

AWS State, Local, and Education Learning Days

North Carolina



Building Serverless Architectures

Why is everyone moving to serverless?

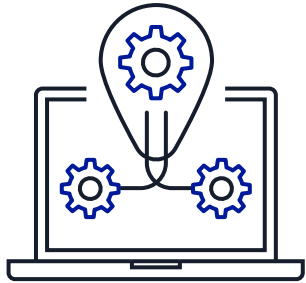
Ankit Battawar

Solutions Architect

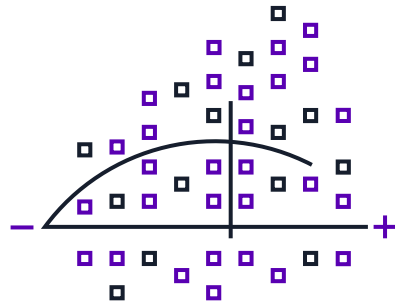
AWS

battawar@amazon.com

What are customers building with serverless?



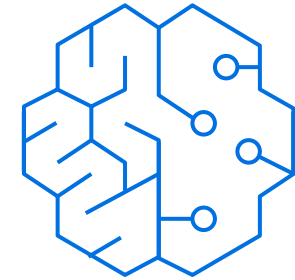
**IT
Automation**



**Data
processing**



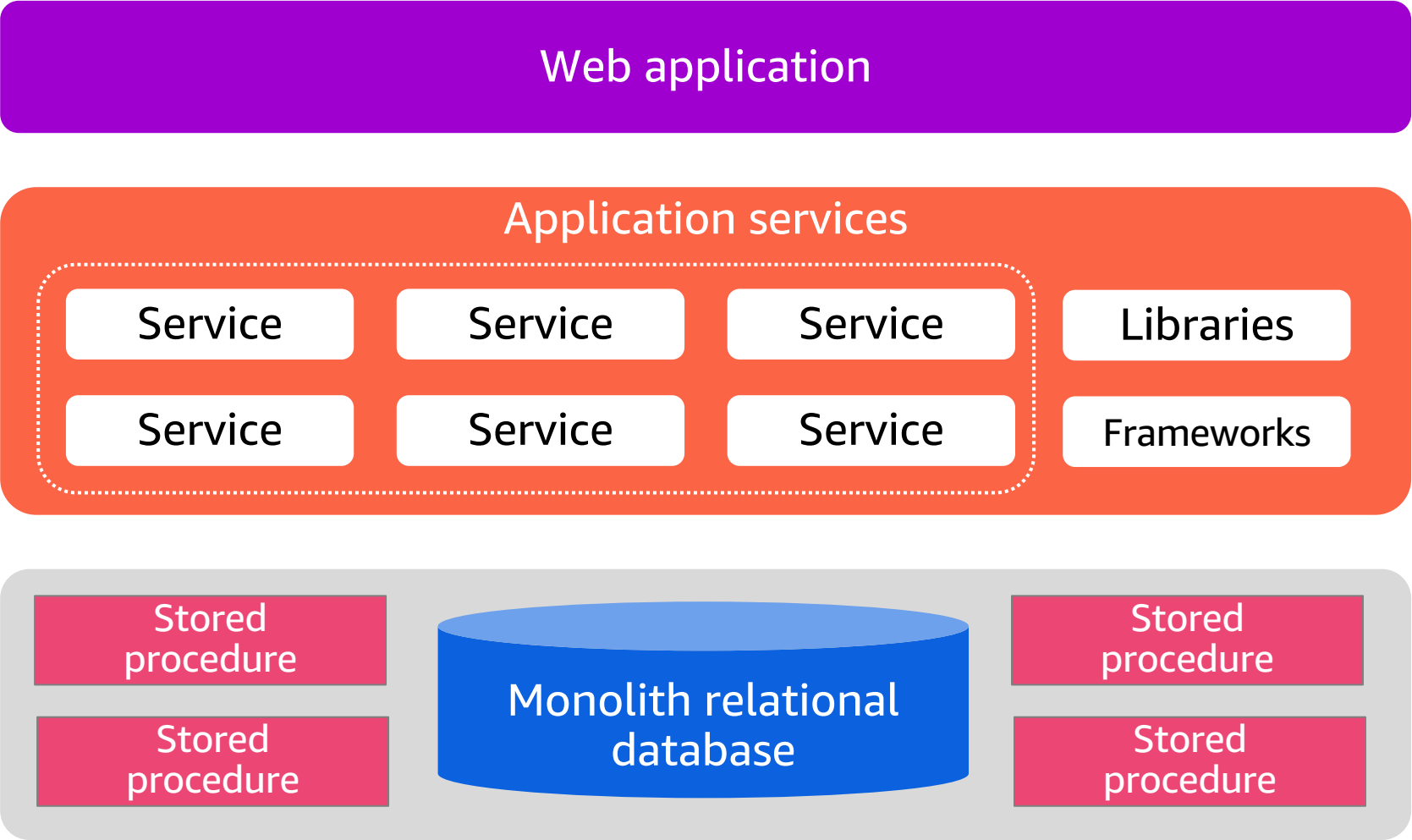
**Web
applications**



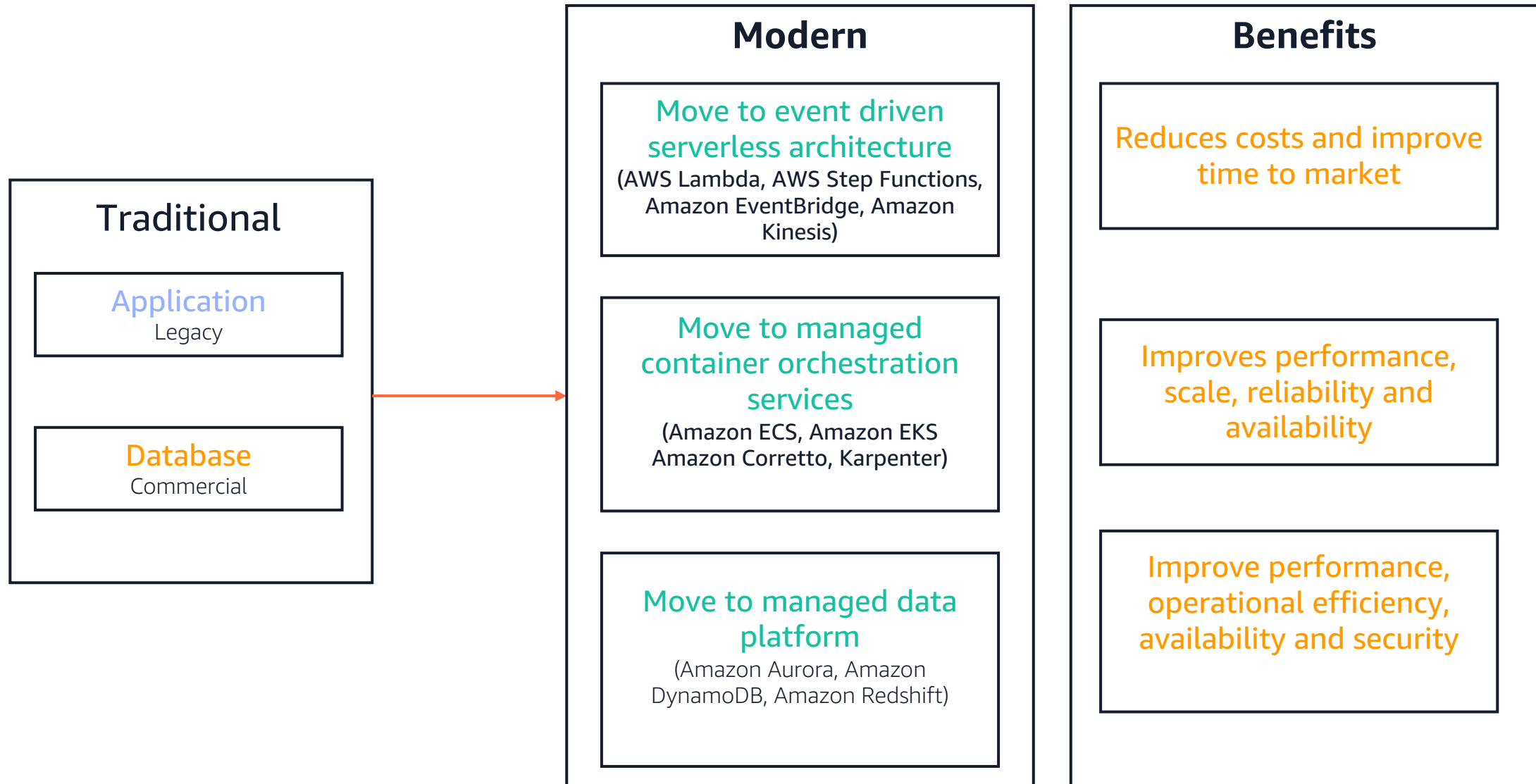
**Machine
Learning**

The traditional architecture

Business
logic

