AWS Well-Architected Tool

AWS Well-Architected Tool Cruddur - AWS Well-Architected Framework Report

AWS Account ID: 237457675866

AWS Well-Architected Tool Report

Table of contents

Workload properties

Workload name
Cruddur

ARN
arn:aws:wellarchitected:us-east-1:237457675866:workload/690d4ba5e0370ca17010214459666bdd

Description
A micro-blogging platform that allows users to post comments that expire after a period of time, following the motto: "Say it ... then forget it...". An ephemeral social media platform sought to be deployed by leveraging AWS services.

Review owner
Ace Cloud (acgecloudtrader@gmail.com)

Industry type
Other

Industry
Social Media

Environment
Pre-production

AWS Regions
US East (N. Virginia)

Non-AWS regions
-

Account IDs
-

Architectural design

-

Application

-

Lens overview

Questions answered

24/58

Version

AWS Well-Architected Framework, 31st Mar 2022

Pillar	Questions answered
Operational Excellence	11/11
Security	5/10
Reliability	2/13
Performance Efficiency	2/8
Cost Optimization	2/10
Sustainability	2/6

Lens notes

-

Improvement plan

Improvement item summary

High risk: 0

Medium risk: 0

Pillar	High risk	Medium risk
Operational Excellence	0	0
Security	0	0
Reliability	0	0
Performance Efficiency	0	0
Cost Optimization	0	0
Sustainability	0	0

High risk

Operational Excellence
No improvements identified

Security
No improvements identified

Reliability
No improvements identified

Performance Efficiency
No improvements identified

Cost Optimization
No improvements identified

Sustainability
No improvements identified

Medium risk

Operational Excellence
No improvements identified

Security
No improvements identified

Reliability
No improvements identified

Performance Efficiency
No improvements identified

Cost Optimization
No improvements identified

Sustainability
No improvements identified

Lens details

Operational Excellence

Questions answered

11/11

Question status

- High risk: 0
- Medium risk: 0
- No improvements identified: 11
- Not Applicable: 0
- Unanswered: 0

Pillar notes

-

1. How do you determine what your priorities are?

No improvements identified

Selected choice(s)

- Evaluate external customer needs
- Evaluate internal customer needs
- Evaluate governance requirements
- Evaluate compliance requirements
- Evaluate threat landscape
- Evaluate tradeoffs
- Manage benefits and risks

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

When creating an ephemeral social media platform, all external and internal factors need to be accounted for -- including the needs of users, stakeholders, compliance and governance officials, and how these groups need to be considered when designing and improving the application while weighing all costs/threats and benefits to be ephemeral in usage but persistent in the landscape of social media. The use of AWS Support & AWS Cloud Compliances look to be promising for OPS1.

Improvement plan

1. How do you determine what your priorities are?
No risk detected for this question. No action needed.

2. How do you structure your organization to support your business outcomes?

No improvements identified

Selected choice(s)

- Resources have identified owners
- Processes and procedures have identified owners
- Operations activities have identified owners responsible for their performance
- Team members know what they are responsible for
- Mechanisms exist to identify responsibility and ownership
- Mechanisms exist to request additions, changes, and exceptions
- Responsibilities between teams are predefined or negotiated

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The organizational roles and responsibilities that are dedicated to the creation of Cruddur are broken down into the very composition of project-level members and teams. There are technical, financial, and marketing teams that each have their specific pre-defined set of tasks that they are accountable for and take ownership. Leadership within these groups is responsible for allocating tasks and responsibilities to their respective teams for which there exist request additions, changes, possibilities for exceptions, and negotiation and delegation

2. How do you structure your organization to support your business outcomes?

of tasks. Leadership outlines, documents, and tracks the roles identified for each respective team and its members within each department/group as well as any changes.

Improvement plan

No risk detected for this question. No action needed.

