
AWS
re:Invent

DAT214

Increase availability and ROI with fully managed AWS databases

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Dun & Bradstreet

AWS re:Invent

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Agenda

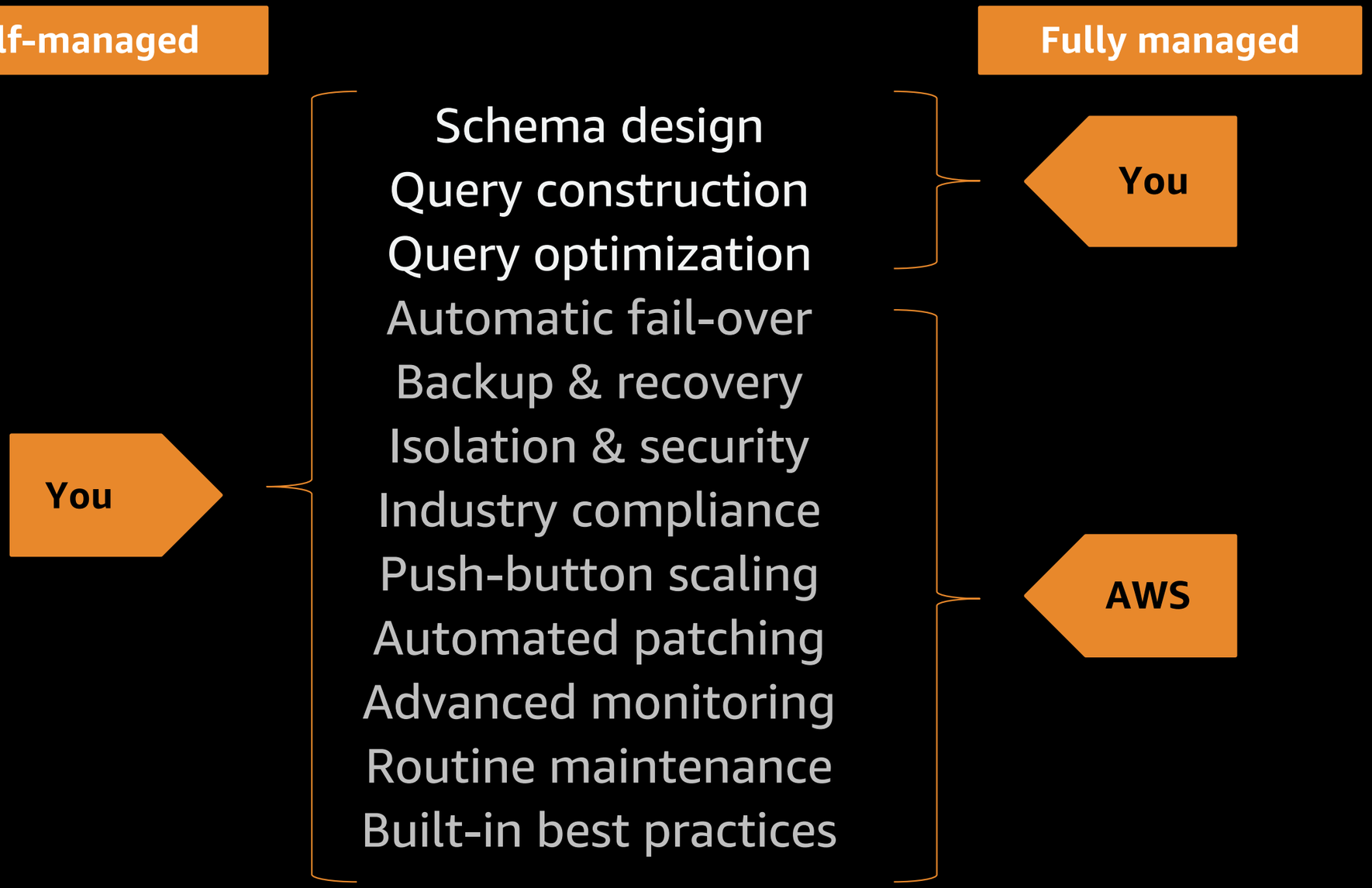
- Why move to managed database services
- Overview of AWS managed database services
- Migrating with AWS Database Migration Service (AWS DMS)
- Success story: Dun & Bradstreet
- How to get started with your migration

Self-managing databases is time consuming, complex, and expensive

- Hardware & software installation, configuration, patching, backups
- Performance and high availability issues
- Capacity planning and scaling clusters for compute and storage
- Security and compliance

