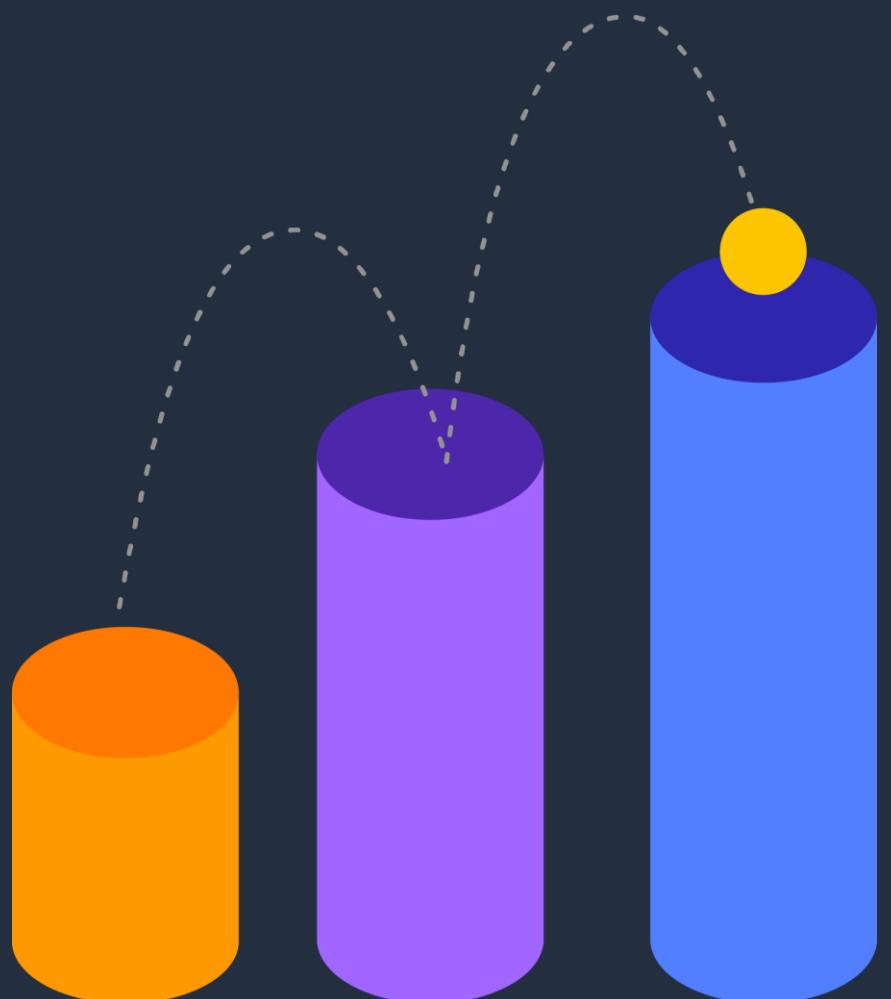




# AWS Builders Online Series

## re:Invent Recap

Gabe Hollombe, Senior Developer Advocate  
Amazon Web Services



# 65,000 Attendees

# 3,000+ Sessions

# AWS re:Invent 2019

over **250+**  
new services and features

*BUT*

we only have time  
to cover **~20**  
of these today

AWS  
re:Invent



## AWS re:Invent

# 2019 Announcement Page

## Watch the Keynote Addresses



AWS re:Invent 2019 - Keynote with Andy Jassy



AWS re:Invent 2019 - Keynote with Dr. Werner Vogels



Monday Night Live with Peter DeSantis



2019 re:Invent Global Partner Keynote with Doug Yeum



Announcing AWS DeepComposer with Jonathan Coulton

- Explore more recap videos on our [Re:Invent 2019 Youtube Channel](#) -

## Featured Product Announcements

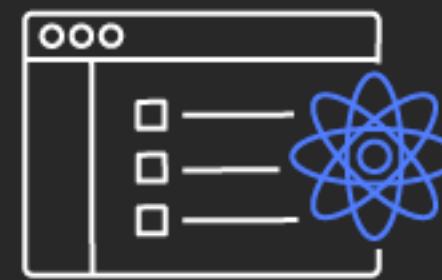
# Compute

Introducing

Preview – December 2

# Amazon Braket

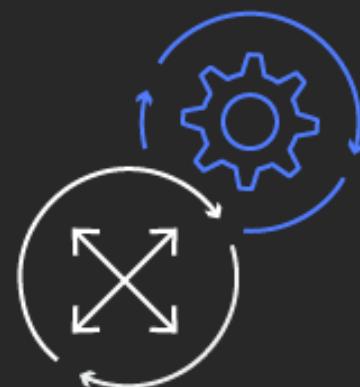
Fully managed service that makes it easy for scientists and developers to explore and experiment with quantum computing.



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

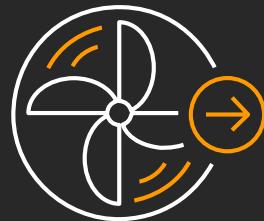
Introducing

# AWS Compute Optimizer

Identify optimal Amazon EC2 instances and EC2 Auto Scaling group for your workloads using a ML-powered recommendation engine



Easily identify optimal AWS resources for your workloads



Supports over 140 EC2 instance type options in the M, C, R, T, and X instance families



Lower costs and increase performance for your AWS workloads

[Dashboard](#)[▼ Recommendations per service](#)[EC2 Instances](#)[AutoScaling Groups](#)

## Recommendation detail: Portal1\_DEV [Info](#)

[View in EC2 console](#)[Export](#)

### Configuration comparison and selection [Info](#)

Select one of the recommended options to compare it against your current utilization metrics below.