3. How does your organizational culture support your business outcomes?

No improvements identified

Selected choice(s)

- Executive Sponsorship
- Team members are empowered to take action when outcomes are at risk
- Escalation is encouraged
- Communications are timely, clear, and actionable
- Experimentation is encouraged
- Team members are enabled and encouraged to maintain and grow their skill sets
- Resource teams appropriately
- Diverse opinions are encouraged and sought within and across teams

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Senior leadership for each respective department focused on this project, as well as overall executive leadership are responsible for advocating and being the sponsors for the project and collective tasks divided into technical, financial, and marketing needs for the success of Cruddur. As the sponsors, in consideration of the needs of internal and external stakeholders, they communicate the key performance indicators and metrics for success to each leadership group while

3. How does your organizational culture support your business outcomes?

encouraging feedback and open communication from these groups, leveraging their areas of expertise as subject matter experts to magnify and focus onto opportunities for proper resourcing and innovation to better leverage and grow the skill sets of their teams to foster and nurture organizational culture consisting of its members to support Cruddur's business outcome.

Improvement plan

No risk detected for this question. No action needed.

4. How do you design your workload so that you can understand its state?

No improvements identified

Selected choice(s)

- Implement application telemetry
- Implement and configure workload telemetry
- Implement user activity telemetry

Not selected choice(s)

- Implement dependency telemetry
- Implement transaction traceability
- None of these

Best Practices marked as Not Applicable

-

Notes

Application, workload, and user telemetry are the most critical in understanding how to operationalize the Cruddur application as the workloads which leverage AWS services must accommodate the activity of users and overall application overhead. Amazon CloudWatch appears to be a promising service for helping to monitor workloads and provide such sought telemetry.

Improvement plan

No risk detected for this question. No action needed.

5. How do you reduce defects, ease remediation, and improve flow into production?

No improvements identified

Selected choice(s)

- Use version control
- Test and validate changes
- Use configuration management systems
- Use build and deployment management systems
- Perform patch management
- Share design standards
- Implement practices to improve code quality
- Use multiple environments
- Make frequent, small, reversible changes
- Fully automate integration and deployment

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

All of the above methods for fostering a CI/CD workflow to build Cruddur will need to be leveraged to create consistent progress with the opportunity for experimentation and development while everything is clearly transparent across the technical and business groups with a heavy emphasis on documentation of progress. AWS Developer Tools seem to be a promising collection of tools to foster CI/

5. How do you reduce defects, ease remediation, and improve flow into production?

CD implementation with AWS services.

Improvement plan

No risk detected for this question. No action needed.

6. How do you mitigate deployment risks?

No improvements identified

Selected choice(s)

- Plan for unsuccessful changes
- Test and validate changes
- Use deployment management systems
- Test using limited deployments
- Deploy using parallel environments
- Deploy frequent, small, reversible changes
- Fully automate integration and deployment
- Automate testing and rollback

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Success is not a guarantee when any change is deployed and for this reason, the use of limited test and development environments will be necessary for deploying incremental changes on demand. The automation of this process in the form of a testing and validation system with management of rollback and integration with the deployment will be crucial for applying rapid changes and improvements within an interval of time and will be critical to the success of evolving Cruddur.

6. How do you mitigate deployment risks?

Improvement plan

No risk detected for this question. No action needed.

7. How do you know that you are ready to support a workload?

No improvements identified

Selected choice(s)

- Ensure personnel capability
- Ensure consistent review of operational readiness
- Use runbooks to perform procedures
- Use playbooks to investigate issues
- Make informed decisions to deploy systems and changes

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The number of personnel accounted for workloads is ensured in working initially with test deployments before the production build is ready. In the initial test development of Cruddur, any pain points that are identified are then documented within a knowledge base, which persists into the production build phase. As the development of the application in its test phase moves forward, documentation is a requirement as personnel contributes and communicate their findings to be ready for any sudden changes in application workloads and where to direct their research within the knowledge base to quickly resolve such changes. AWS Config and Systems Manager seem to be promising features for creating and managing compliant workloads.

7. How do you know that you are ready to support a workload?

Improvement plan

No risk detected for this question. No action needed.

8. How do you understand the health of your workload?

No improvements identified

Selected choice(s)

- Identify key performance indicators
- Define workload metrics
- Collect and analyze workload metrics
- Establish workload metrics baselines
- Learn expected patterns of activity for workload
- Alert when workload outcomes are at risk
- Alert when workload anomalies are detected
- Validate the achievement of outcomes and the effectiveness of KPIs and metrics

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

KPIs will be critical to monitor and analyze within each department as the contribution of analysts and compiled and increasingly growing collections of data on workload uptime, resource cost and allocation, and user activity will require a comprehensive collection and alert system while looking to find any patterns and anomalies that need to be accounted. AWS CloudWatch seems to be a promising service for

8. How do you understand the health of your workload?

collecting and logging critical KPIs for workloads.

