What's New from re:Invent 2019

Vladimir Simek
Senior Solutions Architect
Amazon Web Services

AWS re:Invent

aws

A Bit of re:Invent Statistics

- 8th re:Invent since 2012
- 65.000+ visitors
- 3.800+ sessions, breakouts, bootcamps, hands-on-labs
- Social program: Midnight Madness, 20+ receptions, 4K/8K run, Bingo Night, Board Game Night, Movie Night, Ping-pong Tournament, Broomball Tournament, Biggest Night Party – re:Play
- Partners Expo, Builders Fair, and many more …
- 4 executive keynotes, with live broadcast
- 70+ product announcements

Compute

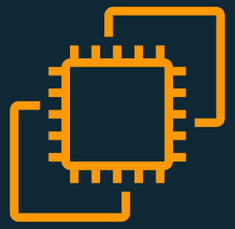
AWS container services landscape

Management
Deployment, Scheduling, Scaling & Management of containerized applications

Amazon Elastic Container Service

Amazon Elastic Kubernetes Service

Hosting
Where the containers run



Amazon EC2

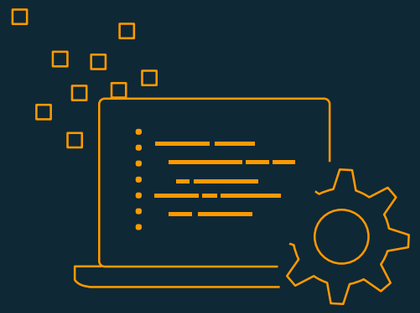
AWS Fargate

Image Registry
Container Image Repository

Amazon Elastic Container Registry

aws

Make Kubernetes apps serverless with Amazon EKS + Fargate



Bring existing pods

You don’t need to change your existing pods. Fargate works with existing workflows and services that run on Kubernetes.

Production ready

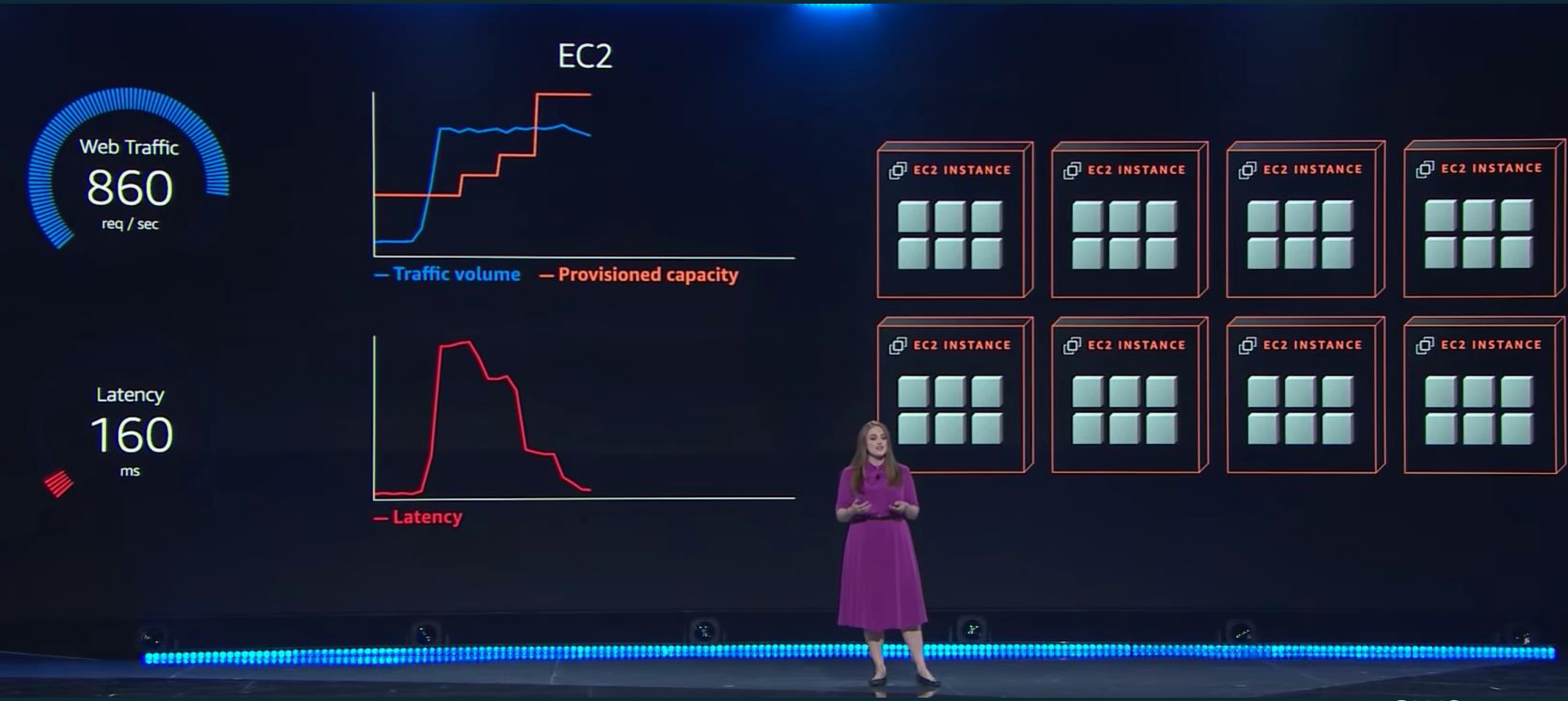
Launch ten or tens of thousands of pods in seconds. Easily run pods across multiple AZs for high-availability.

Right-Sized and Integrated

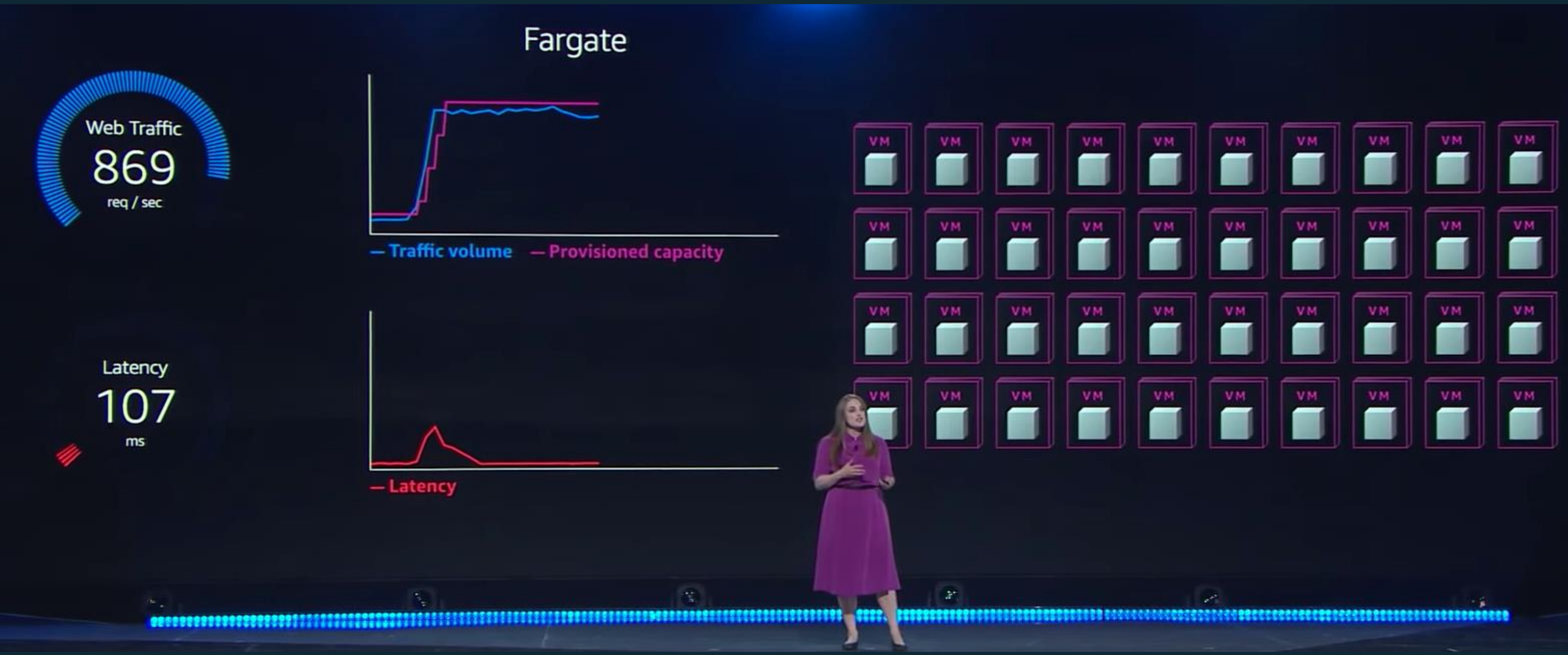
Only pay for the resources you need to run your pods. Includes native AWS integrations for networking, and security.

