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Purpose-built databases for modern applications

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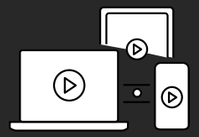
Agenda



What’s a modern application?

Why consider purpose-built databases?

AWS databases: The right tool for the right job

What’s a modern application?

Modern application requirements

Requires more performance, scale, and availability


E-commerce


Media streaming

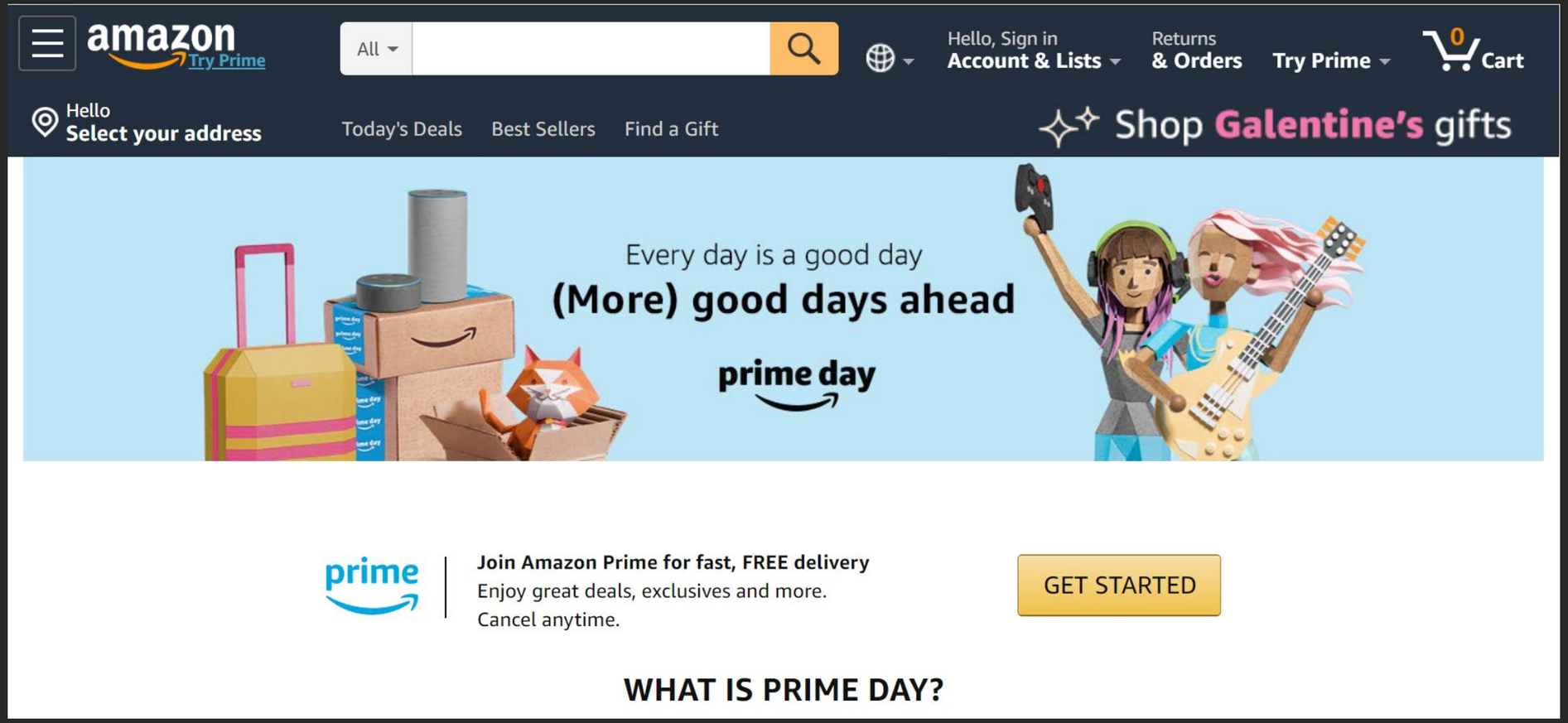

Social media


Online gaming


Shared economy

Users	1M+
Data volume	Terabytes to petabytes
Locality	Global
Performance	Microsecond latency
Request rate	Millions per second
Access	Mobile, IoT, devices
Scale	Virtually unlimited
Payment model	Pay as you go
Developer access	Instance API access
Development	Apps and storage are decoupled

Internet-scale e-commerce



The world's largest e-commerce business, Amazon.com, runs on **purpose-built databases** because of their **scale**, **performance**, and **maintenance benefits**

Things with purpose

Instead of a monolithic application,

build microservices with purpose-built tools

Why consider purpose-built databases?

