

# Move fast, build things with AWS

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**RENAULT SPORT**





# In The Old Days...

Spend millions for expensive, inflexible,  
slow-moving infrastructure that is  
**#FrozenInTime**



# Old World



Large upfront capital investment

Basic compute and storage only

Responsible for feature upgrades

Slow to get new capabilities



Low, variable cost

Broad and deep platform

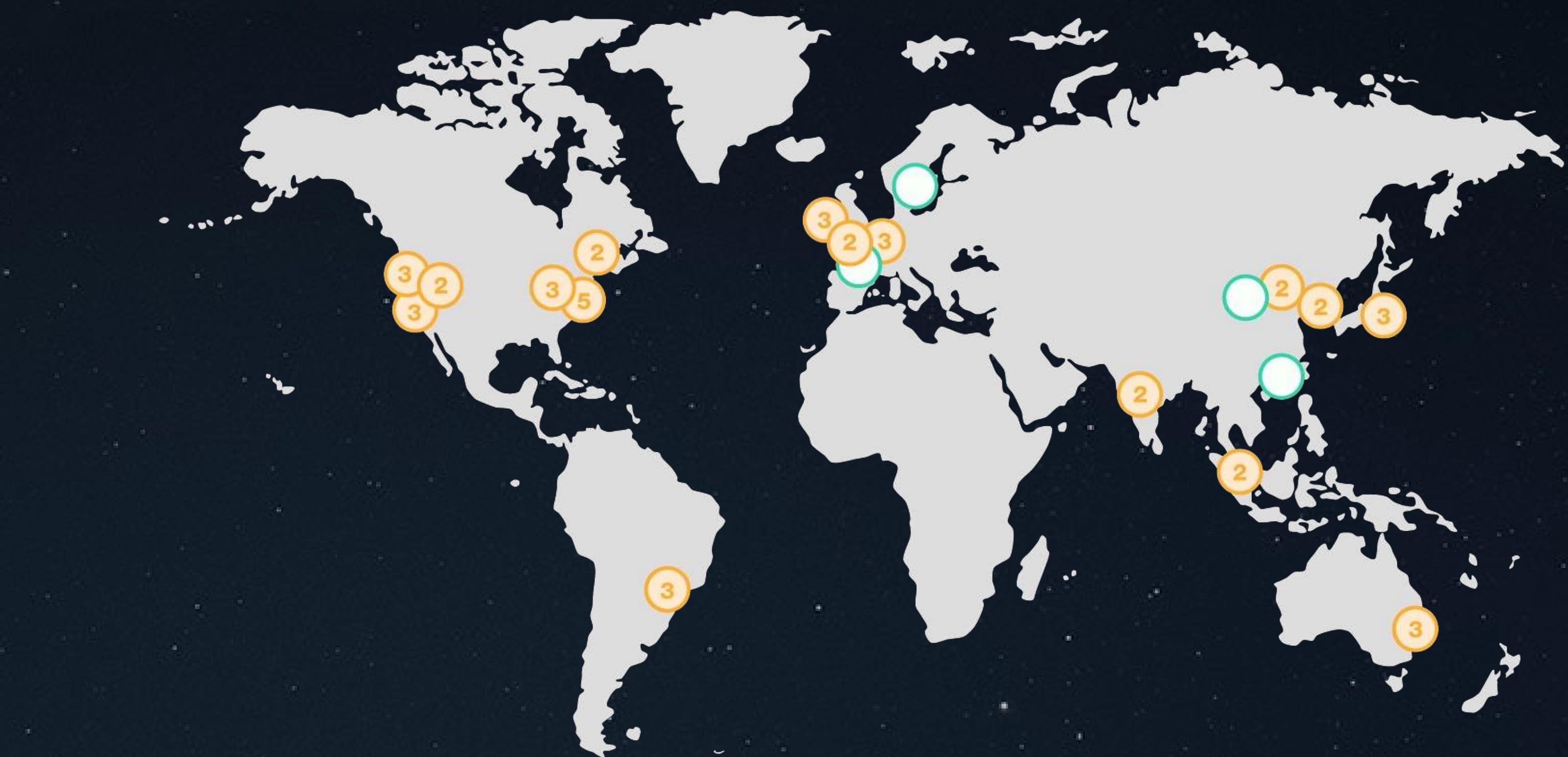
New features arrive daily

Ready to use

# The AWS Infrastructure

# Amazon Web Services

Platforme  
Scalable  
Globale

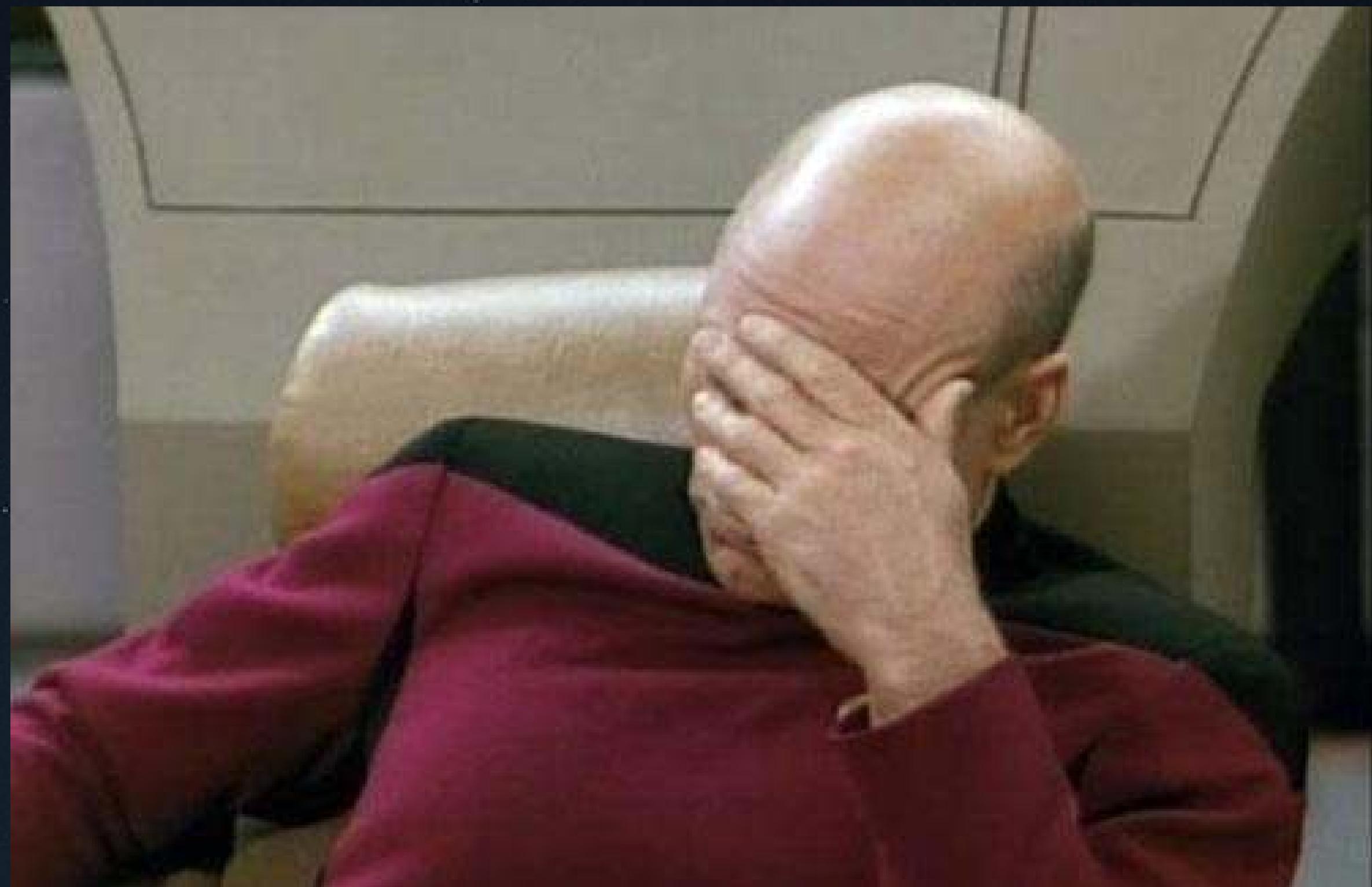


# Amazon Web Services

Platforme

Scalable

Globale



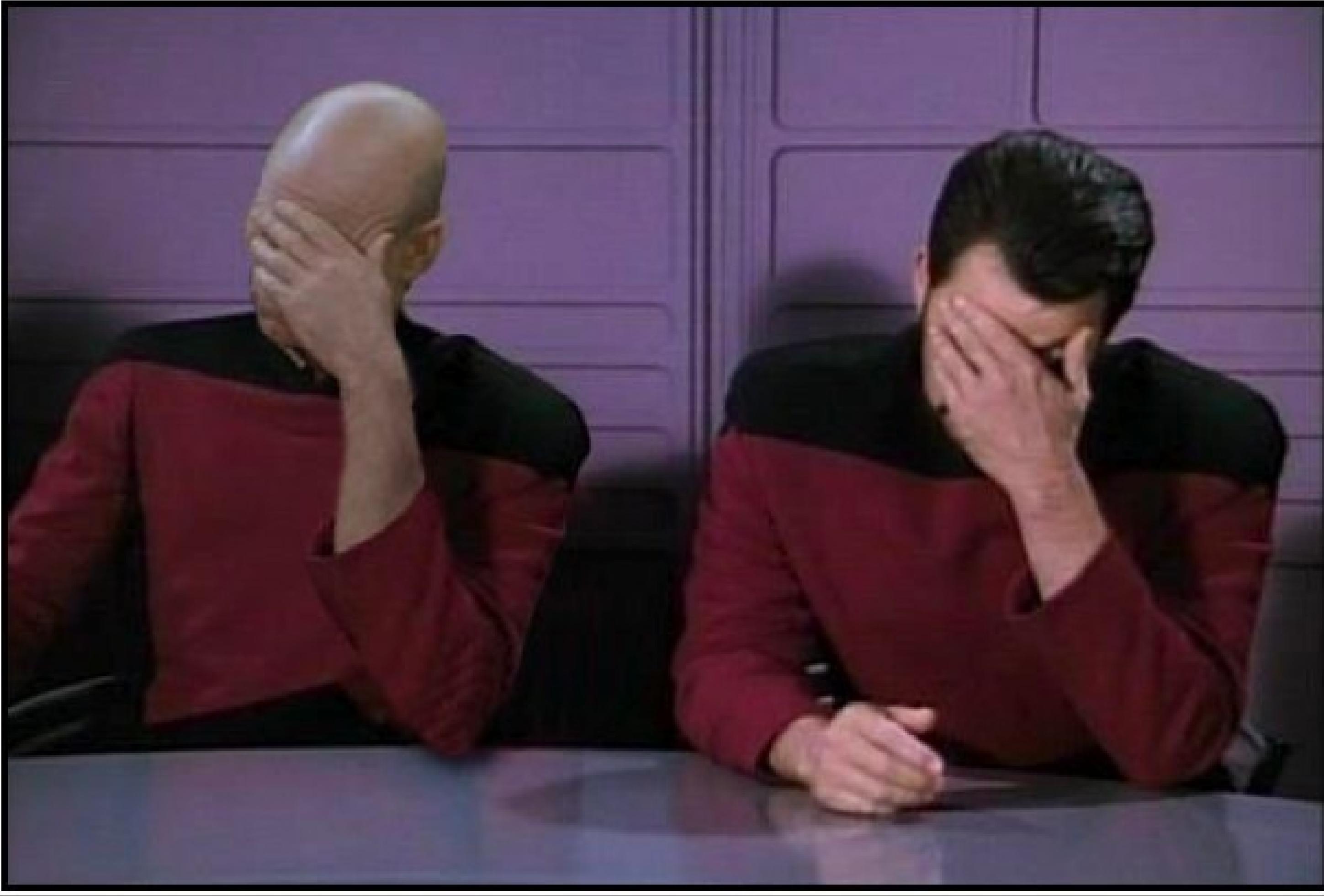
# Allez, rendez-vous à Paris – An AWS Region is coming to France!

