



Serverless Orchestration

Exploring the Future of Workflow Automation

This is me



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Let's connect



bossenti



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Agenda

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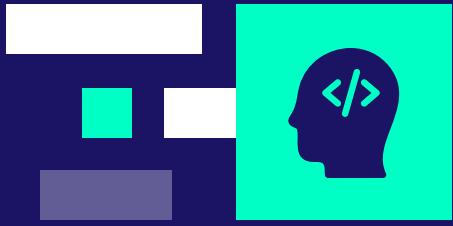
01

Introduction

What is *Orchestration*?

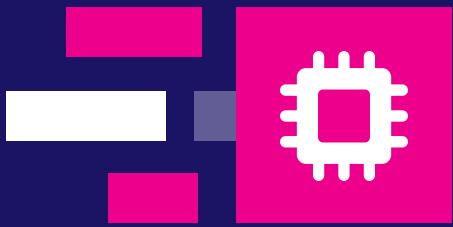
Orchestration describes the coordinated execution of multiple computer systems, application or services.

Types of Orchestration



Container

automation and coordination of containers in systems like Docker and Kubernetes

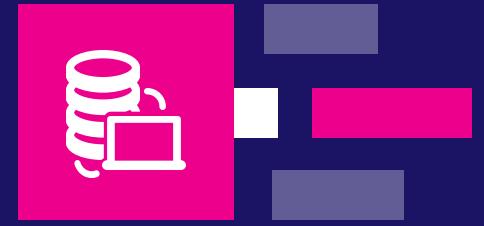


Application

synchronization and management of two or more software applications

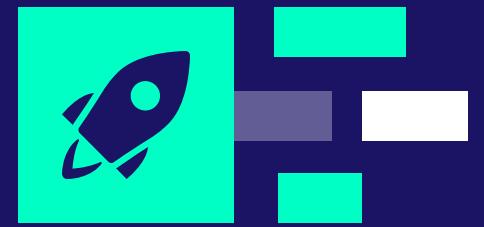
Workflow

coordinating multiple automated tasks across business applications



Service

coordination of microservices, networks, APIs, and data services





Traditional Tools



CRON



Apache
Airflow



Dagster



Orchestra



Argo
Workflows



Prefect



What is *Serverless*?

It's a cloud-native development model that allows developers to build and run applications without having to manage servers.

Types of Compute

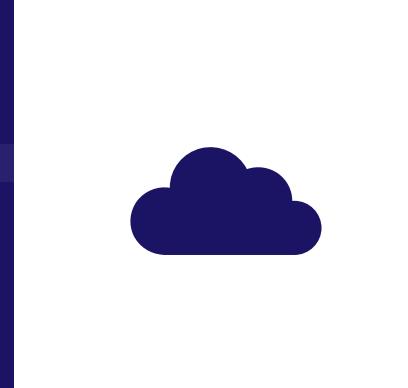
On-Prem

Physical server that you have in your cellar



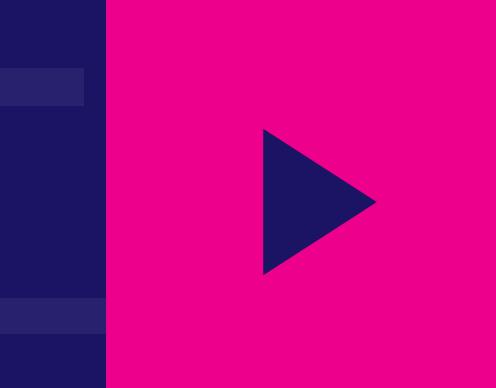
Cloud

Server (space) you rent from a cloud provider



Serverless

Pay the compute resources you have used



I bet you know serverless already

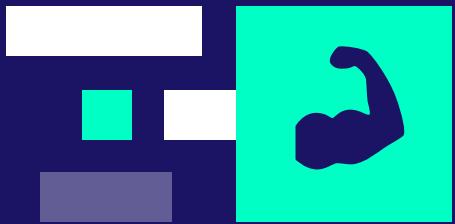


AWS
Lambda

... is serverless Function as a Service (FaaS) provided by Amazon Web Services

... executes code in response to events and automatically manages the computing resources

Why combine them?

