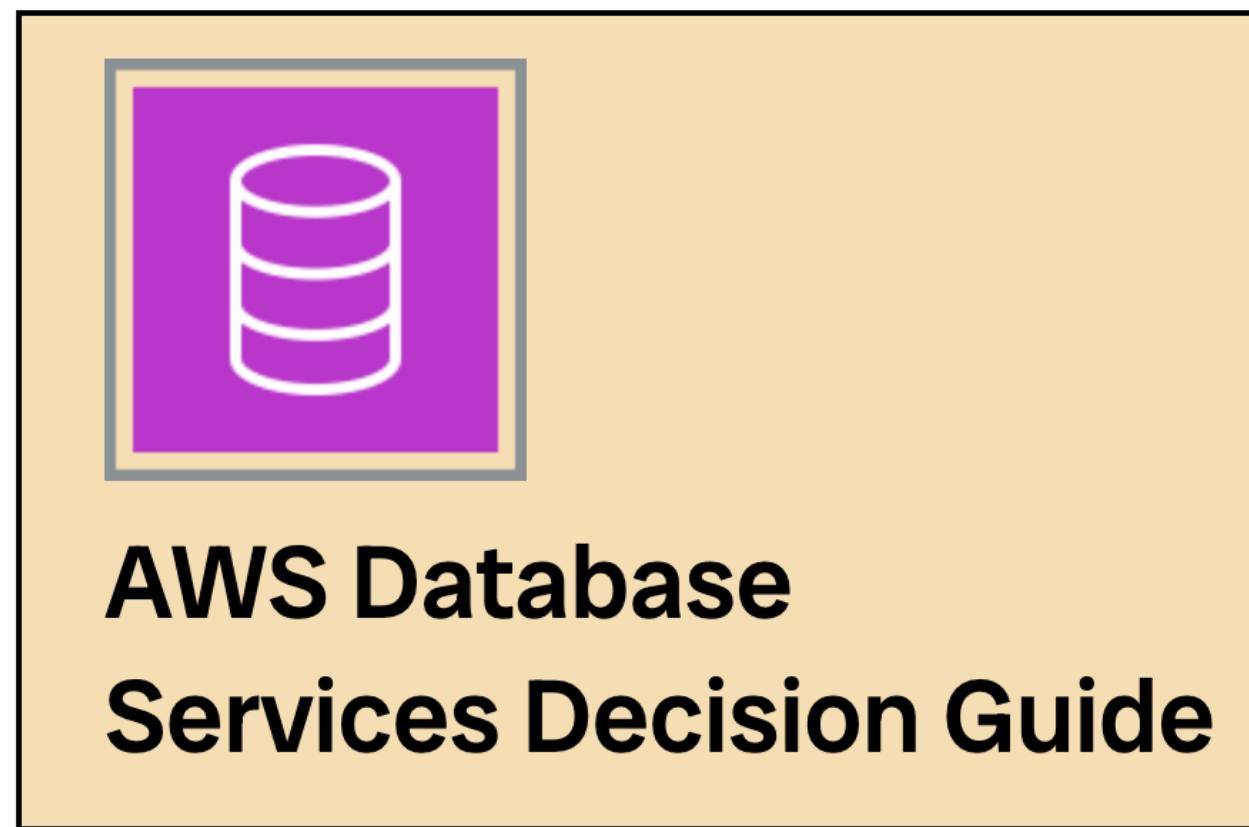




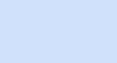
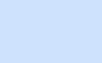
AWS Database Services Decision Guide

Table of Contents

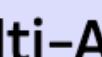
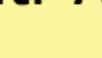


- 1 Model, Use Cases, Scalability, Data Consistency and Compatibility**
- 2 Pricing, Backup, Recovery, Monitoring and Migration**
- 3 Transaction Support and Key Notes**
- 4 Availability SLA (Target)**
- 5 Management Model and Operational Overhead**
- 6 Exam-Focused Decision Guide**

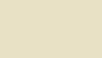
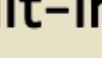
Model, Use Cases, Scalability, Data Consistency and Compatibility