Fargate runs tens of millions of containers for AWS customers every week

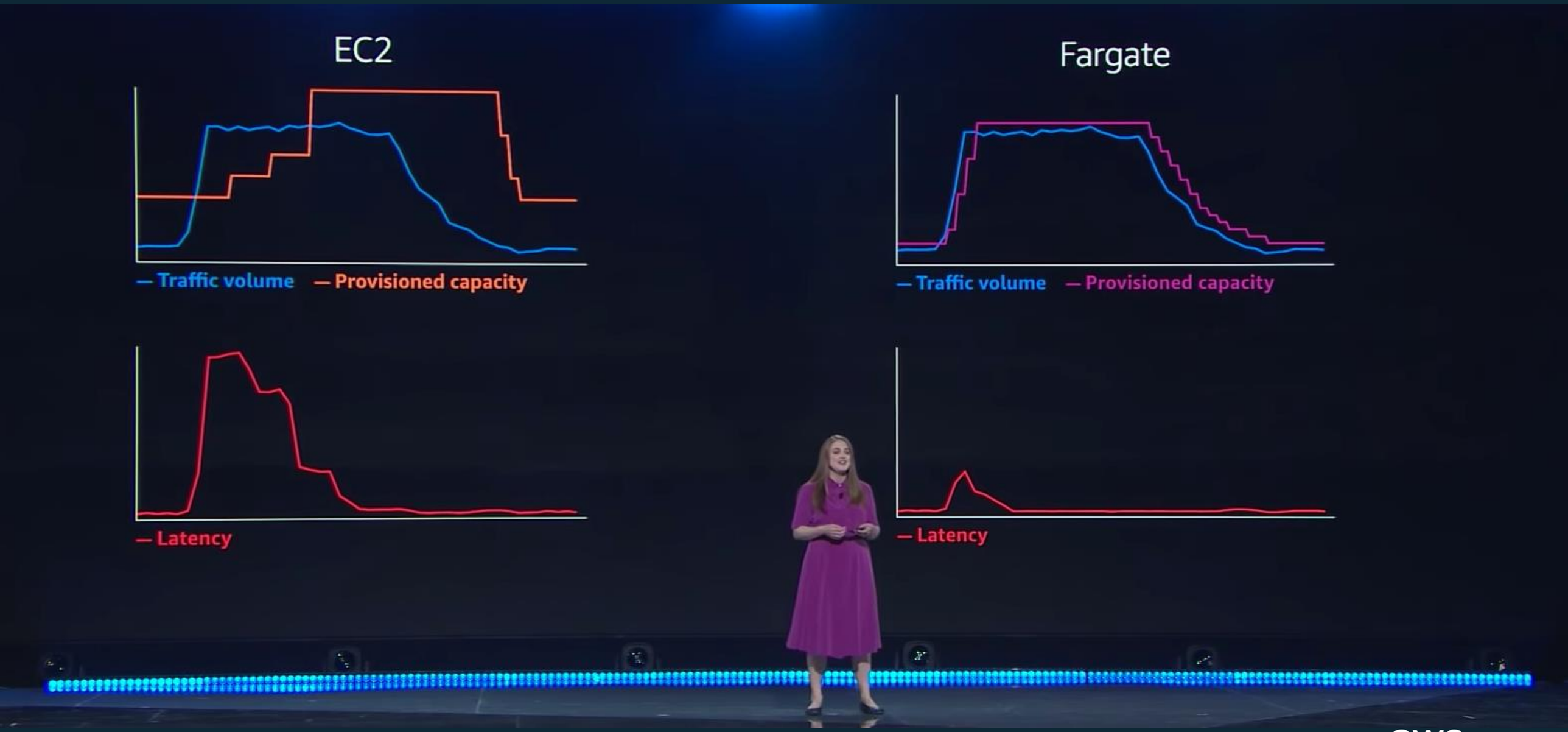
EKS with EC2



EKS with Fargate



Comparison



Broadest choice of processors

Second generation of Intel® Xeon processor

AMD Rome

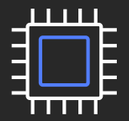
Graviton

Announcing AWS Graviton2 Processor

Enabling the best price/performance for your cloud workloads

Graviton Processor

First Arm-based processor available in major cloud



Built on 64-bit Arm Neoverse cores with AWS-designed silicon using 16 nm manufacturing technology

Up to 16 vCPUs,10 Gbps enhanced networking, 3.5 Gbps EBS bandwidth

Graviton2 Processor

7x performance, 4x compute cores, and 5x faster memory

Built with 64-bit Arm Neoverse cores with AWS-designed silicon using 7 nm manufacturing technology

Up to 64 vCPUs, 25 Gbps enhanced networking, 18 Gbps EBS bandwidth

Announcing Graviton2 based instances

Up to 40% better price-performance for general purpose, compute intensive, and memory intensive workloads.

M6g

Built for: General-purpose workloads such as application servers, mid-size data stores, and microservices.

Available in Preview

C6g

Built for: Compute intensive applications such as HPC, video encoding, gaming, and simulation workloads.

R6g

Built for: Memory intensive workloads such as open-source databases, or in-memory caches.

Coming in 2020

Local NVMe-based SSD storage options will also be available in general purpose (M6gd), compute-optimized (C6gd), and memory-optimized (R6gd) instances

ML inference deployment options on Amazon EC2

Custom chip
EC2 Inf1 instances

Featuring AWS Inferentia

- Applications that leverage common ML frameworks
- Powered by AWS Inferentia
- Best price/performance for ML inferencing in the cloud

  Up to 40% lower cost per inference and up to 3x higher throughput than G4 instances
- Available today!

GPU based
EC2 G4 instances

- Applications that require access to CUDA, CuDNN or TensorRT libraries
- Amazon EC2 G4 instances based on NVIDIA T4 GPUs
- Launched!

CPU based
EC2 C5 instances

- Small models and low sensitivity to performance
- Intel Skylake CPUs Support for AVX-512/ VNNI instruction set
- Launched!

EC2 Inf1 instances feature the AWS Inferentia chip

High performance

- Up to 2000 TOPS of throughput

Powered by AWS Inferentia and AWS Neuron

- CNN (image/video)
- Classic LSTM/RNN
- Modern and attention-based neural network (NLP, Translation, Search and Voice)

Flexible datatype support

- Run models trained in FP32, FP16, BF16, INT8

Flexible framework support

- Native integration with TensorFlow, MXNet, and PyTorch

EC2 Inf1 instances are optimized for ML inferencing

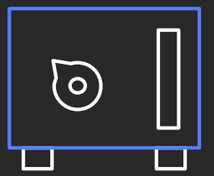
Object detection

Natural language processing

Personalization

Speech recognition

Image processing



Fraud detection

Journey from then to now

2006 “Instance”

1.7 GHz Xeon Processor

1.75 GB of RAM

160 GB of local disk

250 Mbps network bandwidth

AWS News Blog

Amazon EC2 Beta

by Jeff Barr | on 25 AUG 2006 | Permalink | Share

Innovation never takes a break, and neither do I. From the steaming hot beaches of Cabo San Lucas I would like to tell you about the Amazon Elastic Compute Cloud, or Amazon EC2, now open for limited beta testing, with more beta slots to open soon.

Amazon EC2 gives you access to a virtual computing environment. Your applications run on a “virtual CPU”, the equivalent of a 1.7 GHz Xeon processor, 1.75 GB of RAM, 160 GB of local disk and 250 Mb/second of network bandwidth. You pay just 10 cents per clock hour (billed to your Amazon Web Services account), and you can get as many virtual CPUs as you need. You can learn more on the EC2 Detail Page. We built Amazon EC2 using a virtual machine monitor by the name of Xen.

Amazon EC2 works in terms of AMIs, or Amazon Machine Images. Each AMI is a pre-configured boot disk — just a packaged-up operating system stored as an Amazon S3 object. There are web service calls to create images, and to assign them to virtual CPUs to run your application. If your application consists of the usual web server, business logic, and database tiers, you can built distinct AMIs for each tier, and then spawn one or more instances of each type based on the load.

In a previous post, Sometimes You Need Just a Little…, I alluded to the new world of scalable, on-demand web services. In that post I talked about the fact that sometimes a little bit of storage is all you need.

Sometimes you need a lot of processing power, and sometimes you need just a little. Sometimes you need a lot, but you only need it for a limited amount of time. Perhaps you are doing some number crunching, some in-depth text processing, some scientific research, or your end-of-month accounting. Or perhaps you want to experiment with some radical new

> “Your applications run on a “virtual CPU”, the equivalent of a 1.7 GHz Xeon processor, 1.75 GB of RAM, 160 GB of local disk and 250 Mbps of network bandwidth.”

Journey from then to now

2006 “Instance”

1.7 GHz Xeon Processor

1.75 GB of RAM

160 GB of local disk

250 Mbps network bandwidth

2019

4.0 GHz Xeon Processor
z1d instance

24 TiB of RAM
High Memory instances

60 TB of NVMe local storage
I3en.metal instances

48 TB of local disk
d2.8xlarge

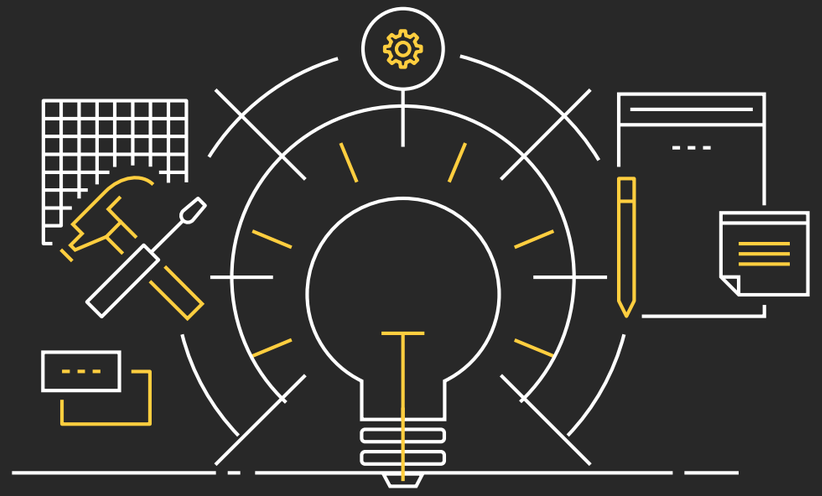
100 Gbps network bandwidth

Broadest and deepest platform choice

Categories	Capabilities	Options
General purpose	Choice of processor (AWS, Intel, AMD)	
Burstable	Fast processors (up to 4.0 GHz)	
Compute intensive	High memory footprint (up to 12 TB)	
Memory intensive	Instance storage (HDD and NVMe)	
Storage (High I/O)	Accelerated computing (GPUs and FPGA)	
Dense storage	Networking (up to 100 Gbps)	
GPU compute	Bare Metal	
Graphics intensive	Size (Nano to 32xlarge)	

270 +
instance types
optimized for almost every workload and business need

How do you select the right instance to launch and optimize?



