aws

AWS **Well-Architected**

Are You Well-Architected?

Jon Steele, Specialist TAM, Operations

When you look at the system your team is building, can you answer the question:

"Are you Well-Architected?"

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Are you Well-Architected?

Operational excellence

Security

Reliability

Performance efficiency

Cost optimization

aws

Are you Well-Architected?

Operational excellence

Security

Reliability

Performance efficiency

Cost optimization
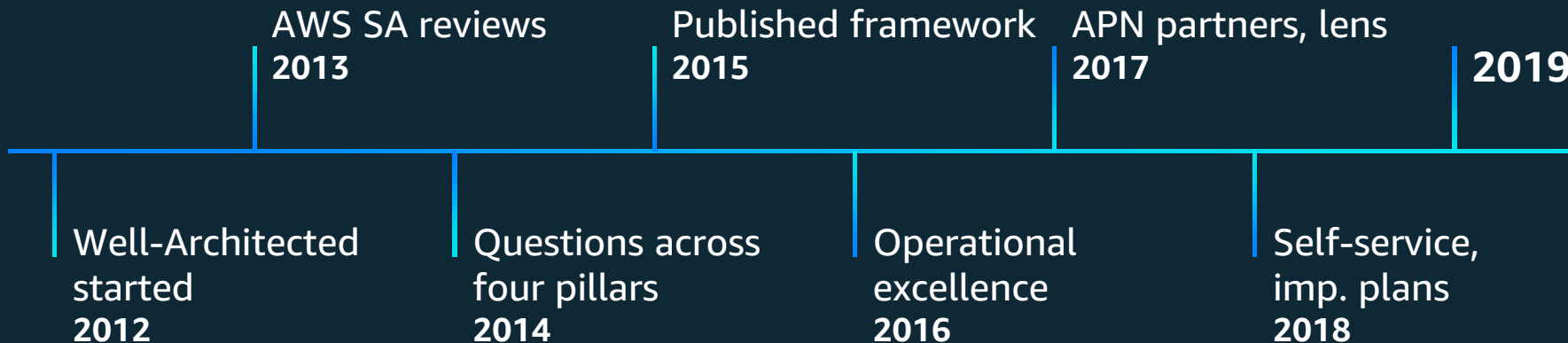
Review process

Consistent

Technology portfolio

aws

AWS **Well-Architected**
https://aws.amazon.com/well-architected/

A little bit of history...

History

AWS SA reviews
2013

Published framework
2015

APN partners, lens
2017

2019

Well-Architected
started
2012

Questions across
four pillars
2014

Operational
excellence
2016

Self-service,
imp. plans
2018

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AWS Well-Architected Framework

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Why AWS Well-Architected Framework?

Build and deploy faster

Lower or mitigate risks

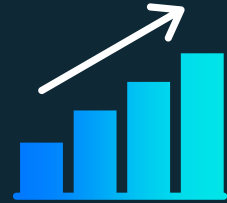Make informed decisions

Learn AWS best practices

aws

A mechanism for your cloud journey

Learn

Measure

Improve

aws

What is the AWS Well-Architected Framework?

Pillars

Design principles

Questions

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Pillars of AWS Well-Architected

Operational Excellence

Security

Reliability

Performance efficiency

Cost optimization

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Design principles

General
design principles

→

Pillar-specific
design principles

Automate responses to security events: Monitor and automatically
trigger responses to event-driven, or condition-driven, alerts

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Questions

Failure management

REL 7 How does your system withstand component failures?

If your workloads have a requirement, implicit or explicit, for high availability and low mean time to recovery (MTTR), architect your workloads for resiliency and distribute your workloads to withstand outages.

Best practices:

- **Monitoring is done at all layers of the workload to detect failures**: Continuously monitor the health of your system and report degradation as well as complete failure.

- **Deployed to multiple Availability Zones; Multiple AWS Regions if required**: Distribute workload load across multiple Availability Zones and AWS Regions (for example, DNS, ELB, Application Load Balancer, API Gateway).

- **Has loosely coupled dependencies**: Dependencies such as queuing systems, streaming systems, workflows, and load balancers are loosely coupled.

- **Has implemented graceful degradation**: When a component's dependencies are unhealthy, the component itself does not report as unhealthy. It can continue to serve requests in a degraded manner.

- **Automated healing implemented on all layers**: Use automated capabilities upon detection of failure to perform an action to remediate.

