



# Infrastructure as Voice and Serverless

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# AGENDA



AWS

Demo

Alexa Skills

Systems Manager

Security

# AWS South America

Established São Paulo office in 2011

Opened South America (São Paulo) Region in 2011

3 Availability Zones for high availability applications

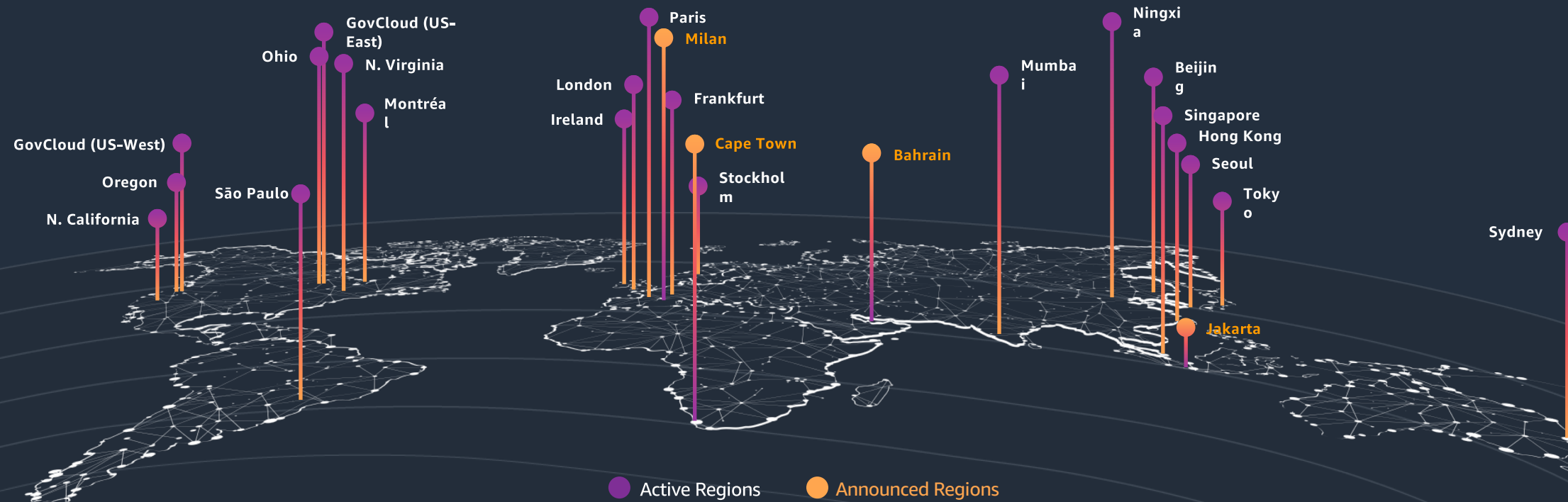
5 CloudFront Points of Presence in Rio de Janeiro (3) and São Paulo (2)



## SÃO PAULO

- AWS office (2011)
- AWS Region (2011)
- 3 Availability Zones
- 5 Points of Presence :  
Rio de Janeiro, Brasil (3);  
São Paulo, Brasil (2)

# AWS Global Infrastructure





# aws The broadest and deepest platform for today's builders

## TECHNICAL & BUSINESS SUPPORT

STORAGE TRAINING & CERTIFICATION PARTNER ECOSYSTEMS SECURITY & BILLING REPORTS PROFESSIONAL SERVICES SOLUTIONS MANAGEMENT OPTIMIZATION GUIDANCE ACCOUNT MANAGEMENT PERSONALIZED DASHBOARD

## ROBOTICS

CLOUD ROBOTICS

## AR/VR

AR/VR EXPERIENCES

## SATELLITE

SATELLITE OPERATIONS

## MARKETPLACE

BUSINESS APPS SECURITY STORAGE BUSINESS INTELLIGENCE NETWORKING DATABASES DEVOPS TOOLS

## SECURITY & COMPLIANCE

IDENTITY MANAGEMENT MONITORING & LOGS DDOS PROTECTION  
CONFIGURATION COMPLIANCE ACCOUNT GROUPING WEB APPLICATION FIREWALL  
ACCESS VvhcCONTROL ASSESSMENT & REPORTING  
KEY MANAGEMENT & STORAGE RESOURCE & USAGE AUDITING

## ANALYTICS

DATA WAREHOUSE DATA PIPELINES ETL  
BUSINESS INTELLIGENCE INTERACTIVE SQL QUERIES DATA LAKES  
HADOOP/SPARK STREAMING DATA COLLECTION  
ELASTICSEARCH STREAMING DATA ANALYSIS

## DEV OPS

ONE-CLICK APP DEVELOPMENT APPLICATION LIFECYCLE MANAGEMENT PATCHING  
RESOURCE TEMPLATES DEVOPS RESOURCE MANAGEMENT AUTHORIZING  
BUILD & TEST TRIGGERS PIPELINE ORCHESTRATION  
CONTAINERS ANALYZE & DEBUG

## APP SERVICES

QUEUEING & NOTIFICATIONS EMAIL  
WORKFLOW TRANSCODING  
SEARCH

## MOBILE SERVICES

API GATEWAY SYNC TARGETED PUSH NOTIFICATIONS  
SINGLE INTEGRATED CONSOLE MOBILE ANALYTICS DEVELOPMENT FRAMEWORK  
IDENTITY MOBILE APP TESTING PERSONALIZED ENGAGEMENT

## IOT

RULES ENGINE DEVICE GATEWAY  
DEVICE SHADOWS REGISTRY  
DEVICE SDKS LOCAL COMPUTE  
MANAGEMENT & SECURITY MICROCONTROLLER OPERATING SYSTEM

