AWS re:Invent

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

DAT213-L

Modernize your data infrastructure at warp speed with AWS

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Amazon Web Services

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eHealth

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WarnerMedia

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Agenda

Why modernize?

Migrate your data to AWS with ease

eHealth's cloud database journey

Choose your own data infrastructure

Waking up to purpose-built databases at HBO Max

Conclusion – continuing your data journey

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Why modernize?

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"Through 2024, organizations will accelerate their investments in **data and analytics services by 40%** to become more data-driven and digital."

Gartner

Forecast Analysis: Data and Analytics Services, Worldwide,
Twiggy Lo, Dean Blackmore, (Dec 2020)

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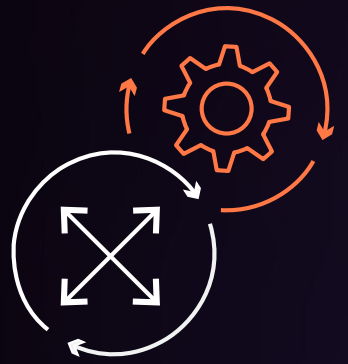
Customers are looking to



Modernize infrastructure



Reduce CAPEX



Automate heavy lifting



Embrace purpose-built tools

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A modern data strategy



Modernize

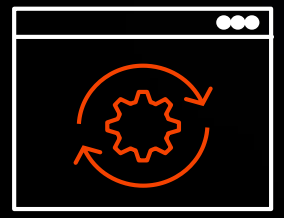


Unify



Innovate

Step one: Modernize your data infrastructure



Moving to managed data services



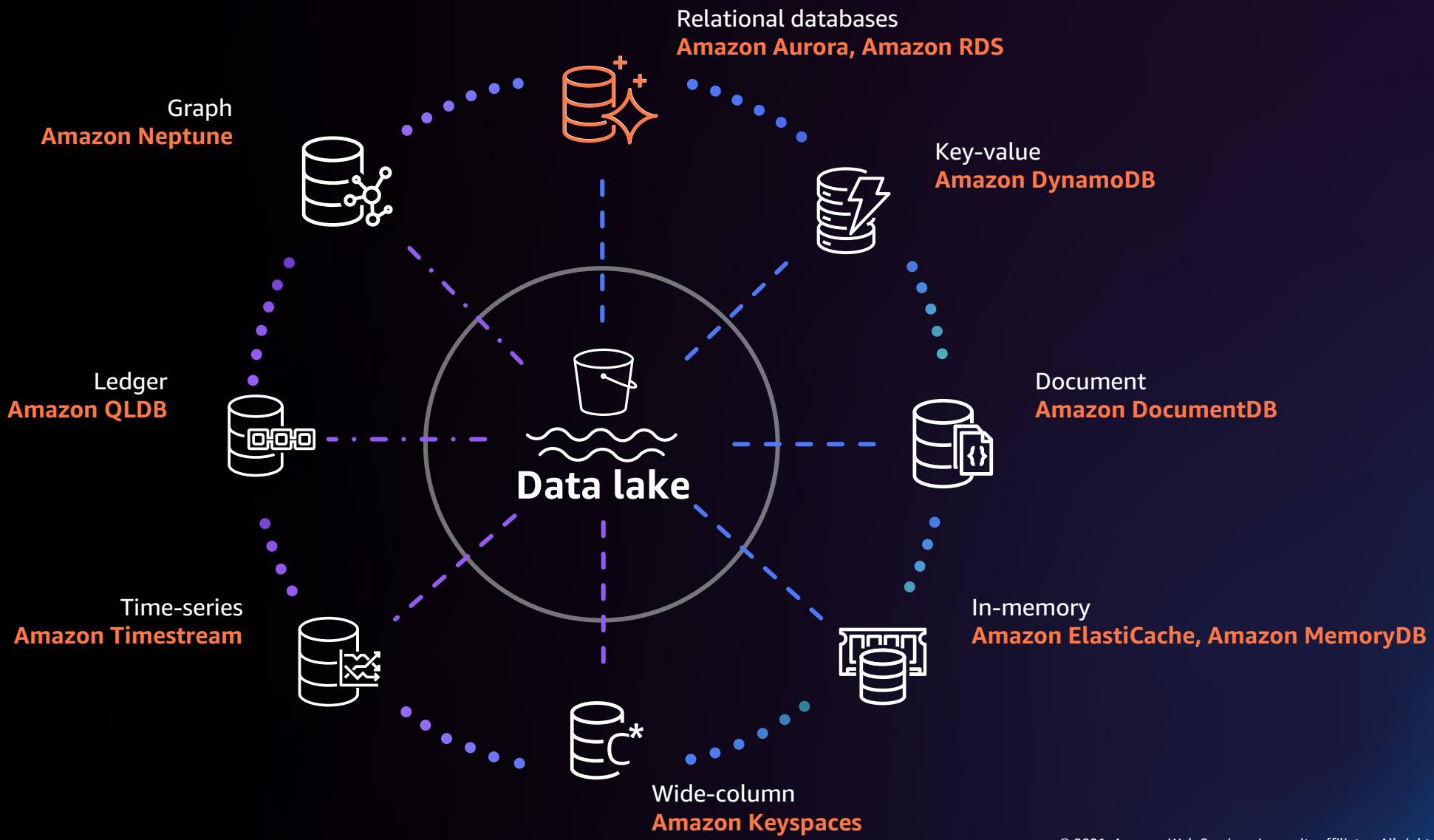
Breaking free from legacy databases



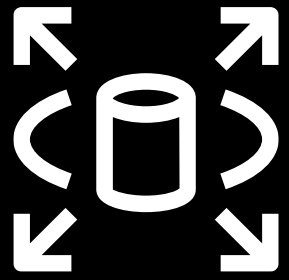
Modernizing with purpose-built tools

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The right tool for the job



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Amazon RDS

Set up, operate, and scale relational databases

Hundreds of thousands of Amazon RDS customers

HEARST

GE

instacart

SAMSUNG

Unilever

Trimble

KAPLAN

DOORDASH

aws

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Introducing Amazon RDS Custom

FOR APPLICATIONS REQUIRING DB/OS CUSTOMIZATION



Privileged access

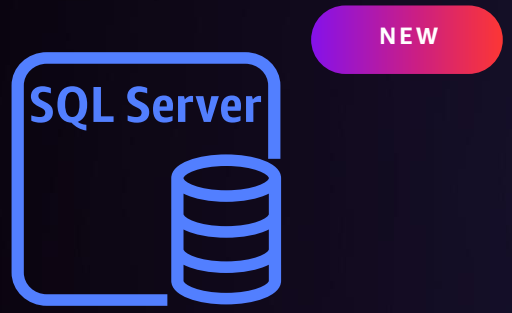


Familiar Amazon RDS automation



Deep customization





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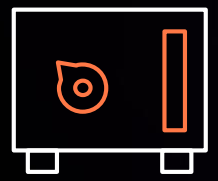
Break free. . .