Fully managed services on AWS

SPEND TIME INNOVATING & BUILDING NEW APPS, NOT MANAGING INFRASTRUCTURE



IDC Business Value Snapshot sponsored by AWS

March 2020

The Business Value of **Amazon Relational Database Service**

Interviewed Amazon RDS customers reported **delivering more cost-effective databases** in support of business operations, as well as **improving the agility and performance** of their databases. IDC calculates that they will achieve total annual benefits worth **an average of $4.99 million** per organization (**$37,400 per database**), which would result in **an average 3-year ROI of 264%** through DBA and development staff enablement, **increased database resiliency and performance, and lower database costs.**

Key Results



39%

Lower 3-year cost of database operations



264%

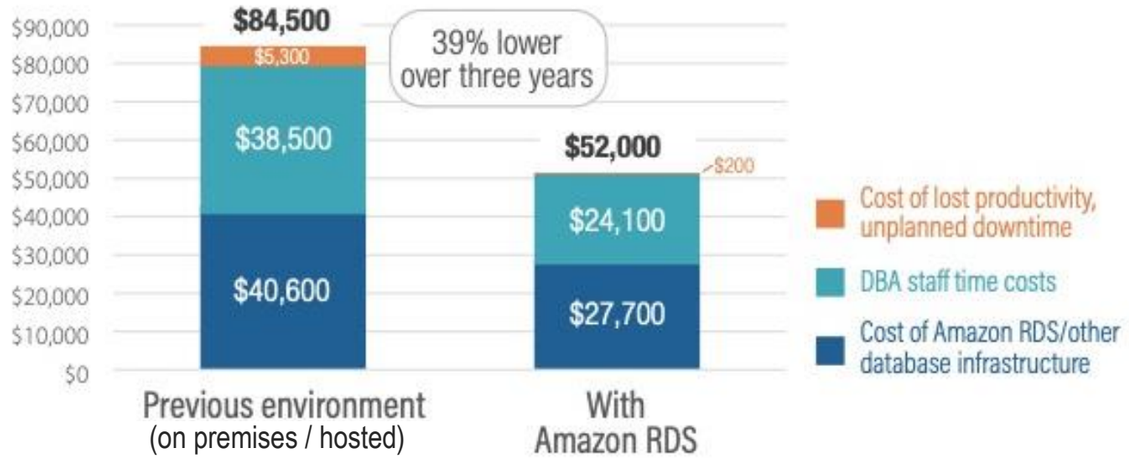
3-year ROI



5 months

Payback period

3-Year Cost of Operations per Database



Database Cost Benefits and Staff Efficiencies

37% **more** efficient DBA teams

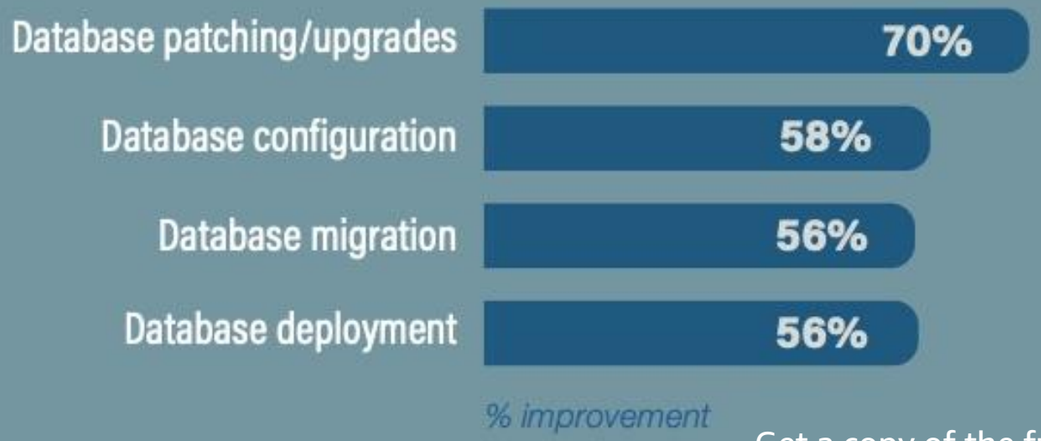
29% **more** efficient IT infrastructure teams

60% **more** databases per DBA

42% **more** productive application development teams

32% **lower** cost of databases, including infrastructure

DBA Efficiencies by Activity



Improved Database Agility and Performance

86% **faster** to deploy new databases

97% **less** unplanned downtime

34% **reduced** database latency

21% **faster** query performance time

Get a copy of the full report: https://pages.awscloud.com/GC-600-business-value-rds-ebook-learn.html

“It’s a Christmas list of crud I don’t like to do.”



