AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

ANT214-L

Reinvent your business for the future with AWS Analytics

Rahul Pathak
Vice President, AWS Analytics
AWS

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Reinvention
is driven by data

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Big data

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Big structured and unstructured data

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Survival of the **most informed**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Put data **to work**



Make better decisions



Improve efficiencies



Respond faster



Uncover opportunities

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

FINRA

Ingest **250 billion** records daily using Amazon EMR

Handle **20 TB** of data daily
Finish **90% of jobs in under one minute**

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Scale daily log search and analytics from **500 GB to 1.7 TB**

Reduce operational costs by **30%**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

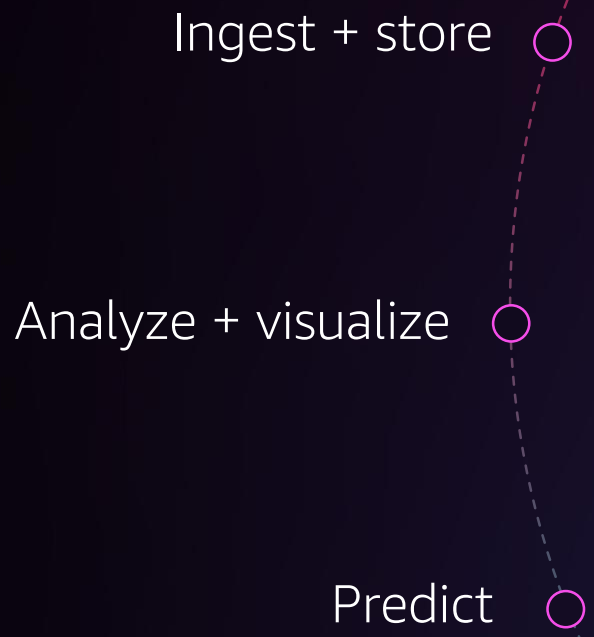


30 billion to 70 billion records a day with no disruption – **peak volume 113 billion during COVID**

Increased time-to-insight – **up to five hours faster**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Most comprehensive set of services for the entire end-to-end data, analytics, and ML journey for all workloads and all types of data

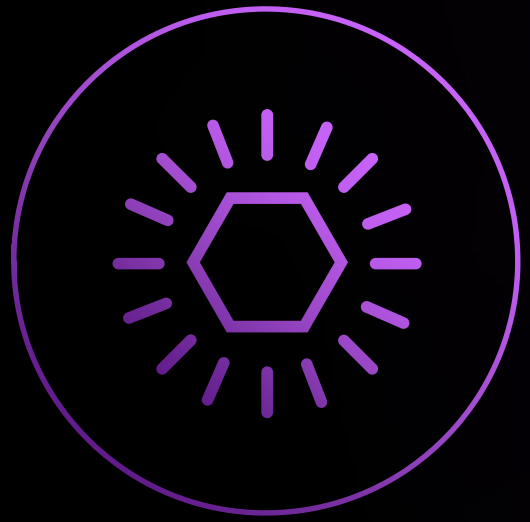




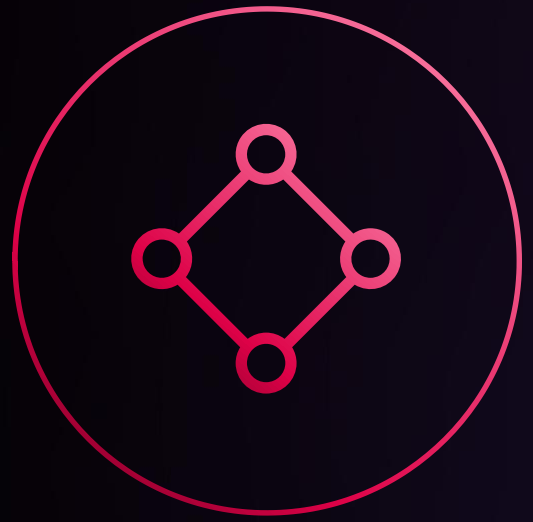
Security + Governance + Access control

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



MODERNIZE



UNIFY



INNOVATE

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



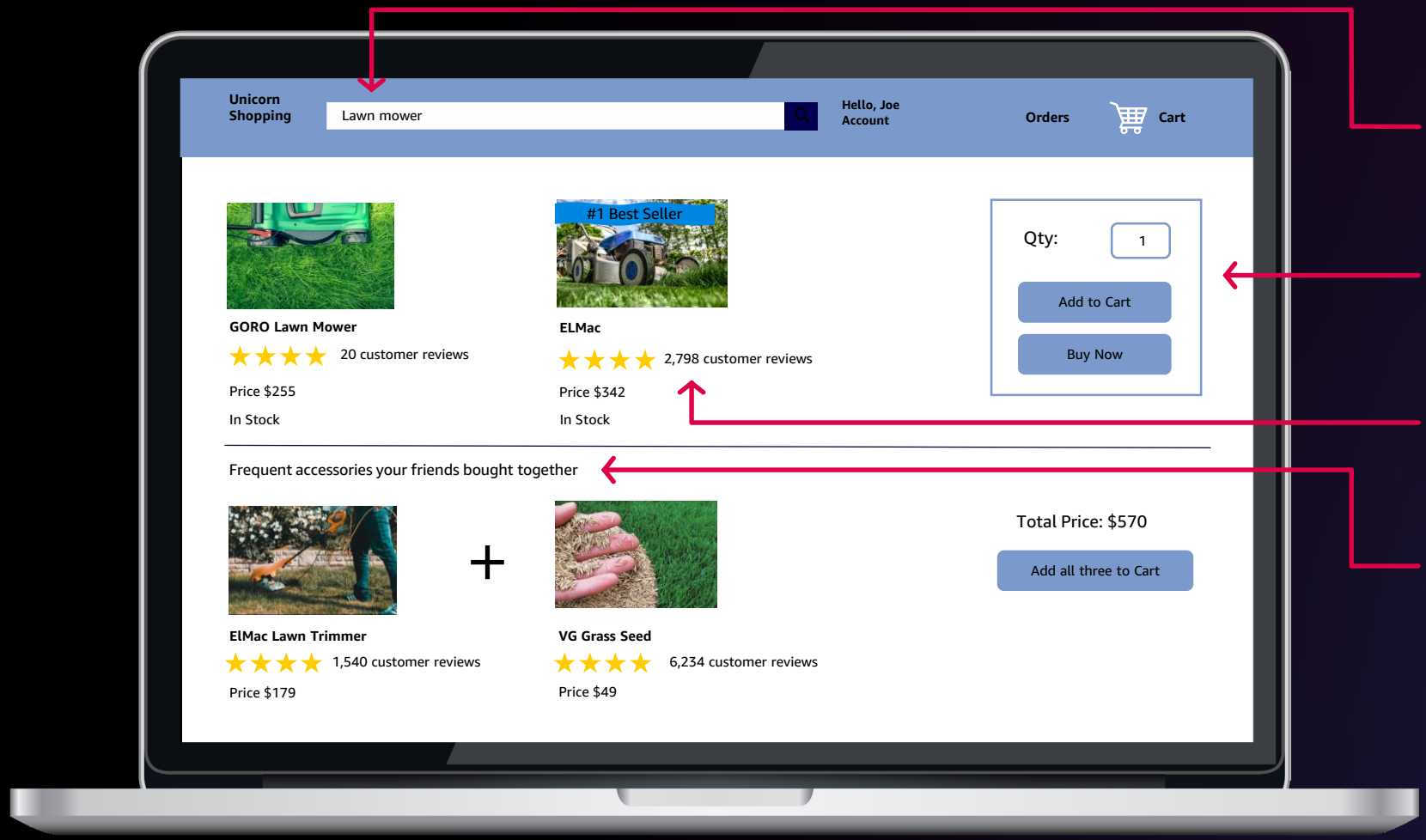
MODERNIZE

Modernize your data infrastructure with the **most scalable, trusted, and secure cloud provider**

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Modern cloud-based applications



