AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

SVS205-L

Accelerating your serverless journey with AWS Lambda

David Richardson
Vice President, Serverless
AWS

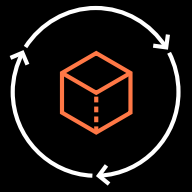
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Fastest way to build

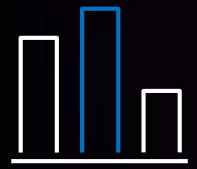
Lowest cost of ownership

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Guiding tenets



Agility



Performance



Cost



Security

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless applications increase agility



Less code to write



Reduced maintenance



Built-in capabilities



Continuous improvement

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Neiman Marcus increases speed to market by 50%

AWS SERVERLESS CUSTOMERS RESPOND RAPIDLY TO CHANGING CUSTOMER NEEDS



"Engagement has been strong, especially when we shut down during the COVID-19 pandemic. Connect was one of the few avenues associates could use to continue serving customers."

Sriram Vaidyanathan
Senior Director of Omni Engineering,
Neiman Marcus

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Taco Bell shifts to meet demand for delivery

AWS SERVERLESS CUSTOMERS RESPOND RAPIDLY TO CHANGING NEEDS



"We see a path to where 50% of our orders will be digital. It's about the experience where there will be multiple touchpoints."

Vadim Parizher
Vice President of Engineering and Analytics,
Taco Bell Corp.

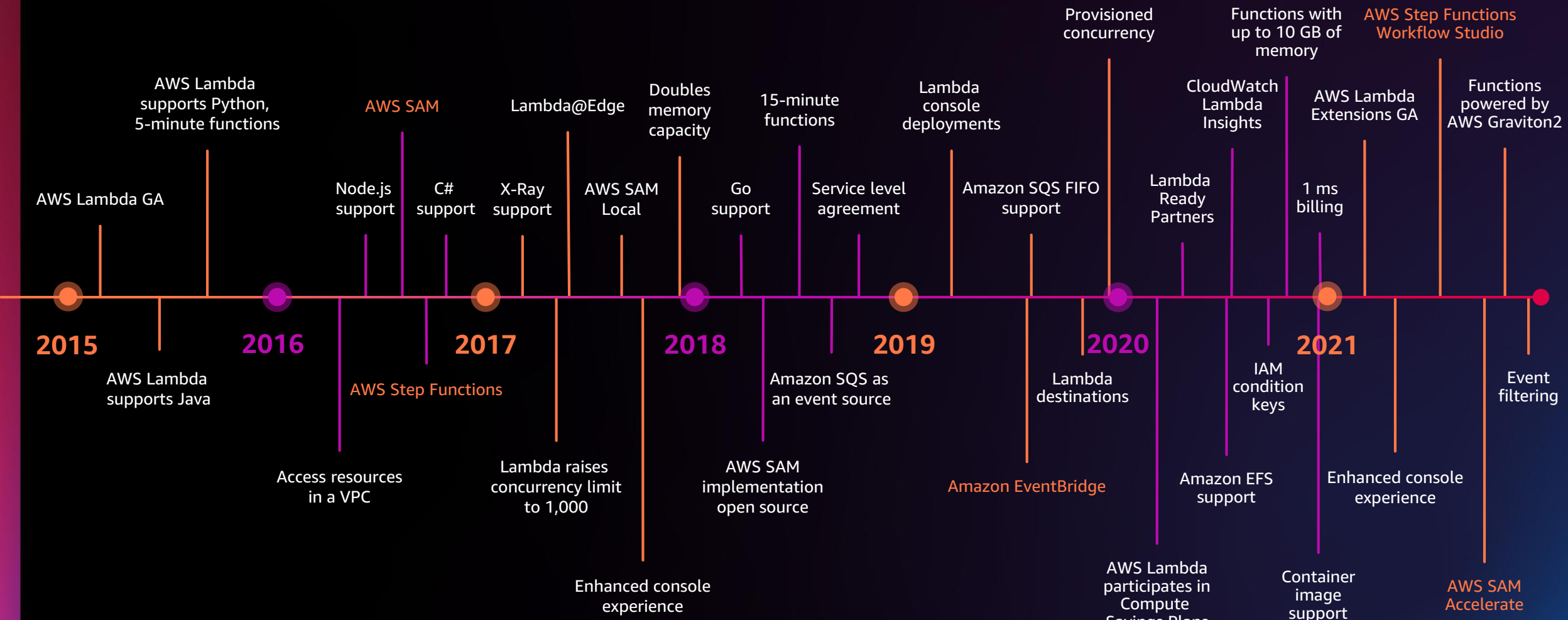
Source: https://aws.amazon.com/solutions/case-studies/taco-bell/

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Developer agility

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lambda – The pioneer in Serverless



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

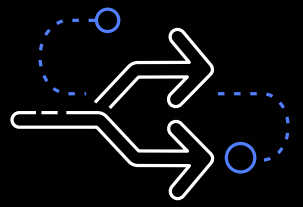
Small pieces, loosely joined





AWS SAM Accelerate





Build only the parts of your code that have changed



Quickly sync code changes with the cloud



Tail application logs from all resources in a single command

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Serverless Application Model (AWS SAM)



