Architecting on AWS

Resources Links

Resources

The following resource links will provide more information and help reinforce topics covered during the course "Architecting on AWS":

Module 1: Introduction

- AWS Well-Architected
- Labs and Quests
- AWS Global Cloud Infrastructure (Interactive)
- Global Infrastructure
- How AWS Came to Be
- Learn how we secure AWS data centers by design

Module 2: The Simplest Architectures

- Amazon S3 Storage Classes
- S3 Bucket URLs and the Different Formats
- Amazon S3 Transfer Acceleration
- AWS Policy Generator
- AWS Policy Simulator
- Amazon S3 pricing
- Region Table
- How do I add an S3 Bucket policy?
- Restrictions and Limitations
- Bucket Access
- Hosting a static website on Amazon S3
- Multipart Upload Overview
- Multipart Upload Limits
- Amazon S3 Glacier Access Control with Vault Lock Policies
- Using Amazon S3 block public access
- Object lifecycle management
- How do I block public access to S3 buckets?
- Locking objects using S3 Object Lock
- Cross-origin resource sharing (CORS)
- AWS Snowball
- AWS Snowmobile

Module 3: Adding a Compute Layer

- Amazon EC2 Instance Types
- EC2 Instance Comparison

- Amazon EBS volume types
- Spot Instance Advisor
- Update to Spot Instances that allow Stop instead of Terminate
- Instance metadata and user data
- Tagging Best Practices
- Amazon Machine Image (AMI)
- Amazon Elastic Block Store (Amazon EBS)
- Amazon EFSHow It Works
- SSD Instance Store Volumes
- New – Stop & Resume Workloads on EC2 Spot Instances
- Amazon EC2 Spot Lets you Pause and Resume Your Workloads
- Compute Optimizer

Module 4: Adding A Database Layer

- What Is AWS Database Migration Service?
- What is Amazon Aurora?
- Amazon DynamoDB
- Tutorial on DynamoDB
- Global TablesMulti-Region Replication with DynamoDB
- Global Tables
- Global Tables - More
- What Is the AWS Schema Conversion Tool?
- Getting Started with Amazon DynamoDB
- Cache for DynamoDB
- Best Practices for Designing and Architecting with DynamoDB
- Amazon RDS for Oracle
- Amazon DynamoDB Transactions
- Snowball Edge

Module 5: Networking In AWS Part 1

- IP Addressing in your VPC
- VPC and subnet sizing for IPv6
- CIDR.xyz
- Subnetting Secret Book – free on Amazon.com with Kindle-Unlimited
- Another Day, Another Billion Packets
- A Day in the Life of a Billion Packets – Revision 3
- Networking and Content Delivery on AWS
- Using DNS with your VPC
- Building a Scalable and Secure Multi-VPC AWS Network Infrastructure

Module 6: Networking In AWS Part 2

- AWS Global Transit Network
- What is AWS Site-to-Site VPN?

- [AWS Site-to-site VPN – more info](#)
- [AWS Direct Connect features](#)
- [AWS Direct Connect Resiliency Recommendations](#)
- [AWS Direct Connect does **not** encrypt traffic during transit](#)
- [Assigning my own IP address space to instances created in a VPC](#)
- [Internet Gateway](#)
- [AWS Transit Gateway](#)
- [OSI model](#)
- [Elastic Load Balancing features](#)
- [Deregistration Delay](#)
- [Application Load Balancers now Support Advanced Request Routing](#)
- [Amazon Route53](#)
- [Amazon Route53 Health Checking](#)
- [AWS Global Accelerator FAQs](#)

Module 7: AWS Identity and Access Management (IAM)

- [AWS Identity & Access Management](#)
- [AWS Account Root User](#)
- [Identity Providers and Federation](#)
- [AWS Security Token Service](#)
- [Logging IAM and AWS STS API Calls with AWS CloudTrail](#)
- [AWS Federated Authentication with Active Directory Federation Services (AD FS)](#)
- [AWS Service Catalog](#)
- [AWS Landing Zone](#)
- [Service control policies in AWS Organizations enable fine-grained permission controls](#)
- [How to Rotate Access Keys for IAM Users](#)
- [Become an AWS IAM Policy Ninja in 60 Minutes or Less](#)
- [Policies and Permissions](#)
- [IAM DeepDive Video re:Invent 2016 – Be an IAM Policy Ninja in 60 minutes or less](#)
- [Root User Guide](#)
- [Federation with ADFS and SAML](#)
- [Federated Authentication with Active Directory - Blog](#)
- [Cognito User Guide](#)
- [AWS Landing Zone](#)
- [Service Control Policies and AWS Organizations](#)
- [Which AWS Services Work with IAM?](#)