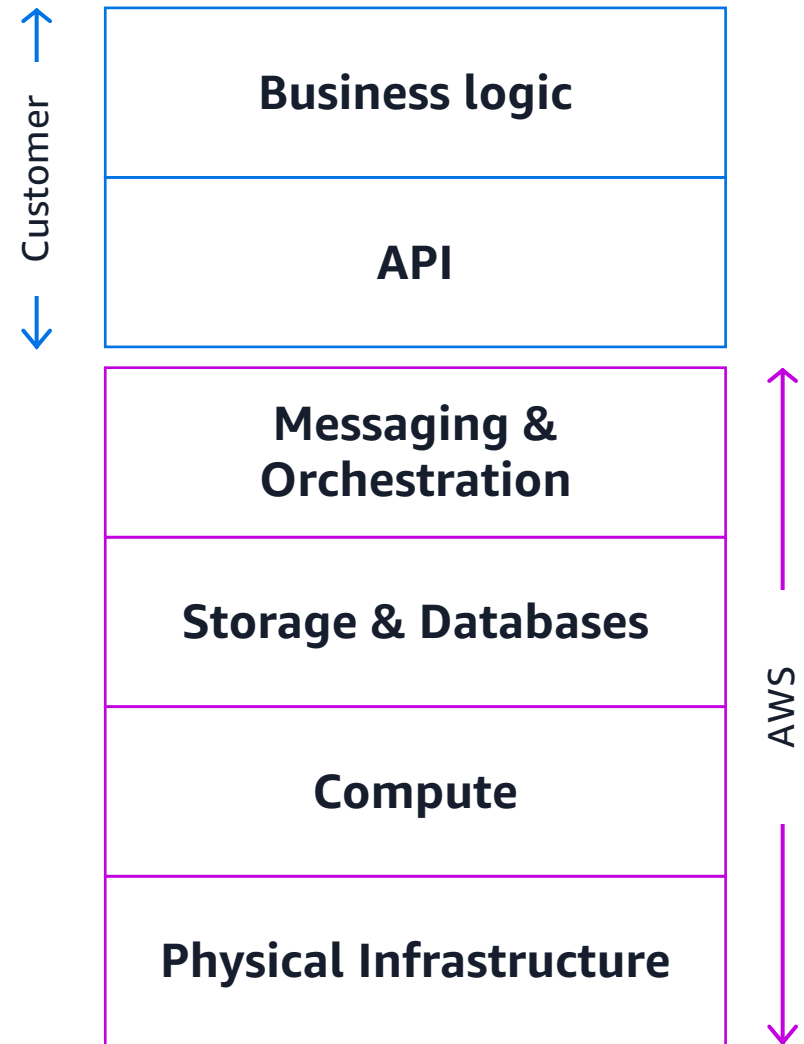


Workload modernization



What is serverless?

Serverless services simplify the management and scaling of cloud applications by shifting undifferentiated operational tasks to the cloud provider so **development teams can focus on writing code** that solves business problems