Why consider purpose-built databases?

Scale

Performance

Availability

Capital One migrated its monolithic mainframe to **highly available** AWS databases for microservices-based applications

Transactional data: **Amazon RDS**

State management

Analytics: **Amazon Redshift**

Web logs

Consistent low latency: **Amazon DynamoDB**

User data and mobile app

AWS databases: The right tool for the right job

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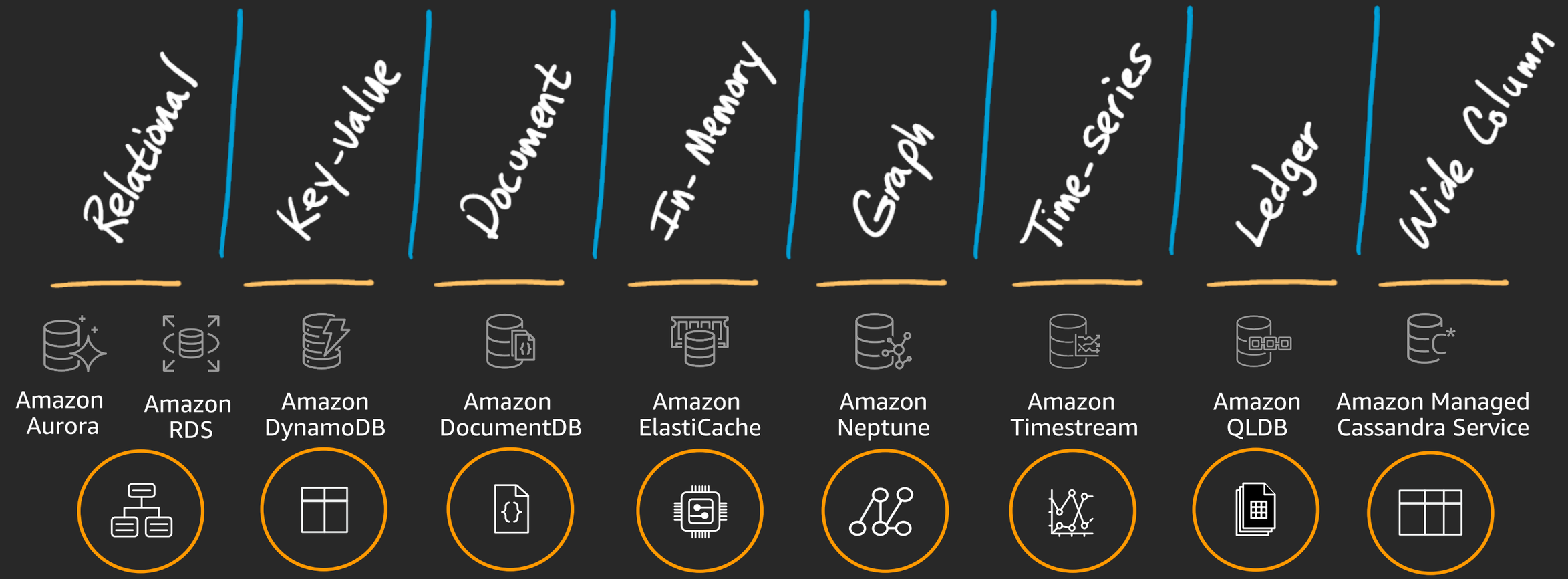
Purpose-built databases

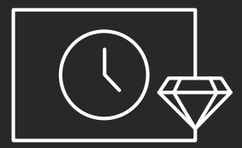


Amazon Aurora

MySQL and PostgreSQL-compatible relational database built for the cloud

Performance and scalability

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

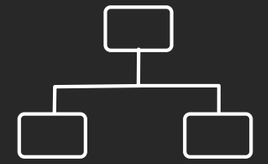


Availability and durability

Fault-tolerant, self-healing storage; 6 copies of data across 3 AZs; continuous backup to Amazon S3

Highly secure

Network isolation, encryption at rest / in transit



Fully managed

Managed by Amazon RDS: On your part, no server provisioning, software patching, setup, configuration, or backups

Demo

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Amazon DynamoDB

Fast and flexible key-value database service for any scale

Performance at scale

Consistent, single-digit millisecond response times at any scale; build applications with virtually unlimited throughput