Old-guard database options continue to bring challenges



Expensive



Proprietary



Lock-in

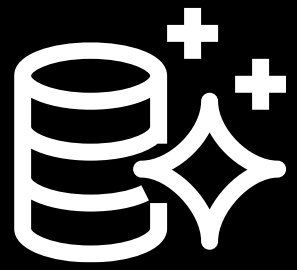


Punitive licensing



Frequent audits

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Amazon Aurora

MySQL and PostgreSQL-compatible relational database built for the cloud

The **fastest growing service** in AWS history

SAMSUNG

AstraZeneca

BW | Best Western Hotels & Resorts

DOORDASH

The Pokémon Company INTERNATIONAL

petco

aws

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Babelfish for Aurora PostgreSQL

RUN SQL SERVER APPLICATIONS ON POSTGRESQL WITH LITTLE TO NO CODE CHANGE



Reduce migration time and risk

Migrate at your own pace

Source code available on GitHub

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Amazon DevOps Guru for Amazon RDS

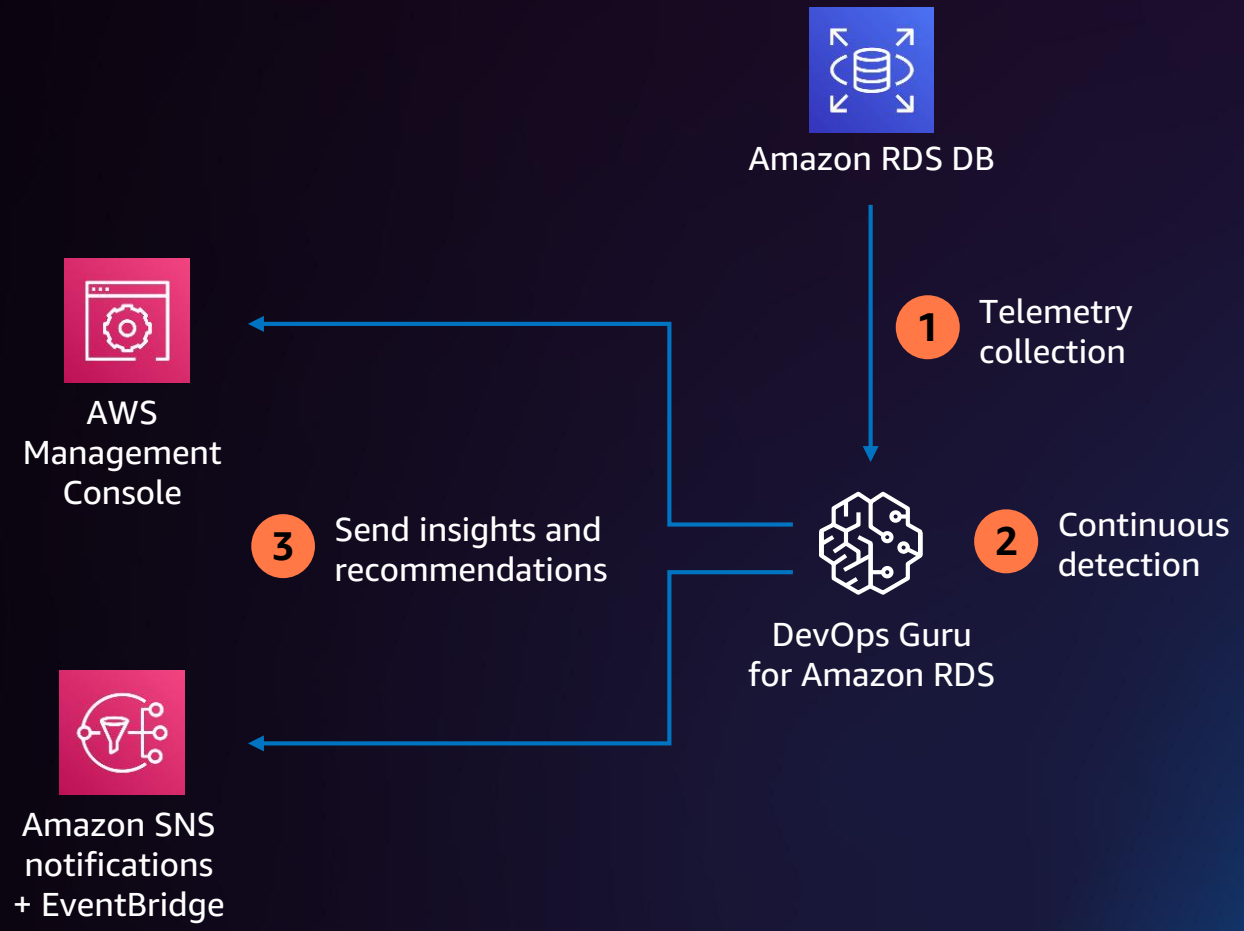
NEW

ML-POWERED DATABASE ADVISOR AVAILABLE FIRST FOR AMAZON AURORA

Automatically detects issues

Delivers intelligent recommendations

Leverages advanced ML models



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Migrate your data to AWS with ease

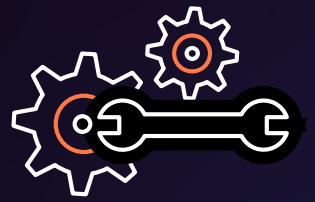
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Migration planning can be a pain (we know)



Manual, time-consuming fleet discovery

Complex and error-prone process





Expensive to bring in consultants

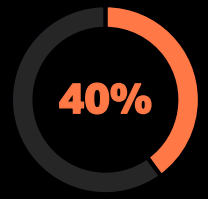
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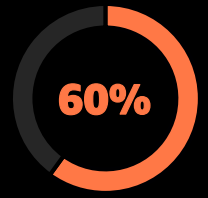
Migrating Amazon’s consumer business

Project Rolling Stone:

7,500 databases migrated



Reduction in latency



Reduction in costs



Reduction in overhead



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500,000+ databases migrated using AWS DMS































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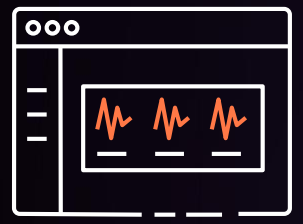
AWS DMS Fleet Advisor (preview)

NEW

ACCELERATE MIGRATION WITH AUTOMATED RECOMMENDATIONS



Automatically gathers fleet information



Generates list of migration targets



Results in hours instead of weeks

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eHealth's cloud database journey

Sundar Shankar
Head of Cloud & SRE
eHealth, Inc.

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eHealth introduction

FAMILY AND SHORT TERM



SMALL BUSINESS



5M+ CUSTOMERS SERVED

180 TOP INSURERS

$506M IN REVENUE

101% YOY GROWTH

eHealth

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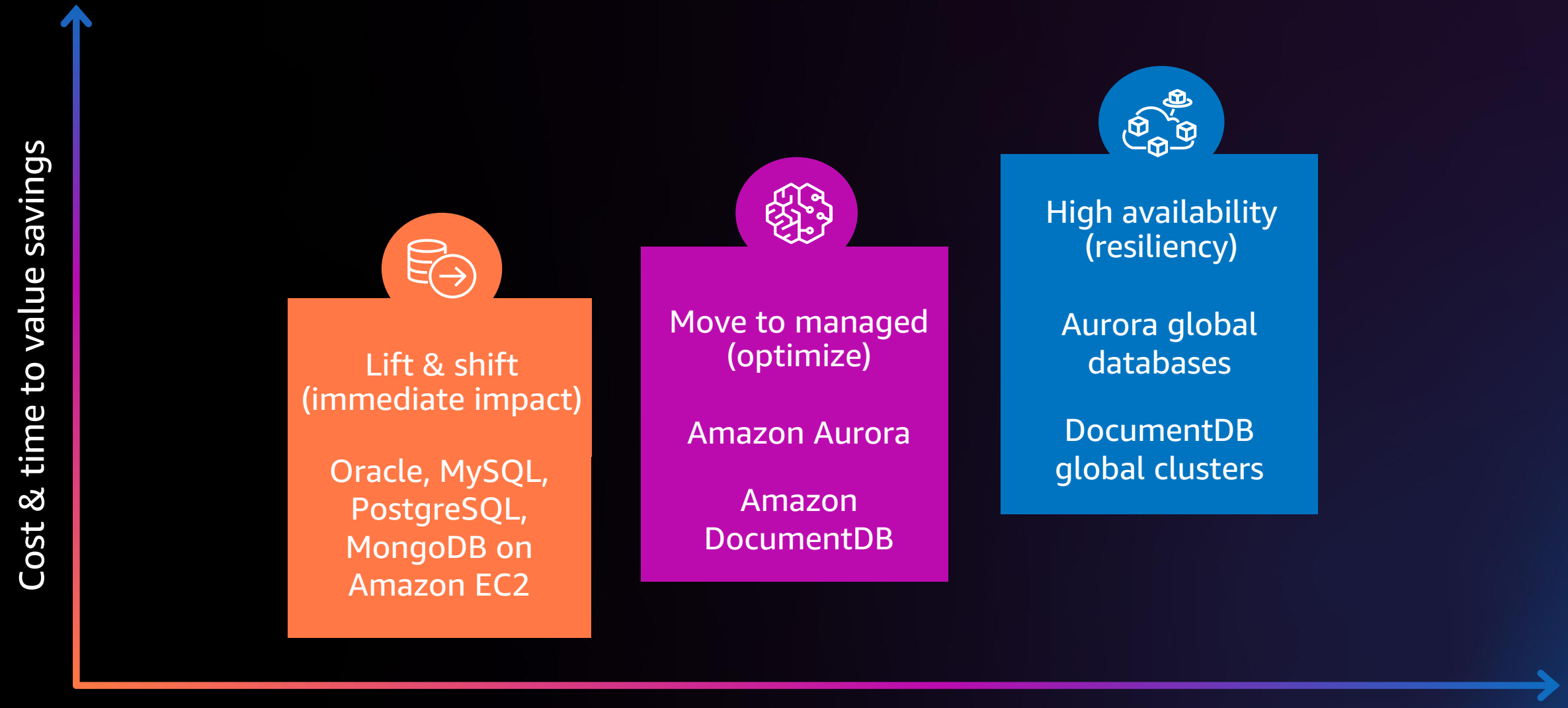
eHealth challenges