Improvement plan

No risk detected for this question. No action needed.

9. How do you understand the health of your operations?

No improvements identified

Selected choice(s)

- Identify key performance indicators
- Define operations metrics
- Collect and analyze operations metrics
- Establish operations metrics baselines
- Learn the expected patterns of activity for operations
- Alert when operations outcomes are at risk
- Alert when operations anomalies are detected
- Validate the achievement of outcomes and the effectiveness of KPIs and metrics

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

KPIs will be critical to monitor and analyze within each department as the contribution of analysts and compiled and increasingly growing collections of data on personnel operations and project costs and allocation of personnel hours and where their efforts are spent will require a comprehensive collection and alert system while looking to find any patterns and anomalies that need to be accounted.

9. How do you understand the health of your operations?

Improvement plan

No risk detected for this question. No action needed.

10. How do you manage workload and operations events?

No improvements identified

Selected choice(s)

- Use processes for event, incident, and problem management
- Have a process per alert
- Prioritize operational events based on business impact
- Define escalation paths
- Enable push notifications
- Communicate status through dashboards
- Automate responses to events

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Communication of operations events will be heavily supported by the use of automated dashboards that centrally communicate those events as well as alerts within the organization regarding operational changes in the Cruddur project, which would be organized into levels of severity and escalation based on business impact, for which severity levels and actionable responses would be documented and communicated for personnel to adapt and update where their allocation of hours are spent towards the project.

Improvement plan

10. How do you manage workload and operations events?

No risk detected for this question. No action needed.

11. How do you evolve operations?

No improvements identified

Selected choice(s)

- Have a process for continuous improvement
- Perform post-incident analysis
- Implement feedback loops
- Perform Knowledge Management
- Define drivers for improvement
- Validate insights
- Perform operations metrics reviews
- Document and share lessons learned
- Allocate time to make improvements

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Operations improvement is an ever-changing process which with the development of Cruddur, will require the efforts of leadership to monitor their progress and continuously look for any pain points and areas of improvement with the aid of communication from their team members, which would be documented and collected in a knowledge base with time given for periodic standup meetings and brainstorming sessions to allow time for finding areas of improvement with the use of operational and workload-related KPIs as frameworks/guides to

11. How do you evolve operations?

achieving improved performance.

Improvement plan

No risk detected for this question. No action needed.

Security

Questions answered

5/10

Question status

- High risk: 0
- Medium risk: 0
- No improvements identified: 5
- Not Applicable: 0
- Unanswered: 5

Pillar notes

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1. How do you securely operate your workload?

No improvements identified

Selected choice(s)

- Separate workloads using accounts
- Secure AWS account
- Identify and validate control objectives
- Keep up to date with security threats
- Keep up to date with security recommendations
- Automate testing and validation of security controls in pipelines
- Identify and prioritize risks using a threat model
- Evaluate and implement new security services and features regularly

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The creation of a secure workload for the architecture of Cruddur requires following all of the above requirements: AWS resources need to be secured within isolated, controlled environments while ensuring vigilance over the protection of the workload, while keeping up-to-date with the threat landscape and any targeted attacks. AWS resources will need to be constantly secured and monitored, for which promising services including Security Hub, Control Tower, Audits, and IAM Best Practices will need to be employed to accomplish SEC1.

1. How do you securely operate your workload?

Improvement plan

No risk detected for this question. No action needed.

2. How do you manage identities for people and machines?

No improvements identified

Selected choice(s)

- Use strong sign-in mechanisms
- Use temporary credentials
- Store and use secrets securely
- Rely on a centralized identity provider
- Audit and rotate credentials periodically
- Leverage user groups and attributes

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

All of the above best practices (SSO, temporary and rotational credentials, centralized identity provision, and the leveraging of user groups and roles) are critical to ensure that the identities of personnel including team members and each project division and AWS resources are correctly managed, and especially the security of all stakeholders that will be actively using Cruddur. This will involve deploying security services in AWS including SSO (Cognito), IAM Best Practices, Secrets Manager, Security Hub, as well as edge security including WAF and Shield.

