AWS Certified Solutions Architect - Professional Cheat Sheet

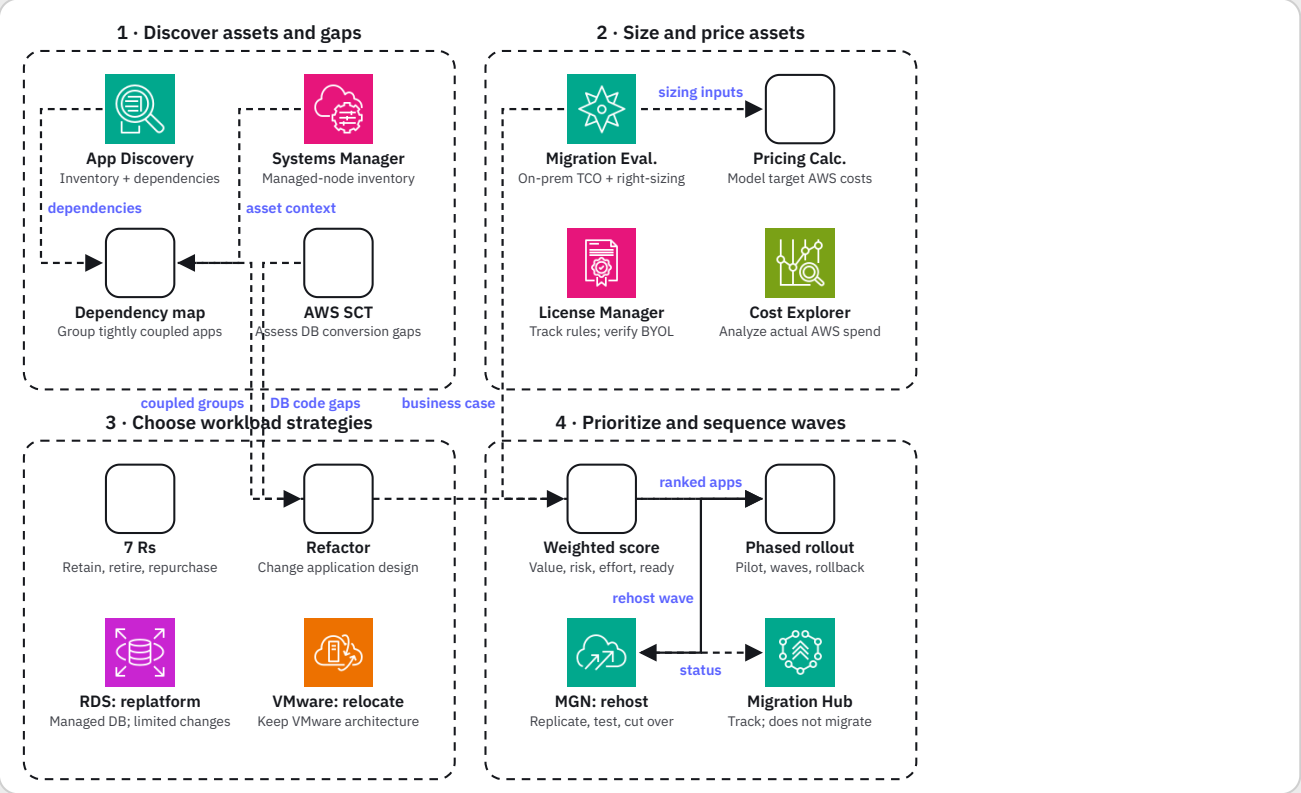
SAP-C02 · Domain 4 of 4

BlowStack

DOMAIN 4 · ACCELERATE WORKLOAD MIGRATION AND MODERNIZATION · 20% OF THE EXAM · TASK STATEMENT 4.1

Select existing workloads and processes for potential migration

Discover, assess, choose, sequence



1 Discover assets and gaps

Use **Gap Analysis** to compare inventory and readiness with target requirements. SCT identifies schema/code conversion gaps; a Proof of Concept validates uncertain compatibility, not production readiness.

2 Size and price assets

TCO compares CapEx and OpEx over the same horizon, including licenses, operations and migration. Right-size from measured demand; capacity planning also accounts for peaks, growth and quotas.

3 Choose workload strategies

Choose **7 Rs** per workload: retain when blocked, retire unused, repurchase for SaaS, rehost for speed, relocate VMware unchanged, replatform for managed operations, refactor for architectural change.