Serverless architecture

No hardware provisioning, software patching, or upgrades; scales up or down automatically; continuously backs up your data

Enterprise security

Encrypts all data by default and fully integrates with AWS Identity and Access Management (IAM) for robust security

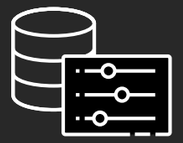
Global replication

You can build global applications with fast access to local data by easily replicating tables across multiple AWS Regions

Amazon DocumentDB

Fast, scalable, highly available 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 ElastiCache

Managed, Redis, or Memcached-compatible in-memory data store

Unlimited scale

Read scaling with replicas; write and memory scaling with sharding; nondisruptive scaling

Consistent high performance

In-memory data store and cache for submillisecond response times

Fully managed

AWS manages all hardware and software setup, configuration, and monitoring

Amazon Neptune

Fast, reliable graph database built for the cloud

Open

Supports Apache TinkerPop and W3C RDF graph models

Fast

Queries billions of relationships with millisecond latency

Reliable

6 replicas of your data across 3 AZs with full backup and restore

Easy

Build powerful queries easily with Gremlin and SPARQL

Amazon Timestream

Fast, scalable, fully managed time series database

1,000x faster and 1/10th the cost of relational databases

Collect data at the rate of millions of inserts per second (10M/second)

Trillions of daily events

Adaptive query processing engine maintains steady, predictable performance

Time-series analytics

Built-in functions for interpolation, smoothing, and approximation

Serverless

Automated setup, configuration, server provisioning, and software patching

Amazon Quantum Ledger Database

Fully managed ledger database: Track and verify history of all changes made to your application's data

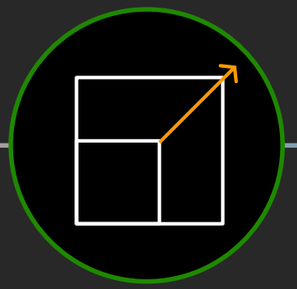
Immutable and transparent

Append-only, immutable journal tracks history of all changes that cannot be deleted or modified; get full visibility into entire data lineage

Cryptographically verifiable

All changes are cryptographically chained and verifiable

Highly scalable



Executes 2–3x as many transactions as ledgers in common blockchain frameworks

Easy to use

Flexible document model; query with familiar SQL-like interface

Amazon Managed Apache Cassandra Service

Fast, reliable wide column database built for the cloud

Apache Cassandra–compatible

Implements the Apache Cassandra Query Language (CQL) and the Apache Cassandra CQL API

No servers to manage

No need to provision, patch, or manage servers

Performance at scale

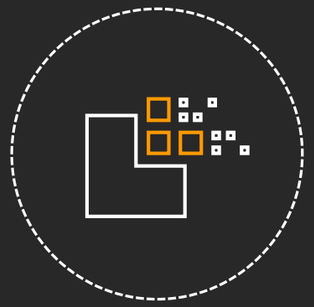
Consistent, single-digit millisecond response times at any scale

Highly available and secure

Tables are encrypted by default and replicated three times in multiple AWS Availability Zones for high availability

Our approach

Architect services ground up for the cloud and for the explosion of data



Offer a portfolio of purpose-built services, optimized for your workloads

Help you innovate faster through managed services

Provide services that help you migrate existing apps and databases to the cloud

Get started

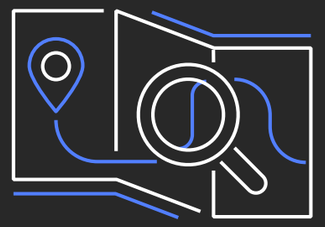
See more information at:

aws.amazon.com/databases

Contact us at:

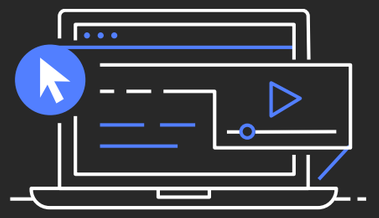
https://aws.amazon.com/contact-us/

AWS Training and Certification



Training for the whole team

Explore tailored learning paths for customers and partners



Flexibility to learn your way

Build cloud skills with 550+ free digital training courses, or dive deep with classroom training

Validate skills with AWS Certification

Demonstrate expertise with an industry-recognized credential

Education programs

Find entry-level cloud talent with AWS Academy and AWS re/Start

aws.amazon.com/training

Thank you!

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