- **Notifications are sent upon availability impacting events**: Notifications are sent upon detection of any significant events, even if it was automatically healed.
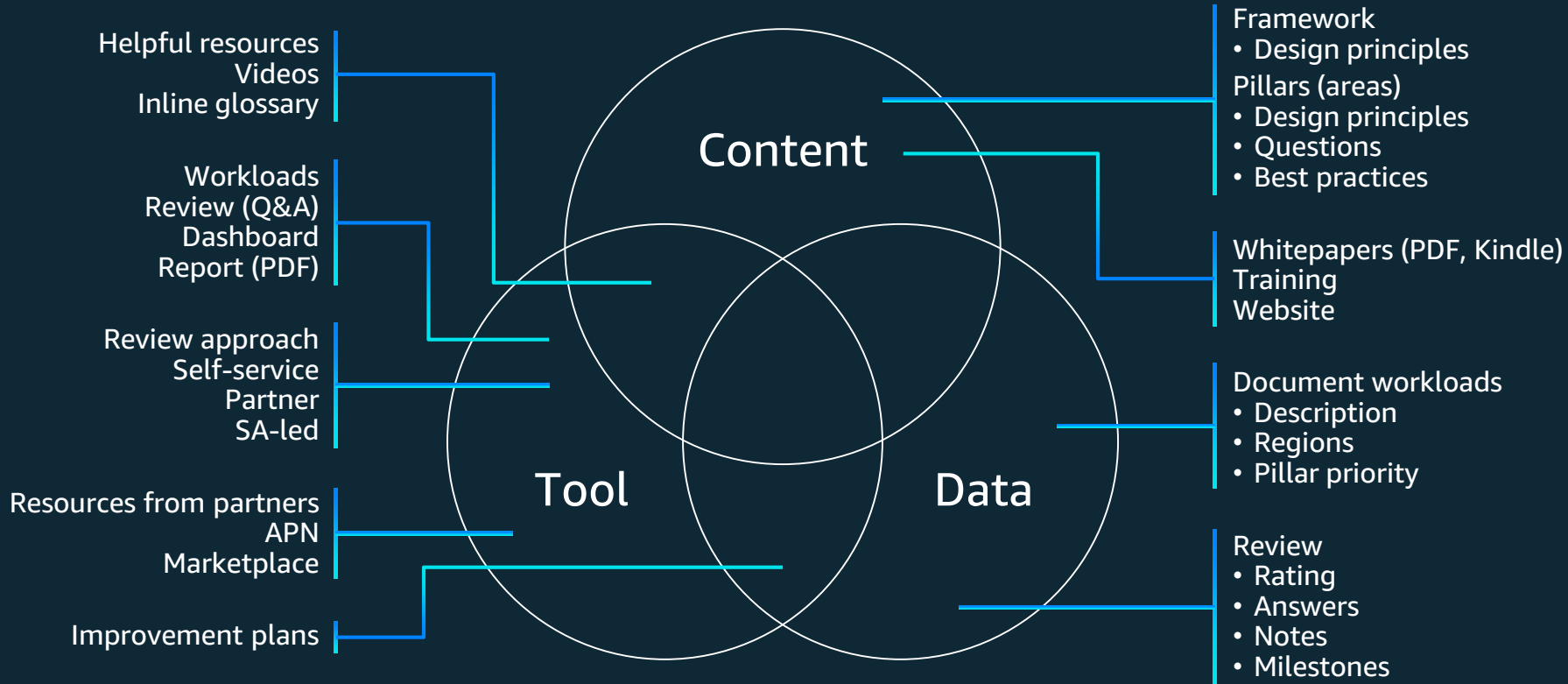
Pillar area

Question

Context

Best practices

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What is available?

Helpful resources
Videos
Inline glossary

Workloads
Review (Q&A)
Dashboard
Report (PDF)

Review approach
Self-service
Partner
SA-led

Resources from partners
APN
Marketplace

Improvement plans

Content

Tool

Data

Framework
• Design principles
Pillars (areas)
• Design principles
• Questions
• Best practices

Whitepapers (PDF, Kindle)
Training
Website

Document workloads
• Description
• Regions
• Pillar priority

Review
• Rating
• Answers
• Notes
• Milestones

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Have you used the Well-Architected Tool?

a. No, I've never used the Well-Architected Tool.

b. Yes, but I haven't completed a review.

c. Yes, I've complete at least 1 review.

d. Yes, I've completed more than 5 reviews.

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Well-Architected Tool Walkthrough

http://bit.ly/AWAToolLab

AWS Well-Architected Tool
Learn, measure, and build using architectural best practices

The AWS Well-Architected Tool helps you review your workloads against current AWS best practices and provides guidance on how to improve your cloud architectures. This tool is based on the AWS Well-Architected Framework.

Define a workload

Define a workload based on one of your existing cloud applications.