AWS SAM transform

Infrastructure as code for serverless applications



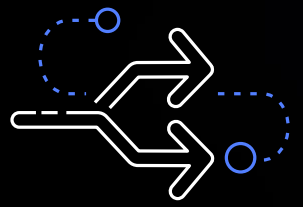
AWS SAM CLI

Develop, debug, build, package, deploy

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS SAM Pipelines





Create CI/CD pipelines in minutes



Built-in templates and best practices



Integrated with your favorite systems

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Total cost of ownership

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Let’s talk about costs



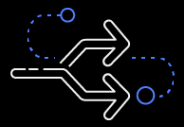
Infrastructure

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Let’s talk about costs



Infrastructure



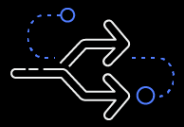
Resilience

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Let’s talk about costs



Infrastructure



Resilience



Utilization

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

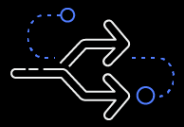
Let’s talk about costs



Infrastructure



Development



Resilience



Utilization

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

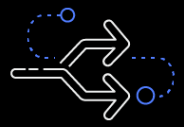
Let’s talk about costs



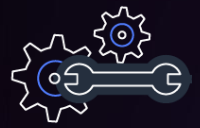
Infrastructure



Development



Resilience



Maintenance



Utilization

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

