AWS Certified CloudOps Engineer - Associate Cheat Sheet

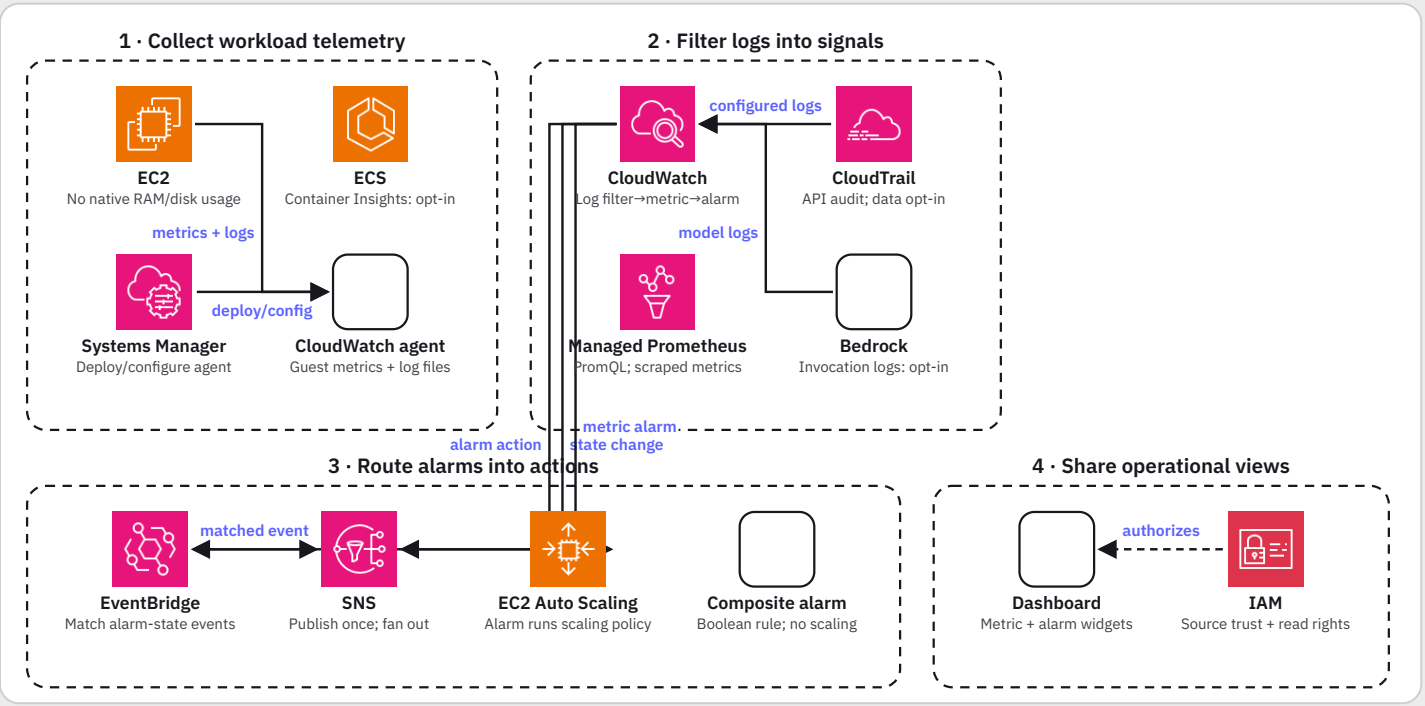
SOA-C03 · Domain 1 of 5

BlowStack

DOMAIN 1 · MONITORING, LOGGING, ANALYSIS, REMEDIATION, AND PERFORMANCE OPTIMIZATION · 22% OF THE EXAM · TASK STATEMENT 1.1

Implement metrics, alarms, and filters by using AWS monitoring and logging services

Collect, filter, alarm, visualize



1 Collect workload telemetry

Use the **CloudWatch agent** for guest memory, disk usage, and logs; grant its IAM permissions. Systems Manager deploys/configures it. Container Insights collects ECS/EKS telemetry; Lambda provides native metrics.

2 Filter logs into signals

Use **CloudTrail** for API audit, not runtime logs; Prometheus stores scraped metrics. Bedrock invocation logging is opt-in. CloudWatch log filters match new events only; log retention defaults to never expire.

3 Route alarms into actions

Use **EventBridge** to route alarm state changes to targets; SNS fans out to subscribers. Metric alarms can scale directly. Composite alarms combine alarm states to reduce noise, not perform scaling actions.

4 Share operational views

Use **cross-account dashboards** for a central view with customizable widgets from multiple accounts and Regions. Configure cross-account roles and permissions; dashboard sharing does not grant general resource access.

Exam traps

- **INSUFFICIENT_DATA** is not ALARM. Check namespace, dimensions, evaluation periods, datapoints to alarm, and missing-data treatment before assuming that an alarm or its action is broken.
- **SNS delivery** requires confirmed subscriptions where applicable and a topic policy allowing the publisher. An alarm or EventBridge rule alone does not authorize cross-account publishing.
- **Composite alarms** can notify SNS or invoke Lambda, but cannot perform EC2 or Auto Scaling actions. Metric alarms support these action types; EC2 actions apply only to eligible EC2 metrics.

