

Welcome to Week 5

Cloud Accelerator Program

Serverless & Event-Driven Architectures (Part 2)

 **Develop**Intelligence

A PLURALSIGHT COMPANY

Hello

HELLO
my name is

Allen Sanders
with DevelopIntelligence,
a Pluralsight Company.

About me...



- 27+ years in the industry
- 23+ years in teaching
- Certified Cloud architect
- Passionate about learning
- Also, passionate about Reese's Cups!



Agenda

- Step Functions – Workflow Orchestration in AWS
- The AWS SAM (Serverless Application Model)
- Powertools for AWS Lambda
- Quarkus



How we're going to work together

- Slides and words to highlight key concepts
- Demos to bring those concepts “to life”
- Lab work (which will take place in sandboxes provided by “A Cloud Guru”) for hands-on reinforcement
- NOTE: I welcome being interrupted – if you need more info, or clarification, or anything else, just break in and ask. I am here to help you.

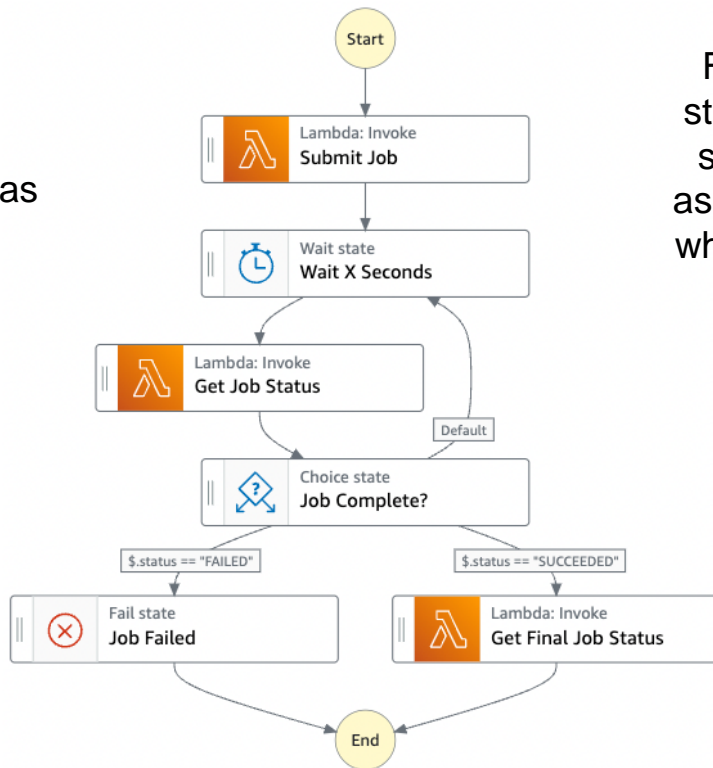


Step Functions

Step Functions

Step Functions operate as state machines to coordinate workflows

Can be defined using drag-and-drop (manually in the MC) or using ASL (Amazon States Language) defined in a JSON format



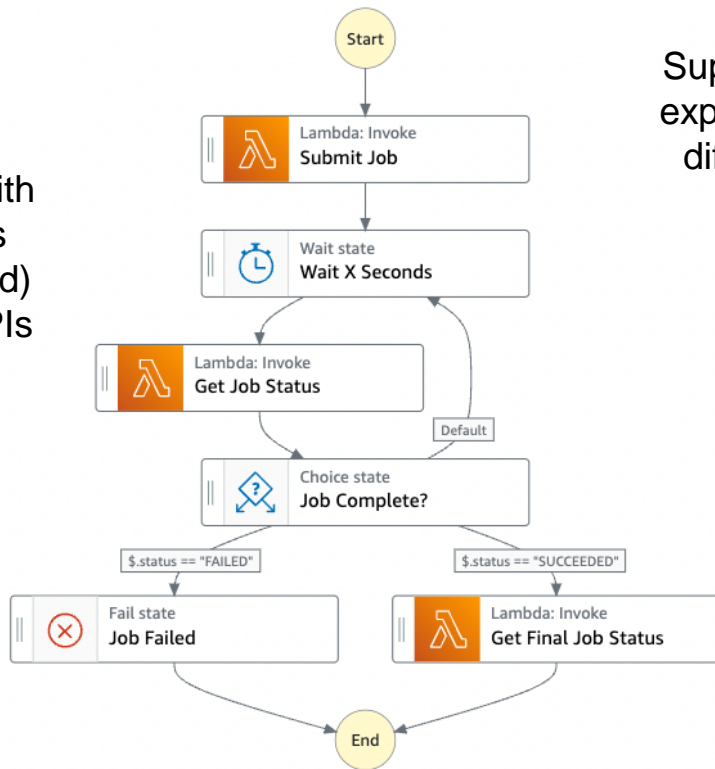
Flow transitions from state-to-state and each state can have a task associated for execution when entering that state

Supports constructs like conditionals, looping, etc.

Step Functions

Supports integrations with multiple AWS services (many of them optimized) and calls to 3rd party APIs

Many common use cases defined and documented



Supports both standard and express workflows providing different processing rates and cost models

Supports multiple service integration patterns also



Step Functions

<https://docs.aws.amazon.com/step-functions/latest/dg/welcome.html>

<https://docs.aws.amazon.com/step-functions/latest/dg/concepts-standard-vs-express.html>

LAB:

Orchestrating Lambda
Using Step Functions

Execute the “Hands-On” lab available at
[https://github.com/KernelGamut32/cloud-accel-aws-2024-
public/tree/main/week05/labs/lab01](https://github.com/KernelGamut32/cloud-accel-aws-2024-public/tree/main/week05/labs/lab01)

LAB:

Categorizing Data Using
Step Functions

Execute the “Hands-On” lab available at
[https://github.com/KernelGamut32/cloud-accel-aws-2024-
public/tree/main/week05/labs/lab02](https://github.com/KernelGamut32/cloud-accel-aws-2024-public/tree/main/week05/labs/lab02)

AWS SAM (Serverless Application Model)

AWS SAM – What is it?