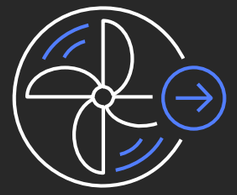
Introducing

AWS Compute Optimizer

AWS Compute Optimizer

Recommends optimal instances for EC2 and and EC2 Auto Scaling groups from 140+ instances from M, C, R, T, and X families

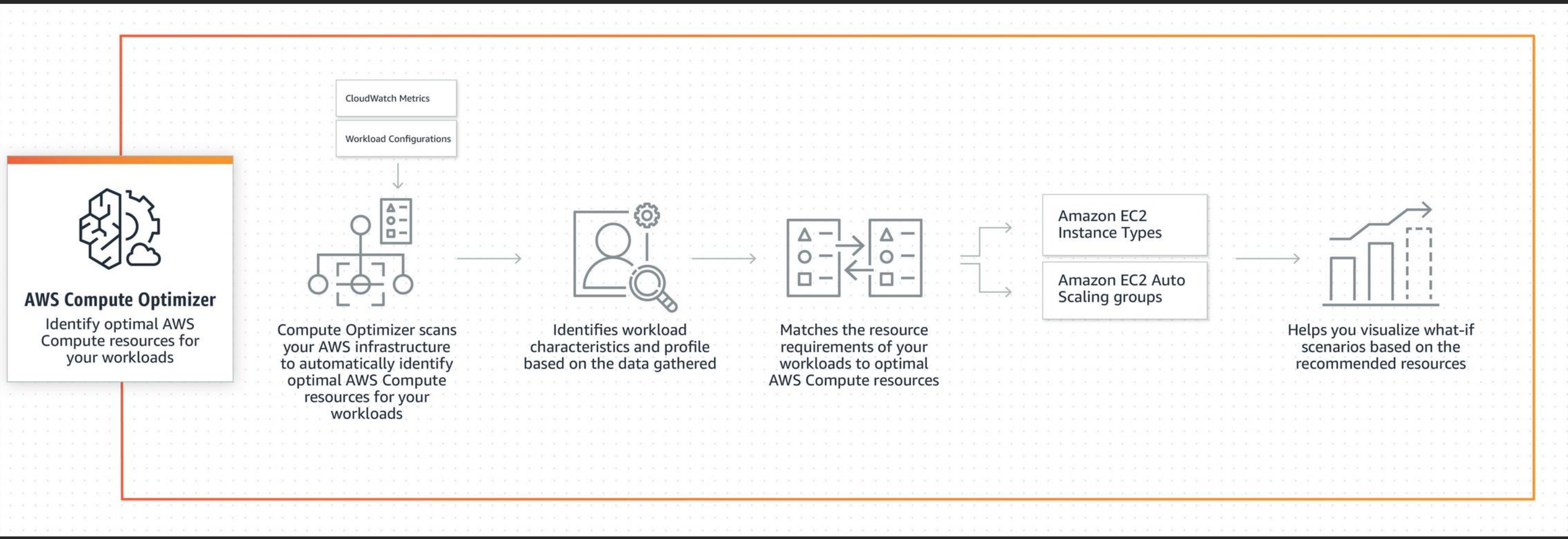
Lower **costs** and improve workload **performance**



Applies **insights from millions of workloads** to make recommendations

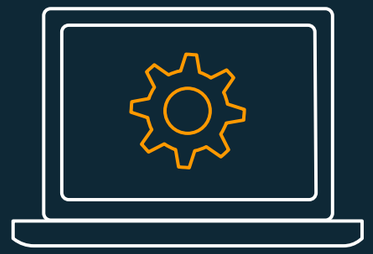
Saves time comparing and selecting optimal resources for your workload

How it works


AWS Compute Optimizer
Identify optimal AWS Compute resources for your workloads
CloudWatch Metrics
Workload Configurations
Compute Optimizer scans your AWS infrastructure to automatically identify optimal AWS Compute resources for your workloads
Identifies workload characteristics and profile based on the data gathered
Matches the resource requirements of your workloads to optimal AWS Compute resources
Amazon EC2 Instance Types
Amazon EC2 Auto Scaling groups
Helps you visualize what-if scenarios based on the recommended resources

Applications that need to remain on-premises

Applications that are sensitive to latency and variability in latency



- Need for near real time responses to end user applications
- Need to control on-site equipment
- Need to communicate with other on-premises systems

Applications that process data locally

- Need to ensure integrity of ingested signal (e.g. at live events before broadcasting)
- Need to reliably process messages from industrial equipment to monitor production
- Need for managing local data stores

AWS Outposts: Bringing AWS on-premises

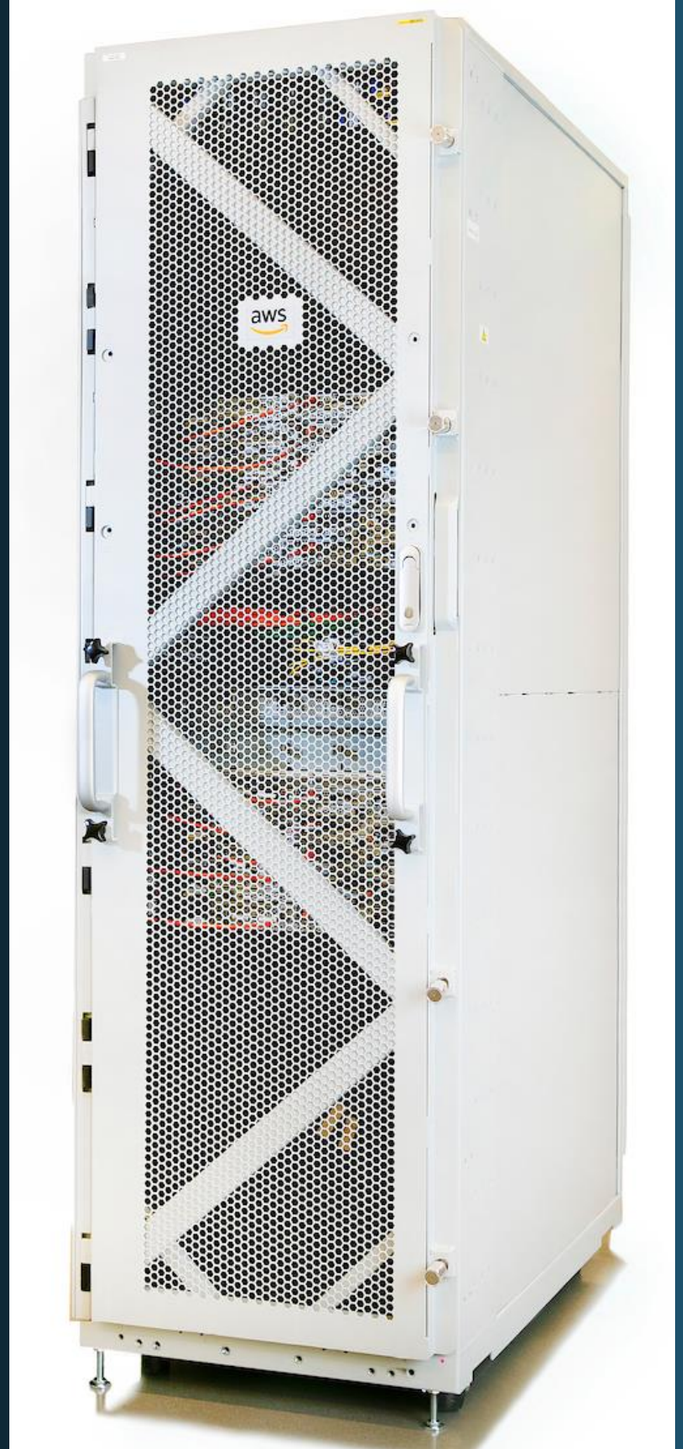
Same AWS-designed infrastructure as in AWS data centers (built on AWS Nitro System)

Fully managed, monitored, and operated by AWS as if in AWS Regions

Single pane of management in the cloud providing the **same APIs and tools** as in AWS Regions

AWS Outposts Rack

- Industry standard **42U rack**
- **Fully assembled,** ready to be rolled into final position
- **Installed by AWS**, simply plugged into power and network
- **Centralized redundant power conversion unit** and DC distribution system for higher reliability, energy efficiency, easier serviceability
- **Redundant active components** including top of rack switches and hot spare hosts



Dimensions

- 24″ Wide
- 48″ Deep
- 80″ Tall

Available in 2 Variants

Native AWS

AWS APIs, services, and features as in the AWS cloud

EC2 and EBS with support for services including RDS, ECS, EKS, EMR, ALB, others

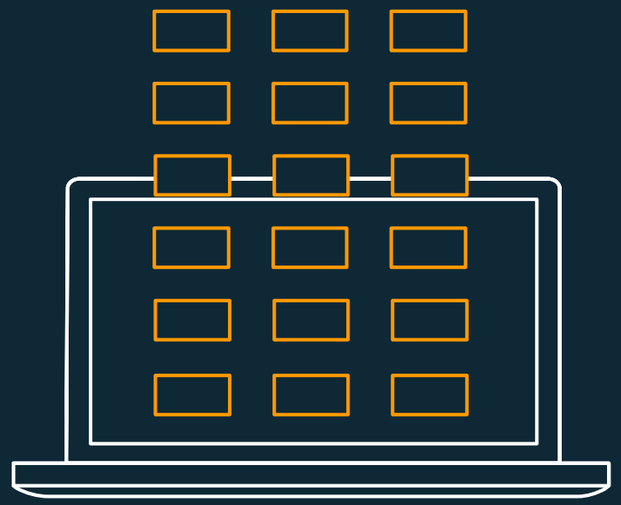
VMware Cloud on AWS

VMware APIs and services to leverage existing skills, automation, and governance policies