By Werner Vogels on 29 September 2016 12:00 AM | [Permalink](#) | [Comments \(9\)](#)



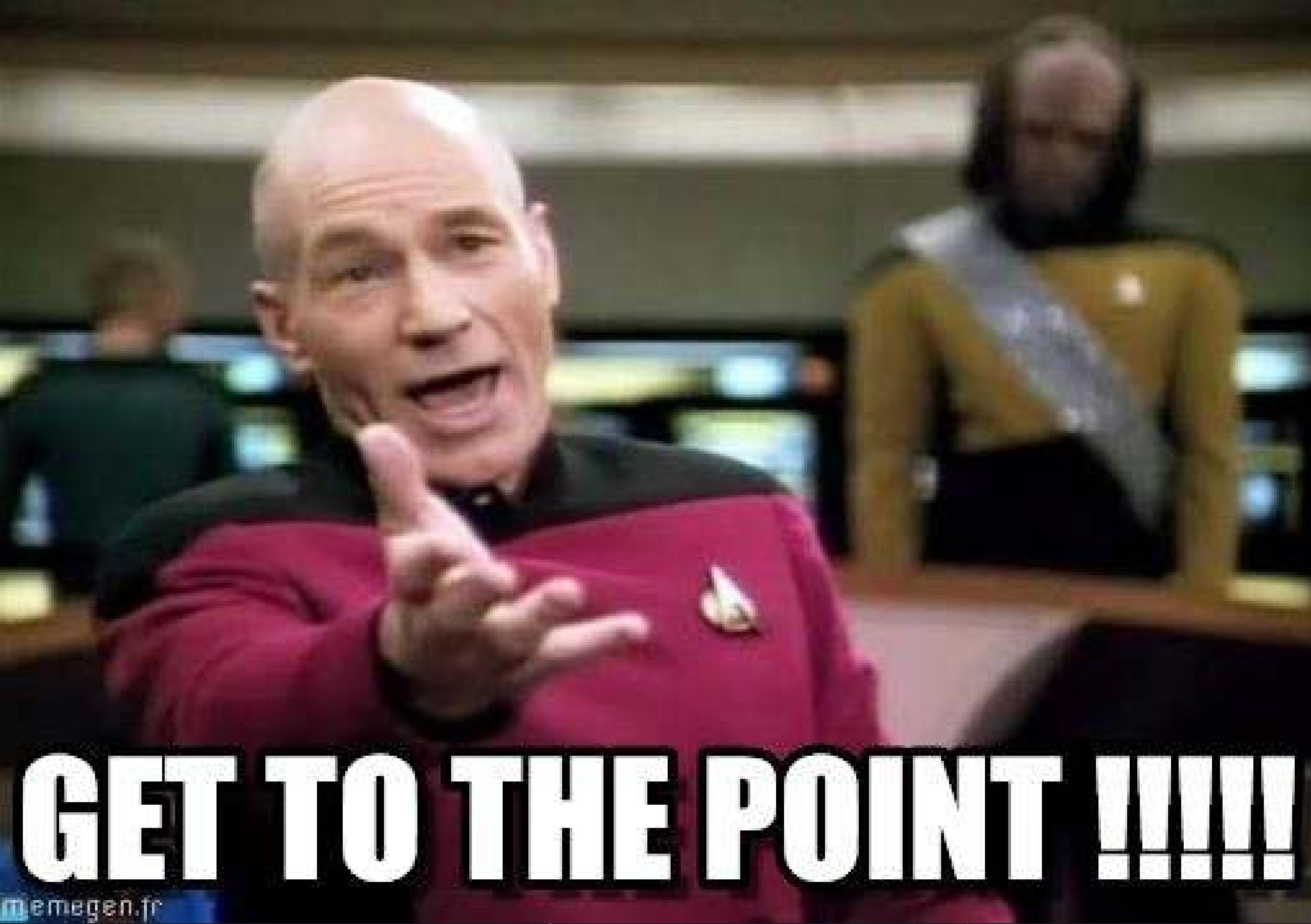
MOLECULES & GOLIATHES

Today, I am very excited to announce our plans to open a new AWS Region in France! Based in the Paris area, the region will provide even lower latency and will allow users who want to store their content in datacenters in France to easily do so. The new region in France will be ready for customers to use in 2017.

