



# 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

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Opened South America (São Paulo) Region in 2011

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3 Availability Zones for high availability applications

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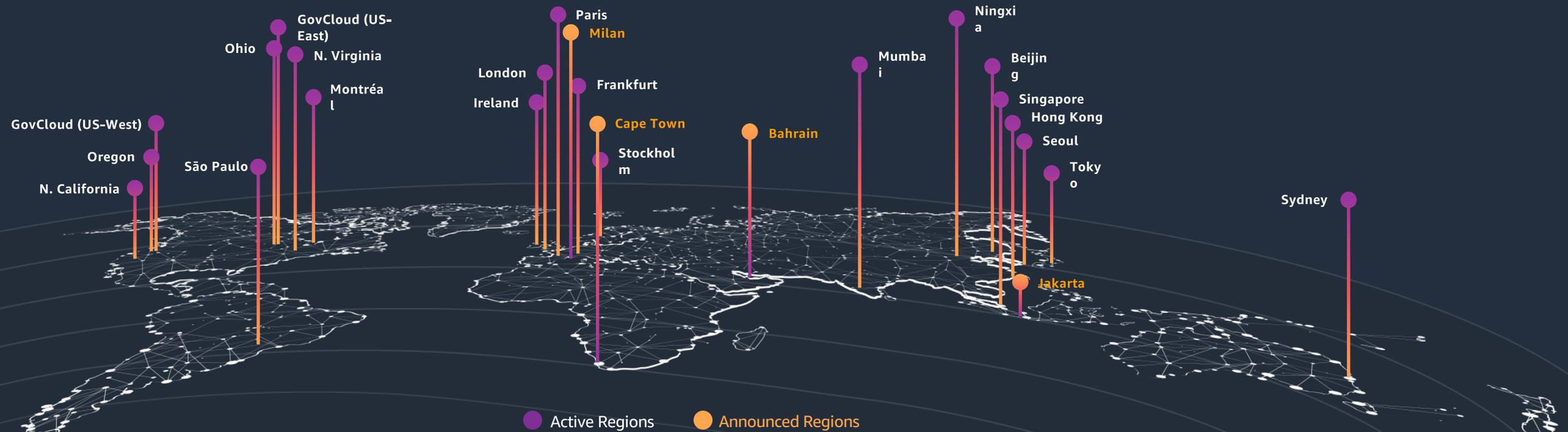
5 CloudFront Points of Presence in Rio de Janeiro (3)  
and São Paulo (2)



## 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 VVHC CONTROL
- 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
- AUTHORING
- 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

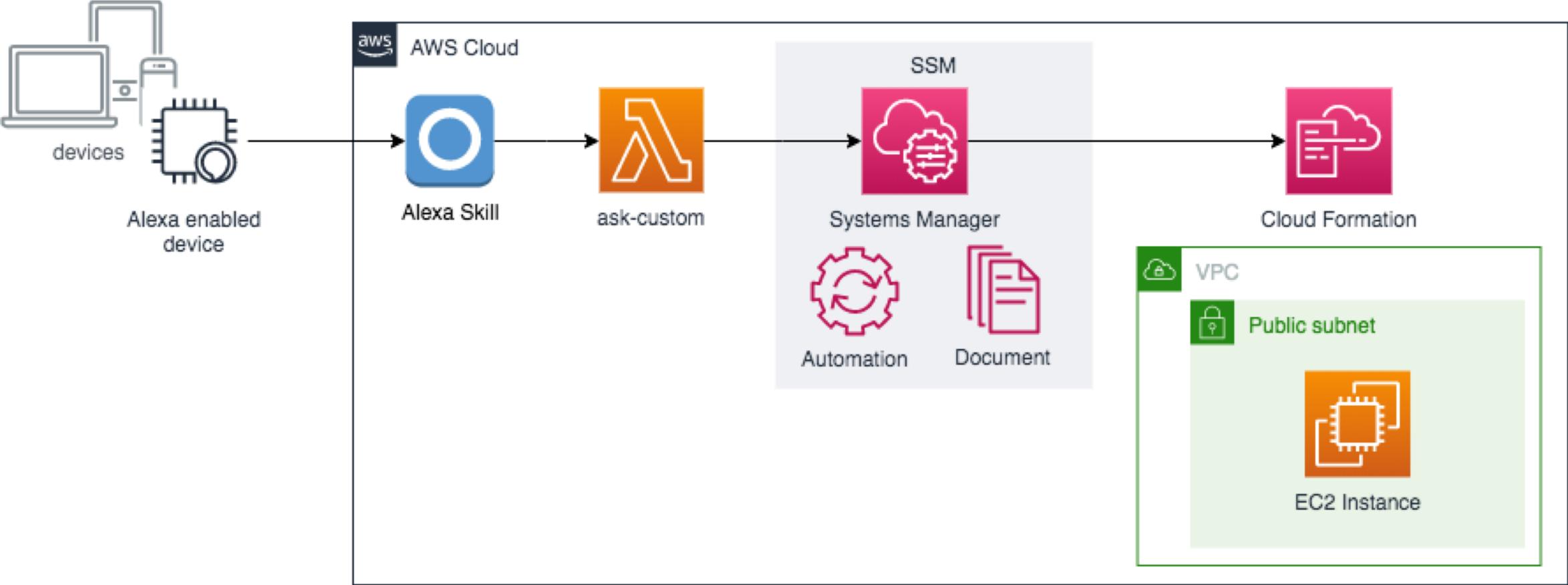
- COMPUTE
- DATABASES
- CDN
- STORAGE
- NETWORKING