For customers running VMware SDDC on-premises

Run AWS services locally

Available at GA or soon after

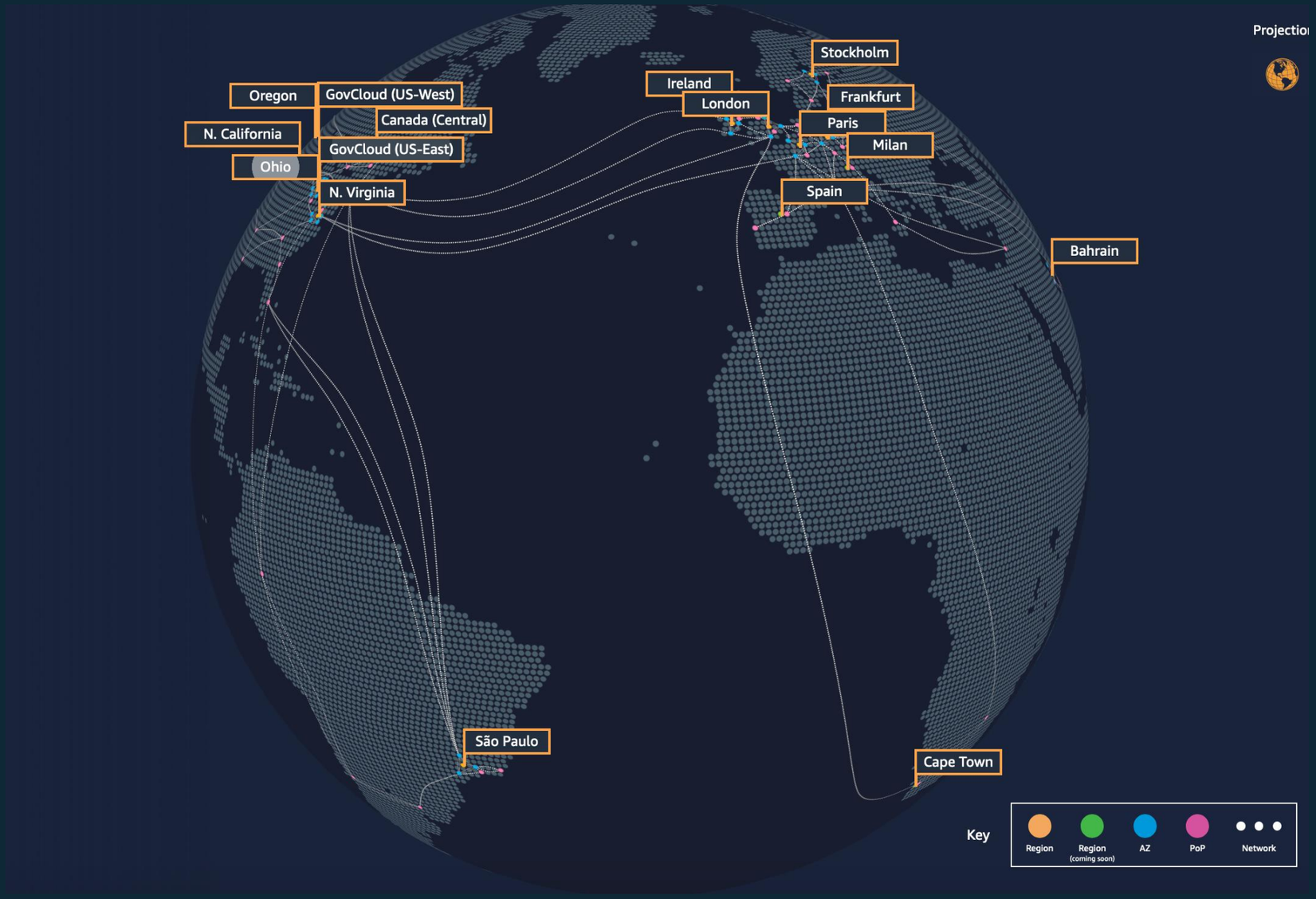


- **Compute & Storage**—Amazon EC2 instances and EBS volumes
- **Networking**—Amazon VPC
- **Database**—Amazon Relational Database Service (RDS)
- **Containers**—Amazon Elastic Container Service (ECS) & Amazon Elastic Kubernetes Service **(EKS)**
- **Data Processing**—Amazon Elastic Map Reduce (EMR)

AWS Global Infrastructure

22 Regions
69 Availability Zones

Latency-sensitive Workloads



Need increasing amounts of AWS Infrastructure and services closer to end-users

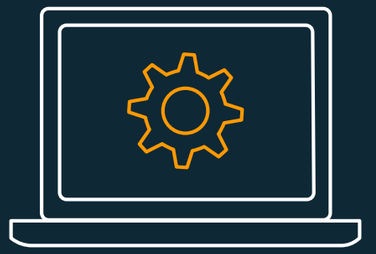
AWS Local Zones

- New type of AWS infrastructure deployment
- Places compute, storage, database, and other services closer to customers
- For demanding applications that require single-digit latencies

AWS infrastructure at the edge

Local compute, storage, database, and other services

Connect to services in AWS Regions



Deliver new low latency apps

AWS Local Zones Use Cases

Highly-demanding applications that require single-digit millisecond latencies to end-users, including:

- **Media & Entertainment Content Creation**
- **Real-time Multiplayer Gaming**
- **Reservoir Simulations**
- **Electronic Design Automation**
- **Machine Learning Inference**

How It Works

Connectivity over mobile networks today

Connectivity over mobile networks with Wavelength

Wavelength Zone

Same AWS-designed infrastructure as in AWS data centers

Hosted in a site within a CSP partner network

Managed and monitored from an AWS region

Integrated into the CSP 5G Network

AWS Wavelength Benefits

Low latency/ high bandwidth

Consistent development experience

Same AWS benefits

Ubiquity

AWS Wavelength

- Extends AWS infrastructure to 5G networks
- Run latency-sensitive portions of applications in “Wavelength Zones,” and seamlessly connect to the rest of your applications and the full breadth of services in AWS
- Same AWS APIs, tools, and functionality
- Global partner network

aws

Databases and Analytics

Amazon Managed Apache Cassandra Service

*A **scalable, highly available, and managed***

Apache Cassandra-compatible database service.

aws

Benefits

Apache Cassandra–compatible

Amazon Managed Cassandra Service implements the Apache Cassandra CQL API, allowing you to use the Cassandra Query Language (CQL) and drivers that you already use. Updating your application is as easy as changing the endpoint to the new Amazon Managed Cassandra Service table.

No servers to manage

You don’t need to provision, patch, or manage servers, so you can focus on building better applications. Capacity is on demand—you pay for only the resources you use, and you don’t have to plan for peak workloads.

Performance at scale

Consistent, single-digit-millisecond response times at any scale. Build applications with virtually unlimited throughput and storage that can serve thousands of requests per second without the need for capacity planning.

Highly available and secure

Tables are encrypted by default and replicated three times in multiple AWS Availability Zones for high availability. Secure your data with access management, and use performance monitoring to keep your applications running smoothly.

Many applications, including serverless apps, have a large number of open DB connections and high connection open/close rate, exhausting DB resources

Modern apps can have 1000s of DB connections, exhausting DB resources

Self-managed proxy servers help manage DB load, but are difficult to deploy

Custom failure handling code can contain security risks like DB credentials

INTRODUCING

Amazon RDS Proxy - Preview

Fully managed, highly available database proxy feature for Amazon RDS. Pools and shares DB connections to make applications more scalable, more resilient to database failures, and more secure.

Pool and share

app scaling

availability

DB failover times

data

security

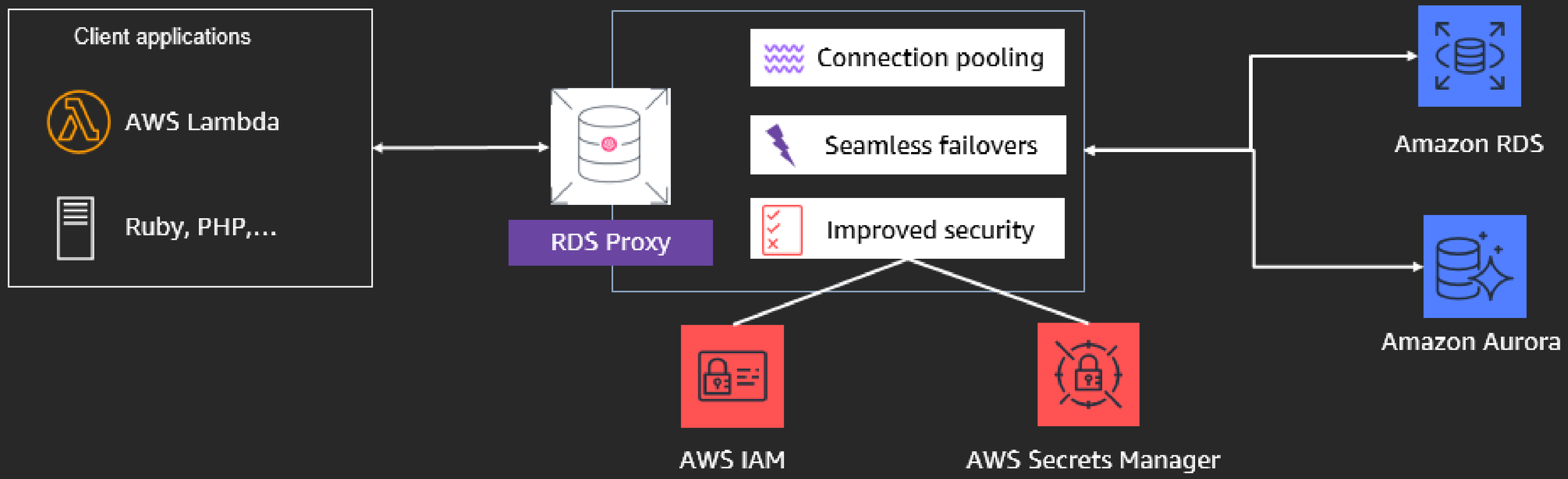
access controls

Fully managed

compatible

aws

Amazon RDS Proxy – How it Works



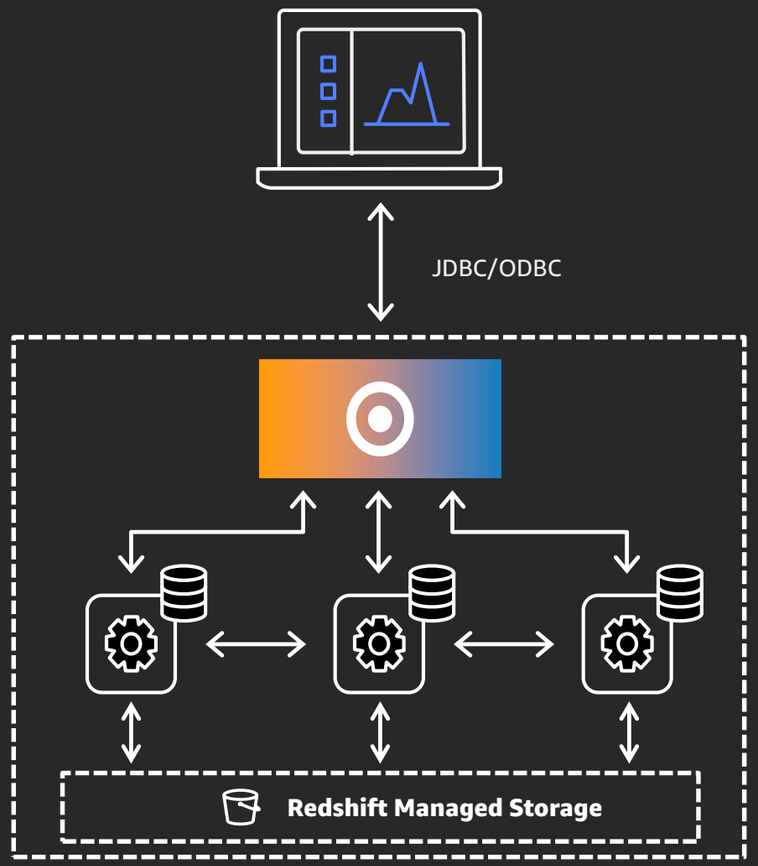
New 3rd generation Redshift compute instance: RA3