- 30–35% of time spent on maintenance and capacity planning versus business value
- Each database type requires different DBA skill sets
- Lack of agility and operational complexity limiting innovation
- Ever-growing facility, infrastructure, licensing costs



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eHealth 11-month migration journey

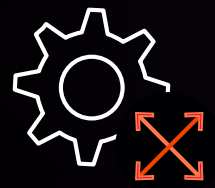


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eHealth database selection strategy



Move to microservices



Move to managed



Preserve existing investment



Better together

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eHealth post-migration impact

- Onboarding new database requests are completed in minutes versus hours or days, reducing time to value
- The ability to adjust capacity fast and with little maintenance or downtime
- Improved application resiliency and continuity by replicating databases across AZs
- Reduce administrative tasks by 30%, freeing teams to focus on business-critical initiatives



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eHealth next steps

1



Consolidate database technologies

2



Continue application modernization roadmap

3



Evaluate deployments for HA and cost optimization

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Thank you!

Sundar Shankar

Sundar.Shankar@ehealth.com



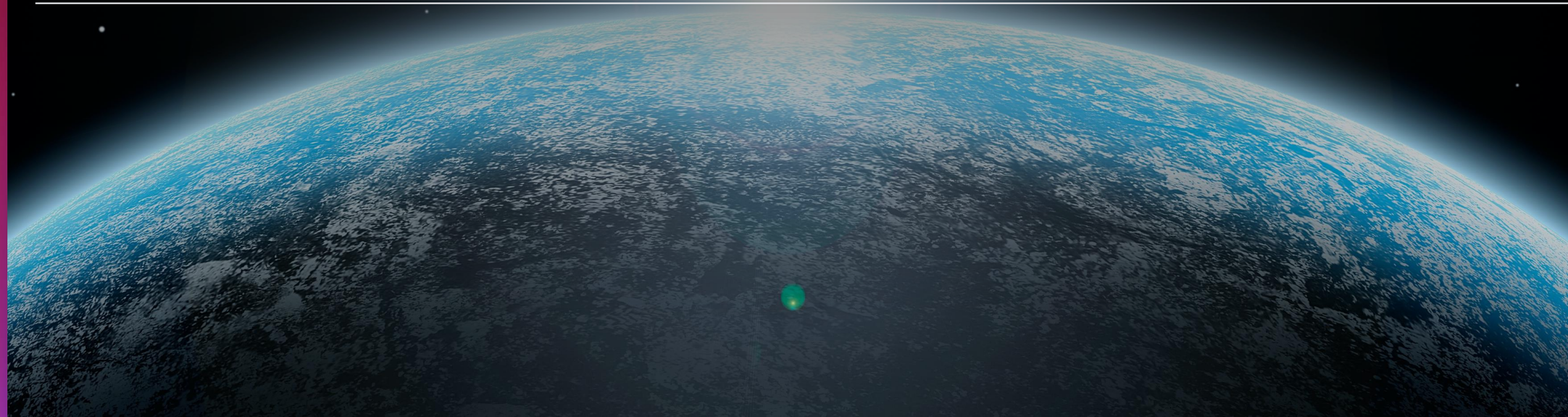
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Choose your own data infrastructure

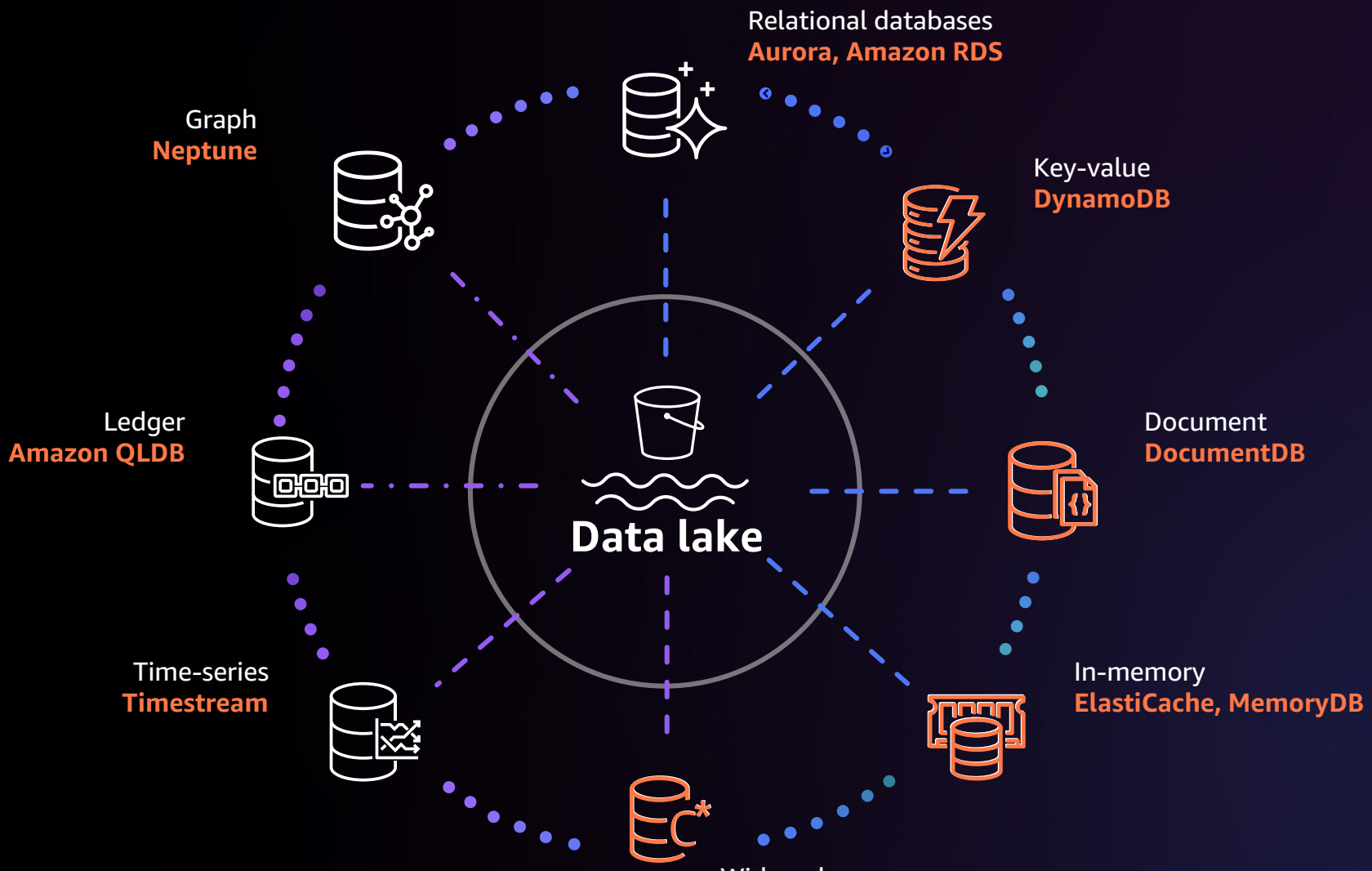
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Customers are running at massive scale

