



AWSSOME DAY

ONLINE CONFERENCE

2025 | APJ



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Introduction to AWS services

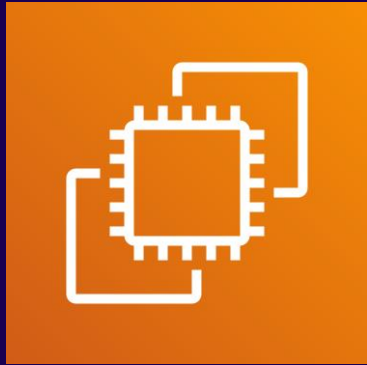
Compute, storage & databases

Peter Vandaele
Technical Trainer
AWS



Compute

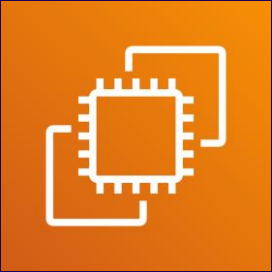
Amazon Elastic Compute Cloud (Amazon EC2)



Amazon
EC2

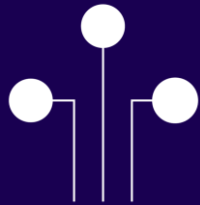
- Resizable compute capacity
- Complete control of your computing resources
- Reduced time required to obtain and boot new server instances

Virtual machines vs. physical servers



Amazon EC2 can solve some problems that are more difficult with an on-premises server