Module 8: Elasticity, High Availability, and Monitoring

- [What Is Amazon CloudWatch?](#)
- [What Is Amazon CloudWatch Logs?](#)
- [Amazon CloudWatch Logs Insights – Fast, Interactive Log Analytics](#)
- [How Amazon CloudWatch Works](#)
- [CloudWatch Metrics](#)
- [CloudWatch Metrics - More](#)

- Auto Scaling Creates CloudWatch Metrics
- AWS CloudTrail
- CloudTrail Supported Services and Integrations
- CloudTrail Supported Services and Integrations
- Scaling Your Amazon RDS Instance Vertically and Horizontally
- CDP:Sharding Write Pattern
- Amazon DynamoDB On-Demand – No Capacity Planning and Pay-Per-Request Pricing
- Best Practices for Designing and Using Partition Keys Effectively
- Designing Partition Keys to Distribute Your Workload Evenly
- AWS Auto Scaling
- What Happens When Auto Scaling Policies Conflict?
- Auto Scaling Termination Policy
- Step and Simple Scaling Policies for Amazon EC2 Auto Scaling
- Controlling Which Auto Scaling Instances Terminate During Scale In
- AWS Services That Publish CloudWatch Metrics
- Auto Scaling for Amazon DynamoDB
- Setting up a Billing Alarm for Your Account

Module 9: Automation

- AWS CloudFormation
- CloudFormation Sample Templates
- Detect Drift on an Entire CloudFormation Stack
- CloudFormation Limits
- Updating Stacks Using Change Sets
- AWS Quick Starts
- AWS System Manager
- AWS Systems Manager Patch Manage
- AWS Systems Manager Maintenance Windows
- AWS Systems Manager State Manager
- AWS Systems Manager Session Manager
- AWS Systems Manager Inventory
- Walkthrough: Refer to resource outputs in another AWS CloudFormation stack
- AWS OpsWorks
- AWS Elastic Beanstalk

Module 10: Caching

- Caching Overview
- Request and Response Behavior for Amazon S3 Origins
- What are AWS WAF, AWS shield, and AWS Firewall Manager?
- AWS Shield
- Amazon DynamoDB Accelerator (DAX)A Read-Through/Write-Through Cache for DynamoDB
- DAX FAQs

- [What Is Amazon CloudFront?](#)
- [Amazon S3 + Amazon CloudFrontA Match Made in the Cloud](#)
- [Amazon Elasticache](#)

Module 11 Building Decoupled Architectures

- [Building Loosely Coupled, Scalable, C# Applications with Amazon SQS and Amazon SNS](#)
- [Encrypting messages published to Amazon SNS with AWS KMS](#)
- [Can SNS Trigger Lambda Functions?](#)
- [Video: API Gateway (5/29/2018)](#)

Module 12: Microservices and Serverless Architectures

- [Microservices](#)
- [AWS Cloud Map](#)
- [Introducing AWS Cloud Map and AWS App Mesh](#)
- [AWS App Mesh Features](#)
- [AWS Fargate](#)
- [Using AWS Lambda with CloudFront Lambda@Edge](#)
- [Lambda Functions as Targets](#)
- [AWS Lambda Examples](#)
- [Is Lambda Fast Enough to Respond to Real-Time Events?](#)
- [AWS Lambda Getting Started](#)
- [AWS Lambda - Customer Case Studies](#)
- [AWS Lambda – Other Use Cases](#)
- [Best Practices for Working with AWS Lambda Functions](#)
- [Building API-Driven Microservices with Amazon API Gateway - AWS Online Tech Talks](#)
- [Using AWS Lambda with Other Services](#)
- [What are AWS WAF, AWS shield, and AWS Firewall Manager?](#)
- [Monitoring AWS WAF, AWS Firewall Manager, and AWS Shield Advanced](#)

Module 13: RTO_RPO and Backup Recovery Setup

- [AWS DataSync](#)
- [AWS Direct Connect Resiliency Recommendations](#)
- [What Is AWS Storage Gateway?](#)
- [AWS Storage Gateway (File, Volume, Tape)](#)
- [Large Scale Disaster Recovery Using AWS regions](#)
- [Disaster Recovery Options with AWS - AWS Online Tech Talks](#)
- [RTO/RPO White Paper](#)
- [Large-Scale Recovery](#)
- [Video: DR Options (11/25/2017)](#)

Module 14: Optimization

- [Continuous Optimization](#)