Users	1M+
Data volume	TB-PB-EB
Locality	Global
Performance	Microsecond latency
Request rate	Millions per second
Scale	Virtually unlimited



AWS builds for performance at scale



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Amazon DynamoDB

Fast and flexible NoSQL database for any scale



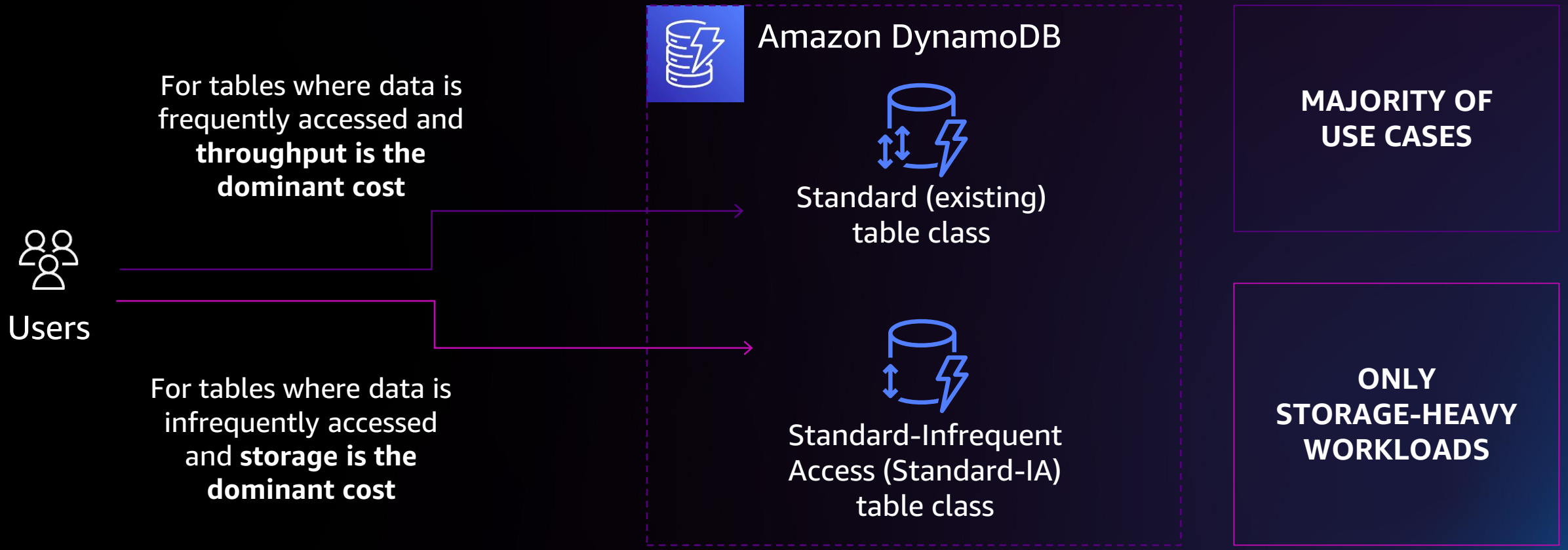
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DynamoDB Standard-Infrequent access table class

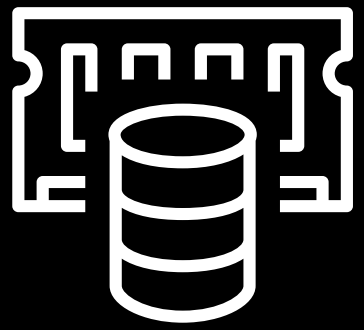
NEW

REDUCE COSTS BY UP TO 60% FOR INFREQUENTLY ACCESSED DATA



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Amazon ElastiCache

Unlock microsecond latency and scale with in-memory caching

hulu PELOTON tinder duolingo

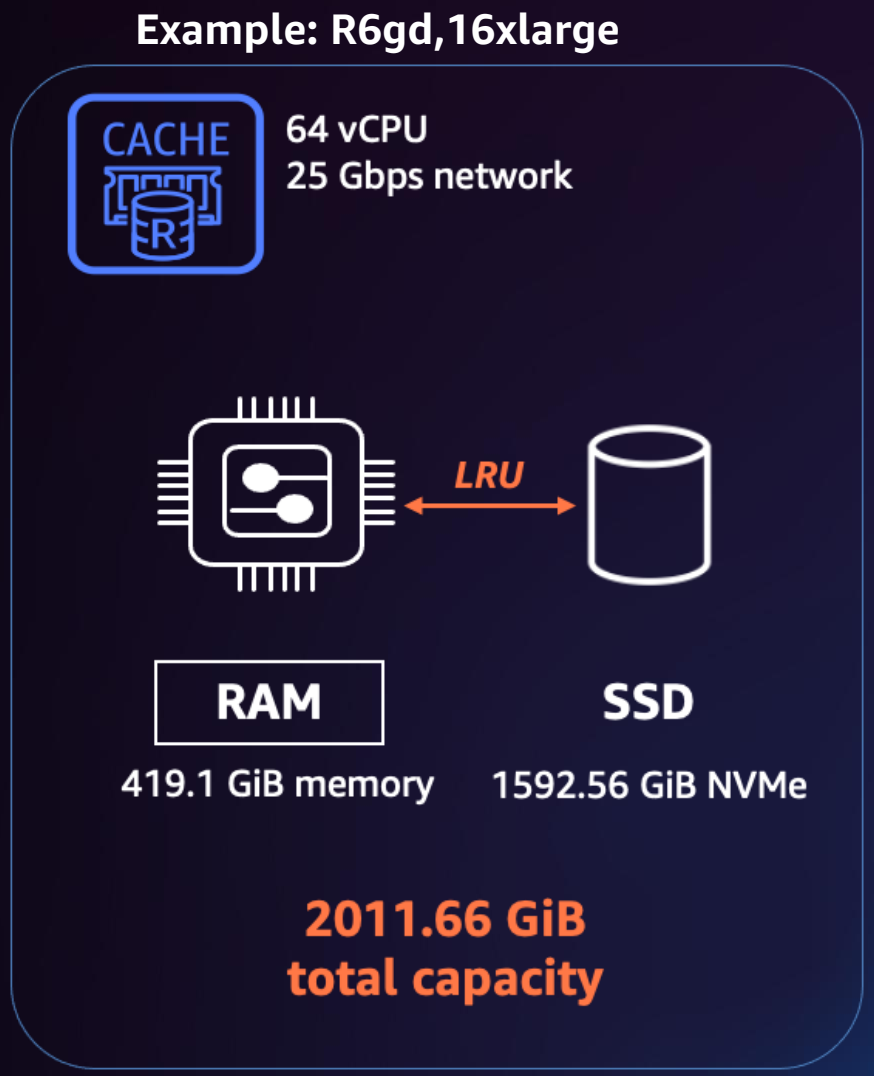
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Introducing R6gd nodes with data tiering