Brian Hostetter

Director of Data
DHI (Dice.com)

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airbnb

Challenge:

Airbnb experienced service admin challenges with its original provider and wanted to scale its business to the next level

Solution:

Moved from self-managed MySQL to Aurora MySQL. It uses Aurora as the primary transactional database, DynamoDB for personalized search, and ElastiCache as in-memory store for sub-millisecond site rendering

Result:

“Initially, the appeal of AWS was the ease of managing and customizing the stack. It was great to be able to ramp up more servers without having to contact anyone and without having minimum usage commitments. AWS is the easy answer for any internet business that wants to scale to the next level.”

Nathan Blecharczyk
Cofounder and CTO of Airbnb



MySQL

MOVE TO MANAGED

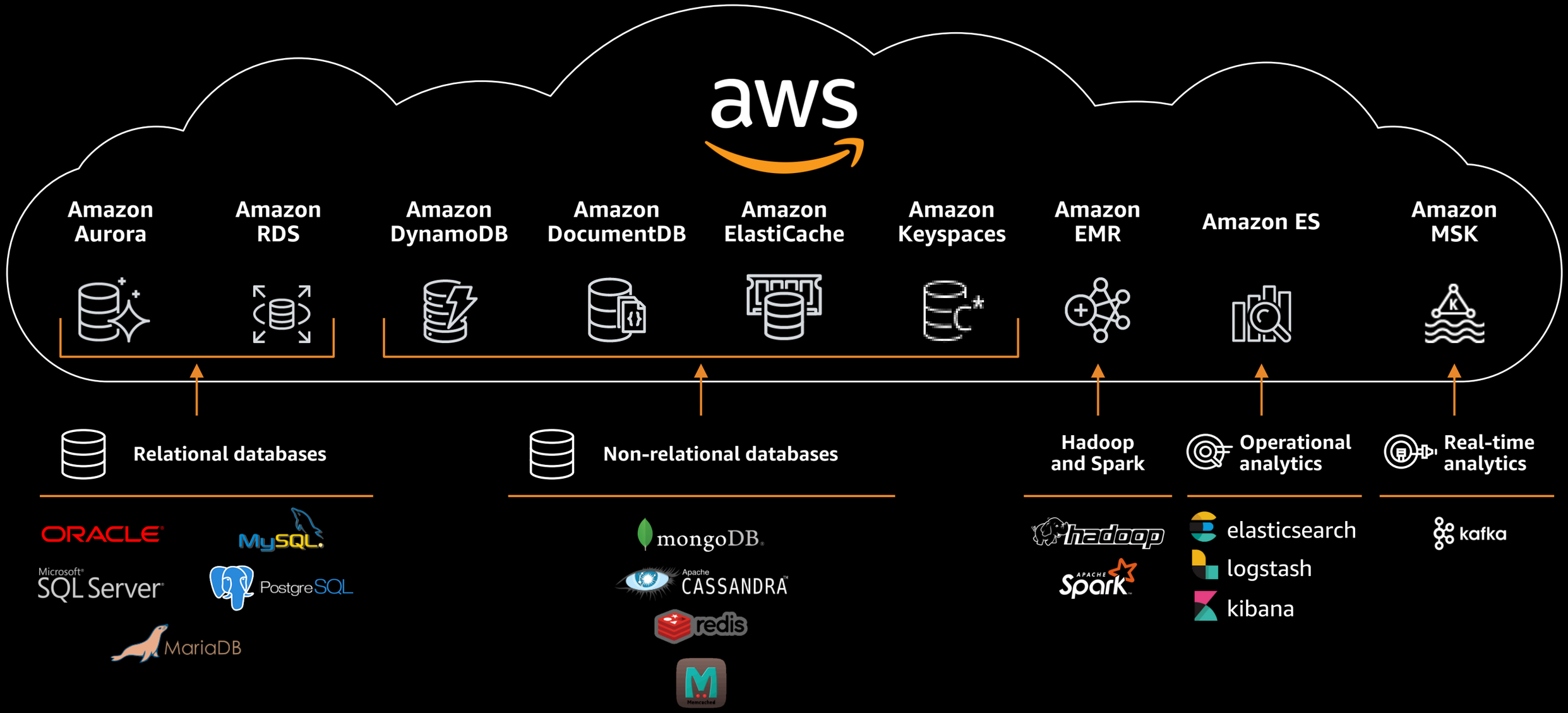
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Amazon Aurora