The Serverless advantage

Applicability



Require excellent infra fundamentals—
performance, security, reliability

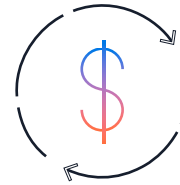


Want opinionated infrastructure
that handle undifferentiated tasks

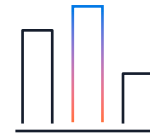


Need to channel site reliability and
operations away from service delivery

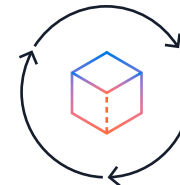
Business outcomes



Lower TCO



Better performance & security



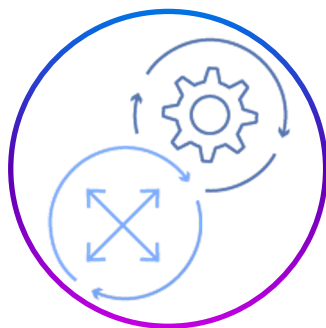
Greater agility

General approach to thinking serverlessly



Features first

Avoid monolithic thinking



Focus on events

Events are triggers that cause action



Statelessness

The key to scaling effectively



Data flow

Make data decisions early on



Use the services

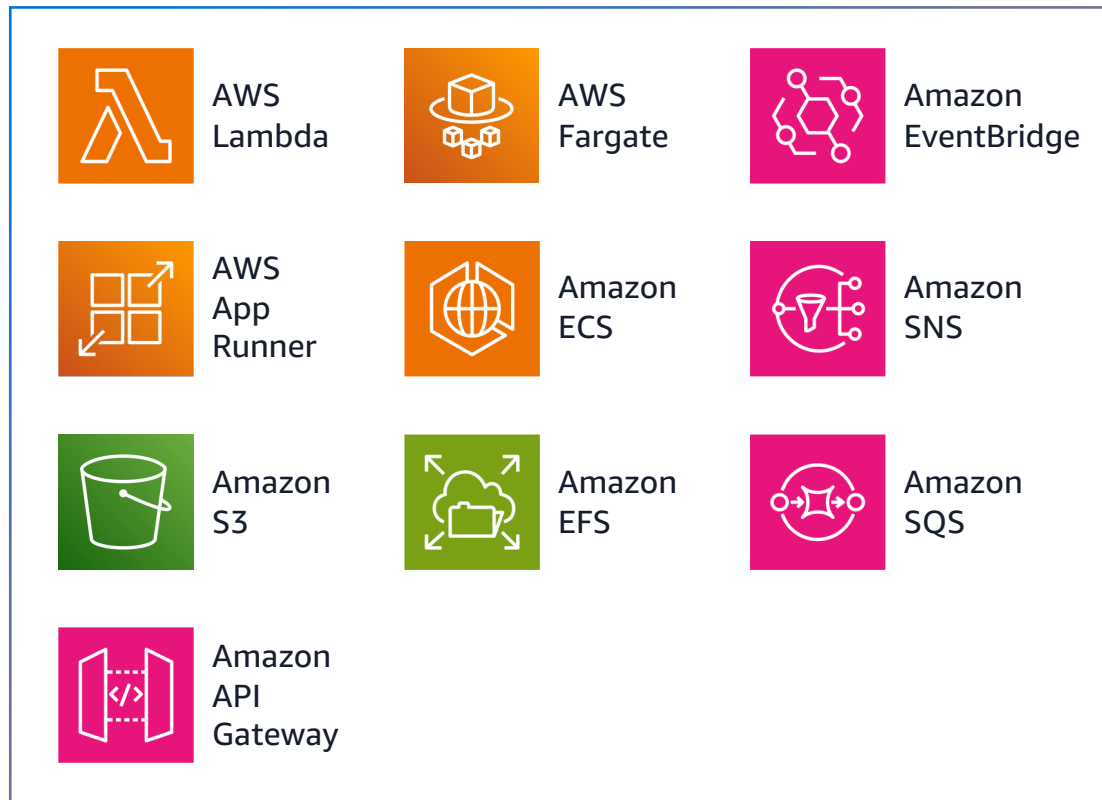
Don't reinvent the wheel

AWS serverless spectrum

AWS offers the widest portfolio of serverless services for running and building modern apps