#	Service Name	Database Model	Common Use Cases	Scalability Approach	High Availability Features	Data Consistency	Engine Compatibility
1	Amazon RDS	Relational 	OLTP, Web/Mobile Apps  , E-commerce  , CRM, ERP, Migrations	Vertical (Instance), Horizontal (Read Replicas)  , Storage (Auto/Manual), RDS Proxy	Multi-AZ (Sync Standby)  , Auto Failover, Snapshots, PITR	Strong (ACID)  , Eventual (RR)	MySQL, PostgreSQL, MariaDB  , SQL Server, Oracle, Db2
2	Amazon Aurora	Relational 	High-Perf OLTP  , Enterprise Apps, SaaS, Gaming, Migrations	Vertical (Instance/Serverless), Horizontal (Read Replicas, Auto Scaling)  , Storage (Auto), Global DB	Multi-AZ (Built-in, 6 copies/3 AZs)  , Auto Failover (<30s), PITR, Backtrack, Global DB	Strong (ACID)  , Eventual (RR)	MySQL, PostgreSQL 
3	Amazon DynamoDB	Key-Value, Document  	High-Traffic Web  , E-commerce, Gaming, Ad Tech, IoT  , Mobile, Microservices	Horizontal (Auto/Provisioned)  , Storage (Auto), Serverless (On-Demand), Global Tables	Multi-AZ (Built-in, 3 AZs)  , Global Tables (Multi-Region Active-Active), PITR, On-Demand Backup	Tunable (Strong/Eventual) 	Proprietary NoSQL 
4	Amazon DocumentDB	Document 	Content Mgmt  , Catalogs, Profiles, Migrating MongoDB  , GenAI	Vertical (Instance), Horizontal (Read Replicas, Elastic Clusters/Sharding)  , Storage (Auto), Global Clusters	Multi-AZ (Built-in, 6 copies/3 AZs)  , Auto Failover (<30s), Snapshots, PITR, Global Clusters	Strong (Primary), Eventual (RR) 	MongoDB API (3.6, 4.0, 5.0) 

Model, Use Cases, Scalability, Data Consistency and Compatibility

#	Service Name	Database Model	Common Use Cases	Scalability Approach	High Availability Features	Data Consistency	Engine Compatibility
5	Amazon ElastiCache	In-Memory (Cache) 	Caching  , Session Stores, Leaderboards, Real-time Analytics, Pub/Sub, GenAI Cache	Vertical (Node Type), Horizontal (Nodes/Shards/Replicas, Auto Scaling)  , Serverless (Auto)	Multi-AZ (Redis/Valkey)  , Auto Failover, Snapshots (Redis/Valkey), Global Datastore	Eventual (Primarily) 	Redis OSS, Memcached, Valkey 
6	Amazon MemoryDB	In-Memory (Database) 	Microservices  , Real-time Apps, Durable Cache, Gaming, Streaming, GenAI	Vertical (Node Type - Online), Horizontal (Shards - Online)  , Read Replicas	Multi-AZ Transaction Log (Durable)  , Auto Failover (Lossless), Snapshots, Multi-Region	Strong (Primary), Eventual (RR/Multi-Region) 	Redis OSS, Valkey 
7	Amazon Neptune	Graph 	Social Networks  , Recommendations, Fraud Detection  , Knowledge Graphs, GenAI	Vertical (Instance/Serverless), Horizontal (Read Replicas, Auto Scaling)  , Storage (Auto), Global DB	Multi-AZ (Built-in, 6 copies/3 AZs)  , Auto Failover, Snapshots, PITR, Global DB	Strong (ACID - Primary), Eventual (RR) 	Gremlin, openCypher, SPARQL 
8	Amazon Keyspaces	Wide Column 	Migrating Cassandra  , High-Scale Industrial Apps, IoT, Gaming	Horizontal (Auto/Provisioned)  , Storage (Auto), Serverless (On-Demand)	Multi-AZ (Built-in, 3 replicas)  , PITR, Multi-Region Replication	Tunable (LOCAL_QUORUM/LOCAL_ONE) 	Apache Cassandra CQL 