When using disposable resources



Data-driven
decisions

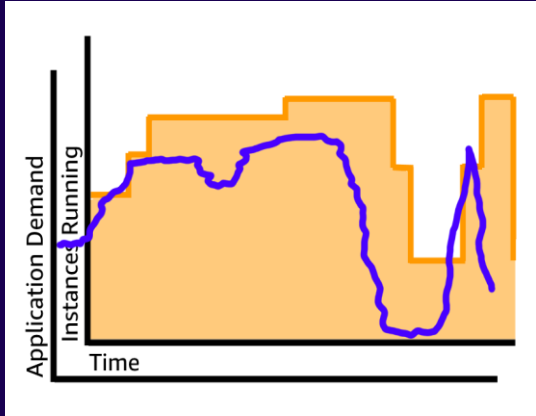


Quick
iterations

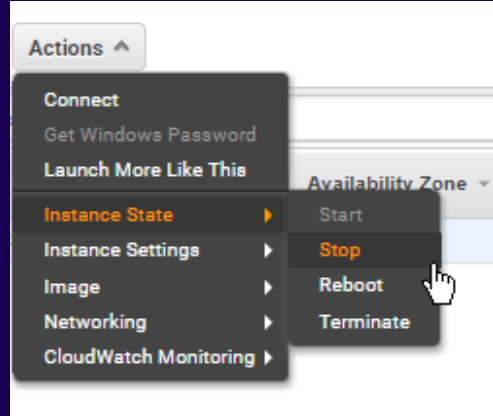


Free to make
mistakes

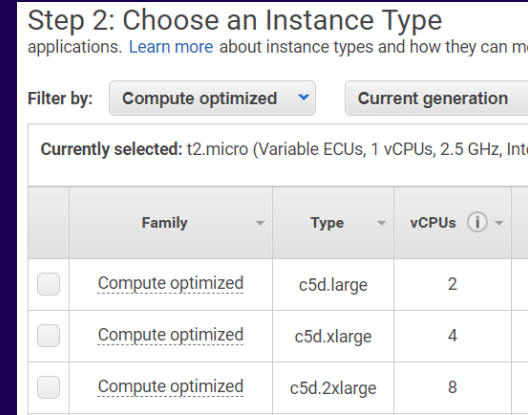
Benefits of Amazon EC2



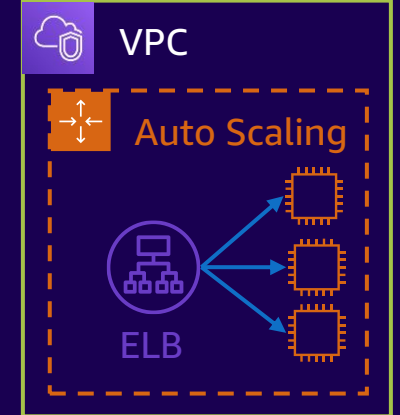
Elasticity



Control



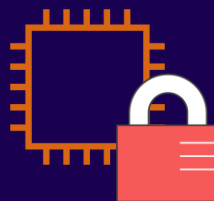
Flexibility



Integrated



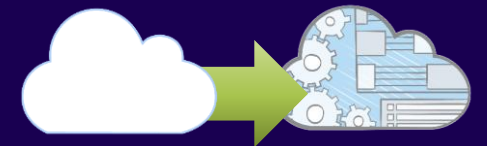
Reliable



Secure



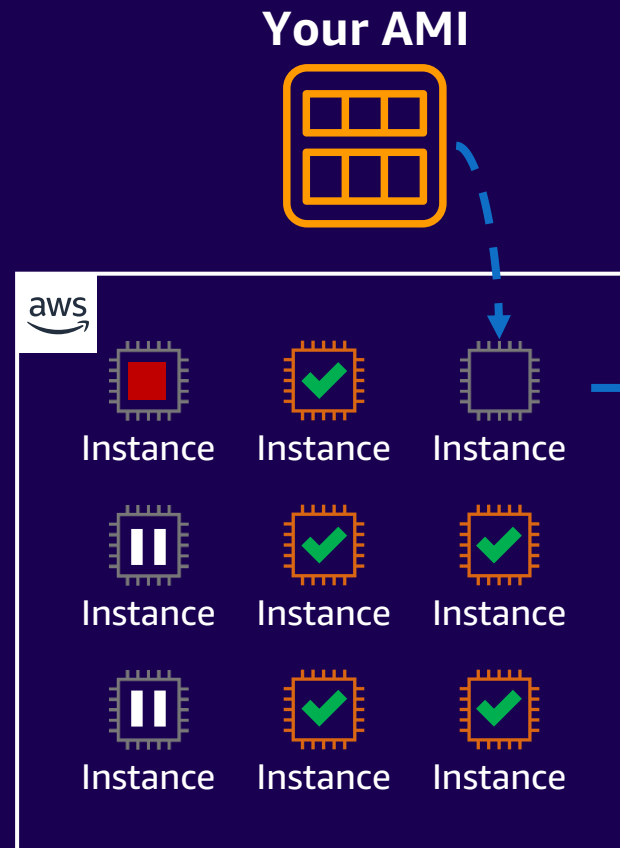
Inexpensive



Simple

Amazon EC2

Amazon EC2 provides pay-as-you-go pricing and a broad selection of hardware and software that's available via the AWS Marketplace by using Amazon Machine Images (AMIs)



Template for

- Storage volumes
- Launch permissions
- A block device mapping

Examples

- ✓ Application server
- ✓ Web server
- ✓ Database server
- ✓ Game server
- ✓ Mail server
- ✓ Media server
- ✓ Catalog server
- ✓ File server

Amazon EC2 instance families and names

Choosing the correct type is very important for
efficient use of your instances and cost reduction



| Instance family | Use cases |
|--|---|
| General purpose <i>e.g., A1, T3, T3a, T4g, M6g, M7g</i> | <ul style="list-style-type: none">• Low-traffic websites and web applications• Small databases and midsize databases |
| Compute optimized <i>e.g., C5, C6g, C6a, C7g</i> | <ul style="list-style-type: none">• High-performance web servers• Video encoding |
| Memory optimized <i>e.g., R7g, R6g, X2gd, X2i, z1d</i> | <ul style="list-style-type: none">• High-performance databases• Distributed memory caches |
| Storage optimized <i>e.g., I4g, I3, D3, H1</i> | <ul style="list-style-type: none">• Data warehousing• Log or data processing applications |
| Accelerated computing <i>e.g., P5, P4, Inf2, G6, G5g, Trn1</i> | <ul style="list-style-type: none">• 3D visualizations• Machine learning |

Amazon EC2 pricing

On-Demand
Instances

Savings
Plans

Spot
Instances

Unmanaged services compared to managed services



Unmanaged

You manage scaling, fault tolerance, and availability

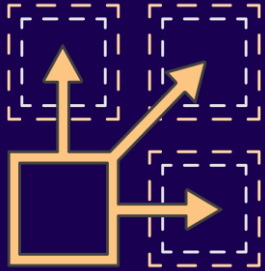


Managed

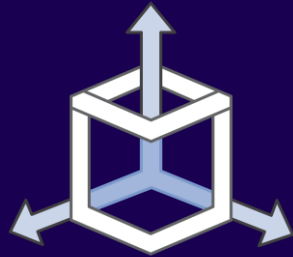
Scaling, fault tolerance, and availability are typically built in to the service

What is serverless computing?