Configuration	Instance type	On-Demand price	Price difference	Risk level	vCPUs	Memory	Storage	Networking
Current (Portal2_P)	m5.2xlarge	\$0.384 per hour			8	32GiB	EBS Only	Up to 1 Gbps
<input checked="" type="radio"/> Option 1	m5.xlarge	\$0.192 per hour	- \$0.192 per hour	Low	4	16GiB	EBS Only	Up to 1 Gbps
<input type="radio"/> Option 2	t3.xlarge	\$0.1664 per hour	- \$0.2176 per hour	Low	4	16GiB	EBS Only	Medium
<input type="radio"/> Option 3	r5.large	\$0.126 per hour	- \$0.258 per hour	Medium	2	16GiB	FRS Only	Up to 1 Gbps

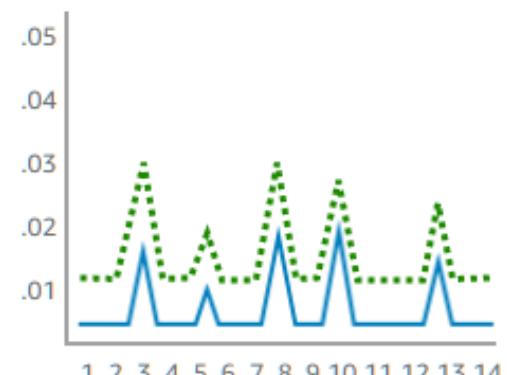
### Option 1 (m5.xlarge) v. Current (m5.2xlarge) [Info](#)

[Statistic: Average](#)[Time range: Last 2 weeks](#)

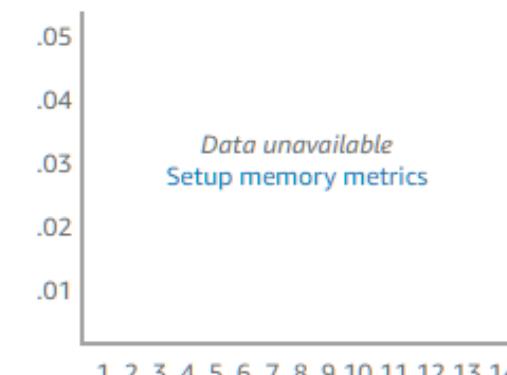
Key:

[— Current utilization](#)[... Recommended projected utilization](#)

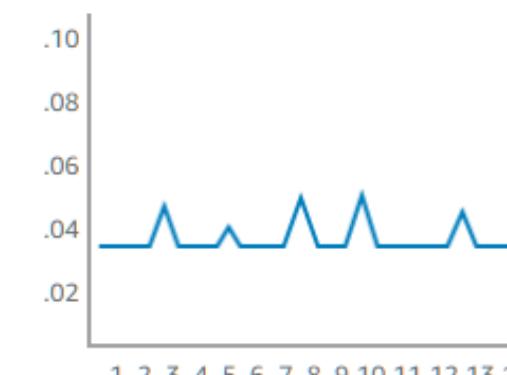
#### CPU utilization (percent)



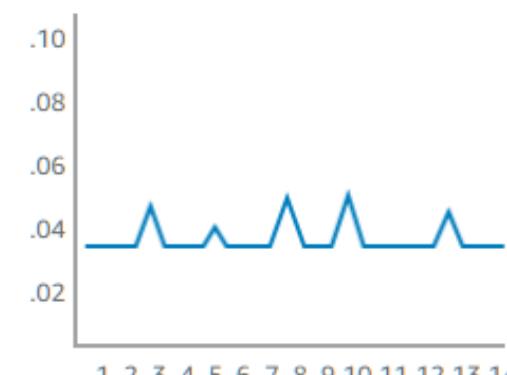
#### Memory utilization (percent)



#### Network in (Bytes)



#### Network Out (Bytes)



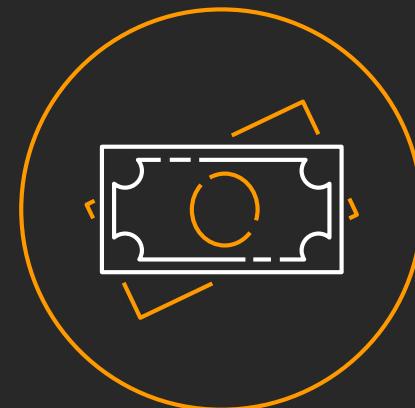
Announced – November 6

# Savings Plans

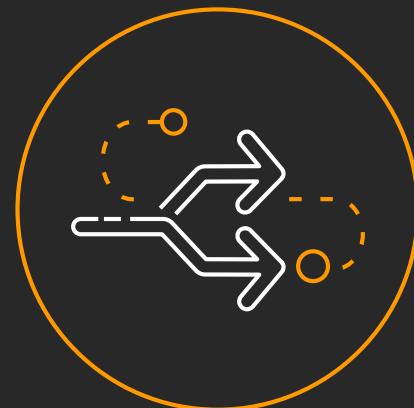
Simplify purchasing with a flexible pricing model that offers savings of up to 72% on Amazon ECS and AWS Fargate usage