Define workload

How it works

Identify the workload to review
Then answer a series of questions about your architecture

AWS Well-Architected Tool
Review your answers against the five pillars established by the Well-Architected Framework

Operational excellence
Security
Reliability
Performance efficiency
Cost optimization

Pillars

Get videos and documentation related to AWS best practices

Generate a report that summarizes your workload review

View the results of workload reviews across your organization in a single dashboard

Benefits and features

Get architectural guidance
Access the knowledge and best

Enable consistent governance
Apply a consistent process to help you

Continuously improve architectures
Support continuous improvement

Pricing (US)

Any usage   Free

Getting started

What is the AWS Well-Architected Tool?

Getting started video

More resources

FAQ

AWS Well-Architected Partners

Applying AWS Well-Architected

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Intent of review

Not an audit	Not architecture astronauts	Not a one-time check
Working together to improve	Pragmatic, proven advice	Throughout lifecycle
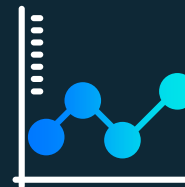
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Review choice

	Your team technical and business leads	AWS WA tool	AWS APN partner	AWS Solutions Architect
Self-service	👥	+ 🔶		
Partner	👥	+ 🔶	+ 👤	
AWS SA	👥	+ 🔶		+ 👤

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Review choice

Self-service
Full control of how often and when

Partner
When you have a shortage of skilled resource, can address issues

AWS SA
Critical workloads, advice on improvement plan

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Partner Well-Architected reviews

Engage with a
Well-Architected partner
for a free review

Results including
Statement of Work (SoW)
for improvements

Approve SoW within
30 days receive $5k
in AWS credits

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Well-Architected Partners

Learnings

Pre-launch only?	Make bad decisions?	Findings?
Earlier is better	Not considered decisions	Most workloads can be improved

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Use cases

Learning best practices for the cloud

Technology governance

Portfolio management

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Question:
Learning best practices for the cloud

How do I architect for the cloud?

Being constrained by on-premises assumptions

So many resources, where to start?

How do I know if I have done something wrong?

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Answer:
Learning best practices for the cloud

Learn AWS best practices

Transition to cloud native

Sign-post resources/services

Identify improvements

Inform future architectures

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Question:
Technology governance

Ready to go into production?

Are my teams following best practice?

Consistent measurement?

Burn down risks?

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Answer:
Technology governance

Operational excellence

Security

Reliability

Performance efficiency

Cost optimization

Review process

Consistent

Technology portfolio

aws

Question:
Portfolio management

Where is my inventory of workloads?

What decisions did I make in each?

What risks are in each?

How are risks changing over time?

Where should I invest?

Are there trends I can address holistically?

Can I build mechanisms?

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Answer:
Portfolio management

Technology portfolio

Operational excellence

Security

Reliability

Performance efficiency

Cost optimization

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How likely are you to use the W-A Tool?

a. Already using

b. Likely to use

c. Unlikely to use

d. Unsure

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Tips

https://aws.amazon.com/well-architected/

 Whitepapers (PDF, Kindle)
- Framework
- Per pillar (operational excellence, reliability, security, performance efficiency, cost optimization)
- Lens (serverless, HPC, IoT)

 Training (framework, pillars, review process, tool)

