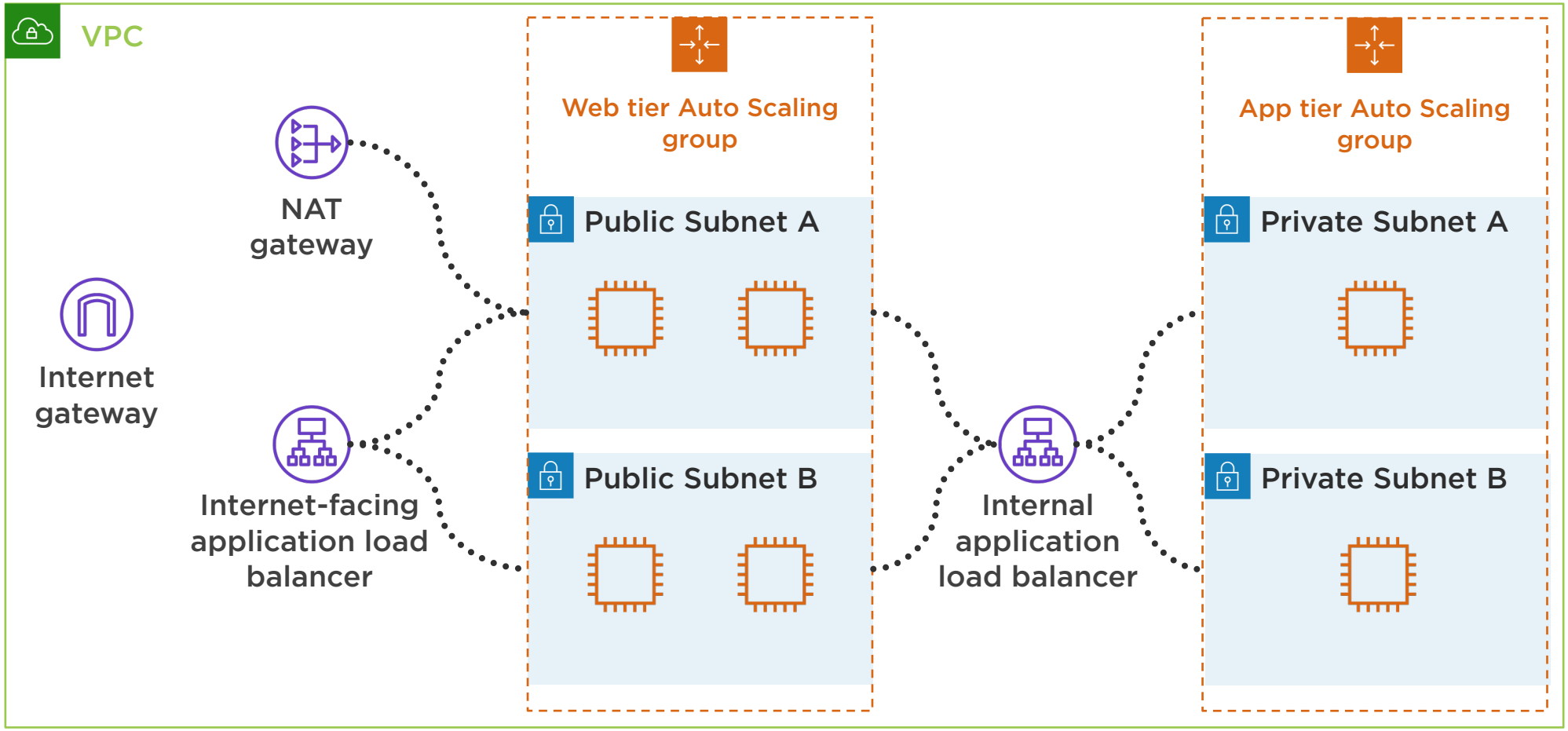
Course Recommendation



AWS Networking Deep Dive: Route 53 DNS

Deploying a Multi-region Application

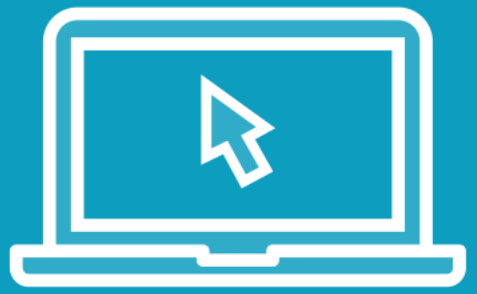
Sample Application Architecture



Deploying a Stack to Multiple Regions

```
$ aws cloudformation deploy --template-file "app-stack-west-1.json" \

--stack-name "app-stack-west" \

--region us-west-1 \

--parameter-overrides Key="ALBCertificateArn",Value="arn:aws:acm:us-west-