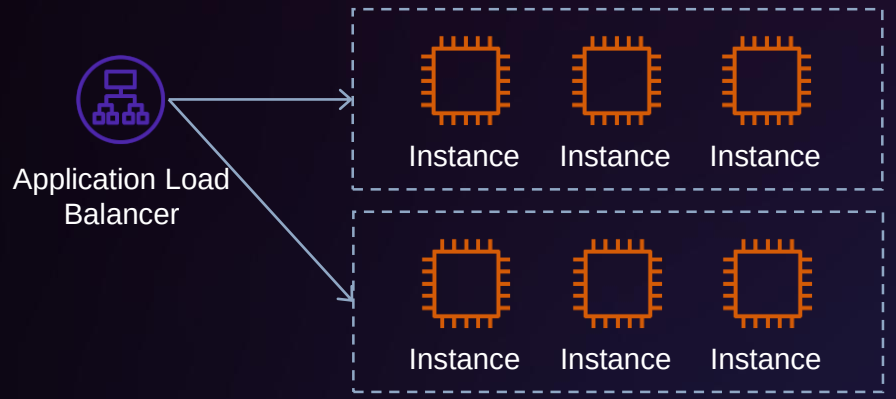
Infrastructure



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Infrastructure

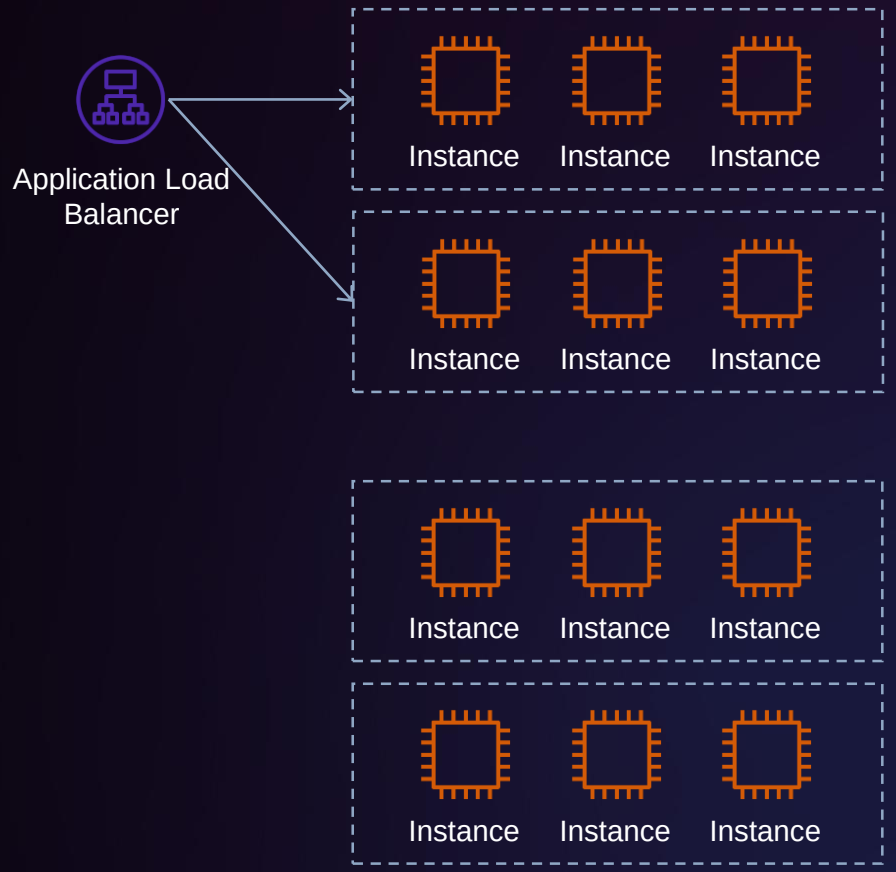
Resilience



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

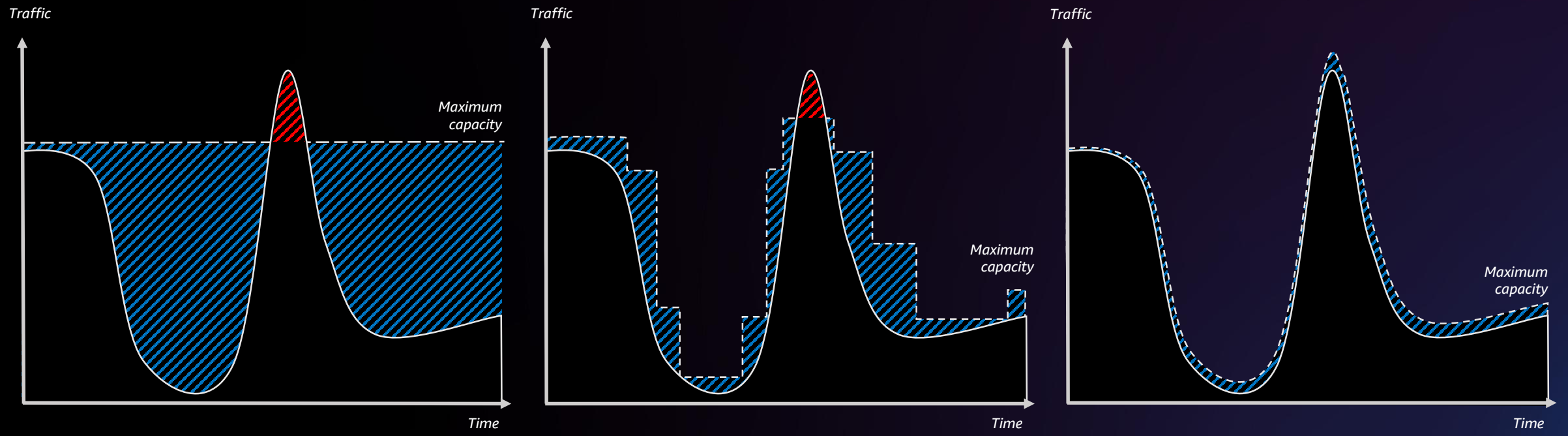
Infrastructure

Resilience



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Utilization



Traditional/on-premises

Instance-based (EC2)

AWS Serverless

Over capacity

Under capacity

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Development and maintenance



Team size



Built-in capabilities



Ongoing maintenance

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

1 ms billing granularity for AWS Lambda



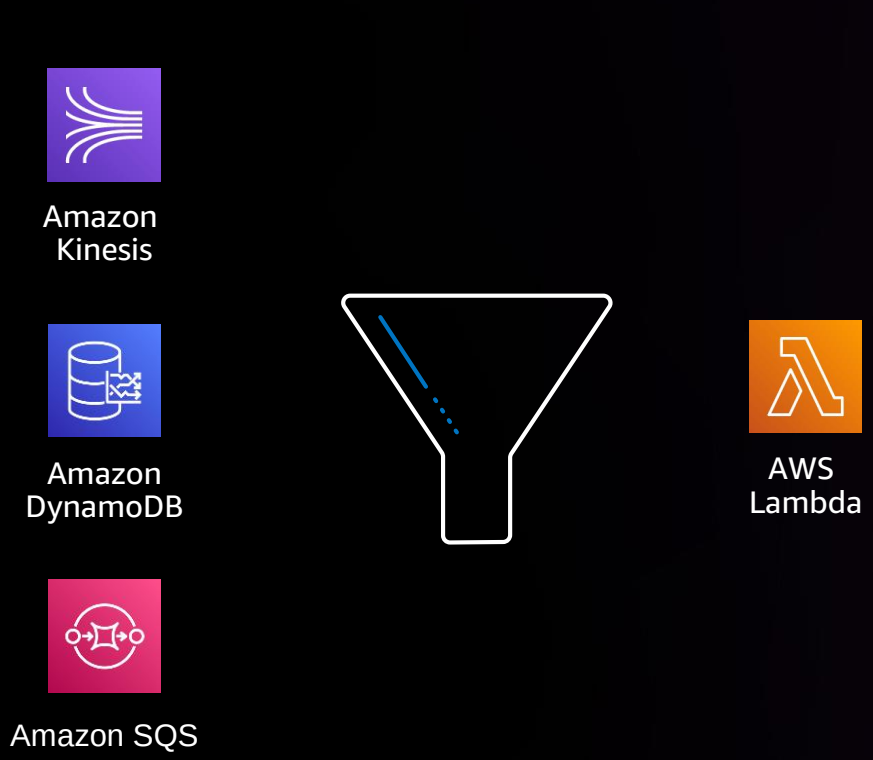
Save up to **70%** on Lambda functions

Reduced the billing granularity for function **duration** from 100 ms to 1 ms

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Filtering for Lambda Event Sources

NEW!



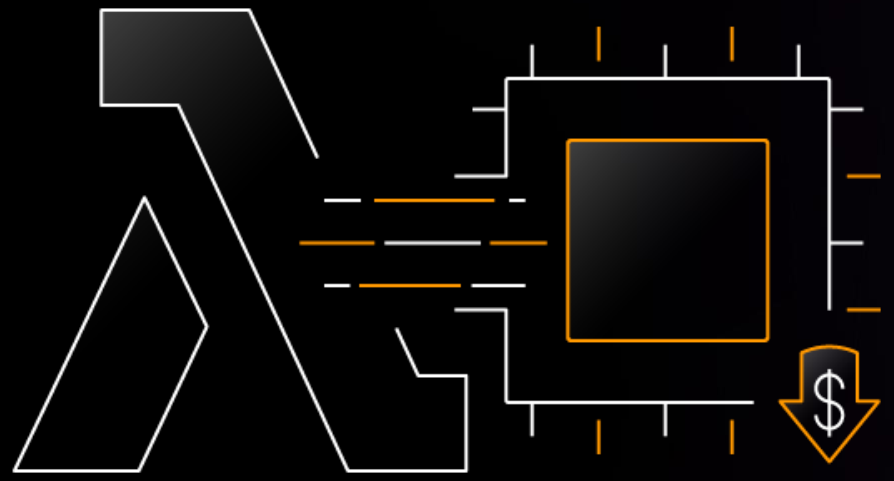
Filter events at source for Amazon Kinesis, Amazon DynamoDB, and Amazon Simple Queue Service (Amazon SQS)

Save **up to 70%** by only invoking a Lambda function if the event matches specific criteria

Eliminate unnecessary Lambda invocations

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lambda functions powered by Graviton2