## MACHINE LEARNING

MULTIPLE FRAMEWORKS HOSTED NOTEBOOKS MODEL TRAINING TOPICS MODELING VIDEO AND IMAGE ANALYTICS TEXT AND DATA EXTRACTION TEXT TO SPEECH PERSONALIZATION & RECOMMENDATION FORECASTING  
HARDWARE ACCELERATION PRE-BUILT ALGORITHMS AUTOMATIC MODEL TUNING MODEL HOSTING FACE ANALYTICS ENTITY EXTRACTION SPEECH TRANSCRIPTION TRANSLATION CHATBOTS  
ML MARKETPLACE MODEL OPTIMIZATION ML AT THE EDGE FACE RECOGNITION IMAGE LABELING SENTIMENT ANALYSIS NATURAL LANGUAGE PROCESSING DATA LABELING

## ENTERPRISE APPS

VIRTUAL DESKTOPS CONTACT CENTER APP STREAMING  
SHARING & COLLABORATION ONLINE MEETINGS COMMUNICATIONS  
CORPORATE EMAIL VOICE ENABLED WORKPLACE MOBILE ACCESS

## MANAGEMENT TOOLS

COST MANAGEMENT RESOURCE TEMPLATES GOVERNANCE  
MANAGE RESOURCES MONITORING SERVICE CATALOGUE  
PROVISIONING SERVER MANAGEMENT CONFIGURATION TRACKING

## BLOCKCHAIN

BLOCKCHAIN TEMPLATES MANAGED BLOCKCHAIN LEDGER DATABASE

## MIGRATION

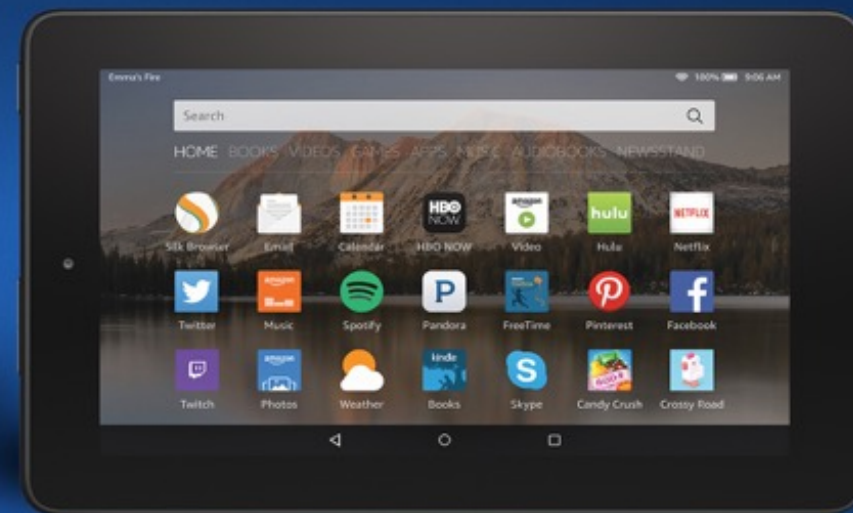
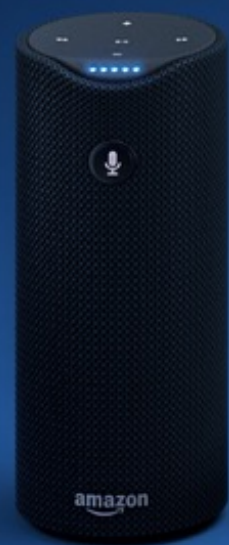
SCHEMA CONVERSION DATABASE MIGRATION EXABYTE-SCALE DATA MIGRATION SERVER MIGRATION APPLICATION MIGRATION

## CORE SERVICES

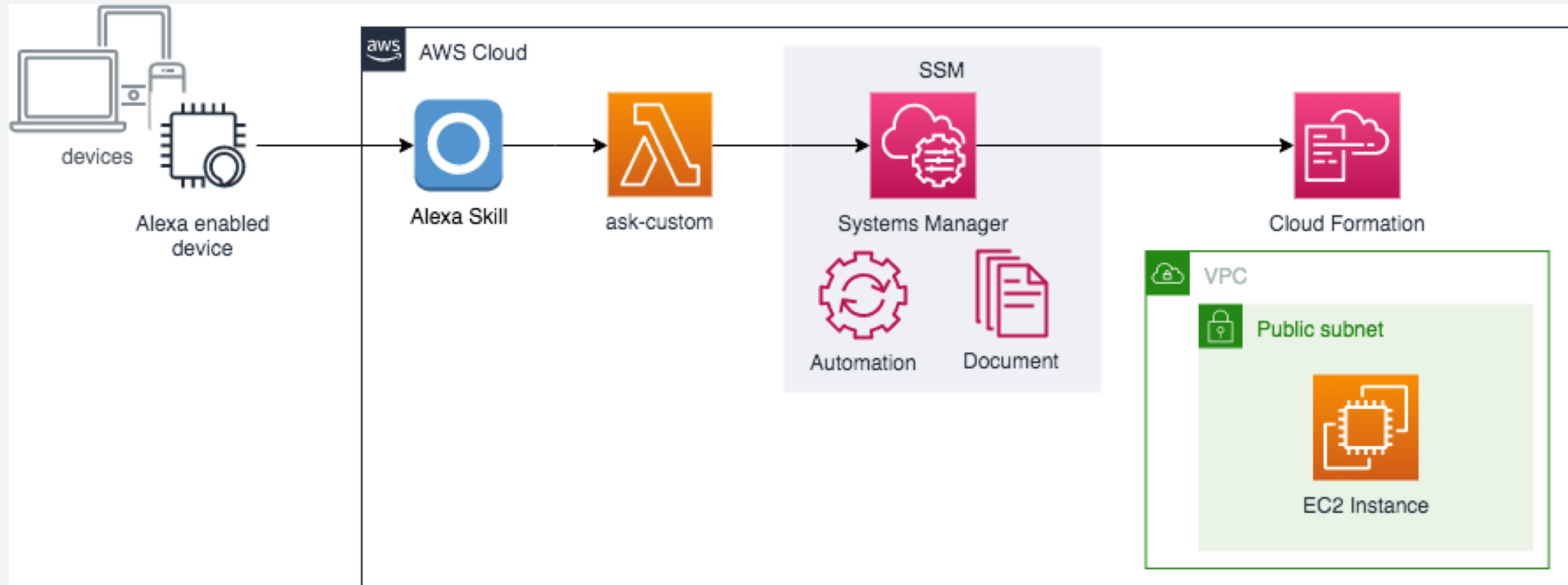
COMPUTE DATABASES CDN STORAGE NETWORKING