## INFRASTRUCTURE

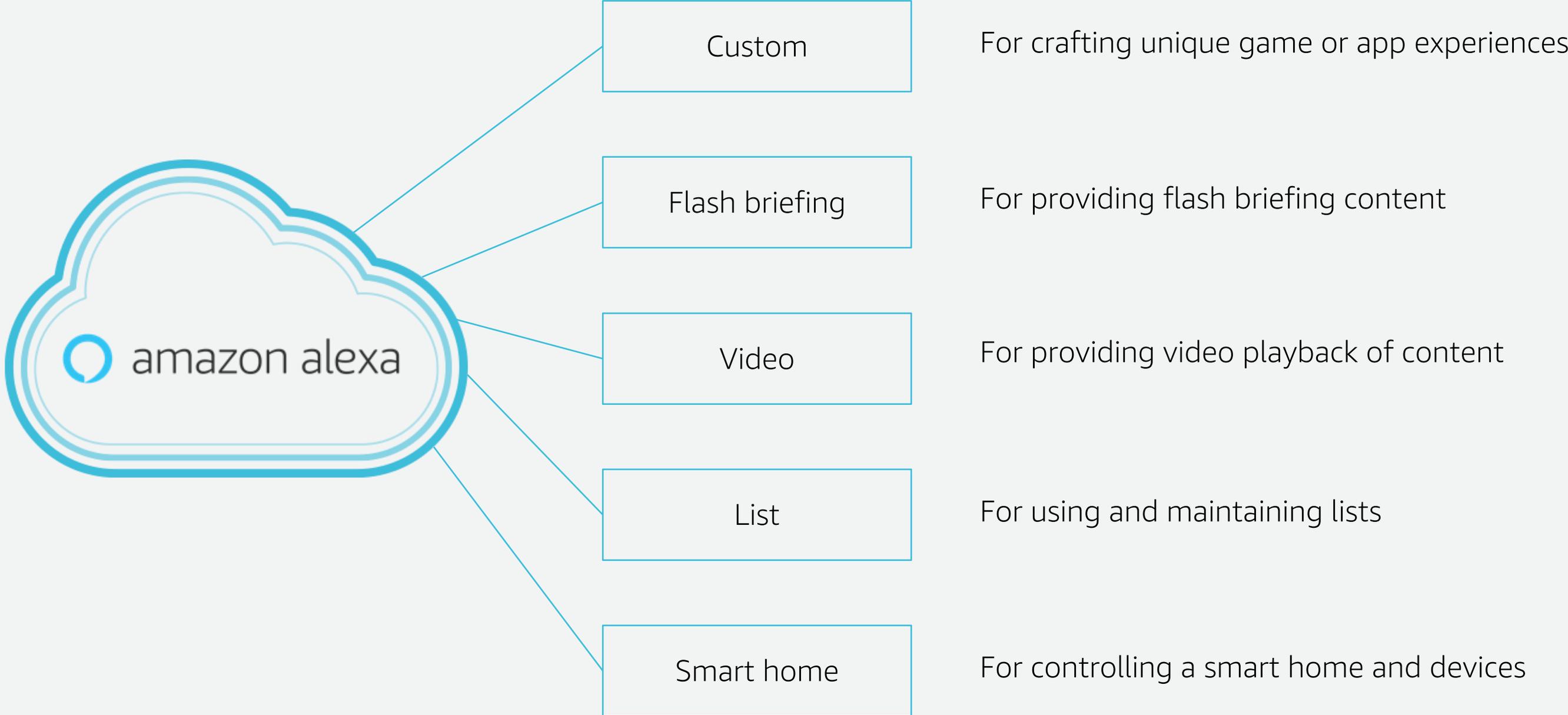
- REGIONS
- GLOBAL NETWORK BACKBONE
- CUSTOM HARDWARE
- AVAILABILITY ZONES
- POWER INFRASTRUCTURE
- DATA CENTER INFRASTRUCTURE
- POINTS OF PRESENCE