Deliver up to 34% better price performance

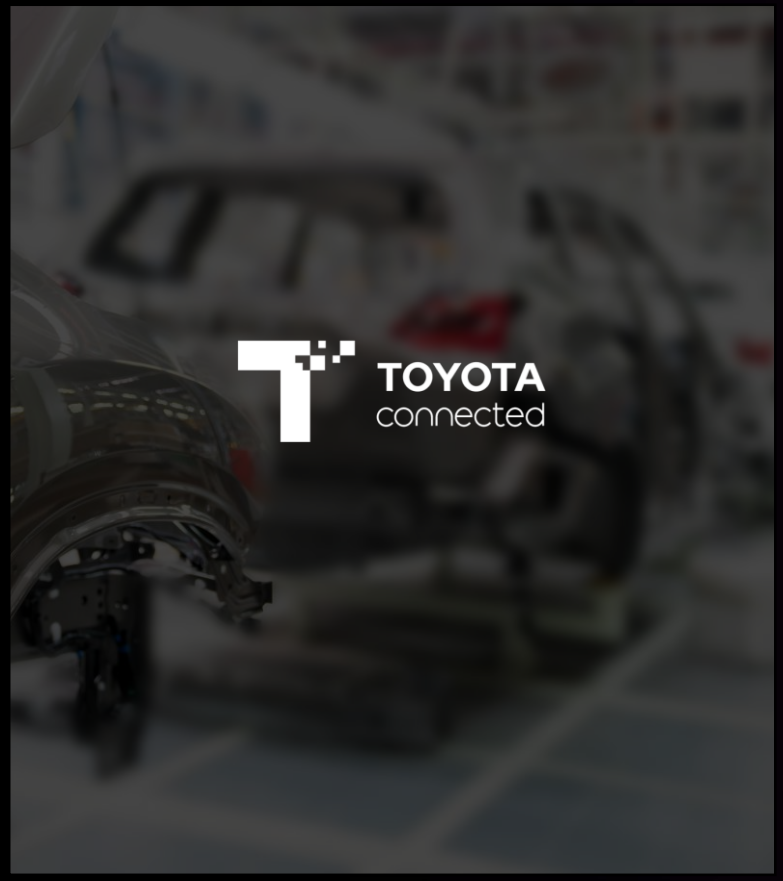
Minimal changes to code

Ideal for web and mobile backends, data processing

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Customers are realizing substantial cost savings

AWS SERVERLESS CUSTOMERS REDUCE OPERATIONAL BURDEN



70–80%

Cost of ownership savings

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Customers are realizing substantial cost savings

AWS SERVERLESS CUSTOMERS REDUCE OPERATIONAL BURDEN



97.6%

Reduction of operating expenses for scan resources

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless offers the lowest TCO



Only pay for what you use



Less code to write



Built-in capabilities



Reduced maintenance

Deloitte - *Determining the Total Cost of Ownership: Comparing Serverless and Server-based Technologies*

https://s12d.com/serverless-TCO

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

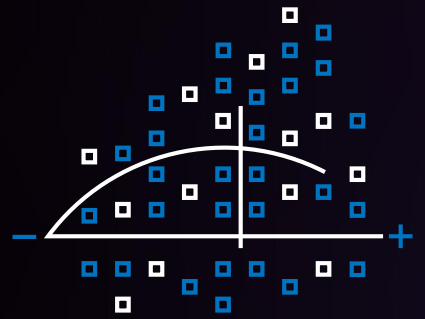
Building applications

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Getting started



IT automation



Data processing

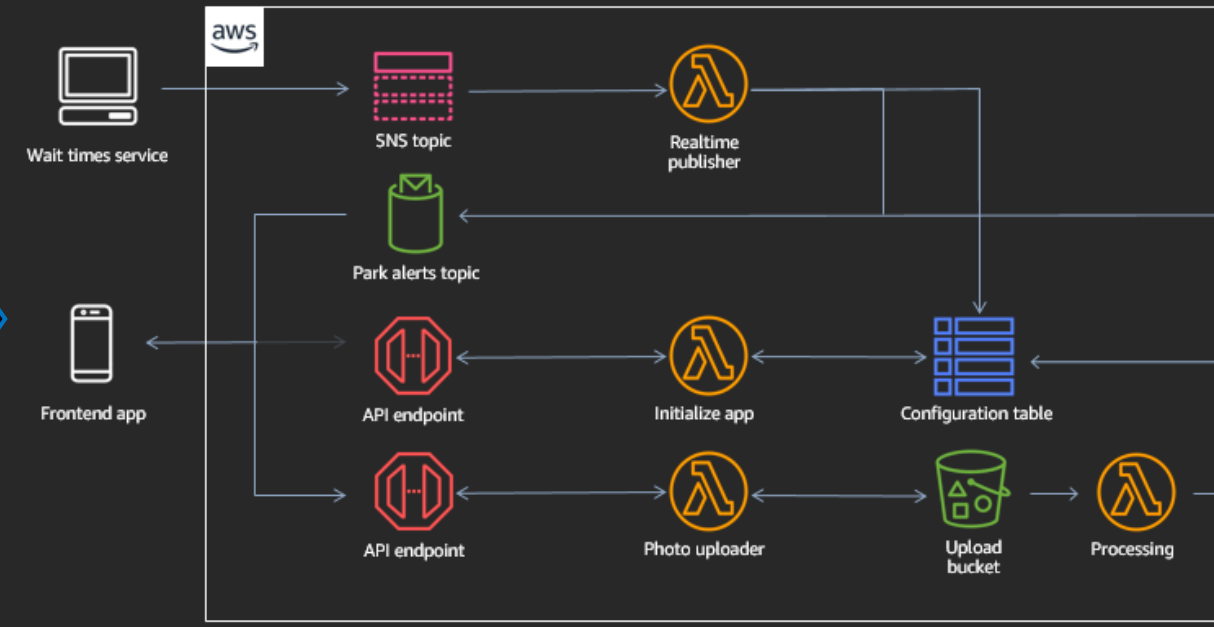


Core compute

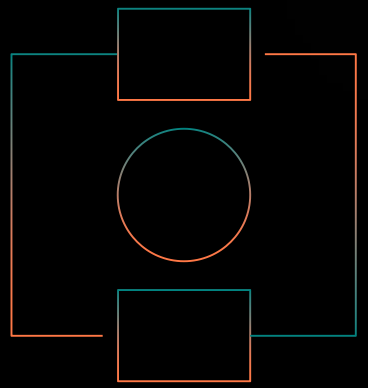
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Small pieces, loosely joined