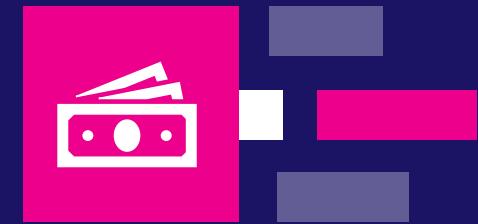


Resilience

No orchestration tool to keep running

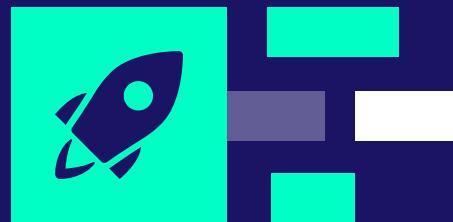
Cost Efficiency

Only pay for executions



Scalability

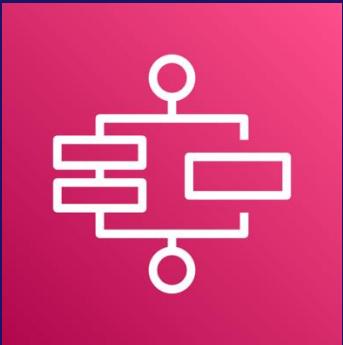
Automatic scaling of workflows



02

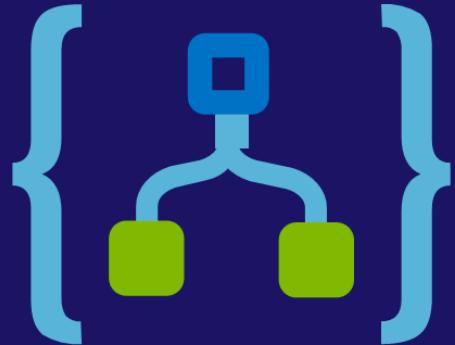
Tools

Cloud Vendor Offerings



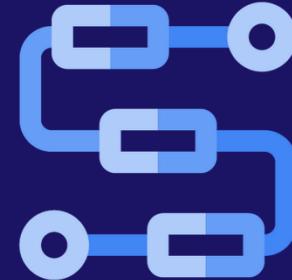
AWS Step Functions

A workflow service to create distributed applications, automate processes, orchestrate microservices and create data and ML pipelines