Search
Index optimized store

Shopping cart
Relational database

Customer reviews
Key-value database

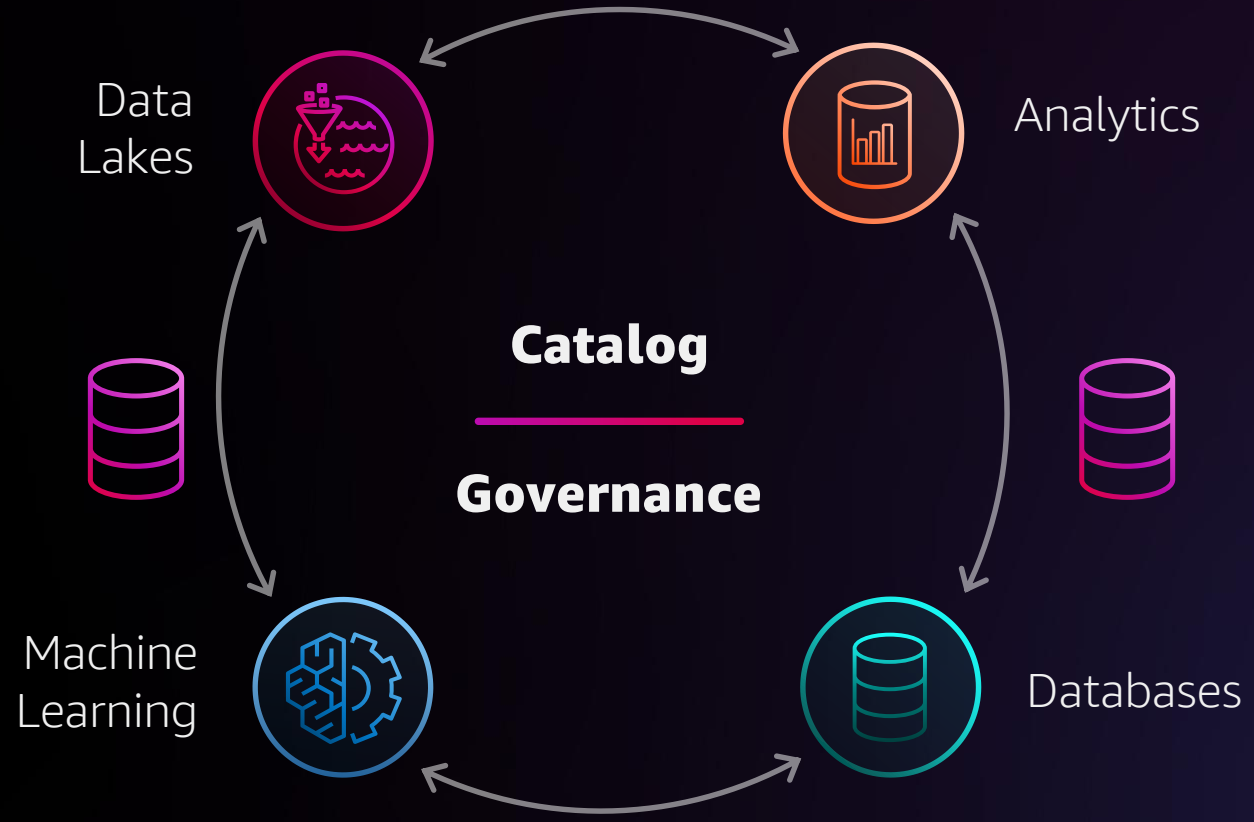
Recommendations
Graph database

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

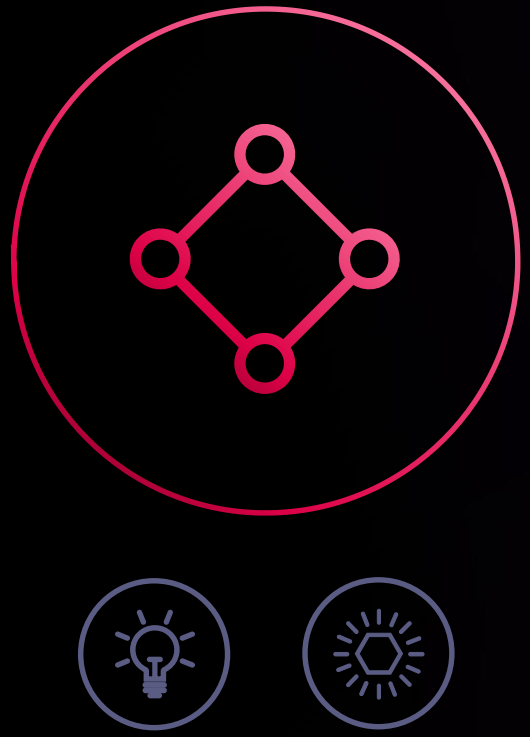
Traditional approaches don’t scale



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



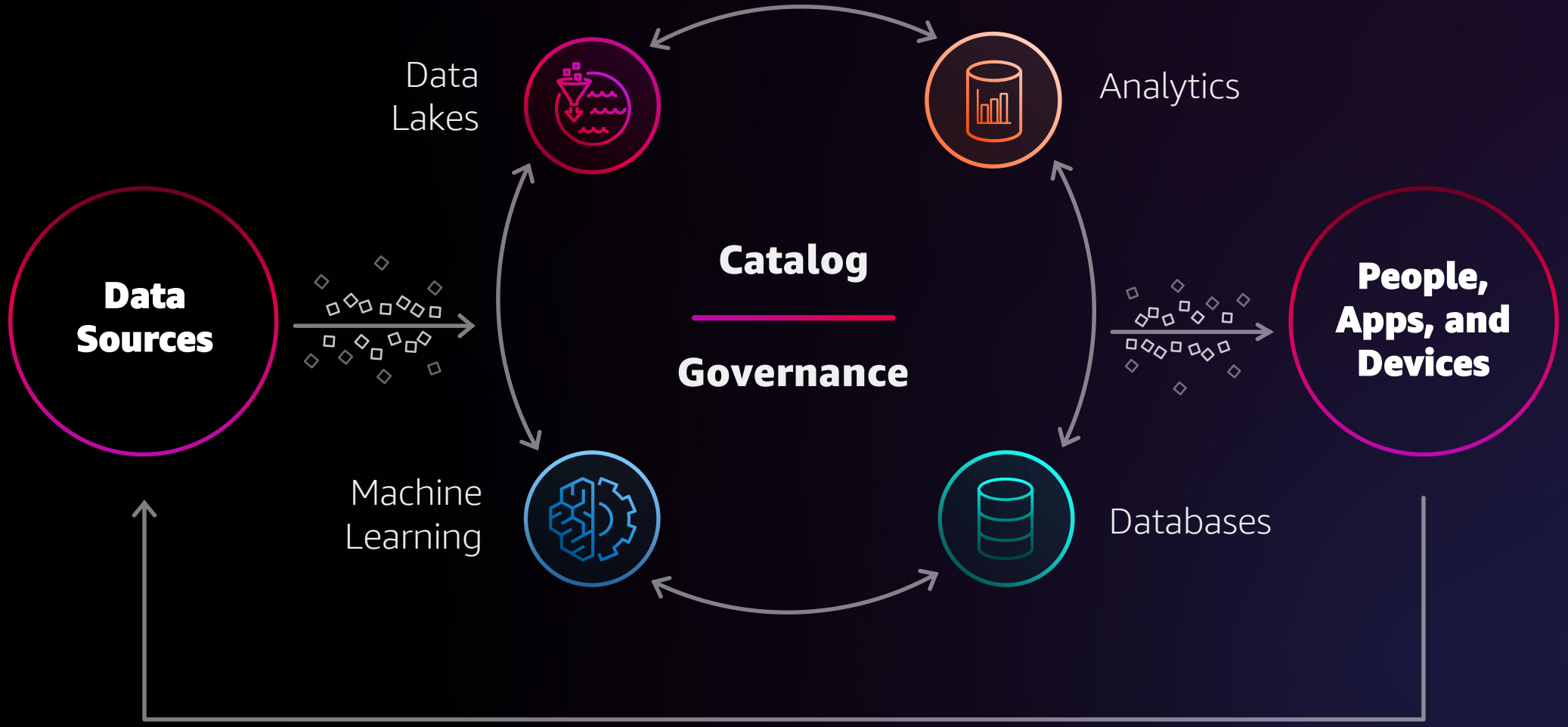
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



UNIFY

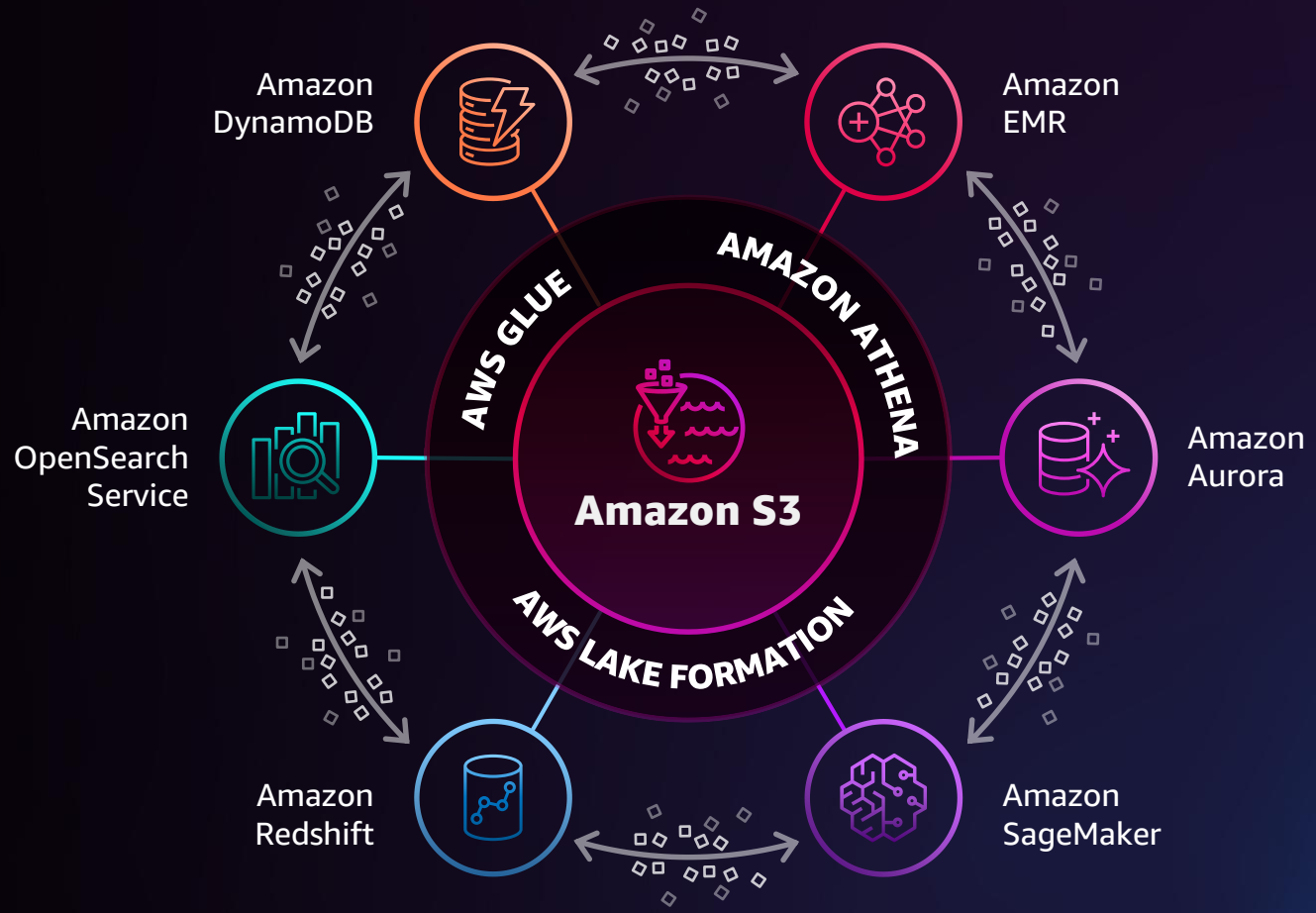
Put your data to work with secure and well-governed access to data, using the best of both **data lakes and purpose-built data stores**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Modern data strategy on AWS



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Collected **200 TB** of data across **1,000 projects**

Automated energy predictions

Maximized **wind farm energy** production

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



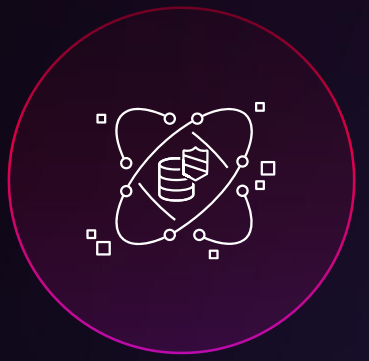
Scalable data lakes



Purpose-built for performance and cost



Serverless and easy to use



Unified data access, security, and governance



Built-in machine learning

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Scalable
data lakes

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Broadest portfolio
of analytics tools

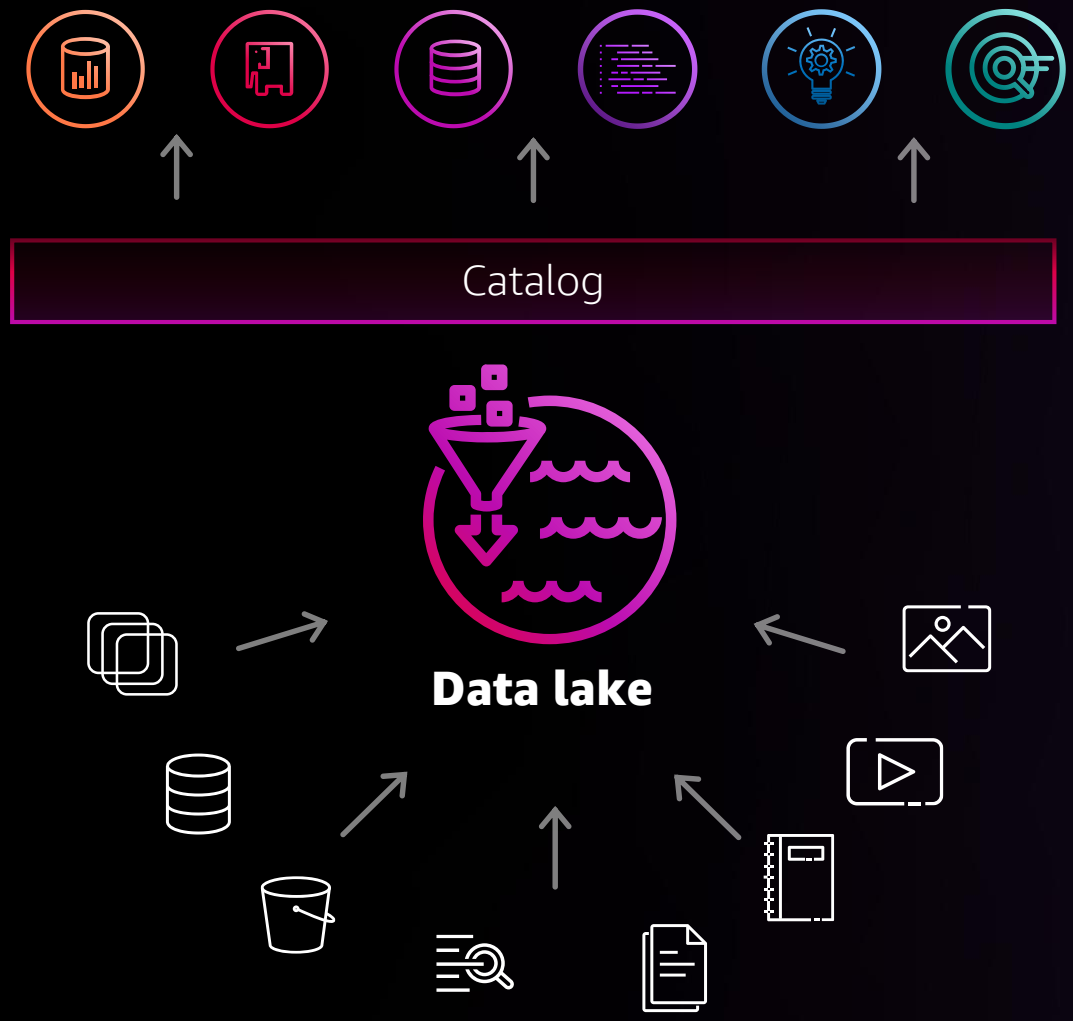


Unmatched durability,
availability, and scalability

Built to store and retrieve
any amount of data

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The benefits of data lakes



Store all your data in open formats

Cost-effectively scale storage to exabytes

Decouple storage from compute

Choice of analytical and ML engines

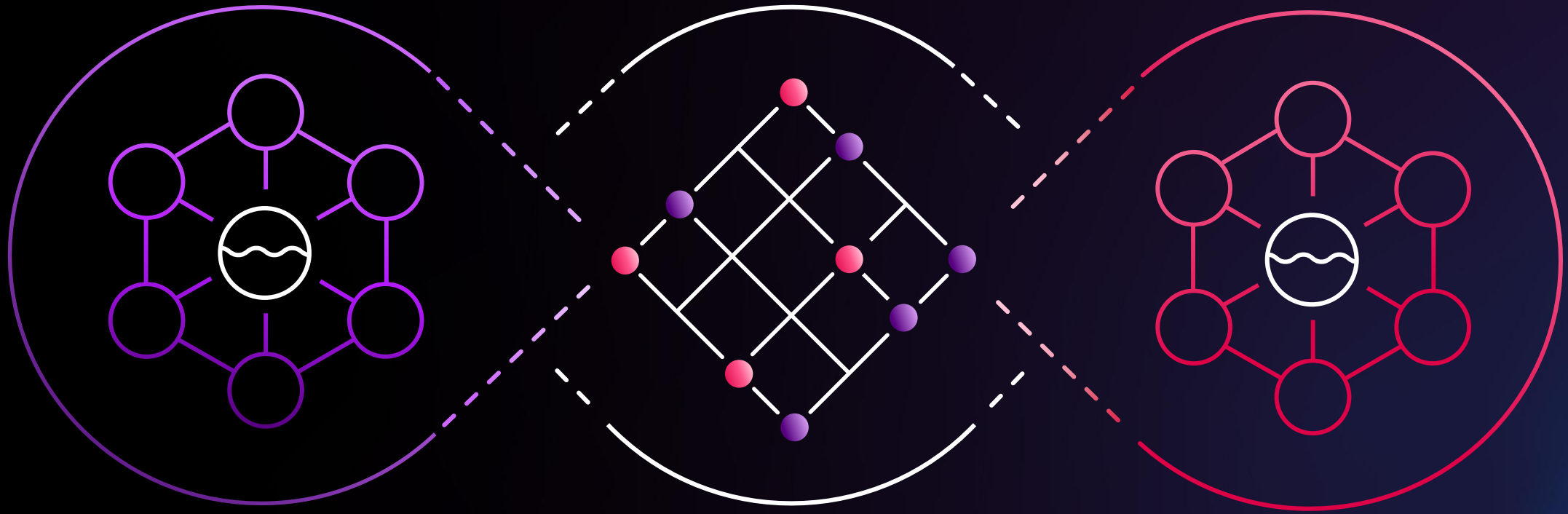
Process data in place

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Data mesh: Governed sharing of data products

