
AWS
re:Invent

SVS201

Enabling a serverless-first Cloud Center of Excellence

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Why are we here?

1. Why serverless-first for your organization
2. Common patterns for serverless-first success
    - Organizational changes
    - Establish operational guardrails
    - Pilot projects early
3. Liberty Mutual’s journey to serverless-first



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“If Amazon.com were starting today, it would go serverless.”

Andy Jassy

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A serverless-first strategy

Speed to market

30x faster development

Keep costs down

60% lower TCO

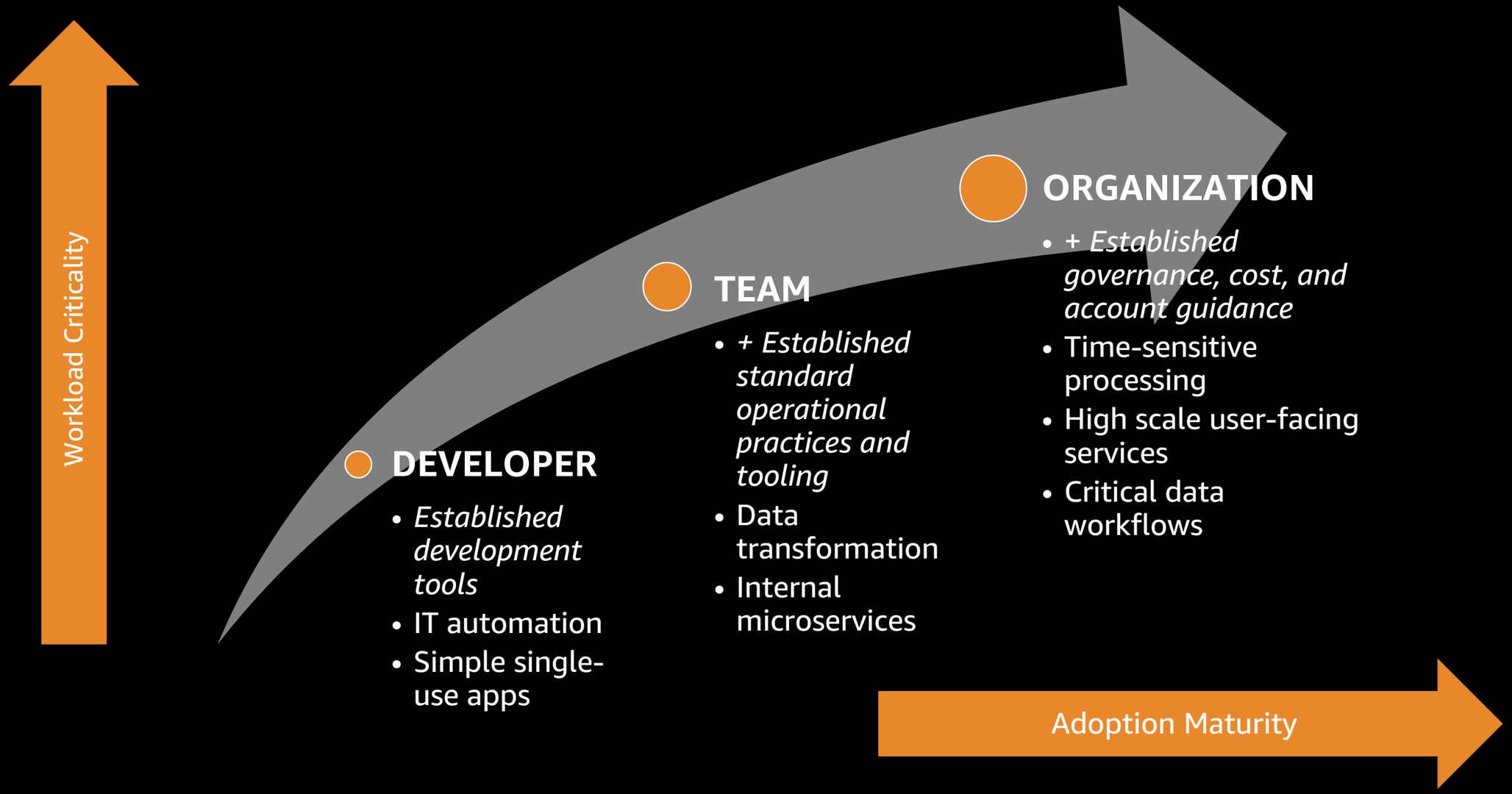
Autonomy

Hundreds of thousands of active customers a month

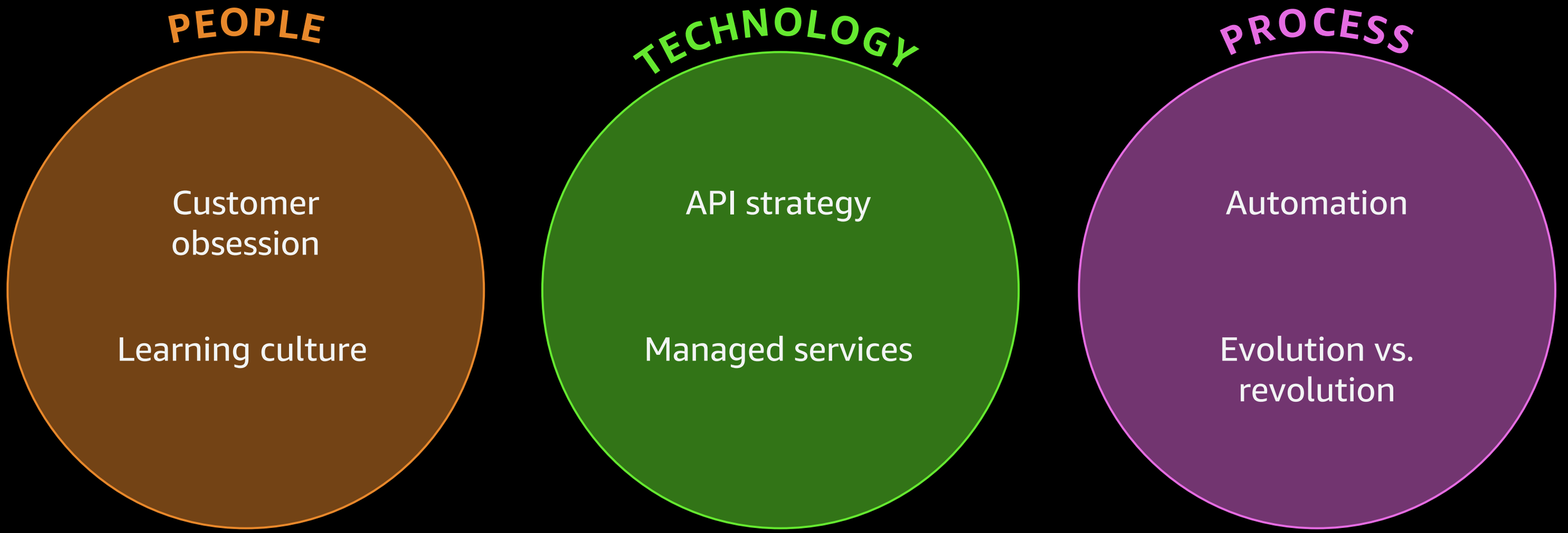
Scalability, flexibility

Trillions of executions a month

Emerging serverless adoption pattern



Assess where you are



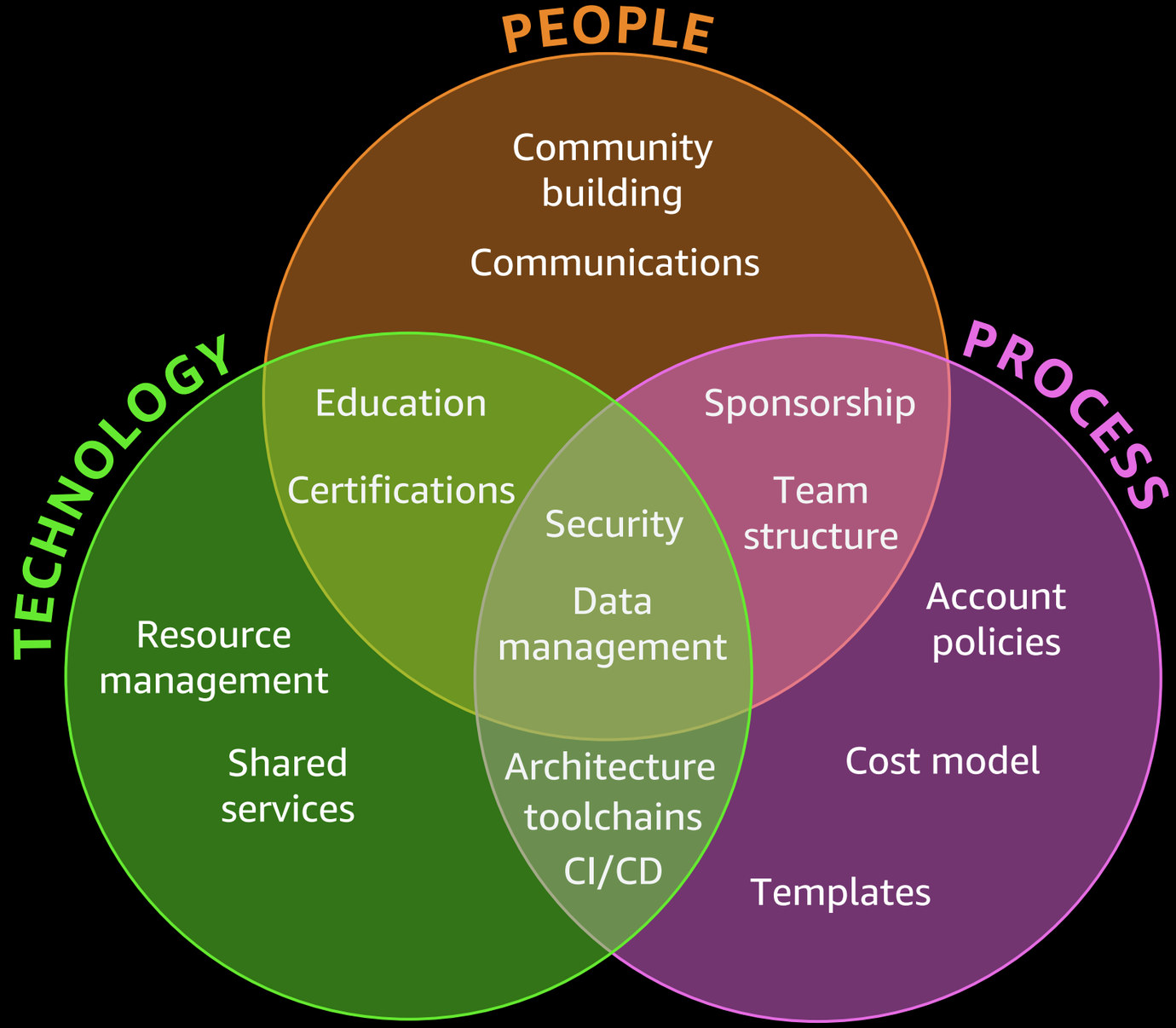
What does this mean for a Cloud Center of Excellence?