Azure Logic Apps

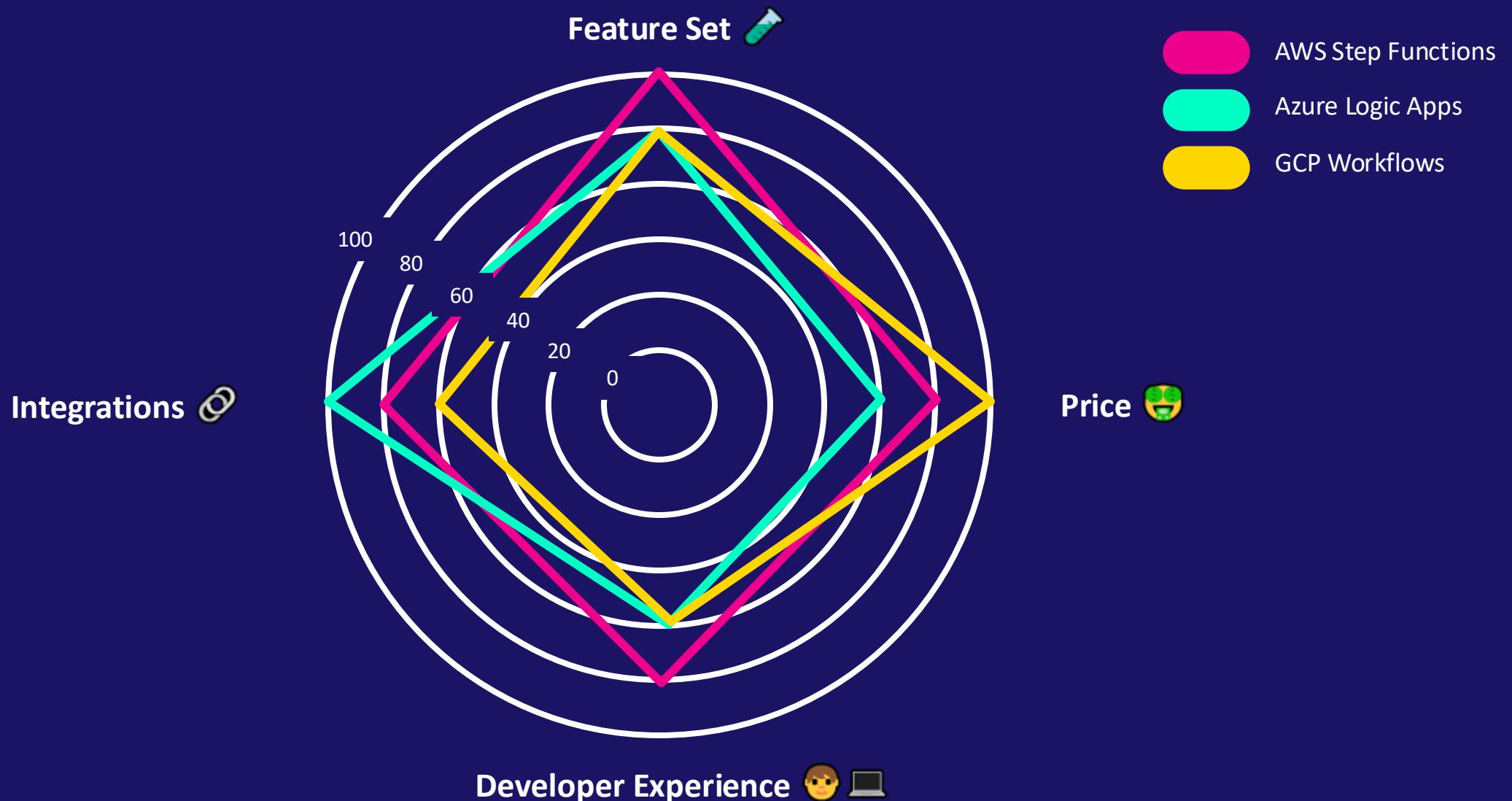
A serverless workflow integration platform that allows you to automate workflows and business processes by integrating various services and applications