4 Prioritize and sequence waves

Wave planning combines weighted priorities with dependencies and change windows; move coupled components together. MGN performs rehosting; Migration Hub aggregates progress, not server replication.

Exam traps

- **Discovery ≠ tracking**: Application Discovery Service inventories dependencies; Migration Hub tracks progress. Neither performs server replication.
- **BYOL is not automatic**: License Manager tracks and enforces configured rules; portability depends on vendor terms, tenancy and license mobility rights.
- **Estimate ≠ actual spend**: Pricing Calculator models planned AWS usage; Cost Explorer analyzes incurred AWS costs. Neither alone provides full migration TCO.

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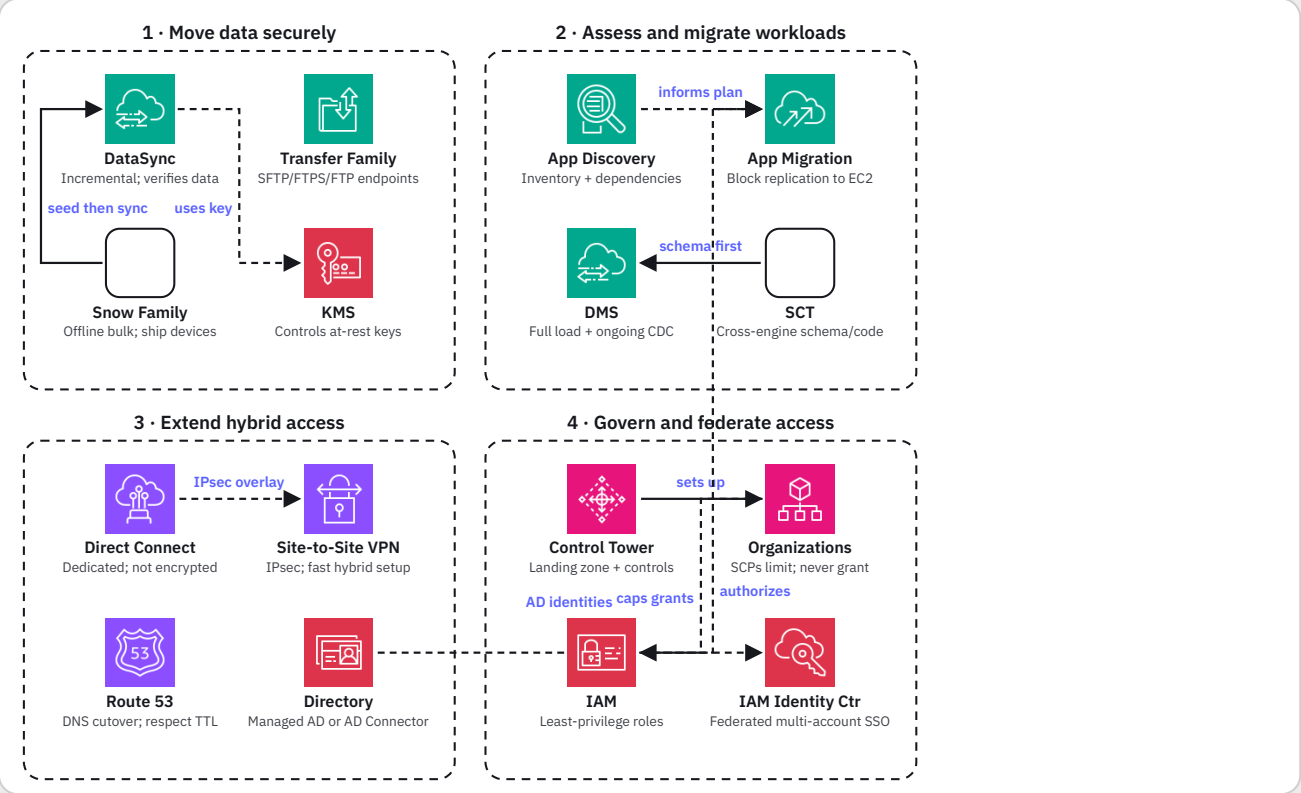
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DOMAIN 4 · ACCELERATE WORKLOAD MIGRATION AND MODERNIZATION · TASK STATEMENT 4.2

Determine the optimal migration approach for existing workloads

Copy, convert, connect, govern



1 Move data securely

Bandwidth/window decides online DataSync versus offline Snow seeding plus incremental sync. Transfer Family preserves file-transfer protocols. Use encrypted protocols in transit and KMS-backed encryption at rest.