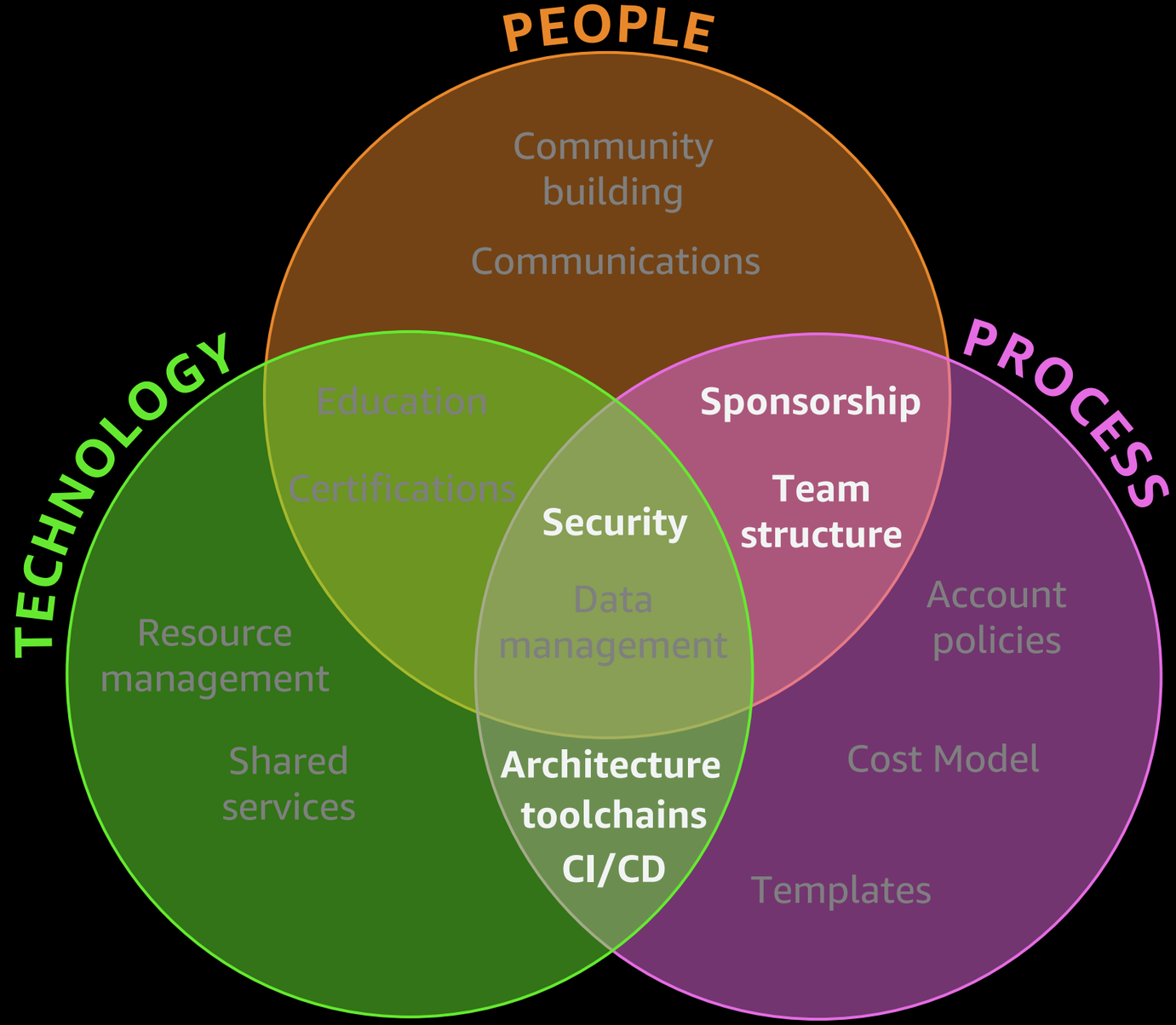
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Key CCoE activities



Prioritizing CCoE activities for serverless-first



Common patterns for serverless-first success

1. Recruit your executive sponsor
2. Establish operating principles and guardrails
3. Encourage pilot projects early

Recruit your executive sponsor



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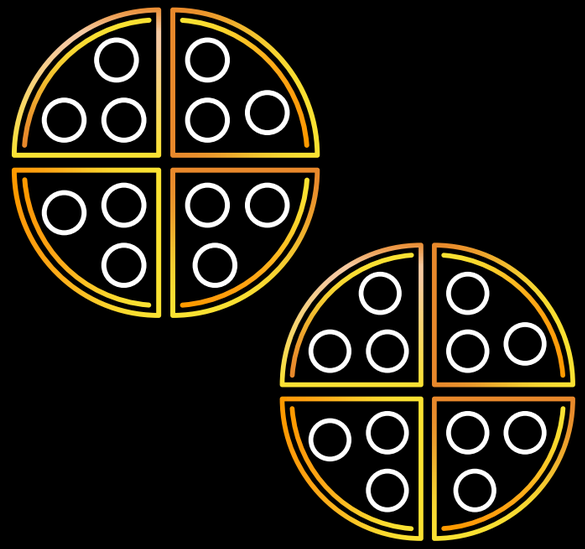
Recruit your executive sponsor