Managed storage | High-speed cache | High-bandwidth networking

Scale data warehouse only based on steady state compute needs

Pay separately for storage and compute

Automatic, no changes to any workflows, no need to manage storage

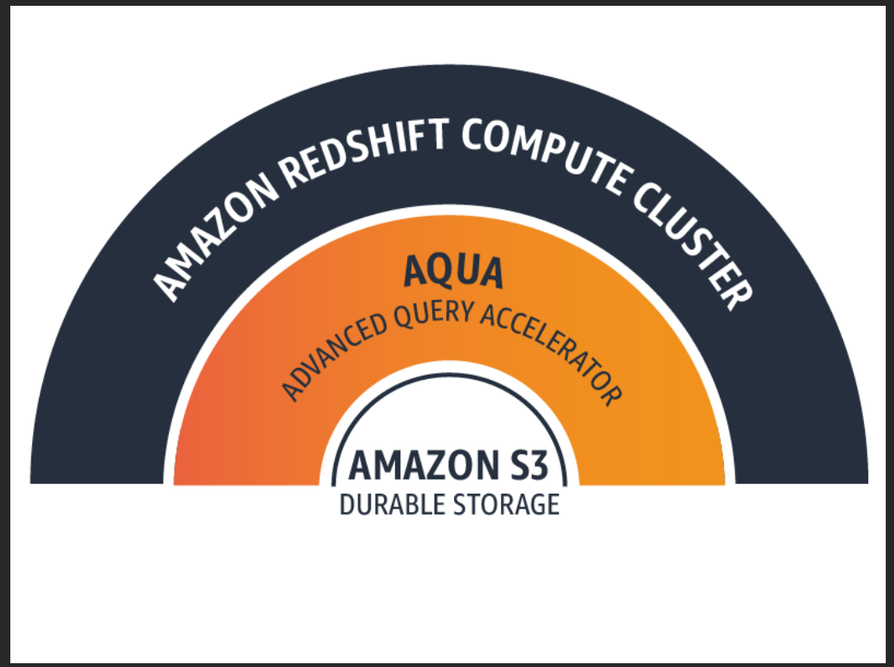


AQUA – Advanced Query Accelerator

PREVIEW

COMING IN 2020

Redshift runs **10x faster** than any other cloud data warehouse without increasing cost



AQUA brings compute to the storage layer so data doesn't have to move back and forth

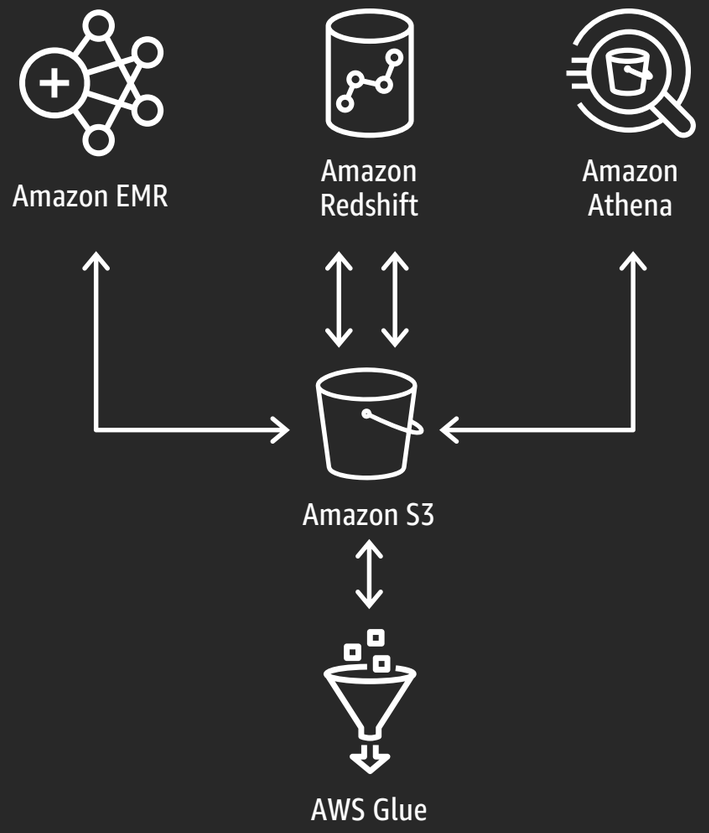
High-speed cache on top of S3 scales out to process data in parallel across many nodes

AWS-designed processors accelerate data compression, encryption, and data processing

100% compatible with the current version of Redshift

Amazon Redshift Data Lake Export

Export data directly to Amazon S3 in Apache Parquet



Save results of data transformation into S3 data lake

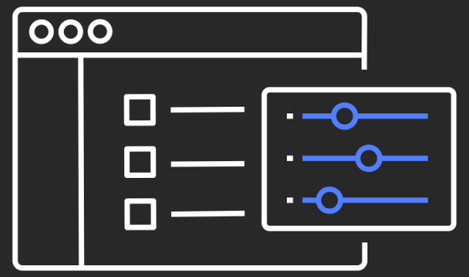
Export with the UNLOAD command and specify Parquet

Redshift formats, partitions, and moves data into S3

Analyze with Amazon SageMaker, Athena, and EMR

Application usage, click stream data, KPIs

Faults and errors, Security



Up time, resource use, performance

Your logs have information

What is Elasticsearch?

Elasticsearch, Logstash, and Kibana

Distributed search and analytics engine

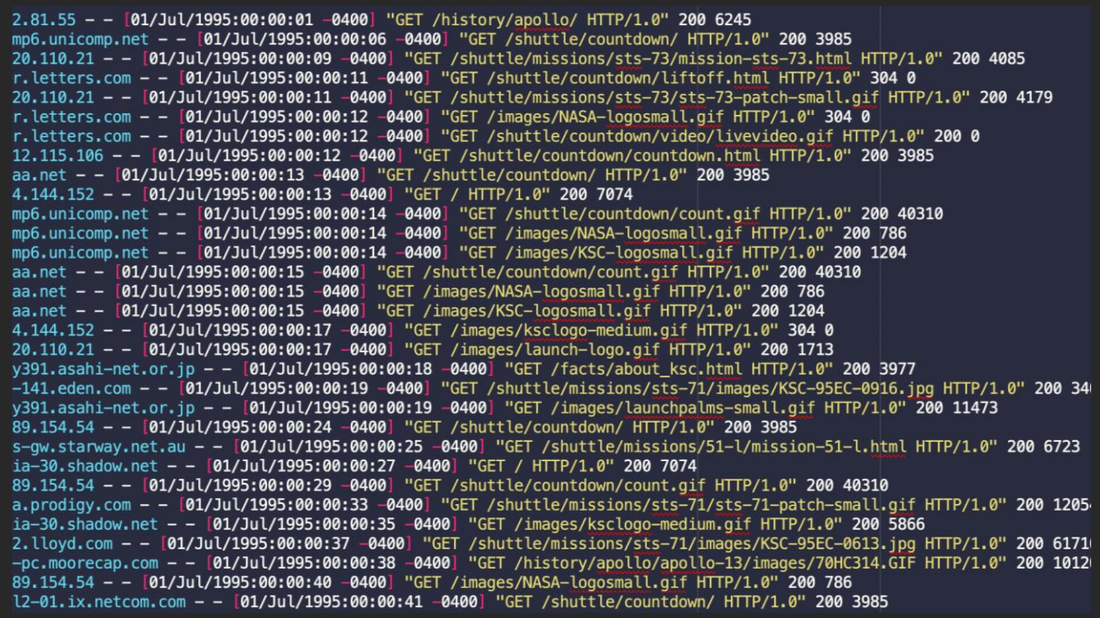
Easy ingestion and visualization

Rank			DBMS	Score		
Nov 2019	Oct 2019	Nov 2018		Nov 2019	Oct 2019	Nov 2018
1.	1.	1.	Oracle	1336.07	-19.81	+34.96
2.	2.	2.	MySQL	1266.28	-16.78	+106.39
3.	3.	3.	Microsoft SQL Server	1081.91	-12.81	+30.36
4.	4.	4.	PostgreSQL	491.07	+7.16	+50.83
5.	5.	5.	MongoDB	413.18	+1.09	+43.70
6.	6.	6.	IBM Db2	172.60	+1.83	-7.27
7.	7.	↑ 8.	Elasticsearch	148.40	-1.77	+4.94
8.	8.	↓ 7.	Redis	145.24	+2.32	+1.06
9.	9.	9.	Microsoft Access	130.07	-1.10	-8.36
10.	10.	↑ 11.	Cassandra	123.23	+0.01	+1.48

Source: DB-Engines.com, October 2019

Amazon Elasticsearch Service

Amazon Elasticsearch Service is a fully managed service that makes it easy to deploy, manage, and scale Elasticsearch and Kibana