Model, Use Cases, Scalability, Data Consistency and Compatibility

#	Service Name	Database Model	Common Use Cases	Scalability Approach	High Availability Features	Data Consistency	Engine Compatibility
9	Amazon Timestream	Time Series 	IoT  , DevOps Monitoring  , Industrial Telemetry, App Analytics	Serverless (Auto Ingest/Storage/Query)  , Instance-based (InfluxDB)	Multi-AZ (Built-in, 3 AZs – LiveAnalytics)  , AWS Backup Integration	Eventual 	SQL-like, InfluxDB API 
10	Amazon QLDB	Ledger 	Systems of Record  , Supply Chain, Finance, Audit Trails 	Serverless (Auto) 	Multi-AZ (Built-in) 	Strong (ACID, Serializable) 	PartiQL  (EOL)
11	Amazon Redshift	Data Warehouse 	BI  , Analytics, OLAP, Log Analysis, Data Lake Querying	Vertical (Node Type), Horizontal (Nodes)  , Concurrency Scaling, Serverless (Auto)	Multi-Node Cluster Fault Tolerance  , Snapshots, PITR, Cross-Region Snapshots	Strong (ACID) 	PostgreSQL-based SQL 

Pricing, Backup, Recovery, Monitoring and Migration

#	Service Name	Typical Pricing Model	Backup Options	Recovery Options	Monitoring Integrations	Ease of Migration
1	Amazon RDS 	Instance Hours  , Storage  , IOPS, Data Transfer	Auto/Manual Snapshots  , PITR (Logs)  , Native Backup/Restore	Restore from Snapshot, Restore, PITR (New Instance) 	CloudWatch  , Perf Insights, CloudTrail  , Events	High (DMS Homogeneous)  , Medium (Heterogeneous)
2	Amazon Aurora 	Instance Hours/ACUs  , Storage, I/O, Backup Storage	Auto/Manual Snapshots  , PITR, Backtrack  , Continuous Backup	Restore from Snapshot, Restore, PITR, Backtrack (In-Place) 	CloudWatch  , Perf Insights, CloudTrail  , Events	High (RDS Snapshot/Replica)  , Medium (Heterogeneous)

Pricing, Backup, Recovery, Monitoring and Migration

#	Service Name	Typical Pricing Model	Backup Options	Recovery Options	Monitoring Integrations	Ease of Migration
3	Amazon DynamoDB	Request Units  , Capacity Units, Storage, Backup Storage	PITR (Continuous)  , On-Demand Backup 	Restore from PITR/Backup (New Table) Restore, 	CloudWatch  , Contributor Insights, CloudTrail 	Medium (DMS, Data Pipeline) 
4	Amazon DocumentDB	Instance Hours  , Storage, I/O, Backup Storage, Data Transfer	Auto/Manual Snapshots  , PITR (Continuous) 	Restore from Snapshot/PITR (New Cluster) Restore, 	CloudWatch  , Perf Insights, CloudTrail 	High (from MongoDB)  , Medium (to others)

Pricing, Backup, Recovery, Monitoring and Migration

#	Service Name	Typical Pricing Model	Backup Options	Recovery Options	Monitoring Integrations	Ease of Migration
5	Amazon ElastiCache	Node Hours  , Serverless (ECPUs, GB-hours), Backup Storage	Manual/Auto Snapshots  (Redis/Valkey to S3) 	Restore from Snapshot (New Cluster) Restore, 	CloudWatch  , CloudTrail  , Event Notifications	High (Redis import/export) 
6	Amazon MemoryDB	Node Hours  , Data Written (GB), Snapshot Storage, Data Transfer	Auto/Manual Snapshots  (to S3)  , Multi-AZ Transaction Log	Restore from Snapshot (New Cluster) Restore, 	CloudWatch  , CloudTrail  , Event Notifications	High (Redis RDB import)  , Medium (considerations)

Pricing, Backup, Recovery, Monitoring and Migration

#	Service Name	Typical Pricing Model	Backup Options	Recovery Options	Monitoring Integrations	Ease of Migration
7	Amazon Neptune	Instance Hours/ NCUs  , Storage, I/O, Backup Storage	Auto/Manual Snashots  , PITR (via AWS Backup) 	Restore from Snapshot/PITR (New Cluster) Restore, 	CloudWatch  , CloudTrail  , Audit Logs	Medium (Bulk Loader, DMS) 
8	Amazon Keyspaces	Request/ Capacity Units  , Storage, PITR Storage, Data Transfer	PITR (Continuous)  , 	Restore from PITR (New Table) Restore, 	CloudWatch  , CloudTrail 	High (from Cassandra)  , Medium (to others)