Organizational direction

Vision setting

Focused innovation



Organizational changes

Full ownership and autonomy

2-pizza teams – small and nimble

Establish operational principles and guardrails



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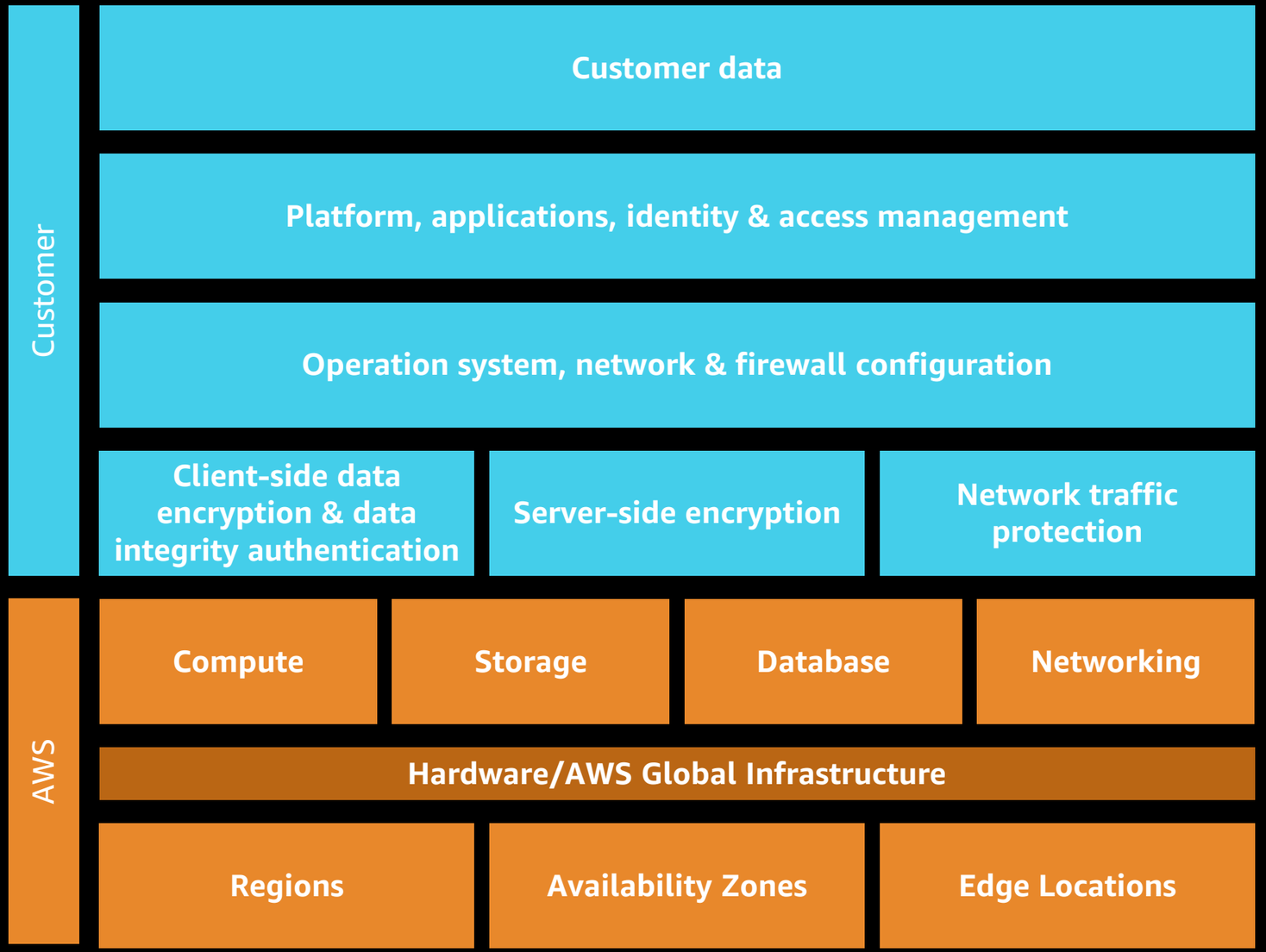
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Key operational guardrails

- Shift security focus higher on the stack
- Standardize on a CI / CD development framework
- Evolve monitoring beyond just failures

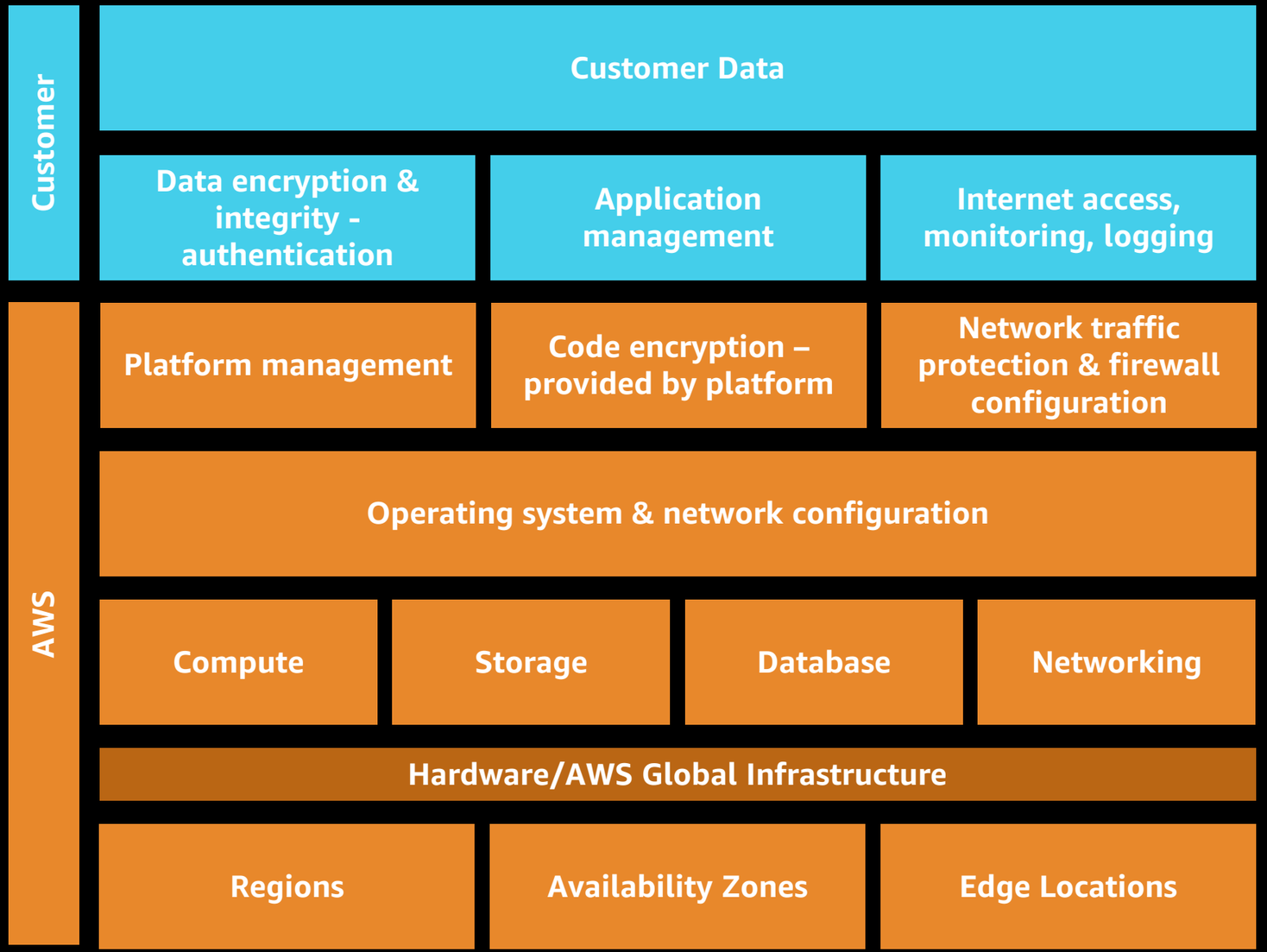
Shift security focus higher on the stack