aws

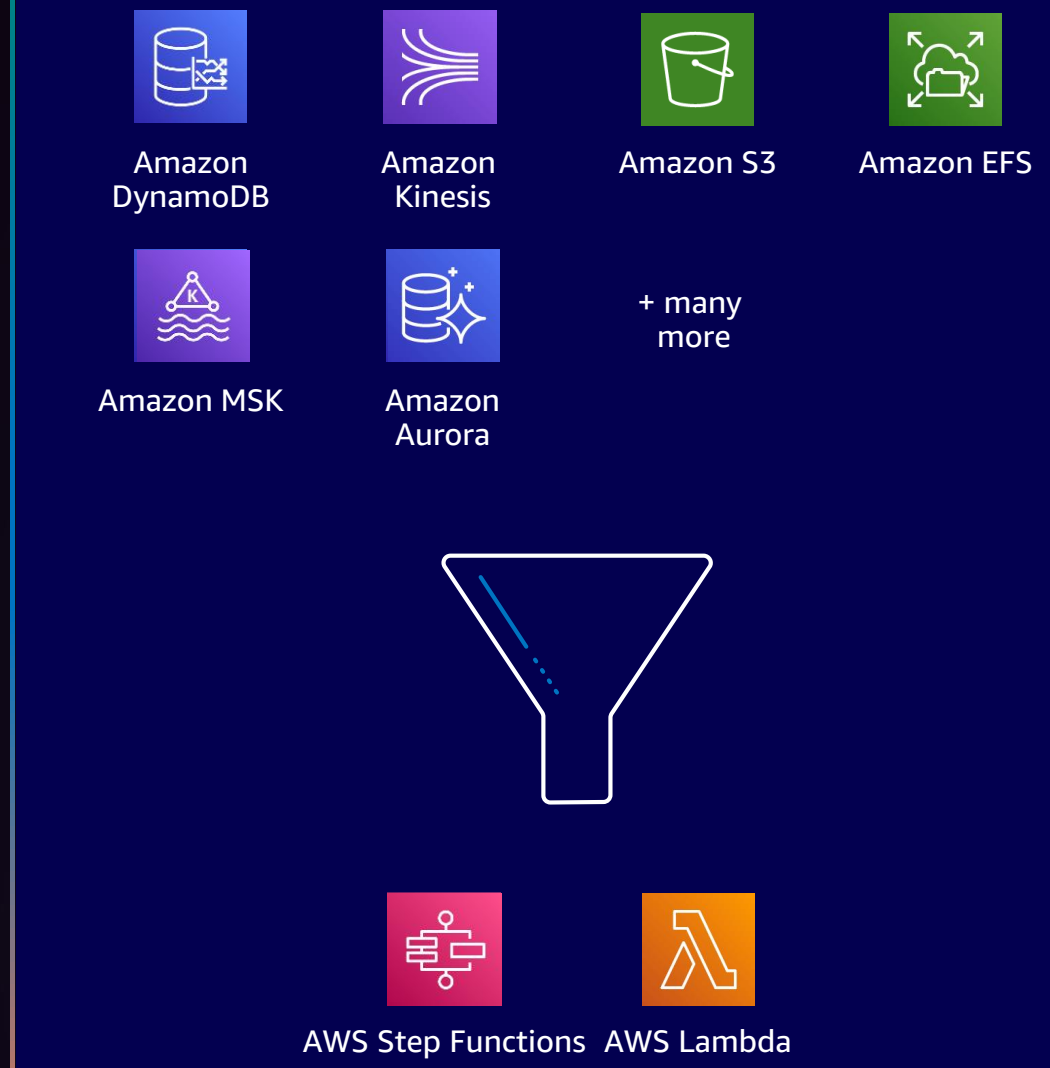


Asynchronous designs are the natural way to build evolving, reactive applications

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Data Processing: Transform and analyze data at scale

- Structured and unstructured data
- Process streaming data (Kinesis, DynamoDB, etc.)
- Extract & enrich metadata
- Orchestrate complex data processing workflows
- Run data analytics serverlessly
- Run machine learning inference



AWS Lambda ephemeral storage

Pre-announcement



Provision up to 10 GB of ephemeral storage

Pay for what you provision

Run data-intensive or machine learning workloads

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

WillyWeather runs weather predictions with AWS Lambda



"The system responds in real time and is highly available. It also provides the reliability and scalability to ensure all our 5 million users will be notified about any significant weather events as soon as possible"

David Allen
Technical Director and Founder, WillyWeather

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

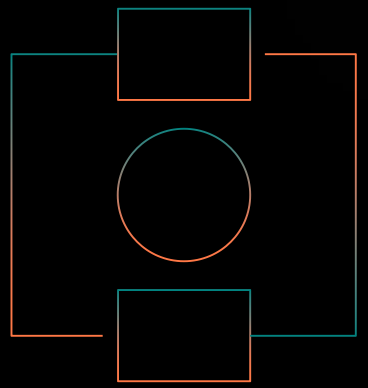
Asurion builds on-demand ML with AWS Lambda and Amazon EFS



"We really wanted to use AWS Lambda to make our ML inference elastic but thought we wouldn't be able to because of the size of data the process required. With Amazon EFS, we were easily able to give our function all of the storage space it needs."