2 Assess and migrate workloads

Downtime: backup/restore suits an outage; DMS full load + CDC minimizes it. Cross-engine conversion needs SCT assessment and manual fixes. MGN rehosts, not refactors. Test phased cutover and retain a rollback plan.

3 Extend hybrid access

Hybrid continuity: VPN provisions quickly; Direct Connect offers predictable bandwidth, not default encryption. Split-horizon DNS returns private/public answers for shared names. AD Connector proxies existing AD.

4 Govern and federate access

Central guardrails: Control Tower establishes the landing zone; Organizations applies inherited SCP limits through OUs. Identity Center federates workforce access. Separate governance administrators from migration operators.

Exam traps

- **S3 Transfer Acceleration** speeds long-distance uploads over the network; it does not bypass source bandwidth limits or provide offline transfer like AWS Snow Family.
- **CDC is not rollback**: after cutover writes reach the target, switching DNS back can lose data unless reverse replication or reconciliation was planned.
- **Same engine does not require SCT**: native backup/restore can suit a tolerated outage; DMS adds ongoing CDC for low downtime. Validate engine versions and target compatibility.

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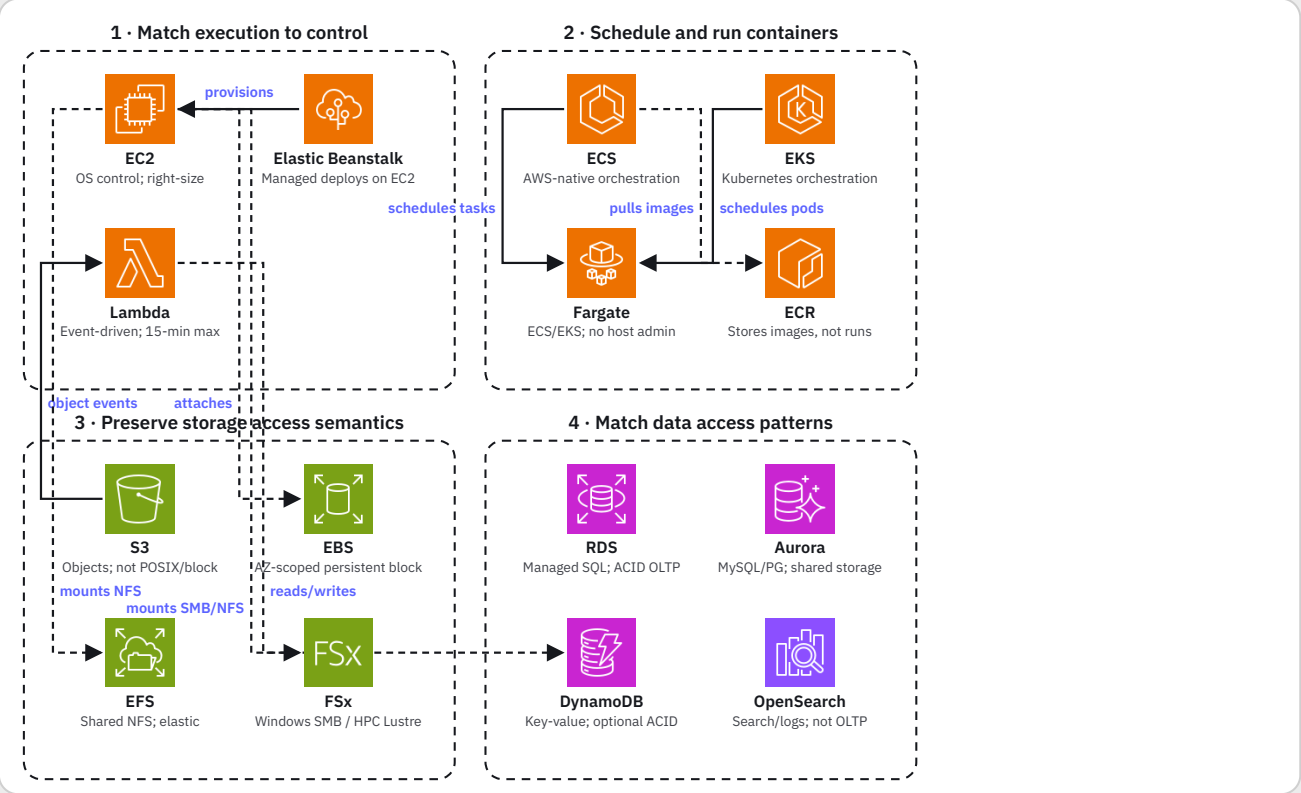
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DOMAIN 4 · ACCELERATE WORKLOAD MIGRATION AND MODERNIZATION · TASK STATEMENT 4.3