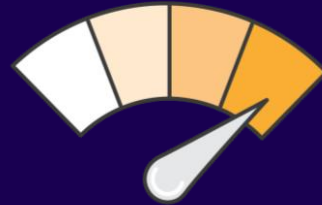
Building and running applications and services without managing servers



No servers to
provision or manage



Scales
with usage



Never pay
for idle



Availability and
fault tolerance built in

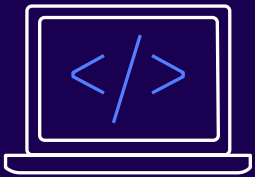
AWS Lambda



AWS
Lambda

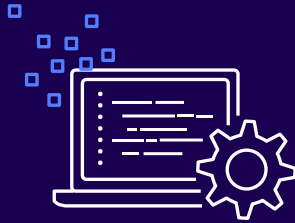
- Fully managed compute service
- Runs stateless code
- Supports multiple languages
- Runs your code on a schedule or in response to events (for example, changes to data in an Amazon S3 bucket or Amazon DynamoDB table)

Serverless application use cases



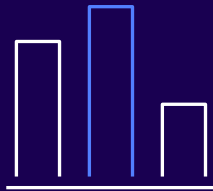
Web applications

Static websites
Complex web applications
Packages for Flask and Express



Backends

Applications and services
Mobile
IoT



Data processing

Real time
MapReduce
Batch
Machine learning inference



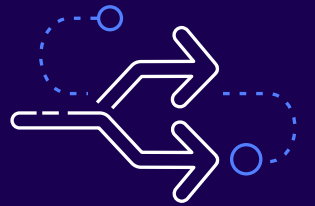
Chatbots

Powering chatbot logic



Amazon Alexa

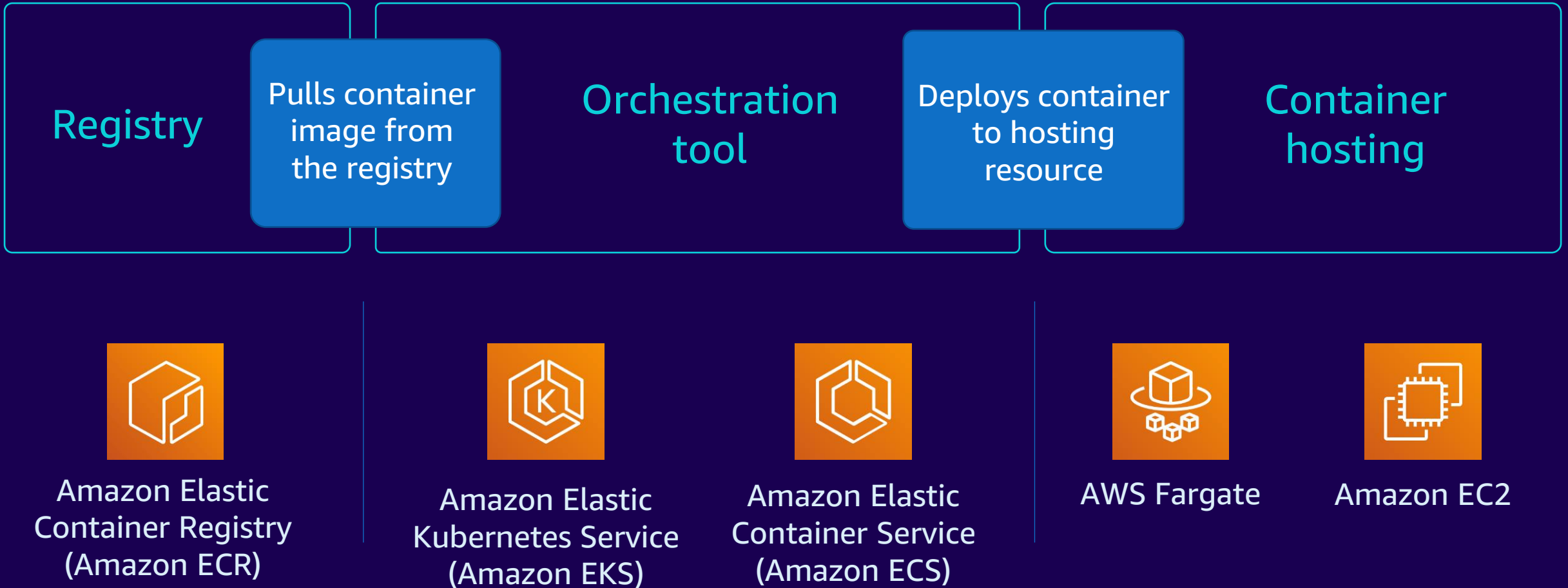
Powering voice-enabled applications
Alexa Skills Kit