Improvement plan

2. How do you manage identities for people and machines?
No risk detected for this question. No action needed.

3. How do you manage permissions for people and machines?

No improvements identified

Selected choice(s)

- Define access requirements
- Grant least privilege access
- Establish emergency access process
- Reduce permissions continuously
- Define permission guardrails for your organization
- Manage access based on life cycle
- Analyze public and cross account access
- Share resources securely

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Apart from identity management access to resources will need to consider the above checklist for how only the minimally required permissions for internal and external stakeholders are to interact with the application. This will include IAM Best Practices considering permissions boundaries and the prevention of privilege escalation, which will include considering features such as Attribute and Role Based Access Control for IAM users and roles as well as the policy and access analyzer services.

3. How do you manage permissions for people and machines?

Improvement plan

No risk detected for this question. No action needed.

4. How do you detect and investigate security events?

No improvements identified

Selected choice(s)

- Configure service and application logging
- Analyze logs, findings, and metrics centrally
- Automate response to events
- Implement actionable security events

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The detection and investigation of security events will require the use of an Incident Response Plan, which will follow the AWS Security Incident Response Guide whitepaper and AWS Cloud Adoption Framework which will involve educating staff about cloud and cloud usage, preparing the team to detect and respond to incidents, preparing the necessary technology including logging and auditing services in AWS including Security Hub and CloudWatch, and the opportunity to practice in simulated settings to prepare for actionable expected and unexpected security events.

Improvement plan

No risk detected for this question. No action needed.

5. How do you protect your network resources?

No improvements identified

Selected choice(s)

- Create network layers
- Control traffic at all layers
- Automate network protection
- Implement inspection and protection

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The protection of network resources in building the Cruddur project will involve deploying logically isolated environments (VPC and Flow Logs and the relevant security groups and network access control) as well as up-to-date edge security involving AWS Network Firewall, Web Application Firewall, and AWS Shield. In addition, tiering will be required to isolate each component of the application into respective frontend and backend tiers. The maintenance of the security of these resources will involve the use of Security Hub and Amazon Detective and AWS GuardDuty for continuous monitoring and threat detection.

Improvement plan

No risk detected for this question. No action needed.

6. How do you protect your compute resources?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Perform vulnerability management
- Reduce attack surface
- Implement managed services
- Automate compute protection
- Enable people to perform actions at a distance
- Validate software integrity
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

7. How do you classify your data?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Identify the data within your workload
- Define data protection controls
- Automate identification and classification
- Define data lifecycle management
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

8. How do you protect your data at rest?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Implement secure key management
- Enforce encryption at rest
- Automate data at rest protection
- Enforce access control
- Use mechanisms to keep people away from data
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

9. How do you protect your data in transit?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Implement secure key and certificate management
- Enforce encryption in transit
- Automate detection of unintended data access
- Authenticate network communications
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

10. How do you anticipate, respond to, and recover from incidents?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Identify key personnel and external resources
- Develop incident management plans
- Prepare forensic capabilities
- Automate containment capability
- Pre-provision access
- Pre-deploy tools
- Run game days
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

Reliability

Questions answered

2/13

Question status

- High risk: 0
- Medium risk: 0
- No improvements identified: 2
- Not Applicable: 0
- Unanswered: 11

Pillar notes

-

1. How do you manage service quotas and constraints?

No improvements identified

Selected choice(s)

- Aware of service quotas and constraints
- Manage service quotas across accounts and regions
- Accommodate fixed service quotas and constraints through architecture
- Monitor and manage quotas
- Automate quota management
- Ensure that a sufficient gap exists between the current quotas and the maximum usage to accommodate failover

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Quota management will be monitored and automated by applying the Service Quotas Console to view and manage each of the relevant service quotas. The automation of service quotas will be critical to streamlining the process of monitoring and requesting service limit increases by the use of AWS Organizations and AWS Control Tower with CloudWatch, SNS, and Lambda to request quota updates per accounts per each region.(https://aws.amazon.com/blogs/mt/automating-service-limit-increases-enterprise-support-aws-control-tower/)

1. How do you manage service quotas and constraints?
Improvement plan No risk detected for this question. No action needed.