## INFRASTRUCTURE

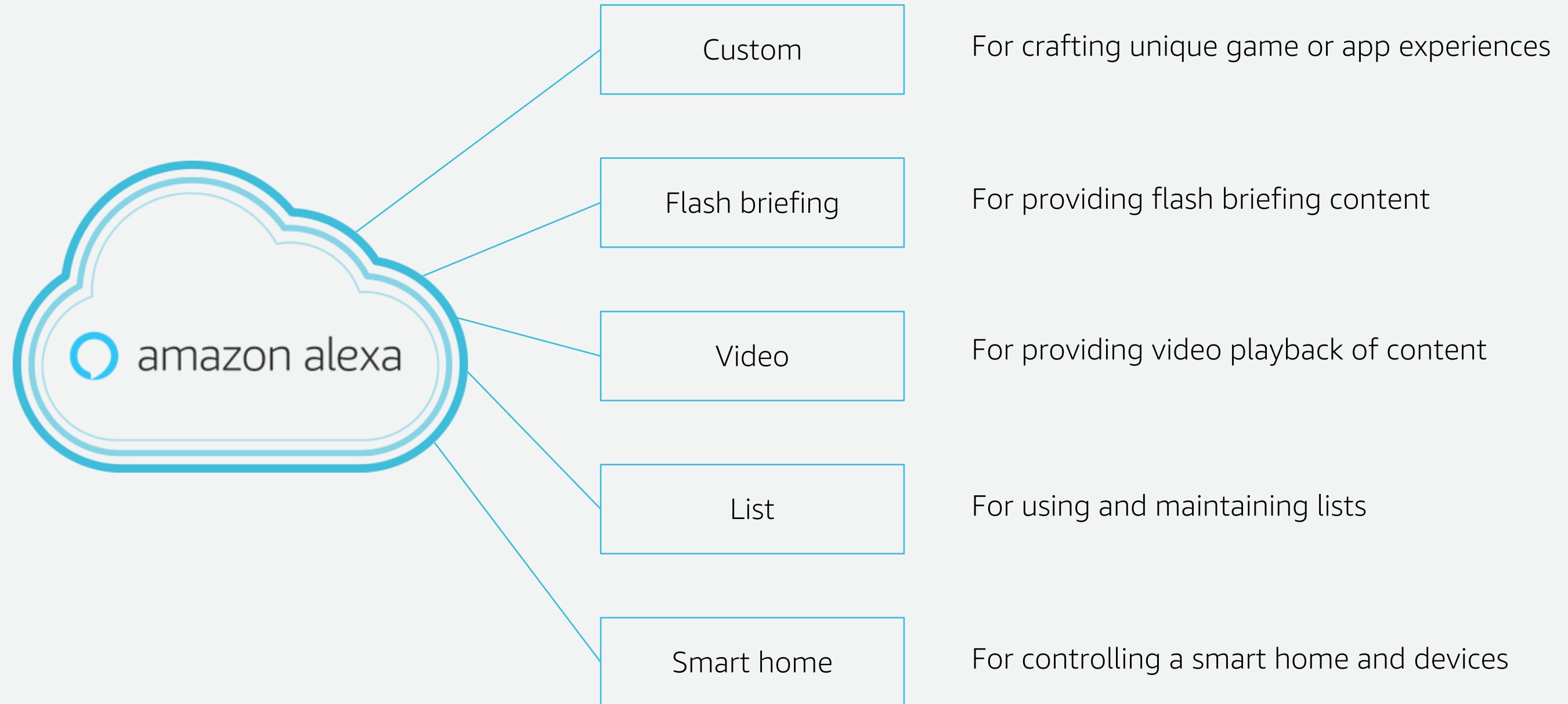
REGIONS GLOBAL NETWORK BACKBONE CUSTOM HARDWARE AVAILABILITY ZONES POWER INFRASTRUCTURE DATA CENTER INFRASTRUCTURE POINTS OF PRESENCE



# Demo Architecture











# Types of Alexa skill models

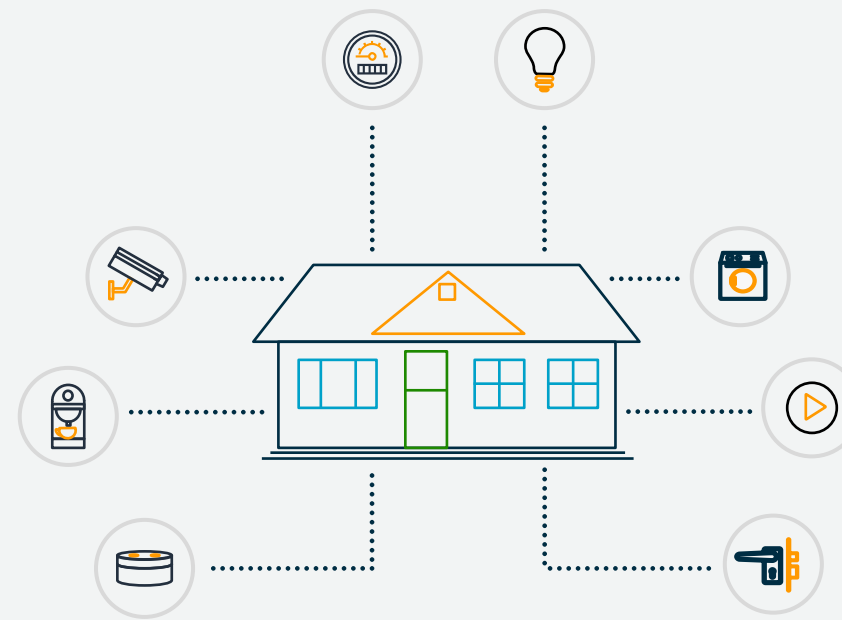


# Connected home market



## Use cases

### Home automation

-  Lighting systems
-  White goods & appliances
-  Media & entertainment
-  Small appliances
-  Home assistants
-  Soundbars
-  TVs
-  Vacuum robots