Architecture that enables the **governed sharing** of **data products** across one or more data lakes



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Hundreds of thousands of data lakes run on AWS



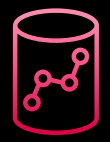
aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Purpose-built for **performance and cost**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



AMAZON REDSHIFT

Data warehousing

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



AMAZON REDSHIFT

Data warehousing



AMAZON ATHENA

Interactive query

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



AMAZON REDSHIFT

Data warehousing



AMAZON ATHENA

Interactive query



AMAZON EMR

Big data processing

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



AMAZON REDSHIFT

Data warehousing



AMAZON ATHENA

Interactive query



AMAZON EMR

Big data processing



AMAZON OPENSEARCH SERVICE

Log and search analytics

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



AMAZON REDSHIFT

Data warehousing



AMAZON ATHENA

Interactive query



AMAZON EMR

Big data processing



AMAZON OPENSEARCH SERVICE

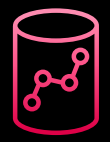
Log and search analytics



AMAZON KINESIS & MSK

Real-time analytics

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



AMAZON REDSHIFT

Data warehousing



AMAZON ATHENA

Interactive query



AMAZON EMR

Big data processing



AMAZON OPENSEARCH SERVICE

Log and search analytics



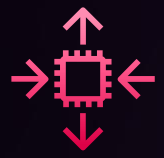
AMAZON KINESIS & MSK

Real-time analytics

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift

ANALYTICS AT SCALE



Performance at any scale



Analyze all your data



Easy analytics for everyone

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

zynga

2X ETL performance improvement, scaled to process **>5.3 TB** of daily game data

Schneider Electric

Supports **10K+** data users for a green future

MagellanRx MANAGEMENT

Reduced costs by **20%**

jobcase

Performs model inference on **2-3B** job search recommendations in 15-20 mins., down from 2-3 hrs., with no additional cost

Nasdaq

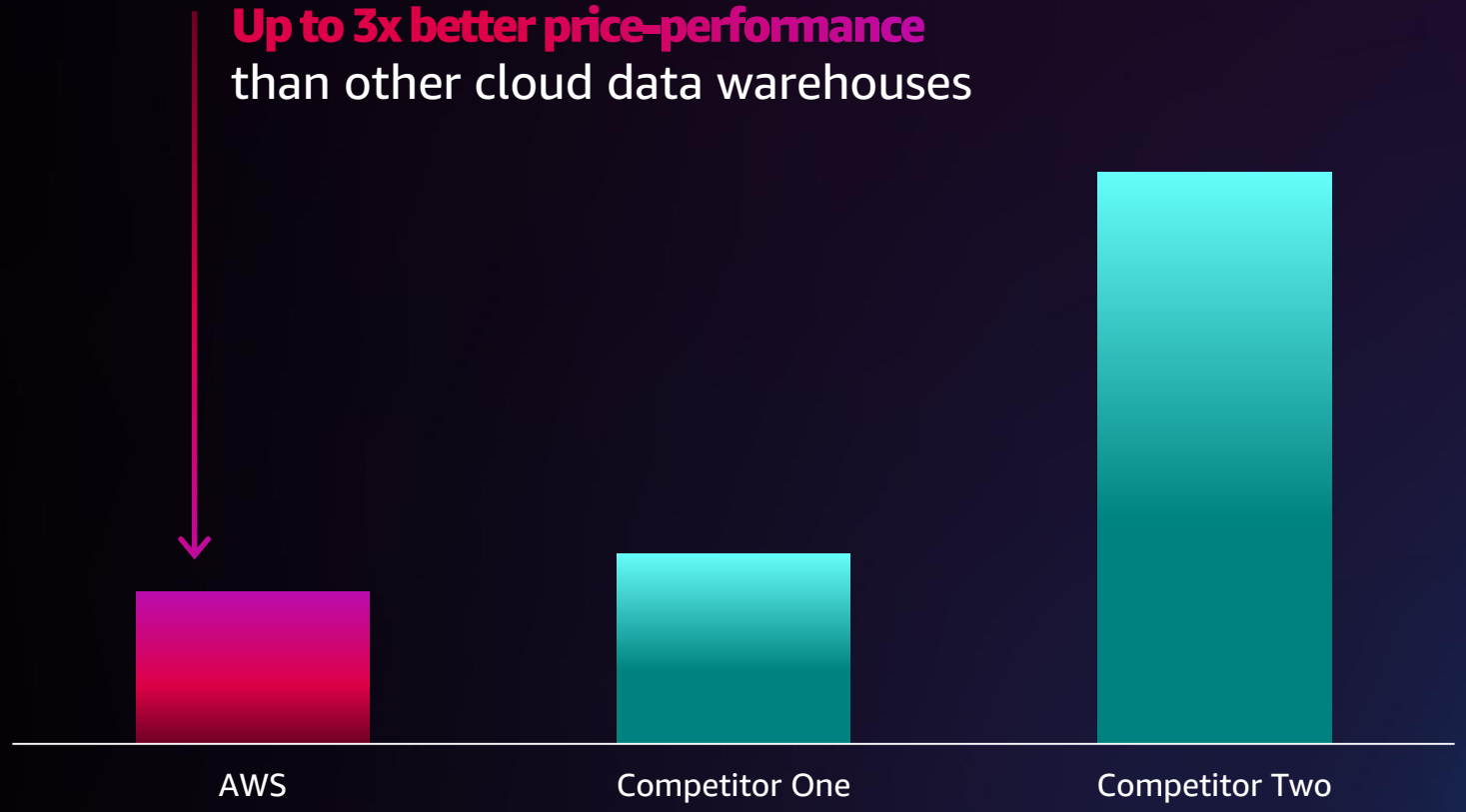
Jumped from **30B** records to **70B** records

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift

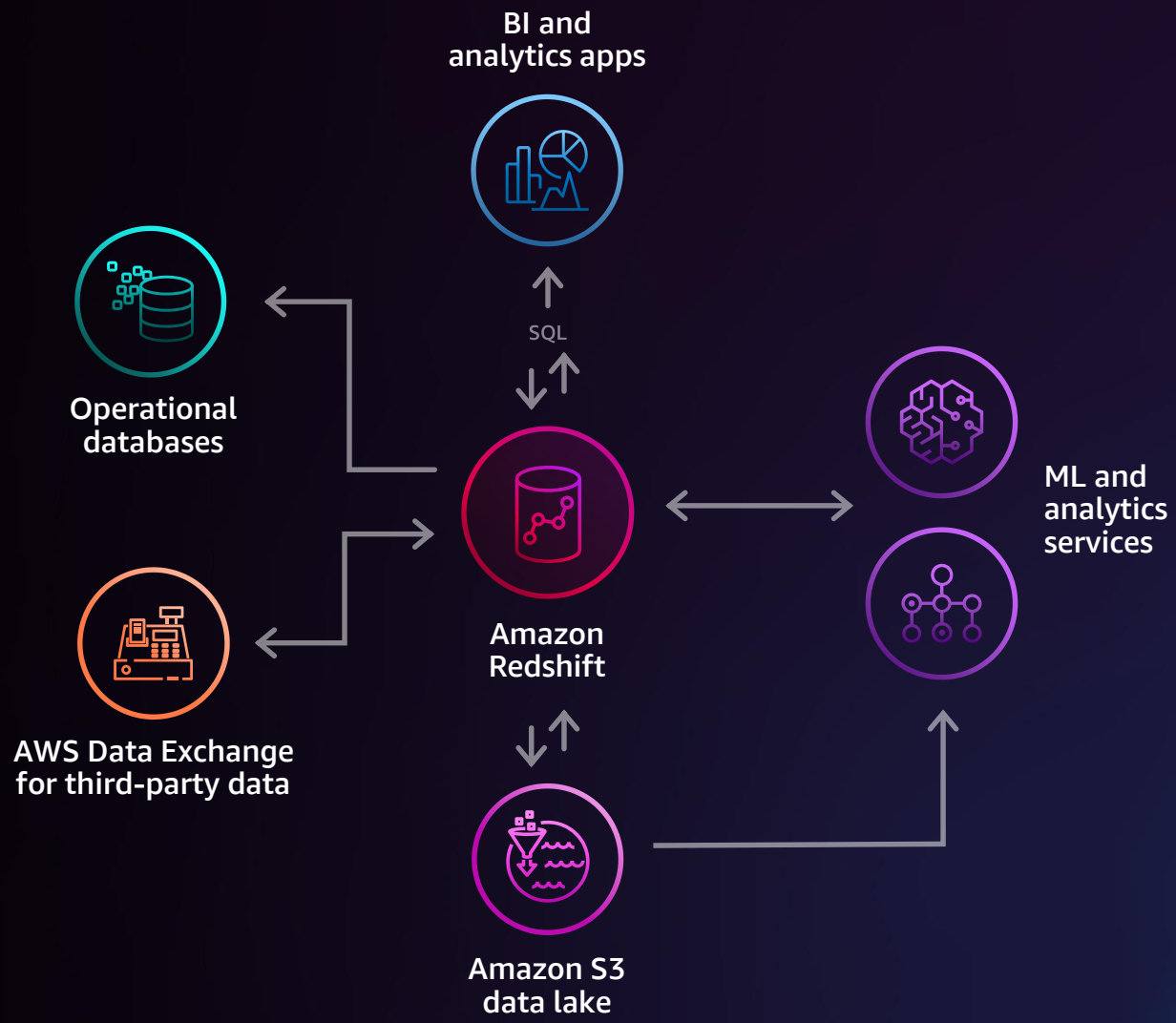
PERFORMANCE AT SCALE



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift

ANALYZE ALL YOUR DATA



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift

DATA SHARING AND AWS DATA EXCHANGE INTEGRATION



No data copies or movement

Secure and governed collaboration

Find and subscribe to 3rd party data

Automated licensing and contracting

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift

EASY ANALYTICS FOR EVERYONE



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Easy analytics for everyone

NEW



Serverless

NEW



Query Editor v2

UPDATED



Automated DW management

NEW



Automatic Materialized Views



Data API

UPDATED



Redshift Advisor

UPDATED



CloudFormation templates

NEW



Grafana Plug-in

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Easy analytics for everyone

NEW

Serverless

NEW

Query Editor v2

UPDATED

Automated DW Management

NEW

Automatic Materialized Views


Data API

UPDATED

Redshift Advisor

UPDATED

Cloud Formation templates

NEW

Grafana Plugin

Analyze all your data

UPDATED

Data sharing

NEW

ADX integration

UPDATED

Amazon Redshift ML

UPDATED

Federated Query

UPDATED

Geospatial enhancements


SUPER data type with JSON

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Easy analytics for everyone

NEW

Serverless

NEW

Query Editor v2

UPDATED

Automated DW Management

NEW

Automatic Materialized Views


Data API

UPDATED

Redshift Advisor

UPDATED

Cloud Formation templates

NEW

Grafana Plugin

Analyze all your data

UPDATED

Data Sharing

NEW

ADX Integration

UPDATED

Amazon Redshift ML

UPDATED

Federated Query

UPDATED

Geospatial enhancements


SUPER data type with JSON

Performance at any scale

UPDATED

RA3 nodes and managed storage


AQUA

UPDATED

Workload Management enhancements

NEW

Concurrency scaling for Writes

UPDATED

SQL Enhancements and migration support


Security, Governance, and Compliance

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Easy analytics for everyone

NEW

Serverless

NEW

Query Editor v2

UPDATED

Automated DW management

NEW

Automatic Materialized Views


Data API

UPDATED

Redshift Advisor

UPDATED

CloudFormation templates

NEW

Grafana Plug-in

Analyze all your data

UPDATED

Data sharing

NEW

ADX integration

UPDATED

Amazon Redshift ML

UPDATED

Federated Query

UPDATED

Geospatial enhancements


SUPER data type with JSON

Performance at any scale

UPDATED

RA3 nodes and managed storage


AQUA

UPDATED

Workload management enhancements

NEW

Concurrency scaling for writes

UPDATED

SQL Enhancements and migration support


Security, governance, and compliance

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Athena

QUERY ALL YOUR DATA USING SQL



Serverless



Open and flexible



Fast and interactive



Cost effective

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



QUERY INSTANTLY

Zero setup cost. Point to S3 and start querying



PAY PER QUERY

Pay only for queries run. Save **30–90%** on per-query costs through compression.



FLEXIBLE

ANSI SQL. JDBC/ODBC drivers. Multiple formats, compression types, and complex joins and data types.



EASY

Serverless: zero infrastructure, zero administration. Integrated with QuickSight and other BI tools.