Jeff Tougas
Senior Principal Software Engineer, Asurion

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Built-in service-to-service integration

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Built-in integrations



AWS Step Functions





AWS SDK



Amazon API Gateway





AWS Step Functions Express Workflows



AWS Step Functions



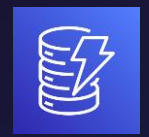


Amazon EventBridge



Amazon API Gateway



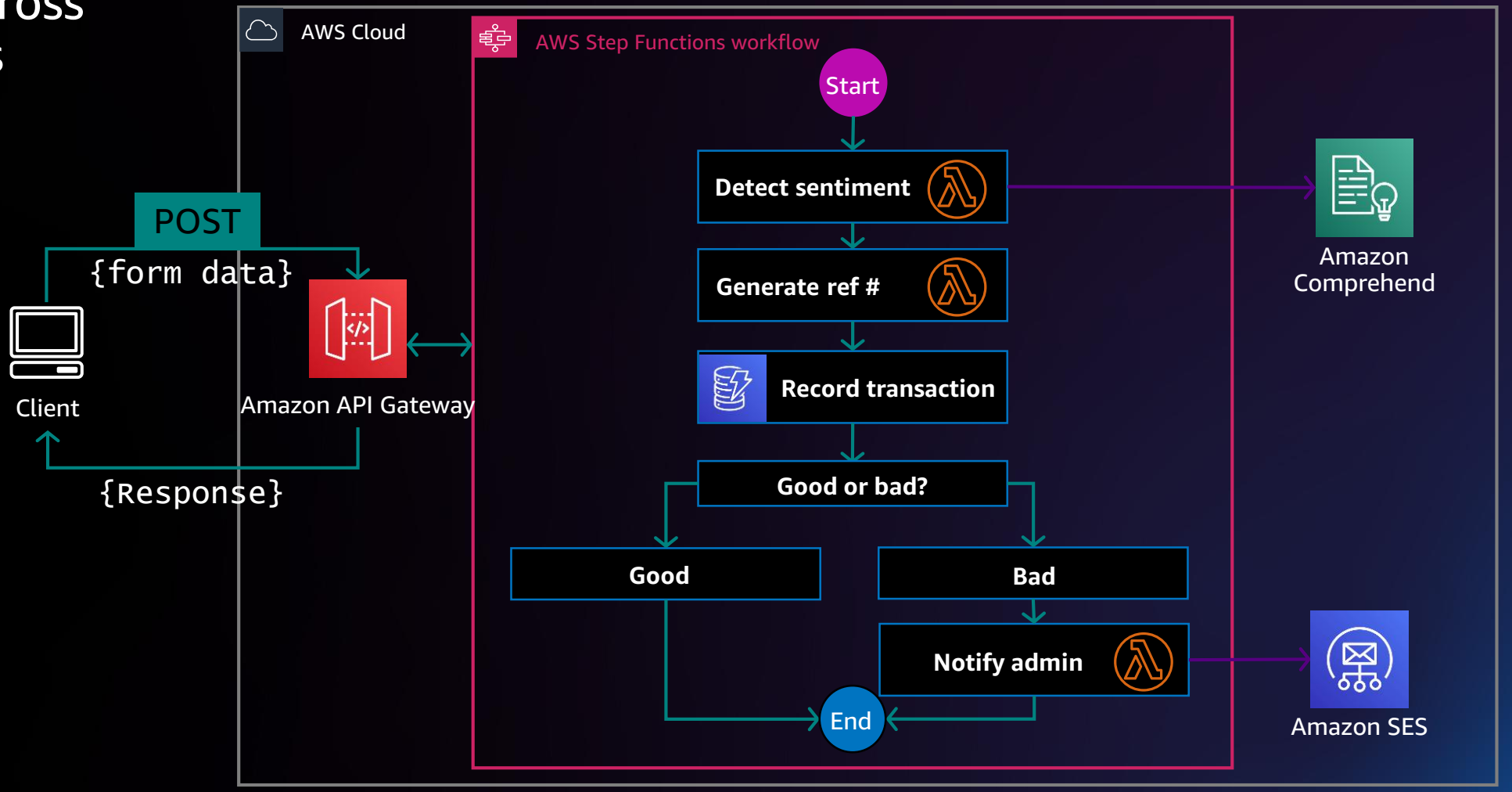


Amazon DynamoDB

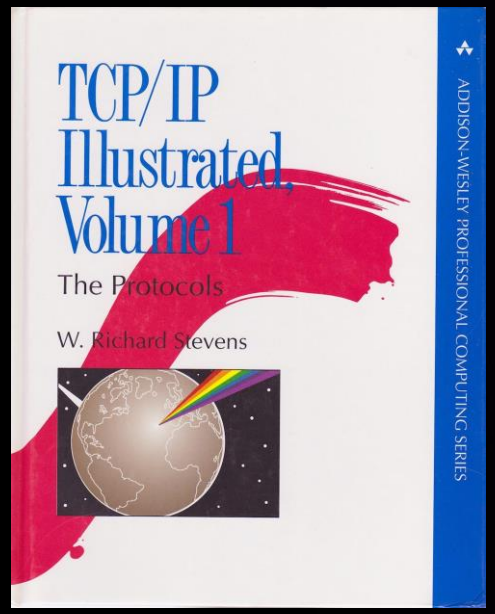
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