### Home networking

-  Wi-Fi routers & modems
-  Cable set-top boxes

### Home security & monitoring

-  Security cameras
-  Door locks
-  Thermostat
-  Water leak detectors
-  Smart meters

# The Alexa Service

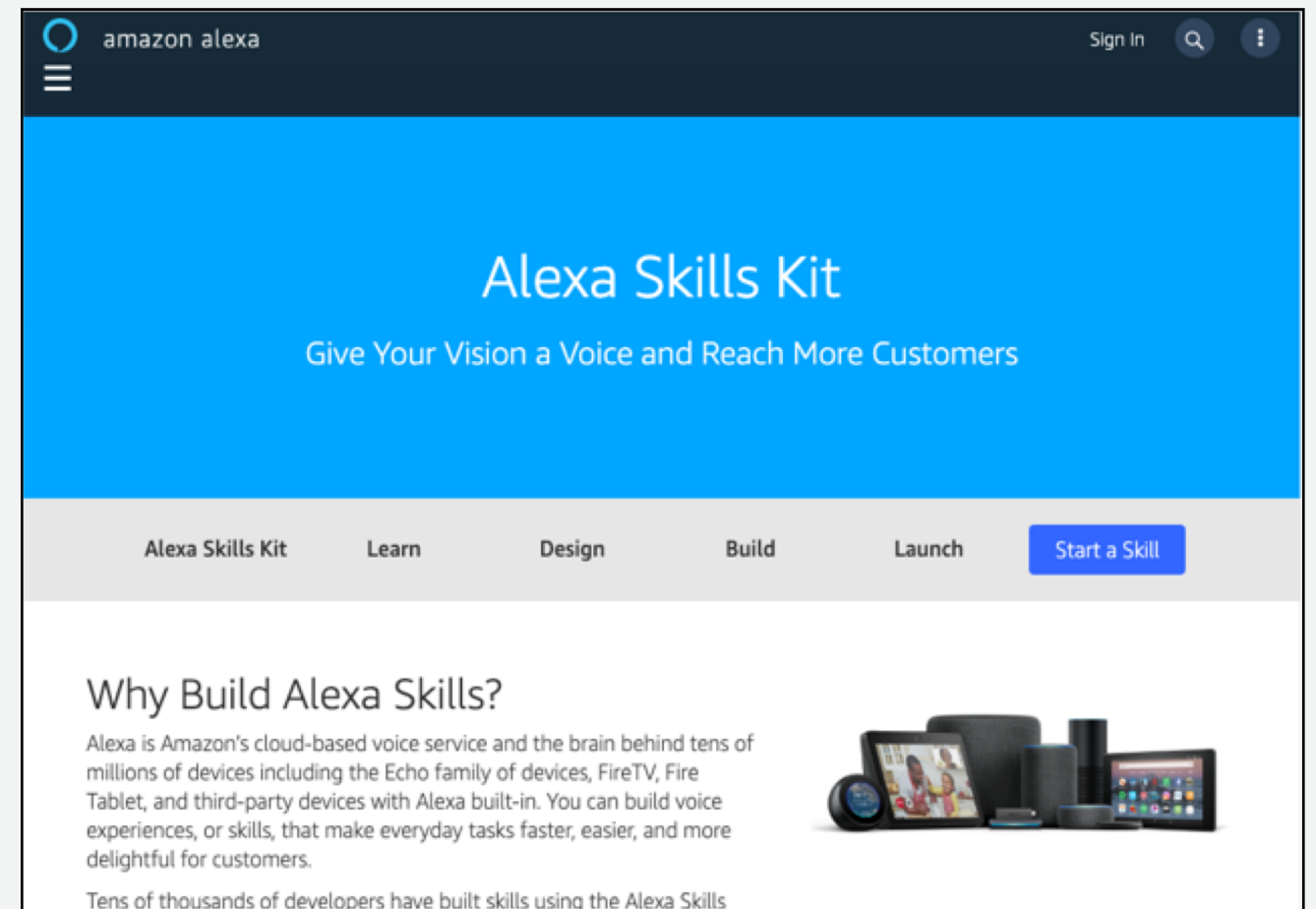


# Alexa Skills Kit

The Alexa Skills Kit (ASK) lets you teach Alexa new skills

It contains the documentation, tools, and sample code needed to build Alexa skills