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

3x faster performance

UPDATED



Hash algo for splits

UPDATED



TopN rank() functions

NEW



Cost-based query optimization

UPDATED



Dynamic filtering

UPDATED



Nested field pruning

NEW



Spill to disk

UPDATED



Write to bucketed tables

UPDATED



Aggregate window functions

UPDATED



Partition pruning

NEW



Query plan Optimization rules

UPDATED



Map-returning functions

UPDATED



Subquery memory & correlation

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ANNOUNCING

Athena ACID Transactions powered by Apache Iceberg (Preview)

OPEN-SOURCE, SNAPSHOT-BASED TABLE FORMAT FOR HUGE ANALYTIC DATASETS



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Athena and data lakes

Amazon Athena

Serverless query engine to analyze data with SQL language

Define data as Hive tables

Schema-on-read approach





Data lakes

Centralized repository to store data at scale

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

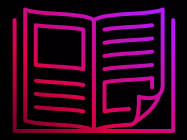
Athena ACID Transactions Powered by Iceberg

- Record level insert
- Update
- Delete
- Compaction
- Time-travel queries
- Schema evolution

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

re:Invent 2021

Iceberg Features



Read support

Read

Time travel



Write support

Create table

ACID transactional write

Row-level delete & update

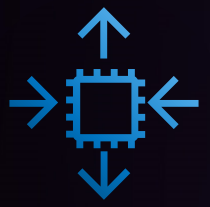
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

re:Invent 2021

Iceberg Features



Schema evolution



Manual compaction



Most of the existing Athena DDLs

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

Amazon EMR

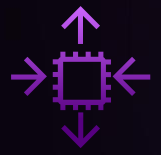
RUN BIG DATA APPLICATIONS IN THE CLOUD



Fully managed and customizable



Latest open-source releases



Automatically scale up and down



Best price-performance

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon EMR

RUN BIG DATA APPLICATIONS IN THE CLOUD



Amazon EMR Studio for interactive data analytics



Multiple deployment models



Amazon S3 data lake integration

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Differentiated performance

ON SPARK, PRESTO AND HBASE

2x

faster than standard Apache Spark 3.0 in TPC-DS 3TB benchmark

2.6x

faster than standard Presto 0.238 in TPC-DS 3TB benchmarks

11%

performance improvement with Graviton2 at **20%+ reduced cost**

100%

open-source API compliant

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Differentiated Performance

ON SPARK, PRESTO, AND HBASE



Adaptive Query Execution



Dynamic partition pruning

NEW



Data pre-fetch

NEW



Intelligent filtering

NEW



Early worker allocation

NEW



Redundant scan elimination

NEW



Optimized metadata fetch

NEW



Parallel/Async initialization



Operator optimization

NEW



Broadcast join w/o statistics

NEW



Stats inference

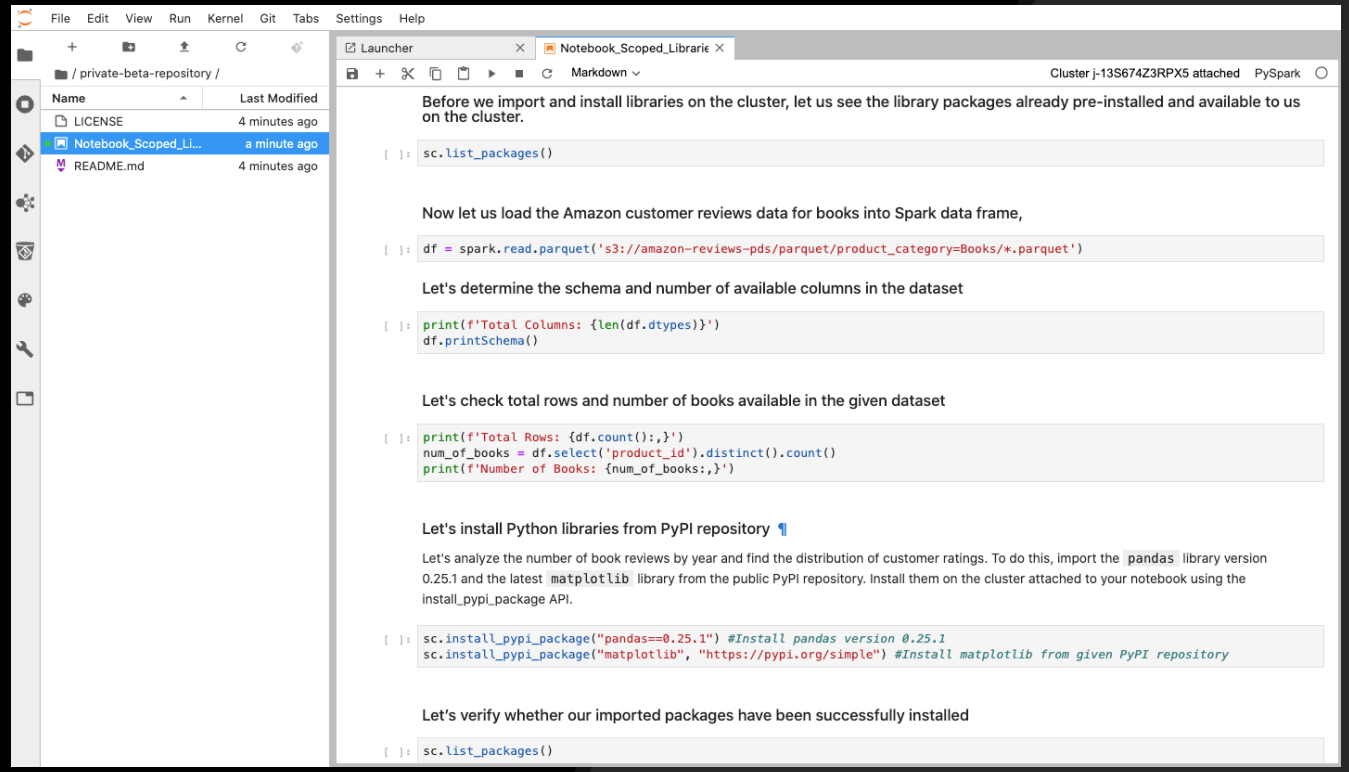
NEW



Join reordering w/o statistics

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon EMR Studio



Serverless Jupyter notebooks
that are fully integrated

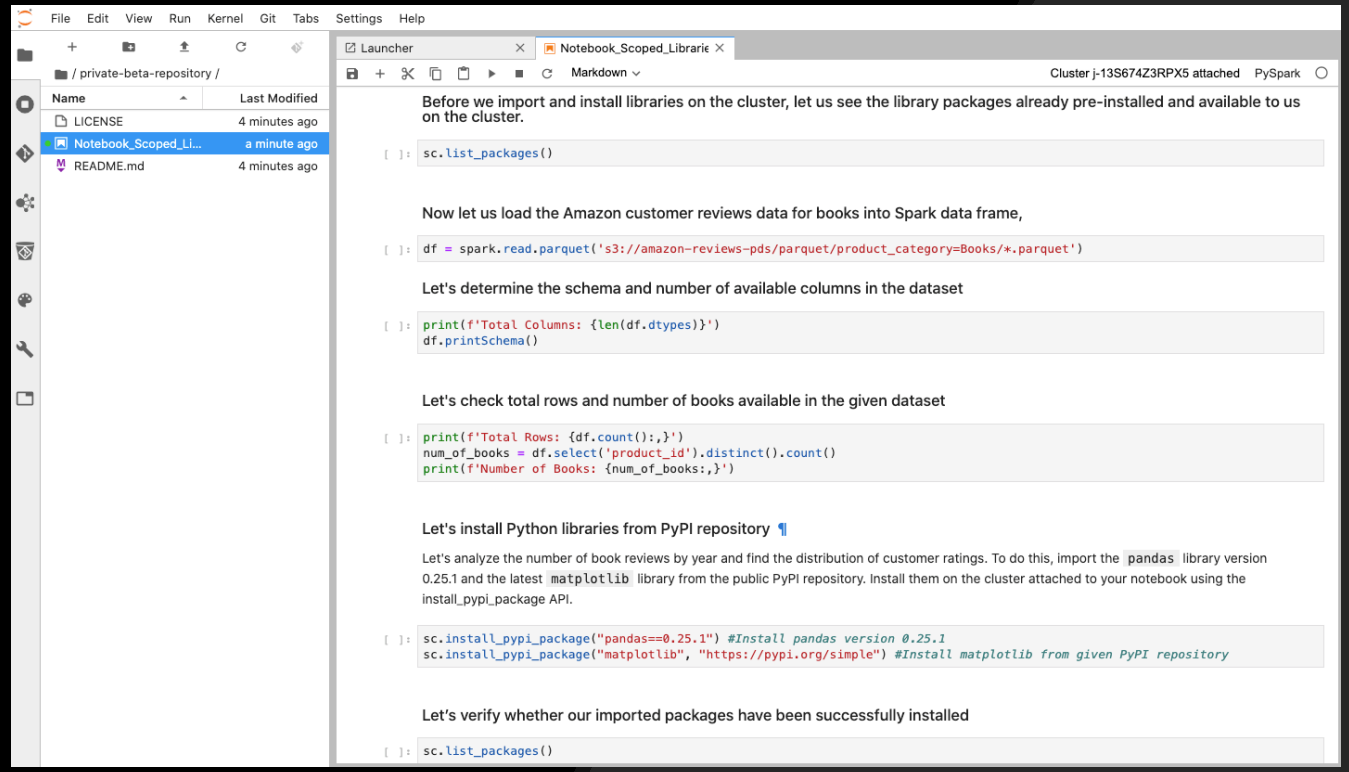
Develop and optimize
analytics and ML applications

Collaborate with peers
via GitHub and other repositories

Build pipelines
using orchestration services like Apache Airflow

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon EMR Studio



Serverless Jupyter notebooks
that are fully integrated

Develop and optimize
analytics and ML applications

Collaborate with peers
via GitHub and other repositories

Build pipelines
using orchestration services like Apache Airflow

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon OpenSearch Service

SUCCESSOR TO
AMAZON ELASTICSEARCH SERVICE



Fully managed



Log and search analytics



Cost effective

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon OpenSearch Service

SUCCESSOR TO
AMAZON ELASTICSEARCH SERVICE



Fully managed



Log and search analytics



Cost effective

aws

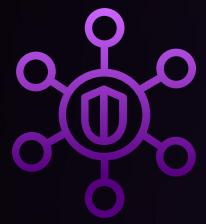
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The OpenSearch Project

AN APACHE 2.0-LICENSED SEARCH AND ANALYTICS SUITE



100% open source



Enterprise-grade



Community driven

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Kinesis

COLLECT, PROCESS, AND ANALYZE VIDEO AND DATA STREAMS IN REAL TIME



Kinesis Data Streams



Kinesis Data Analytics



Kinesis Video Streams



Kinesis Data Firehose

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon MSK

FULLY MANAGED, HIGHLY AVAILABLE, AND SECURE

Kafka Compatible



Fully managed



Highly available



Secure

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

More and more customers are using purpose-built analytics



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Serverless
and easy to use

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Analytics Goes Serverless



AMAZON REDSHIFT

Data warehousing



AMAZON EMR

Big data processing



AMAZON KINESIS

Real-time analytics



AMAZON MSK

Real-time analytics

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

NEW

Amazon **Redshift Serverless**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

New **serverless option** in Amazon Redshift



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AVAILABLE IN PREVIEW TODAY!

NEW

Amazon EMR Serverless

Run petabyte-scale data analytics in the cloud without managing and operating clusters

aws.amazon.com/emr/serverless

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon EMR Serverless



No clusters to manage



Just pick a framework and version and run



Automatically scale. Don't guess cluster sizes



Delivers 2x faster performance than open-source



Integration with familiar tools like Amazon EMR Studio



Automatic and fine-grained scaling reduces costs

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AVAILABLE IN PREVIEW TODAY!

NEW

Amazon MSK Serverless

A serverless option to run Amazon MSK
without managing cluster capacity

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

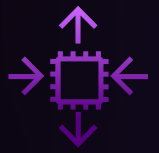
Amazon MSK Serverless

Kafka

Simple to use



Automated high availability



Flexible scaling



Pay for what you use

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

GENERALLY AVAILABLE TODAY!