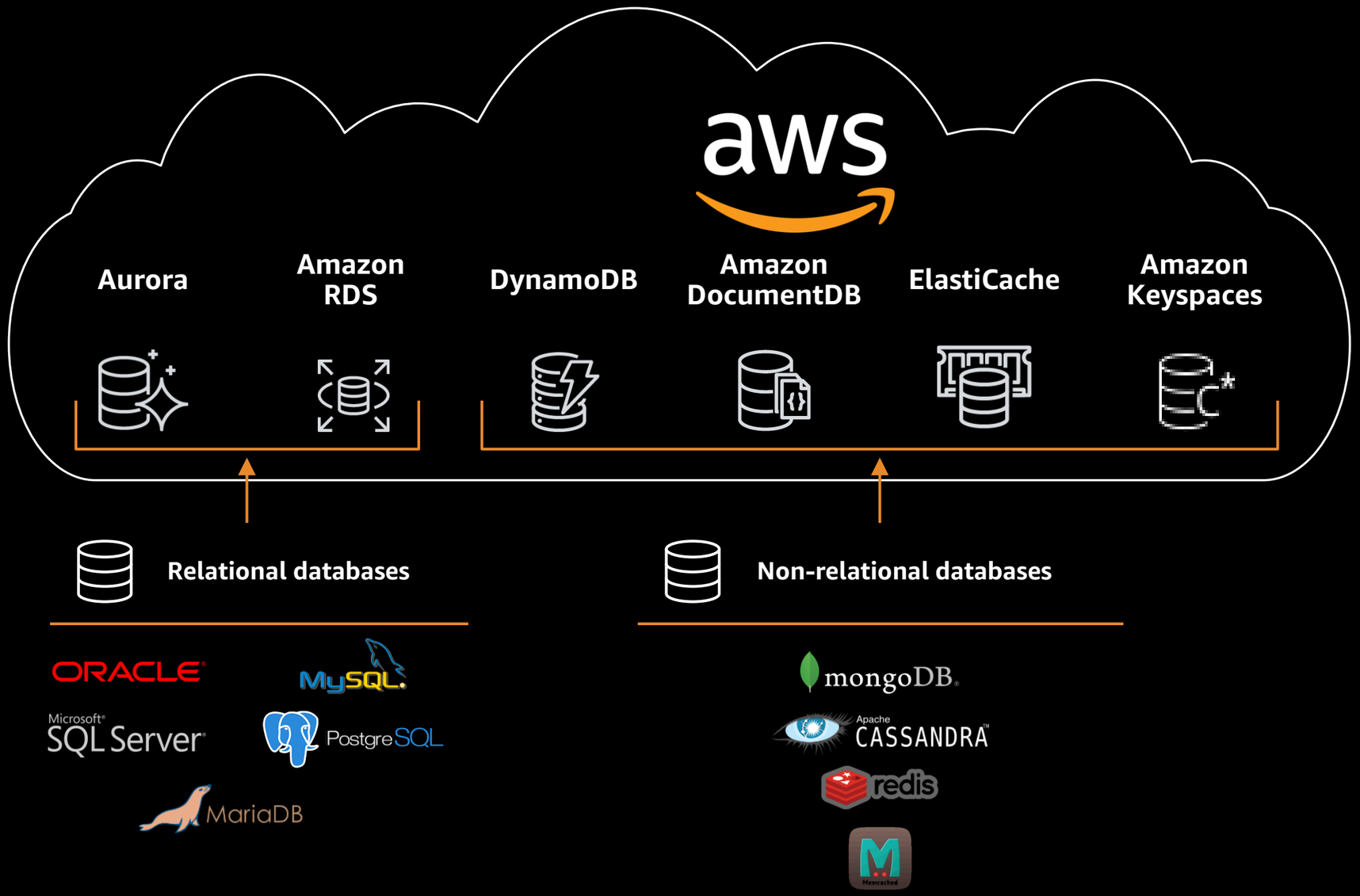
Amazon DynamoDB

Amazon ElastiCache

Fully managed database services



Fully managed database services



- Reduce database administrative burden
- Get better performance, availability, scalability, and security
- Migrate without needing to re-architect existing applications

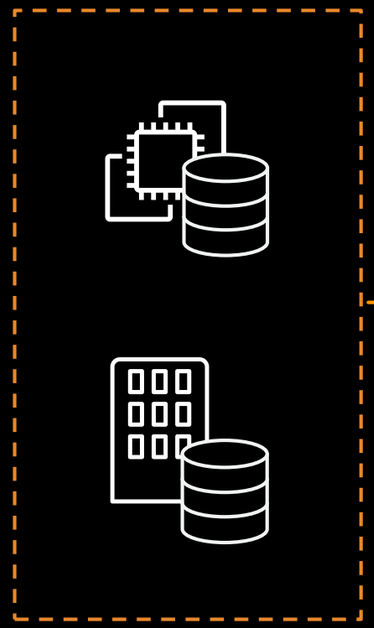
It's simple!