2. How do you plan your network topology?

No improvements identified

Selected choice(s)

- Use highly available network connectivity for your workload public endpoints
- Provision redundant connectivity between private networks in the cloud and on-premises environments
- Ensure IP subnet allocation accounts for expansion and availability
- Prefer hub-and-spoke topologies over many-to-many mesh
- Enforce non-overlapping private IP address ranges in all private address spaces where they are connected

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Monitoring and provisioning the complex network topology of the Cruddur project will require leveraging various network event-driven AWS services including Elastic Load Balancing, Route53, and CloudFront, as well as DirectConnect and VPC endpoints for ensuring a redundant and highly available network across availability zones and regions.

Improvement plan

No risk detected for this question. No action needed.

3. How do you design your workload service architecture?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Choose how to segment your workload
- Build services focused on specific business domains and functionality
- Provide service contracts per API
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

4. How do you design interactions in a distributed system to prevent failures?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Identify which kind of distributed system is required
- Implement loosely coupled dependencies
- Do constant work
- Make all responses idempotent
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

5. How do you design interactions in a distributed system to mitigate or withstand failures?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Implement graceful degradation to transform applicable hard dependencies into soft dependencies
- Throttle requests
- Control and limit retry calls
- Fail fast and limit queues
- Set client timeouts
- Make services stateless where possible
- Implement emergency levers
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

6. How do you monitor workload resources?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Monitor all components for the workload (Generation)
- Define and calculate metrics (Aggregation)
- Send notifications (Real-time processing and alarming)
- Automate responses (Real-time processing and alarming)
- Analytics
- Conduct reviews regularly
- Monitor end-to-end tracing of requests through your system
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

7. How do you design your workload to adapt to changes in demand?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Use automation when obtaining or scaling resources
- Obtain resources upon detection of impairment to a workload
- Obtain resources upon detection that more resources are needed for a workload
- Load test your workload
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

8. How do you implement change?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Use runbooks for standard activities such as deployment
- Integrate functional testing as part of your deployment
- Integrate resiliency testing as part of your deployment
- Deploy using immutable infrastructure
- Deploy changes with automation
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

9. How do you back up data?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Identify and back up all data that needs to be backed up, or reproduce the data from sources
- Secure and encrypt backups
- Perform data backup automatically
- Perform periodic recovery of the data to verify backup integrity and processes
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

10. How do you use fault isolation to protect your workload?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Deploy the workload to multiple locations
- Select the appropriate locations for your multi-location deployment
- Automate recovery for components constrained to a single location
- Use bulkhead architectures to limit scope of impact
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

11. How do you design your workload to withstand component failures?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Monitor all components of the workload to detect failures
- Fail over to healthy resources
- Automate healing on all layers
- Rely on the data plane and not the control plane during recovery
- Use static stability to prevent bimodal behavior
- Send notifications when events impact availability
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

12. How do you test reliability?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Use playbooks to investigate failures
- Perform post-incident analysis
- Test functional requirements
- Test scaling and performance requirements
- Test resiliency using chaos engineering
- Conduct game days regularly
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

13. How do you plan for disaster recovery (DR)?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Define recovery objectives for downtime and data loss
- Use defined recovery strategies to meet the recovery objectives
- Test disaster recovery implementation to validate the implementation
- Manage configuration drift at the DR site or Region
- Automate recovery
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

Performance Efficiency

Questions answered

2/8

Question status

- High risk: 0
- Medium risk: 0
- No improvements identified: 2
- Not Applicable: 0
- Unanswered: 6

Pillar notes

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1. How do you select the best performing architecture?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Understand the available services and resources
- Define a process for architectural choices
- Factor cost requirements into decisions
- Use policies or reference architectures
- Use guidance from your cloud provider or an appropriate partner
- Benchmark existing workloads
- Load test your workload
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

2. How do you select your compute solution?

No improvements identified

Selected choice(s)

- Evaluate the available compute options
- Understand the available compute configuration options
- Collect compute-related metrics
- Determine the required configuration by right-sizing
- Use the available elasticity of resources
- Re-evaluate compute needs based on metrics

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Compute resource selection will require understanding the compute elasticity, pattern usage, and minimum performance for the Cruddur application to select the appropriate EC2 compute tiers, as well as using the Pricing Calculator with the appropriate usage tier for the specific access pattern and metrics that match the projected usage of the Cruddur application.