NEW

Amazon Kinesis **Data Streams On-Demand**

Run Amazon Kinesis Data Streams without provisioning and managing capacity

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



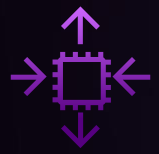
Amazon Kinesis
Data Streams On-Demand



Simple to use



Automated high availability



Flexible scaling



Pay for what you use

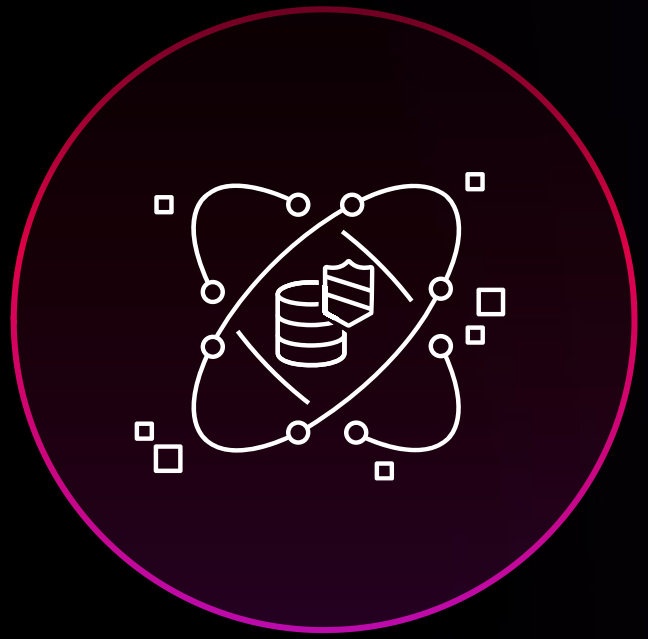
aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS has the most serverless options for data analytics in the cloud



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Unified data access, security, and governance

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lake Formation

BUILD A SECURE
DATA LAKE IN DAYS



Build data lakes quickly



Simplify security management

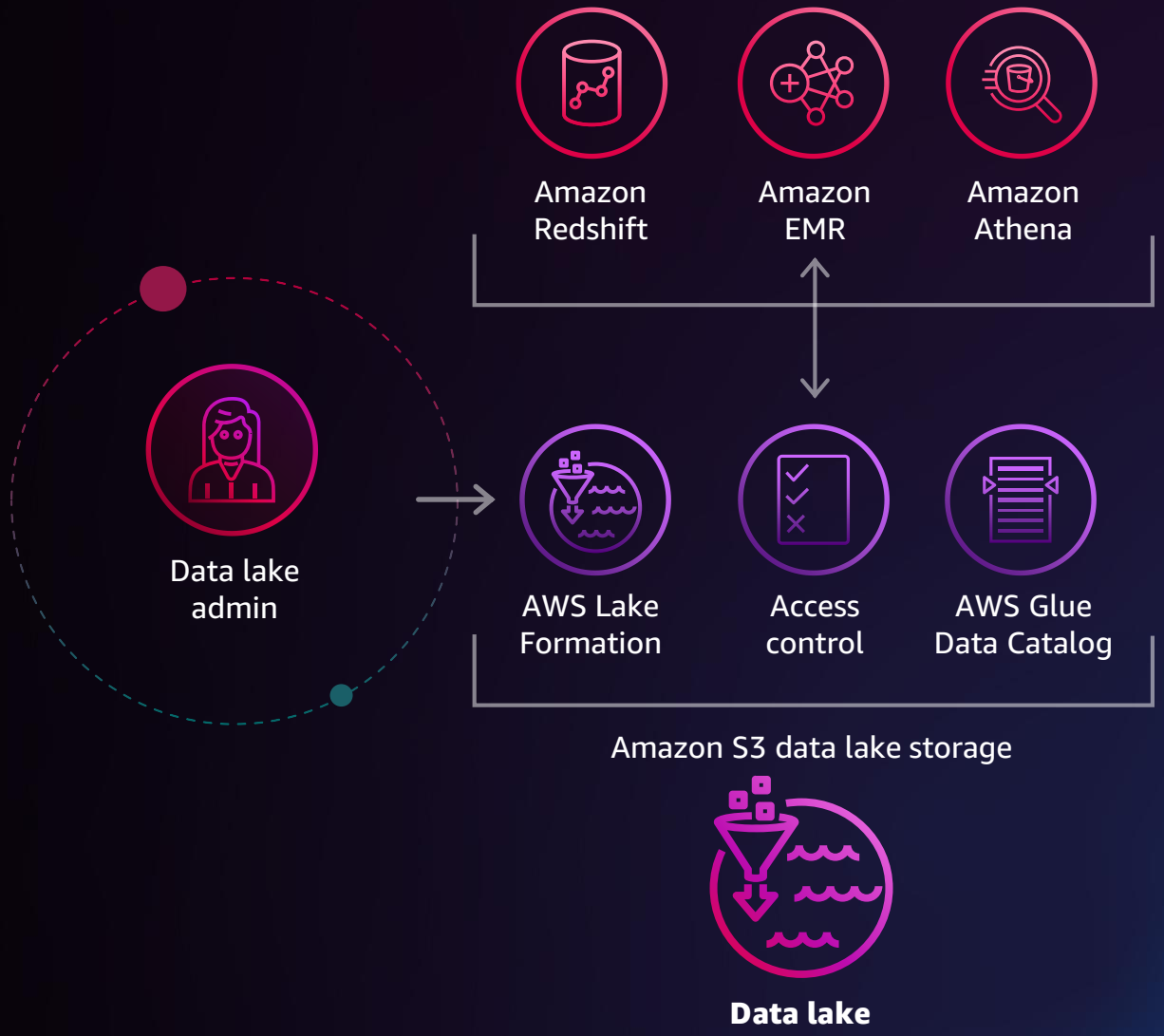


Provide self-service access to data

aws

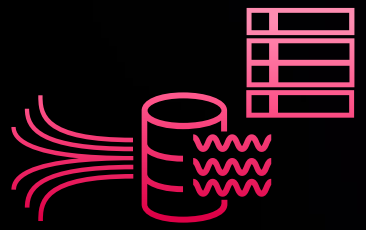
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Simplify security management with **Lake Formation**

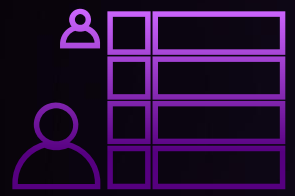


© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Challenges of building and securing modern data lakes



Support updates and deletes



Row-level
Fine-grained
Secure sharing



Automatic storage optimization

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

NEW

Governed Tables

A NEW TYPE OF TABLE FOR DATA IN S3



Acid transactions



Storage optimization



Time travel

aws

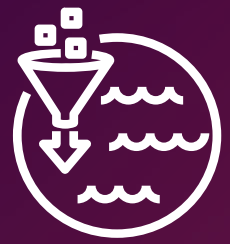
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lake Formation