- A shared responsibility model
- Each line of code is exposed only to vulnerabilities in the specific line of code
- Best practices in security still apply

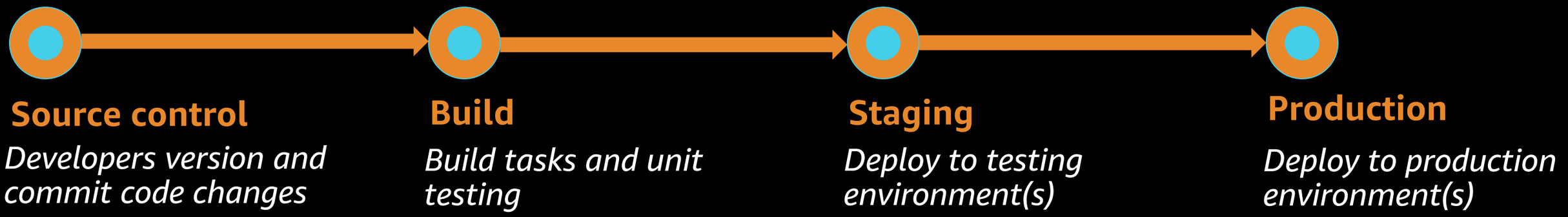


Shift security focus higher on the stack

- A shared responsibility model
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- Best practices in security still apply



Standardize on a CI/CD development framework



- Evaluate tooling across the entire development lifecycle
- Choose the right framework for your use case
- Increase value of integration testing

Evolve monitoring beyond just failures



Customer experience



Short-lived resources



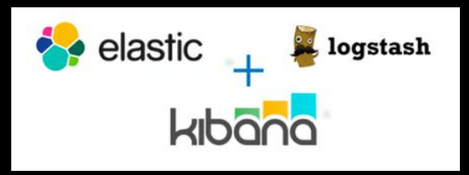
More devices, services, data



Faster release velocity

Fender – development framework and tooling

- Frameworks
  - Serverless Framework
- Builds and deployment
  - Terraform
  - CircleCI
  - AWS Lambda
- Logging
  - Amazon Kinesis Data Streams
  - Elasticsearch, Logstash, Kibana
  - Honeycomb
- Performance monitoring
  - Datadog
  - Amazon CloudWatch
  - AWS X-Ray



















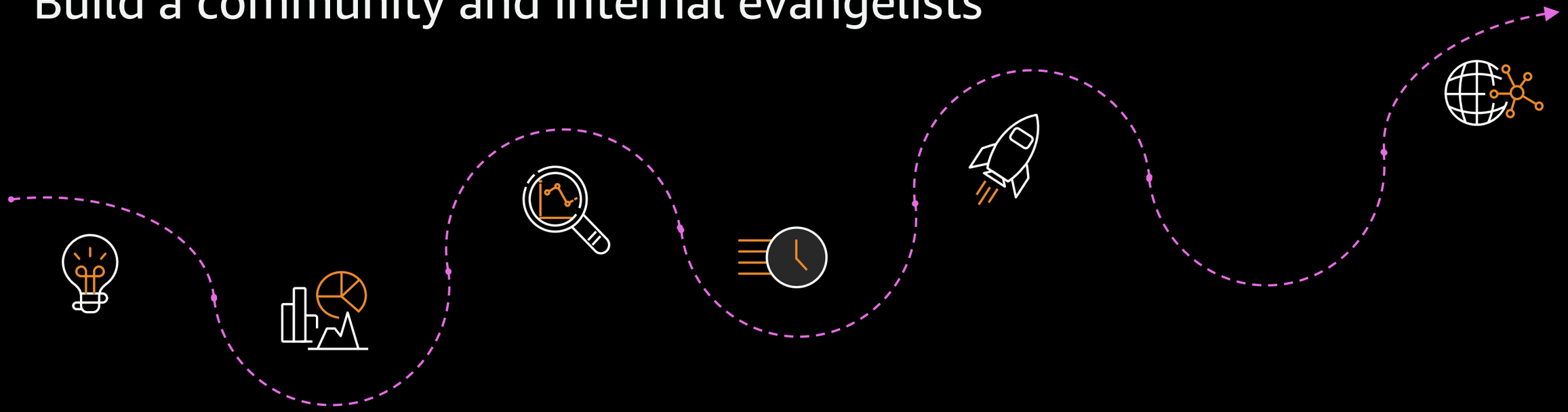
Encourage pilot projects early



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Discover and iterate with every pilot

- Leverage Well-Architected every step of the way
- Communicate your success via metrics
- Document lessons learned
- Standardize through reusable patterns
- Build a community and internal evangelists



Enabling serverless-first is a journey



Built an integrated experience with Netflix in **just 4 months**; enables their teams to move faster and attract the best talent, while also cutting costs

---



Launched new features in weeks and reduced the time to build new application infrastructure by more than **99 percent**



Built and launched Home Delivery in **less than 4 months**; scales to 20,000 orders per second with less than 100ms latency

---



Migrated integrated communication system and **reduced costs over 65 percent**, while increasing requests over 3x to 80 million calls per month

---



Run experiments quickly and cheaply, reducing **costs of analysis by 90 percent** and **time of analysis by 95 percent**

Liberty Mutual's journey to serverless-first

David Anderson
Director of Technology



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About Liberty Mutual Insurance

Liberty Mutual INSURANCE

Our purpose: We exist to help people embrace today and confidently pursue tomorrow.
Our promise: We promise protection for the unexpected, delivered with care.