Receive lower rates automatically. **Easy to use** with recommendations in AWS Cost Explorer



**Significant** savings of up to 72%



**Flexible** across instance family, size, OS, tenancy or AWS Region; also applies to AWS Fargate & soon to AWS Lambda usage

# Storage

Introducing

# Amazon S3 Access Points

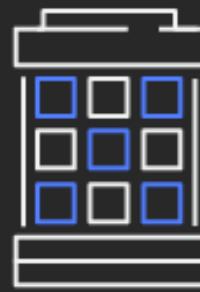
Simplify managing data access at scale for applications using shared data sets on Amazon S3. Easily create hundreds of access points per bucket, each with a unique name and permissions customized for each application.



Simple to create custom access to shared data sets on same bucket



Add access points as application set grows



Use access points to easily restrict access to VPC

# Databases & Analytics

Introducing

Preview – December 3

# Amazon Managed Apache Cassandra Service

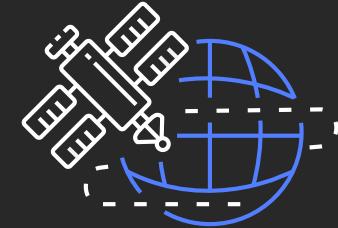
A scalable, highly available, and serverless Apache Cassandra–compatible database service. Run your Cassandra workloads in the AWS cloud using the same Cassandra application code and developer tools that you use today.



Apache Cassandra-  
compatible



No servers  
to manage



Performance  
at scale



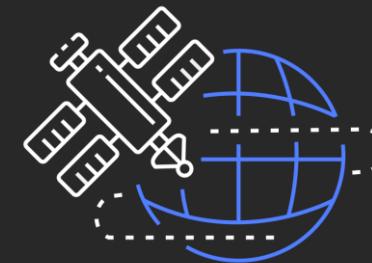
Highly available  
and secure

Introducing

Public Beta – December 3

# Amazon RDS Proxy

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



Scalable applications  
with database efficiency



Resilient applications  
with fast failover

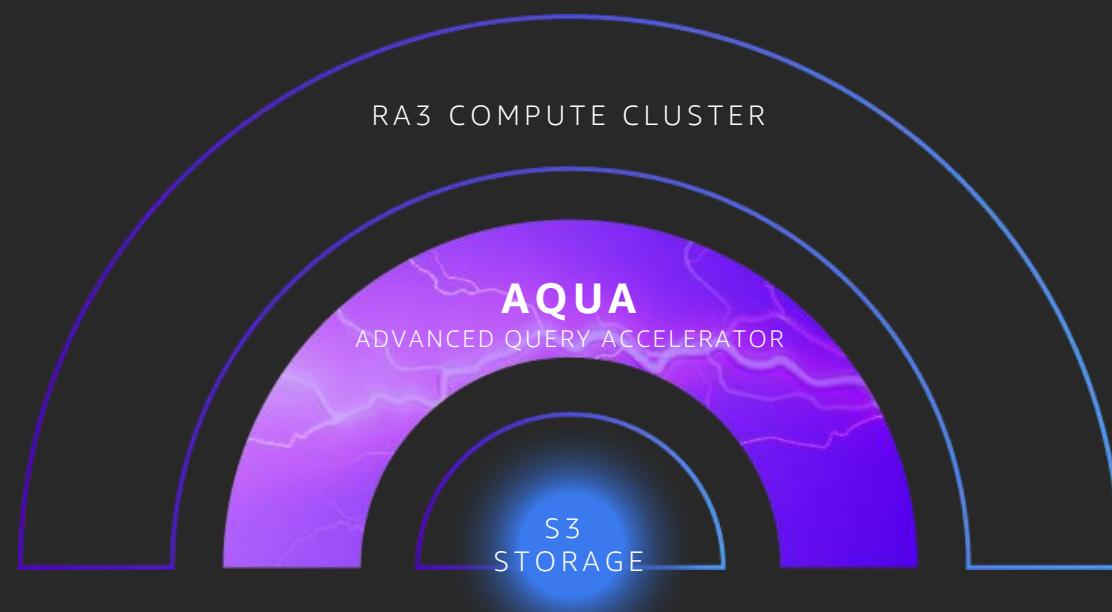


Secure applications  
with data protection

Introducing

# AQUA (Advanced Query Accelerator) for Amazon Redshift

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



AQUA brings compute to storage 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

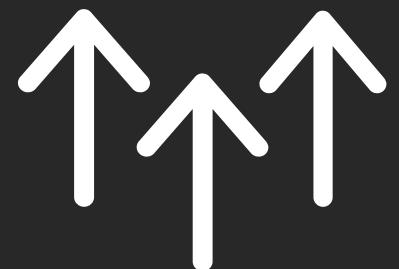
100% compatible with the current version of Redshift