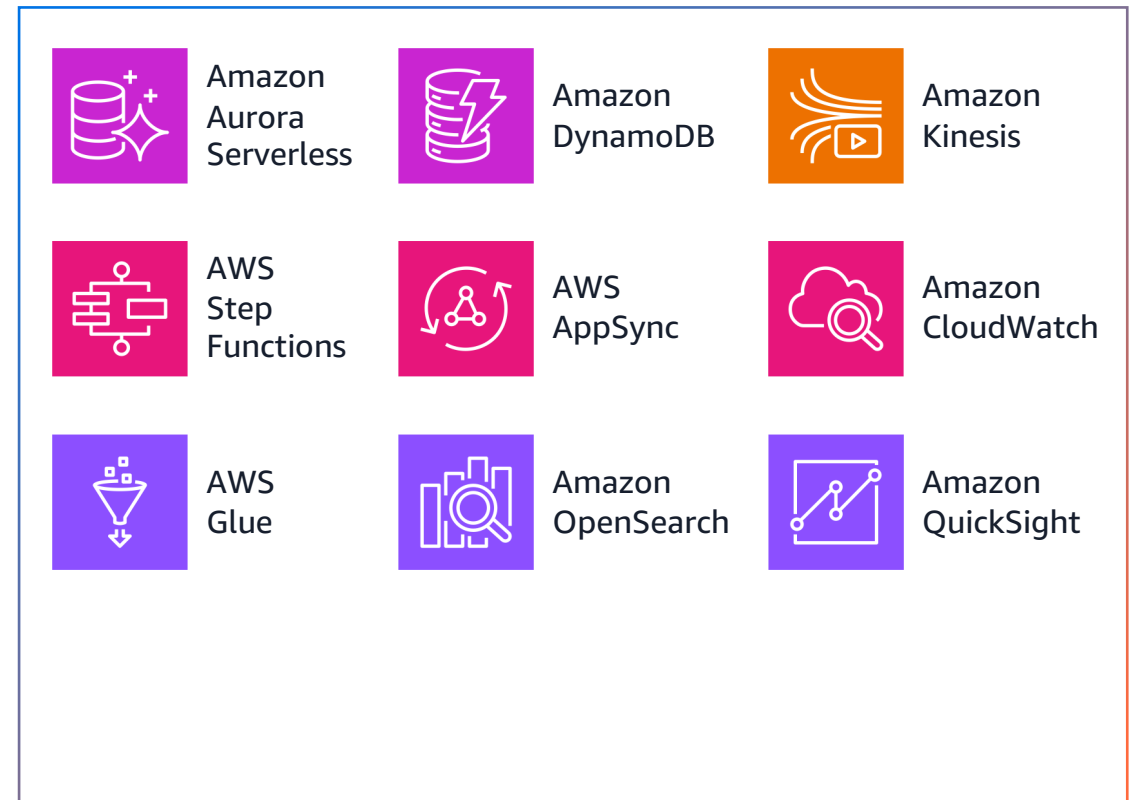
From Primitives to...

(Examples: compute, containers, buses)



...Peripherals

(Examples: databases, analytics, workflows)



How AWS Lambda fits in

Attributes

- Runs your code on demand
- Supports many languages (runtimes)
- Responds to events
- Stateless
- Automatically scales

Best practices

- Avoid lifting-and-shifting
- 1 Lambda function per purpose
- Keep functions small
- Choose the right runtime
- Use functions for business logic and plumbing between services
- Include security

Integrating with other AWS services



Amazon
Bedrock



Amazon
Rekognition



Amazon
Comprehend



Amazon
Textract



Amazon
Transcribe



Amazon
Translate



AWS App Studio
(Preview)

Good serverless practices

- Infrastructure is disposable
- Asynchronous versus synchronous processing
- Mix and match runtimes
- Security still top priority
- Automation – deploy with Infrastructure as Code (IaC)
 - AWS Serverless Application Model (AWS SAM)
 - AWS Cloud Development Kit (CDK)
 - Serverless framework
 - AWS Amplify

