

# Content and Network Delivery Services

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**David Tucker**

TECHNICAL ARCHITECT & CTO CONSULTANT

@\_davidtucker\_ davidtucker.net

# Networking & Content Delivery Services



**Amazon Route  
53**



**Amazon VPC**



**AWS Direct  
Connect**



**Amazon API  
Gateway**



**Amazon  
CloudFront**



**Elastic Load  
Balancing**

# Overview

**Introducing Virtual Private Clouds on AWS**

**Understanding the purpose of AWS Direct Connect**

**Examining DNS with Amazon Route 53**

**Reviewing Amazon CloudFront**

**Reviewing API Gateway**

**Introducing Elastic Load Balancing and scaling approaches**

# Amazon VPC and Direct Connect

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# Amazon Virtual Private Cloud (VPC)

A logically isolated section of the AWS Cloud where you can launch AWS resources in a virtual network that you define.

# Amazon Virtual Private Cloud (VPC)



**Enables virtual networks in AWS**

**Supports IPv4 and IPv6**

**Allows for configuration of**

- IP address range
- Subnets
- Route tables
- Network gateways



**Supports public & private subnets**

**Can utilize NAT for private subnets**

**Enables a connection to your data center**

**Can connect to other VPC's**

**Supports private connections to many AWS services**

# AWS Direct Connect

A cloud service solution that makes it easy to establish a dedicated network connection from your data center to AWS.



# Amazon Route 53

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# Amazon Route 53



**Domain name service (DNS)**

**Global AWS service (not regional)**

**Highly available**

**Enables global resource routing**

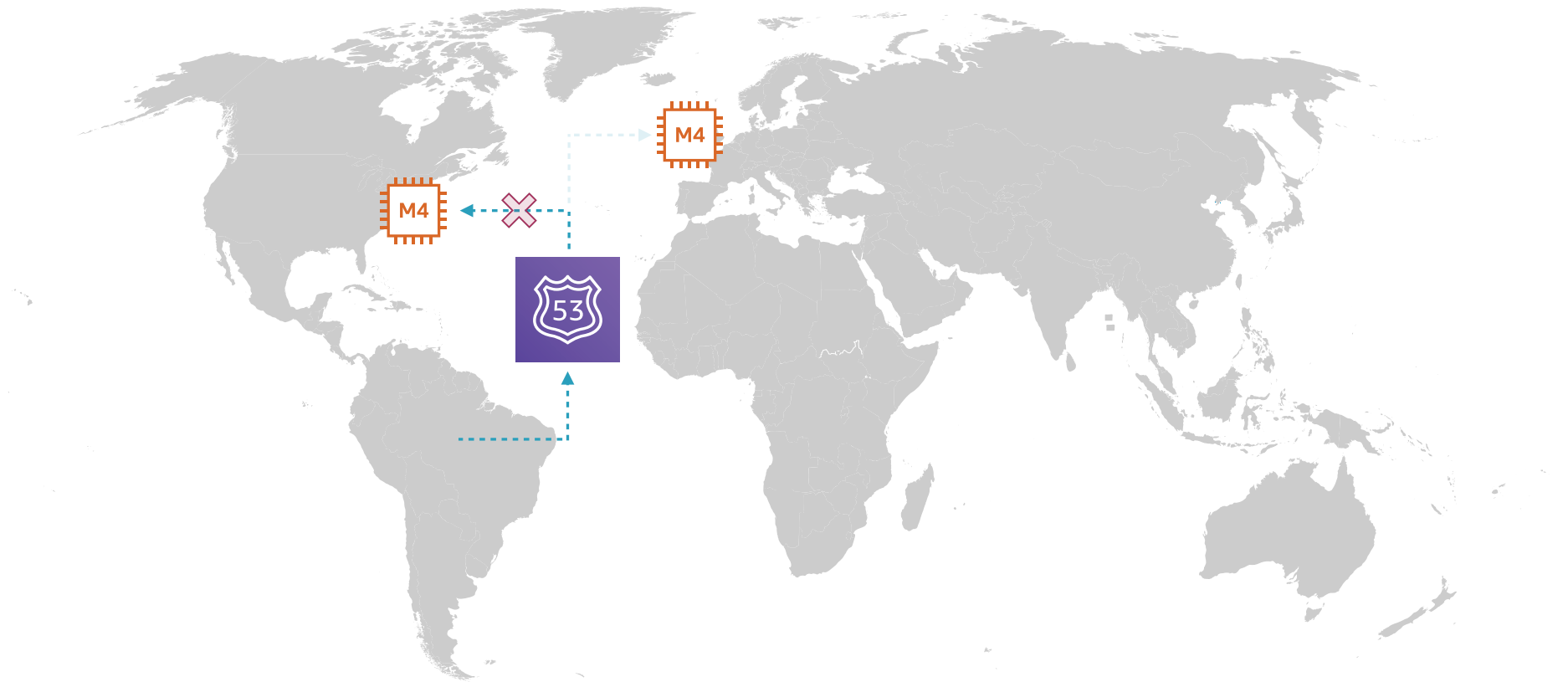
“**DNS** translates more readily memorized domain names to the numerical IP addresses needed for locating and identifying computer services and devices with the underlying network protocols.”