IT automation

Policy engines
Extending AWS services
Infrastructure management

Running containers on AWS



Key Takeaways

- EC2 instances – Servers in the cloud!
 - Pay as you go pricing
 - Scale in/out as needed automatically
 - Different instance types (hardware) for your workloads
- Amazon ECS
 - Orchestration for your container deployments
- Serverless
 - You create the code, AWS manages the underlying compute
 - Lambda – On demand, per-request pricing to run code

Storage

AWS storage options



Amazon S3

Scalable, highly durable object storage in the cloud



Amazon S3 Glacier

Low-cost, highly durable archive storage in the cloud



Amazon EBS

Network-attached volumes that provide durable block-level storage for Amazon EC2 instances



Amazon EFS

Scalable network file storage for Amazon EC2 instances



Amazon FSx

Fully managed, cost-effective file storage offering the capabilities and performance of popular commercial and open-source file systems



AWS Storage Gateway

Hybrid cloud storage service that gives you on-premises access to virtually unlimited cloud storage.

Amazon S3



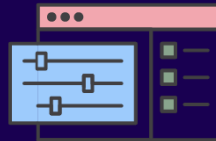
Amazon
S3



Object-level
storage



Designed for
99.9999999999%
durability



Event triggers

Use cases

- Content storage and distribution
- Backup and archiving
- Big data analytics
- Disaster recovery
- Static website hosting

File services use cases



Amazon EFS

- Simplify Development Operations (DevOps)
- Modernize application development
- Enhance content management systems
- Accelerate data science



Amazon FSx for Lustre

- Accelerate machine learning
- Enable high performance computing
- Unlock big data analytics
- Increase media workload agility



Amazon FSx for Windows

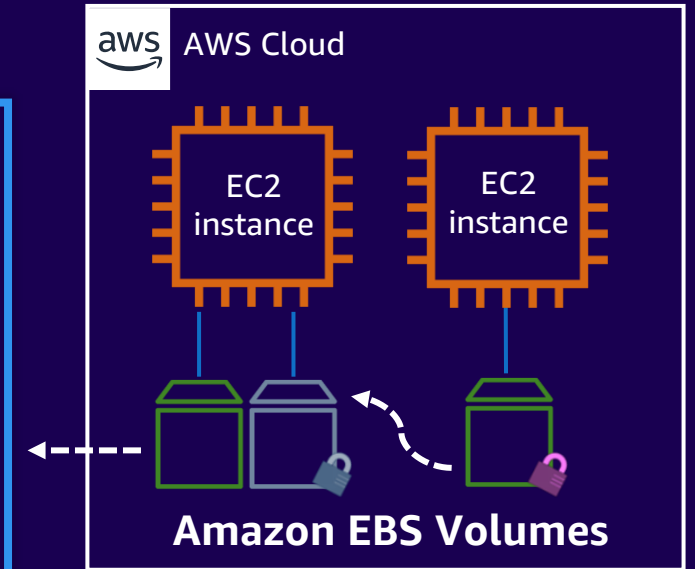
- Migrate Windows file servers to AWS
- Accelerate hybrid workloads
- Reduce Microsoft SQL Server deployment cost
- Simplify virtual desktops and streaming

Amazon Elastic Block Store (Amazon EBS)