Improvement plan

No risk detected for this question. No action needed.

3. How do you select your storage solution?

No improvements identified

Selected choice(s)

- Understand storage characteristics and requirements
- Evaluate available configuration options
- Make decisions based on access patterns and metrics

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Storage resource selection will require understanding the pattern usage and volume capacity that data being stored for the Cruddur application will require to match to the appropriate storage tier in S3 as well as the proper EBS Volume for compute resources, as well as using the Pricing Calculator with the appropriate usage tier for the specific access pattern and metrics that match the projected usage of the Cruddur application.

Improvement plan

No risk detected for this question. No action needed.

4. How do you select your database solution?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Understand data characteristics
- Evaluate the available options
- Collect and record database performance metrics
- Choose data storage based on access patterns
- Optimize data storage based on access patterns and metrics
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

5. How do you configure your networking solution?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Understand how networking impacts performance
- Evaluate available networking features
- Choose appropriately sized dedicated connectivity or VPN for hybrid workloads
- Leverage load-balancing and encryption offloading
- Choose network protocols to improve performance
- Choose your workload's location based on network requirements
- Optimize network configuration based on metrics
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

6. How do you evolve your workload to take advantage of new releases?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Stay up-to-date on new resources and services
- Define a process to improve workload performance
- Evolve workload performance over time
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

7. How do you monitor your resources to ensure they are performing?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Record performance-related metrics
- Analyze metrics when events or incidents occur
- Establish Key Performance Indicators (KPIs) to measure workload performance
- Use monitoring to generate alarm-based notifications
- Review metrics at regular intervals
- Monitor and alarm proactively
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

8. How do you use tradeoffs to improve performance?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Understand the areas where performance is most critical
- Learn about design patterns and services
- Identify how tradeoffs impact customers and efficiency
- Measure the impact of performance improvements
- Use various performance-related strategies
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

Cost Optimization

Questions answered

2/10

Question status

- High risk: 0
- Medium risk: 0
- No improvements identified: 2
- Not Applicable: 0
- Unanswered: 8

Pillar notes

-

1. How do you implement cloud financial management?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Establish a cost optimization function
- Establish a partnership between finance and technology
- Establish cloud budgets and forecasts
- Implement cost awareness in your organizational processes
- Report and notify on cost optimization
- Monitor cost proactively
- Keep up to date with new service releases
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

2. How do you govern usage?

No improvements identified

Selected choice(s)

- Develop policies based on your organization requirements
- Implement goals and targets
- Implement an account structure
- Implement groups and roles
- Implement cost controls
- Track project lifecycle

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The financial and technical departments in the organization will require aligning to meet targeted spending and cost controls for each respective account when consolidated throughout the entire project lifecycle. This will require leveraging the Cost Management tool and Budget and Billing features including forecasted spending and billing alarms in order to ensure that the proper amount of resource allocation is devoted to the project throughout its lifecycle.

Improvement plan

No risk detected for this question. No action needed.

3. How do you monitor usage and cost?

No improvements identified

Selected choice(s)

- Configure detailed information sources
- Identify cost attribution categories
- Establish organization metrics
- Configure billing and cost management tools
- Add organization information to cost and usage
- Allocate costs based on workload metrics

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

The monitoring of usage and costs will be accomplished using CloudWatch, CostExplorer, AWS Budgets, and tag allocation of resources all of which will be used to ensure organization metrics are tracked and billing and cost management are configured with continuous logging and alerting of actual and anticipated cost and usage numbers to determine the correct allocation of budget moving forward.

Improvement plan

No risk detected for this question. No action needed.

4. How do you decommission resources?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Track resources over their life time
- Implement a decommissioning process
- Decommission resources
- Decommission resources automatically
- None of these

Best Practices marked as Not Applicable

-

Notes

-

Improvement plan

Answer the question to view the improvement plan.