Storing data is expensive at scale

Limits the data retained for analysis

Miss out on valuable insights

INTRODUCING

UltraWarm, a new storage tier for Amazon Elasticsearch Service

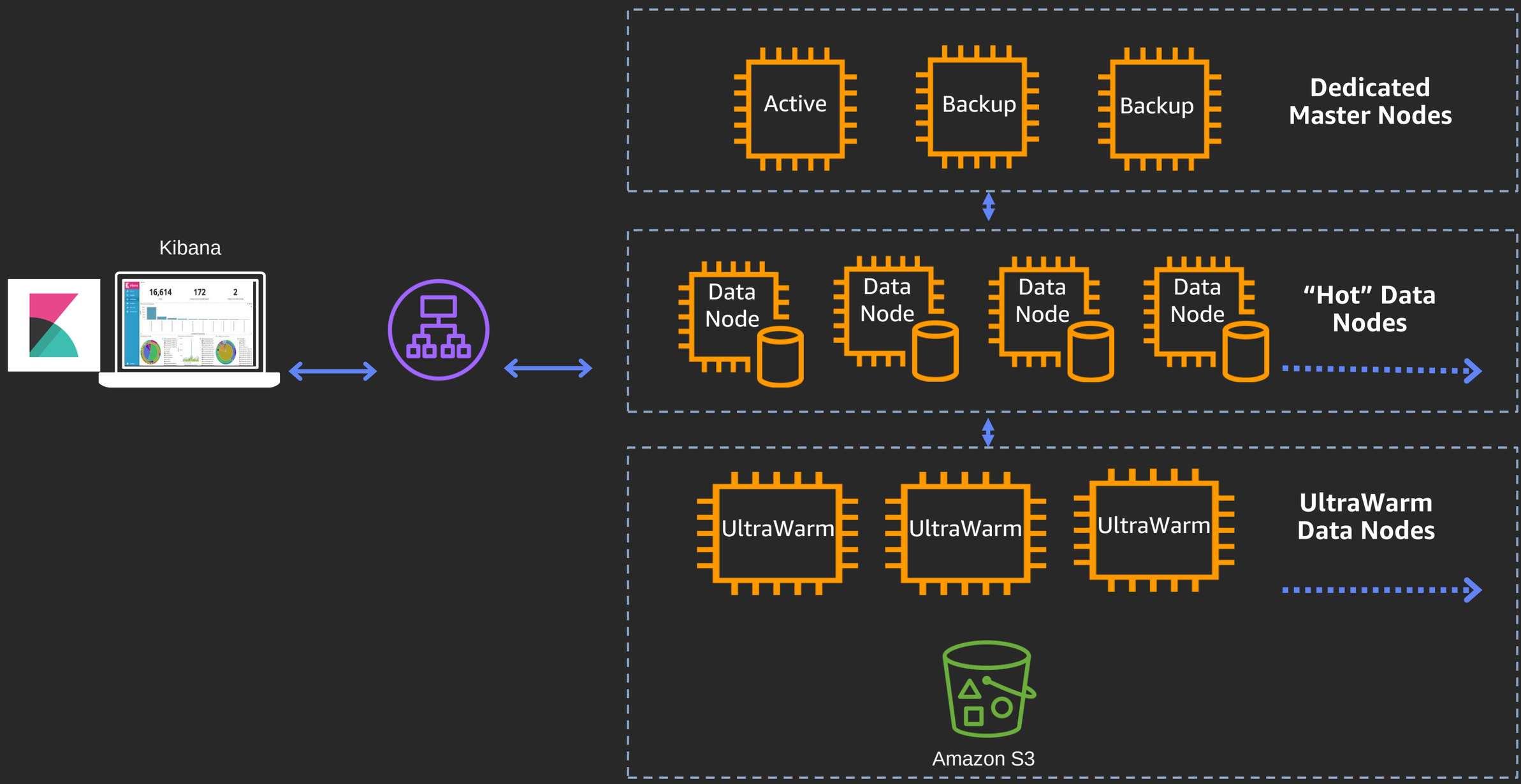
Store massive amounts of log data

Run interactive log analytics and visualization

Higher performance and durability

Achieve up to 90% cost savings

Architecture



Reduces cost per GB to enable longer retention

Achieve 90% cost savings

Comparing to existing service today up to 90% savings on $/GB vs Amazon Elasticsearch Service I3-based hot nodes

Enabling you to keep data accessible to Elasticsearch/Kibana for months and years

INTRODUCING

UltraWarm, a new storage tier for Amazon Elasticsearch Service

Store up to 3 PB of log data

Run interactive log analytics and visualization

Higher performance and durability

Achieve up to 90% cost savings

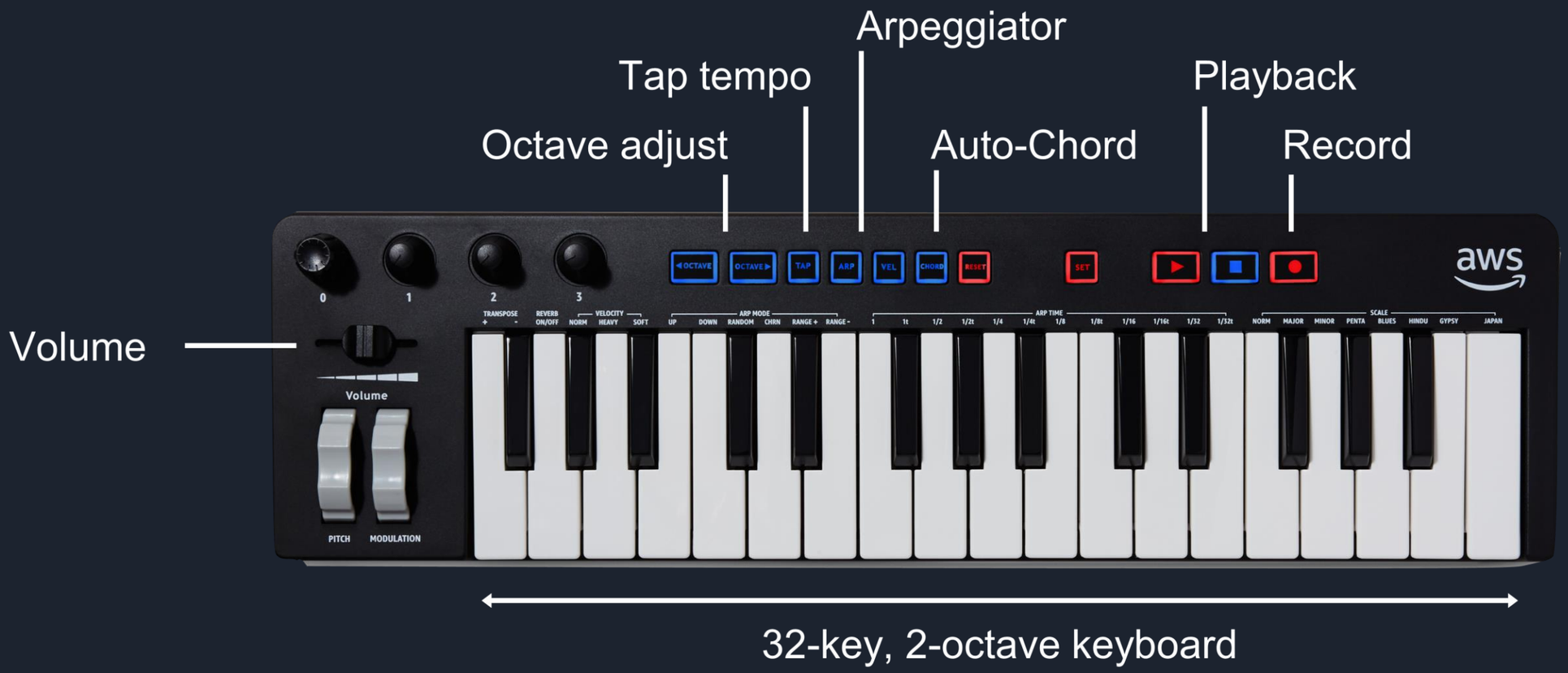
AVAILABLE IN PREVIEW TODAY

Artificial Intelligence

AWS

DeepComposer

The world's first machine learning-enabled musical keyboard for developers



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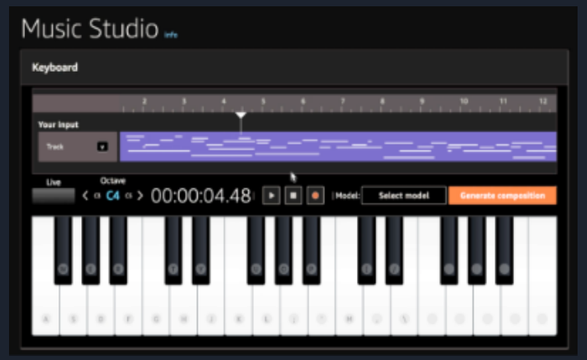
Creative Meets Generative

1



Input a melody by connecting the AWS DeepComposer keyboard

2

Choose from jazz, rock, pop, classical, or build your own custom genre model in Amazon SageMaker

3

Publish your tracks to SoundCloud from the console. Export MIDI files to your favorite DAW

aws machine learning

Build your AI with AWS and Intel

AWS and Intel deliver the most comprehensive set of resources, tools, training, and services together

AWS DeepRacer: An exciting way for developers to get hands-on experience with reinforcement learning (RL)

Virtual simulator

Build models in Amazon SageMaker and train, test, and iterate quickly and easily on the track in the AWS DeepRacer 3D racing simulator.

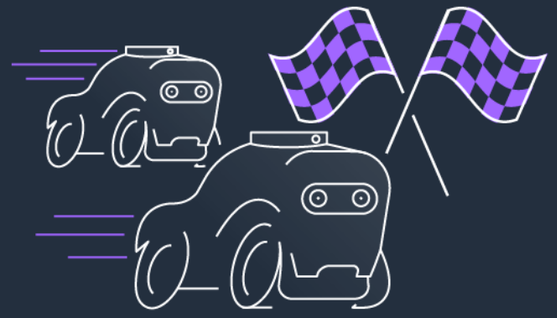
Car

Experience the thrill of the race in the real-world when you deploy your reinforcement learning model onto AWS DeepRacer.