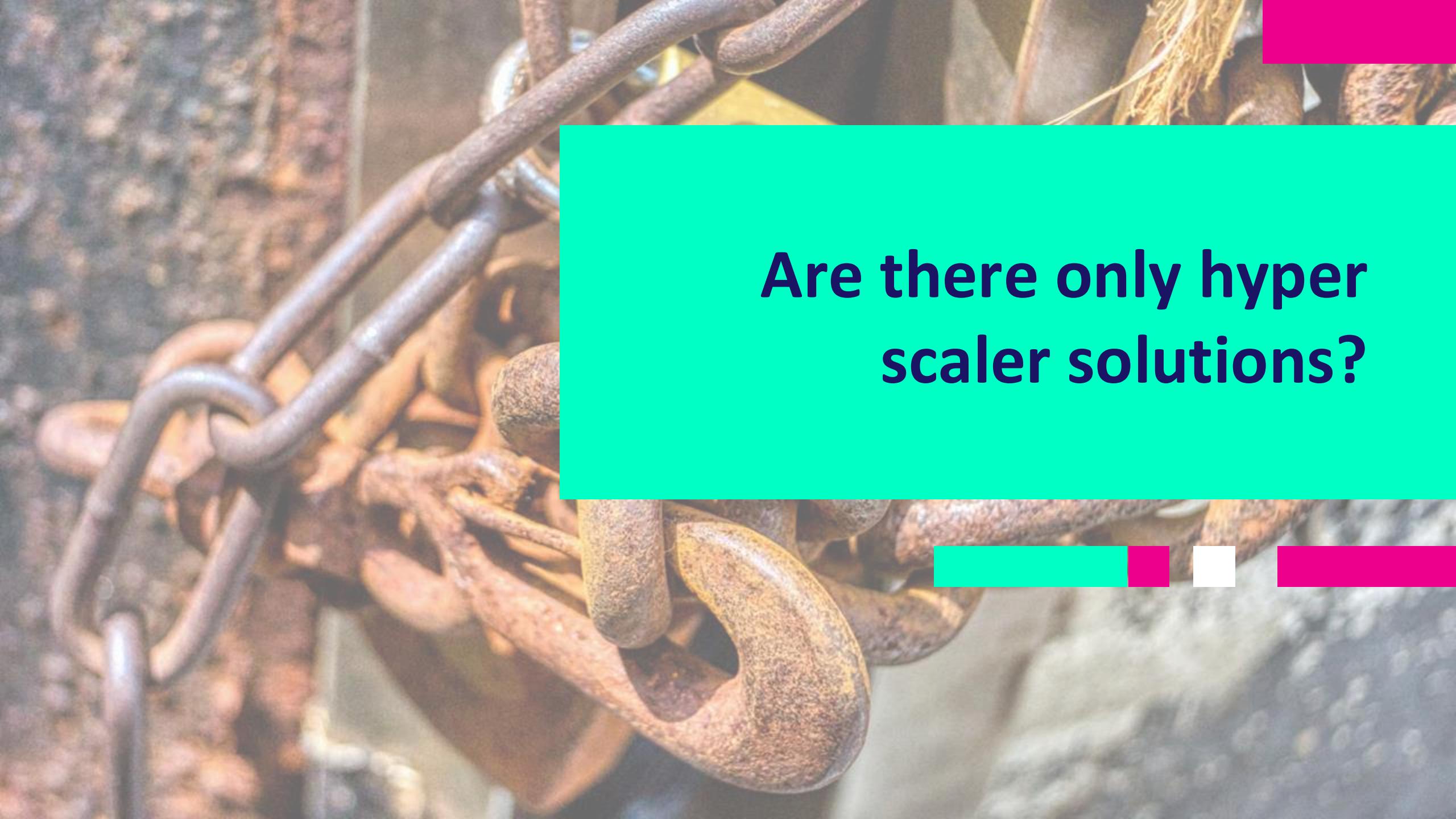


GCP Workflows

Combine Google Cloud services and APIs to build reliable applications, process automation, and data and machine learning pipelines.

Comparison





Are there only hyper
scaler solutions?



THERE ARE NOT!

There are also plenty of open-source solutions, for example:

[Argo Workflows](#)