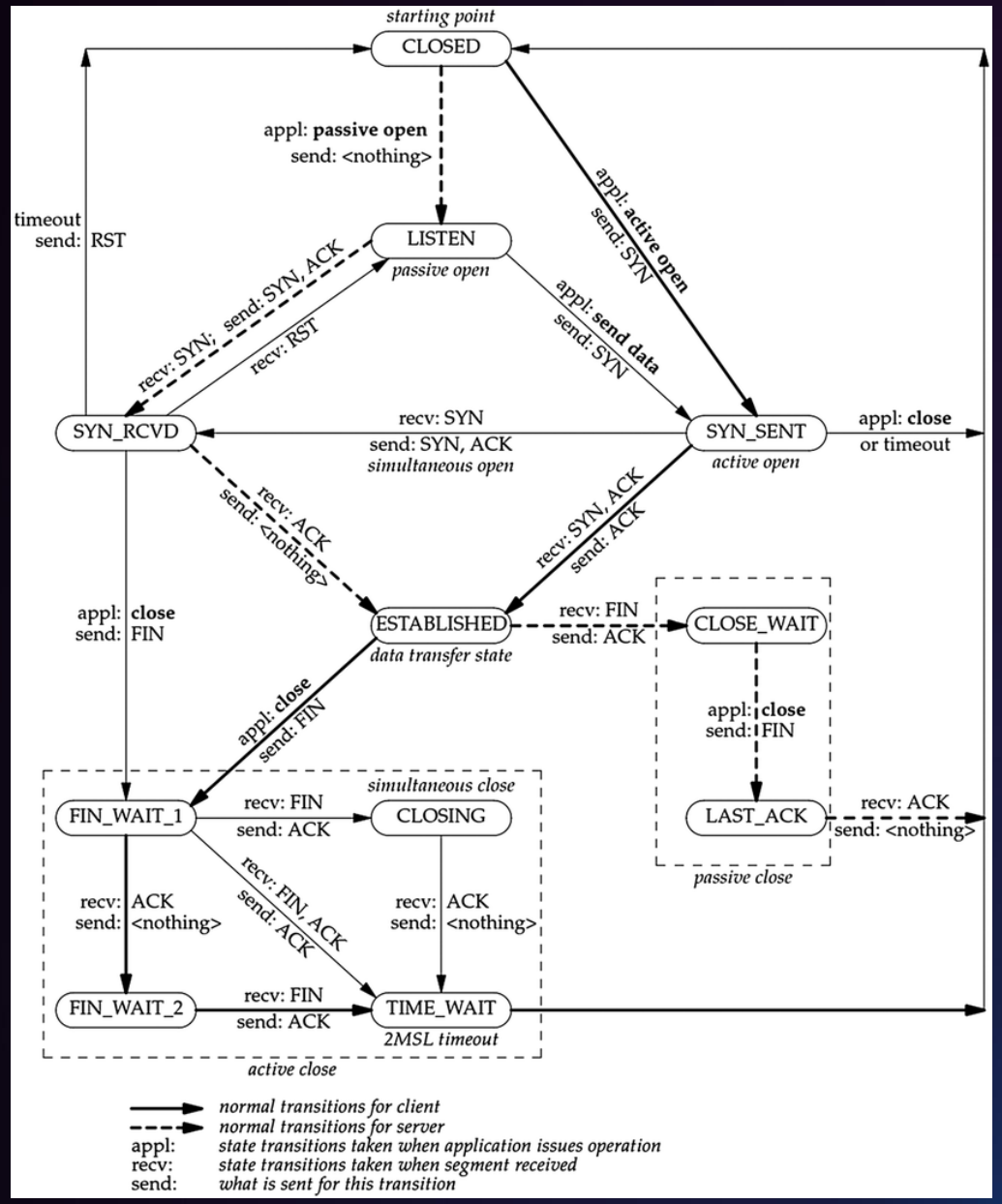
Orchestration of complex distributed workflows

Manage state across distributed tasks while reducing application code and improving resiliency



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.





© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Step Functions Workflow Studio



Build workflows faster

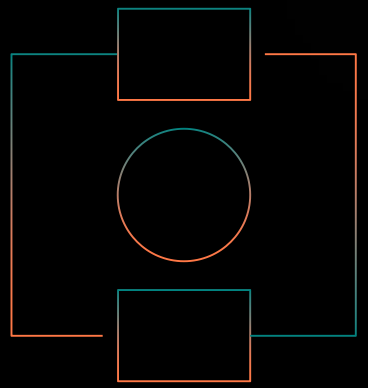
Interact visually with your workflows

Integrated with 200+ AWS services

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Event-driven architectures

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Events are the language of serverless applications

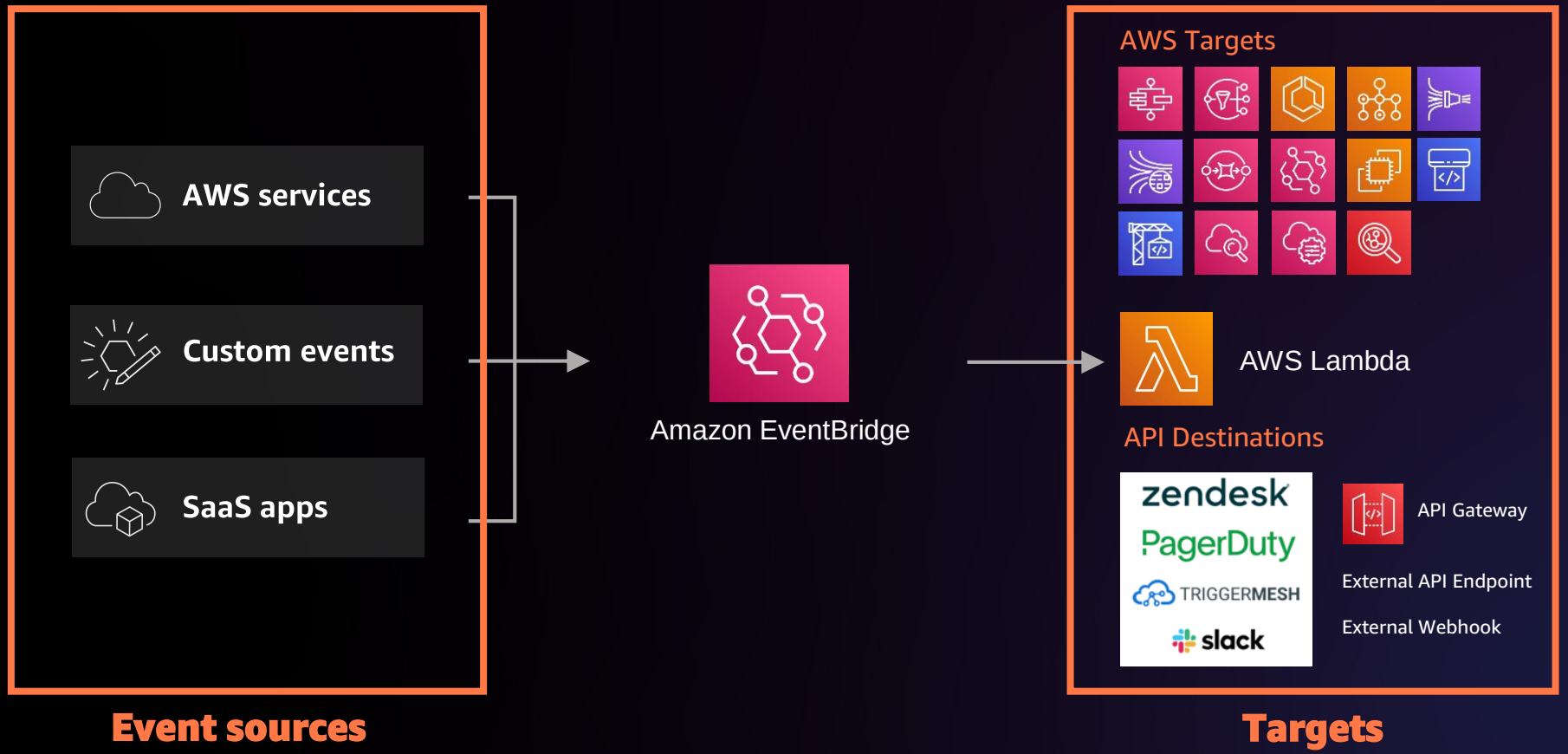
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A familiar and versatile pattern