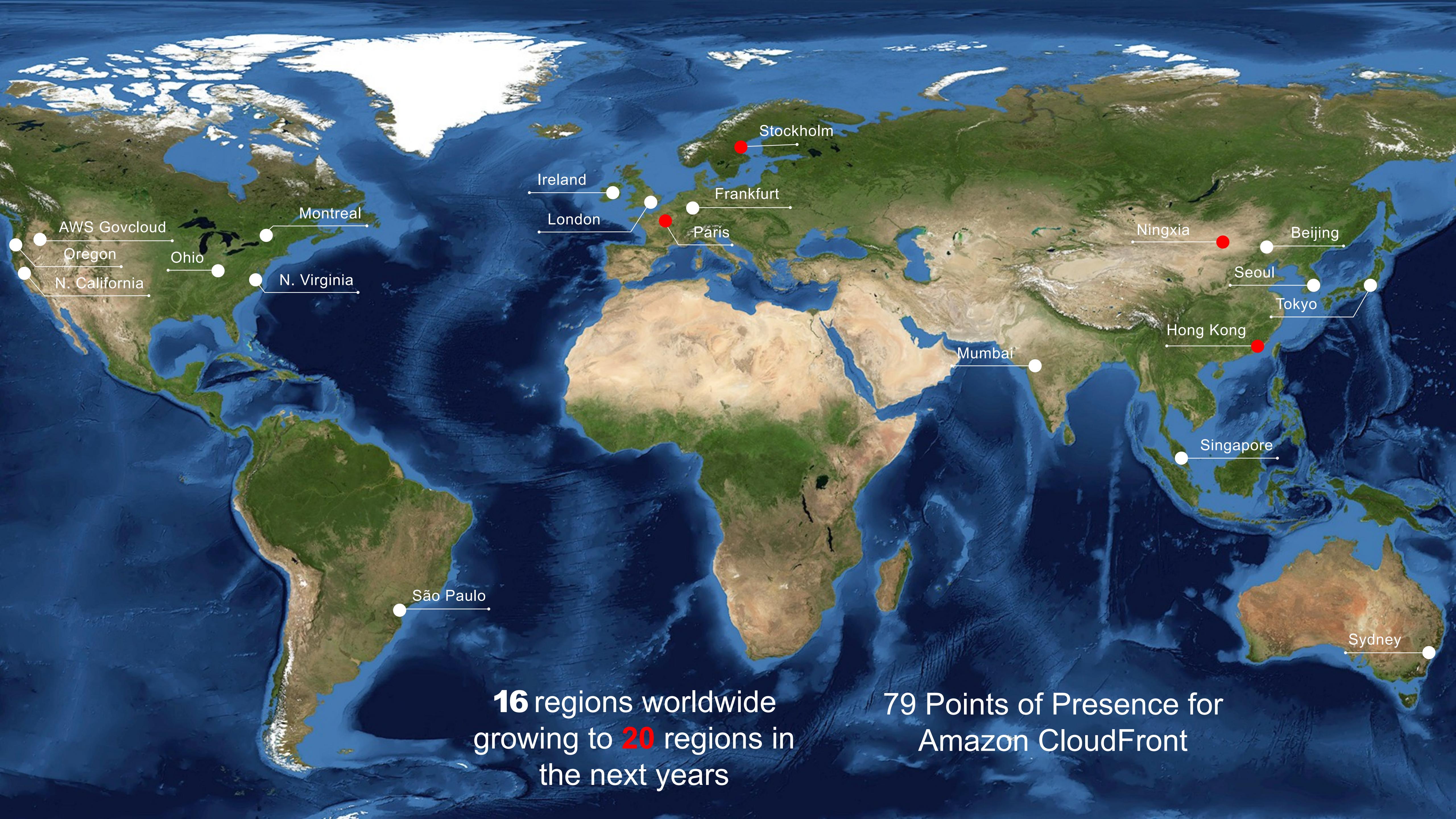


# DOUBLE FACEPALM

FOR WHEN ONE FACEPALM DOESN'T CUT IT



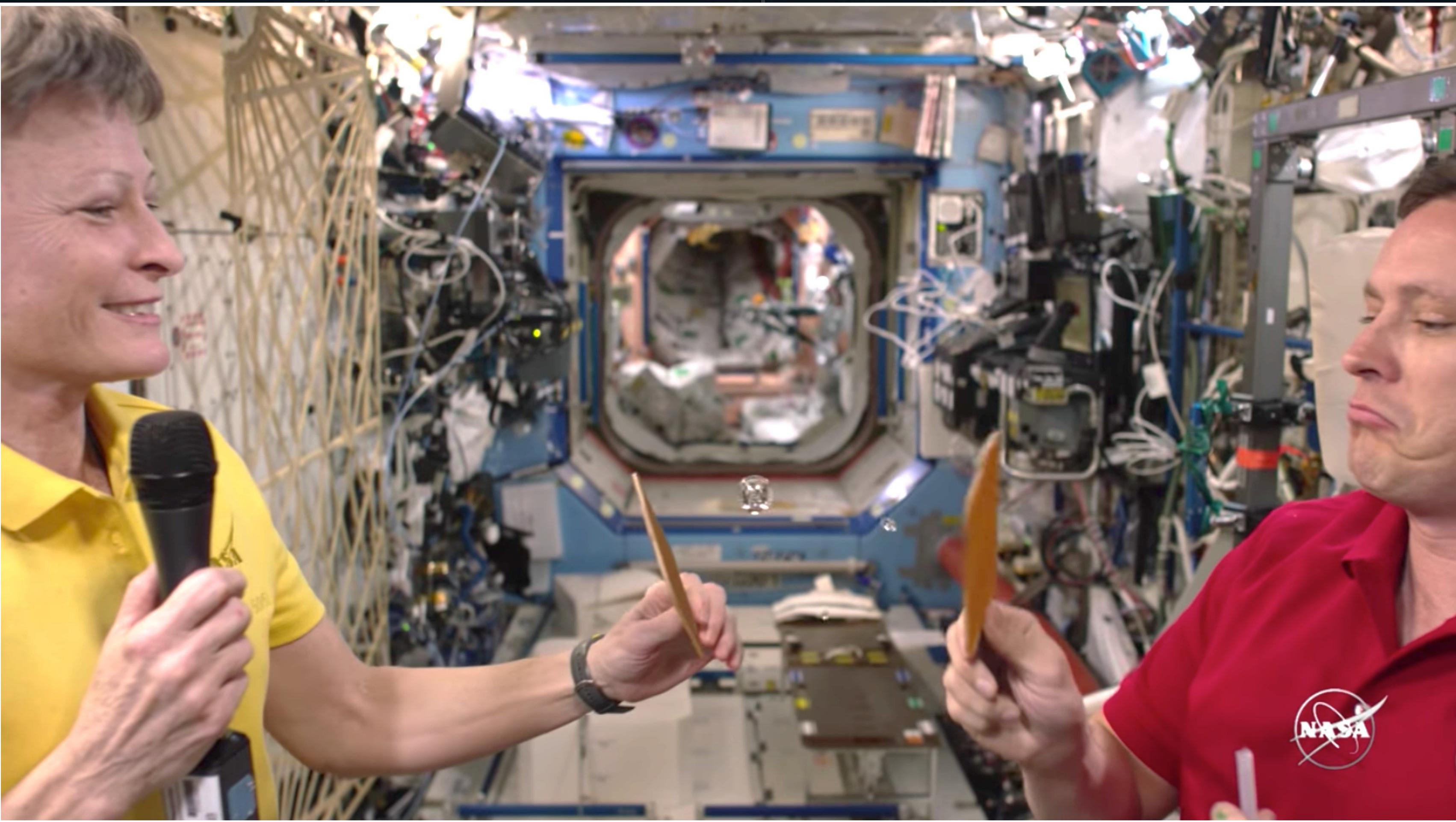
**GET TO THE POINT**



16 regions worldwide  
growing to 20 regions in  
the next years

79 Points of Presence for  
Amazon CloudFront

# NASA's First-Ever 4K Live Stream from Space



<https://live.awsevents.com/nasa4k>

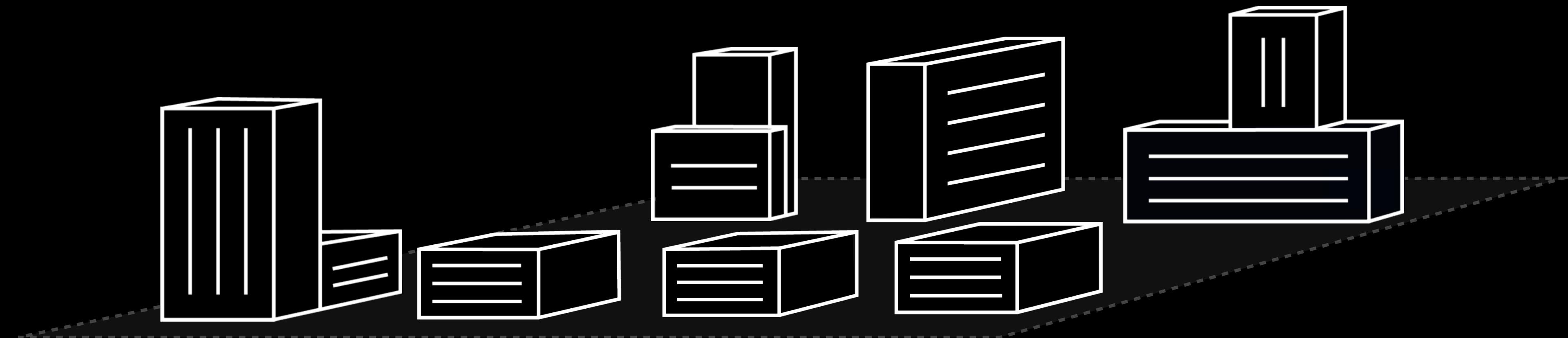
# Actual AWS Region

- 1 of 16 worldwide
- All with 2+ AZs
- New builds all 3+
- As many as 5 AZs



# Fully Scaled AZ

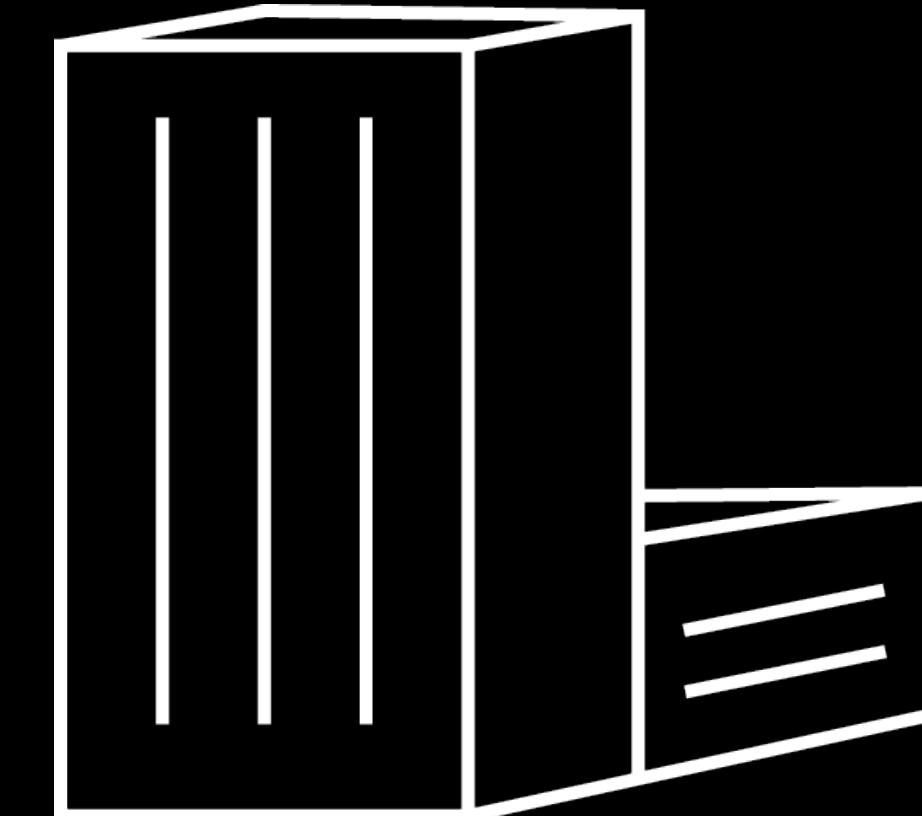
- Each AZ is 1+ data center
- Some with as many as 8
- Redundant network links
- Several AZs over 300K servers



# Data Center

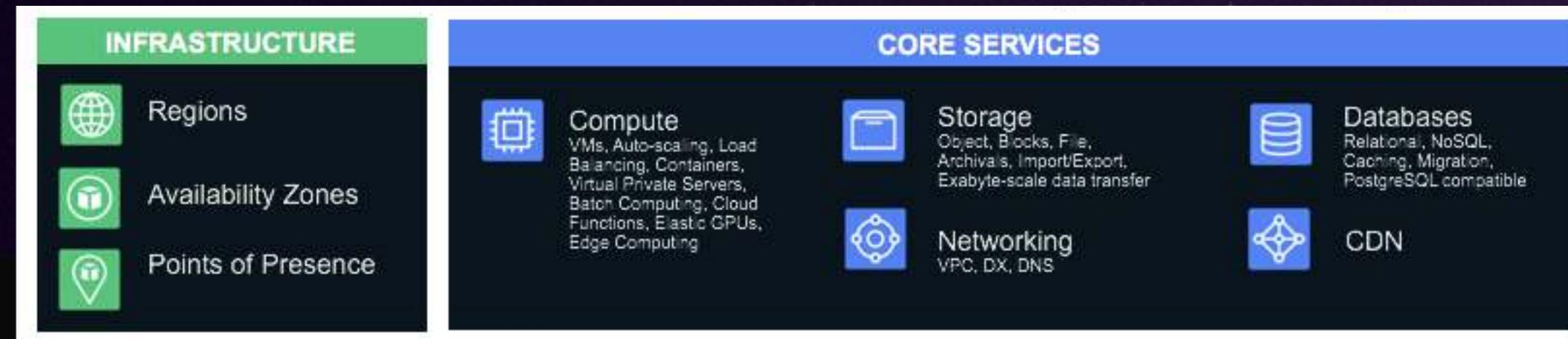
- 60–120MW or even larger are easy to build
- Larger scale drops cost slowly
- Larger scale increases blast radius quickly
- Redundant & concurrently maintainable

25–32MW  
50k–80k servers





# The Cloud ?





# The AWS Cloud Today: Over 90 Services

TECHNICAL & BUSINESS SUPPORT

Support Professional Services Optimization Guidance Partner Ecosystem Training & Certification Solutions Management Account Management Security & Billing Reports Personalized Dashboard

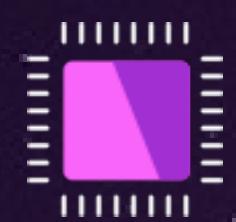
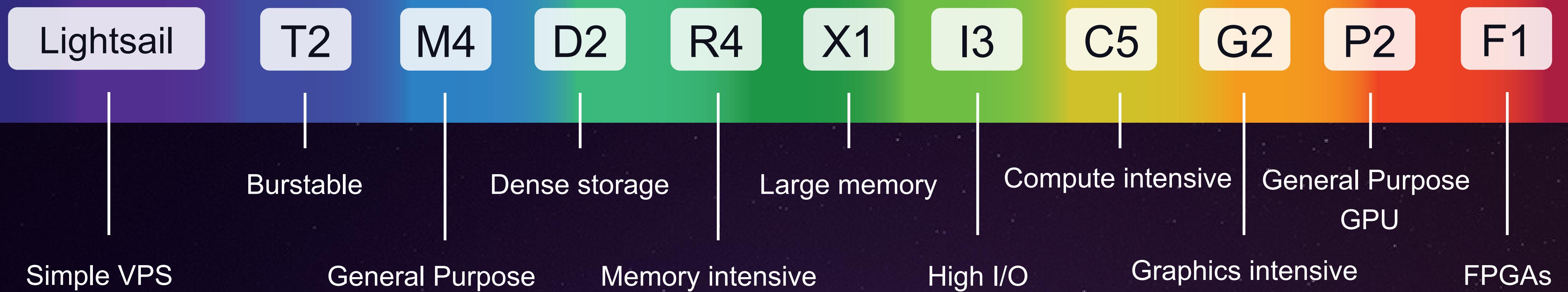
MARKETPLACE

Business Apps Business Intelligence DevOps Tools Security Networking Databases Storage

ANALYTICS	DEV/OPS	MOBILE SERVICES	IoT	AI	ENTERPRISE APPS	HYBRID ARCHITECTURE	Migration	
Data Warehousing Business Intelligence Hadoop /Spark Streaming Data Analysis Streaming Data Collection	Elasticsearch Data Pipelines Interactive SQL Queries ETL	One-click App Deployment Resource Templates Build and Test Application Lifecycle Management DevOps Resource Management	API Gateway Single Integrated Console Identity Sync Mobile Analytics	Rules Engine Device Shadows Device SDKs Device Gateway Registry	Machine Learning Image Recognition Speech to Text Conversation AI Interface Deep Learning Frameworks	Virtual Desktops Sharing & Collaboration Corporate Email App Streaming Communications	Integrated Networking Direct Connect Identity Federation Integrated App Deployments Data Backups	Schema Conversion Exabyte-Scale Data Migration Application Migration Database Migration Server Migration
APP SERVICES								
Queuing & Notifications Workflow Search	Triggers Containers Analyze and Debug	Mobile App Testing Targeted Push Notifications						
INFRASTRUCTURE	CORE SERVICES	SECURITY & COMPLIANCE						
Regions Availability Zones Points of Presence	Compute VMs, Auto-scaling, Load Balancing, Containers, Virtual Private Servers, Batch Computing, Cloud Functions, Elastic GPUs, Edge Computing  Storage Object, Blocks, File, Archives, Import/Export, Exabyte-scale data transfer  Networking VPC, DX, DNS	Databases Relational, NoSQL, Caching, Migration, PostgreSQL compatible  CDN	Identity Management Configuration Compliance	Access Control Key Management & Storage	Monitoring & Logs Account Grouping	Assessment and Reporting Resource & Usage Auditing	Web Application Firewall DDOS Protection	

# Compute

# Amazon EC2: A Broad Spectrum Of Compute Capabilities In The AWS Cloud



Elastic GPUs On EC2



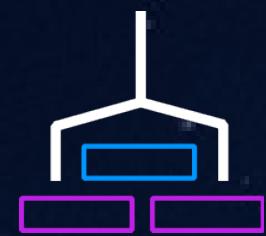
Aon Benfield is the world's leading reinsurance intermediary and full-service capital advisor.

By using AWS GPU instances, Aon Benfield is able to perform very complex Monte Carlo simulations with greater computing power, in shorter time frames, and for less cost than on-premise deployments and CPU cores.