# Demo Architecture



# Types of Alexa skill models

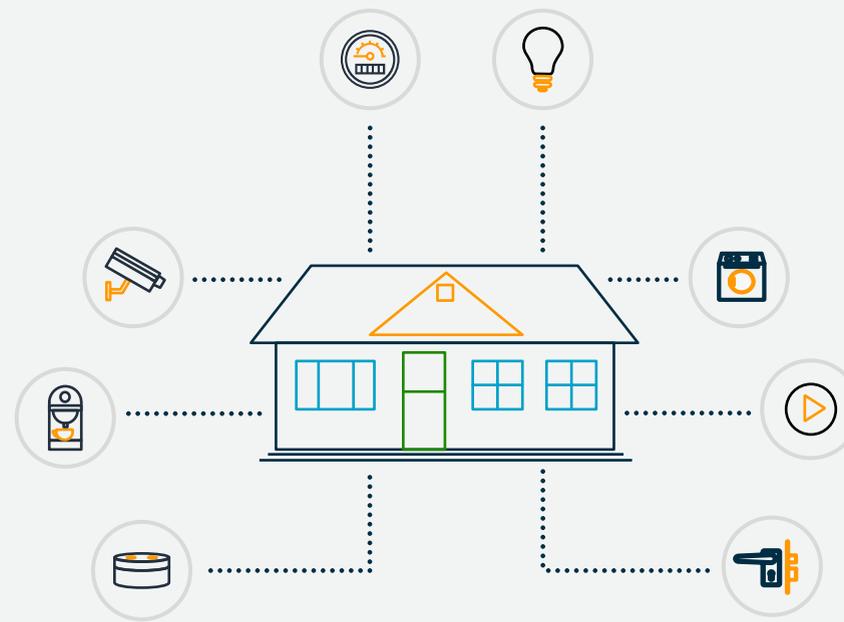


# Connected home market

## 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



Alexa  
Voice  
Services



amazon  
echo

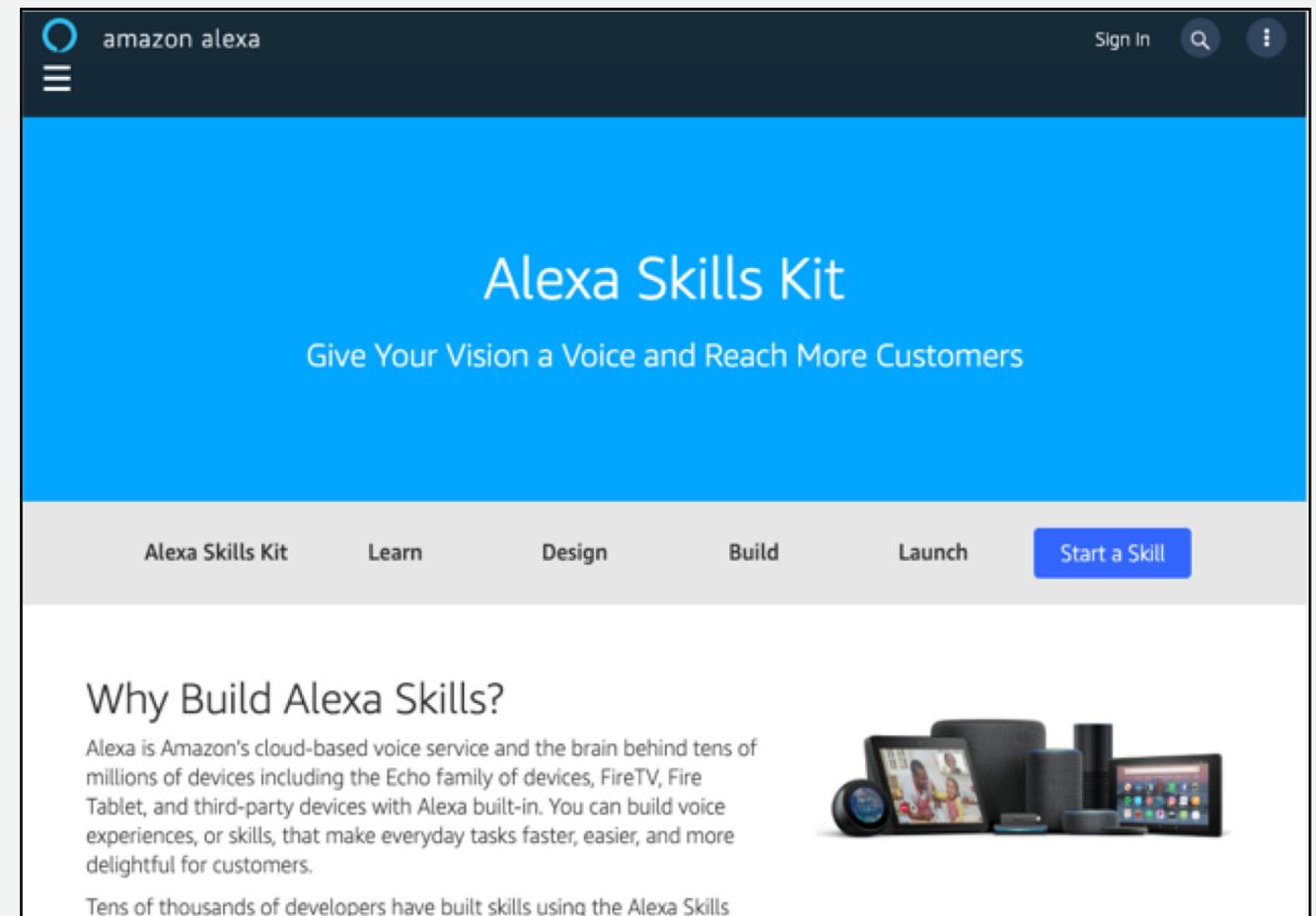
amazon  
fireTV