**Wikipedia**

## Rules

South America (São Paulo)

# Route 53 High Availability



# Elastic Load Balancing

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# Elasticity

The ability for the infrastructure supporting an application to grow and contract based on how much it is used at a point in time.

# Elastic Load Balancing



**Distributes traffic across multiple targets**

**Integrates with EC2, ECS, and Lambda**

**Supports one or more AZ's in a region**

**Three types of load balancers**

- Application Load Balancer (ALB)
- Network Load Balancer (NLB)
- Classic Load Balancer



# Scaling on Amazon EC2

## Vertical Scaling

You “scale up” your instance type to a larger instance type with additional resources

## Horizontal Scaling

You “scale out” and add additional instances to handle the demand of your application

# Amazon CloudFront and API Gateway

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# Amazon CloudFront



**Content delivery network (CDN)**

**Enables users to get content from server closest to them**

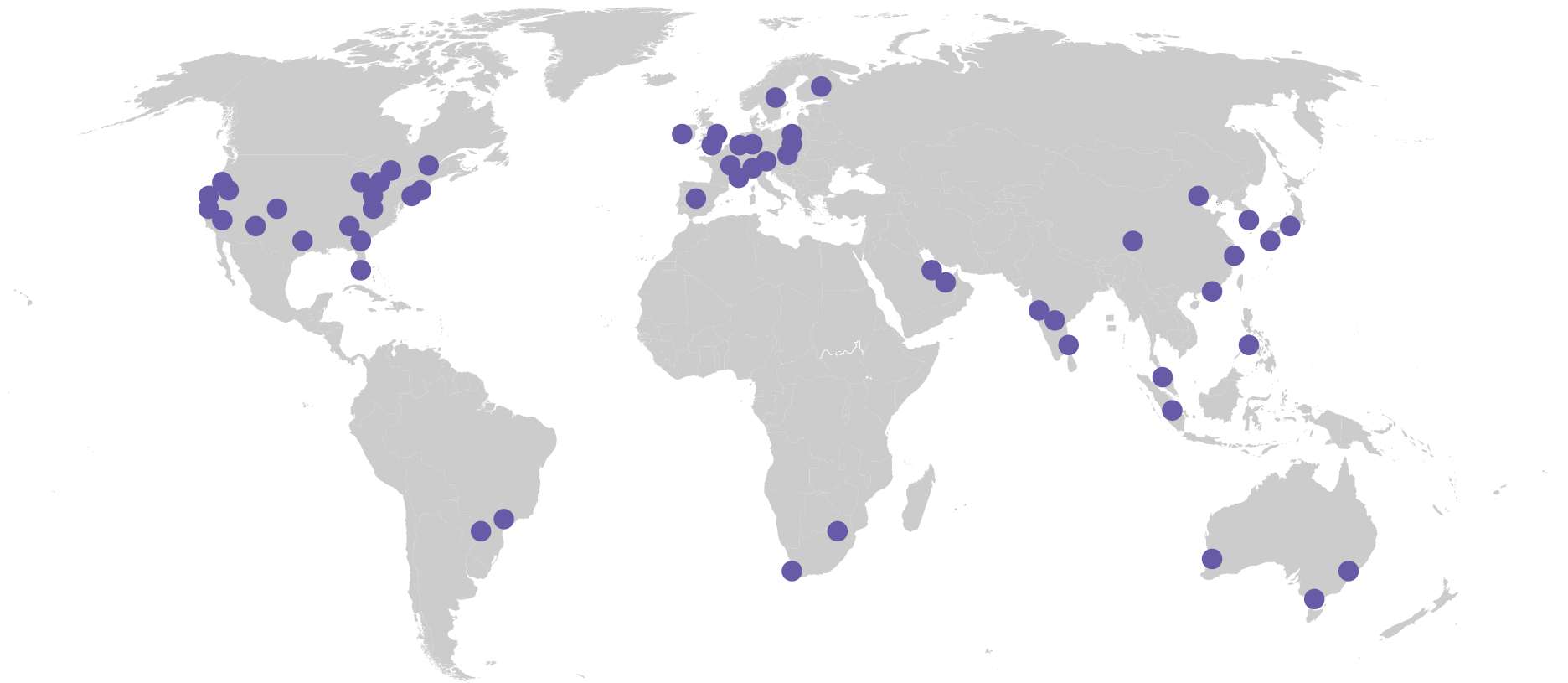
**Supports static and dynamic content**

**Utilizes AWS edge locations**

**Includes advanced security features**

- AWS Shield for DDoS
- AWS WAF

# AWS Edge Locations



# Amazon API Gateway



**Fully managed API management service**

**Directly integrates with multiple AWS services**

**Provides monitoring & metrics on API calls**

**Supports VPC and on-premise private applications**

# Scenario Based Review

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## Scenario 1



**Jane's company maintains two corporate data centers**

**They want their data centers to work alongside AWS for specific workloads**

**She is wondering if there is a way to have a persistent connection to AWS**

**What service from AWS would you recommend her company implement?