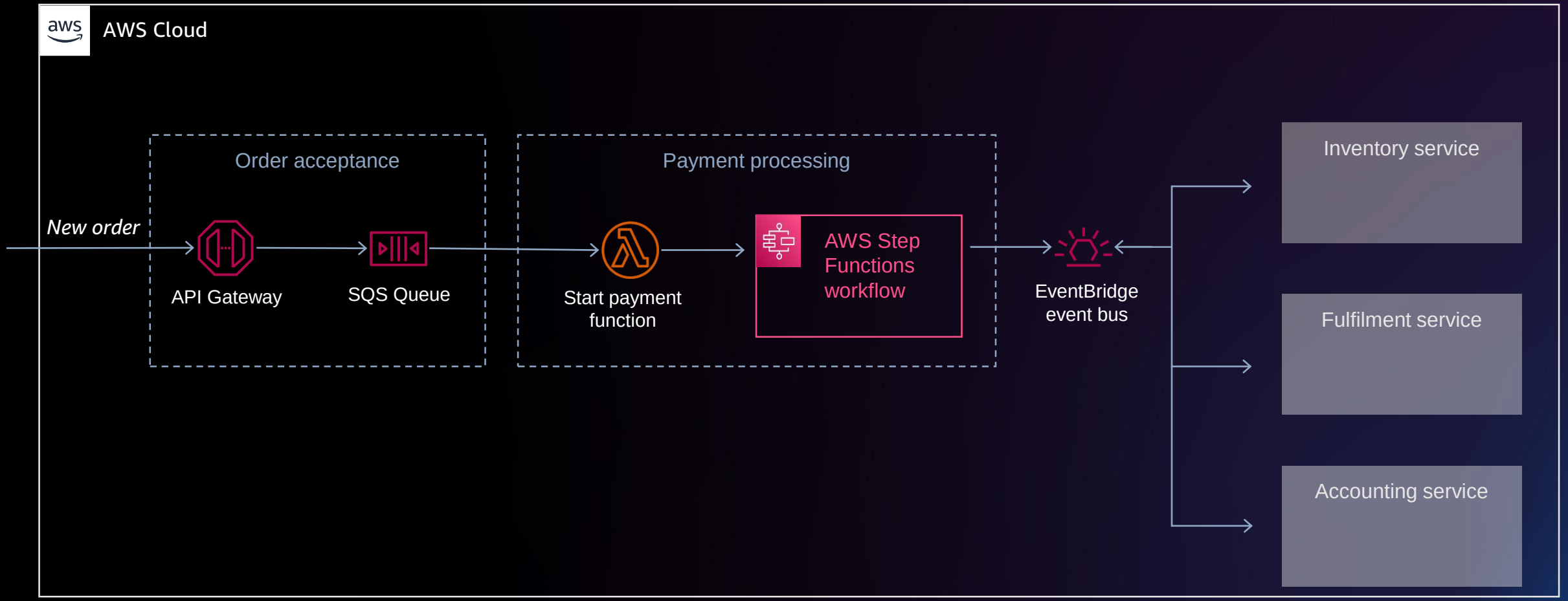
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A familiar and versatile pattern



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Events increase flexibility and extensibility



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Mathem.se scales grocery delivery app



"For day-to-day innovation, we're 5 to 10 times faster."

"…our tech team is 100 percent dedicated to development, rather than infrastructure management."

Fredrik Sewen
CTO, MatHem.se

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Event sources



180+ AWS services



Your applications



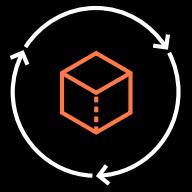
Third-party applications



SaaS applications

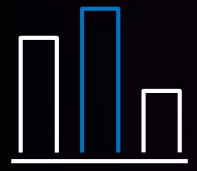
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless helps you innovate



Agility

AWS SAM Accelerate,
AWS Step Functions
Workflow Studio



Performance

Ephemeral storage



Cost

AWS Lambda functions
powered by Graviton2



Security

Built-in

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Go build!

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.