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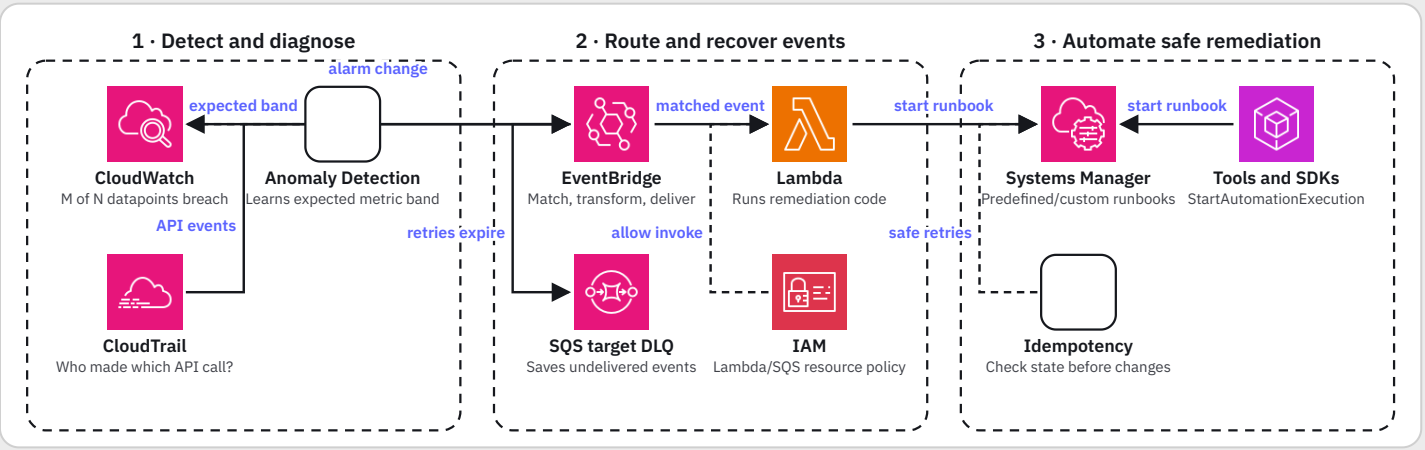
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DOMAIN 1 · MONITORING, LOGGING, ANALYSIS, REMEDIATION, AND PERFORMANCE OPTIMIZATION · TASK STATEMENT 1.2

Identify and remediate issues by using monitoring and availability metrics

Detect, route, remediate safely



1 Detect and diagnose

Use **anomaly detection** for a changing baseline; static thresholds for known limits. CloudTrail identifies API actors, not CPU or availability. Alarm actions or routing rules require configuration.

2 Route and recover events

No target invocation: check bus, rule state, event pattern, and target permissions. Input transformers reshape matched events. Retries and a configured SQS DLQ handle delivery failures, not Lambda code failures.

3 Automate safe remediation

Automation orchestrates multi-step runbooks, including scripts and API calls. SDKs start executions; an execution role supplies permissions. Approval steps gate disruptive actions; state checks make retries safe.

Exam traps

- **Missing data is configurable**: breaching, notBreaching, ignore, or missing. Absent datapoints do not automatically prove an outage.
- **Delivery success is not code success**: EventBridge retries delivery failures. After Lambda accepts an asynchronous invocation, function-error retries and failure destinations belong to Lambda.
- **Automation is not Run Command**: Automation orchestrates workflows; Run Command runs commands on managed nodes. Repeated runbook executions are not inherently idempotent.