Additional Resources, Tools, and Links

- [Compute Abstractions on AWS: A Visual Story](#)
- [AWS Well-Architected - Learn, measure, and build using architectural best practices](#)
- [AWS Well-Architected Framework](#)
- [Updates to the Well-Architected Framework (July 2020)](#)
- [AWS Well-Architected Tool – Review Workloads Against Best Practices](#)
- [AWS Well-Architected Tool – DEMO](#)
- [Amazon EC2 Instance Types](#)
- [Spot Instance Advisor](#)
- [Amazon EC2 Auto Scaling Lifecycle Hooks](#)
- [Running high-scale web applications on Amazon EC2 Spot Instances](#)
- [Amazon EBS Volume Types](#)
- [Recovering files from an Amazon EBS volume backup](#)
- [Amazon Aurora Backtrack – Turn Back Time](#)
- [Best Practices for DynamoDB](#)
- [Best Practices for Designing and Using Partition Keys Effectively](#)
- [Building resiliency at scale at Tinder with Amazon ElastiCache](#)
- [Introducing Amazon Elasticsearch Service as a target in AWS Database Migration Service](#)
- [Migration Complete – Amazon's Consumer Business Just Turned off its Final Oracle Database](#)
- [Scaling Your Amazon RDS Instance Vertically and Horizontally](#)
- [Right-size Amazon RDS instances at scale based on Oracle performance metrics](#)
- [Amazon S3 + Amazon CloudFront: A Match Made in the Cloud](#)
- [How to set up a CloudFront distribution for Amazon S3](#)
- [Overview of Managing Access on S3](#)
- [New – AWS Storage Gateway Hardware Appliance](#)
- [Using static IP addresses for Application Load Balancers](#)
- [New – Application Load Balancer Simplifies Deployment with Weighted Target Groups](#)
- [How to securely publish Internet applications at scale using Application Load Balancer and AWS PrivateLink](#)
- [Debugging tool for network connectivity from Amazon VPC](#)
- [VPC sharing: A new approach to multiple accounts and VPC management](#)
- [Multiple Region Multi-VPC Connectivity](#)
- [Working with Direct Connect Gateways](#)
- [AWS Direct Connect Partners](#)
- [How do I provision an AWS Direct Connect connection?](#)

- [Building a Serverless Dynamic DNS System with AWS](#)
- [How do I create an IAM policy to control access to Amazon EC2 resources using tags?](#)
- [Simplify granting access to your AWS resources by using tags on AWS IAM users and roles](#)
- [Writing IAM Policies: Grant Access to User-Specific Folders in an Amazon S3 Bucket](#)
- [Now Create and Manage AWS IAM Roles More Easily with the Updated IAM Console](#)
- [Guidelines for protecting your AWS account while using programmatic access](#)
- [Creating a Billing Alarm to Monitor Your Estimated AWS Charges](#)
- [How to better monitor your custom application metrics using Amazon CloudWatch Agent](#)
- [CloudWatch Search Expression Examples](#)
- [CloudWatch Logs Subscription Consumer + Elasticsearch + Kibana Dashboards](#)
- [Running Scripts from GitHub and Amazon S3](#)
- [Validating AWS CloudFormation Templates](#)
- [Amazon CloudFront Dynamic Content Delivery](#)
- [Implementation Considerations - Learn Caching Design Patterns](#)
- [Caching Content Based on Query String Parameters](#)
- [AWS Serverless Application Model](#)
- [Firecracker – Lightweight Virtualization for Serverless Computing](#)
- [Chaos Monkey](#)
- [Netflix's Simian Army](#)
- [Netflix's Conformity Monkey (now OSS) for Watching Configurations](#)

Architecture Reference & Tools

- [AWS Quick Starts](#)
- [AWS Solutions](#)
- [AWS Simple Monthly Calculator](#)
- [AWS Pricing Calculator](#)
- [The Amazon Builders' Library](#)
- [AWS Samples](#)
- [AWS CloudFormation Sample Templates](#)
- [AWS SAM - Serverless Application Repository](#)
- [AWS Geek Cloud Diagrams & Notes](#)
- [TOOLS] [CloudPing](#)
- [TOOLS] [AWS Policy Generator](#)
- [TOOLS] [S3 Transfer Acceleration Speed Comparison Tool](#)
- [TOOLS] [AWS Global Accelerator - Speed Comparison](#)
- [TOOLS] [Amazon WorkSpaces - Connection Health Check](#)
- [TOOLS] [Web Identity Federation Playground](#)
- [TOOLS] [AWS Elastic Load Balancer Demos](#)
- [TOOLS] [Amazon S3 Find and Forget](#)
- [TOOLS unofficial] [JMESPath](#)
- [TOOLS unofficial] [AWS IP Ranges](#)