*“Using AWS helps us reduce a 10-day process to 10 minutes”*

# Amazon EC2 Container Service (ECS)

The best way to run your containers in production



Container  
management



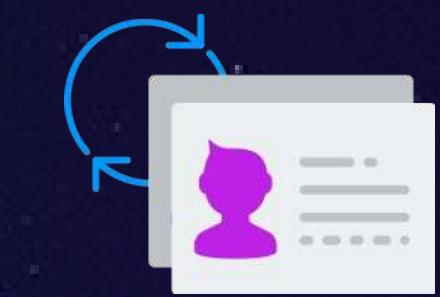
Container  
registry



No  
infrastructure  
management



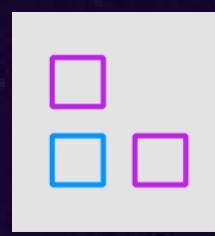
Access to  
EBS, ELB,  
CloudWatch



Integration  
with IAM

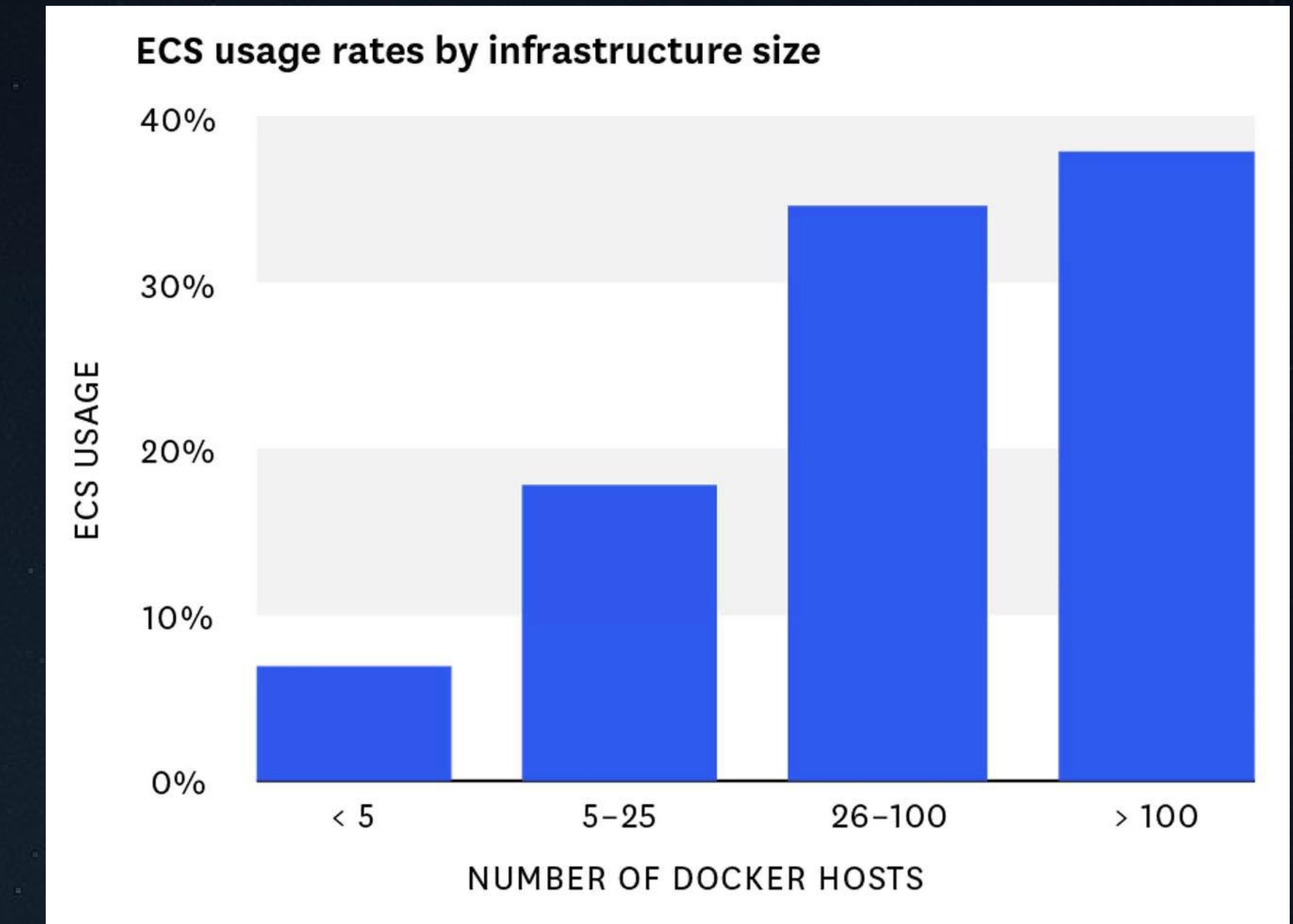
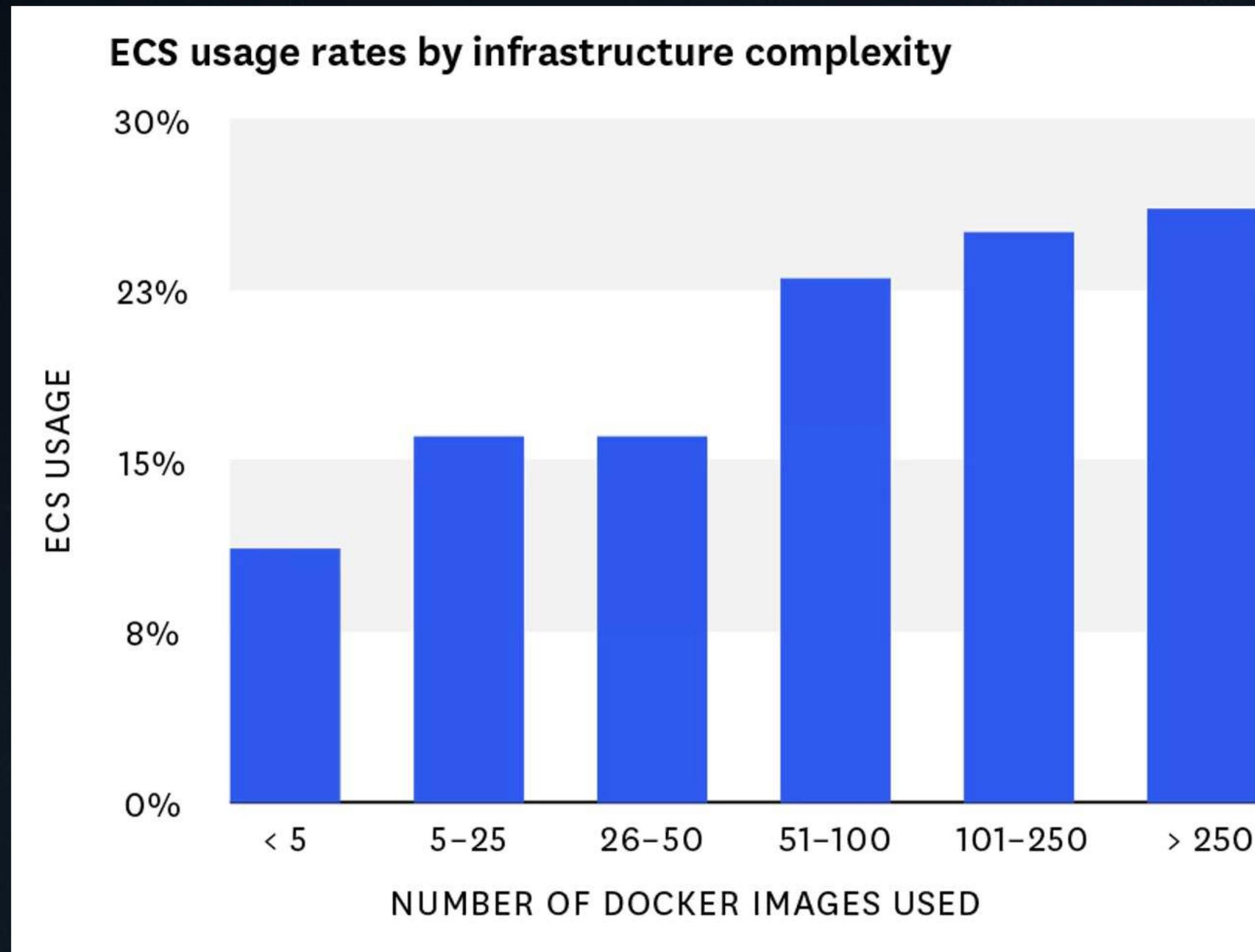


Batch and long  
running task  
scheduling



Multi-AZ  
aware

# ECS adoption



<https://www.datadoghq.com/blog/3-clear-trends-in-ecs-adoption/>

November 2016

# Customer Success Examples With ECS

airtime



coursera



Segment



okta

Blackboard



shippable



Instacart



MORNINGSTAR



here



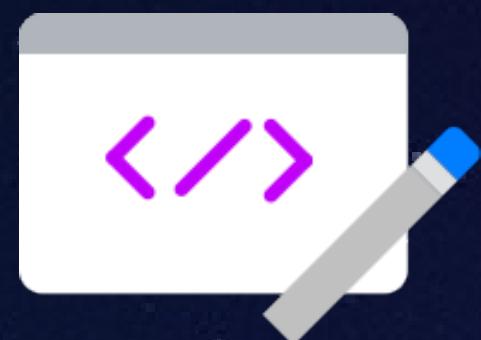
No server is easier to manage than no server at all

# AWS Lambda

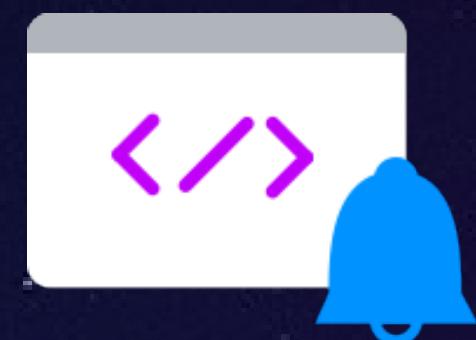
Serverless compute



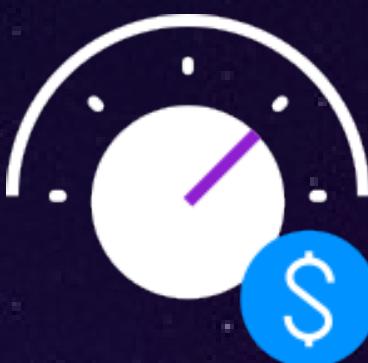
Run code without  
thinking about  
servers