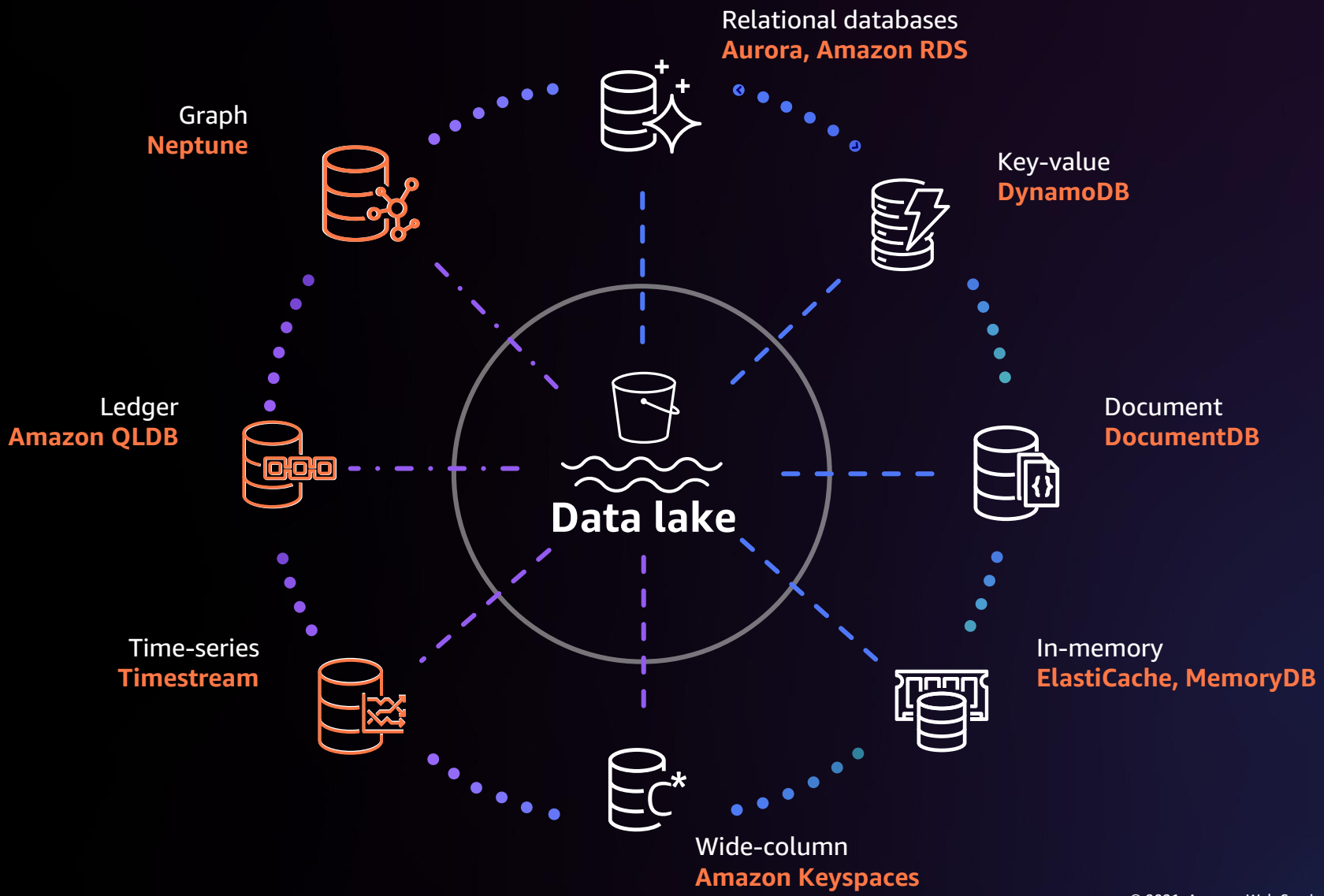
Ideal for workloads that access up to 20% of their dataset regularly

More capacity per cluster – clusters scale up to 1 PiB in size



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Databases for every use case



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Amazon Timestream

Fast, scalable, serverless time-series database

AUTODESK PubNub Trimble rackspace technology

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The business value of time series



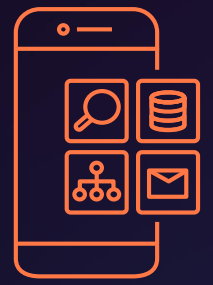
Clickstream analytics



Monitoring and maintenance



Transaction analytics



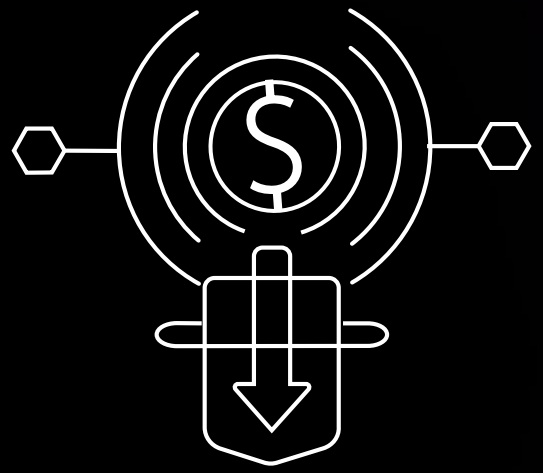
DevOps analysis

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Amazon Timestream scheduled queries

NEW

ORDERS OF MAGNITUDE FASTER TIME-SERIES ANALYTICS QUERIES



Improve query performance and reduce costs

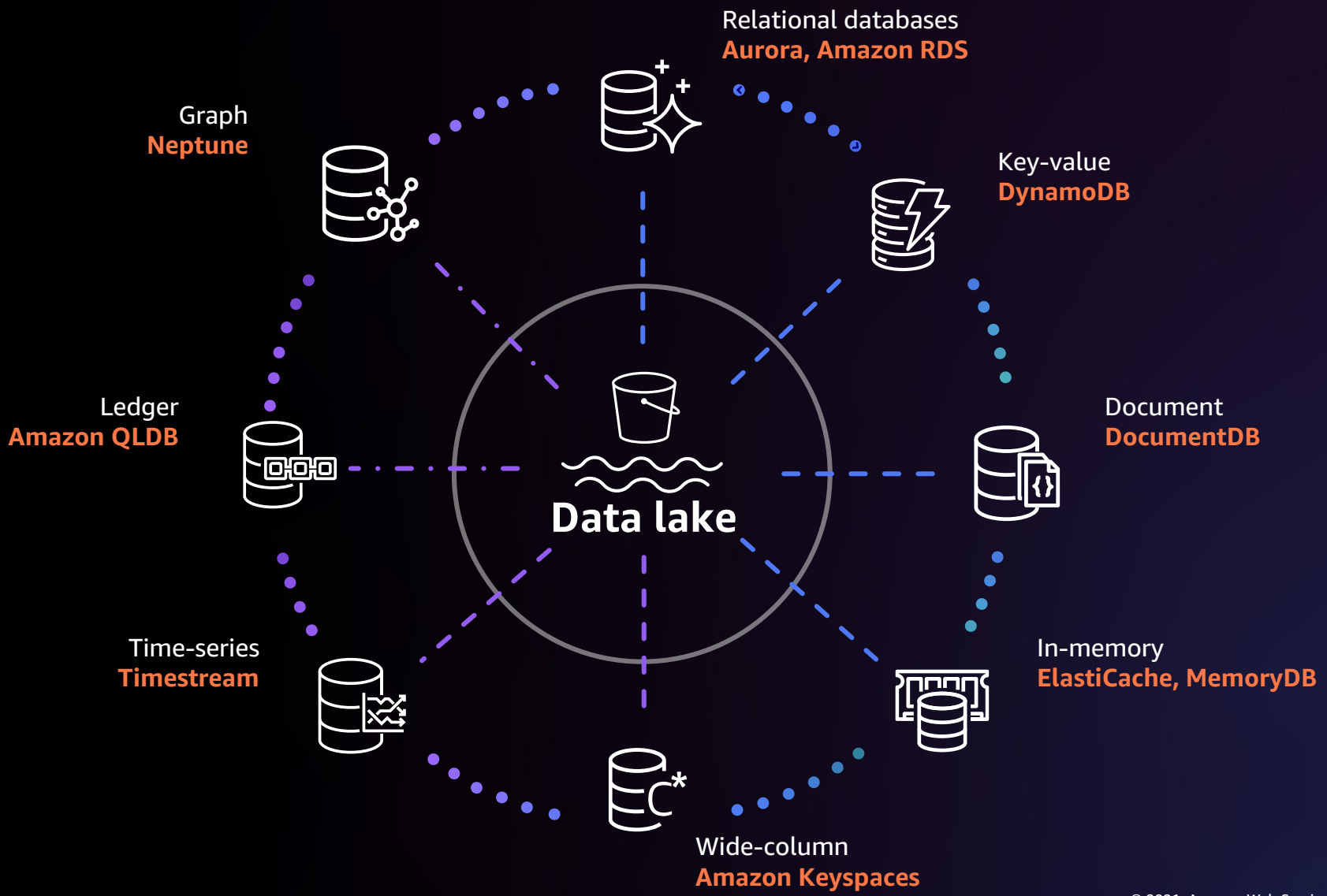
Calculate and store real-time analytics computations