Row-level security

Data sharing made simple

Tag based access control



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue

SIMPLE, SCALABLE,
AND SERVERLESS



Integrate data faster



Automate at scale



No servers to manage

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue: Key Capabilities

SERVERLESS DATA INTEGRATION SERVICE

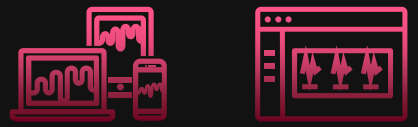
Scalable Data Integration Engine



Built-in data transforms



Execution engine



Monitor

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue: Key Capabilities

SERVERLESS DATA INTEGRATION SERVICE

Scalable Data Integration Engine



Built-in data transforms



Execution engine



Monitor

Centralized and unified data governance



AWS Glue Data Catalog



AWS Glue crawlers



Lake Formation

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue: Key capabilities

SERVERLESS DATA INTEGRATION SERVICE

Scalable Data Integration Engine



Built-in data transforms



Execution engine



Monitor

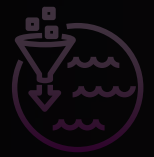
Centralized and unified data governance



AWS Glue Data Catalog



AWS Glue crawlers



Lake Formation

Connect and ingest data



AWS Glue connectors



AWS Glue connector marketplace



Variety of interfaces

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue: Key Capabilities

SERVERLESS DATA INTEGRATION SERVICE

Scalable data integration engine



Built-in data transforms



Execution engine



Monitor

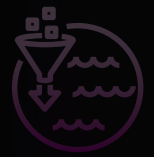
Centralized and unified data governance



AWS Glue Data Catalog



AWS Glue crawlers



AWS Lake Formation

Connect and ingest data



AWS Glue connectors



AWS Glue connector marketplace



Variety of interfaces

User productivity and data ops



Persona specific tools



Productivity tools



Data ops tools

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue: Key Capabilities

SERVERLESS DATA INTEGRATION SERVICE

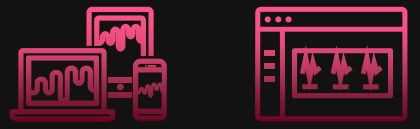
Scalable data integration engine



Built-in data transforms



Execution engine



Monitor

Centralized and unified data governance



AWS Glue Data Catalog



AWS Glue crawlers



Lake Formation

Connect and ingest data



AWS Glue connectors



AWS Glue connector marketplace



Variety of interfaces

User productivity and data ops



Persona specific tools



Productivity tools

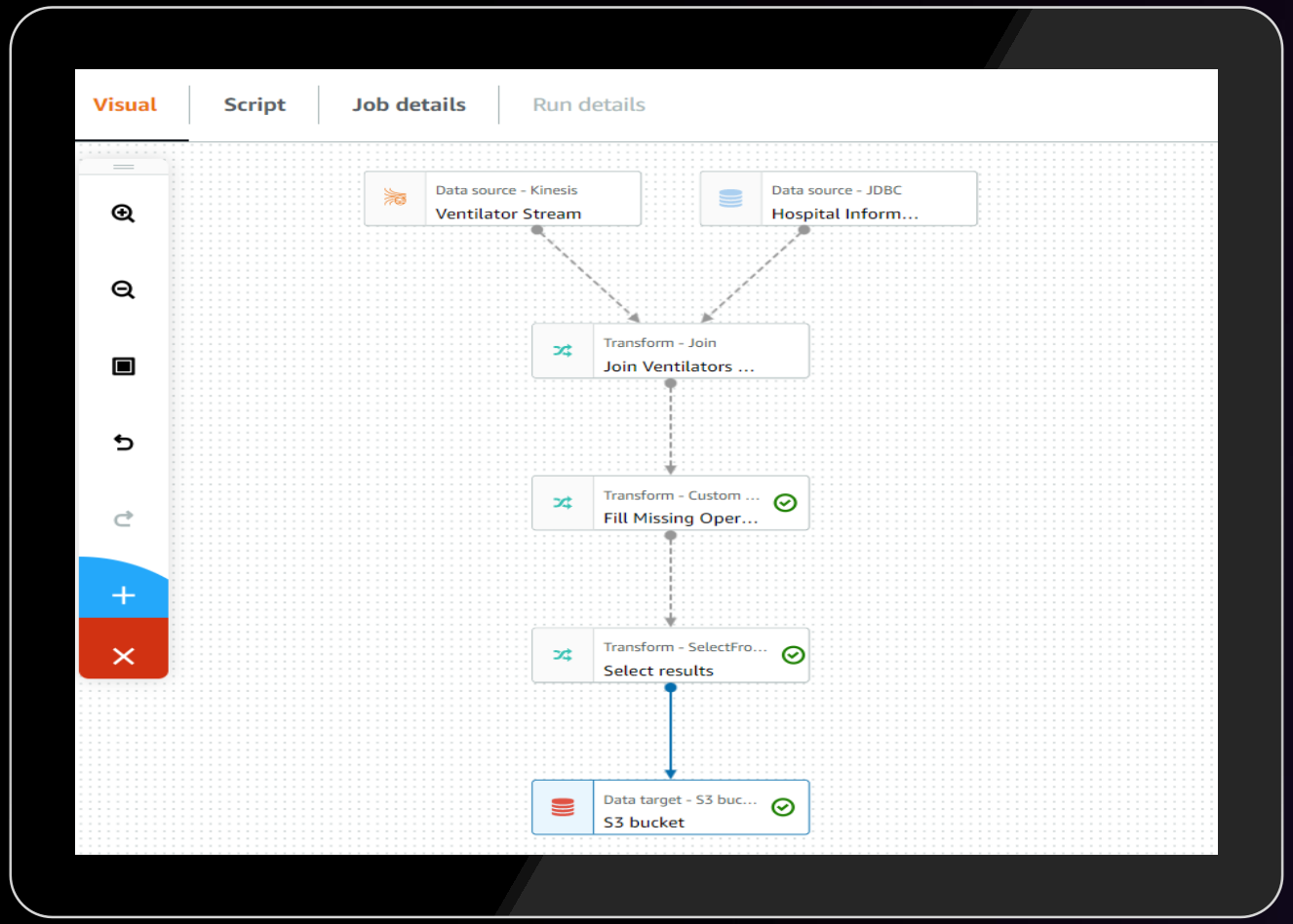


Data ops tools

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue Studio



ETL developer

Rich **visual interface**

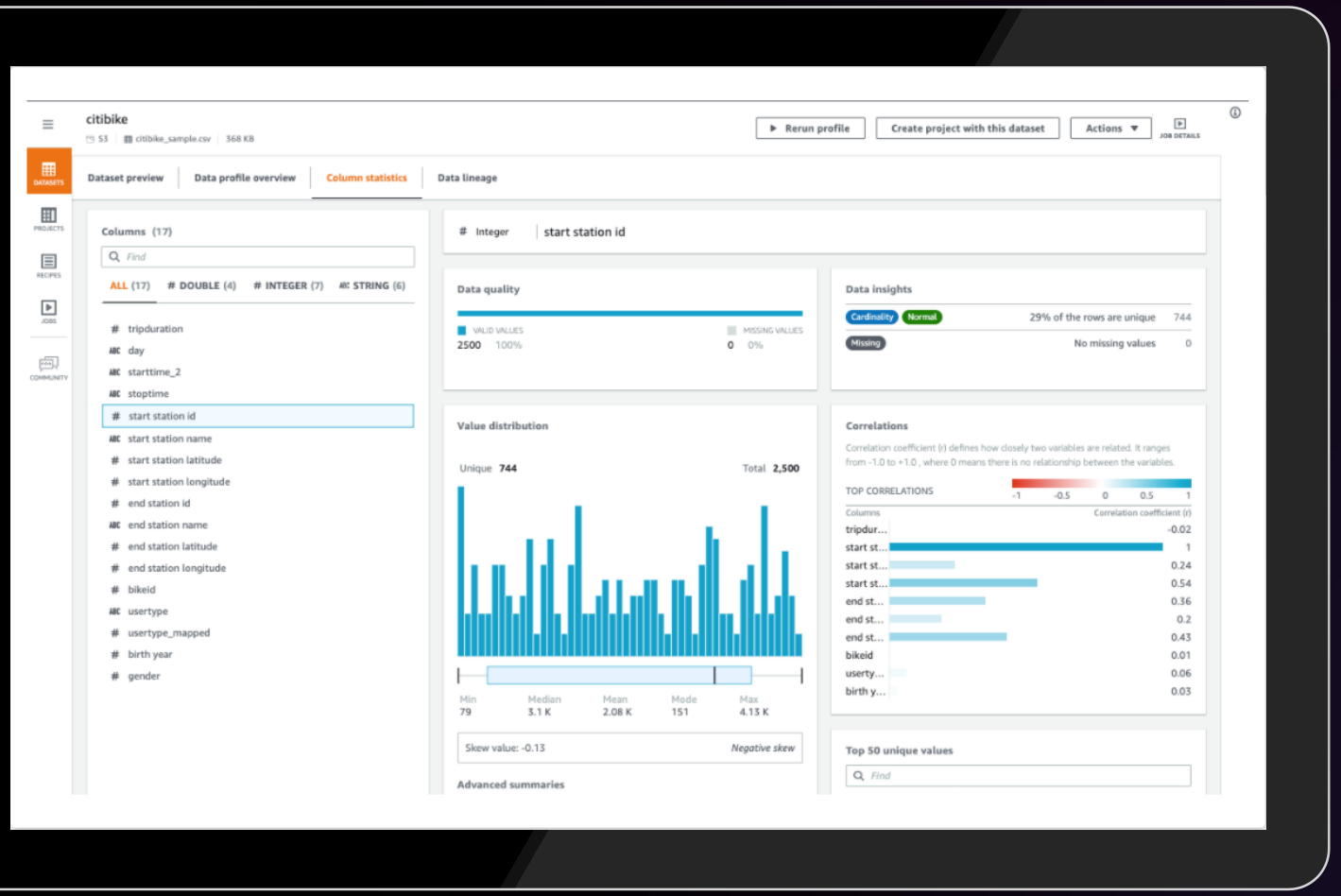
250+ built-in transformations

Profile data to understand data patterns and anomalies

Work on large datasets **at scale**

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue DataBrew





Business Analyst
Data Scientist

Run ETL jobs **without writing code**

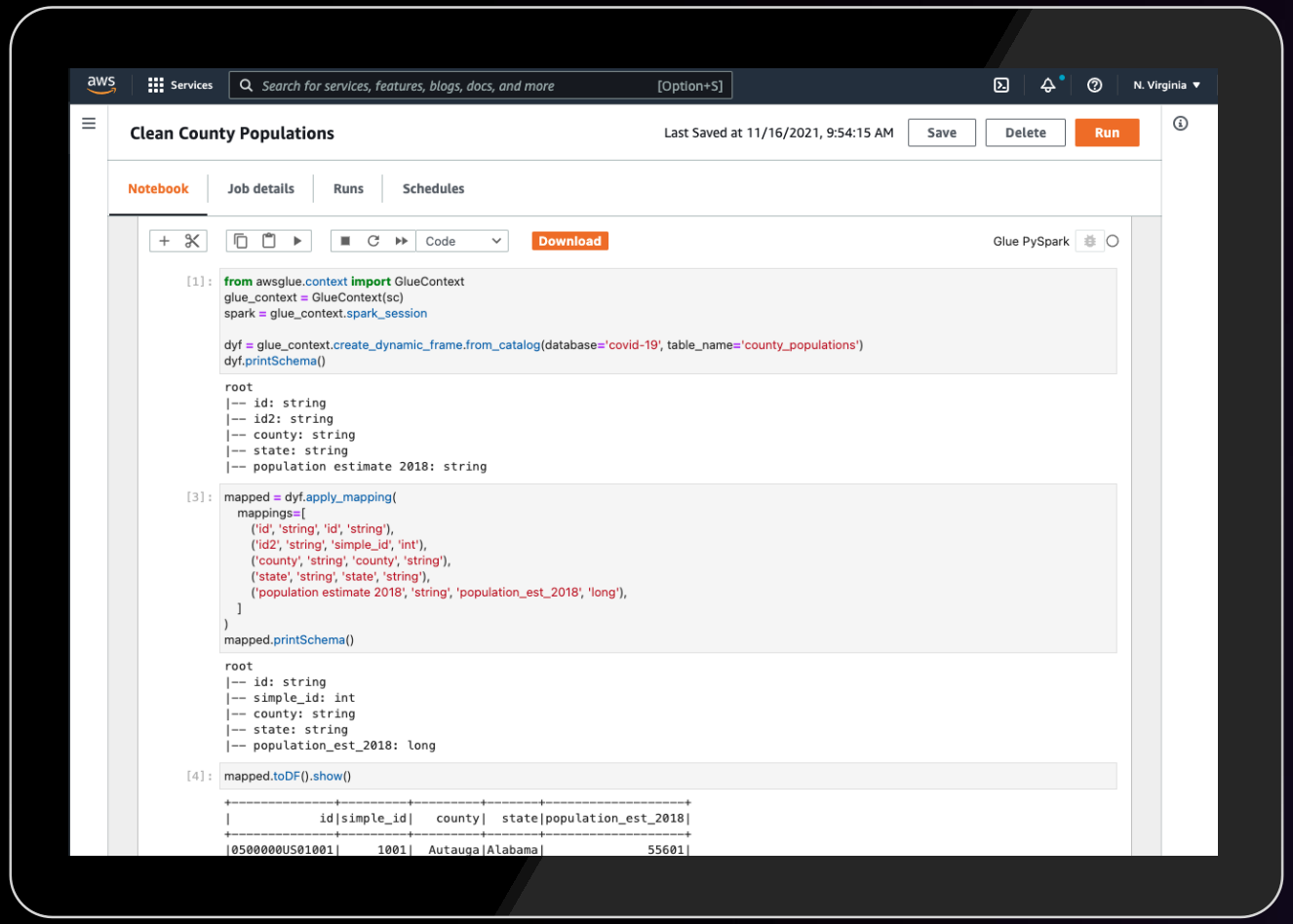
Monitor thousands of jobs through a single pane of glass

Distributed processes

Advanced transforms through code snippets

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Glue Notebooks



Data engineer

Clean and normalize data with a rich **visual interface**

Choose from **250+ built-in transformations** to automate tasks

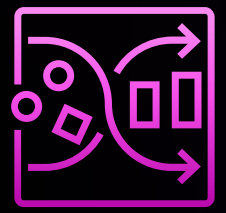
Profile data to understand data patterns and anomalies

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Break down data silos



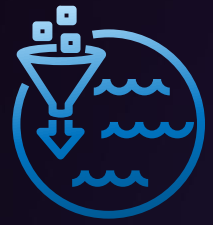
Extract, transform, load



Visual data preparation



Data replication



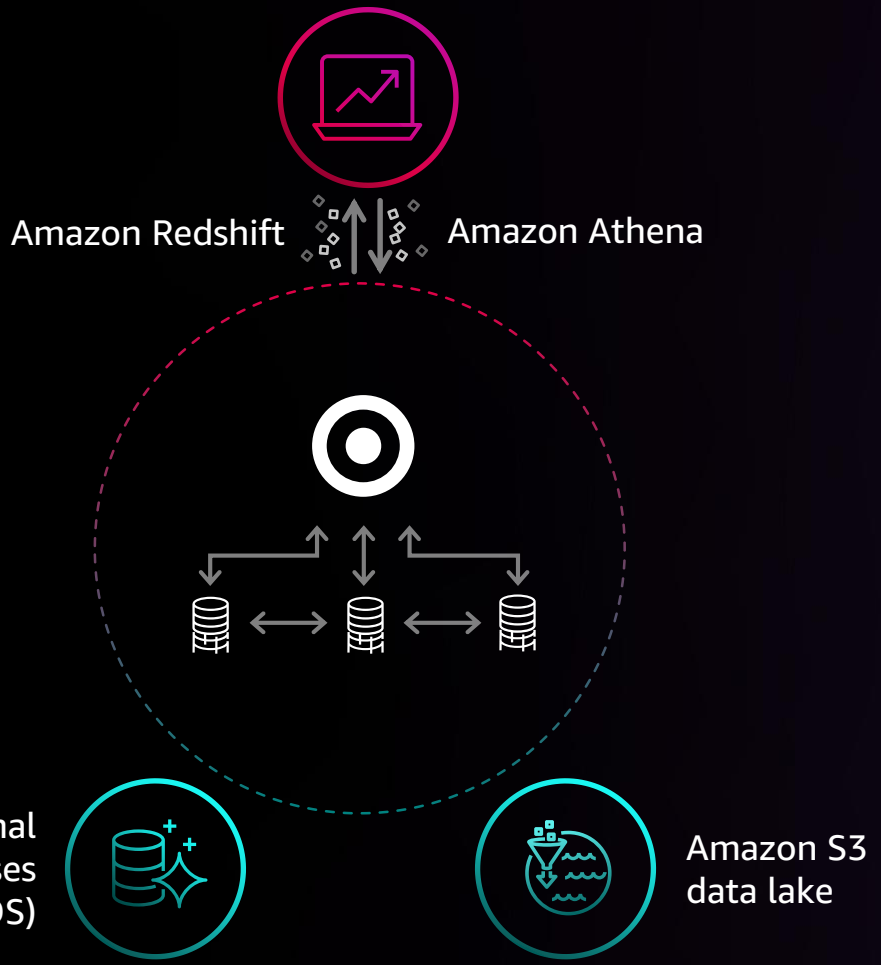
Data warehouse to/from data lake



Federated query

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Federated query in Amazon Redshift and Athena



Integrate operational database with data warehouse and Amazon S3 data lake

Analytics on operational data **without data movement and ETL delays**

Flexible and easy way to ingest data, avoiding complex ETL pipelines

*Other sources available in Amazon Athena: Amazon ElastiCache for Redis, Amazon DocumentDB, Amazon DynamoDB, HBase in Amazon EMR

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



ML Integration

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS brings ML closer to data



Databases

+



Data warehouses
+ data lakes

+



Business
intelligence tools

AMAZON
AURORA ML



AMAZON
NEPTUNE ML



AMAZON
REDSHIFT ML



AMAZON
ATHENA ML



AMAZON
QUICKSIGHT ML



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift ML

CREATE, TRAIN, AND DEPLOY ML MODELS USING FAMILIAR SQL COMMANDS



No prior ML experience required



Use a simple SQL query to specify the data



Fast predictions

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Magellan Rx MANAGEMENT

Using Amazon Redshift ML, Magellan developed **greater efficiency and enhanced ability** to generate MRx therapeutic conditions when new drugs come to market

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Effectively matched jobs to **over 10 million active members** on a daily basis

Runs ML-based predictions at scale, performing **billions of predictions** in minutes

Improved **member engagement 5–10%**, resulting in increased revenue

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Athena ML

EASILY DEPLOY ML MODELS ON ANY DATA WITH SIMPLE SQL



Run ML models on any data anywhere



Invoke ML models for inference directly from a SQL query



Results in seconds

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon QuickSight ML

SELF-SERVICE BI FOR EVERYONE



Machine learning powered insights



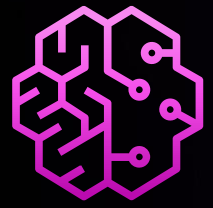
Natural language querying capability

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ML-powered insights and data visualizations