<https://developer.amazon.com/ask>



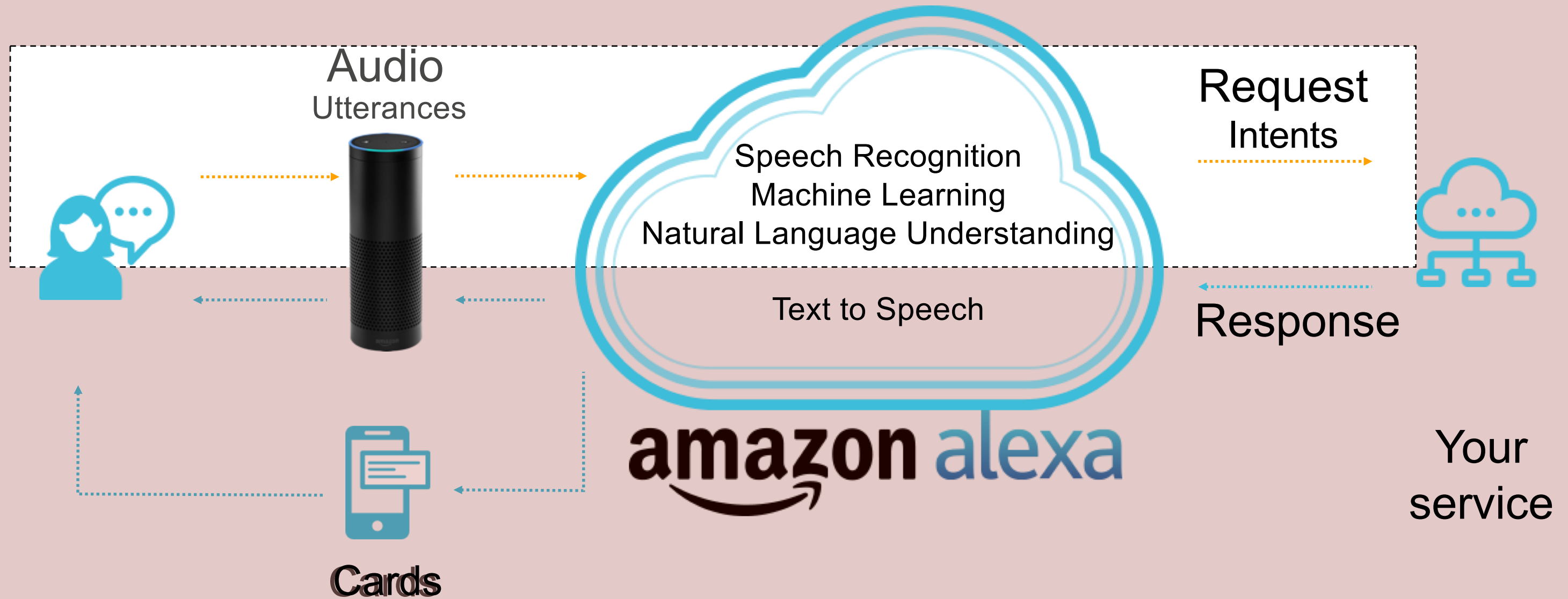


# Alexa Skills Kit: Processing a request





# Alexa Skills Kit: Utterances and Intents



# Utterances and Intents

Alexa, ask Anime Facts for a fact

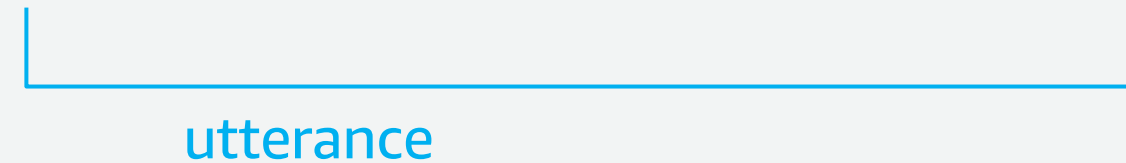


# Utterances and Intents

Alexa, ask Anime Facts for a fact



One more please