- Persistent block storage for instances
- Protected through replication
- Different drive types
- Scale up or down in minutes
- Pay for only what you provision
- Snapshot functionality
- Encryption available



Create volume snapshots for backup and recovery



Detach and reattach volumes to other EC2 instances

Key takeaways

AWS provides a variety of storage options

- Object (Amazon S3)
 - File (Amazon EFS and Amazon FSx)
 - Block storage (Amazon EBS)
-
- Customers are using our storage services to build:
 - Home directories
 - Data lakes
 - Modern and business-critical applications

Databases

DIY (Unmanaged services) compared to AWS database services (managed services)



Databases on Amazon EC2







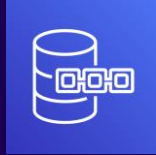


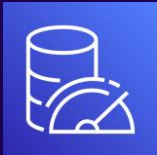

- Operating system access
- Need features of specific application








AWS database services

- Simple to set up, manage, maintain
- Push-button high availability
- Focus on performance
- Managed infrastructure

Purpose-built databases

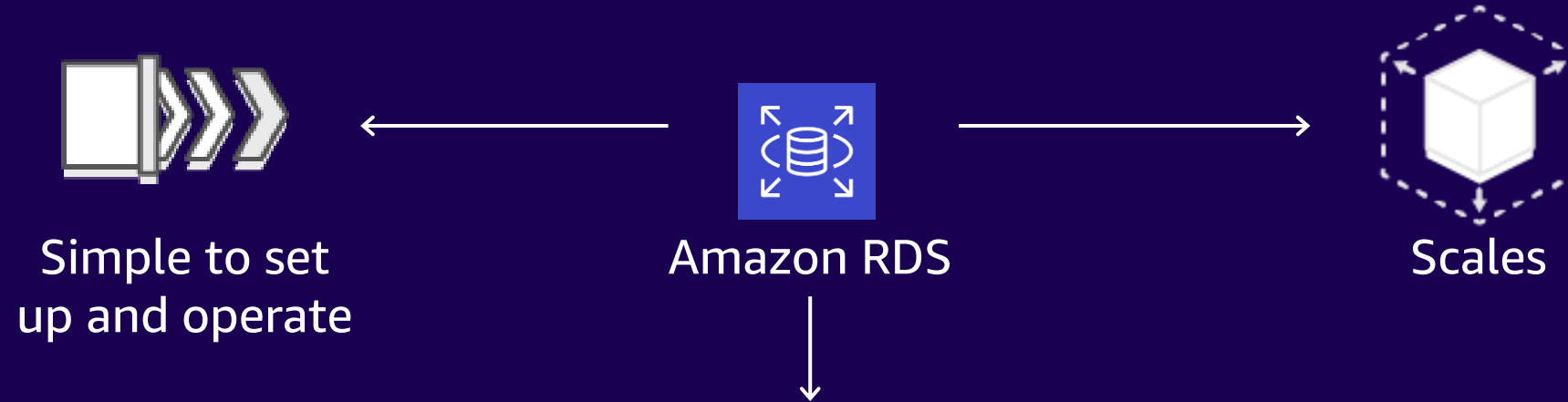
| Relational | Non Relational (NoSQL) databases for specific data models and have flexible schemas for building modern applications | | | | | | |
|--|---|--|--|---|---|--|--|
| | Key-value | In-memory | Document | Wide-Column | Graph | Ledger | Time Series |
|  Amazon RDS |  Amazon DynamoDB |  Amazon ElastiCache |  Amazon DocumentDB |  Amazon Keyspaces (for Apache Cassandra) |  Amazon Neptune |  Amazon QLDB |  Amazon Timestream |
|  Amazon Aurora | |  Amazon MemoryDB for Redis | | | | | |
|  Amazon Redshift | | | | | | | |

AWS database options

| | SQL | NoSQL |
|---------------------------------|--|---|
| Transactional databases |  Amazon RDS |  Amazon DynamoDB |
| Data analytics or relationships |  Amazon Redshift |  Amazon Neptune |
| In-memory data store and cache | |  Amazon ElastiCache |

Amazon RDS

Set up, operate, and scale a relational database in the cloud with just a few clicks