03

Patterns & Solutions

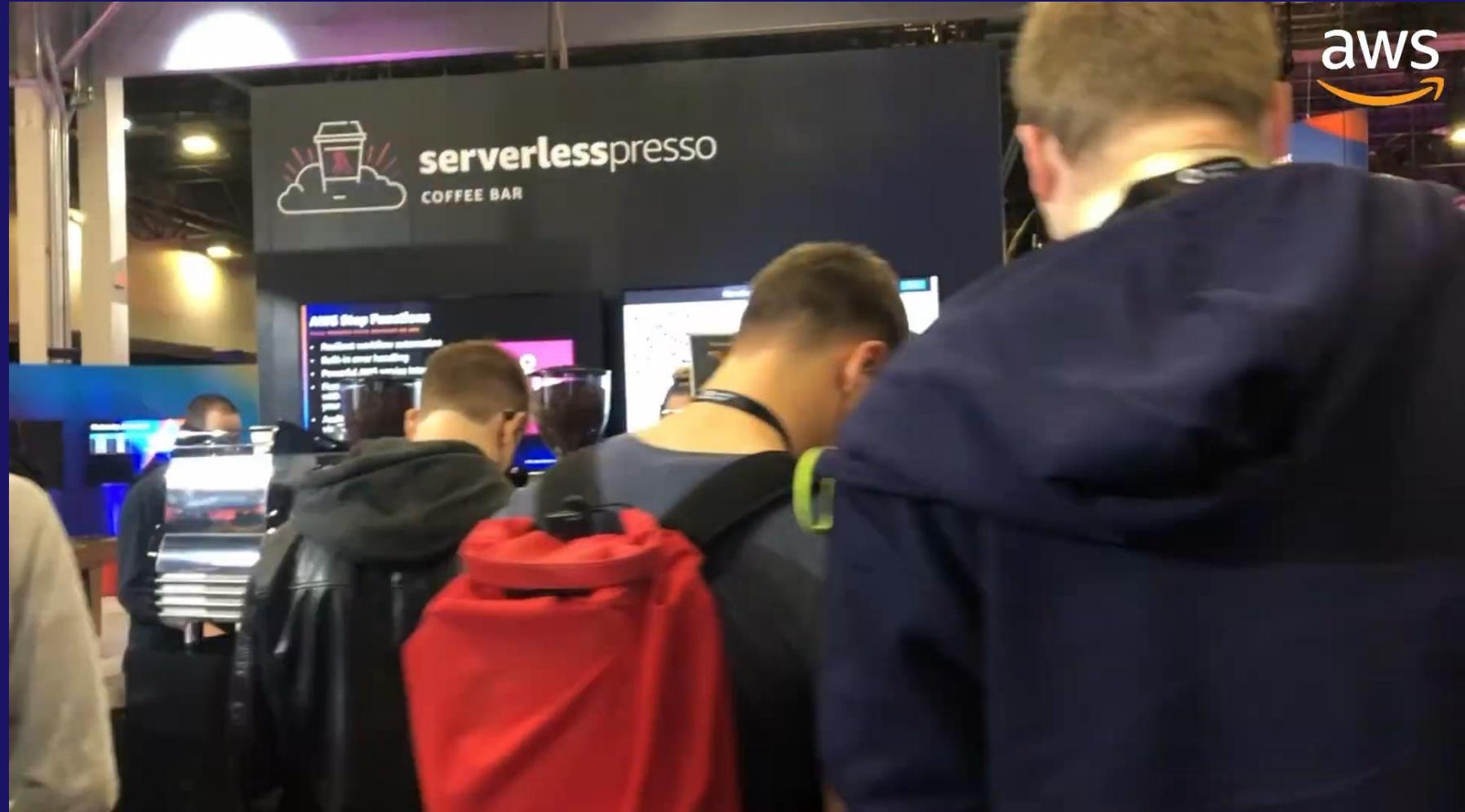
Welcome to the Serverlesspresso



... coffee shop built by only using serverless services