# Amazon Redshift Federated Query

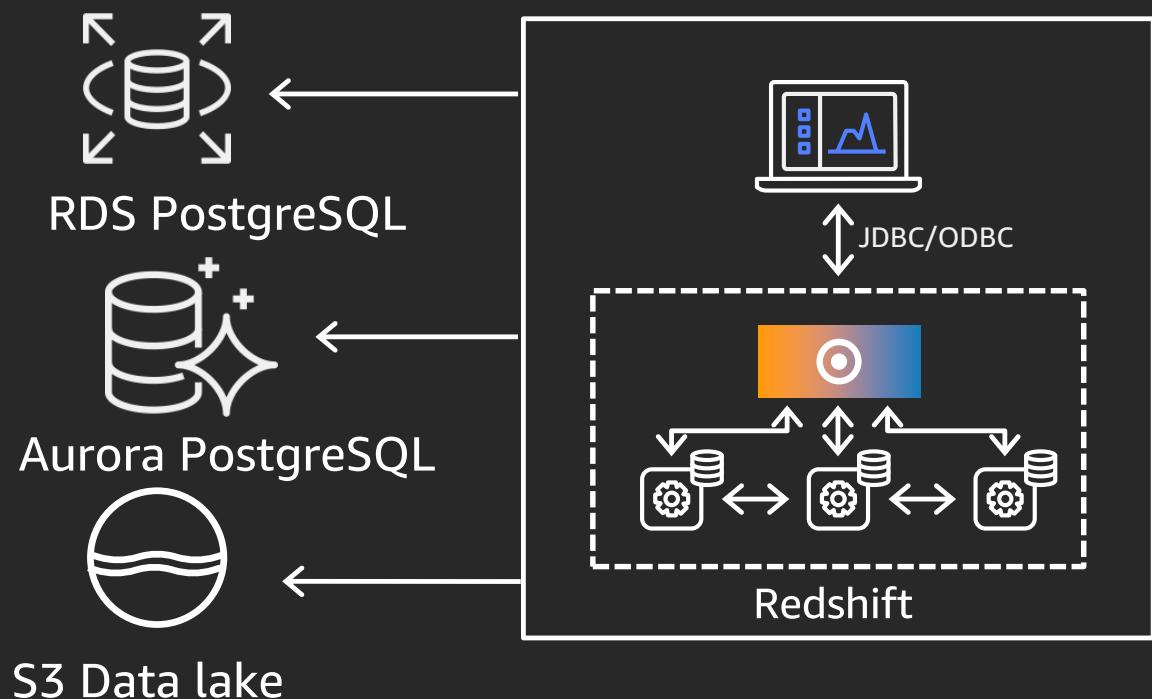
Analyze data across data warehouse, data lakes, and operational database



Combine data warehouse and transactional data

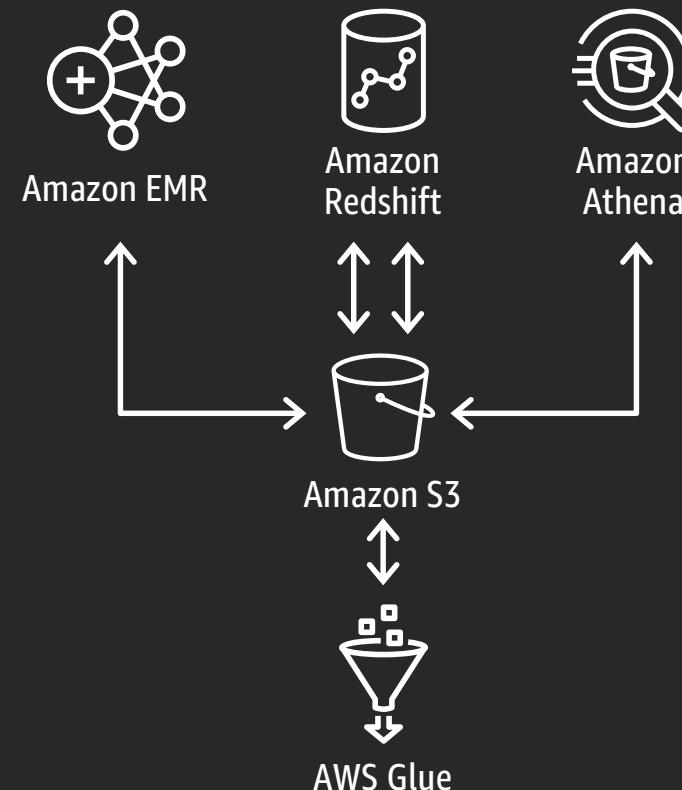


Query across multiple systems from Redshift



# Amazon Redshift Data Lake Export

No other data warehouse makes it as easy to gain new insights from all your data.



Save the results of your queries in a format optimized for analytics in your S3 data lake using open formats like Apache Parquet



Further analyze your data from other analytics services like Amazon EMR, Amazon Athena, and Amazon SageMaker

# Security & Networking

Introducing

# Amazon Detective

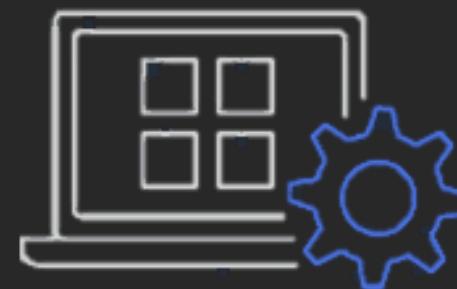
Quickly analyze, investigate, and identify the root cause of security findings and suspicious activities.



