# Multi-region Applications with Route 53

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# Module Overview

Deploying a multi-region application

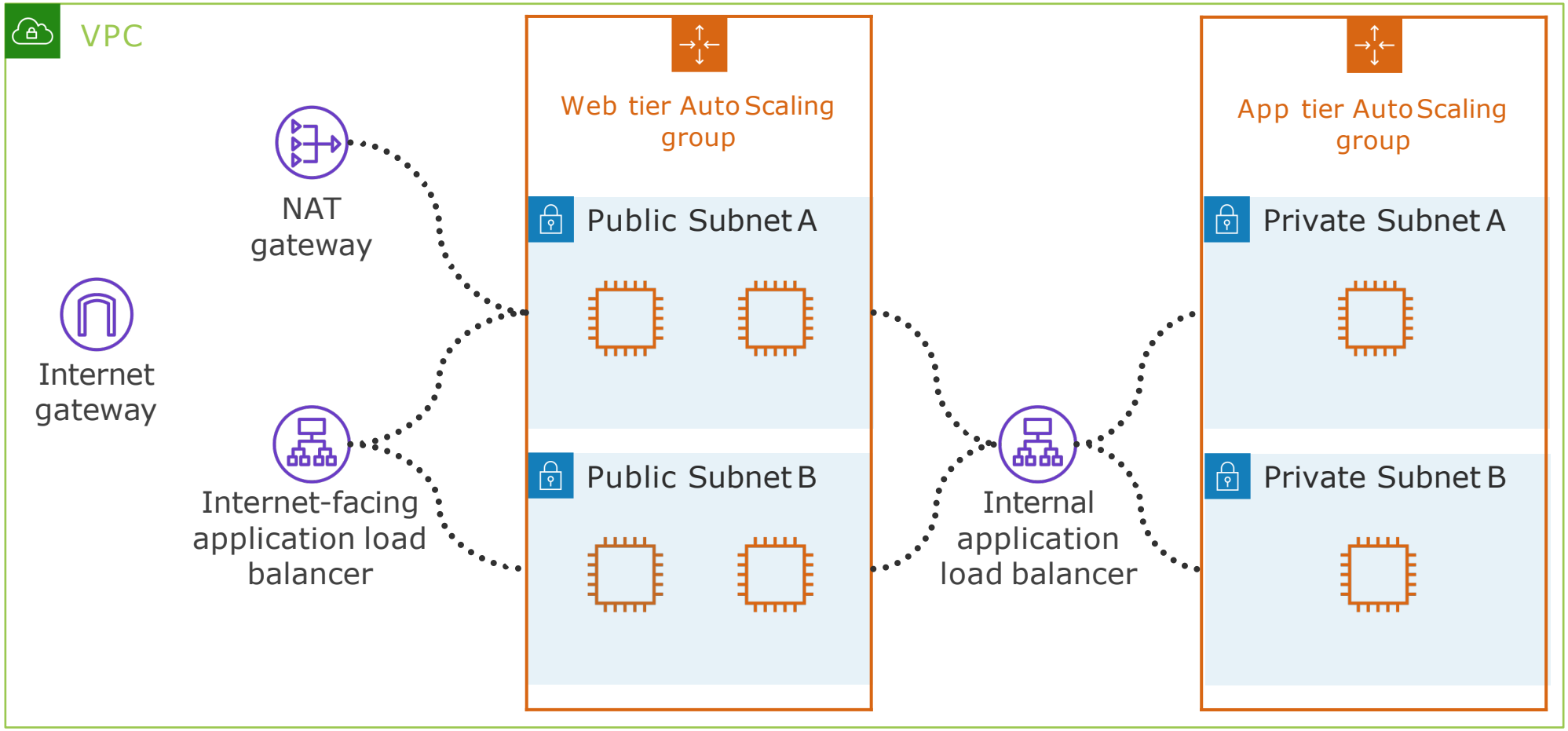
Active-active redundancy using weighted resource records