Move to managed relational databases

MIGRATE ON-PREMISES OR SELF-MANAGED RELATIONAL DATABASES TO MANAGED SERVICES

Reduce database administrative burden
Get better performance, availability, scalability, and security
Migrate without the need to re-architect existing applications

It's simple!







Amazon Aurora
MySQL, PostgreSQL



Amazon RDS
MySQL, PostgreSQL, MariaDB, Oracle, SQL Server

Amazon RDS

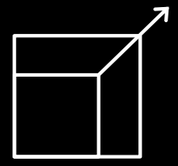
MANAGED RELATIONAL DATABASE SERVICE WITH A CHOICE OF POPULAR DATABASE ENGINES

MySQL PostgreSQL MariaDB Microsoft SQL Server ORACLE



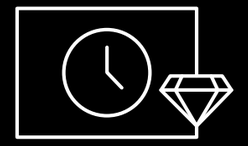
Easy to administer

Easily deploy and maintain hardware, OS, and DB software; built-in monitoring



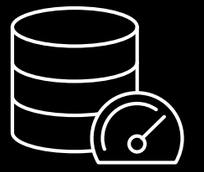
Performant & scalable

Scale compute and storage with a few clicks; minimal downtime for your application



Available & durable

Automatic Multi-AZ data replication; automated backup, snapshots, and failover



Secure and compliant

Data encryption at rest and in transit; industry compliance and assurance programs

Aurora

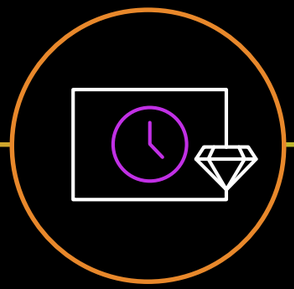
MYSQL- AND POSTGRESQL-COMPATIBLE RELATIONAL DATABASE WITH PERFORMANCE AND AVAILABILITY OF COMMERCIAL-GRADE DATABASES AT 1/10TH THE COST

Performance and scalability



5x throughput of standard MySQL and 3x of standard PostgreSQL; scale-out up to 15 read replicas

Availability and durability



Fault-tolerant, self-healing storage; six copies of data across three Availability Zones; continuous backup to Amazon S3

Highly secure



Network isolation, encryption at rest/transit, compliance and assurance programs

Fully managed



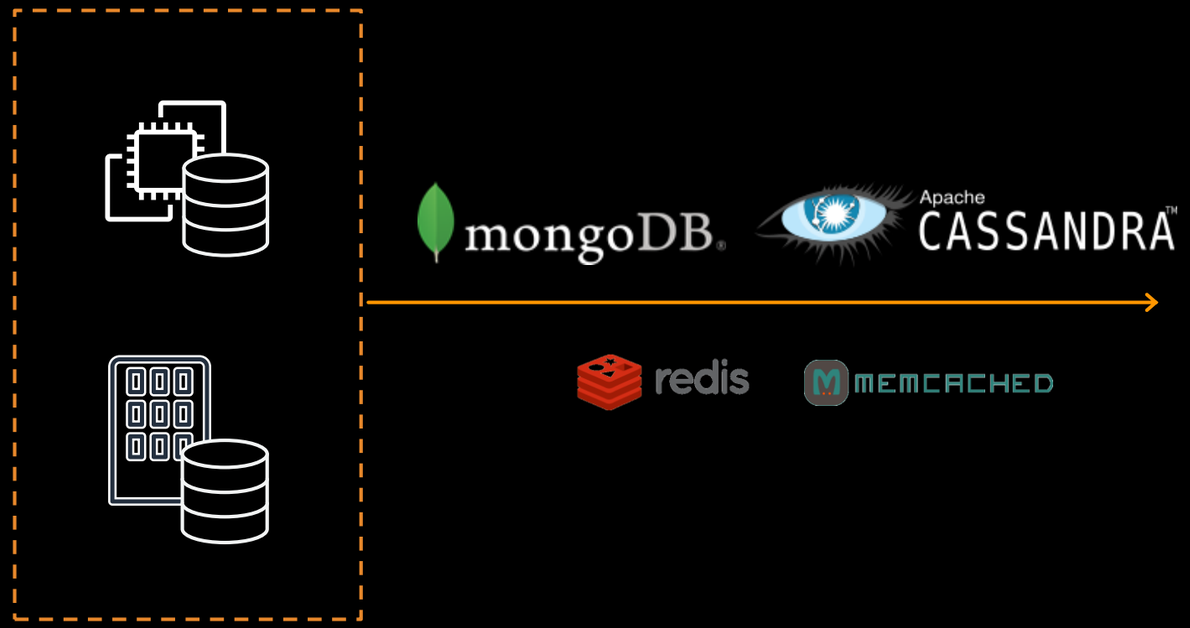
Managed by RDS: No server provisioning, software patching, setup, configuration, or backups

Move to managed non-relational databases

MIGRATE ON-PREMISES OR SELF-MANAGED NON-RELATIONAL DATABASES TO MANAGED SERVICES

Reduce database administrative burden
Get better performance, availability, scalability, and security
Migrate without the need to re-architect existing applications

It's simple!