Pricing, Backup, Recovery, Monitoring and Migration

#	Service Name	Typical Pricing Model	Backup Options	Recovery Options	Monitoring Integrations	Ease of Migration
9	Amazon Timestream	Writes  , Storage (Memory/Magnetic), Queries (LiveAnalytics)	Managed via AWS Backup  (Snapshots) 	Restore from Backup (New Table) Restore, 	CloudWatch  , CloudTrail 	Medium (DMS, Batch Load) 
10	Amazon QLDB	Read/Write IOs  , Journal Storage, Data Transfer	Journal Export (to S3)  - No native backup/restore	Restore via Journal Replay, Restore (Manual process from S3 export)	CloudWatch  , CloudTrail 	Lower (Specific ledger model)  (EOL)

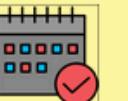
Pricing, Backup, Recovery, Monitoring and Migration

#	Service Name	Typical Pricing Model	Backup Options	Recovery Options	Monitoring Integrations	Ease of Migration
11	Amazon Redshift	Node Hours/ RPU  , Managed Storage, Spectrum, Concurrency Scaling	Auto/Manual Snapshots  (to S3) 	Restore from Snapshot Restore (New Cluster/ Namespace/ Table)	CloudWatch  , CloudTrail  , Query Monitoring	Medium (DMS, SCT, COPY) 

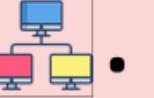
Transaction Support and Key Notes

#	Service	Transaction Support Scope	Key Notes
1	Amazon RDS	Multi-Statement, Multi-Table  (Standard SQL)	Inherits ACID properties  of the chosen relational engine (MySQL  , PostgreSQL  , etc.).
2	Amazon Aurora	Multi-Statement, Multi-Table  (MySQL/PostgreSQL compatible SQL)	Aurora DSQL uses optimistic concurrency control  . Aurora Limitless maintains strong consistency  across shards.
3	Amazon Redshift	Multi-Statement, Multi-Table  (Standard SQL)	Primarily an OLAP system  , but supports standard ACID transactions  for data loading/manipulation.

Transaction Support and Key Notes

#	Service	Transaction Support Scope	Key Notes
4	Amazon DynamoDB 	Multi-Item, Multi-Table  (within single API call, up to 100 actions)	Strong reads cost 2x RCU of eventual reads  Transactions use optimistic concurrency  Multi-Region strong consistency for Global Tables in preview.
5	Amazon Keyspaces 	Single-Item Atomic Operations  ; Lightweight Transactions (LWT) for conditional updates	LOCAL_QUORUM ensures writes are durable across AZs  before acknowledgment. Read consistency is tunable per request  .
6	Amazon DocumentDB 	Multi-Document, Multi-Statement, Multi-Collection, Multi-Database  (CRUD operations)	Supports standard MongoDB ACID  . Document modifications were atomic/consistent  even before explicit transactions.

Transaction Support and Key Notes

#	Service	Transaction Support Scope	Key Notes
7	Amazon Neptune	Graph Operations  (across nodes/edges within a transaction on Primary)	Read replicas are eventually consistent  . Transactions follow standard graph semantics  .
8	Amazon Timestream	Single Write Operations  (Batch writes possible)	Designed for high-volume time-series ingestion  and analytics, not transactional consistency in the ACID sense.
9	Amazon ElastiCache	Atomic Command Execution  (MULTI/EXEC for Redis/Valkey)	Primarily a cache  ; consistency depends on engine and topology. Redis MULTI/EXEC groups commands but isn't full ACID  .

Transaction Support and Key Notes

#	Service	Transaction Support Scope	Key Notes
10	Amazon MemoryDB	Atomic Command Execution  (MULTI/EXEC for Redis/Valkey)	Provides strong consistency  on primary reads/writes. Durability achieved via distributed transaction log  .
11	Amazon QLDB (Legacy)	Multi-Statement, Multi-Document  (within a transaction)	Offers the highest isolation level (Serializable)  are key features.