Auto narrative



ML predictions



QuickSight Q



Anomaly detection

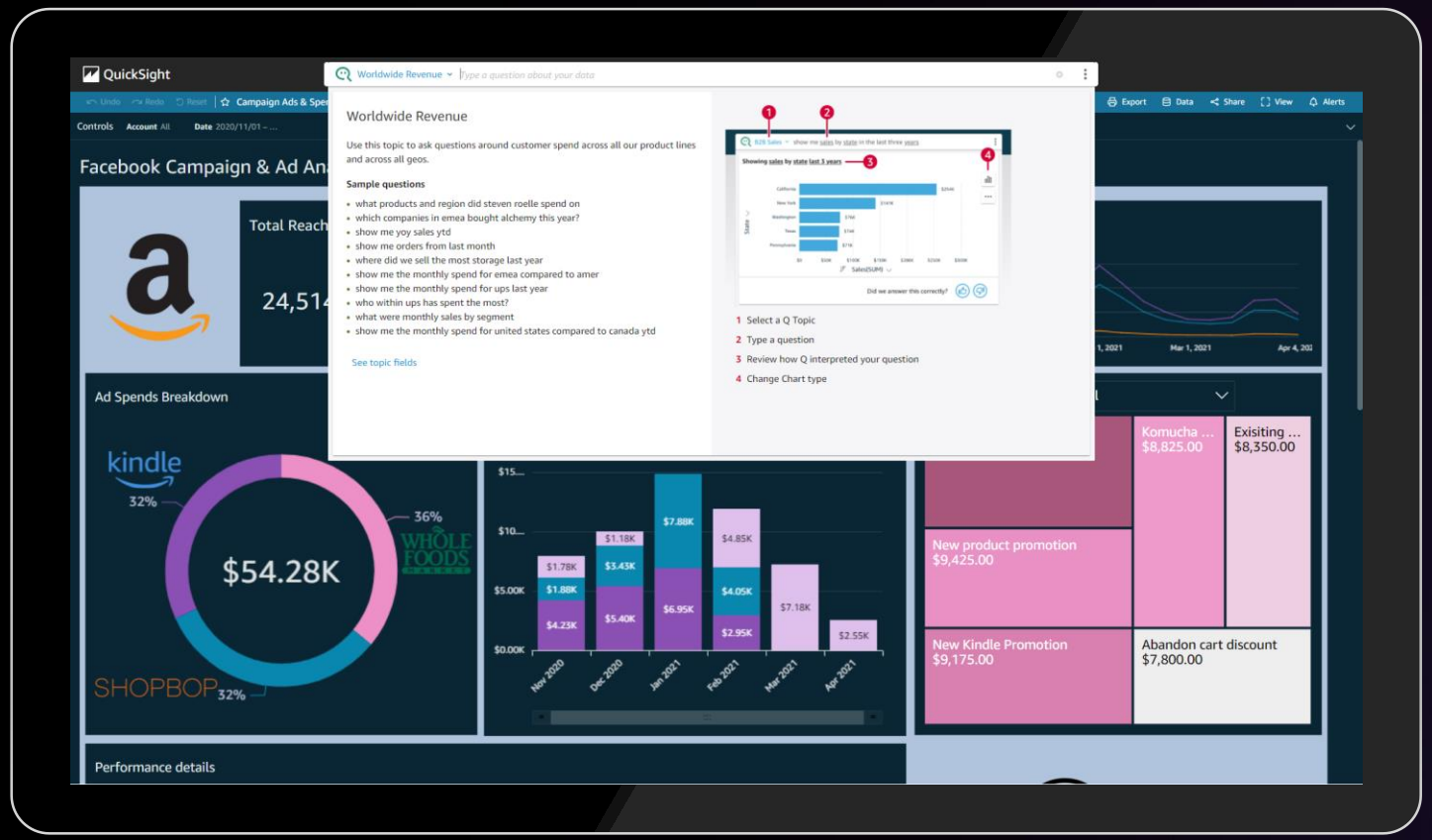


Forecasting

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

QuickSight Q

SELF-SERVICE BI FOR EVERYONE



Easy to use without any BI expertise

Ask questions of your data and receive answers with **relevant visualizations**

Get insights quickly without waiting for BI teams to update the dashboards for every new question

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

QuickSight Customers



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Redshift Serverless + Amazon QuickSight

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

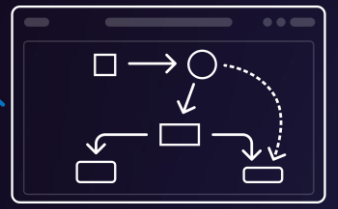




Business KPIs

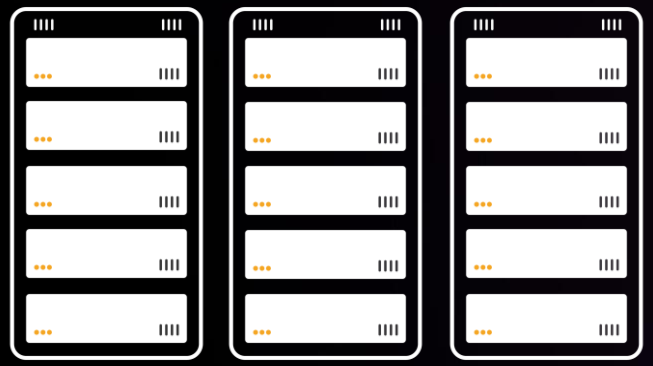


Monitoring Real-
Time Performance



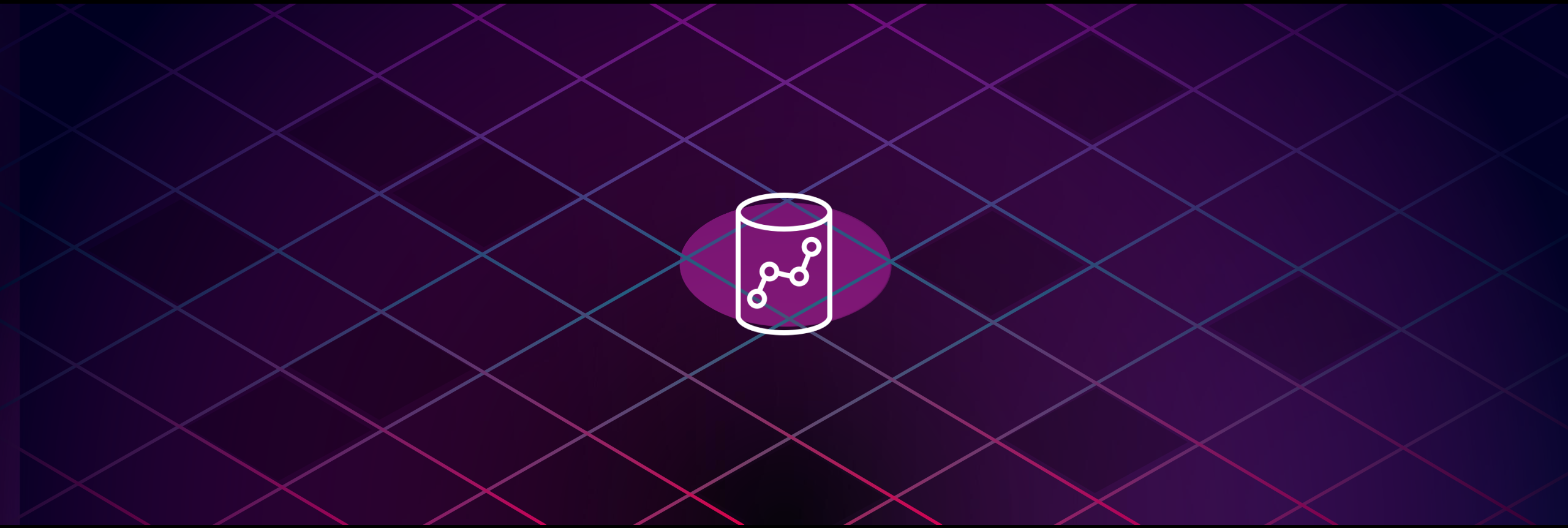
Game Monetization

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

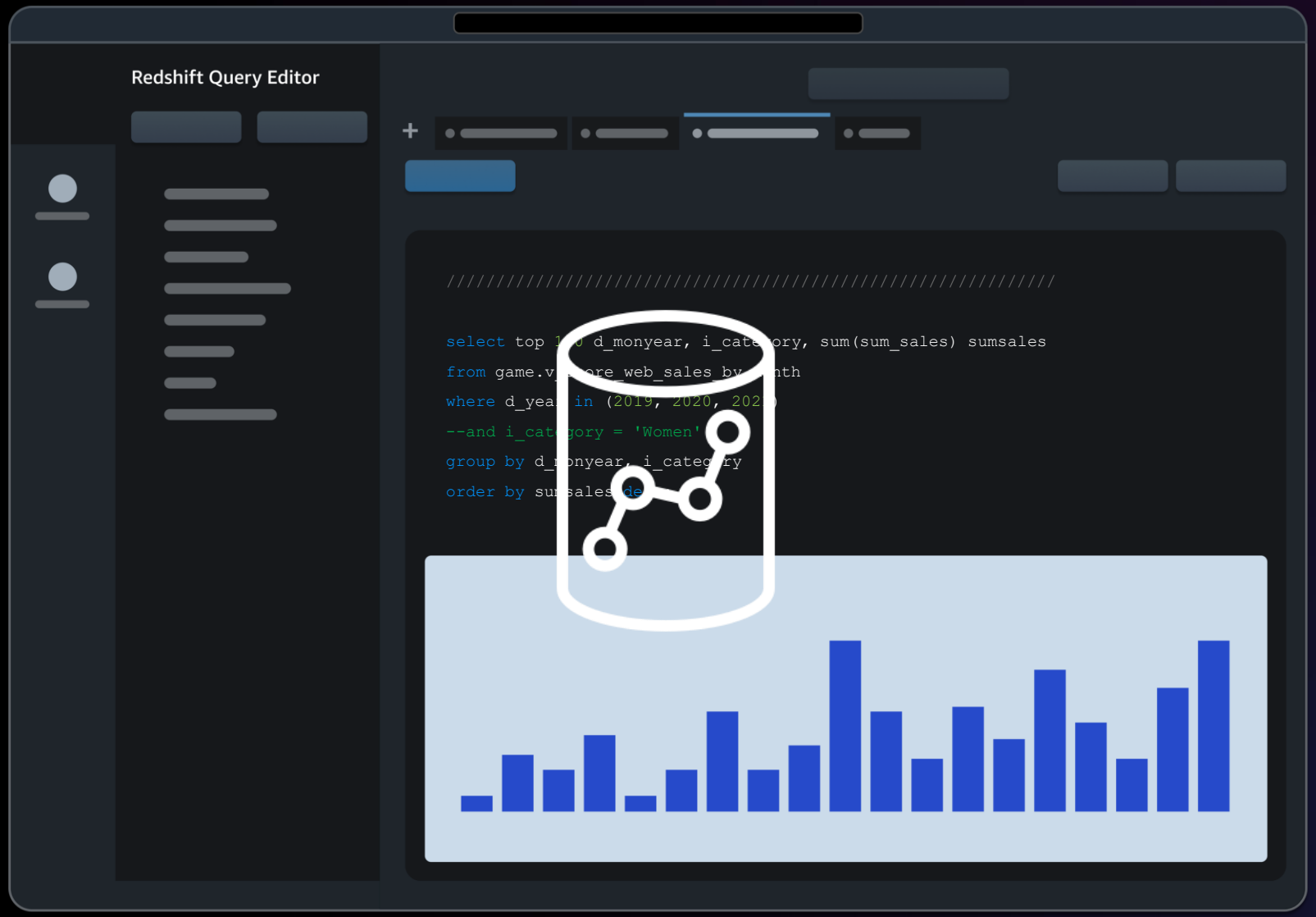




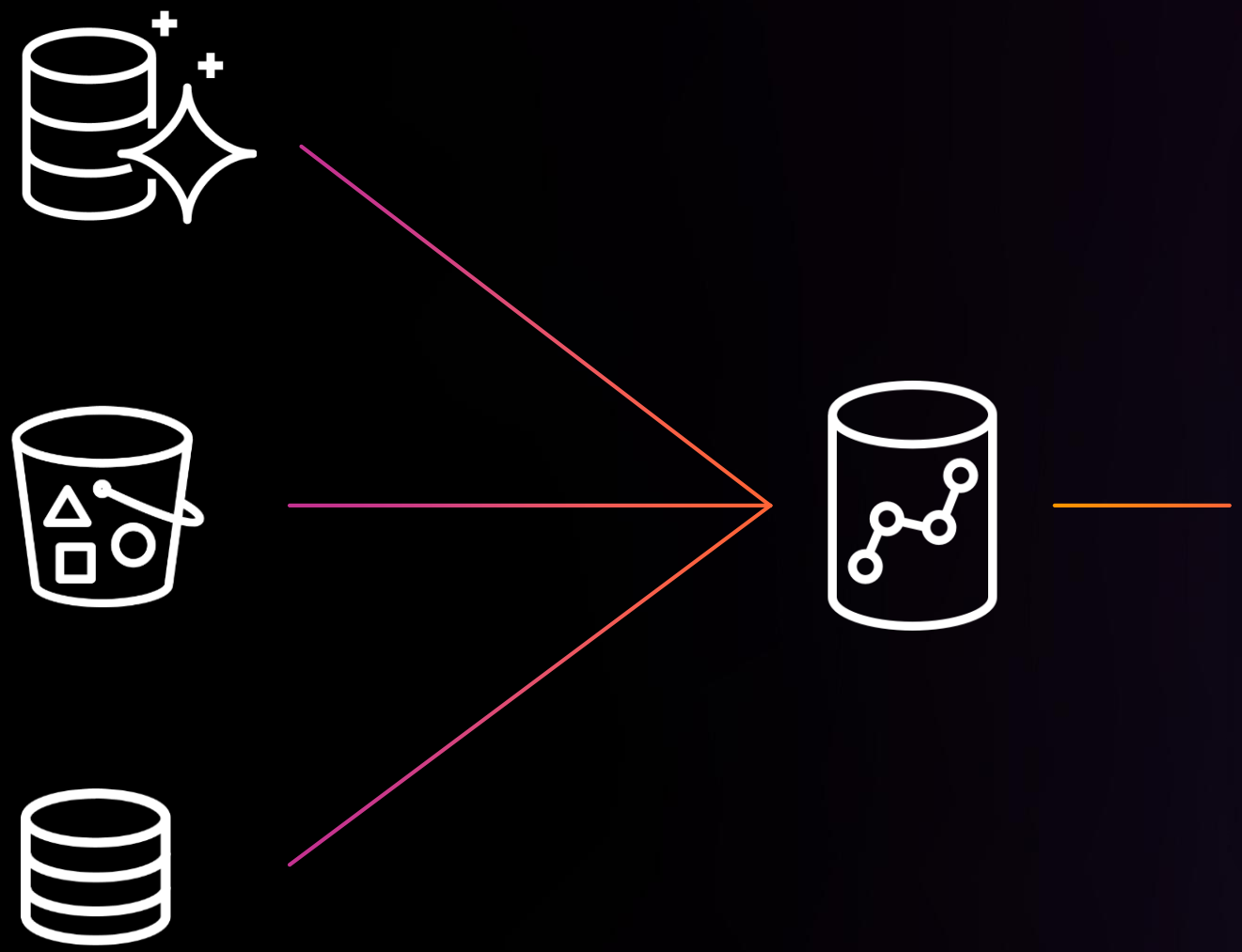
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