Amazon DocumentDB
MongoDB

Amazon Keyspaces
Cassandra

Amazon ElastiCache
Redis, Memcached

Amazon DocumentDB

FAST, SCALABLE, HIGHLY AVAILABLE, FULLY MANAGED MongoDB-COMPATIBLE DATABASE SERVICE



Millions of requests per second, millisecond latency



Same code, drivers, and tools you use with MongoDB



Simple and fully managed



Secure and compliant



2x throughput of managed MongoDB services



Deeply integrated with AWS services

Amazon Keyspaces

SCALABLE, HIGHLY AVAILABLE, AND MANAGED CASSANDRA-COMPATIBLE DATABASE SERVICE

Apache Cassandra-compatible



Use the same application code, licensed drivers, and tools built on Cassandra

No servers to manage



No need to provision, configure, and operate large Cassandra clusters or add and remove nodes manually

Single-digit millisecond performance at scale



Single-digit millisecond performance

Scale tables up and down automatically based on application traffic

Virtually unlimited throughput and storage

Simple migration



Simple migration to Managed Cassandra Service for Cassandra databases on premises or on Amazon EC2

Amazon ElastiCache

Redis & Memcached compatible



Fully compatible with open source Redis and Memcached

Extreme performance



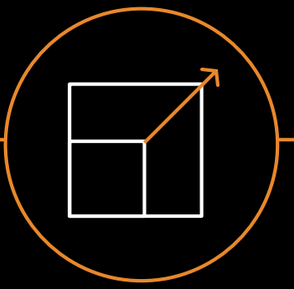
In-memory data store and cache for microsecond response times

Fully managed



AWS manages all hardware and software setup, configuration, monitoring

Easily scalable



Scale writes and reads with sharding and replicas

Grab

Grab is Southeast Asia's largest ride-hailing service with 45 million downloads and 2.5 million daily rides

Challenge:

Average response time of the API layer is <40ms. It needed to scale to meet growing user demand.

Solution:

It moved from self-managed Redis to fully managed ElastiCache for Redis as a caching layer on Amazon RDS for MySQL

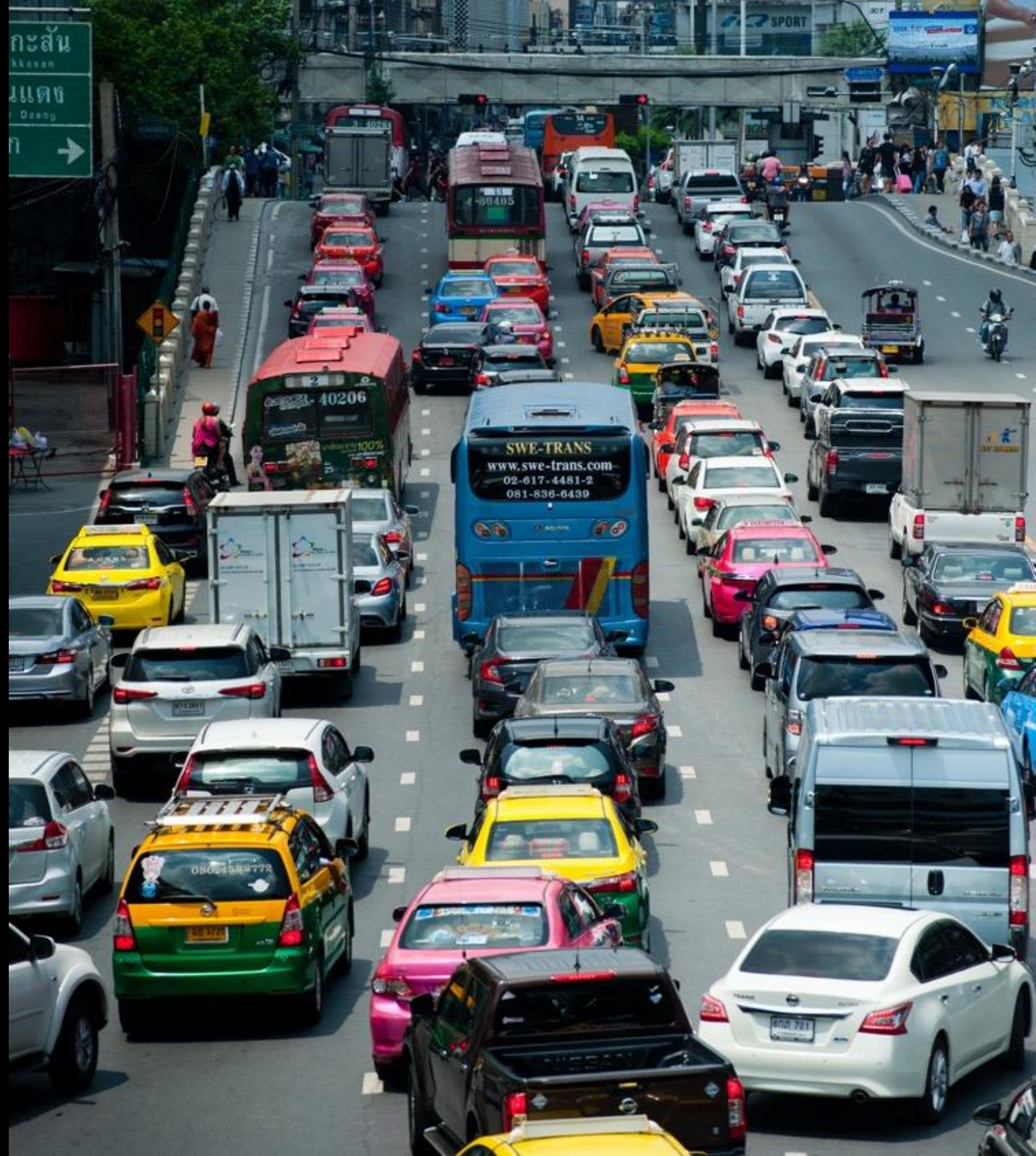
Result:

ElastiCache provides sub-millisecond latency even in times of peak traffic of hundreds of thousands of cab requests per minute

Self-managed Redis

MOVE TO MANAGED →

Amazon ElastiCache for Redis



Migrate with AWS DMS

Migrating databases to AWS

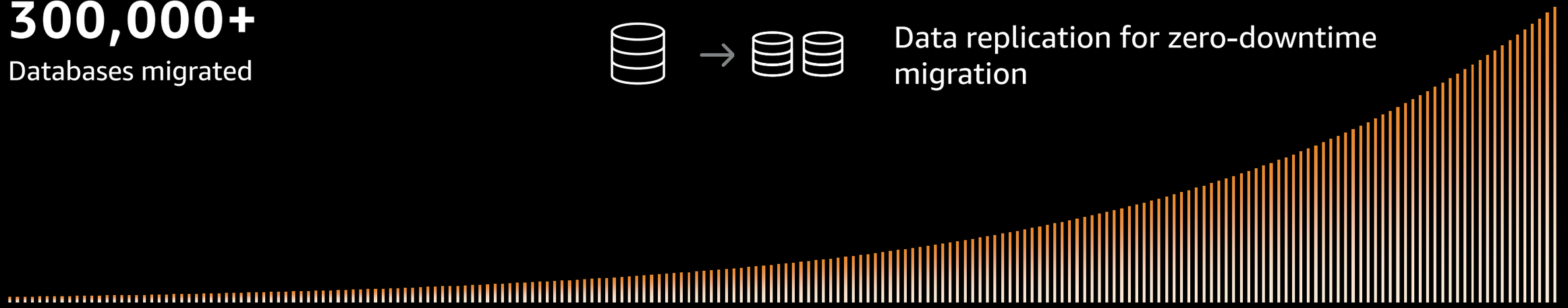
300,000+
Databases migrated

Migrate between on-premises and AWS

Migrate between databases

Automated schema conversion

Data replication for zero-downtime migration



Success story: Dun & Bradstreet



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Dun & Bradstreet

dun & bradstreet

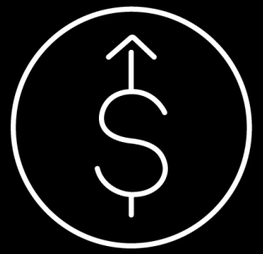
Who we are

- Provide commercial data, analytics, and insights for businesses
- Headquartered in New Jersey, US, serving a global customer base

What we do



Grow revenue



Increase margins



Mitigate risk



Retain compliance

Why are we doing this?

Bringing the advantages of the cloud to D&B and our customers

Allows D&B to focus on our core competencies

Customers: External

- Provide an improved service
  - Performance
  - Resilience
  - Scalability

Dun & Bradstreet: Internal

- Provide an improved service
  - Flexible and customizable

What have we learned?



