



# Developing Serverless Solutions on AWS

## Developing Serverless Solutions on AWS

In diesem Kurs lernen Entwickler bewährte Verfahren zum Erstellen von Serverless-Anwendungen mit AWS Lambda und anderen Services der AWS Serverless-Plattform kennen. Sie werden AWS-Frameworks verwenden, um eine serverlose Anwendung in praktischen Übungen bereitzustellen, die von einfacheren zu komplexeren Themen übergehen. Sie werden die AWS-Dokumentation während des gesamten Kurses verwenden, um authentische Methoden für das Lernen und die Problemlösung zu entwickeln.

### Kursinhalt

- Apply event-driven best practices to a serverless application design using appropriate AWS services
- Identify the challenges and trade-offs of transitioning to serverless development, and make recommendations that suit your development organization and environment
- Build serverless applications using patterns that connect AWS managed services together, and account for service characteristics, including service quotas, available integrations, invocation model, error handling, and event source payload
- Compare and contrast available options for writing infrastructure as code, including AWS CloudFormation, AWS Amplify, AWS Serverless Application Model (AWS SAM), and AWS Cloud Development Kit (AWS CDK)
- Apply best practices to writing Lambda functions inclusive of error handling, logging, environment re-use, using layers, statelessness, idempotency, and configuring concurrency and memory
- Apply best practices for building observability and monitoring into your serverless application
- Apply security best practices to serverless applications
- Identify key scaling considerations in a serverless application, and match each consideration to the methods, tools, or best practices to manage it
- Use AWS SAM, AWS CDK, and AWS developer tools to configure a CI/CD workflow, and automate deployment of a serverless application
- Create and actively maintain a list of serverless resources that will assist in your ongoing serverless development and engagement with the serverless community

Auf die Labs haben Sie nach dem Kurs noch weitere 14 Tage Zugriff. So können Sie Übungen wiederholen oder individuell vertiefen.

**E-Book** Die englischsprachigen Original-Unterlagen von Amazon Web Services erhalten Sie als E-Book.

### Zielgruppe

Dieser Kurs ist konzipiert für:

- Entwickler, die mit Serverless vertraut sind und Erfahrung mit der Entwicklung in der AWS-Cloud haben

### Voraussetzungen

Wir empfehlen, dass die Teilnehmer an diesem Kurs die folgenden Voraussetzungen erfüllen:

- Vertrautheit mit den Grundlagen der AWS-Cloud-Architektur
- Verständnis für die Entwicklung von Anwendungen auf AWS equivalent mit dem Abschluss der Schulung Developing on AWS
- Kenntnisse, die dem Abschluss der folgenden digitalen Serverless-Schulungen entsprechen: AWS Lambda Foundations und Amazon API Gateway für serverlose Anwendungen

Stand 23.04.2024

### Dieser Kurs im Web



Alle tagesaktuellen Informationen und Möglichkeiten zur Bestellung finden Sie unter dem folgenden Link: [www.expertech.ch/go/AWDS](http://www.expertech.ch/go/AWDS)

### Vormerkung

Sie können auf unserer Website einen Platz kostenlos und unverbindlich für 7 Tage reservieren. Dies geht auch telefonisch unter 06074 4868-0.

### Garantierte Kurstermine

Für Ihre Planungssicherheit bieten wir stets eine große Auswahl garantierter Kurstermine an.

### Ihr Kurs maßgeschneidert

Diesen Kurs können wir für Ihr Projekt exakt an Ihre Anforderungen anpassen.

