AWS Database Services

Amazon RDS

Amazon RDS is a managed, relational database service that includes six different database options. These include AWS Oracle, PostgreSQL, AWS MySQL, MariaDB, SQL Server, and Amazon Aurora. You can manage these database engines from a centralized management console, a command-line interface, or via API calls. When using this service, many administrative tasks are automated, including database setup, hardware provisioning, backup, and updating.

Use cases of Amazon RDS include:

- **Web and mobile applications**—provides the scalability, availability, and throughput needed for enterprise-grade applications.
- **eCommerce applications**—provides flexibility, security, and PCI compliance needed for eCommerce.
- **Mobile and online games**—provides high-throughput and availability to ensure that games remain online and responsive to players.

Amazon Aurora

Amazon Aurora is a fully managed relational database engine designed specifically for AWS. It is MySQL and PostgreSQL compatible with minor changes to your source database. Aurora includes features for self-healing, fault tolerance, point-in-time recovery, and continuous backup.

Use cases for Amazon Aurora include:

- **Enterprise applications**—including customer relationship management and enterprise resource planning solutions.
- **Software as a Service (SaaS) offerings**—including those requiring significant storage and compute scalability.
- **Web and mobile gaming applications**—including those requiring massive storage, high throughput, and high-availability.

Amazon DynamoDB

Amazon DynamoDB is a fully managed, document and key-value database. It includes features for multi-master, multi-region used along with built-in security, automated backup and restoration, and in-memory caching. DynamoDB can provide support for serverless web apps, microservices, and mobile backends.

Use cases of Amazon DynamoDB include:

- **Ad tech**—including clickstreams, user events, and user profiles.
- **Gaming**—including leaderboards, player data stores, and game states.
- **Retail**—including online shopping carts, inventory tracking, and customer profiles.
- **Banking and finance**—including event-driven transaction processing, fraud detection, and change data capture.
- **Media and entertainment**—including digital rights management, user data stores, and metadata stores.
- **Software as a service (SaaS)**—including content metadata stores, metadata caches, and relationship graph data stores.

Amazon DocumentDB

Amazon DocumentDB is a fully managed document database service. It is scalable, highly-available, and compatible with MongoDB. With it, you can store, index, and query JSON files. With DocumentDB, you can scale your compute and storage resources separately for maximum flexibility.

Use cases of Amazon DocumentDB include:

- **Content and catalog management**—including online publications, point-of-sale terminals, and digital archives.
- **Profile management**—including user preferences, authentication profiles, and online transactions.
- **Mobile and web applications**—including applications that demand high-performance and low-latency with millions of requests per second.

Amazon ElastiCache

Amazon ElastiCache is a fully managed, in-memory data store service. It is compatible with both Redis and Memcached. ElastiCache automates setup, hardware provisioning, configuration, monitoring, updates, and backup and recovery processes. With ElastiCache you can scale both write and memory processes through sharding and data replication.

Use cases of Amazon ElastiCache include:

- **Session stores**—for web applications and sites.
- **Gaming**—including leaderboards and chats.
- **Geospatial services**—including real-time mapping and location.

- **Real-time analytics**—including Internet of things (IoT) sensor processing and AI applications.

Amazon Neptune

Amazon Neptune is a fully managed graph database service. It enables you to create and run applications using highly-connected data sets. It supports the storage of massive relationship data sets with low-latency access. Neptune supports a variety of graph models and languages, including RDF, SPARQL, and Gremlin. It includes features for point-in-time recovery, read replicas, and continuous backup.

Use cases for Amazon Neptune include:

- **Social networking**—including user profiles and content prioritization.
- **Recommendation engines**—including storage of customer contacts, purchase histories, and customer preferences.
- **Fraud detection**—including fraud related to overlapping email addresses, IP addresses, or credit card numbers.
- **Knowledge graphs**—including product catalogs or wikis.
- **Life sciences**—including disease models, gene patterning, or research catalogs.
- **Network and IT operations**—including creating network visibility, monitoring, or forensic analysis.

Amazon Timestream

Amazon Timestream is a fully managed, time-series database service. It enables you to store, process, and analyze up to 1,000X better query performance at 90% lower cost, compared to relational

databases offered on AWS. Timestream provides automatic hardware provisioning, updates, setup and configuration, and data tiering.

Use cases for Amazon Timestream include:

- **DevOps**—supports performance monitoring and management, network optimization, and server monitoring.
- **IoT applications**—supports IoT analytics for the implementation of smart devices, such as thermostats or motion sensors.
- **Application monitoring**—supports clickstream monitoring and analysis.
- **Industrial telemetry**—including monitoring of industrial equipment, fleet management, trade monitoring, or route optimization.

Amazon Quantum Ledger Database (QLDB)

Amazon (QLDB) is a fully managed, serverless ledger database service. You can use it to track application data changes with a verifiable history. With QLDB, you can avoid the need to build custom ledger applications and associated verification tools. You can query data in QLDB using a SQL-like API.

Use cases for Amazon QLDB include:

- **Finance**—including credit and debit transactions.
- **Insurance**—including claim transactions and auditing.
- **HR and payroll**—including employee benefits, performance histories, or certifications.
- **Retail and supply chain management**—including batch tracking, product recall processes, and shipping details.