# 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

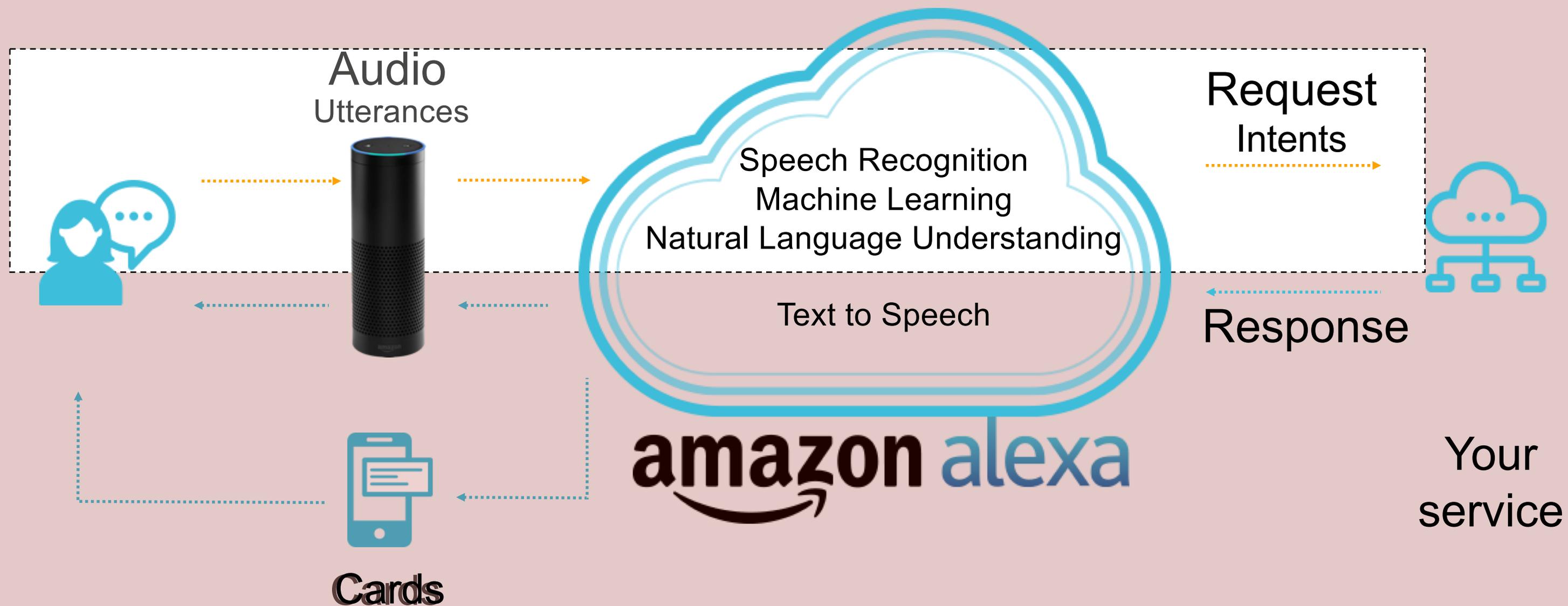
<https://developer.amazon.com/ask>



# 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

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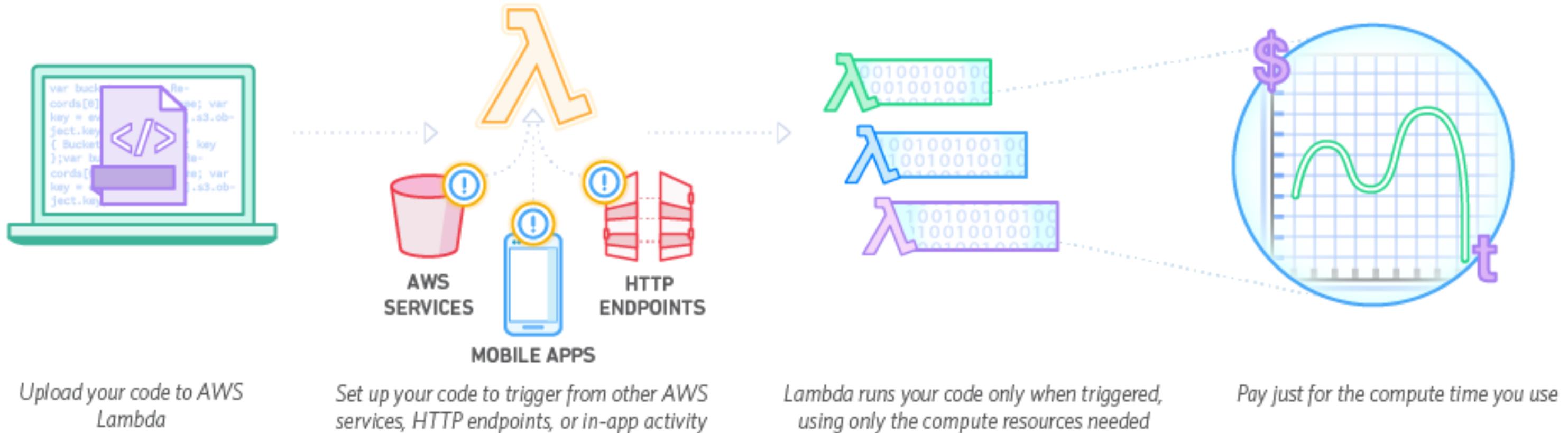
AnswerIntent {value: **“one”**}