Integrated with  
12 services



Run your code based  
on API calls or  
triggers from AWS  
services



Pay only for the  
compute time you  
consume

# Customer Success With AWS Lambda



Pearson



NETFLIX

CMP.LY

The Seattle Times



vevo



hudl

H E A R S T

News Corp



Localytics

SCHOLASTIC

mlbam



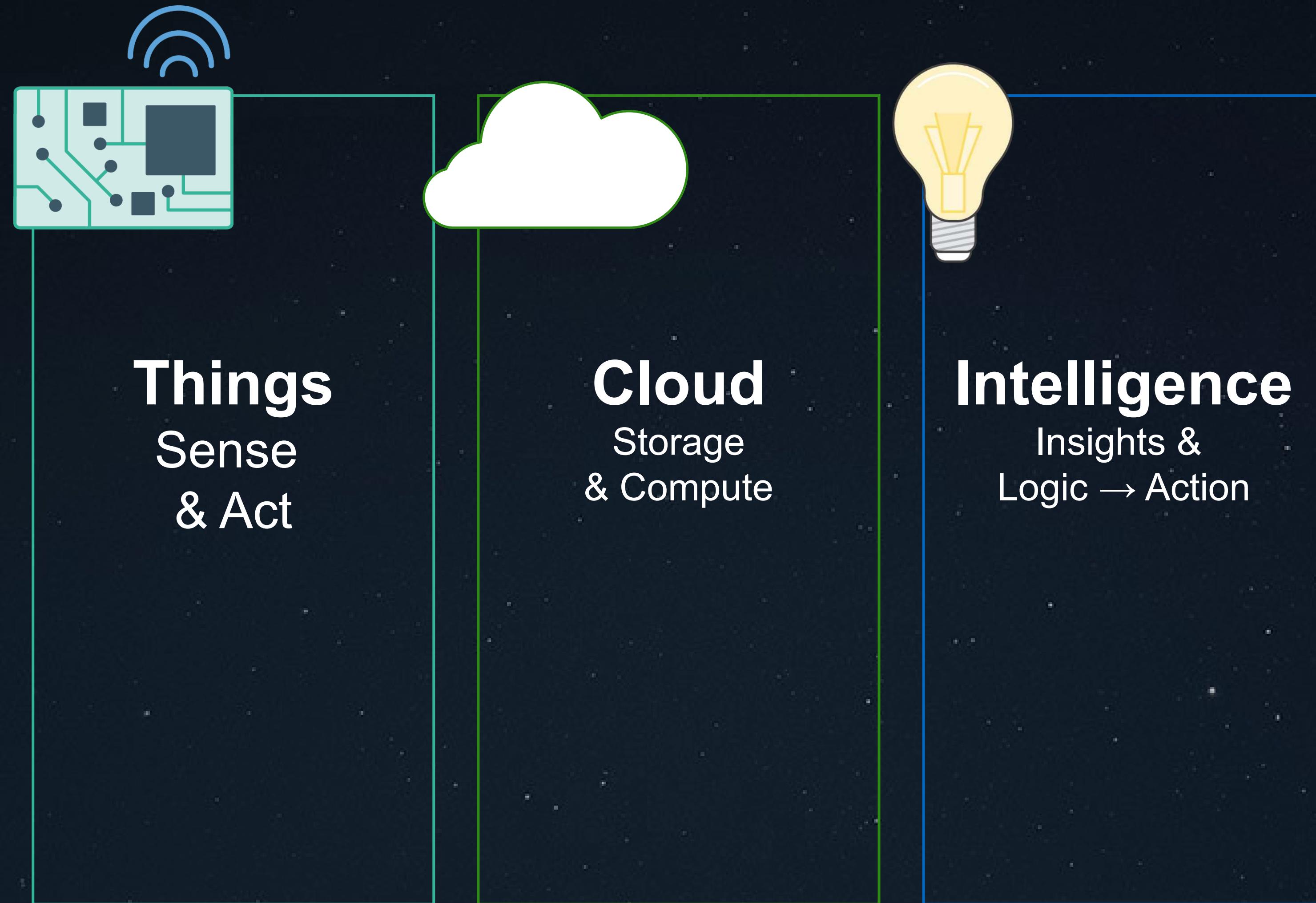
VidRobo™

BUSTLE

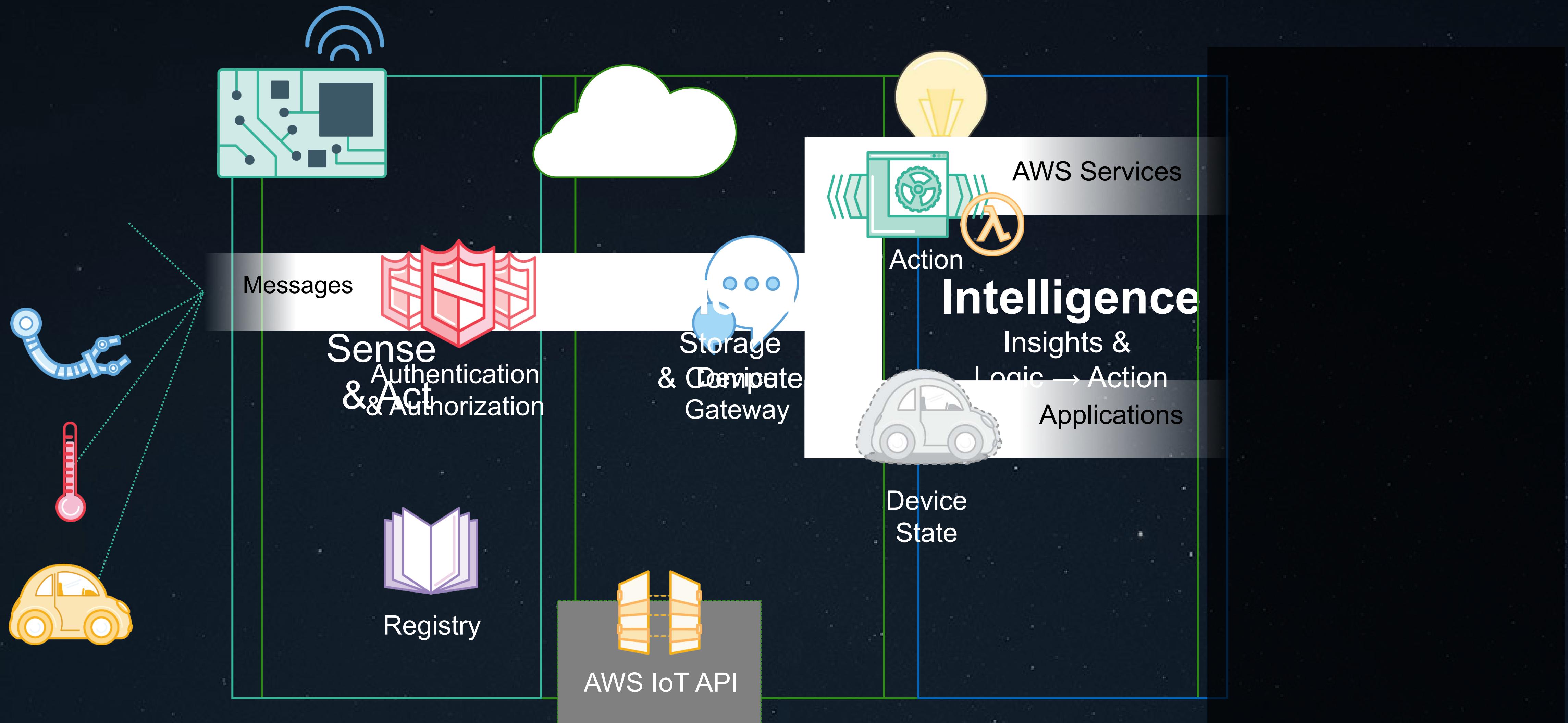
iRobot

# Compute at the Edge

# Three pillars of IoT

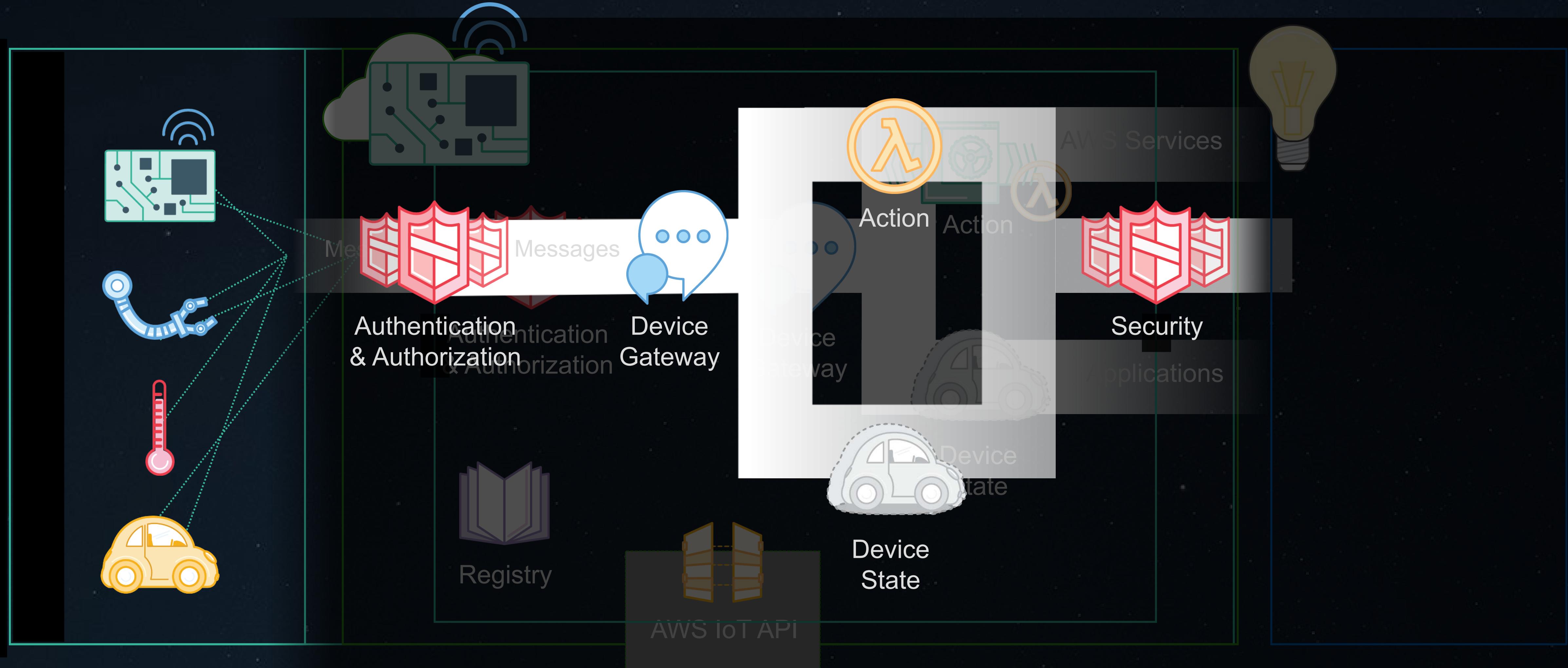


# Starting in the cloud



# Going to the edge

# Introducing AWS Greengrass



# AWS Snowball Edge: Petabyte-Scale Data Transport, With On-board Compute

Integrated cable housing  
E-ink shipping label  
On-device encryption  
Rugged enclosure



100TB capacity

Color control touchscreen  
Rack mountable

# Oregon State University Uses AWS Snowball Edge



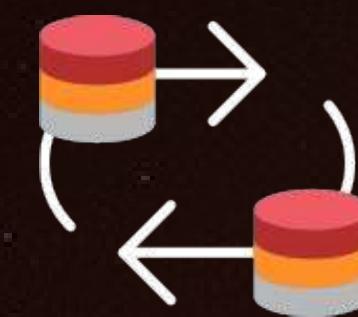
<https://www.youtube.com/watch?v=DHnR0kFin80>

# Data

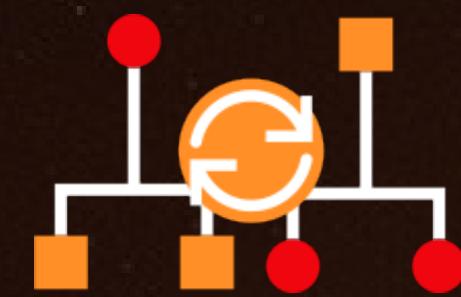
# Migrating Databases To AWS



Migrate between  
on-prem and AWS



Migrate between  
databases



Automated schema  
conversion



Data replication for  
zero downtime migrations

**30,000+**  
**databases migrated**

# AWS Has Made Petabyte-Scale Analytics Accessible To Organizations Of All Sizes



|

Interactive query service  
Amazon Athena



|

Hadoop, Spark and Presto  
Amazon EMR



|

Data warehousing  
Amazon Redshift

# Amazon Athena

Interactive query service that makes it easy to analyze data in Amazon S3 using standard SQL

Query S3 directly and right away

No infrastructure or clusters to setup and manage

Fast results within seconds

Pay for just the queries you run

*News Corp*

 Gunosy

 Atlassian

 slack

**HBO**<sup>®</sup>

 ROVIO

 INRIX

**stripe**

 TAXI

 mparticle

 DataXU<sup>®</sup>

# Amazon EMR

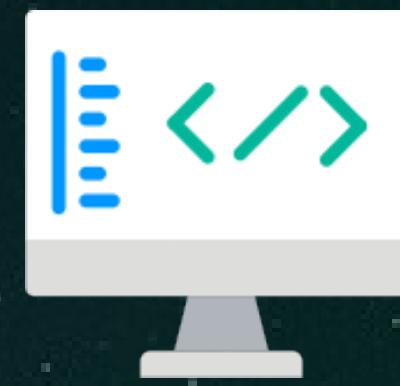
Analyze large data sets using popular big data processing frameworks



|  
Hadoop, Spark,  
Presto, HBase



|  
Fully customizable  
clusters



|  
Code your own  
applications

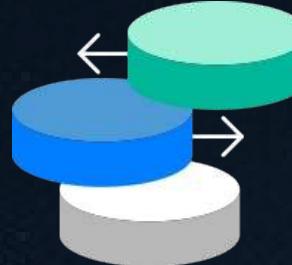


FINRA, the primary regulatory agency for broker-dealers in the US, uses AWS extensively in their IT operations and has migrated key portions of its technology stack to AWS including Market Surveillance and Member Regulation.

For market surveillance, each night FINRA loads approximately **35 billion rows** of data into Amazon S3 and Amazon EMR (**up to 10,000 nodes**) to monitor trading activity on exchanges and market centers in the US.