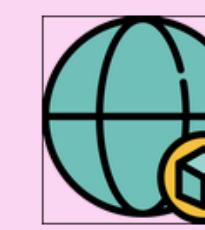
Availability SLA (Target)

#	Database Service	Availability SLA (Target)
1	Amazon RDS	99.95% (Multi-AZ) 
2	Amazon Aurora	99.99% (Multi-AZ)  99.999% (Global DB) 
3	Amazon Redshift	Not explicitly stated (Focus on durability/recovery) 

Availability SLA (Target)

#	Database Service	Availability SLA (Target)
4	Amazon DynamoDB	99.99% (Standard)  99.999% (Global Tables) 
5	Amazon Keyspaces	99.99% 
6	Amazon DocumentDB	99.9% 

Availability SLA (Target)

#	Database Service	Availability SLA (Target)
7	Amazon Neptune	99.99% 
8	Amazon Timestream	99.99% (LiveAnalytics)  99.9% (InfluxDB Multi-AZ) 
9	Amazon ElastiCache	99.99% (Serverless/Multi-AZ)  

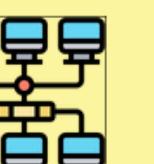
Availability SLA (Target)

#	Database Service	Availability SLA (Target)
10	Amazon MemoryDB	99.99% (Multi-AZ)  99.999% (Multi-Region) 
11	Amazon QLDB (Legacy)	99.99% 

Management Model and Operational Overhead

#	Service	Management Model	Operational Overhead
1	Amazon RDS	Fully Managed 	Medium 
2	Amazon Aurora	Fully Managed (Prov) / Serverless (Sv2/ Limitless/DSQL)  	Medium (Prov) / Low (Serverless)  
3	Amazon Redshift	Fully Managed (Prov) / Serverless  	Medium (Prov) / Low (Serverless)  

Management Model and Operational Overhead

#	Service	Management Model	Operational Overhead
4	Amazon DynamoDB	Serverless 	Low 
5	Amazon Keyspaces	Serverless 	Low 
6	Amazon DocumentDB	Fully Managed (Instance-based)  / Elastic Clusters 	Medium 

Management Model and Operational Overhead

#	Service	Management Model	Operational Overhead
7	Amazon Neptune	Fully Managed (Prov) / Serverless  	Medium (Prov)  / Low (Serverless) 
8	Amazon Timestream	Serverless (LiveAnalytics) / Fully Managed (InfluxDB)  	Low (LiveAnalytics)  / Medium (InfluxDB) 
9	Amazon ElastiCache	Fully Managed (Nodes) / Serverless  	Medium (Nodes)  / Low (Serverless) 

Management Model and Operational Overhead

#	Service	Management Model	Operational Overhead
10	Amazon MemoryDB	Fully Managed 	Medium 
11	Amazon QLDB (Legacy)	Serverless 	Low 

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
1	Lowest Latency Caching (Microseconds)  	ElastiCache  , MemoryDB 	ElastiCache: Best for pure caching  , potentially lower cost, supports Memcached. MemoryDB: Provides durability via transaction log  , strong consistency on primary, suitable as primary DB.	Valkey support & pricing  . Multi-Region GA  .

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
2	Durable In-Memory Database (Primary Store) 	MemoryDB 	Offers Redis/Valkey compatibility with Multi-AZ durability  and strong consistency on primary. Use when cache data loss is unacceptable or using as primary DB.	Valkey support & pricing  . Multi-Region GA  .

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
3	Highest Performance Managed MySQL/ PostgreSQL  	Aurora  , RDS 	<p>Aurora: Generally higher throughput/lower latency , auto-scaling storage, faster replicas, Global DB, Serverless v2, Limitless/DSQL options.</p> <p>RDS: Broader engine support (Oracle, SQL Server), simpler for basic needs, potentially lower cost for non-I/O intensive workloads.</p>	<p>Aurora DSQL GA.</p> <p>Aurora Sv2 scales to zero .</p> <p>RDS for Oracle Jan 2025 RU.</p>

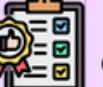
Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
4	Managed Oracle or SQL Server	RDS 	RDS is the primary managed service for commercial engines like Oracle and SQL Server  . RDS Custom allows more OS/DB access if needed.	RDS for Oracle Jan 2025 RU  .
5	Serverless, Scalable Key-Value/Document Store	DynamoDB 	Extremely scalable  , pay-per-request (On-Demand) or provisioned capacity, flexible schema, Global Tables. Default eventual consistency.	On-Demand price reduction  . Multi-Region Strong Consistency (Preview). Warm Throughput.