... every order process is managed by AWS Step Functions

... Step Functions maintain order state until completion

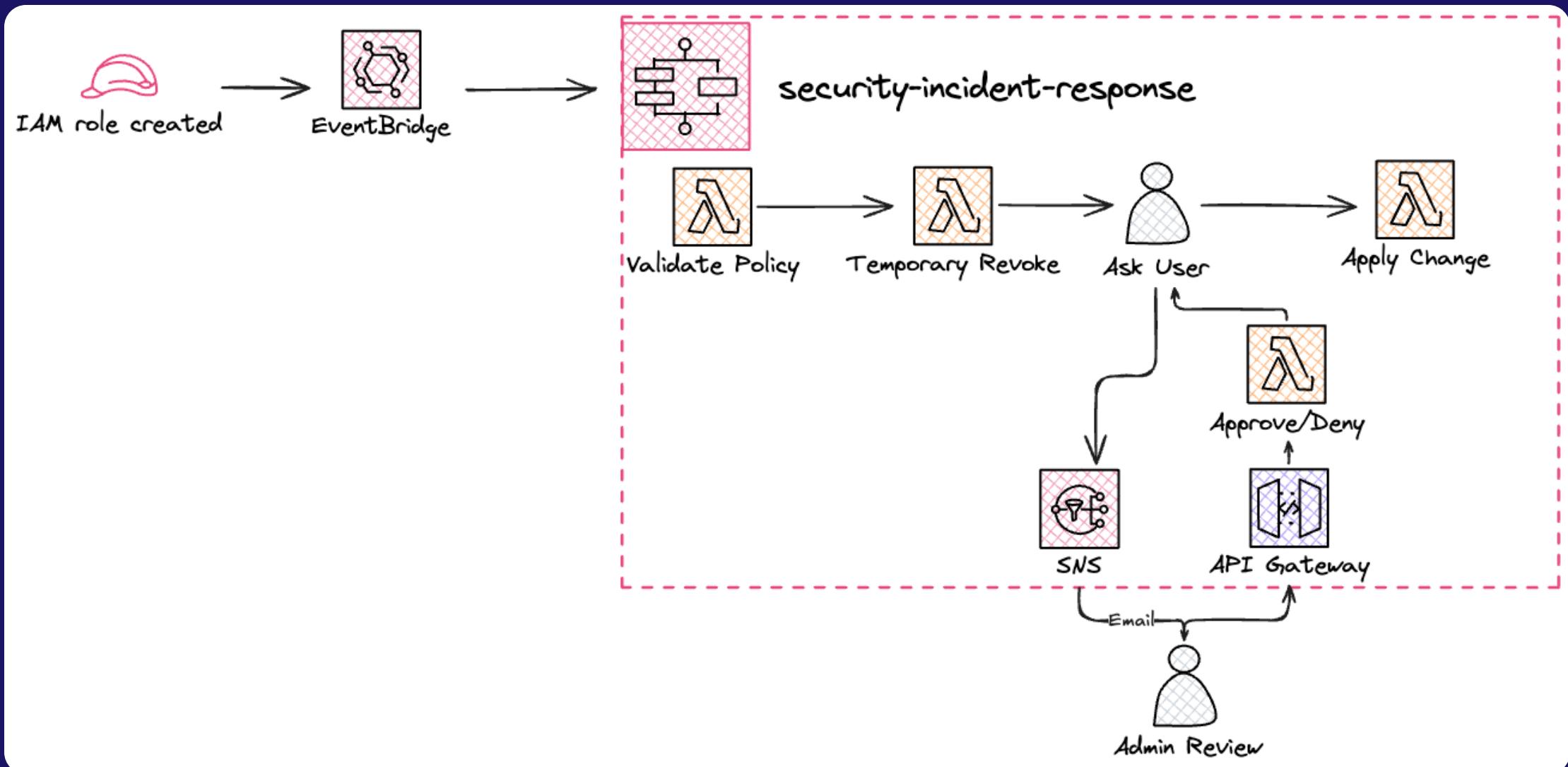


You want that for home? 