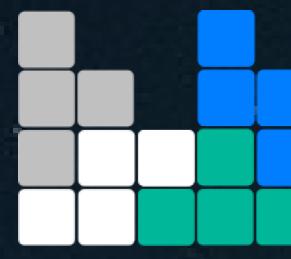
# Amazon Redshift

Petabyte-scale data warehousing for complex queries and super-fast performance

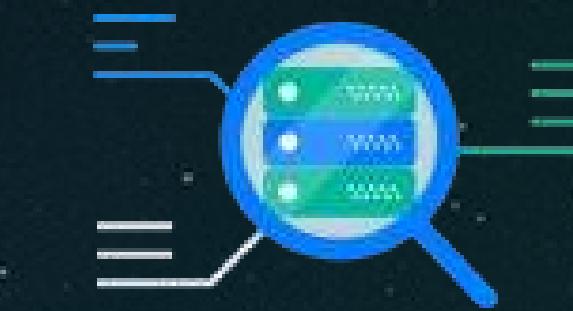


|

Pull together data  
from different sources



Highly structured



|

Complex queries  
across very large  
databases



|

20x faster than  
ad-hoc query  
services



Real-time analysis of reader traffic, in order to decide which stories to cover

John O'Donovan, CTO:

*“Some of the queries we’re running are 98% faster, and most things are running 90% faster (...) and the ability to try Redshift out before having to invest a significant amount of capital was a huge bonus.”*

*“Being able to explore near-real-time data improves our decision making massively. We can make decisions based on what’s happening now rather than what happened three or four days ago.”*

# Redshift Spectrum: Extend Redshift Queries To Data In Amazon S3



# Redshift Spectrum Performance

Complex query  
against exabyte dataset

4 tables (1 S3, 3 local), 8 filters, 3 joins, 4 group by columns, 1 order by, 1 limit, 1 aggregation, 1 function and 2 casts

# Redshift Spectrum Performance

Complex query  
against exabyte dataset

4 tables (1 S3, 3 local), 8 filters, 3 joins, 4 group by columns, 1 order by, 1 limit, 1 aggregation, 1 function and 2 casts



Hive (1000 node clusters)  
**5 years**

# Redshift Spectrum Performance

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Hive (1000 node clusters)  
**5 years**



Spectrum

**155 seconds**

# Customers Already Using Redshift Spectrum



TIME



REDFIN



# Artificial Intelligence

# Thousands of Amazon Engineers Focused on AI



Fulfilment &  
Logistics



Search &  
Discovery



Existing  
Products



New  
Products

# Artificial Intelligence On AWS Today



NETFLIX

Stanford



The Washington Post



Carnegie Mellon

Pinterest



C-SPAN



UNIVERSITY of  
WASHINGTON



realnetworks



CapitalOne®

GoAnimate

HubSpot

RNIB

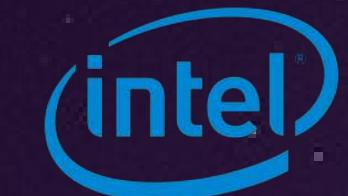
圖森 tu Simple

duolingo

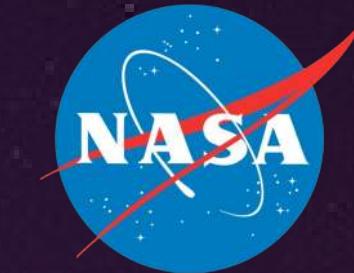
iTranslate



HAPPY SNAP



freshdesk



zmags

# Amazon AI: Artificial Intelligence In The Hands Of Every Developer

Services

Platforms

Amazon  
ML

Spark &  
EMR

Kinesis

Batch

ECS

Engines

MXNet   TensorFlow

Caffe

Theano

Pytorch

CNTK

Infrastructure

GPU

CPU

IoT

Mobile

# Apache MXNet



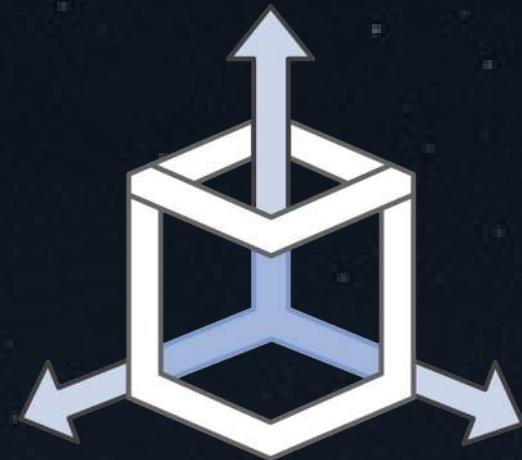
## Programmable

Simple syntax,  
multiple languages



## Most Open

Accepted into the  
Apache Incubator



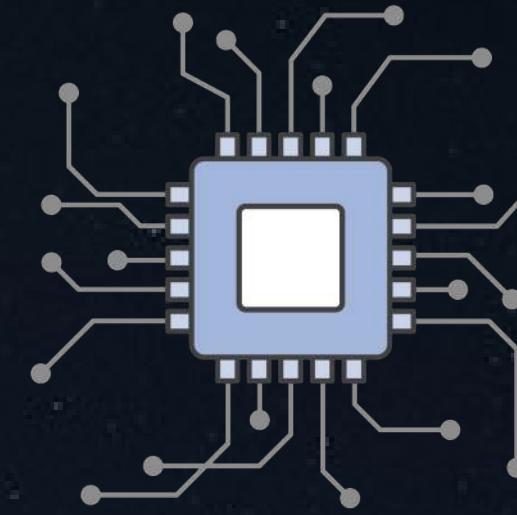
## Portable

Highly efficient  
models for mobile  
and IoT



## Best On AWS

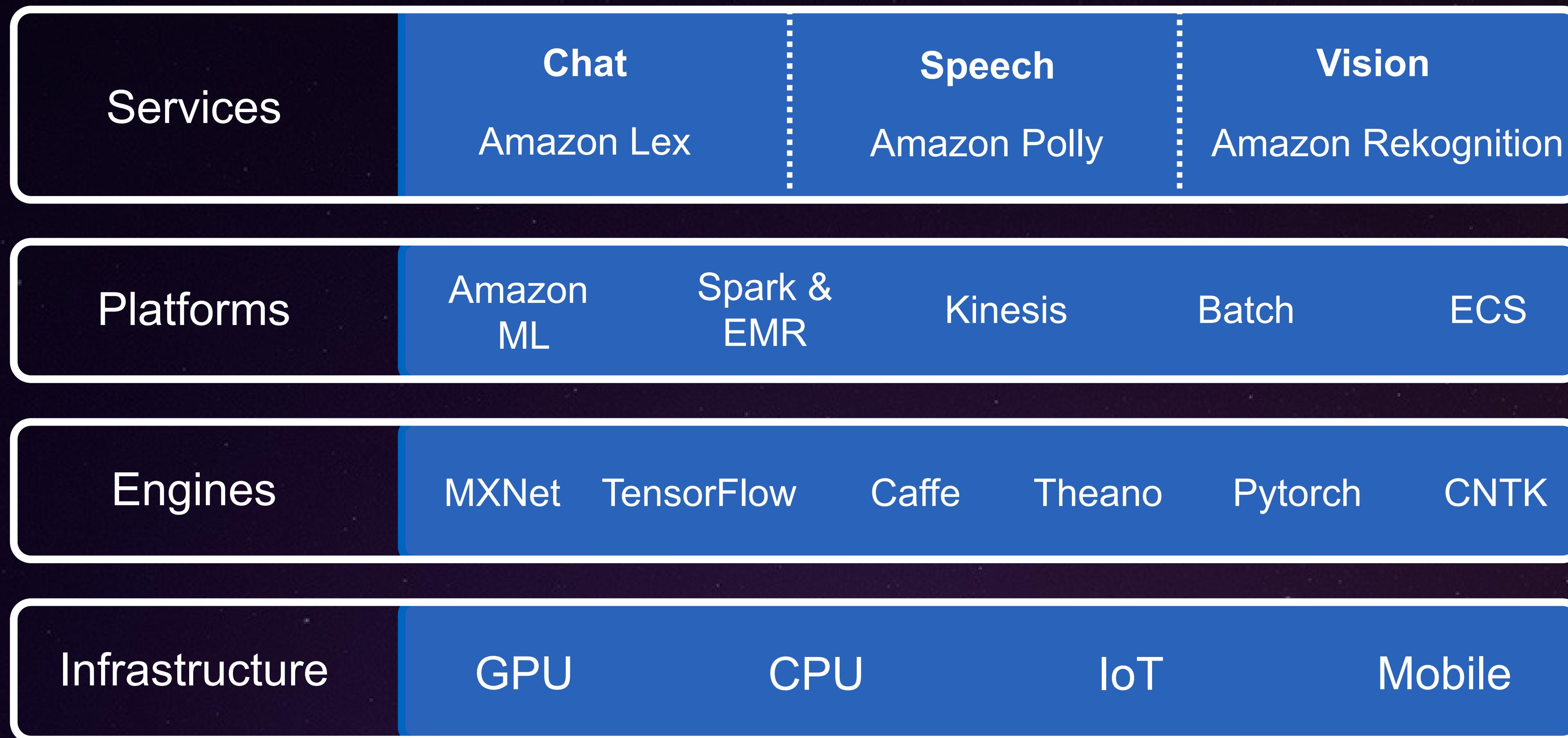
Optimized for  
deep learning on  
AWS



## High Performance

Near linear scaling  
across hundreds of GPUs

# Amazon AI: Artificial Intelligence In The Hands Of Every Developer



# Amazon Polly: Text To Speech Powered By Deep Learning

“The temperature  
in WA is 75°F”



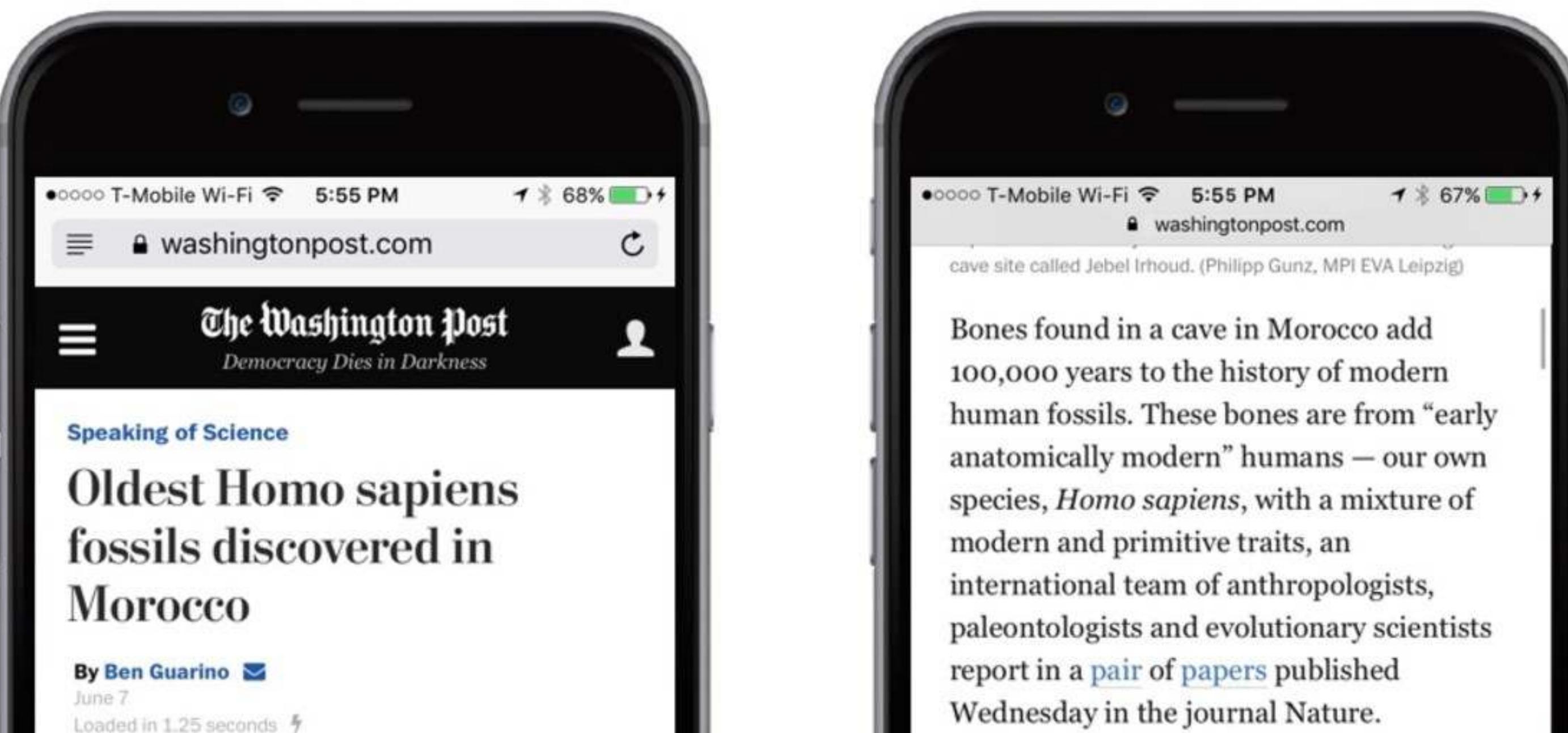
Amazon Polly

“The temperature  
in Washington is 75 degrees  
Fahrenheit”