Intent slot value

# Alexa Skills Kit: Requests and Responses



# Using Lambda for Processing the Request & generating the response

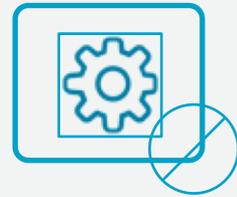


**WHERE ARE MY**

**SERVERS?**

makeameme.org

# What is serverless?

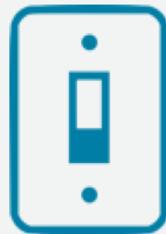


No infrastructure provisioning,  
no management



Automatic scaling

Pay for value



Highly available and secure



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

## COMPUTE



AWS  
Lambda



AWS  
Fargate

## DATA STORES



Amazon  
S3



Amazon Aurora  
Serverless



Amazon  
DynamoDB

## INTEGRATION



Amazon  
API Gateway



Amazon  
SQS



Amazon  
SNS

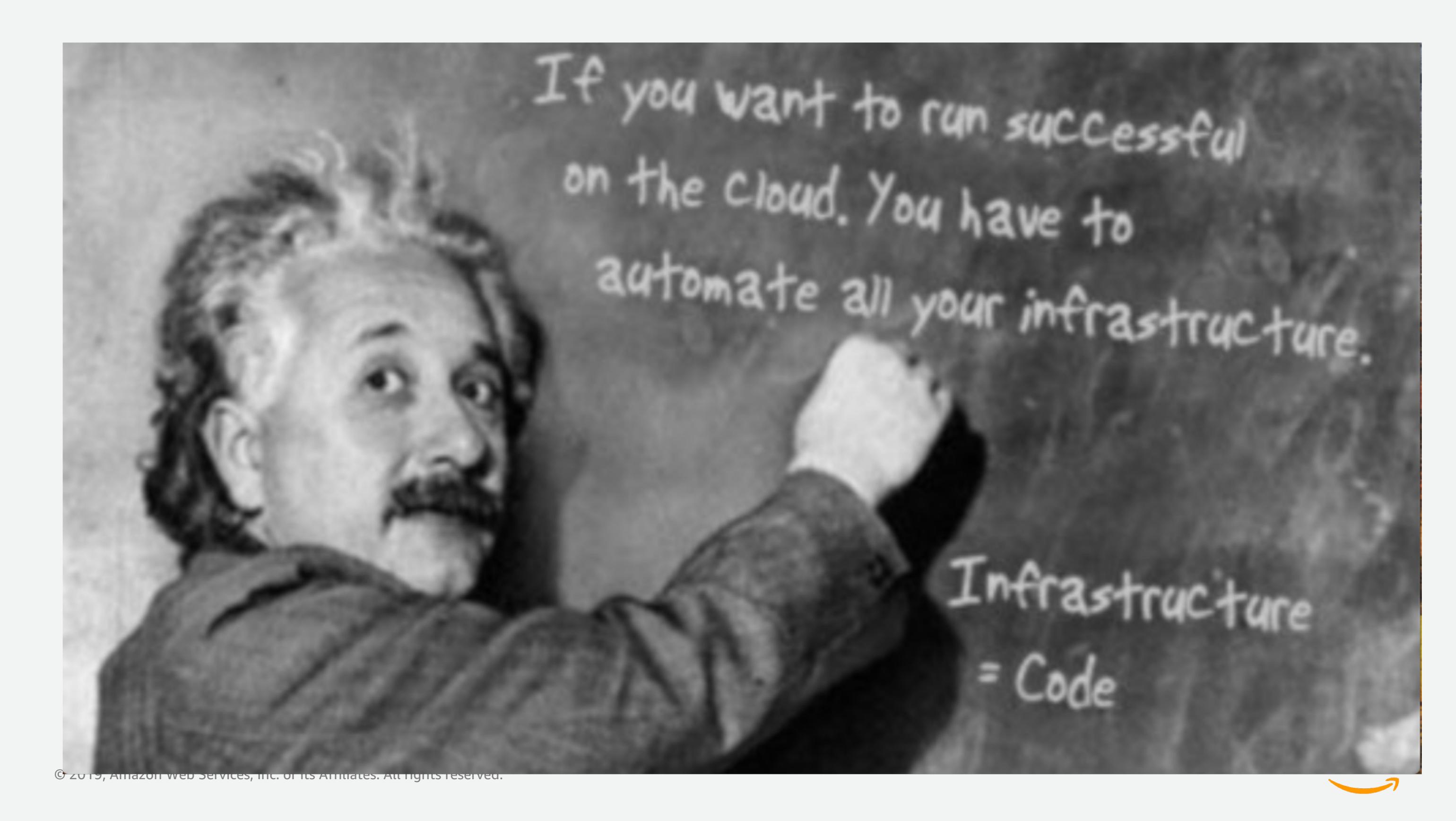


AWS  
Step Functions



AWS  
AppSync



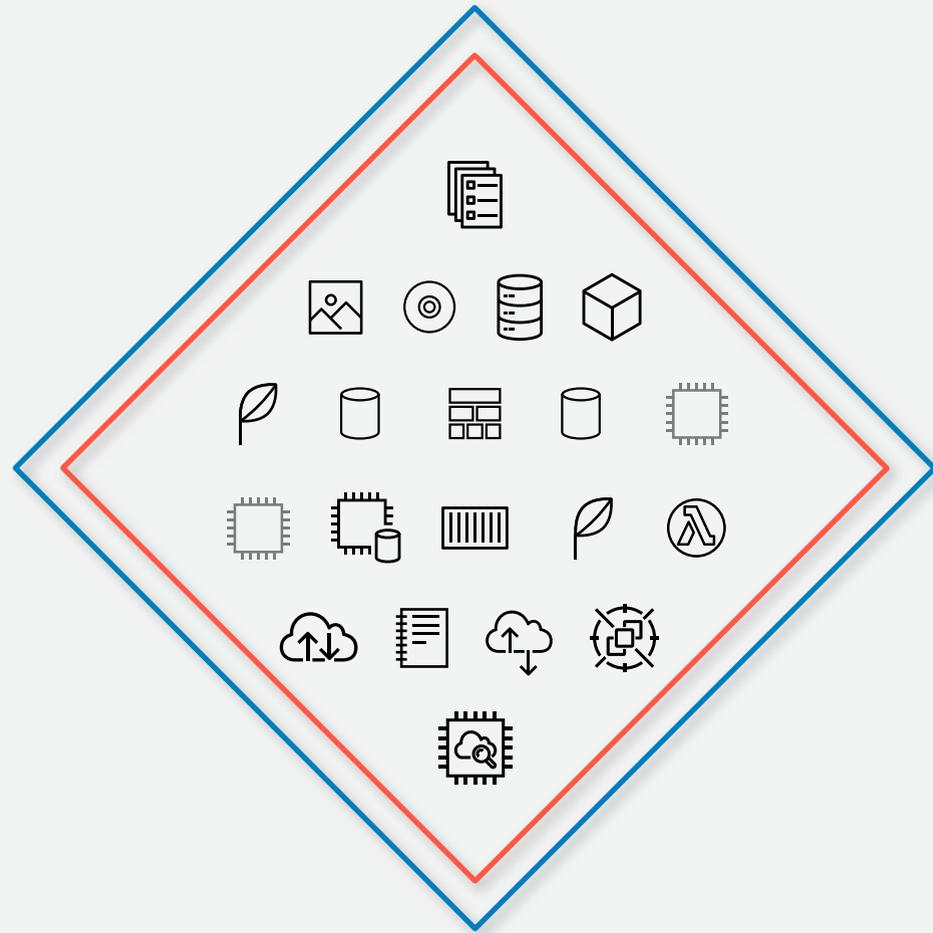


If you want to run successful  
on the cloud. You have to  
automate all your infrastructure.