Active-passive redundancy using failover resource records

Route 53 health checks

# 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

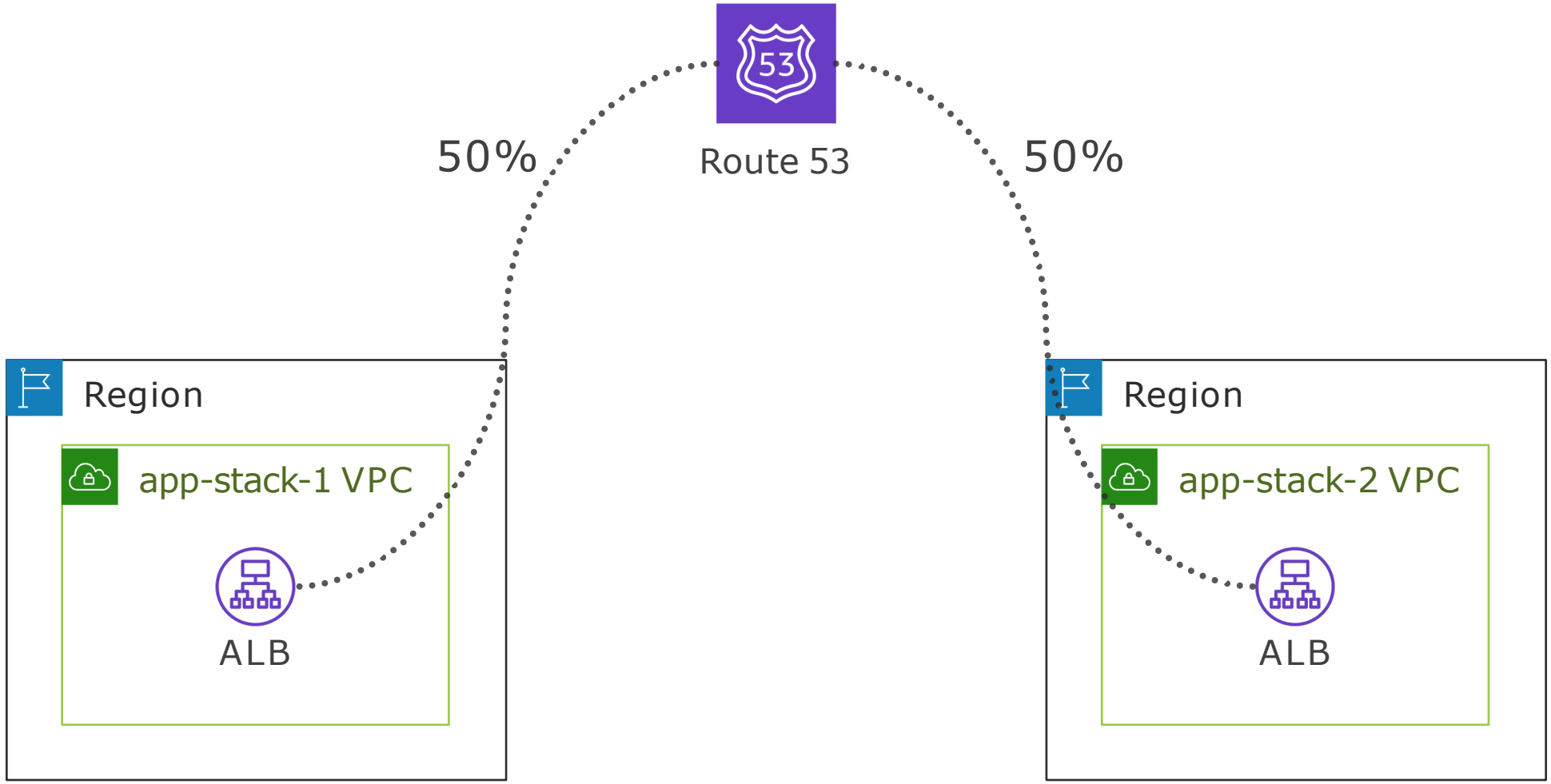
Simulate a multi-region deployment

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

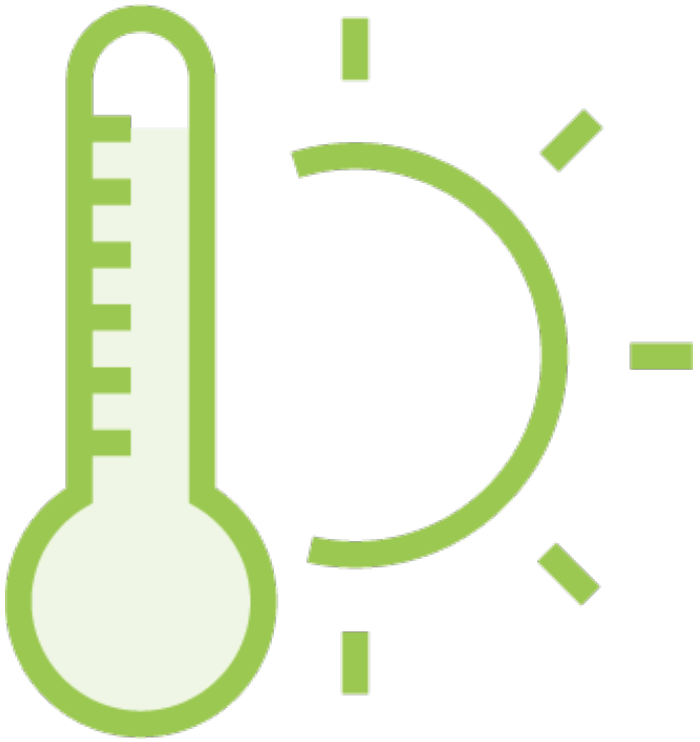
Secondary region does *not* service any requests *unless* the primary fails