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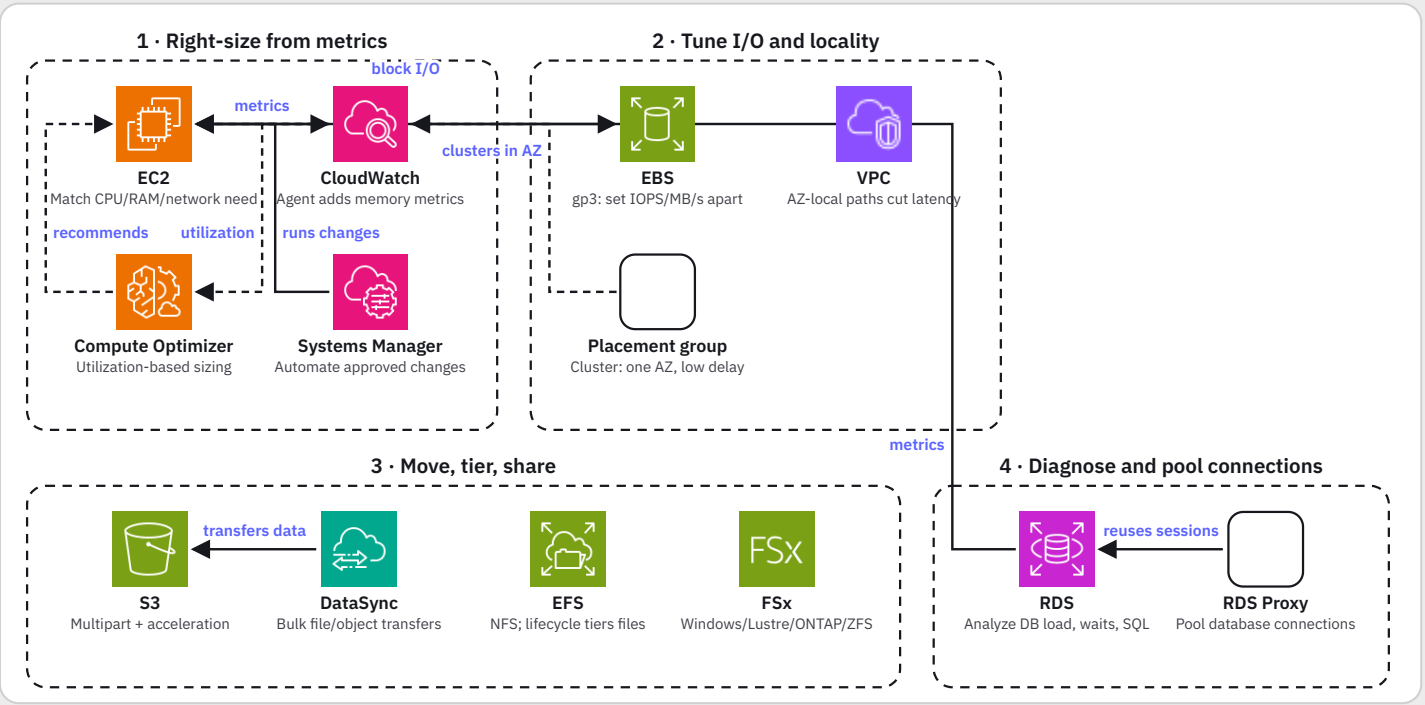
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DOMAIN 1 · MONITORING, LOGGING, ANALYSIS, REMEDIATION, AND PERFORMANCE OPTIMIZATION · TASK STATEMENT 1.3

Implement performance optimization strategies for compute, storage, and database resources

Measure, resize, accelerate, pool



1 Right-size from metrics

Measured demand drives sizing; tags group resources by application or owner. Compute Optimizer recommends changes but does not resize EC2 automatically. Systems Manager can automate remediation.

2 Tune I/O and locality

Queue depth plus latency signals I/O pressure: check volume and EC2 IOPS/throughput limits. gp2 can exhaust burst credits; gp3 separates capacity from performance. Cluster placement trades AZ diversity for low latency.

3 Move, tier, share

Protocol decides: EFS for shared NFS; FSx for Windows/SMB or Lustre HPC. Multipart parallelizes S3 uploads; acceleration helps distant clients. Lifecycle tiers storage; retrieval costs and latency still matter.

4 Diagnose and pool connections

DB load and waits in Performance Insights identify bottlenecks; recommendations guide tuning, not automatic fixes. CloudWatch alarms flag pressure. RDS Proxy reduces connection churn, not expensive query execution.

Exam traps

- **Low CPU alone is not a resizing signal**: memory or networking may be saturated. Default EC2 metrics omit guest memory; collect it with the CloudWatch agent.
- **More volume IOPS cannot bypass EC2 limits**: effective EBS performance is bounded by both volume and instance capabilities. A larger volume alone may not fix the bottleneck.
- **Multi-AZ is not always read scaling**: a conventional RDS Multi-AZ DB instance standby is not readable. Read replicas offload reads; RDS Proxy reduces connection pressure.

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DOMAIN 1 · MONITORING, LOGGING, ANALYSIS, REMEDIATION, AND PERFORMANCE OPTIMIZATION · WHAT TO REMEMBER

Concepts and services of Monitoring, Logging, Analysis, Remediation, and Performance Optimization

Concepts to know

Resource Utilization

Utilization measures demand against available capacity. **Identify the bottleneck** across CPU, memory, storage latency, IOPS, throughput, and network metrics before choosing a remediation.

Right-Sizing

Right-sizing matches capacity to measured workload requirements. **Use representative utilization history**, including peaks, to choose instance types, sizes, and storage performance without sacrificing availability.

Idempotency

Idempotency makes repeated execution produce the same intended outcome. **Make remediation safe to retry** because events can arrive more than once and automation can restart after partial failure.

Core services



Amazon CloudWatch

Use **the CloudWatch agent** for guest memory, filesystem metrics, and application logs; use metric filters to derive metrics from logs and alarms to evaluate metric thresholds.



AWS Systems Manager

Use **Automation runbooks** for repeatable, multi-step remediation with approvals and branching; use Run Command to execute commands on managed nodes.



Amazon EC2

Choose **cluster placement groups** for tightly coupled, low-latency workloads; check CPU credits on burstable instances and instance-level EBS limits before increasing volume performance.

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