- [TOOLS unofficial] [Cloudcraft - Create smart AWS diagrams](#)
- [TOOLS unofficial] [Bees with Machine Guns!](#)
- [TOOLS unofficial] [The Grinder](#)
- [TOOLS unofficial] [Apache JMeter](#)
- [TOOLS unofficial] [CloudFormation Lint: CFN Nag](#)
- [TOOLS unofficial] [CloudFormation Lint: CFripper](#)
- [TOOLS unofficial] [Awesome Honeypots](#)
- [TOOLS unofficial] [Modern Honey Network](#)
- [TOOLS unofficial] [Rhino Security Labs - Pacu](#)
- [TOOLS unofficial] [Rhino Security Labs - CloudGoat](#)
- [TOOLS unofficial] [Rhino Security Labs - Cloud Container Attack](#)
- [TOOLS unofficial] [Console Recorder for AWS](#)
- [TOOLS unofficial] [AWS CloudFront CDN Edge Locations](#)
- [TOOLS unofficial] [Lambda Load Testing](#)
- [TOOLS unofficial] [MySQL Samples](#)
- [TOOLS unofficial] [Third-Party Tool to Create Visualizations of Security Groups](#)

Workshops & Labs

- [LABS] [AWS Qwiklabs](#)
- [LABS] [AWS Well-Architected Labs](#)
- [LABS] [VMware Cloud on AWS](#)
- [LABS] [Self-paced Labs](#)
- [Workshop] [AWS Cloud Champion](#)
- [Workshop] [AWSome AWS Workshops](#)
- [Workshop] [Networking Workshop - Transit Gateway and Traffic Mirroring](#)
- [Workshop] [Amazon EC2 Spot Instances Workshop](#)
- [Workshop] [Amazon CloudWatch](#)
- [Workshop] [SSM & Config](#)
- [Workshop] [Amazon FSx Workshop](#)
- [Workshop] [Amazon ECS Workshop for AWS Fargate](#)
- [Workshop] [Amazon EKS Workshop](#)
- [Workshop] [Amazon Lightsail Workshop](#)
- [Workshop] [Amazon DynamoDB Labs](#)
- [Workshop] [Amazon Aurora Labs for MySQL](#)
- [Workshop] [CloudEndure Deep Dive - Workshop](#)
- [Workshop] [Migration and Modernization Workshop Guide](#)
- [Workshop] [Kinesis Streaming Analytics Workshop](#)
- [Workshop] [Workshop: Choose Your Own SAML Adventure](#)
- [Workshop] [Landing Zone Workshop](#)
- [Workshop] [Security Workshops - Permission Boundaries: How to Truly Delegate Permissions on AWS](#)
- [Workshop] [Security Workshops - Data Protection, Detection, Identity, Threat Detection](#)
- [Workshop] [AWS Protecting Workloads Workshops](#)
- [Workshop] [Getting Hands on with Amazon GuardDuty](#)
- [Workshop] [Integrating security into your container pipeline](#)

- [Workshop] [DevSecOps with Snyk](#)
- [Workshop] [Microsoft Workloads Immersion Day](#)
- [Workshop] [Learn Python On AWS Workshop](#)
- [Workshop unofficial] [Welcome to the flAWS challenge](#)
- [Workshop unofficial] [Welcome to the flAWS 2 challenge](#)
- [Workshop unofficial] [Play with Docker](#)
- [Workshop unofficial] [Hello Kubernetes w/ Minikube](#)
- [SLIDES] [Technical Essentials on AWS](#)
- [EBOOK] [Hands-On AWS Penetration Testing with Kali Linux](#)
- [FILES] [Security Engineering on AWS - script lab 2](#)
- [FILES] [Developing on AWS - Additional Resources](#)
- [FILES] [Developing on AWS - Solutions for Labs](#)
- [FILES] [AWSome Days - Additional Resources](#)
- [VIDEO-LABS] [How to use QwikLabs](#)
- [VIDEO-LABS] [AWS Technical Essentials](#)
- [VIDEO-LABS] [AWS Cloud Practitioner Essentials](#)
- [VIDEO-LABS] [Architecting on AWS](#)
- [VIDEO-LABS] [Systems Operations on AWS](#)
- [VIDEO-LABS] [Developing on AWS](#)
- [VIDEO-LABS] [Security Engineering on AWS](#)
- [VIDEO-LABS] [Planning and Designing Database on AWS](#)
- [VIDEO-LABS] [Deep Learning on AWS](#)
- [VIDEO-LABS] [Moving to AWS Serverless](#)
- [VIDEO-LABS] [Advanced Architecting on AWS](#)
- [VIDEO-LABS] [IoT in Scale: IoT Solution using AWS Services](#)

GENERAL LINKS

- [AWS News Blog](#)
- [AWS YouTube channel](#)
- [Reinvent Videos](#)
- [AWS Service Health Dashboard](#)
- [A digital tour of an AWS data center](#)
- [AWS re:Invent 2016 | Amazon Global Network Overview with James Hamilton](#)
- [Service Availability by Region](#)
- [Completing the Netflix Cloud Migration (Feb 2016)](#)
- [Diagramming and Budgeting tool that is still early in development but shows great promise](#)