Also called active-standby architecture

# Pilot Light Architecture

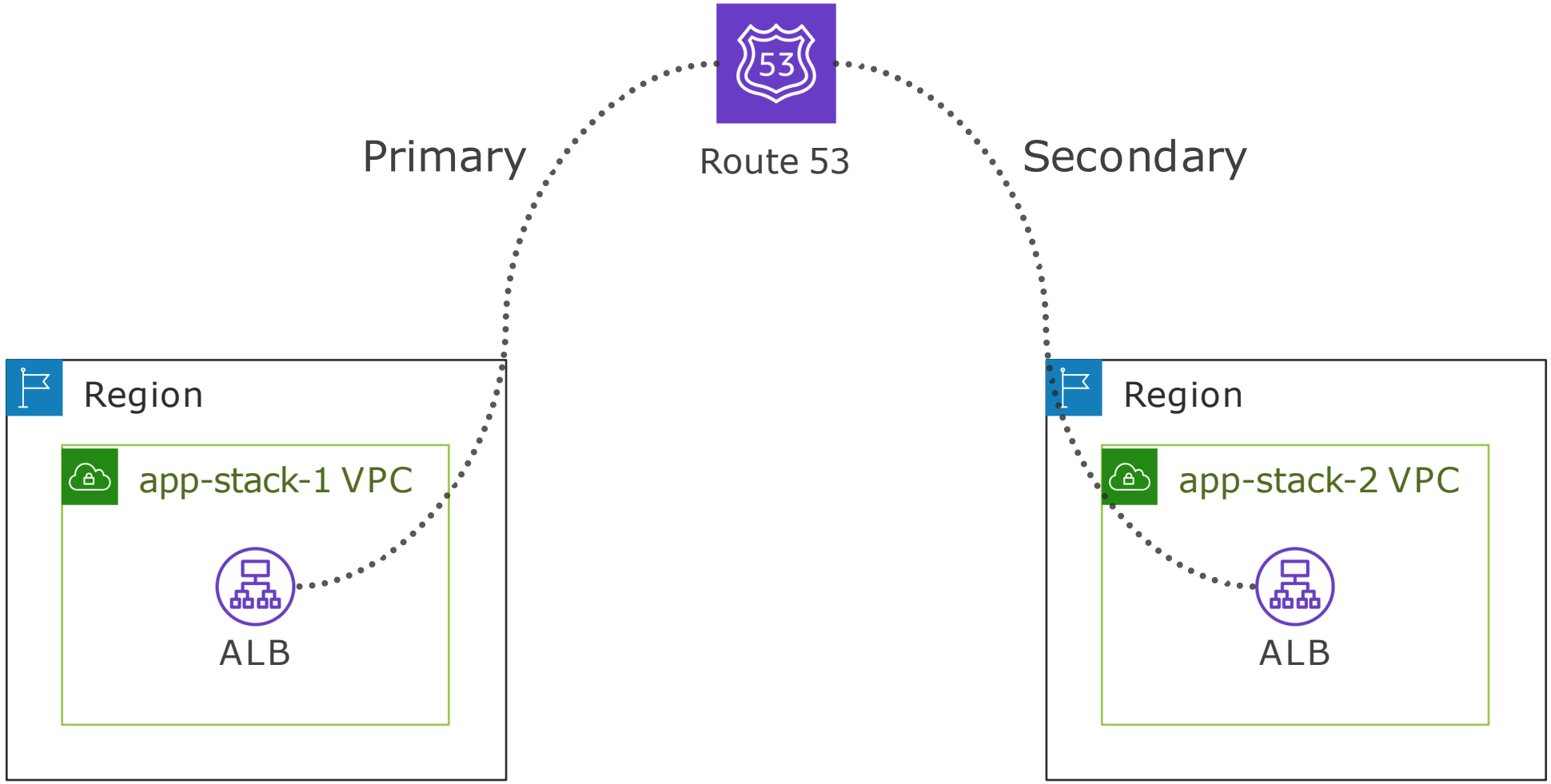
Secondary region runs minimal amount of resources to keep costs down

# 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!