Automatically distills & organizes data into a graph model



Easy to use visualizations for faster & effective investigation



Continuously updated as new telemetry becomes available

Introducing

# AWS IAM Access Analyzer

Continuously ensure that policies provide the intended public and cross-account access to resources, such as Amazon S3 buckets, AWS KMS keys, & AWS Identity and Access Management roles.



## Quickly analyze resource policies

Analyzes resource policies for public or cross-account access



## Continuously monitor and analyze permissions

Analyzes new or updated resource policies to help you understand potential security implications



## Provides the highest levels of security assurance

Uses automated reasoning, a form of mathematical logic, to determine all possible access paths allowed by a resource policy

# Serverless & Developer Experience

# Provisioned Concurrency on AWS Lambda

- Keeps functions initialized and hyper-ready, ensuring start times stay in the milliseconds
- Builders have full control over when provisioned concurrency is set
- No code changes are required to provision concurrency on functions in production
- Can be combined with AWS Auto Scaling at launch

Introducing

# AWS Step Functions Express Workflows

Orchestrate AWS compute, database, and messaging services at rates greater than 100,000 events/second, suitable for high-volume event processing workloads such as IoT data ingestion, streaming data processing and transformation.



Faster: 100K TPS



Designed for short duration  
workflows: <5min



Cost Effective  
At Scale

Introducing

# Amazon EventBridge Schema Registry

Store event structure - or schema - in a shared central location, so it's faster and easier to find the events you need. Generate code bindings right in your IDE to represent an event as an object in code.



Schema discovery automatically adds schemas to the registry (paid feature)



Integrated with IDEs: VS Code and IntelliJ



Generate code bindings for Java, Python, or Typescript



Access schemas from 15 SaaS Partners, custom apps, & AWS services

# AI & Machine Learning

# AI Services



# Introducing Amazon Transcribe Medical



## Accurate

US English  
Primary Care  
Dictation Transcription  
Conversational Transcription



## Easy-to-Use

Real-time Public API  
Automatic Punctuation  
Word-level Time Stamps  
Word-level Confidence Scores



## Affordable

Pay-as-you-go Model  
Charge by Transcription Usage  
7.5 cents / minute  
60 Minute Free Tier

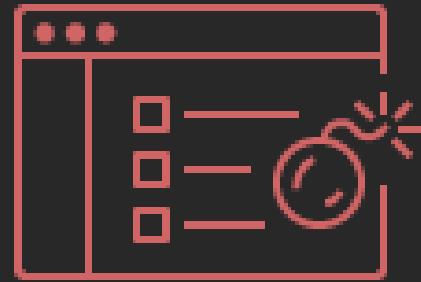
# Amazon Transcribe Medical Demo

# Fraud Detection

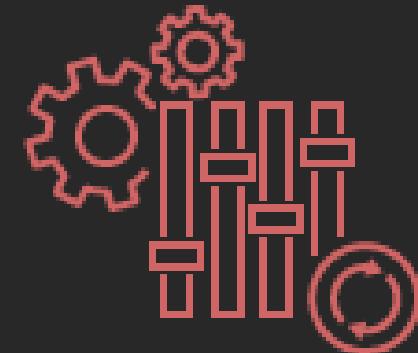
# Fraud detection is difficult



\$\$\$ billions lost to  
fraud each year



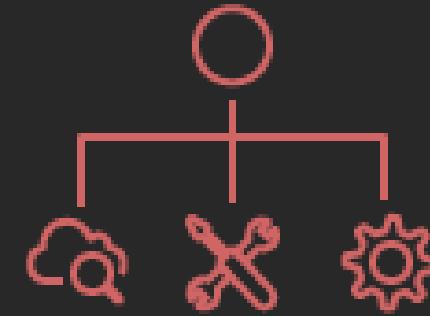
Online business prone  
to fraud attacks



Bad actors often  
change tactics



Changing rules =  
more human reviews



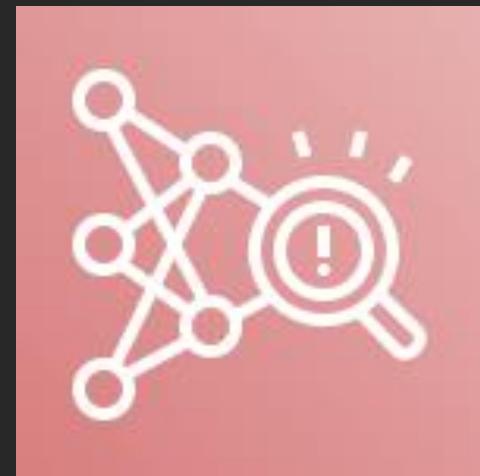
Dependent on others to  
update detection logic