Text In, Life-like Speech Out

# The Washington Post to start experimenting with audio articles using Amazon Polly

By WashPostPR June 9



# Amazon Lex:

## Speech Recognition & Natural Language Understanding



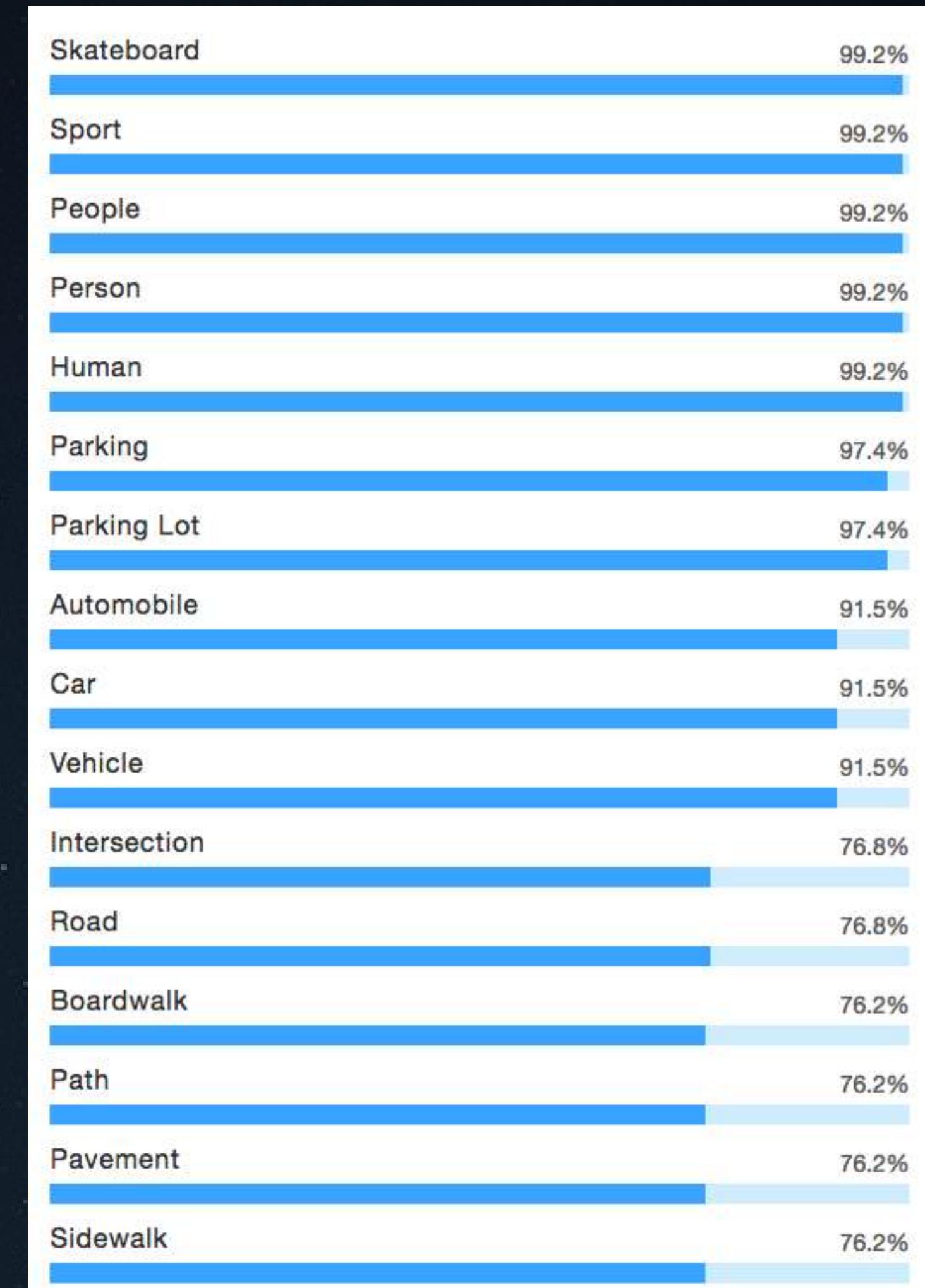
# Amazon Rekognition:

## Image Recognition And Analysis Powered By Deep Learning

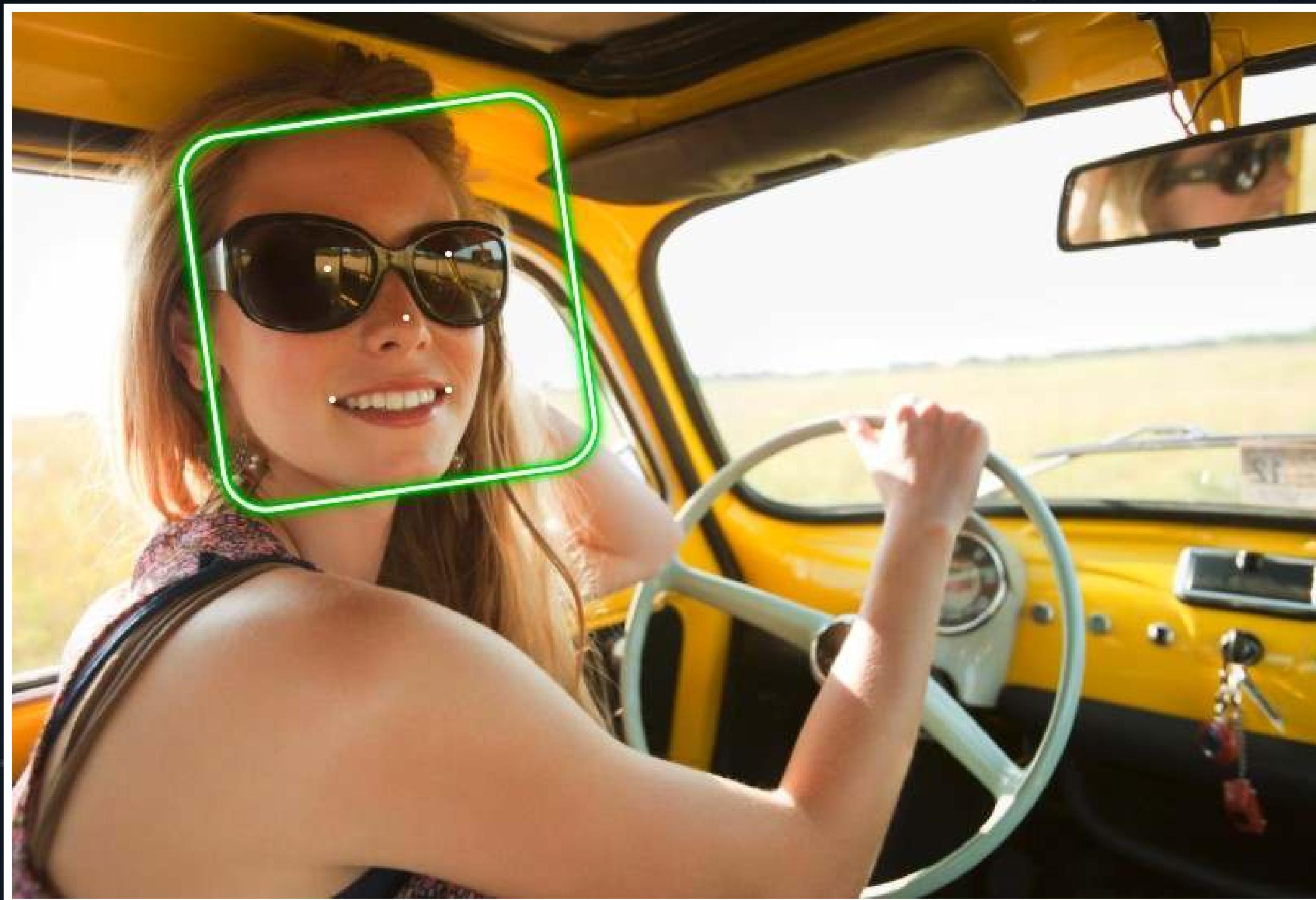


Images In, Categories and Facial Analysis Out

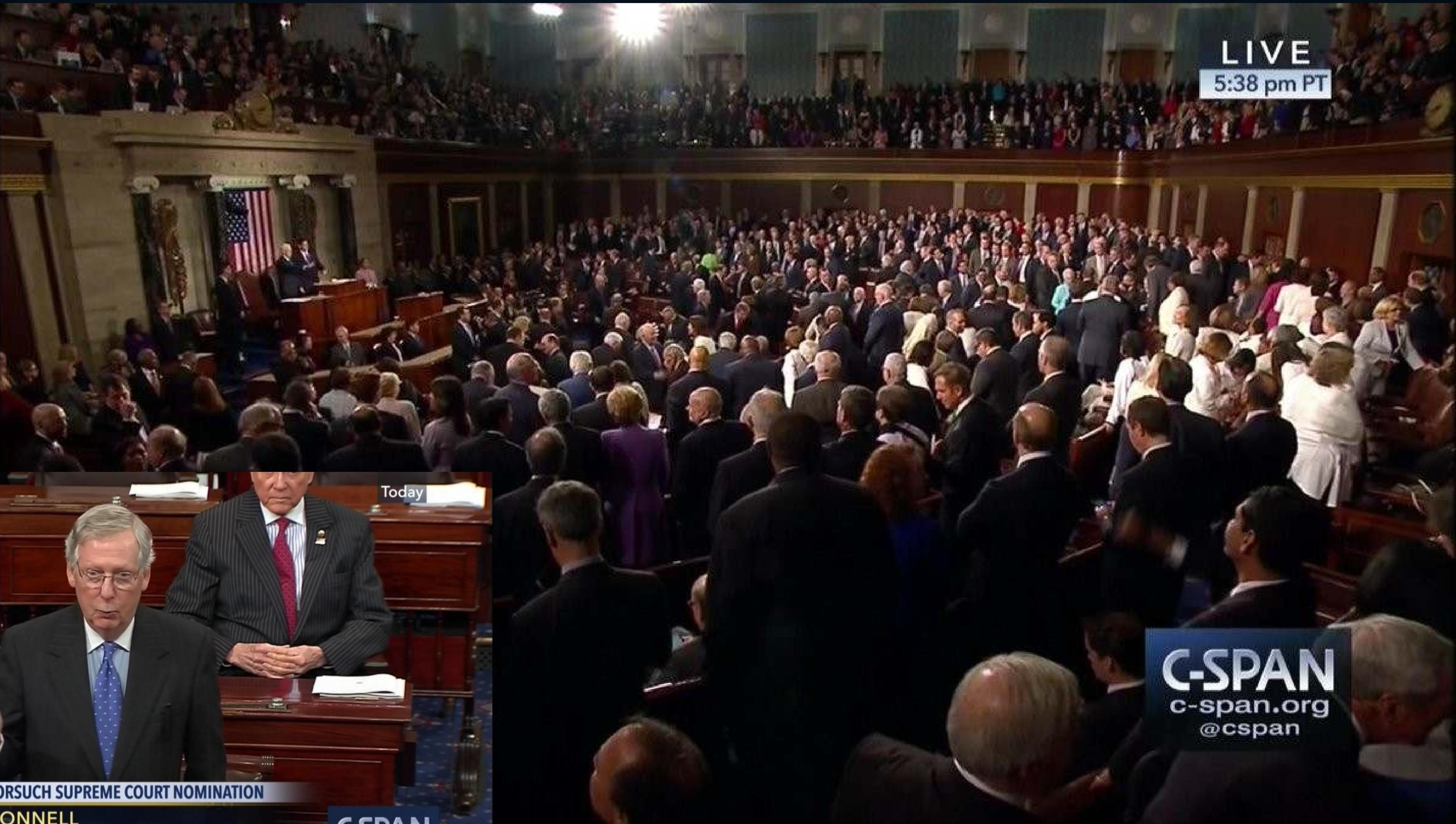
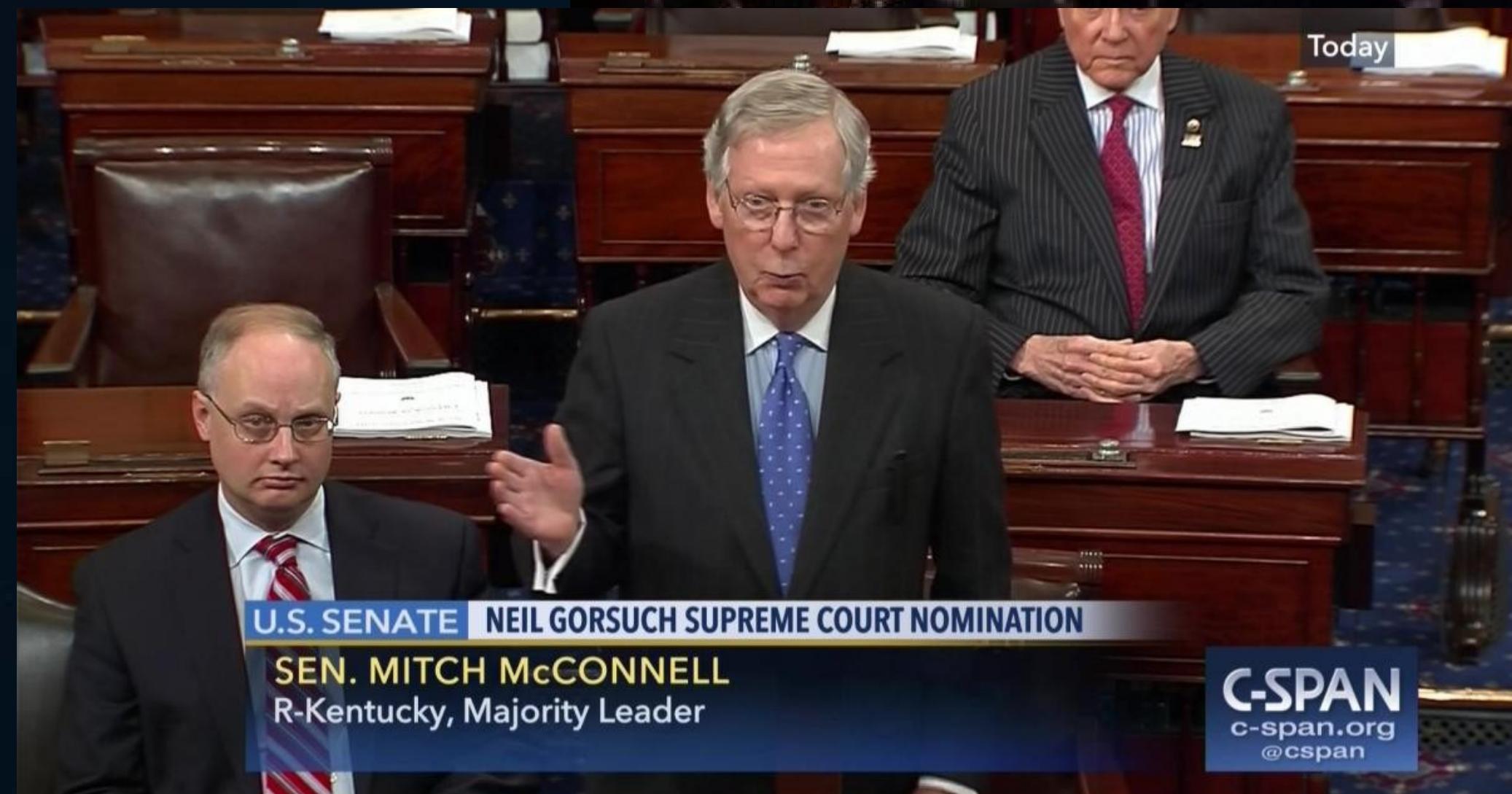
# Amazon Rekognition: Object & Scene Detection



# Amazon Rekognition: Facial Detection



# C-SPAN



In conclusion...



# Most Robust, Fully-Featured Technology Infrastructure Platform

**TECHNICAL & BUSINESS SUPPORT**

Support Professional Services Optimization Guidance Partner Ecosystem Training & Certification Solutions Management Account Management Security & Billing Reports Personalized Dashboard

**MARKETPLACE**

Business Apps Business Intelligence DevOps Tools Security Networking Databases Storage

ANALYTICS	DEV/OPS	MOBILE SERVICES	IoT	AI	ENTERPRISE APPS	HYBRID ARCHITECTURE	Migration	
Data Warehousing Business Intelligence Hadoop /Spark Streaming Data Analysis Streaming Data Collection	Elasticsearch Data Pipelines Interactive SQL Queries ETL	One-click App Deployment Resource Templates Build and Test Application Lifecycle Management DevOps Resource Management	API Gateway Single Integrated Console Identity Sync Mobile Analytics	Rules Engine Device Shadows Device SDKs Device Gateway Registry	Machine Learning Image Recognition Speech to Text Conversation AI Interface Deep Learning Frameworks	Virtual Desktops Sharing & Collaboration Corporate Email App Streaming Communications	Integrated Networking Direct Connect Identity Federation Integrated App Deployments Data Backups VMware Integration Integrated Resource Management	Schema Conversion Exabyte-Scale Data Migration Application Migration Database Migration Server Migration
APP SERVICES								
Queuing & Notifications Workflow Search	Triggers Containers Analyze and Debug	Mobile App Testing Targeted Push Notifications						

**INFRASTRUCTURE**

Regions Availability Zones Points of Presence

**CORE SERVICES**

Compute Storage Databases Networking

VMs, Auto-scaling, Load Balancing, Containers, Virtual Private Servers, Batch Computing, Cloud Functions, Elastic GPUs, Edge Computing Object, Blocks, File, Archives, Import/Export, Exabyte-scale data transfer Relational, NoSQL, Caching, Migration, PostgreSQL compatible VPC, DX, DNS CDN

**SECURITY & COMPLIANCE**

Identity Management Access Control Monitoring & Logs Assessment and Reporting Web Application Firewall Configuration Compliance Key Management & Storage Account Grouping Resource & Usage Auditing DDoS Protection

# Bien démarrer sur AWS

Offre gratuite AWS  
Tutoriels

<https://aws.amazon.com/fr/free/>

<https://aws.amazon.com/fr/getting-started/>



Amazon Web Services France

Aperçu des services AWS <https://www.youtube.com/watch?v=jY9XH4vGDAU>  
Bien débuter sur AWS <https://www.youtube.com/watch?v=gOeFzkiqOF4>

AWS Research  
Cloud Program



Véhicule de marché  
**GÉANT CloudServices**

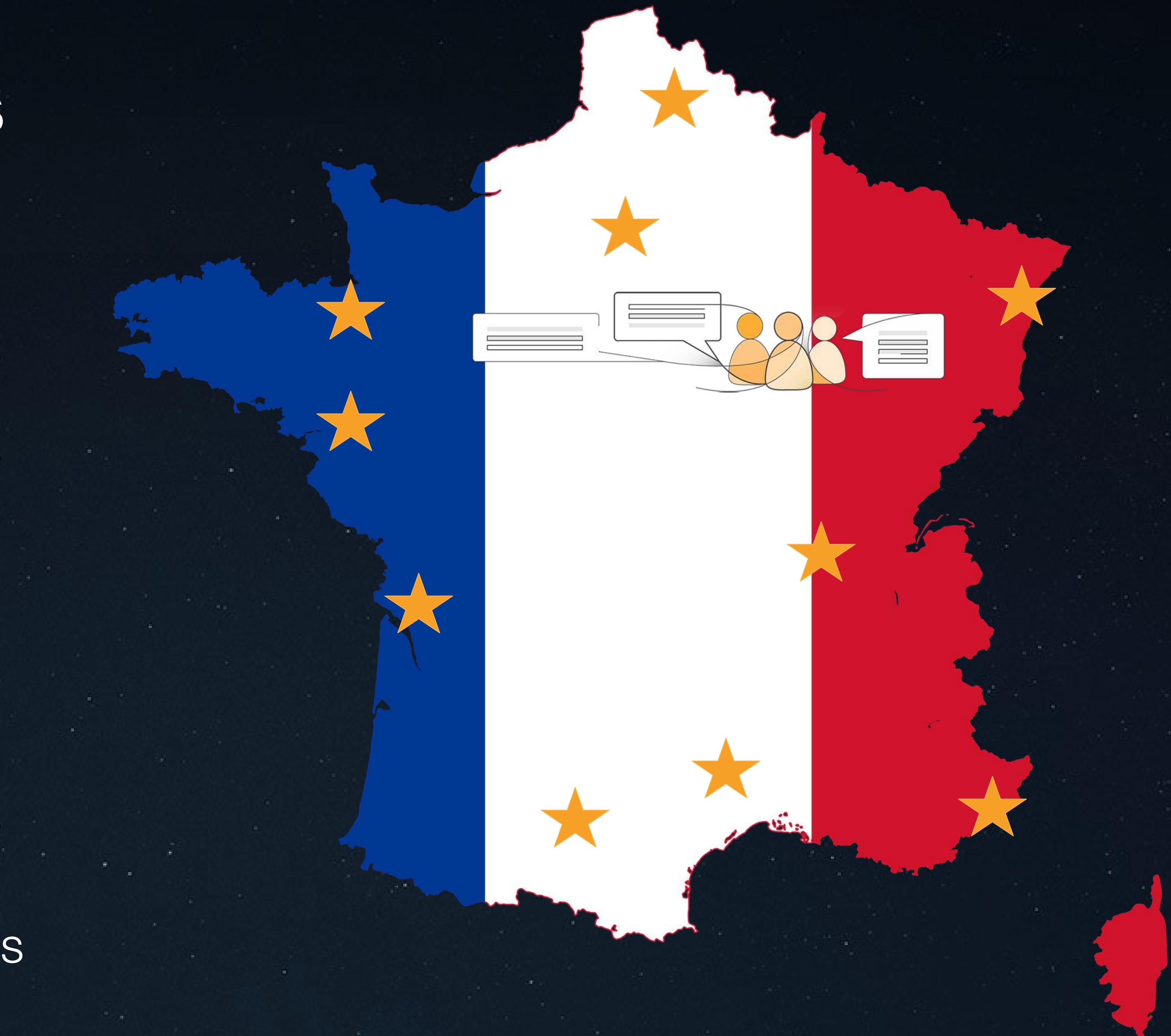
# AWS User Groups

*meetup*

Lille  
Paris  
Rennes  
Nantes  
Bordeaux  
Lyon  
Montpellier  
Toulouse  
Côte d'Azur  
Grand Est



@aws\_actus



**Devops** : Mercredi, 11:00 – 12:30, T6.GT09

**IOT** : Mercredi, 17:35 – 18:45, T1.GT06

**Analytics** : Mercredi, 17:35 – 18:45 , T7.GT06

**HPC** : Mercredi, 16:00 – 17:30, T8.GT11

# Thank you!

Julien Simon  
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[@julsimon](https://twitter.com/julsimon)