Make more data-driven business decisions

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Most complete set of purpose-built databases



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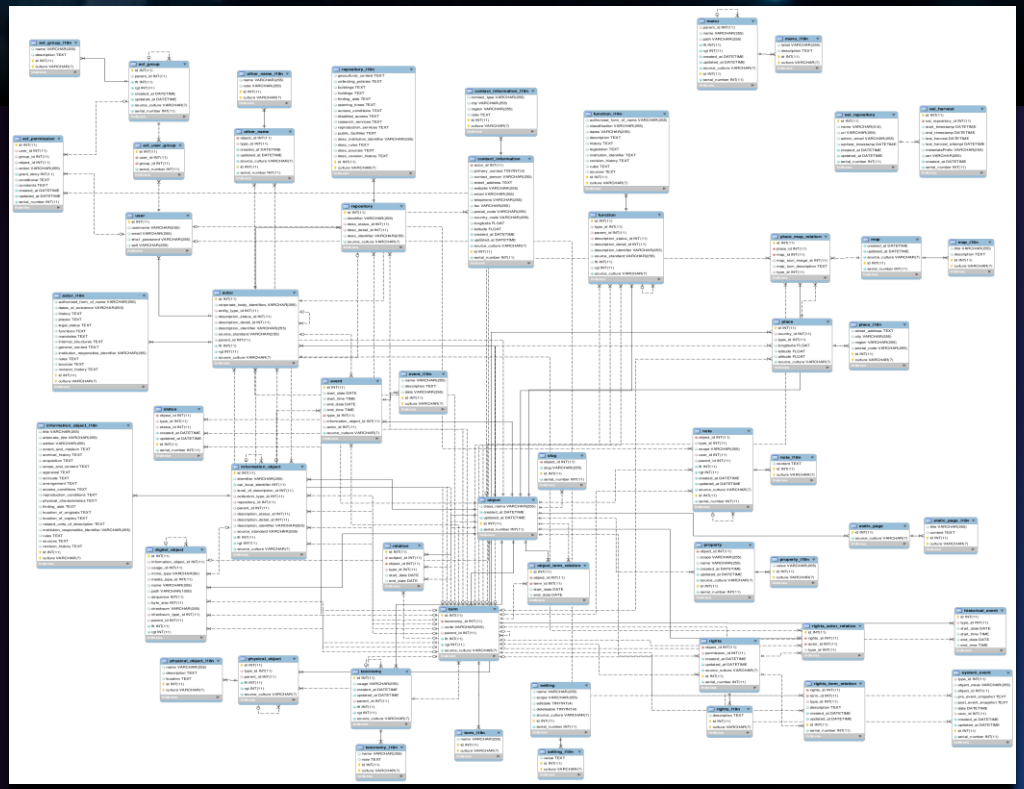
Waking up to purpose-built databases at HBO Max

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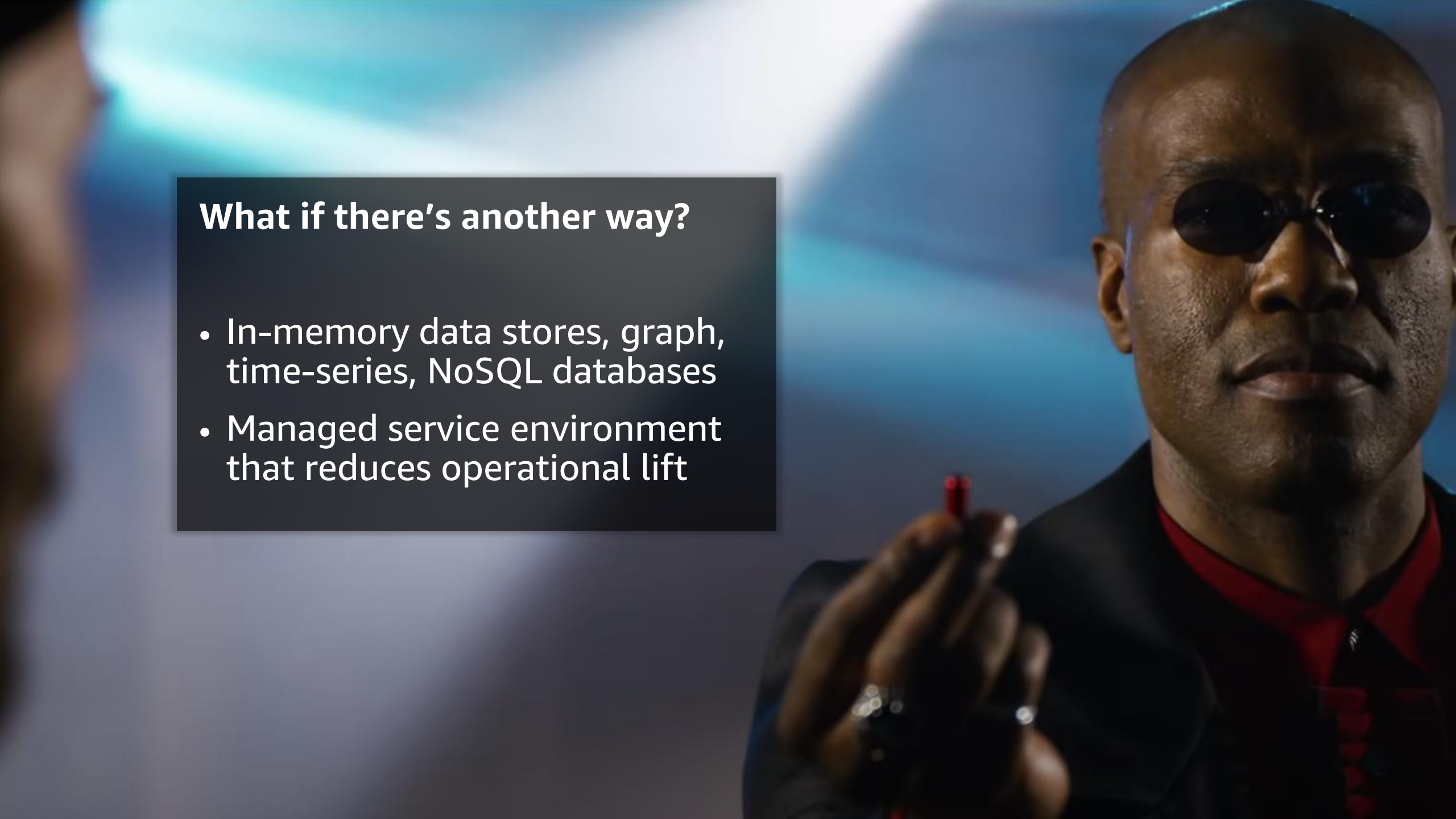
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- Monolithic traditional databases
- Manual processes constrain platform choice
- Tightly coupled architectures can be difficult to change
- Database optimization is difficult to staff for

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What if there’s another way?
• In-memory data stores, graph, time-series, NoSQL databases
• Managed service environment that reduces operational lift