# Introducing Amazon Fraud Detector

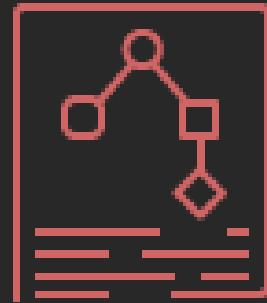
---

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

---



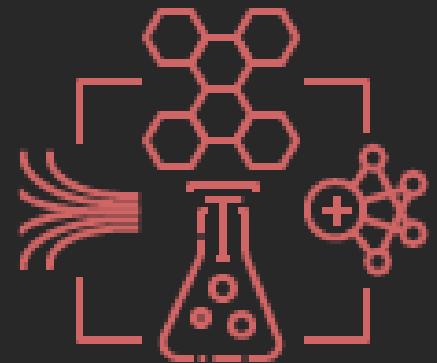
# Amazon Fraud Detector – Key Features



Pre-built fraud  
detection model  
**templates**



Automatic  
creation of  
custom fraud  
detection  
models



Models learn  
from past  
attempts to  
defraud **Amazon**

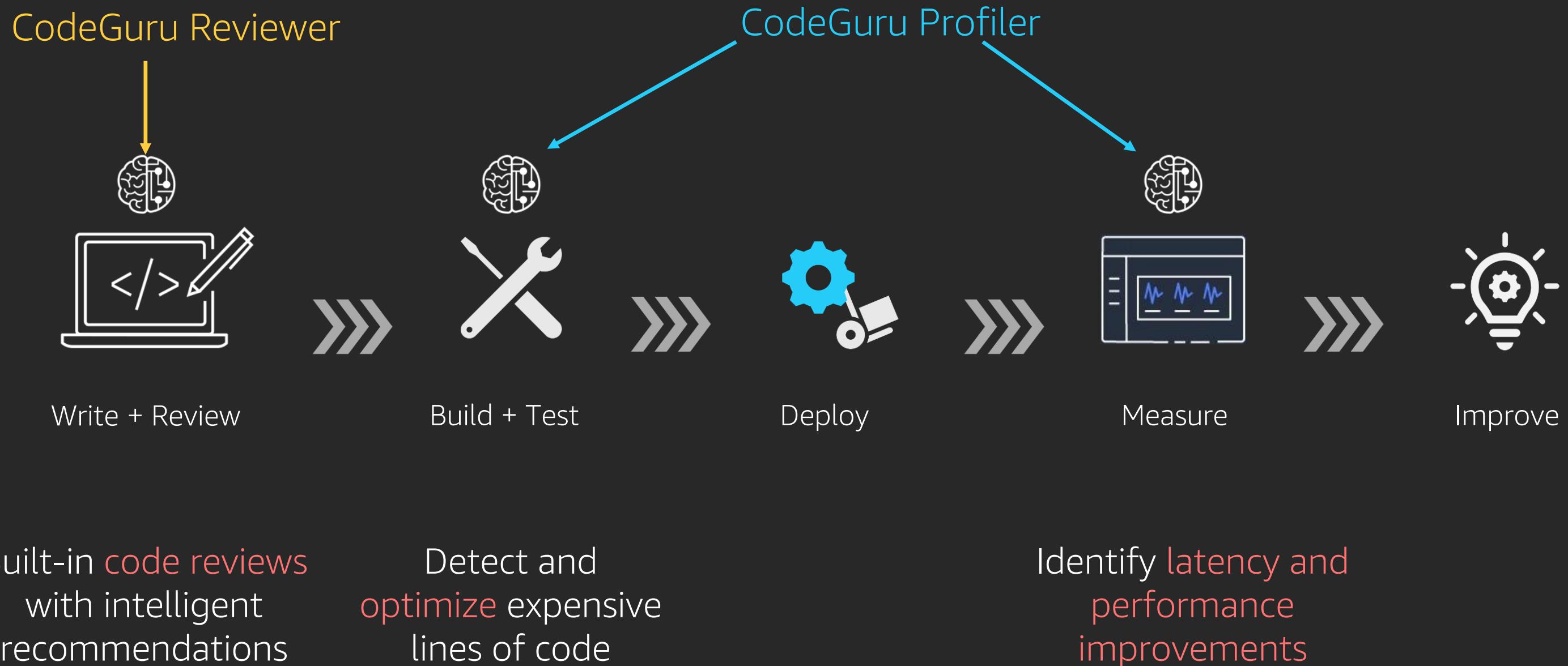


Amazon  
**SageMaker**  
integration



One interface to  
review past  
**evaluations** and  
detection logic

# Introducing Amazon CodeGuru



# CodeGuru Reviewer: How It Works

Customer provides source code as input

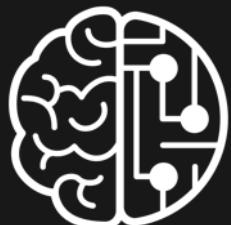
Java  
AWS CodeCommit  
Github



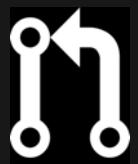
Extract semantic features / patterns



ML algorithms identify similar code for comparison



Customers see recommendations as Pull Request feedback



Input:  
Source Code

Feature Extraction

Machine Learning

Output:  
Recommendations

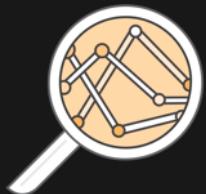
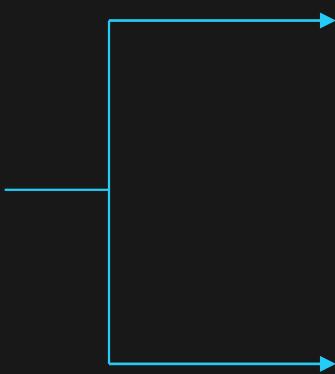
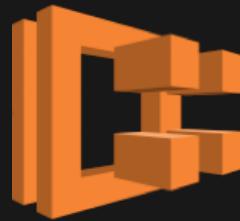
# CodeGuru Profiler: How It Works