**

## Scenario 2



**Tim's company serves content through their site to users around the globe**

**They are looking to optimize performance to users around the world**

**They want to leverage a Content Delivery Network (CDN)**

**Which service would enable optimized performance globally for their content?**



## Scenario 3



**Ellen's company has an internal application that runs on an EC2 server**

**Currently there is downtime as demand is greater than capacity for the server**

**Ellen is trying to decide if she should use bigger servers or more servers**

**Which scaling approach would you recommend and what services should they use?**

# Summary

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# Overview

**Introduced Virtual Private Clouds on AWS**

**Understood the purpose of AWS Direct Connect**

**Examined DNS with Amazon Route 53**

**Reviewed Amazon CloudFront**

**Reviewed API Gateway**

**Introduced Elastic Load Balancing and scaling approaches**

## Scenario 1



Jane's company maintains two corporate data centers

They want their data centers to work alongside AWS for specific workloads

She is wondering if there is a way to have a persistent connection to AWS

What service from AWS would you recommend her company implement?

**Solution: AWS Direct Connect**

## Scenario 2



Tim's company serves content through their site to users around the globe

They are looking to optimize performance to users around the world

They want to leverage a Content Delivery Network (CDN)

Which service would enable optimized performance globally for their content?

**Solution: Amazon CloudFront**

## Scenario 3



Ellen's company has an internal application that runs on an EC2 server

Currently there is downtime as demand is greater than capacity for the server

Ellen is trying to decide if she should use bigger servers or more servers

Which scaling approach would you recommend and what services should they use?

**Solution: Horizontal Scaling using Elastic Load Balancing**