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
6	Managed MongoDB Compatibility	DocumentDB 	Provides compatibility with MongoDB 3.6, 4.0, 5.0 APIs, drivers, and tools  . Offers managed features like backups, scaling, HA.	Supports ACID transactions  . Elastic Clusters for write scaling.
7	Managed Cassandra Compatibility	Keyspaces 	Serverless, managed alternative to self-hosting Cassandra  . Uses CQL API. On-demand or provisioned capacity.	Multi-Region Replication GA in more regions  .

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
8	 Modeling Complex Relationships (OLTP)	Neptune 	Purpose-built graph database  supporting Gremlin, openCypher, SPARQL. Optimized for traversing relationships. Serverless option available.	99.99% SLA announced  .
9	 Analyzing Large Graphs (OLAP)	Neptune Analytics 	In-memory engine for fast analytics  on large graphs (billions of edges). Uses openCypher and built-in algorithms. Loads from S3/ Neptune DB.	Parquet/CSV import/export  .

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
10	High-Volume Time-Series Data 	Timestream 	Purpose-built for time-series.  LiveAnalytics (Serverless, SQL, tiered storage) or InfluxDB (Managed open-source). Optimized ingestion & querying.	
11	Immutable, Verifiable Ledger 	QLDB (Legacy) 	Provides a cryptographically verifiable  , append-only journal for tracking data history. Centralized trust model. EOL for new customers.	

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
12	 Database Migration Strategy	DMS  , SCT  , Native Tools	<p>Homogeneous: Simpler, often native tools or DMS work well.</p> <p>Heterogeneous: Complex, requires schema/code conversion (SCT is key), DMS facilitates data movement .</p> <p>Consider downtime (Online vs. Offline vs. Hybrid).</p>	

Exam-Focused Decision Guide

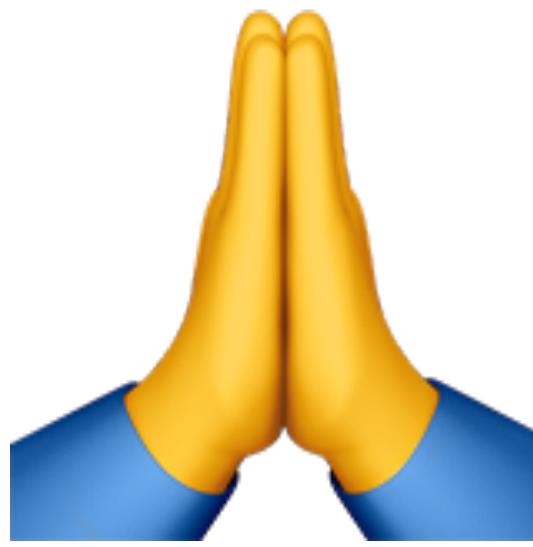
#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
13	 Disaster Recovery (Cross-Region)	Global Database (Aurora/Neptune)  , Global Tables (DynamoDB), Global Datastore (ElastiCache), Multi-Region Replication (Keyspaces/ MemoryDB), Cross-Region Read Replicas/Snapshots (RDS)	Choice depends on RTO/RPO  , need for active-active writes, consistency requirements, and cost. Global options offer lowest RTO/RPO but may have higher cost/complexity.	MemoryDB Multi-Region GA  .

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
14	 Cost Optimization	RIs/Savings Plans  , Serverless, Right-Sizing, I/O-Optimized, Data Tiering, TTL	Match pricing model (On-Demand, Provisioned, Serverless) to workload predictability  . Use commitment discounts for steady state. Leverage features like Aurora I/O-Optimized or DynamoDB Standard-IA where applicable.	

Exam-Focused Decision Guide

#	Scenario / Decision Point	Key Services Involved	Differentiator / Exam Focus Point	Relevant Snippets / Updates
15	 Security & Compliance	Encryption (KMS  / TDE), Auth (IAM  / Native), Network (VPC  /PrivateLink ), Certifications (HIPAA/PCI/SOC/ FedRAMP)	Verify service supports required encryption methods  , authentication integration, and holds necessary compliance attestations (via AWS Artifact). Remember Shared Responsibility Model  .	



**Thanks
for
Watching**