# Utterances and Intents

Alexa, ask Anime Facts for a fact



One more please



slot value

---

GetFactIntent



# Slots in the utterances

The answer is one  
slot value

one is the answer  
slot value

one  
slot value

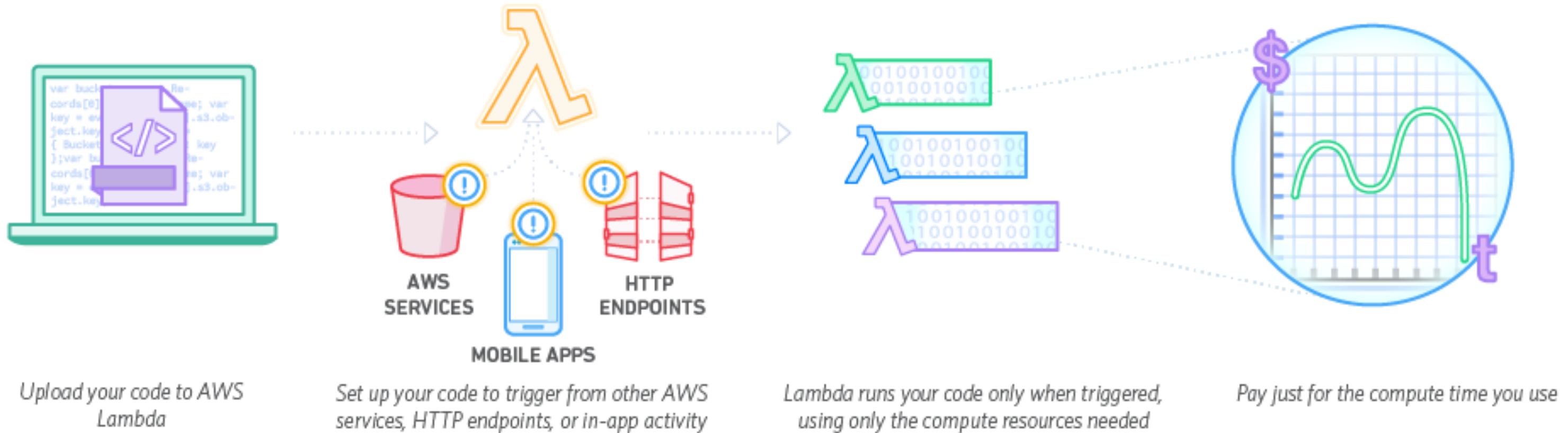
---

AnswerIntent {value: “one”}  
Intent slot value

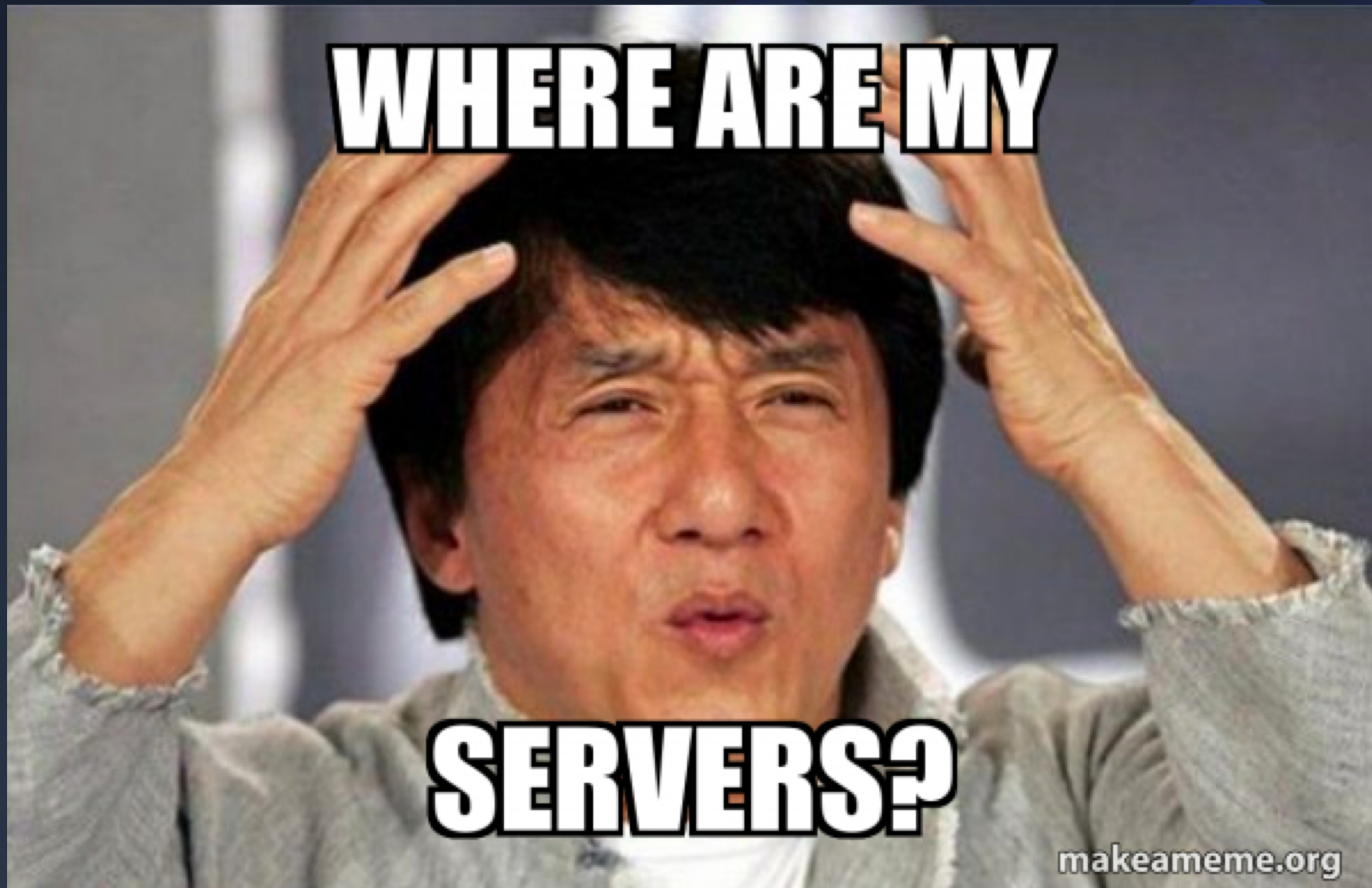
# Alexa Skills Kit: Requests and Responses