1:x:certificate/yourcertificatehere" Key="KeyName",Value="yourkeypairname"

$ aws cloudformation deploy --template-file "app-stack-east-1.json" \

--stack-name "app-stack-east" \

--region us-east-1 \

--parameter-overrides Key="ALBCertificateArn",Value="arn:aws:acm:us-east-
1:x:certificate/yourcertificatehere" Key="KeyName",Value="yourkeypairname"
```

Demo



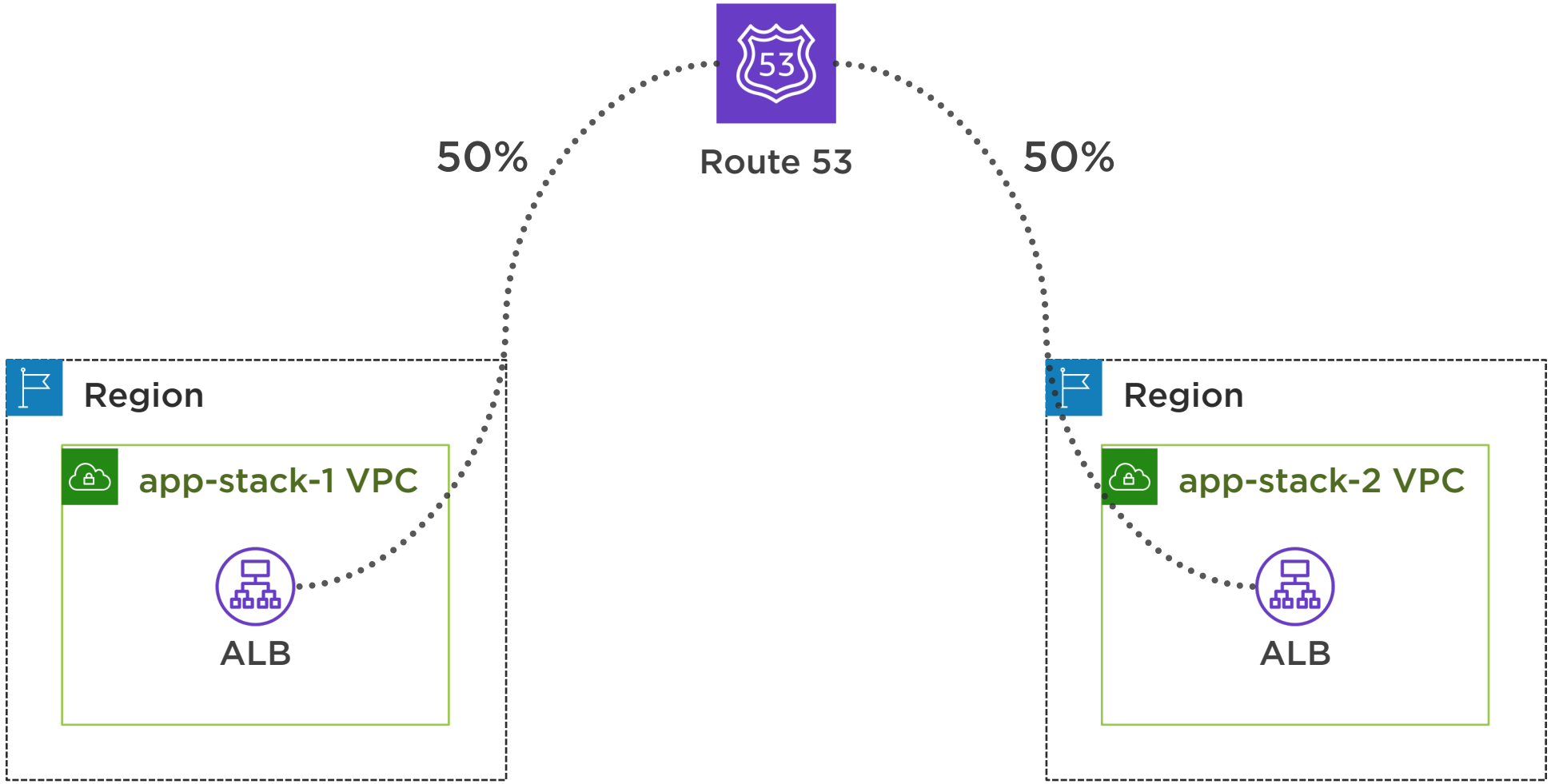
Simulate a multi-region deployment

Launch two stacks:

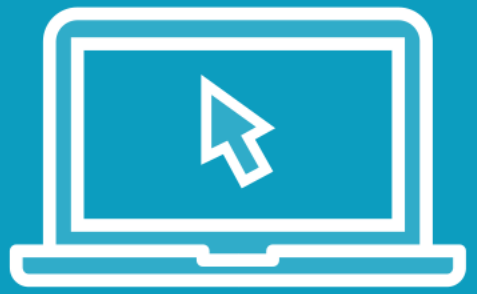
- app-stack-1
- app-stack-2

Active-active Redundancy using Weighted Resource Records

Active-active Scenario Using Weighted Records



Demo



Create two weighted resource record sets:

- Target: app-stack-1 ELB, weight: 50
- Target: app-stack-2 ELB, weight: 50

Route 53 will distribute traffic evenly because the weights are equal

Active-passive Redundancy Using Failover Resource Records

Active-passive Architecture

Primary region services all requests

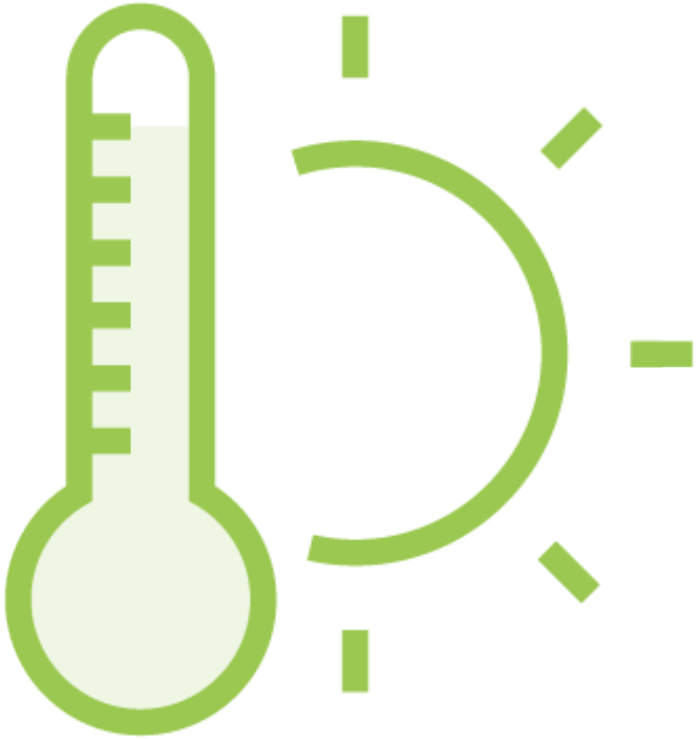
Secondary region does *not* service any requests *unless* the primary fails