Determine a new architecture for existing workloads

Replatform, orchestrate, store, query



1 Match execution to control

Choose **control**: EC2 for OS access; Elastic Beanstalk for managed web deployment; Lambda for short event tasks; AWS Batch for queued jobs. Right-size from measured CPU, memory, and I/O demand.

2 Schedule and run containers

Choose **orchestration** separately from capacity: ECS for AWS-native scheduling, EKS for Kubernetes. Fargate removes worker-host management; EC2 workers retain host control. ECR stores images, not running containers.

3 Preserve storage access semantics

Choose **access protocol**: S3 objects, EBS disks, EFS shared NFS, FSx Windows SMB or Lustre HPC. AWS Storage Gateway Volume Gateway preserves on-premises iSCSI access; it is not an NFS file share.

4 Match data access patterns

Choose **access pattern**: RDS/Aurora for relational ACID OLTP; DynamoDB for key-based scale; OpenSearch for indexed search/log analytics, not a transactional source of truth. OLAP reporting differs from OLTP transactions.

Exam traps

- **Serverless is not unlimited**: Lambda invocations stop at 15 minutes; Fargate supports long-lived containers. ARM needs compatible binaries/images; equal vCPU counts do not imply equal performance.
- **Consistency differs**: S3 reads are strongly consistent; DynamoDB reads default to eventual. Strong reads are available on tables/LSIs, not GSIs; ACID transactions do not make every read strong.
- **Multi-AZ is not read scaling**: a standard RDS Multi-AZ DB instance standby cannot serve reads; read replicas usually lag. Self-managed databases on EC2 retain OS access and DBA duties.

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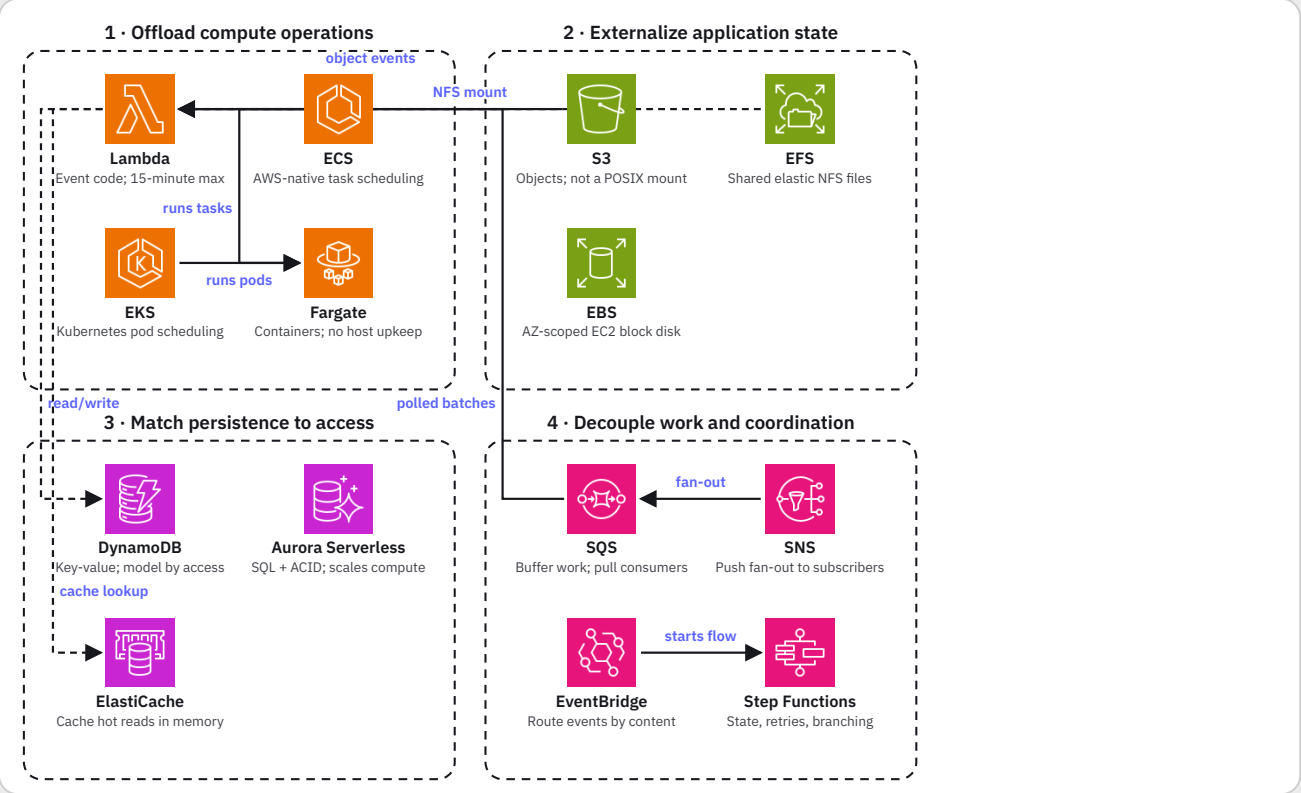
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DOMAIN 4 · ACCELERATE WORKLOAD MIGRATION AND MODERNIZATION · TASK STATEMENT 4.4