Global Racing League

Compete in the world's first global, autonomous racing league, to race for prizes and glory and a chance to advance to the Championship Cup, or create your own races and compete against fellow developers in a league of your own.

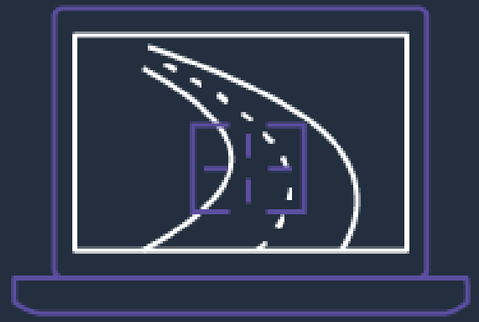
New Features



AWS DeepRacer Evo

AWS DeepRacer Evo comes with stereo cameras and a Light Detection and Ranging (LIDAR) sensor, allowing the car to detect objects on the track and helping your model determine when to overtake another car to beat it to the finish line.

Available on amazon.com in 2020.
Sign up for the interest list



AWS DeepRacer simulator

Use advanced reinforcement learning algorithms, build models in Amazon SageMaker and train, test, and iterate models quickly and easily on the track in the AWS DeepRacer 3D racing simulator.

Community Races

Create your own online DeepRacer race in the AWS console using the new Community Races feature. Compete against colleagues and friends in a league of your own. your own leagues.

Fraud comes in all shapes and forms

Payment Fraud

- Compromised Payment Instruments (e.g., stolen cards)
- Intentional Non-Payment (e.g., pre-paid cards)

Account Takeover/Compromise

- Username/Password
- API Key

Abuse

- Free Tier Misuse
- Premium Phone Number

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Business Rules vs Machine Learning

Business Rules look for specific conditions or behaviors

- Business Rules are easily explained and validated
- Sample New Account Registration rule:

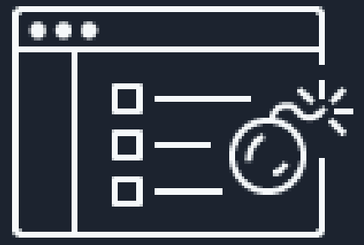
If IP_ADDRESS_LOCATION == [‘Japan’] and CUST_ADDRESS_COUNTRY == [‘JAPAN’] and CUSTOMER_PHONE_LOC == [‘Spain’] THEN *Investigate*

ML Models learn more general patterns by looking at lots of examples

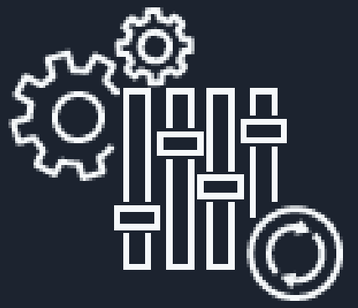
- When fraudsters make small tweaks, the model still recognizes them as suspicious since it’s unlike anything it has seen from legitimate customers
- ML models are not just good at finding the risky patterns, they’re much less brittle than rules

Fraud detection is difficult

$$$ billions lost to fraud each year

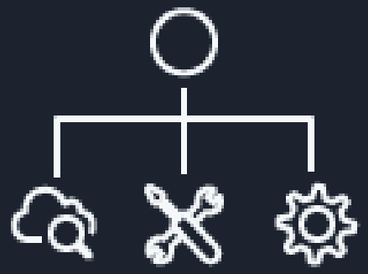


Online business prone to fraud attacks



Bad actors change tactics often

Rules = more human reviews



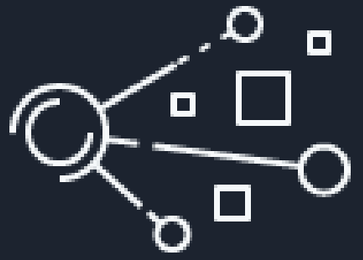
Dependent on others to update detection logic

Fraud detection with ML is also difficult

Top data scientists are costly & hard to find

One-size-fits-all models underperform

Often need to supplement data



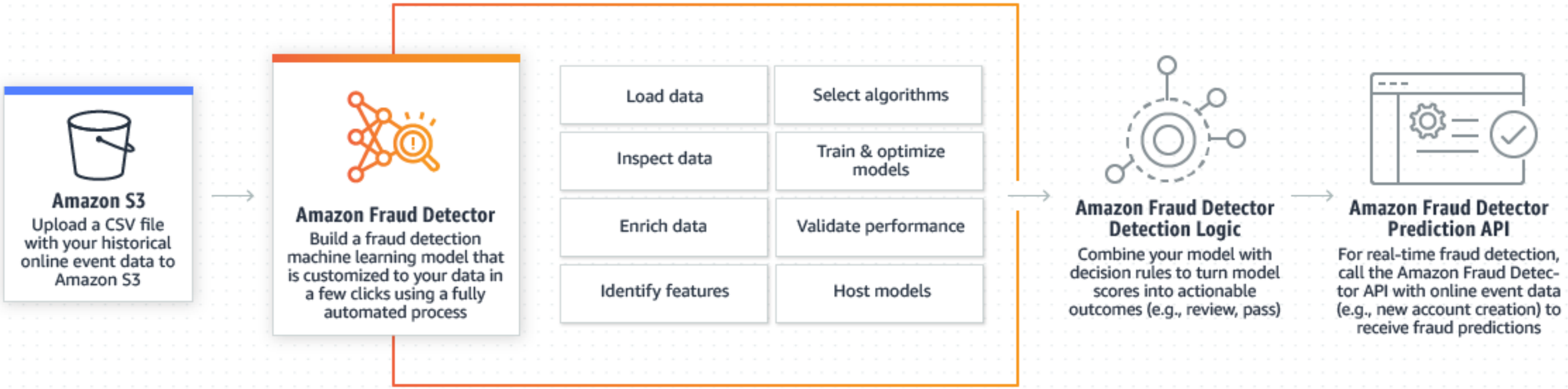
Data transformation + feature engineering

Fraud imbalance = needle in a haystack

Introducing Amazon Fraud Detector

A fraud detection service that makes it easy for businesses to use machine learning to detect online fraud in real-time, at scale.

How it works



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Amazon SageMaker

Machine Learning for every developer & data scientist

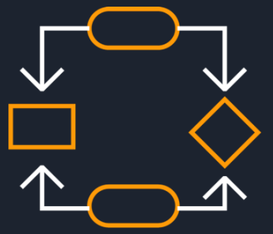
Amazon SageMaker

Addressing challenges to machine learning

First fully integrated development environment (IDE) for machine learning
Amazon SageMaker Studio

Enhanced notebook experience with quick-start & easy collaboration
Amazon SageMaker Notebooks (Preview)

Experiment management system to organize, track & compare thousands of experiments
Amazon SageMaker Experiments



Automatic debugging, analysis, and alerting
Amazon SageMaker Debugger

Model monitoring to detect deviation in quality & take corrective actions
Amazon SageMaker Model Monitor

Automatic generation of ML models with full visibility & control
Amazon SageMaker Autopilot

aws machine learning

NEW

Introducing Amazon SageMaker Studio

The first fully integrated development environment (IDE) for machine learning

Collaboration at scale

Share notebooks without tracking code dependencies

Easy experiment management

Organize, track, and compare thousands of experiments

Automatic model generation

Get accurate models with full visibility & control without writing code

Higher quality ML models

Automatically debug errors, monitor models, & maintain high quality

Increased productivity

Code, build, train, deploy, & monitor in a unified visual interface

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Amazon SageMaker Studio File Edit View Run Kernel Git Tabs Settings Help

xgboost_customer_churn.ipyr

Markdown git conda_amazonei_mxnet_p27

- Have the predictor variable in the first column
- Not have a header row

But first, let's convert our categorical features into numeric features.

```
[ ]: model_data = pd.get_dummies(churn)
     model_data = pd.concat([model_data['Churn?_True.'], model_data.drop(['Chur
```

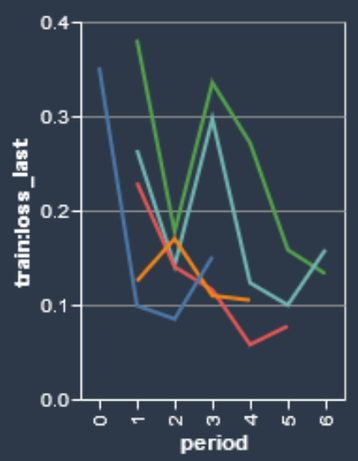
And now let's split the data into training, validation, and test sets. This will help prevent us from overfitting the model, and allow us to test the models accuracy on data it hasn't already seen.

```
[ ]: train_data, validation_data, test_data = np.split(model_data.sample(frac=1
     train_data.to_csv('train.csv', header=False, index=False)
     validation_data.to_csv('validation.csv', header=False, index=False)
```

Now we'll upload these files to S3.

```
[ ]: boto3.Session().resource('s3').Bucket(bucket).Object(os.path.join(prefix,
     boto3.Session().resource('s3').Bucket(bucket).Object(os.path.join(prefix,
```

Trial Component Chart



Trial Component List

TRIAL COMPONENTS

10 rows selected

Add chart Deploy model

Status	Experiment	Type	Trial
Completed	customer-churn-predi...	Training job	Trial-3
Completed	customer-churn-predi...	Training job	Trial-2
Completed	customer-churn-predi...	Training job	Trial-1
Completed	customer-churn-predi...	Training job	Trial-0

0 2 conda_amazonei_mxnet_p27 | Idle Mode: Command Ln 1, Col 1 xgboost_customer_churn.ipynb

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NEW

Introducing Amazon SageMaker Autopilot
Automatic model creation with full visibility & control

Quick to start

Provide your data in a tabular form & specify target prediction

Automatic model creation

Get ML models with feature engineering & automatic model tuning automatically done