# Using Lambda for Processing the Request & generating the response

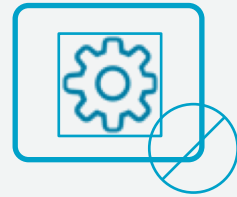








# What is serverless?



No infrastructure provisioning,  
no management



Automatic scaling

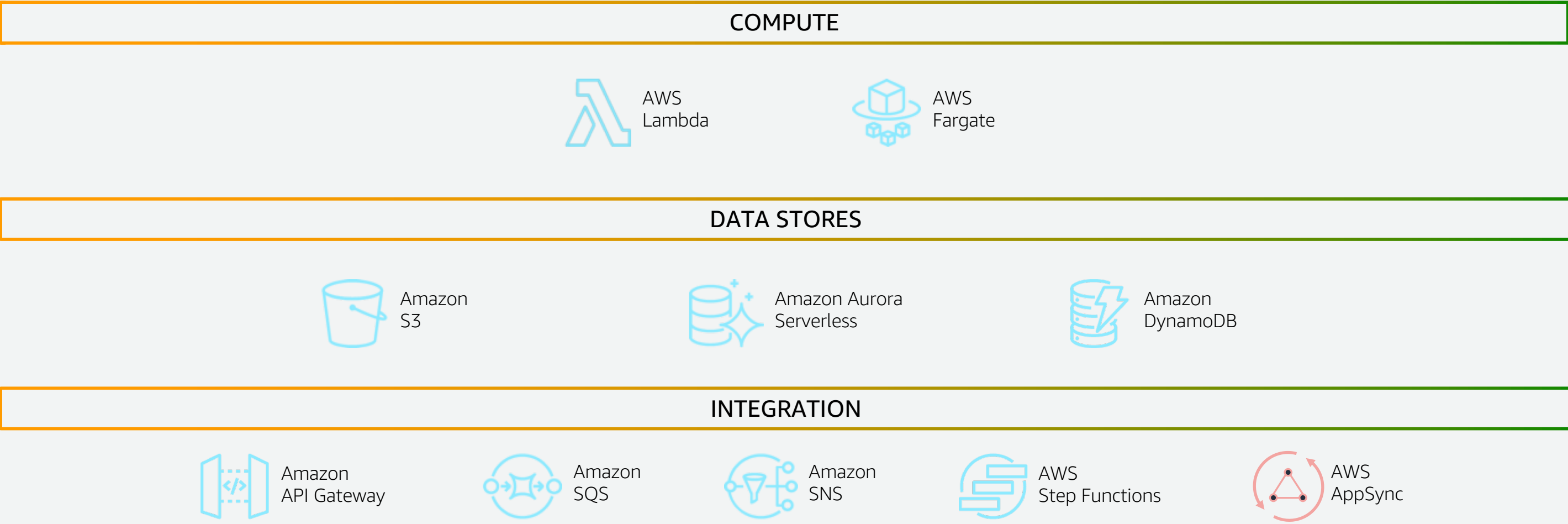
Pay for value

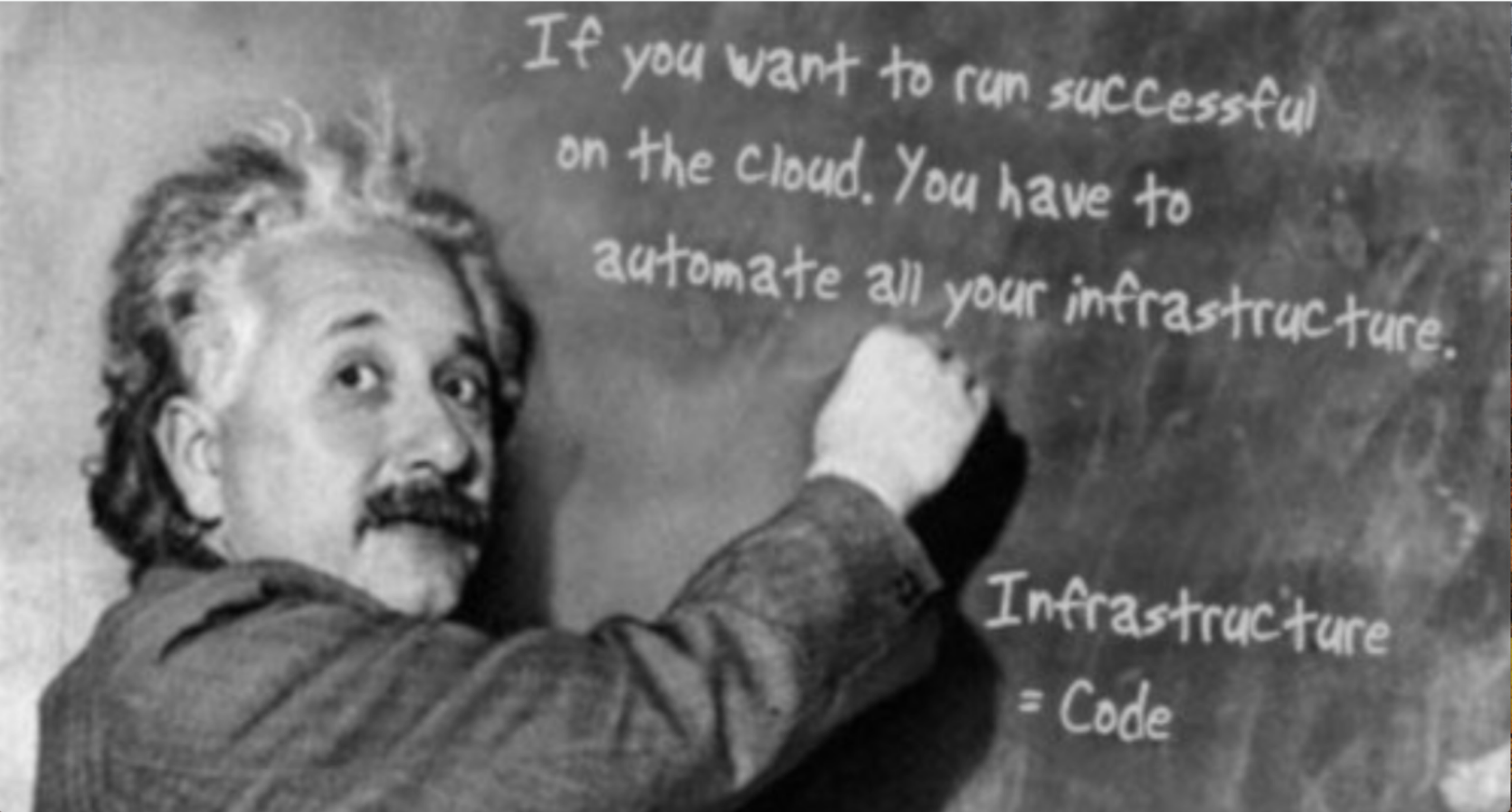


Highly available and secure



# Serverless is an operational model that spans many different categories of services



A black and white photograph of Albert Einstein, looking up and to the right, writing on a chalkboard. He is wearing a dark jacket and has his characteristic wild hair and mustache. His right hand is raised, holding a piece of chalk, and he is in the process of writing. The chalkboard has two lines of text written on it in a casual, handwritten style.

If you want to run successful  
on the cloud. You have to  
automate all your infrastructure.