AWS SAM Template Specification

AWS SAM CLI (Command-Line Interface)



AWS SAM – What is it?

- Open-source framework
- An extension of CloudFormation
- Enables use of abstract, short-hand syntax to define infrastructure
- Transforms short-hand syntax into code to define and create resources

AWS SAM Template Specification

AWS SAM CLI (Command-Line Interface)

AWS SAM – What is it?



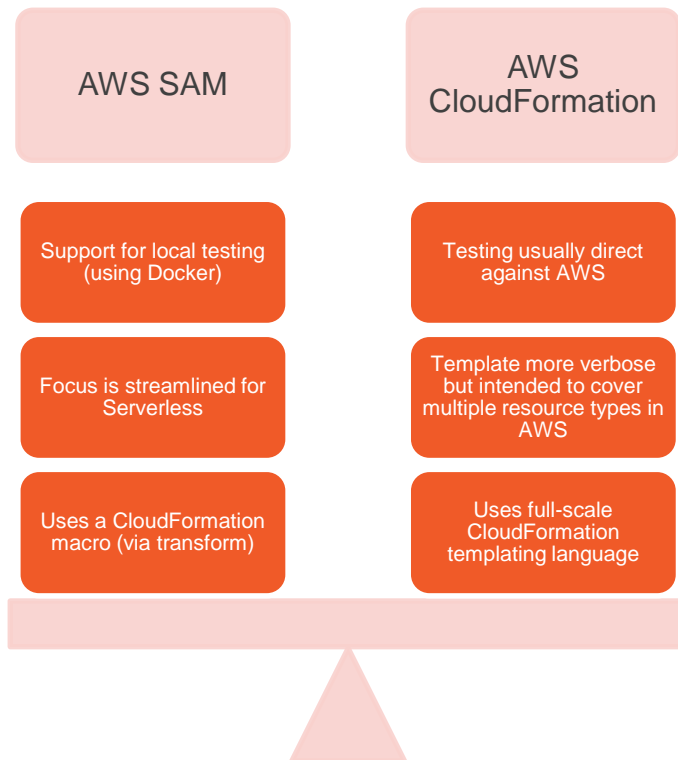
AWS SAM Template Specification

AWS SAM CLI (Command-Line Interface)

- Separately installed command line tool
- Used to initialize a new project, build, test, deploy, and monitor
- Supports sync of local changes to the Cloud
- Can be used (alongside a Docker installation) to test the application locally!



“Differences” Between AWS SAM and CloudFormation



Powertools for AWS Lambda

Powertools for AWS Lambda

Supported for:

- Python - <https://docs.powertools.aws.dev/lambda/python/>
- Java - <https://docs.powertools.aws.dev/lambda/java/>
- .NET - <https://docs.powertools.aws.dev/lambda/dotnet/>
- TypeScript - <https://docs.powertools.aws.dev/lambda/typescript/>

LAB:

AWS SAM and
Powertools

Execute the “Hands-On” lab available at
[https://github.com/KernelGamut32/cloud-accel-aws-2024-
public/tree/main/week05/labs/lab03](https://github.com/KernelGamut32/cloud-accel-aws-2024-public/tree/main/week05/labs/lab03)

Quarkus – The What & The Why

Quarkus – The What

Open Source

Cloud Native

Built-In Kubernetes Integration

Set of Extensions for Integration

Quarkus – The Why

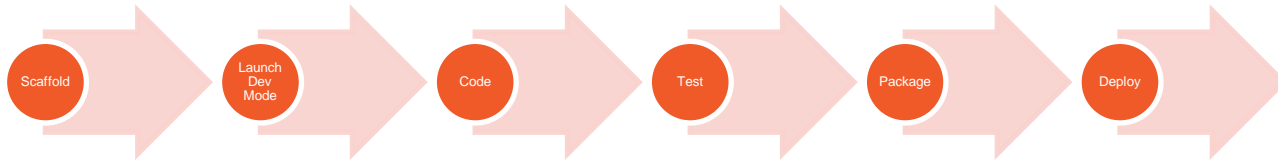
Quick Startup Time

Low Memory Footprint

Benefits for Developer Productivity

Supports Native – Reduce Impact of JVM

Quarkus – Typical Workflow



Quarkus for Lambda

Quarkus – SnapStart

<https://quarkus.io/guides/aws-lambda-snapstart#:~:text=If%20you%20use%20the%20Quarkus%20AWS%20Lambda%20extension%2C,SnapStart%20for%20your%20function%2C%20only%20the%20Quarkus%20optimizations.>

<https://docs.aws.amazon.com/lambda/latest/dg/snapstart.html>

LAB:

Quarkus – Lambda &
DynamoDB

Execute the “Hands-On” lab available at
[https://github.com/KernelGamut32/cloud-accel-aws-2024-
public/tree/main/week05/labs/lab04](https://github.com/KernelGamut32/cloud-accel-aws-2024-public/tree/main/week05/labs/lab04)



Thank you!

If you have additional questions,
please reach out to me at:
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