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

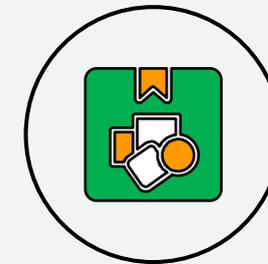
# AWS Systems Manager Capabilities



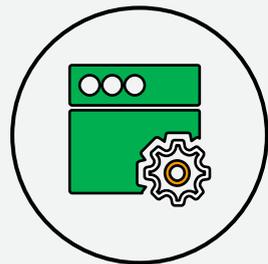
Resource Groups



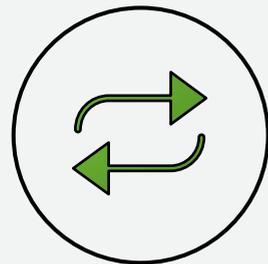
Patch Manager



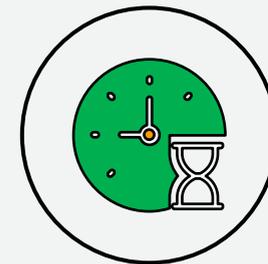
State Manager



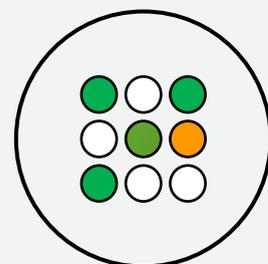
Run Command



Automation



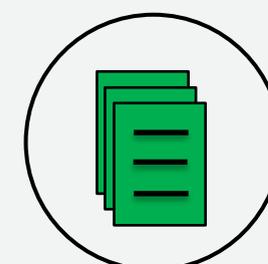
Maintenance Window



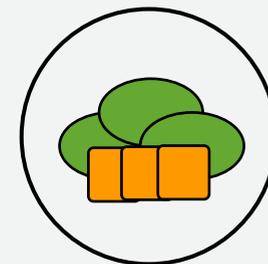
Inventory



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

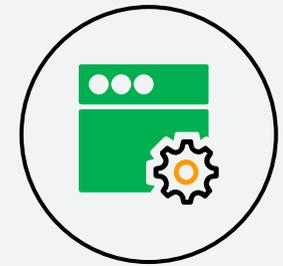
```
{
  "name": "makeStack",
  "action": "aws:createStack",
  "maxAttempts": 1,
  "onFailure": "Abort",
  "inputs": {
    "Capabilities": [
      "CAPABILITY_IAM"
    ],
    "StackName": "myStack",
    "TemplateURL": "http://s3.amazonaws.com/mybucket/myStackTemplate",
    "TimeoutInMinutes": 5
  }
}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



Input



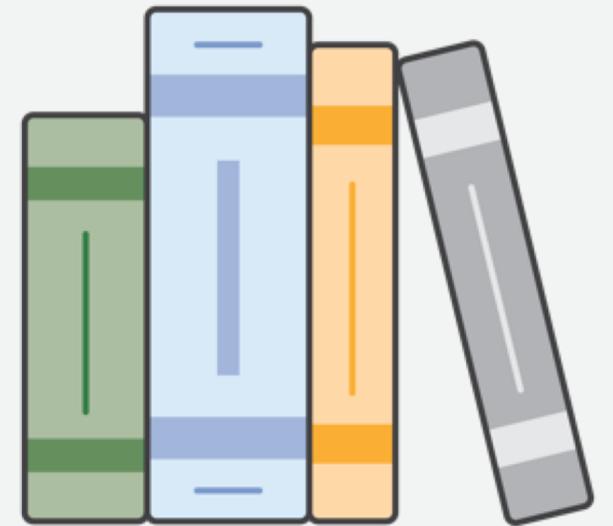
Role and permission



Run the automation

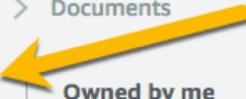
# Wait, what's a Document?

- 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

< 1 2 3 ... >

Document type: Automation ✕

Clear filters