HQ
in Boston, MA

6th
largest global P&C insurer*

$43.2 billion
annual consolidated revenue*

Nearly
45,000
employees

29 countries & economies globally

*Consolidated revenue as of 12/31/2018. 6th largest global P&C insurer based on gross written premium

A different North Star



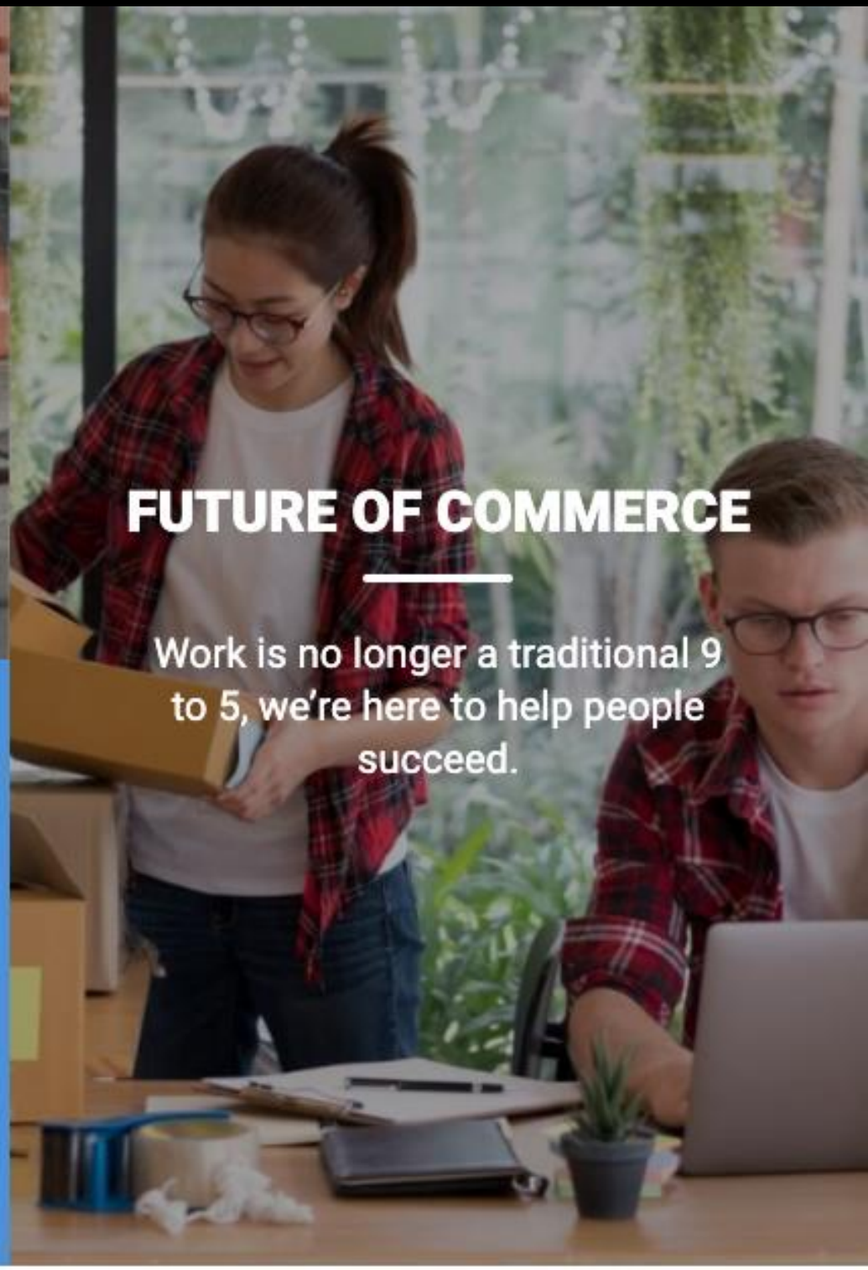
FUTURE OF SHELTER

How and where people live is evolving, we're here to protect them.



FUTURE OF MOBILITY

People are changing the way they move, we're changing with them.



FUTURE OF COMMERCE

Work is no longer a traditional 9 to 5, we're here to help people succeed.

Foundations for a serverless CCoE

Map your user needs:
Innovation, speed, value, learning



- Assemble a team of experts
- Show don’t tell with early wins
- Use the ambassador approach for leadership support
- Create reusable patterns
- Engage and evangelize through the company narrative
- Scale and evolve

Who are the team? Expert enablers.



Builders, who can influence and lead by enablement *(Team Topologies)*

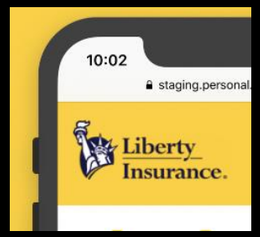
Early wins



Virtual Assistant



Financial Central Service



Global Digital Ecosystem



WorkGrid Digital Assistant

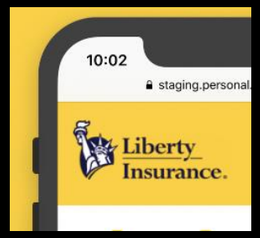


ID3E Intelligent Documents

Early wins

Virtual Assistant

Financial Central Service



Global Digital Ecosystem

WorkGrid Digital Assistant

ID3E Intelligent Documents

Serverless NLP system takes over 200K calls/month at $0.04 per call

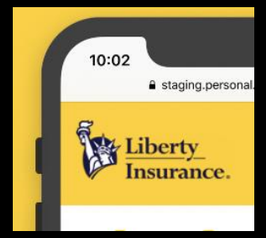
Early wins

Virtual Assistant

Serverless NLP system takes over 200K calls/month at $0.04 per call

Financial Central Service

Process 1 million financially significant transactions for $60 – AWS Step Functions & resilient