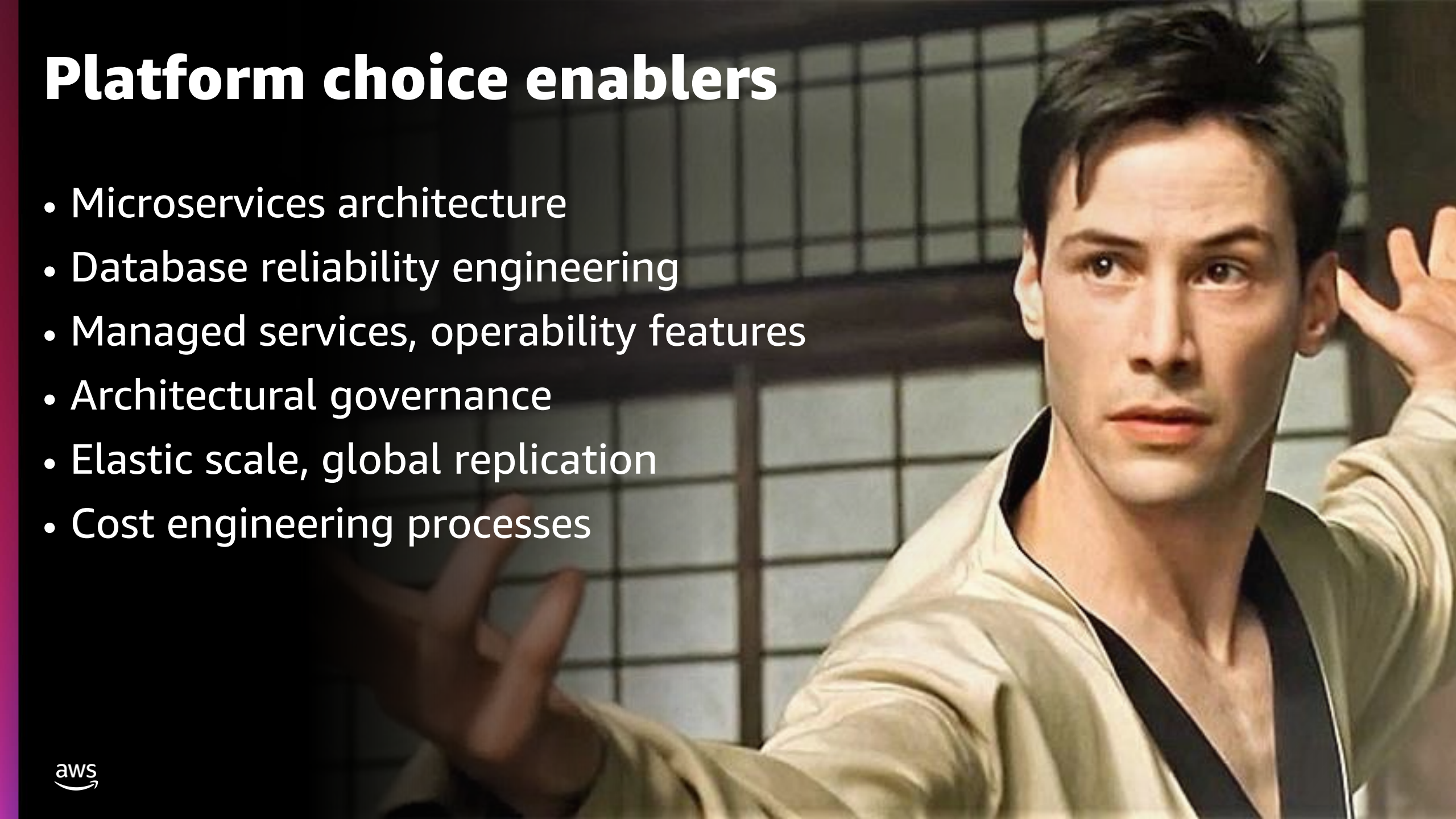
HBO Max

- Rapid organic growth and international footprint expansion
- Global scale of a leading streaming service
- Uniquely bursty traffic: Prime-time movie and episodic content releases, live sporting events
- Unforgiving, continuous availability requirements

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Platform choice enablers

- Microservices architecture
- Database reliability engineering
- Managed services, operability features
- Architectural governance
- Elastic scale, global replication
- Cost engineering processes

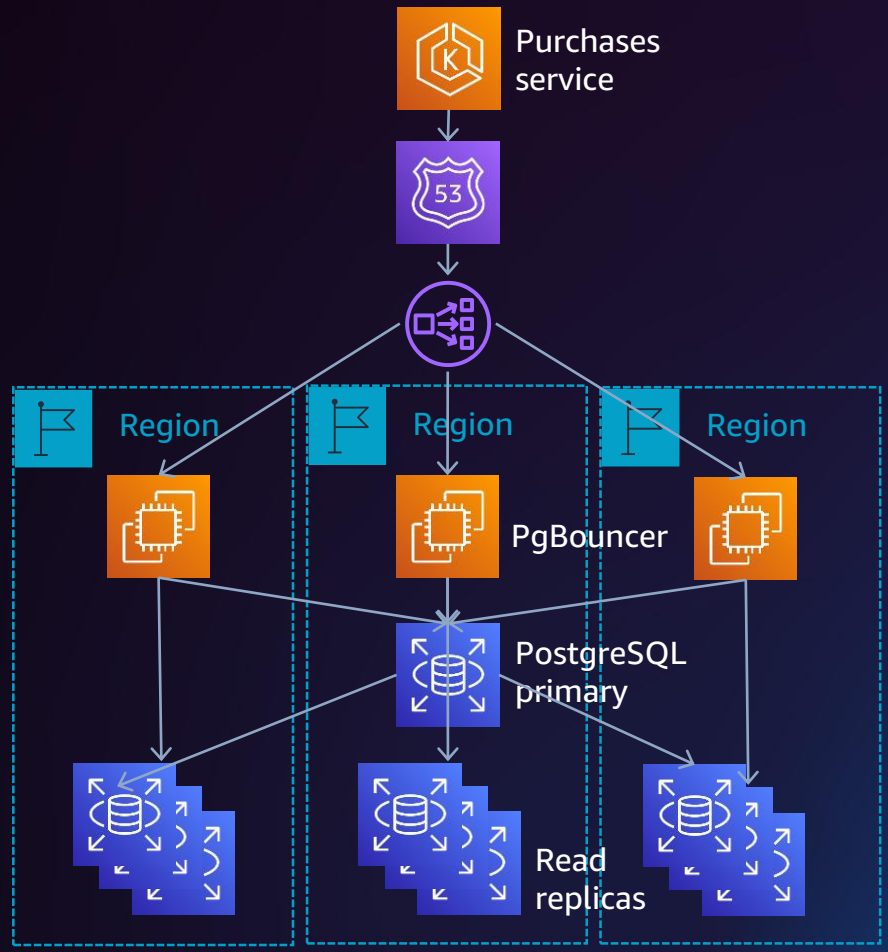


Amazon RDS for PostgreSQL use case: Purchases

DIRECT-TO-CONSUMER PURCHASING

Drivers

- Source of record for customer purchases
- Relational model with a few tables
  - Referential integrity, transactions
  - Application requires performant queries: indexing
- Read replicas in multiple regions, AZs
- PgBouncer connection pooling
- AWS DMS allows zero-downtime upgrades



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Amazon ElastiCache: Devices service

SIGN-IN/SIGN-OUT ACTIVITY TRACKING, STATUS MANAGEMENT, DEACTIVATION

Drivers

- Device status stored in Cassandra
- Events happen both synchronously (HTTP) and asynchronously (Amazon SQS)
- Message sequence and deduplication check
  - Conditional writes add excessive overhead to Cassandra
- Classic use case for an in-memory data store
  - Reduced cost, improved efficiency