Also called active-standby architecture

Pilot Light Architecture

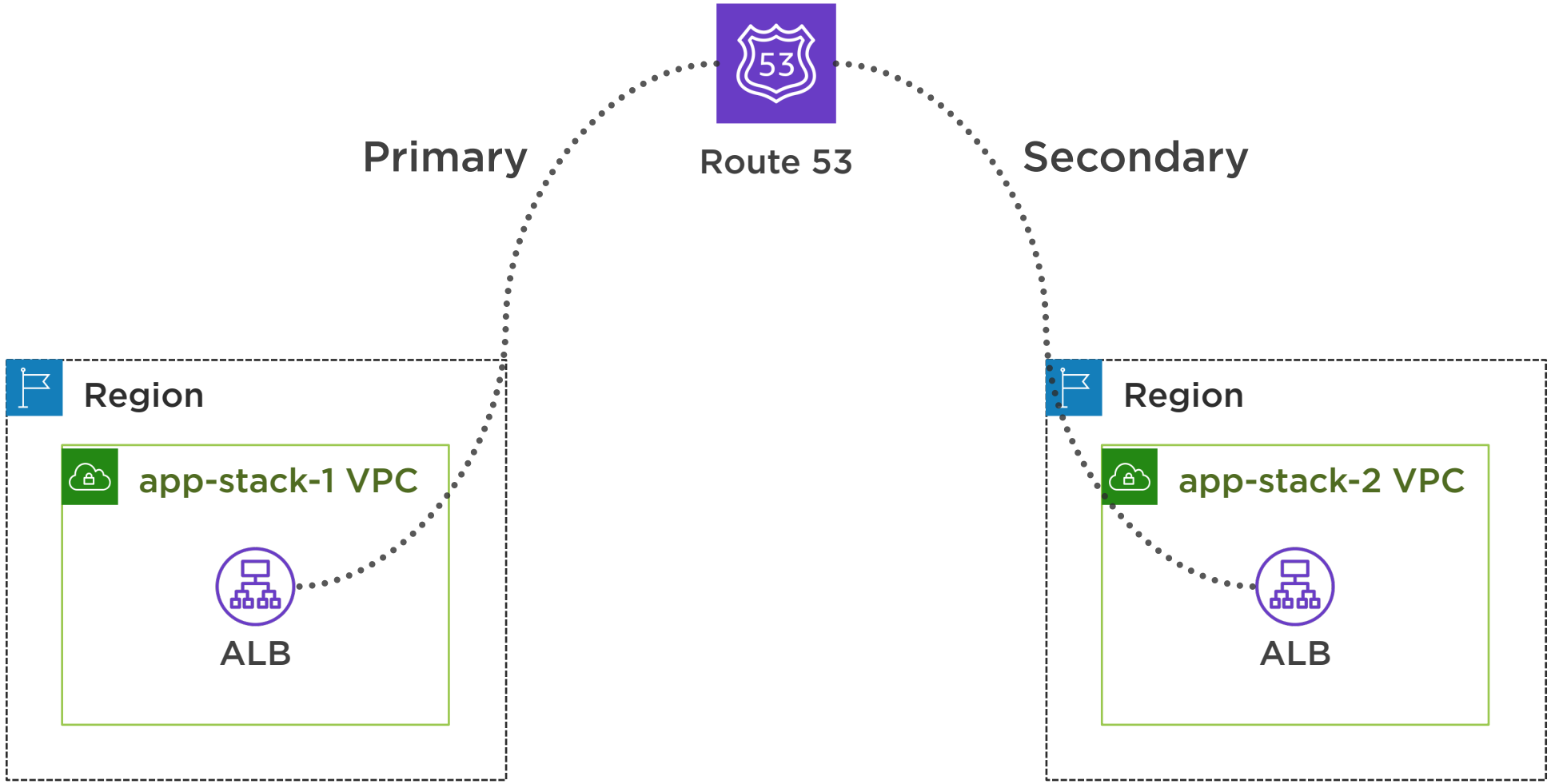
Secondary region runs minimal amount of resources to keep costs down

Warm Standby Architecture

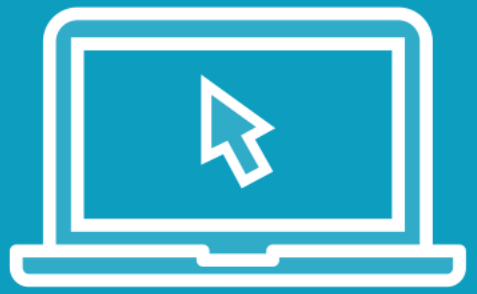


Secondary region has roughly the same capacity as the primary region

Active-passive Scenario Using Failover Records



Demo



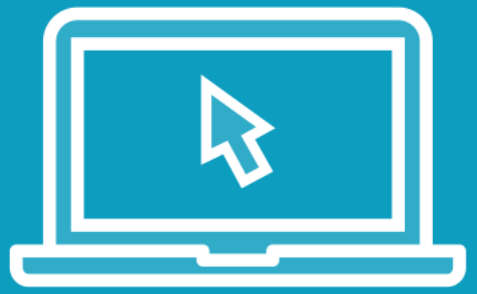
Create two failover resource record sets:

- Primary target: app-stack-1 ELB
- Secondary target: app-stack-2 ELB

Route 53 will always send traffic to the primary unless it fails

Route 53 Health Checks

Demo



Create two weighted resource records that each resolve to the public IP address of an instance

Course Summary

Course Summary

Architecting for availability

Course Summary

Setting up your AWS environment

- IAM administrative user
- AWS command line interface

Course Summary

Virtual Private Cloud (VPC)

- Subnets
- NAT gateways
- Direct Connect
- VPN
- Transit gateways

Course Summary

CloudFormation

Elastic load balancing

Auto Scaling

Course Summary

Multi-region applications

- Route 53
- Active-active (weighted records)
- Active-passive (failover records)

Thanks for watching!