Customer application runs in production

CodeGuru Profiler continuously captures application stack trace information

CodeGuru Profiler detects performance inefficiencies in the live application

Customers see recommendations in their automated efficiency reports and visualizations



Input:  
Live application stack trace

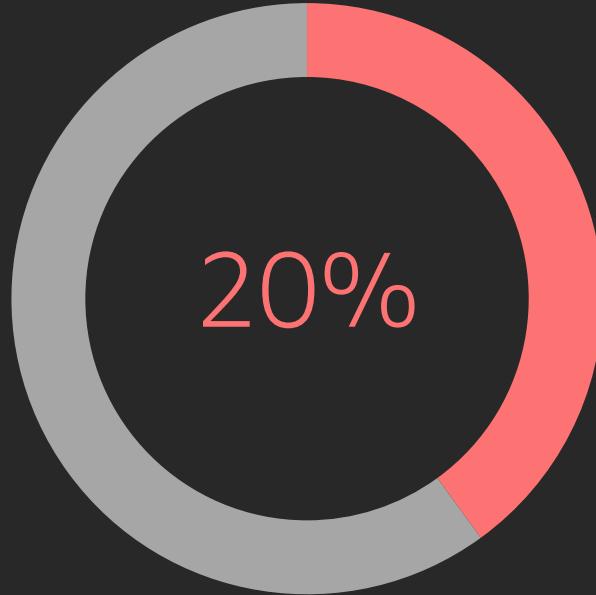
Application profile sampling

Pattern matching

Output:  
Method names,  
Recommendations  
and searchable  
visualizations

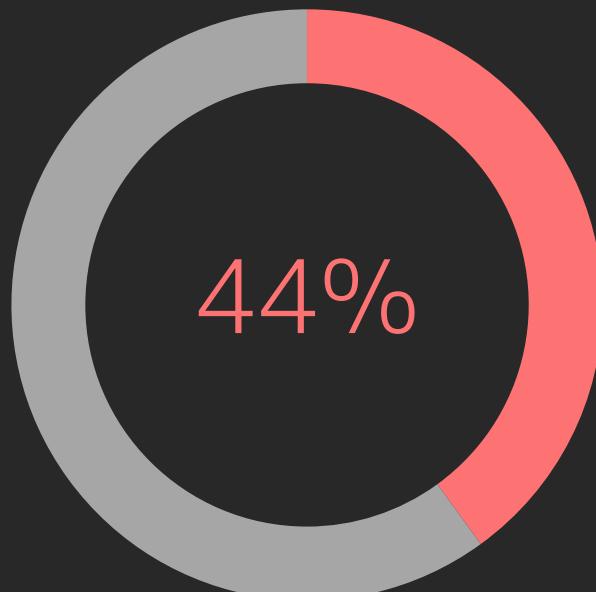
Employees spend **20%** of their time looking for information.

—McKinsey



**44%** of the time, they cannot find the information they need to do their job.

—IDC



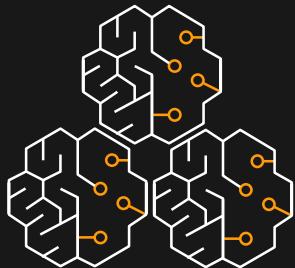
# Introducing Amazon Kendra



Natural language  
Queries



NLU and  
ML core



Domain  
Expertise



Incremental  
learning through  
feedback



Native connectors  
(S3, Sharepoint,  
file servers,  
HTTP, etc.)



Simple API  
and console  
experiences  
Code samples

Easy to find what you are  
looking for

Fast search, and  
quick to set up

# Amazon Kendra connectors



Amazon S3



File systems (SMB)



Web crawler



Databases



Sharepoint Online



2016, 2019



Box



Dropbox



Exchange



OneDrive



Google Drive



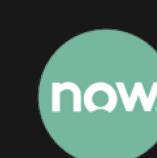
Salesforce



Confluence



Jira



Servicenow



Zendesk



Jive

...and more coming in 2020

When is re:invent?