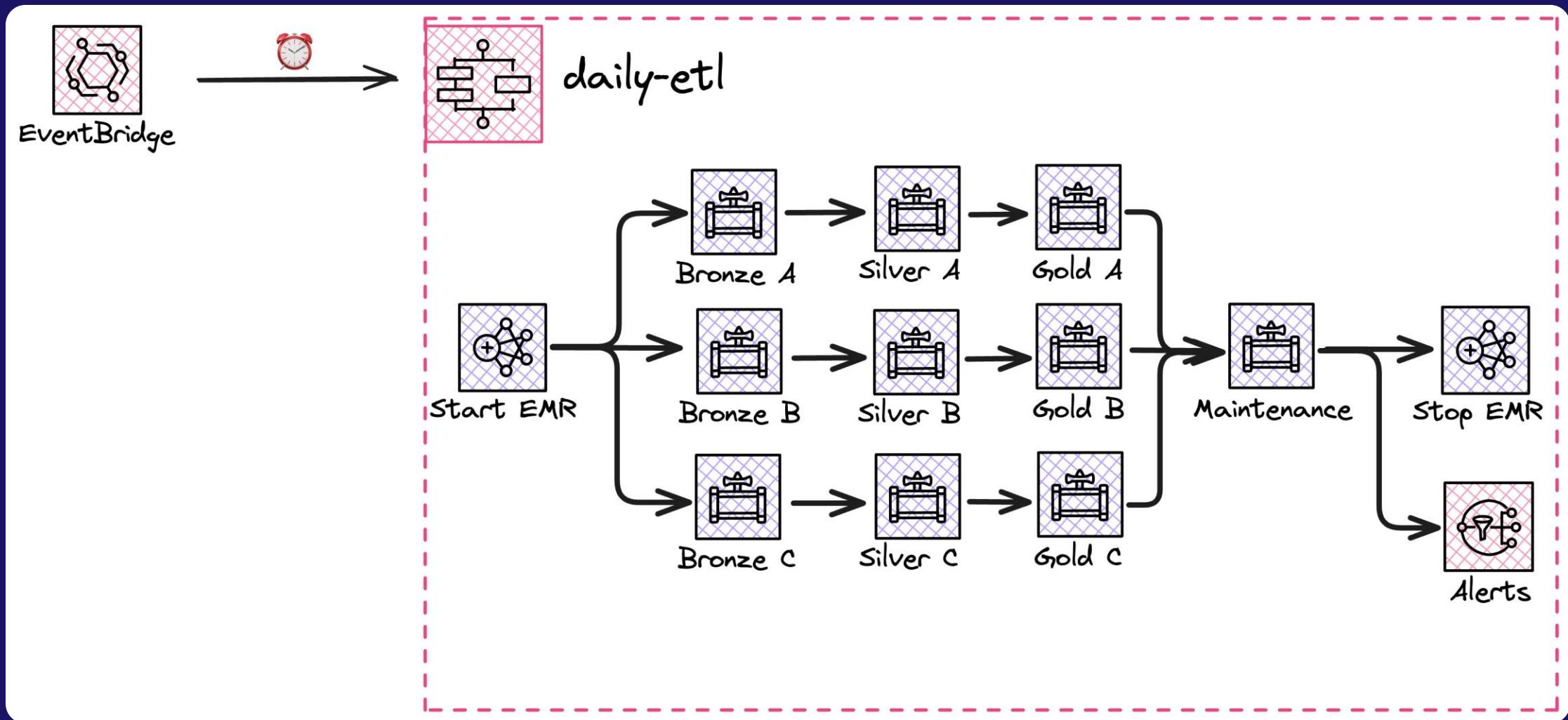


<https://github.com/aws-samples/serverless-coffee>

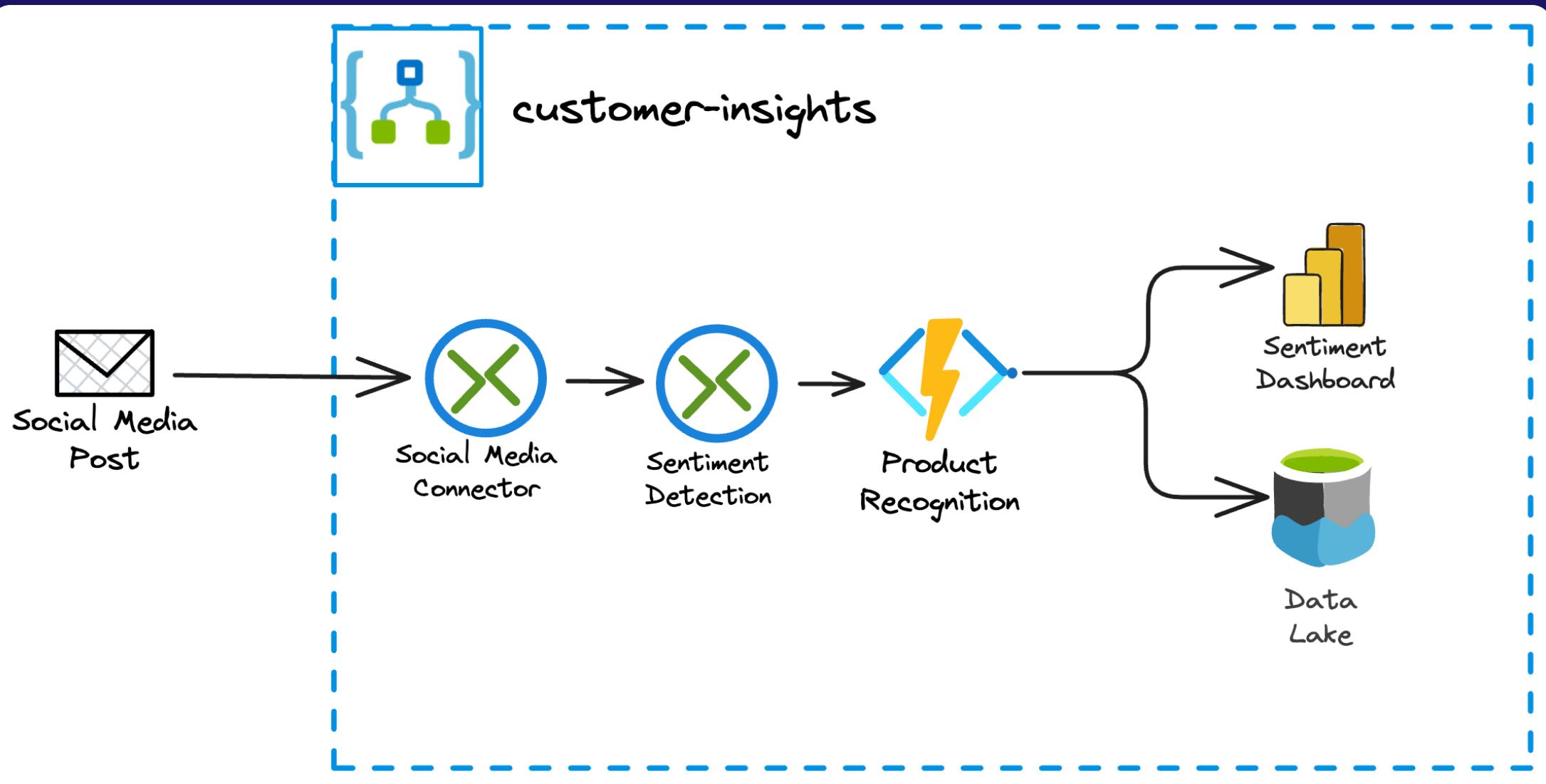
IT Security Approval Workflow



ETL Pipelines



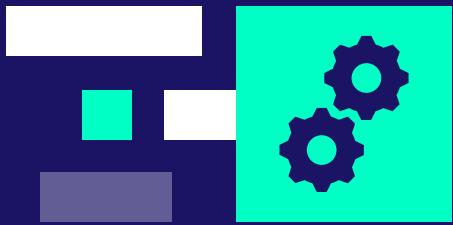
Event-Based Customer Insights



04

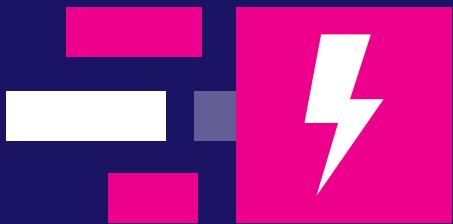
Conclusion

Conclusion



Operations

Orchestrate workflows with minimal ops overhead

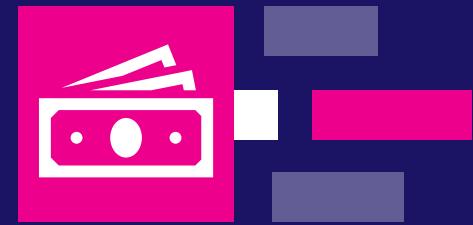


Event-driven

Perfect fit for event-based workflows

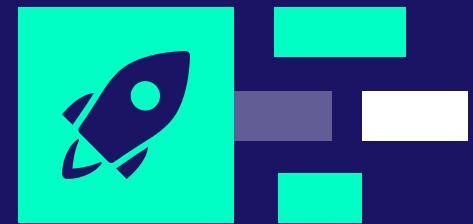
Cost

Build solutions at low cost



THE future?

- > Probably not (vendor lock-In, tailored tools)
- > Great extension of developer's toolbox





THANKS!

Do you have any questions?

We are hiring!
DAs + DEs in DE & AT



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Slides