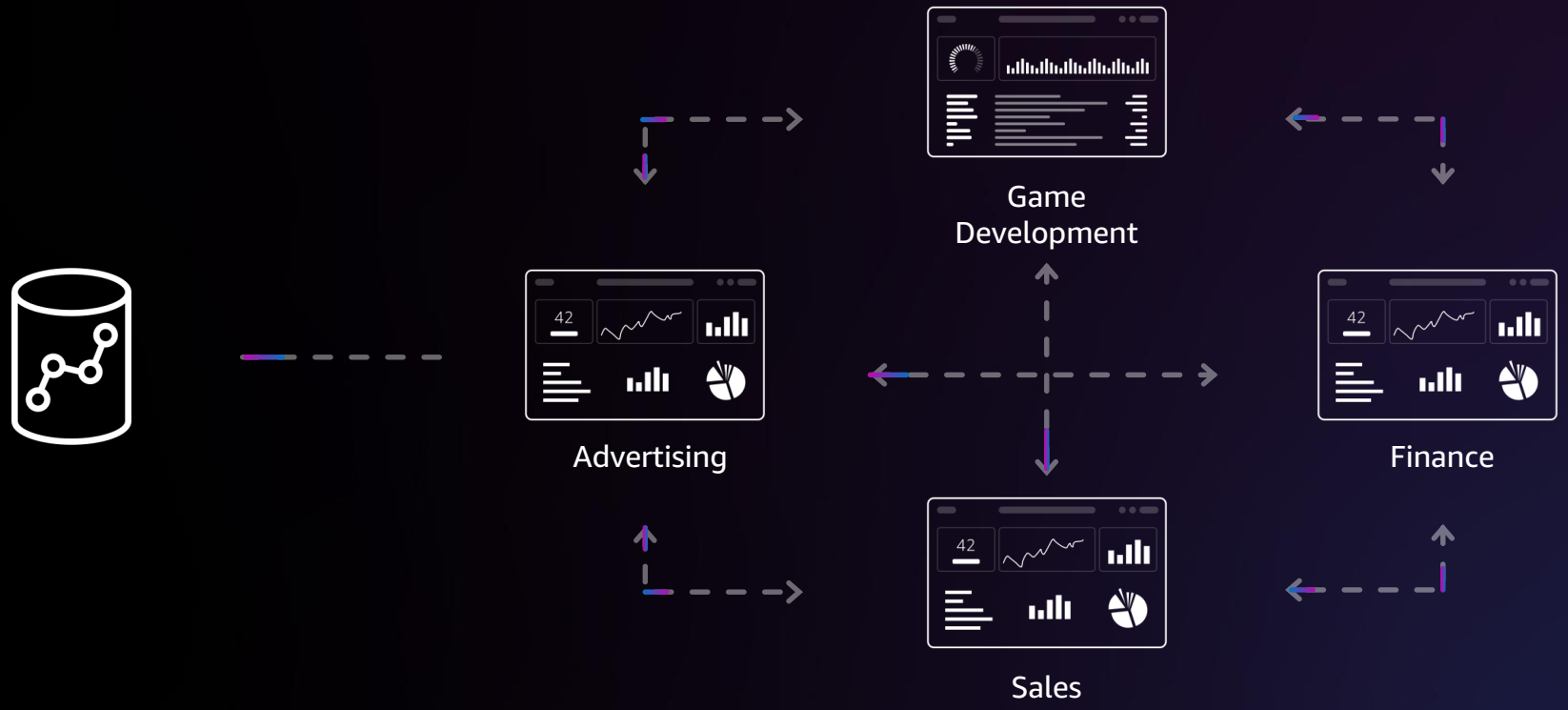
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



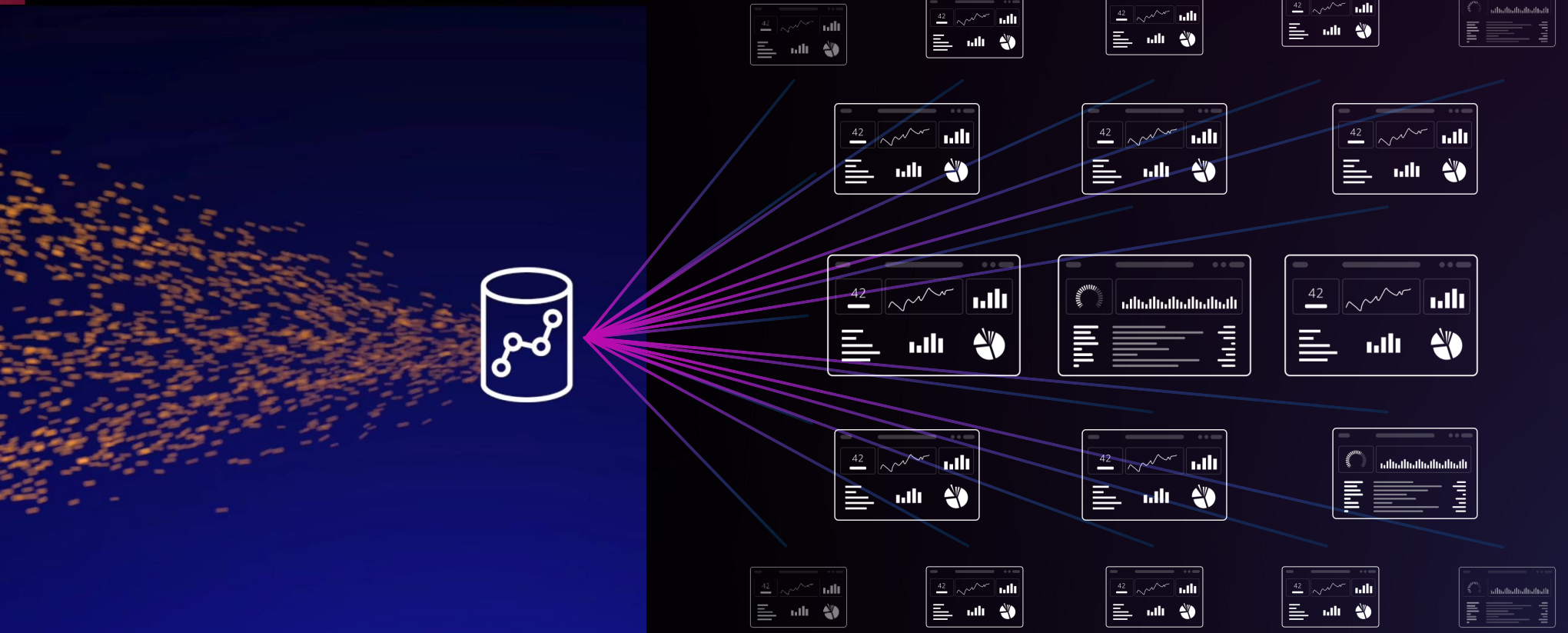
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Queries



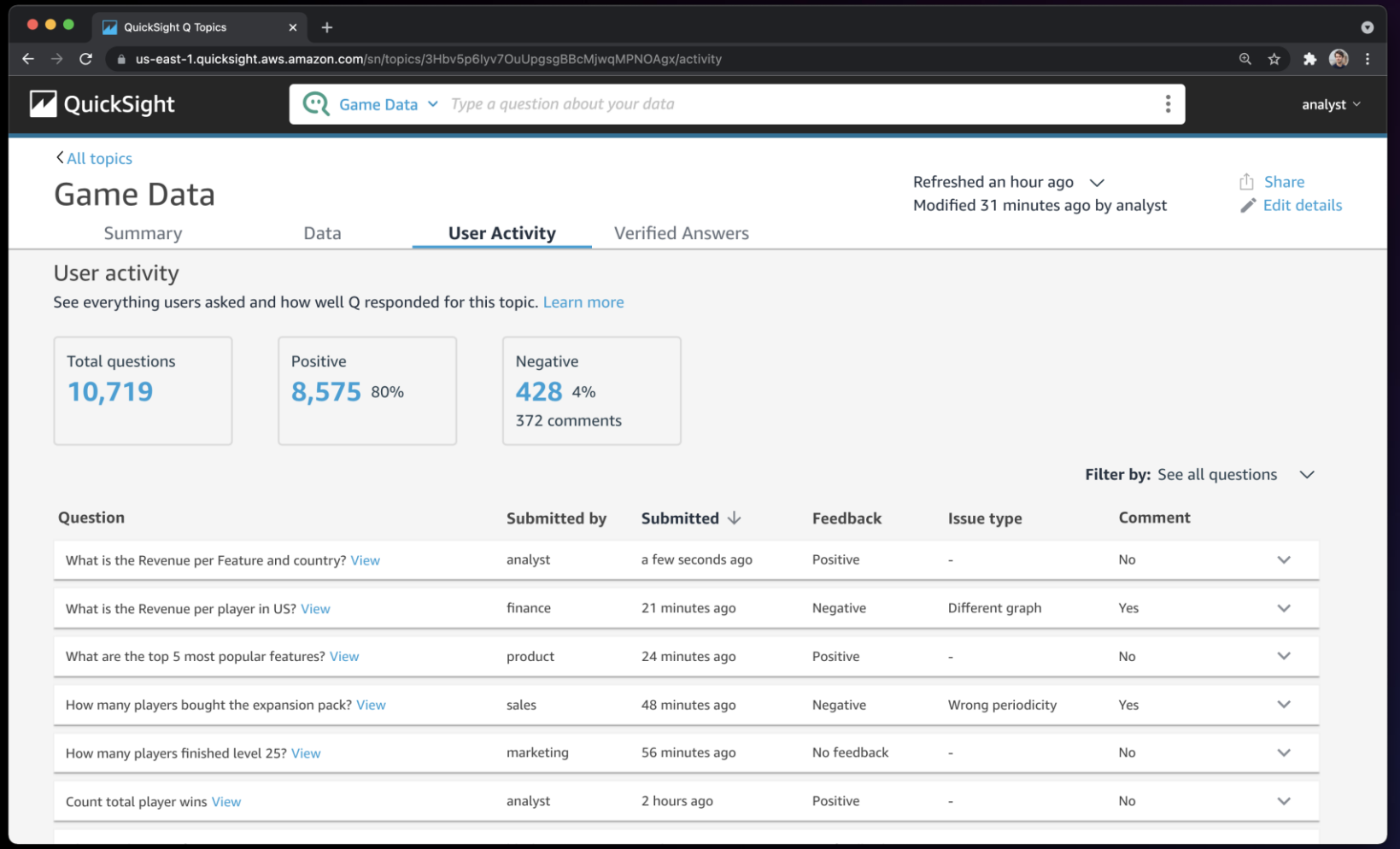
Capacity



Average Latency



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

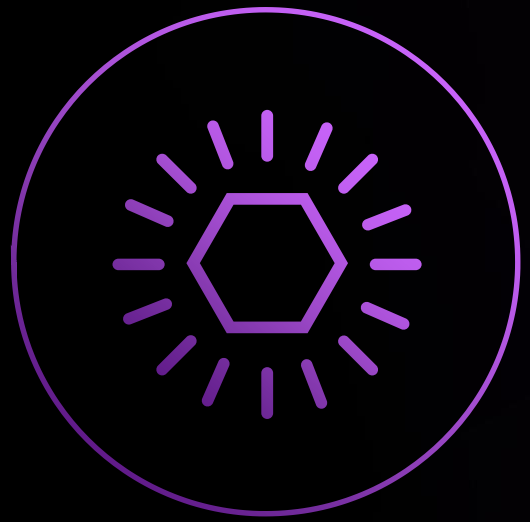


© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

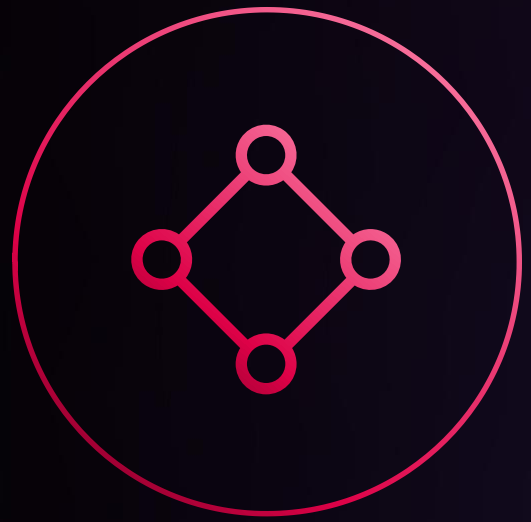


© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Modern data strategy on AWS



MODERNIZE



UNIFY



INNOVATE

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.