Visibility & control

Get notebooks for your models with source code

Recommendations & Optimization

Get a leaderboard & continue to improve your model

 |

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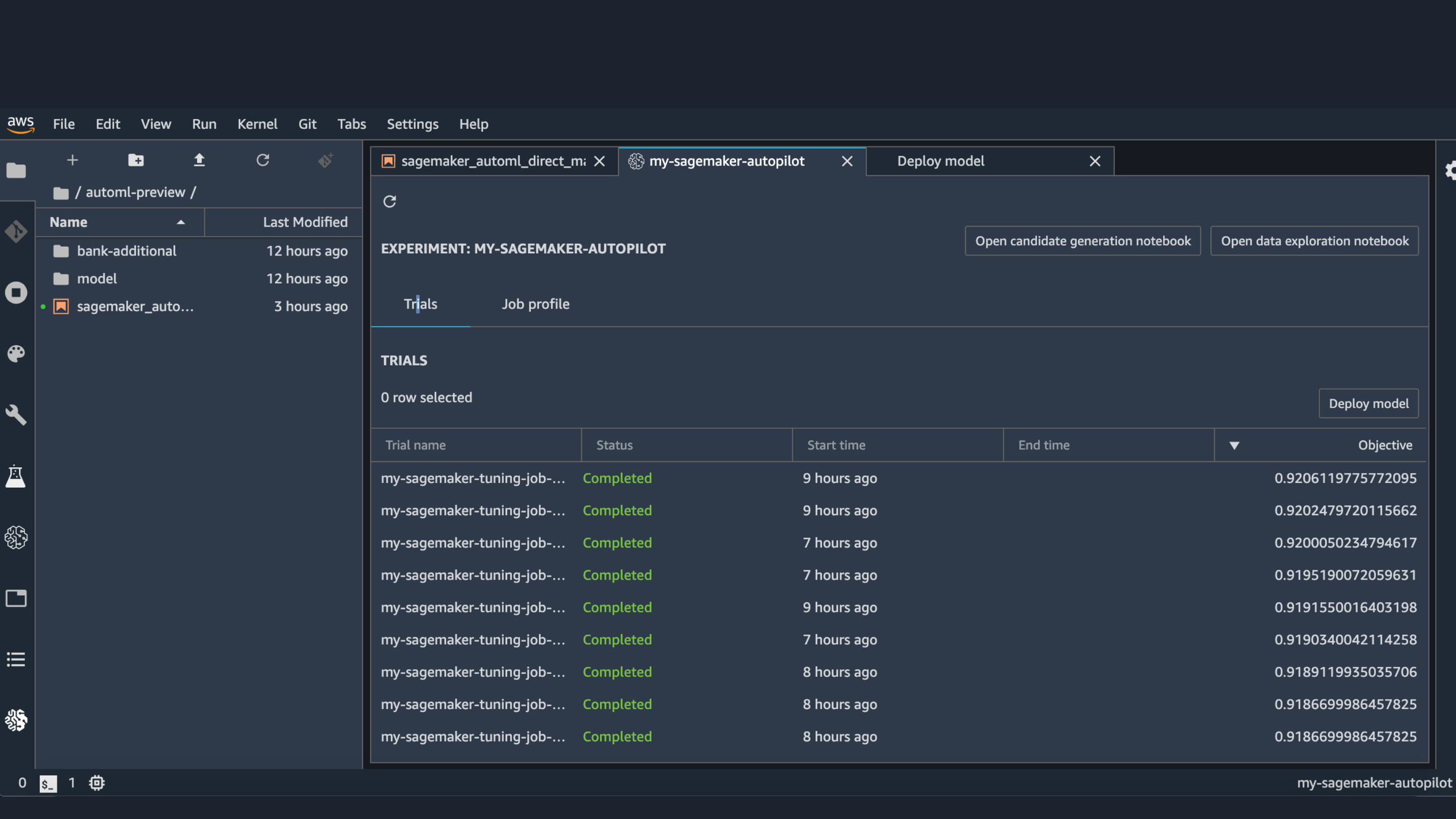
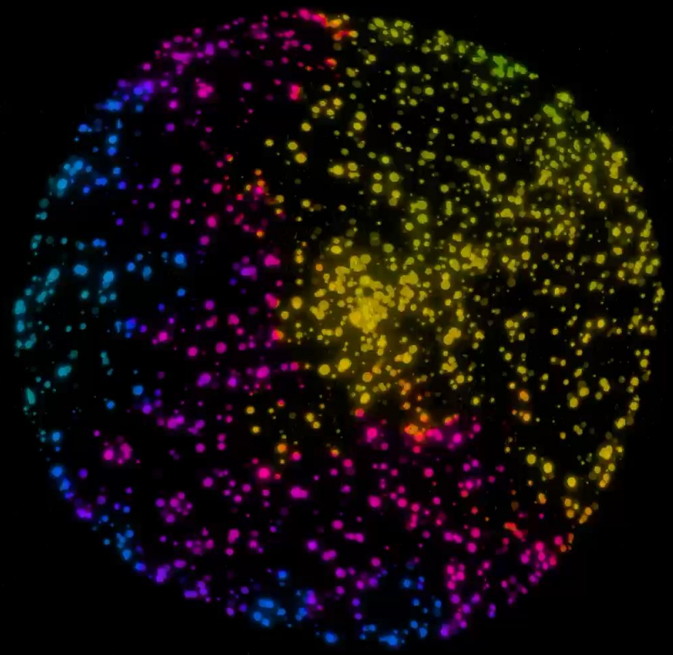

aws
File
Edit
View
Run
Kernel
Git
Tabs
Settings
Help
/ automl-preview /
Name
Last Modified
bank-additional
12 hours ago
model
12 hours ago
sagemaker_auto...
3 hours ago
sagemaker_automl_direct_m
my-sagemaker-autopilot
Deploy model
EXPERIMENT: MY-SAGEMAKER-AUTOPILOT
Open candidate generation notebook
Open data exploration notebook
Trials
Job profile
TRIALS
0 row selected
Deploy model
Trial name
Status
Start time
End time
Objective
my-sagemaker-tuning-job-... Completed 9 hours ago 0.9206119775772095
my-sagemaker-tuning-job-... Completed 9 hours ago 0.9202479720115662
my-sagemaker-tuning-job-... Completed 7 hours ago 0.9200050234794617
my-sagemaker-tuning-job-... Completed 7 hours ago 0.9195190072059631
my-sagemaker-tuning-job-... Completed 9 hours ago 0.9191550016403198
my-sagemaker-tuning-job-... Completed 7 hours ago 0.9190340042114258
my-sagemaker-tuning-job-... Completed 8 hours ago 0.9189119935035706
my-sagemaker-tuning-job-... Completed 8 hours ago 0.9186699986457825
my-sagemaker-tuning-job-... Completed 8 hours ago 0.9186699986457825
0
1
my-sagemaker-autopilot

Developer Tools

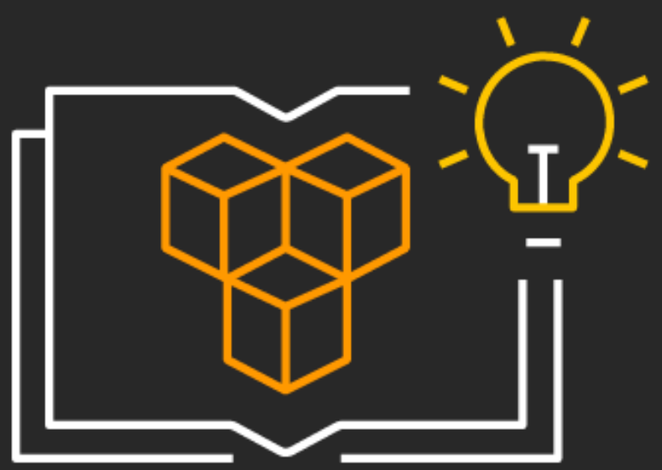
How does Amazon…



build resilient systems?

The Amazon Builders' Library

How Amazon builds and operates software



Architecture, software delivery, and operations

By Amazon's senior technical executives and engineers

Real-world practices with detailed explanations

Content available for free on the website

The Amazon Builders' Library

ARCHITECTURE

LEVEL 300

Leader election in distributed systems

Author: Marc Brooker

Improving efficiency, reducing coordination, and simplifying architectures by using leader election.

SOFTWARE DELIVERY AND OPERATIONS

LEVEL 300

Going faster with continuous delivery

Author: Mark Mansour

Automating the software testing and deployment process for speed and reliability

SOFTWARE DELIVERY AND OPERATIONS

LEVEL 400

Implementing health checks

Author: David Yanacek

Automatically detecting and mitigating server failures without unintended consequences from fleet-wide false positives.

ARCHITECTURE

LEVEL 400

Workload isolation using shuffle-sharding

Author: Colm MacCarthaigh

Shuffle Sharding is one of our core techniques for drastically limiting the scope of impact of operational issues

Many more at aws.amazon.com/builders-library

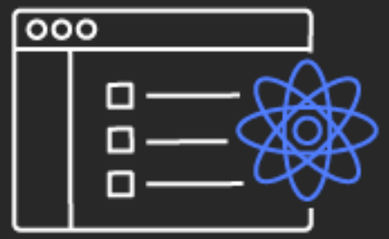
Quantum Computing

INTRODUCING

Amazon Braket

Quantum Technology

Fully managed service that makes it easy for scientists and developers to explore and experiment with quantum computing.



Single environment to design, test, and run quantum algorithms

Experiment with a variety of quantum hardware technologies

Run hybrid quantum and classical algorithms

Get Expert Help

aws

Summary

What we skipped?

- AWS Nitro Enclaves
- AWS Lambda Provisioned Concurrency
- HTTP APIs (Preview) for Amazon API Gateway
- Amazon Kendra
- Amazon CodeGuru
- End of Support Migration Program (EMP) for Windows Server
- Transcribe Medical
- AWS Step Functions Express Workflows
- + Security, Storage & Networking Announcements

Resources

re:Invent 2019 Blogposts:
https://aws.amazon.com/blogs/aws/category/events/reinvent/

AWS re:Invent 2019 – Keynote with Andy Jassy
https://www.youtube.com/watch?v=7-31KgImGgU

AWS re:Invent 2019 – Keynote with Dr. Werner Vogels
https://www.youtube.com/watch?v=OdzaTbaQwTg

AWS re:Invent 2019 – Monday Night Live with Peter deSantis
https://www.youtube.com/watch?v=GPUWATKe15E

Questions?

Thank you!

Vladimir Simek, AWS

vladsim@amazon.com