Global Digital Ecosystem

WorkGrid Digital Assistant

ID3E Intelligent Documents

Early wins



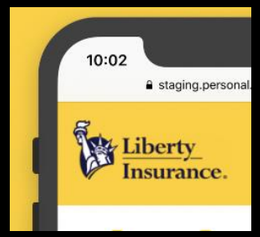
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Financial Central Service

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Global Digital Ecosystem

Driving a global book of business while we use serverless to reduce operational burden



WorkGrid Digital Assistant



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Early wins



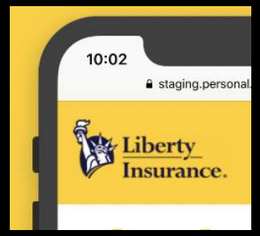
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WorkGrid Digital Assistant

Entire serverless-first company built by 8 engineers with enterprise compliance



ID3E Intelligent Documents

Early wins



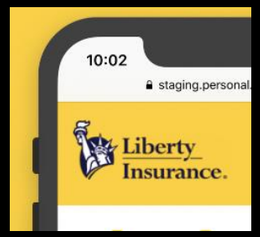
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Entire serverless-first company built by 8 engineers with enterprise compliance



ID3E Intelligent Documents

Innovative AI system for “document understanding” built in 12 weeks

Leadership support – Ambassador



2016

The Future of Cloud is Serverless

We will continue to build our skill set to include serverless architecture. In so doing, we will shift more of our operational responsibilities to AWS, increase our agility, and build capacity for innovation. Serverless eliminates infrastructure management tasks such as server and cluster provisioning, patching, operating system maintenance, and capacity provisioning. Serverless architecture can be used for nearly any type of application or backend service; everything required to run and scale our applications with high availability will be handled for us.

2019

Technical Authority

We focus on high business value problems across Liberty Mutual via our serverless first approach and AI/ML

2020

The leadership narrative pointed to serverless-first and gave engineers a vision.

Reusable patterns – CDK



CDK Patterns

22 open-source serverless patterns (and counting)





Software
Accelerator

– Liberty Mutual tailored CDK Patterns
– 3500 serverless patterns deployed (Sept 2020)

Engage and evangelize

Lower the barrier to entry by

- AWS certification support
- Engineer events:
  - Serverless Days & AWS Summits
- Hands-on CDK workshops
- Clear Engineering Excellence standards





Scale

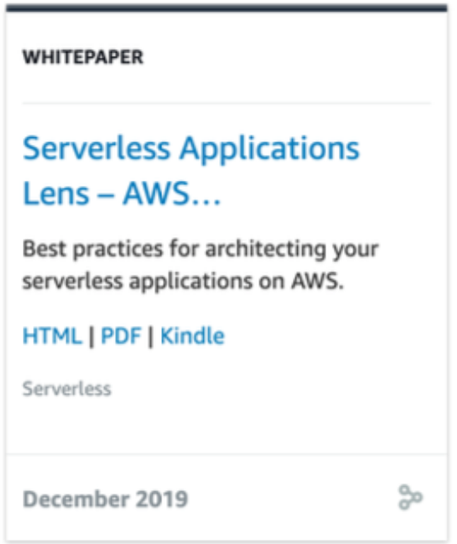
AWS Well-Architected

Learn, measure, and build using architectural best practices

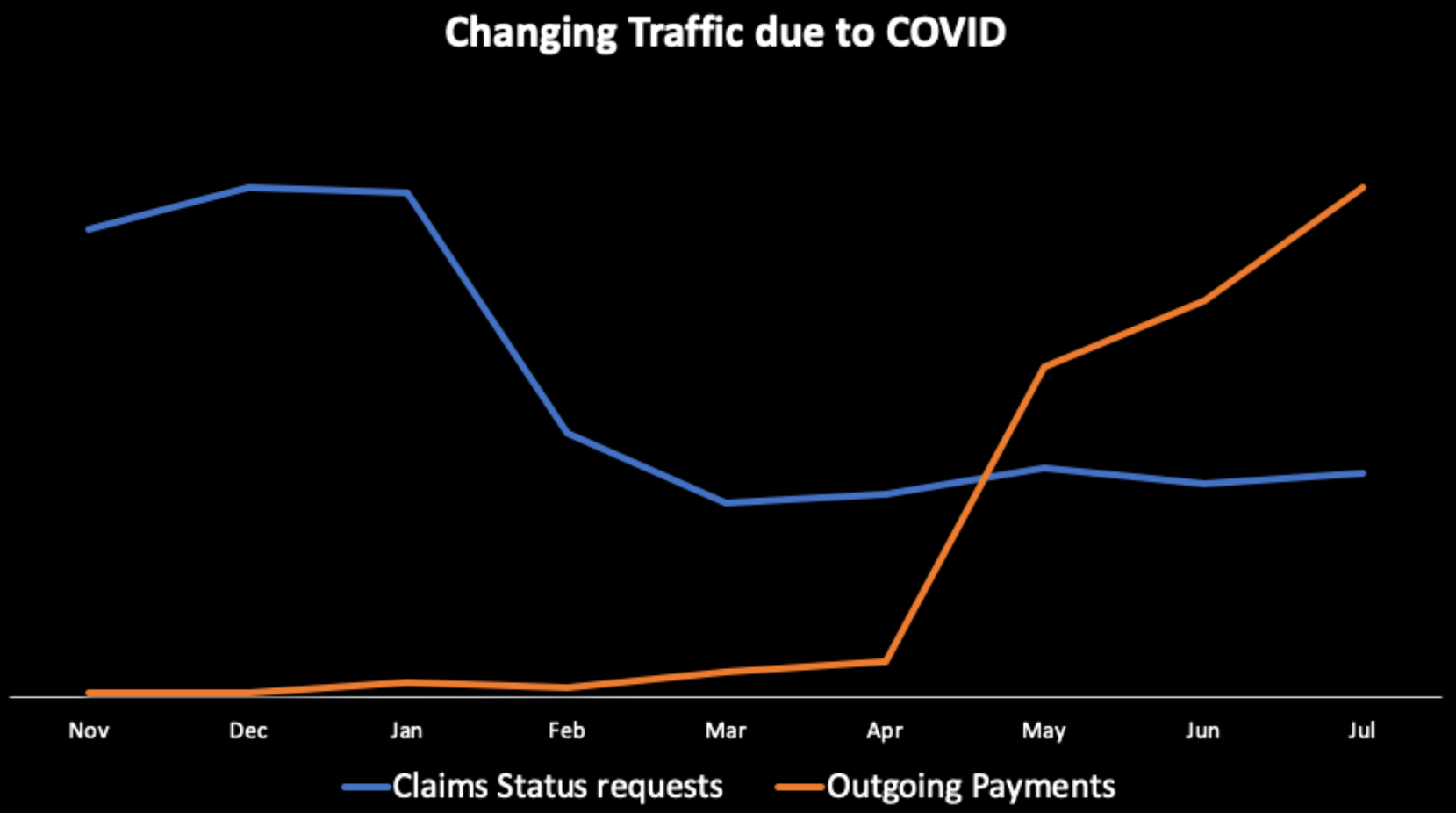
- Operational Excellence
- Security
- Reliability
- Performance Efficiency
- Cost Optimization