5. How do you evaluate cost when you select services?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Identify organization requirements for cost
- Analyze all components of this workload
- Perform a thorough analysis of each component
- Select software with cost effective licensing
- Select components of this workload to optimize cost in line with organization priorities
- Perform cost analysis for different usage over time
- None of these

Best Practices marked as Not Applicable

-

Notes

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Improvement plan

Answer the question to view the improvement plan.

6. How do you meet cost targets when you select resource type, size and number?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Perform cost modeling
- Select resource type, size, and number based on data
- Select resource type, size, and number automatically based on metrics
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

7. How do you use pricing models to reduce cost?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Perform pricing model analysis
- Implement regions based on cost
- Select third party agreements with cost efficient terms
- Implement pricing models for all components of this workload
- Perform pricing model analysis at the master account level
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

8. How do you plan for data transfer charges?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Perform data transfer modeling
- Select components to optimize data transfer cost
- Implement services to reduce data transfer costs
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

9. How do you manage demand, and supply resources?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Perform an analysis on the workload demand
- Implement a buffer or throttle to manage demand
- Supply resources dynamically
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

10. How do you evaluate new services?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Develop a workload review process
- Review and analyze this workload regularly
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

Sustainability

Questions answered

2/6

Question status

- High risk: 0
- Medium risk: 0
- No improvements identified: 2
- Not Applicable: 0
- Unanswered: 4

Pillar notes

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1. How do you select Regions to support your sustainability goals?

No improvements identified

Selected choice(s)

- Choose Regions near Amazon renewable energy projects and Regions where the grid has a published carbon intensity that is lower than other locations (or Regions).

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

In support of sustainability objectives, research will be conducted to choose Regions near Amazon renewable energy projects and Regions where the grid has a published carbon intensity that is lower than other locations (or Regions).

Improvement plan

No risk detected for this question. No action needed.

2. How do you take advantage of user behavior patterns to support your sustainability goals?

No improvements identified

Selected choice(s)

- Scale infrastructure with user load
- Align SLAs with sustainability goals
- Stop the creation and maintenance of unused assets
- Optimize geographic placement of workloads for user locations
- Optimize team member resources for activities performed

Not selected choice(s)

- None of these

Best Practices marked as Not Applicable

-

Notes

Organizational sustainability goals consist of only leveraging the minimum required resources for meeting the objectives of the project, for which our SLAs will align with only the minimum required service quota limits for AWS resources being used in the project for which the amount of usage and required resources will be monitored and optimized to ensure that there are no unused assets in the infrastructure and that the organization's ecological footprint and leveraging of AWS services are limited only to the necessary regions and availability zones for the Cruddur project.

Improvement plan

2. How do you take advantage of user behavior patterns to support your sustainability goals?
No risk detected for this question. No action needed.

3. How do you take advantage of software and architecture patterns to support your sustainability goals?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Optimize software and architecture for asynchronous and scheduled jobs
- Remove or refactor workload components with low or no use
- Optimize areas of code that consume the most time or resources
- Optimize impact on customer devices and equipment
- Use software patterns and architectures that best support data access and storage patterns
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

4. How do you take advantage of data access and usage patterns to support your sustainability goals?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Implement a data classification policy
- Use technologies that support data access and storage patterns
- Use lifecycle policies to delete unnecessary data
- Minimize over-provisioning in block storage
- Remove unneeded or redundant data
- Use shared file systems or object storage to access common data
- Minimize data movement across networks
- Back up data only when difficult to recreate
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

5. How do your hardware management and usage practices support your sustainability goals?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Use the minimum amount of hardware to meet your needs
- Use instance types with the least impact
- Use managed services
- Optimize your use of GPUs
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.

6. How do your development and deployment processes support your sustainability goals?

Unanswered

Selected choice(s)

-

Not selected choice(s)

- Adopt methods that can rapidly introduce sustainability improvements
- Keep your workload up to date
- Increase utilization of build environments
- Use managed device farms for testing
- None of these

Best Practices marked as Not Applicable

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Notes

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Improvement plan

Answer the question to view the improvement plan.