Amazon Aurora

Microsoft
SQL Server


MariaDB
Foundation

ORACLE

 PostgreSQL

MySQL

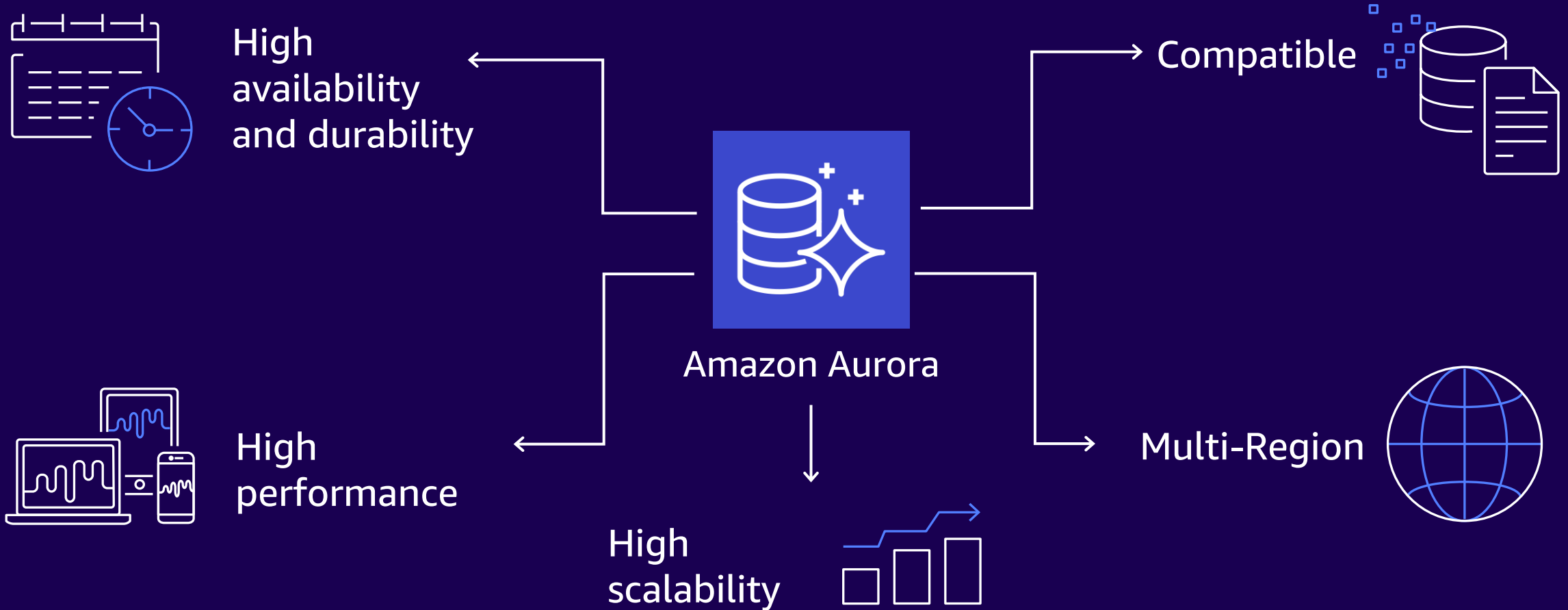
DB2

Database engines

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Amazon Aurora

Relational database built for the cloud; compatible with MySQL and PostgreSQL



Amazon DynamoDB

Fast and flexible NoSQL database service for any scale



Fully
managed



Fast,
consistent
performance

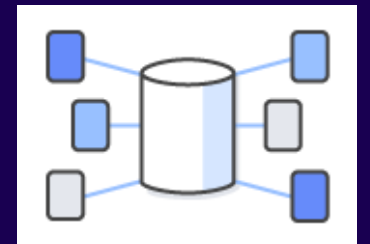


Amazon DynamoDB

Fine-grained
access control



Flexible



Key takeaways

AWS provides a variety of database options

- Relational (Amazon Aurora, Amazon RDS, Amazon Redshift)
- Nonrelational (Amazon DynamoDB, Amazon Neptune, Amazon DocumentDB, Amazon Keyspaces, Amazon ElastiCache, Amazon QLDB, Amazon Timestream)
- NoSQL databases are widely recognized for their ease of development, functionality, and performance at scale

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