Develop a process

Discover, dependencies, architect, plan and execute, repeat



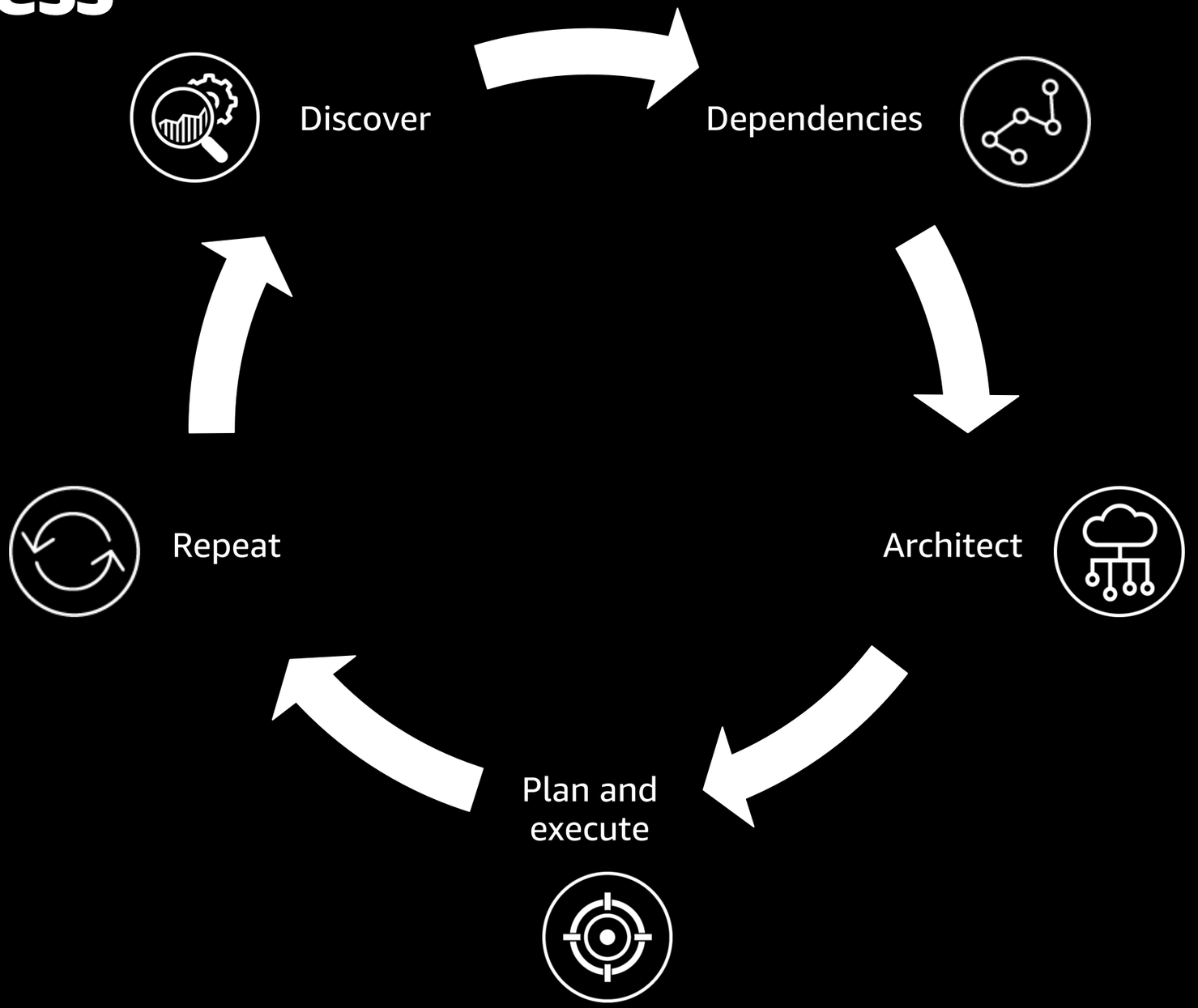
Testing

Not just your usual regression testing



Communicate, communicate, and communicate

Our process



How to get started

- Learn more about AWS database services aws.amazon.com/products/databases/
- Engage with your AWS account team early. They are here to help!
- Participate in workshops, Immersion Days, or Data Lab
- Get support from ProServe or AWS Partner for database migration

Related sessions

DAT204

Beyond AWS DMS: programs and partners to ace your migration

DAT213

Break free from legacy commercial databases to save, grow, and innovate

DAT312

Dive deep into AWS Schema Conversion Tool and AWS DMS

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