<p><b>AWS-ASGEnterStandby</b> <input checked="" type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>	<p><b>AWS-ASGExitStandby</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>	<p><b>AWS-AttachEBSVolume</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>	<p><b>AWS-AttachIAMToInstance</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>
<p><b>AWS-ConfigureCloudWatchOnEC2Instance</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>	<p><b>AWS-ConfigureS3BucketLogging</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>	<p><b>AWS-ConfigureS3BucketVersioning</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>	<p><b>AWS-CopySnapshot</b> <input type="radio"/></p> <p>Document type: Automation Owner: Amazon</p> <p>Platform types: Windows, Linux</p> <p>Default version: 1</p>



# 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 for Business

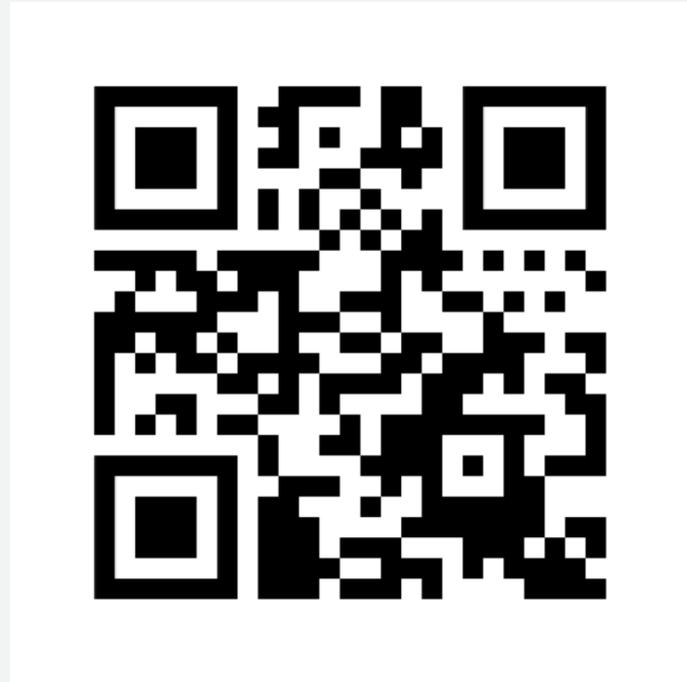


How to use Systems Manager to automate customer accounts



Alexa GitHub

# GitHub Repo



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

# This Presentation

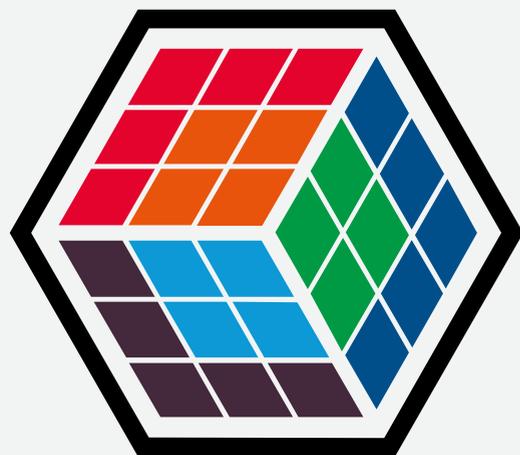
# Thank You!

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**<https://www.linkedin.com/in/luizyanai/>**

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



# THE DEVELOPER'S CONFERENCE