+



The business value of serverless Well-Architected?



What happens when systems have unexpected demands?

A **high-volume** system drops in demand and scales down (blue).

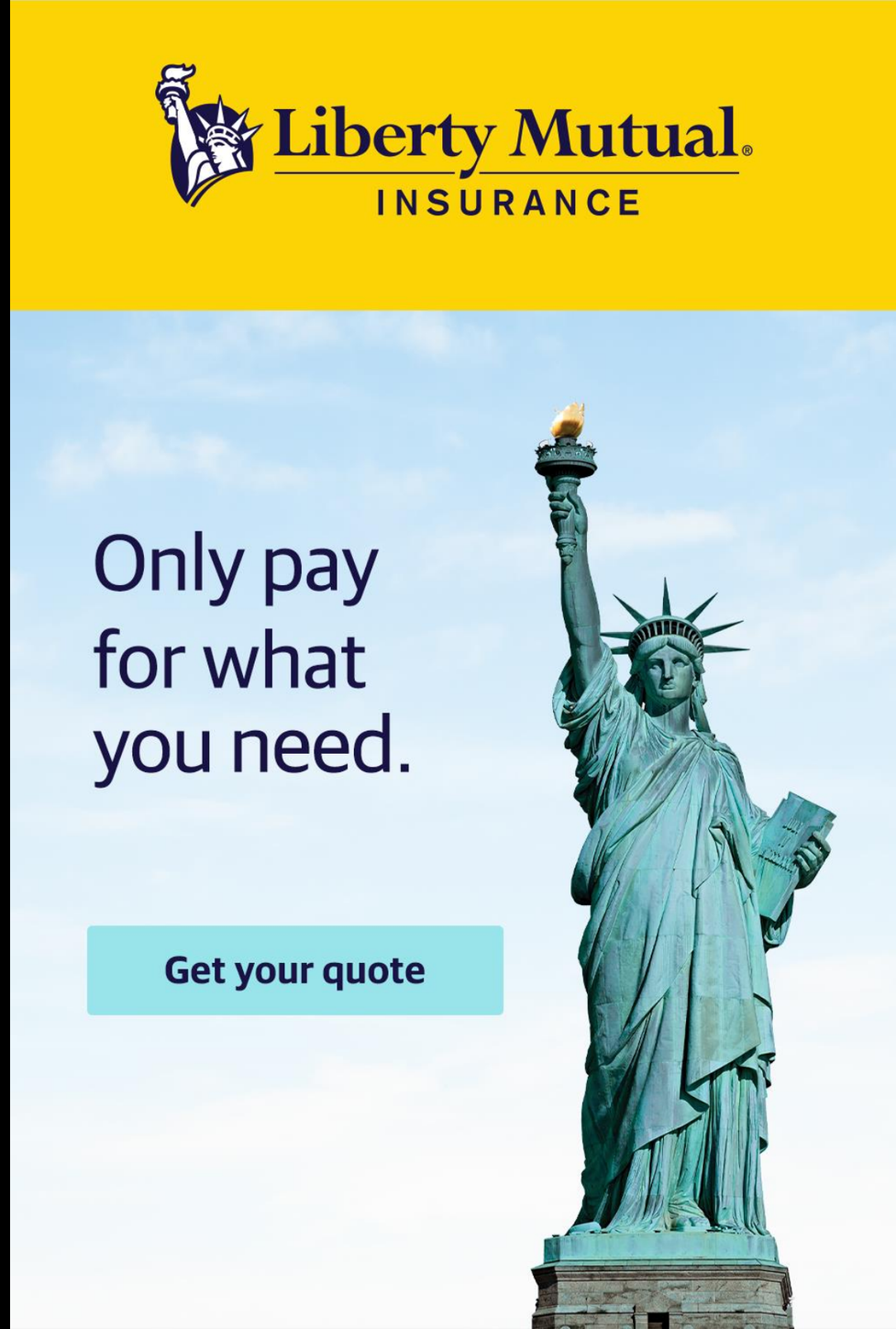
A **low-volume** system rapidly increases demand and scales up (orange).

A serverless, Well-Architected system will respond accordingly.

The serverless edge

Map your journey – *strategy*
“Code is a liability” – *mindset*
Be an ambassador – *leadership*

Speak the language of business



Related sessions to learn more

- SVS291-L: Increasing innovation with serverless applications
- SVS302: How LEGO.com accelerates innovation with serverless

- SVS209: Build, test, and deploy with tools for serverless applications
- SVS307: Best practices for securing your serverless applications
- SVS308: Becoming proficient with serverless application observability
- SVS310: CI / CD for serverless applications

Thank you!



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