Infrastructure  
= Code



# AWS Management & Governance



## Monitor resources and applications

# Amazon CloudWatch

## Audit user activity and resource configurations

# AWS CloudTrail

## AWS Config

## Manage resources and take operational action

## AWS Systems Manager



## Optimize to reduce cost and improve security posture

## AWS Trusted Advisor

# AWS Cost and Usage Report

## AWS Cost Explorer

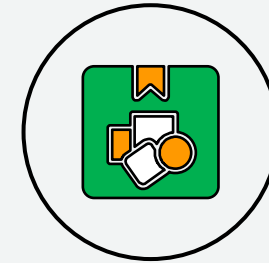
# AWS Systems Manager Capabilities



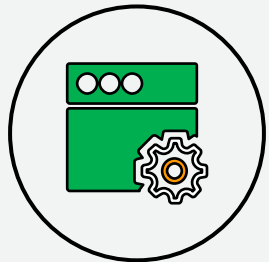
Resource Groups



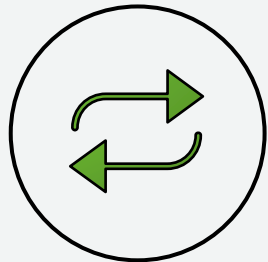
Patch Manager



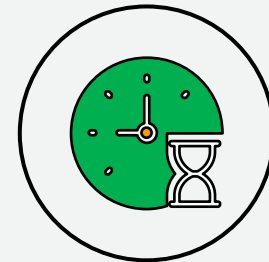
State Manager



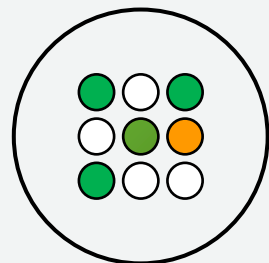
Run Command



Automation



Maintenance Window



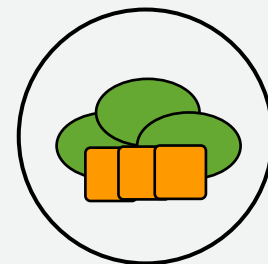
Inventory



Parameter Store



Session Manager



Distributor

# What is AWS Systems Manager Automation?

Platform to orchestrate operational workflows

- Build and execute DevOps & IT workflows
- Manage any AWS resource across accounts and regions
- Orchestrate dynamic workflows using conditional branching
- Safe at-scale operations using rate control
- Standardize and share best practices across organization



# What should we think about Automating?

- Reduce time spent on repetitive tasks
  - Update of golden images
  - Delete orphaned Active Directory objects
  - Patching with Rollback
- Respond to events within your environment
  - Correct configuration drift
  - Correct compliance drift
- Provide Self-Service to consumers without Providing elevated Privileges
  - Create a Snapshot
  - Start or Stop an Instance
  - Rescue an Unresponsive Server



# Easy to Use Automation



Automation  
document

```
{
  "name": "makeStack",
  "action": "aws:createStack",
  "maxAttempts": 1,
  "onFailure": "Abort",
  "inputs": {
    "Capabilities": [
      "CAPABILITY_IAM"
    ],
    "StackName": "myStack",
    "TemplateURL": "http://s3.amazonaws.com/mybucket/myStackTemplate",
    "TimeoutInMinutes": 5
  }
}
```



Input



Role and permission

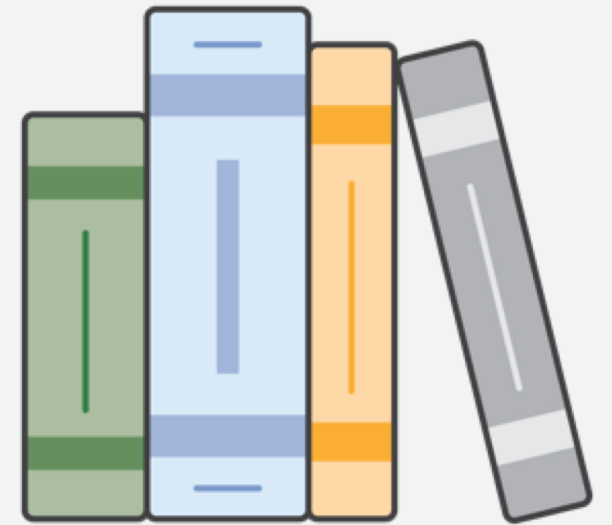


Run the automation



# Wait, what's a Document?

- Documents are used to express sequence of actions
- Identified using Amazon Resource Names (ARNs)
- Create/Edit Documents, versions, view history, and share
- Parameter validation reduces human error
- Authored in JSON/YAML
- Amazon published AWS-named Documents



# Automation Documents

AWS Systems Manager > Documents

Owned by Amazon

Owned by me

Shared with me

All documents

Documents

View details

Actions

Create document

Q

< 1 2 3 ... >

Document type: Automation X

Clear filters

AWS-ASGEnterStandby

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-ASGExitStandby

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-AttachEBSVolume

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-AttachIAMToInstance

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-ConfigureCloudWatchOnEC2Instance

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-ConfigureS3BucketLogging

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-ConfigureS3BucketVersioning

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

AWS-CopySnapshot

Document type

Automation

Owner

Amazon

Platform types

Windows, Linux

Default version

1

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# Next Steps

- Create more utterances, intents and slots to create a more comprehensive interaction
- Secure the application protecting sensitive information (e.g. AWS SSM Parameter Store)
- Create controls to image selection with alternative names
- Create authentication mechanism to validate user
- Skill publishing using certification process (Public or Private)

# Some Interesting Content



Alexa Blogs



Alexa GitHub

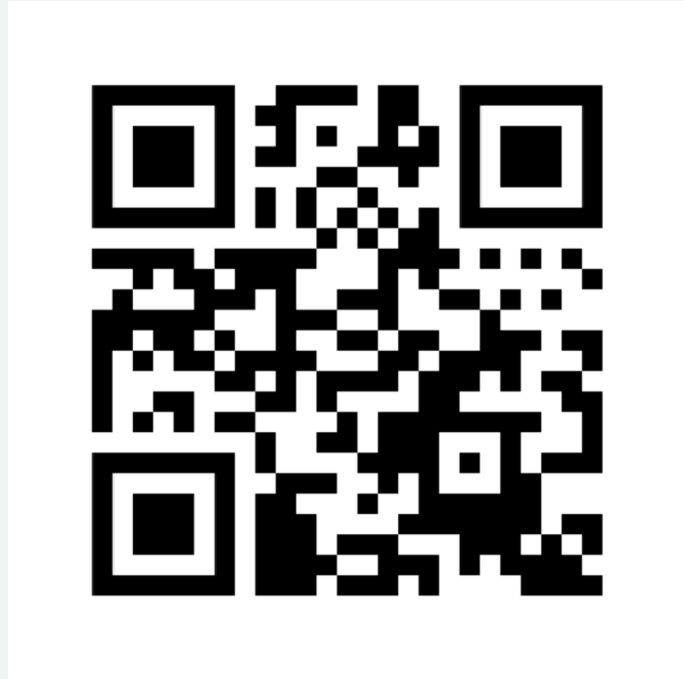


Alexa for Business



How to use Systems Manager  
to automate customers accounts

# GitHub Repo



<http://bit.ly/laV-serverless>

# This Presentation

# Thank You!

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aws is how \_\_\_\_\_ builds on



# THE DEVELOPER'S CONFERENCE