Kendra suggested answer

## AWS re:Invent 2019

AWS re:Invent 2019 will be held **December 2-6, 2019** Las Vegas, NV. Download your calendar invites for upcoming AWS Training Talks (or listen to last week's recordings) below. Training Talks offer internal field reps a 60 mins deep dive into use cases, customer benefits, and a demo of new services... [\(More\)](#)

WEB | [https://w.amazon.com/bin/view/AWS/reinvent\\_2019](https://w.amazon.com/bin/view/AWS/reinvent_2019)



What are Kendra suggested answers? [Info](#)

Frequently asked questions

[Where is re:Invent located?](#) ▶

[How do I register for re:Invent?](#) ▶

[When is re:Invent registration open?](#) ▶

What are frequently asked questions? [Info](#)

1-10 of 65 Recommended documents

Sort: Relevancy ▾

## APN re:Invent 2019

Encourage your APN Partners to join us December 2 at AWS Innovate, re:Invent Recap Edition. This is a free online conference providing a complete wrap up of AWS re:Invent... [\(More\)](#)

WEB | [https://w.amazon.com/bin/view/APN\\_reinvent\\_2019/](https://w.amazon.com/bin/view/APN_reinvent_2019/)



## re:Invent Live Stream Viewing Parties 2018

...Join us for re:Invent keynote viewing parties for our Amazon.com CDO organizations. We'll be providing breakfast, re:Invent water bottle giveaways, and a phone tool icon for your participation... [\(More\)](#)

WEB | <https://w.amazon.com/bin/view/reinventcampusevents/>



## Deploy

Select the components you want on the page, copy the code snippets, then paste them into your search application.

Want it all? Copy all components with our global code snippet.

[Copy all components](#)

Selected component

Kendra suggested answer

```
<div class="term-grid">
<label>Lorem</label>
<div class="definition">ipsum dolor sit amet
consectetur adipisicing</div>
<div class="alternate">something</div>
</div>
.clearfix { display: inline-block; }
* html .clearfix { zoom: 1; }
.clearfix { display: block; }
<div class="term-grid">
<label>Lorem</label>
<div class="definition">ipsum dolor sit amet
consectetur adipisicing</div>
<div class="alternate">something</div>
</div>
.clearfix { display: inline-block; }
* html .clearfix { zoom: 1; }
.clearfix { display: block; }
.clearfix { display: inline-block; }
* html .clearfix { zoom: 1; }
```

[Copy code snippet](#)

[Learn more](#)

[Deploying Kendra in your web application.](#)

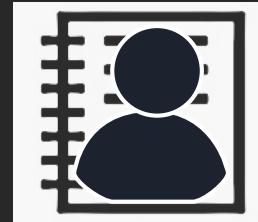
[Understanding API integration.](#)

# ML services



# Introducing Amazon SageMaker Studio

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



Collaboration at  
scale



Easy experiment  
management



Automatic model  
generation



Higher quality ML  
models



Increased  
productivity

Share scalable notebooks  
without tracking code  
dependencies

Organize, track, and  
compare thousands of  
experiments

Get accurate models for  
with full visibility & control  
without writing code

Automatically debug errors, Code, build, train, deploy, &  
monitor models, & maintain high quality  
monitor in a unified visual  
interface

# Introducing Amazon SageMaker Autopilot

## Automatic model creation with full visibility & control

---



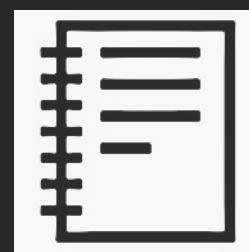
Quick to start

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

# Here are all of the new launches!

AWS re:Invent 2019 Announcement Page

Watch the Keynote Addresses

The screenshot shows the AWS re:Invent 2019 Announcement Page. At the top, there's a navigation bar with links for Contact Sales, Support, English, My Account, and a prominent orange "Create an AWS Account" button. Below the navigation is a large banner with the text "AWS re:Invent 2019 Announcement Page" and "Watch the Keynote Addresses". Underneath the banner are two video thumbnails. The left thumbnail shows a stage with a large screen displaying "Andy Jassy CEO, Amazon Web Services". The right thumbnail shows a stage with a large screen displaying "Dr. Werner Vogels CTO, Amazon.com". Both thumbnails have the caption "AWS re:Invent 2019 - Keynote with [Speaker Name]" below them.

<https://aws.amazon.com/new/reinvent>



Here to help you build  
**Go Build!**

# AWS Digital Training



## Learn at Your Own Pace

AWS Digital Training offers free on-demand digital courses that help you learn new cloud skills and services when and where it's convenient for you.

## Featured Courses

- [AWS Cloud Practitioner Essentials \(Second Edition\)](#)  
Learn the fundamentals of the AWS Cloud and prepare for the AWS Certified Cloud Practitioner exam.
- [Amazon DynamoDB for Serverless Architectures](#)  
An introduction to Amazon DynamoDB and how it's leveraged in building a serverless architecture
- [AWS Security Fundamentals](#)  
Learn fundamental cloud computing and AWS security concepts, including AWS access control and management, governance, logging, and encryption methods.
- [Getting Started with Amazon Simple Storage Service \(Amazon S3\)](#)  
Learn the knowledge to determine when to use Amazon S3 by reviewing typical use cases and understanding how the service provides object storage for your applications

# Thank you for attending AWS Builders Online Series

We hope you found it interesting! A kind reminder to **complete the survey**. Let us know what you thought of today's event and how we can improve the event experience for you in the future.



[aws-apac-marketing@amazon.com](mailto:aws-apac-marketing@amazon.com)



[twitter.com/AWSCloud](https://twitter.com/AWSCloud)



[facebook.com/AmazonWebServices](https://facebook.com/AmazonWebServices)



[youtube.com/user/AmazonWebServices](https://youtube.com/user/AmazonWebServices)



[slideshare.net/AmazonWebServices](https://slideshare.net/AmazonWebServices)



[twitch.tv/aws](https://twitch.tv/aws)