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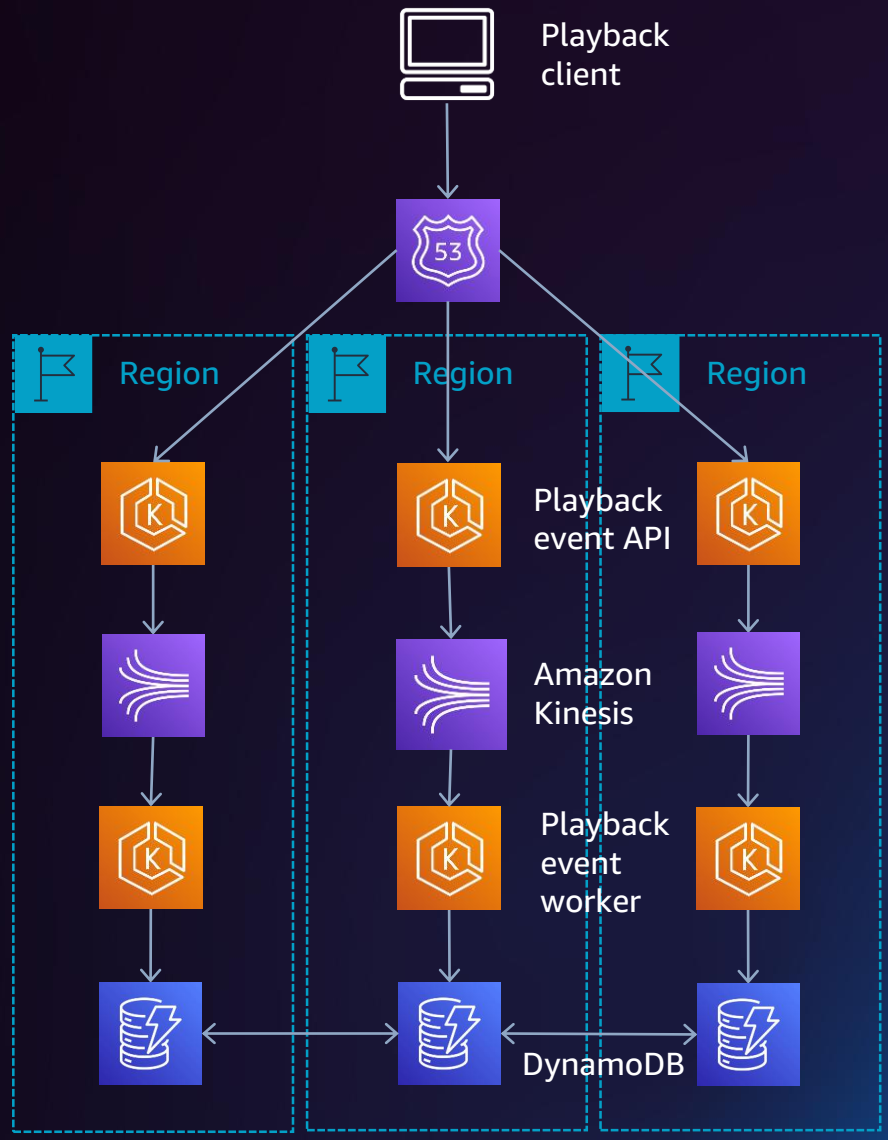


DynamoDB: Pickup service

TRACKING OF LAST-WATCHED EPISODE

Drivers

- Lower criticality to business
- Simple data model, finite access patterns
- Multi-Region data replication requirement
  - Active-active replication simplifies code, architecture
- Fully managed service



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New initiative: Amazon Aurora PostgreSQL-Compatible Edition

SCALING THE PLATFORM FOR A GLOBAL OPERATION

Drivers

- Growing footprint for global databases
  - Higher replica counts
- Growing write volumes, remote replicas
  - Lower replication lag
- Increasing reliability requirement
  - Faster DB node crash recovery, failover/DR
- International test environment needs
  - DB cloning features enable new possibilities

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Give purpose-built databases a try!

Before



After



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Thank you!

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robert.ford@warnermedia.com

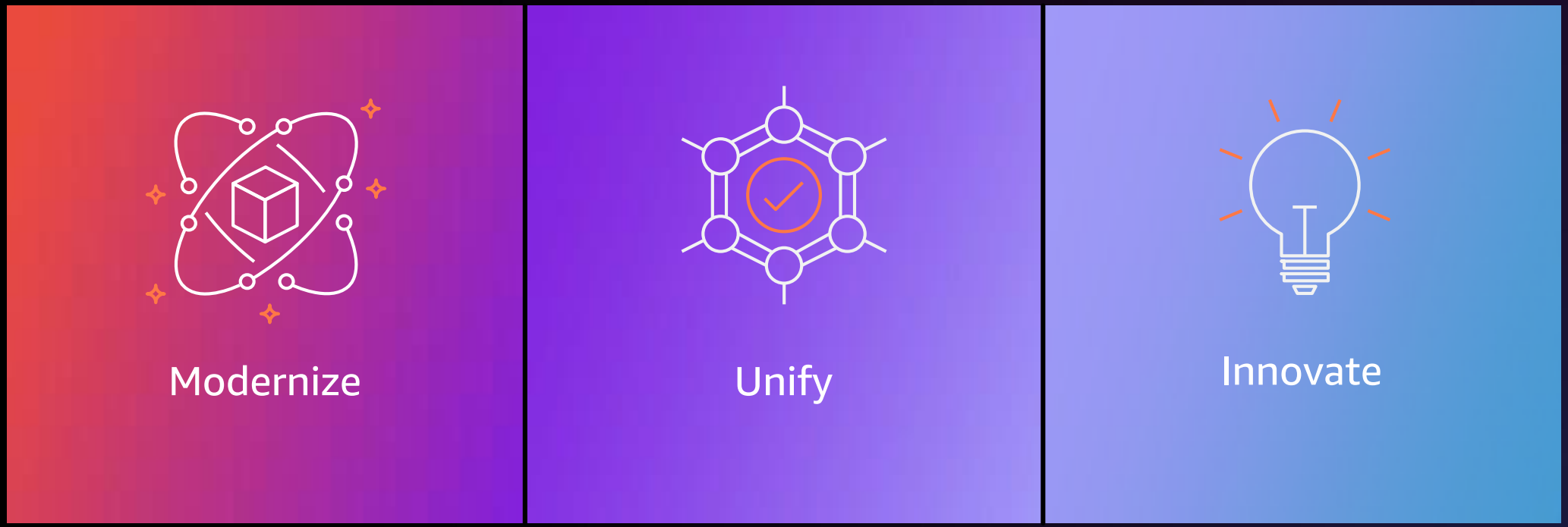


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Continuing your data journey

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Modern data strategy on AWS

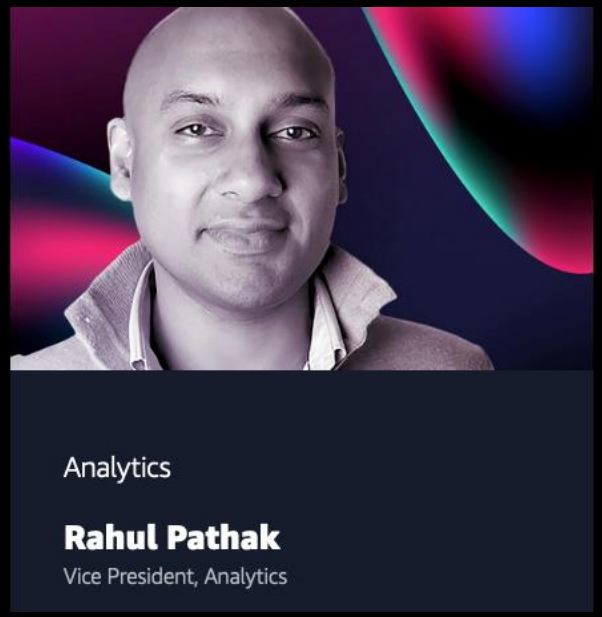


Unify the best of both data lakes and purpose-built data stores

Innovate new experiences and reimagine old processes with AI/ML

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Continue your data journey today



Reinvent your business for the future with AWS Analytics (ANT214-L)

Venetian Theatre

2:30 p.m.



Accelerate innovation with machine learning (AIM212-L)

Venetian Theatre

4:00 p.m.

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Thank you!

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