Training		Preise zzgl. MwSt.
<b>Termine in Deutschland</b>		<b>3 Tage CHF 2.195,-</b>
<b>Online Training</b>		<b>3 Tage CHF 2.195,-</b>
<b>Termin/Kursort</b>		Kurssprache Deutsch
02.07.-04.07.24	26.08.-28.08.24	
02.07.-04.07.24	26.08.-28.08.24	



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<b>Module 0: Introduction</b>	EventBridge	The three pillars of observability
Introduction to the application you will build	Try-it-out exercise: Configure an Amazon SNS topic with filtering	Amazon CloudWatch Logs and Logs Insights
Access to course resources (Student Guide, Lab Guide, and Online Course Supplement)	<b>Module 6: Event-Driven Development Using Queues and Streams</b>	Writing effective log files
<b>Module 1: Thinking Serverless</b>	Development considerations when using polling event sources to trigger Lambda	Try-it-out exercise: Interpreting logs
Best practices for building modern serverless applications	functions	Using AWS X-Ray for observability
Event-driven design	Distinctions between queues and streams as event sources for Lambda	Try-it-out exercise: Enable X-Ray and interpret X-Ray traces
AWS services that support event-driven serverless applications	Selecting appropriate configurations when using Amazon Simple Queue Service (Amazon	CloudWatch metrics and embedded metrics format
<b>Module 2: API-Driven Development and Synchronous Event Sources</b>	SQS) or Amazon Kinesis Data Streams as an event source for Lambda	Try-it-out exercise: Metrics and alarms
Characteristics of standard request/response API-based web applications	Try-it-out exercise: Configure an Amazon SQS queue with a dead-letter queue as a	Hands-On Lab 3: Workflow Orchestration Using AWS Step Functions
How Amazon API Gateway fits into serverless applications	Lambda event source	Hands-On Lab 4: Observability and Monitoring
Try-it-out exercise: Set up an HTTP API endpoint integrated with a Lambda function	Hands-On Lab 1: Deploying a Simple Serverless Application	<b>Module 10: Serverless Application Security</b>
High-level comparison of API types (REST/HTTP, WebSocket, GraphQL)	Hands-On Lab 2: Message Fan-Out with Amazon EventBridge	Security best practices for serverless applications
<b>Module 3: Introduction to Authentication, Authorization, and Access Control</b>	<b>Module 7: Writing Good Lambda Functions</b>	Applying security at all layers
Authentication vs. Authorization	How the Lambda lifecycle influences your function code	API Gateway and application security
Options for authenticating to APIs using API Gateway	Best practices for your Lambda functions	Lambda and application security
Amazon Cognito in serverless applications	Configuring a function	Protecting data in your serverless data stores
Amazon Cognito user pools vs. federated identities	Function code, versions and aliases	Auditing and traceability
<b>Module 4: Serverless Deployment Frameworks</b>	Try-it-out exercise: Configure and test a Lambda function	<b>Module 11: Handling Scale in Serverless Applications</b>
Overview of imperative vs. declarative programming for infrastructure as code	Lambda error handling	Scaling considerations for serverless applications
Comparison of CloudFormation, AWS CDK, Amplify, and AWS SAM frameworks	Handling partial failures with queues and streams	Using API Gateway to manage scale
Features of AWS SAM and the AWS SAM CLI for local emulation and testing	<b>Module 8: Step Functions for Orchestration</b>	Lambda concurrency scaling
<b>Module 5: Using Amazon EventBridge and Amazon SNS to Decouple Components</b>	AWS Step Functions in serverless architectures	How different event sources scale with Lambda
Development considerations when using asynchronous event sources	Try-it-out exercise: Step Functions states	<b>Module 12: Automating the Deployment Pipeline</b>
Features and use cases of Amazon EventBridge	The callback pattern	The importance of CI/CD in serverless applications
Try-it-out exercise: Build a custom EventBridge bus and rule	Standard vs. Express Workflows	Tools in a serverless pipeline
Comparison of use cases for Amazon Simple Notification Service (Amazon SNS) vs.	Step Functions direct integrations	AWS SAM features for serverless deployments
	Try-it-out exercise: Troubleshooting a Standard Step Functions workflow	Best practices for automation
	<b>Module 9: Observability and Monitoring</b>	Course wrap-up
		Hands-On Lab 5: Securing Serverless Applications
		Hands-On Lab 6: Serverless CI/CD on AWS