Determine opportunities for modernization and enhancements

Offload, externalize, specialize, decouple



1 Offload compute operations

Execution model decides: Lambda runs bounded event handlers; ECS provides AWS-native orchestration, EKS Kubernetes. Both support Fargate or EC2; Fargate removes host management, not application configuration.

2 Externalize application state

Storage interface decides: S3 for objects, EFS for shared Linux NFS, FSx for Windows SMB or specialized file systems, EBS for EC2 block storage. Externalized state makes compute workers interchangeable.

3 Match persistence to access

Polyglot persistence follows **access patterns**: DynamoDB for key-based access and denormalized items; Aurora for relational transactions; ElastiCache to offload hot reads from the durable database.

4 Decouple work and coordination

Integration contract decides: SQS buffers work; SNS fans out; EventBridge routes events; Step Functions coordinates stateful workflows. Amazon MQ preserves existing ActiveMQ/RabbitMQ protocols instead of requiring a rewrite.

Exam traps

- **Long-running jobs** exceeding 15 minutes do not fit Lambda. Containers can run longer; privileged containers require EC2 rather than Fargate.
- **Exactly-once processing** is not guaranteed by SQS FIFO deduplication; consumers still need idempotency. Standard queues can duplicate and reorder messages.
- **ACID does not imply SQL**: DynamoDB supports transactions; Aurora fits relational joins. DocumentDB targets MongoDB-compatible document workloads; Neptune targets graph relationships.

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DOMAIN 4 · ACCELERATE WORKLOAD MIGRATION AND MODERNIZATION · WHAT TO REMEMBER

Concepts and services of Accelerate Workload Migration and Modernization

Concepts to know

7 Rs of Migration

Rehost, relocate, replatform, repurchase, refactor or re-architect, retain, and retire classify migration choices. **Business goals and change tolerance** determine whether to move unchanged, modernize, replace, defer, or remove a workload.

Dependency Mapping

Maps application relationships and upstream/downstream dependencies. **Dependency-aware migration waves** keep tightly coupled components together or preserve connectivity when components move separately.

Loose Coupling

Components interact through explicit contracts rather than shared implementation or timing. **Independent scaling and failure isolation** favor queues or events; coordinated multistep processes favor workflow orchestration.

Core services

AWS Application Migration Service

Continuous block-level replication supports **rehosting servers with minimal application changes**. Test launches validate workloads before a controlled cutover.

AWS Database Migration Service (AWS DMS)

Full load plus CDC supports low-downtime database migration. AWS Schema Conversion Tool (AWS SCT) handles schema conversion for heterogeneous migrations; conversion gaps need remediation.

AWS DataSync

Online file and object transfers support **bulk migration with incremental synchronization** and integrity verification; managed file-transfer endpoints and offline shipment serve different needs.

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