



The AWS DevOps Master Workshop Curriculum

This is an 8-week program geared towards creating scalable, automated stack on AWS with Docker at the center. Each Monday a full set of modules are released. Each Thursday we do a live Q&A.

Week 1 - The Productive Development Environment

- Docker based development environment
- Service oriented architecture setup
- Workflow and automated testing setup and examples
- Node.js based API including json-web-token security setup
- React based Client
- How to user Docker for different projects and technologies

Week 2 - The Secure Network

- Networking concepts
- Networking security
- Provisioning IP address ranges for IPv4 and IPv6
- Creating the secure VPC
- Getting the VPC ready for ECS
- An Extended Security Lab on Security Groups, IAM, Network ACLs, and VPCs

Week 3 - The Infrastructure Foundations

- Understanding how to build server fleets
- Creating the Launch Configuration
- Creating the AutoScaling Group
- Creating the Application Load Balancer and Targets
- Creating the Server Security Groups and IAM Policies
- Working with VPC Private Endpoints for Secure Network Throughput

Week 4 - The ECS Cluster, ECR, and Production Database

- Understanding Containers and sharing server resources between them
- Creating the AWS ECS Cluster
- Linking the ECS Cluster to all infrastructure foundations
- Understanding ECS Services, Tasks, and Task Definitions
- Working with ECR
- Understanding RDS
- Setting up a production Aurora database

Week 5 - Launching the Node based API

- Creating the Docker Image for the Node API
- Pushing and managing the API image in ECR
- Creating the ECS Task Definition
- Setting up the load balanced ECS Service for our API
- Setting up logging for the ECS based API, the servers, and containers
- Hooking up the Load Balancer to Route53
- Setting up the Load Balancer with SSL and a Domain Name
- Creating the CI Docker image to test the Node API
- Creating a CI/CD pipeline with Docker, Github, and CircleCI
- Running through the entire workflow

Week 6 - Launching the React based client

- Creating the S3 Bucket for the React Client
- Securing the S3 bucket with Bucket Policies, IAM, and CORS
- Creating a Cloud Front Distribution to front the S3 App
- Setting up the Cloud Front Distribution with SSL
- Creating the CI Docker image to test the React app
- Creating a CI/CD pipeline with Docker, Github and CircleCI for the React Client
- Hooking up the React Client to the API
- Running through the entire workflow

Week 7 - AutoScaling ECS Containers and Servers

- Understanding AutoScaling ECS Services, Tasks, and Containers
- Understanding AutoScaling Launch Configurations and AutoScaling Groups
- Setting up AutoScaling for the ECS Service Containers
- Setting up AutoScaling fro the AutoScaling Group

Week 8 - Member One-on-Ones and Student Topics

- CloudFormation Fundamentals
- Creating a Production Network on AWS with CloudFormation
- Using CloudFoundation to Speed up CloudFormation workflows
- Master Text Guide Access
- Member one on ones
- Special topic videos
- Production Deploy Review