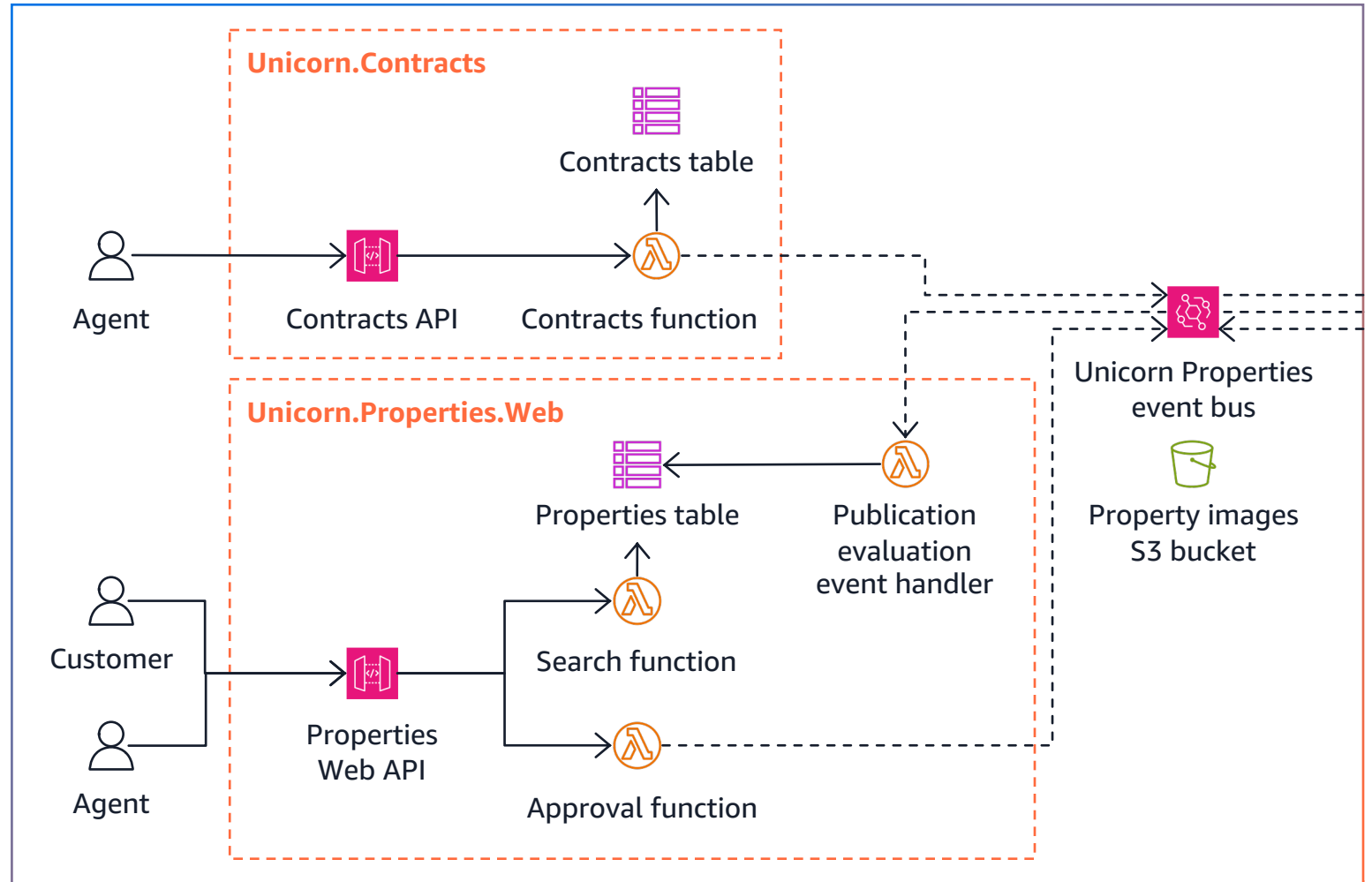
Whiteboarding

Serverless is the fastest way to build modern apps

Small App components loosely coupled through events



Highly responsive,
fault tolerant
asynchronous
applications



Form Upload

Create a serverless application to support a student feedback form submitted from a webpage

Incoming responses must be translated into English

Allow user to upload image with a response

Email any negative comments immediately

Only allow signed-in students to post feedback

Lab room reservations

Create a serverless application to allow students to reserve a lab room by SMS text message

Add a display
showing
upcoming
reservations
in real time

Speak the
name of a
student when
ready

Send a daily
reservation
email report

Alert a legacy
application
when
reservations
are made

Web application

Create a serverless web application to support a national outreach application

Ensure fast performance for visitors in multiple Regions

Allow users to create accounts (including social login)

Support uploading and serving user videos

Let users 'like' videos and receive updates

Wrap up



Additional resources

- Serverless on AWS: <https://aws.amazon.com/serverless/>
- Serverless Land: <https://serverlessland.com/>
- AWS Lambda: https://aws.amazon.com/lambda/?nc2=h_ql_prod_serv_lbd
- Serverless Databases: <https://aws.amazon.com/what-is/serverless-database/>
- Aurora Serverless: <https://aws.amazon.com/rds/aurora/serverless/>
- ML inferencing with serverless: <https://aws.amazon.com/blogs/machine-learning/machine-learning-inference-at-scale-using-aws-serverless/>



Thank you!

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for this session



Application Modernization and Security

Serverless architectures – why is everyone moving to serverless?