 Website
- Glossary
- Videos
- Map

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Framework has Q&A

https://aws.amazon.com/well-architected/

Pillar has detail

https://aws.amazon.com/well-architected/

Reliability Pillar

AWS Well-Architected Framework

September 2018

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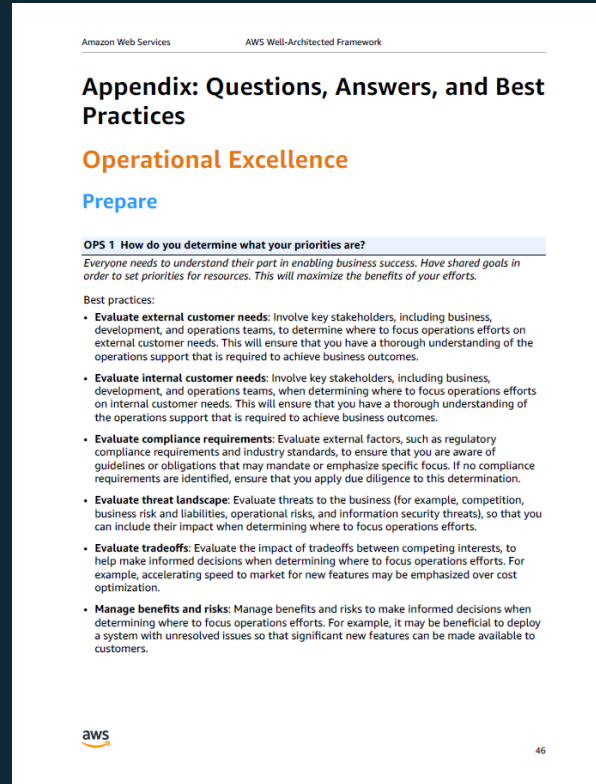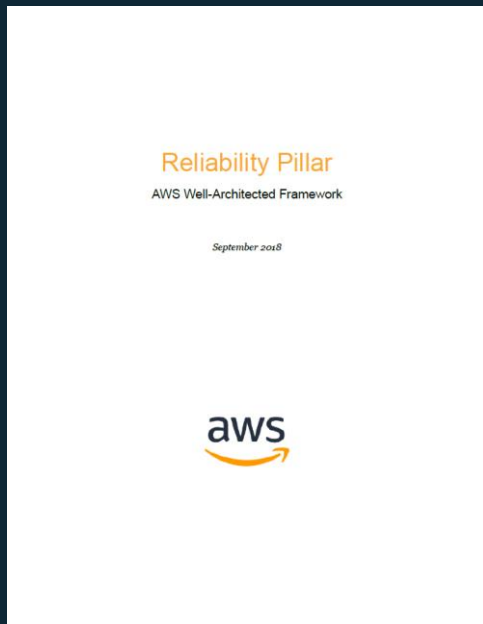
Contents

Introduction

    Reliability

    Design Principles

    Definition

Foundation – Limit Management

Foundation - Networking

Application Design for High Availability

    Understanding Availability Needs

    Application Design for Availability

    Operational Considerations for Availability

Example Implementations for Availability Goals

    Dependency Selection

    Single Region Scenarios

    Multi-Region Scenarios

Conclusion

Contributors

Document Revisions

Appendix A: Designed-For Availability for Select AWS Services

Lens have ref. arch

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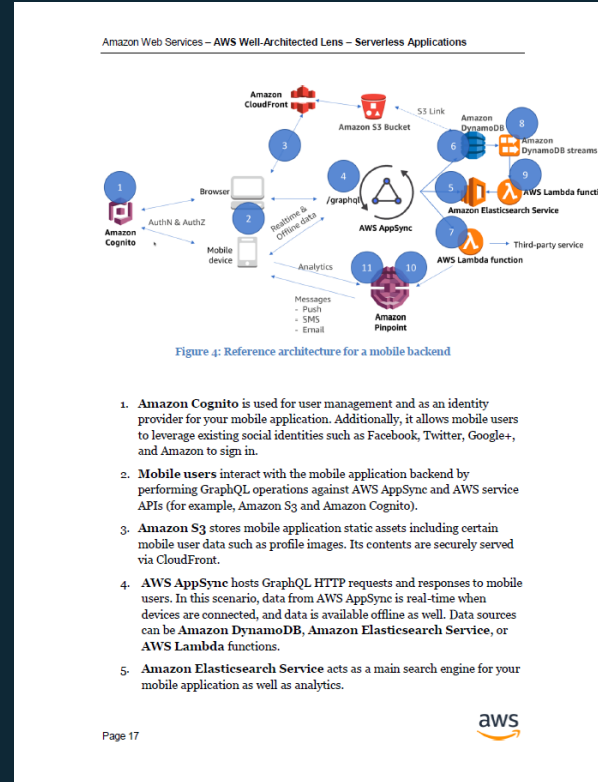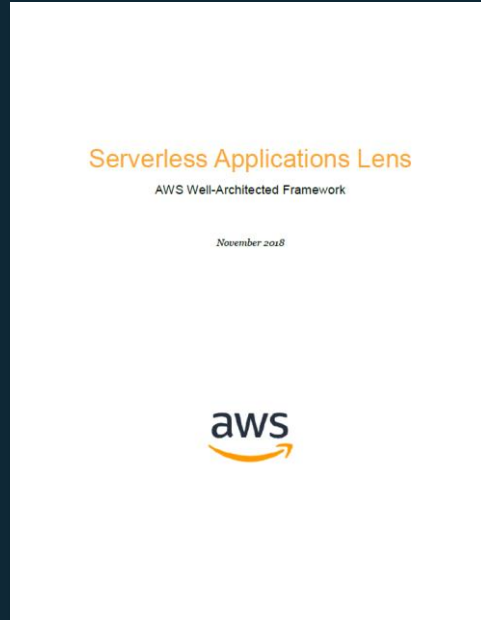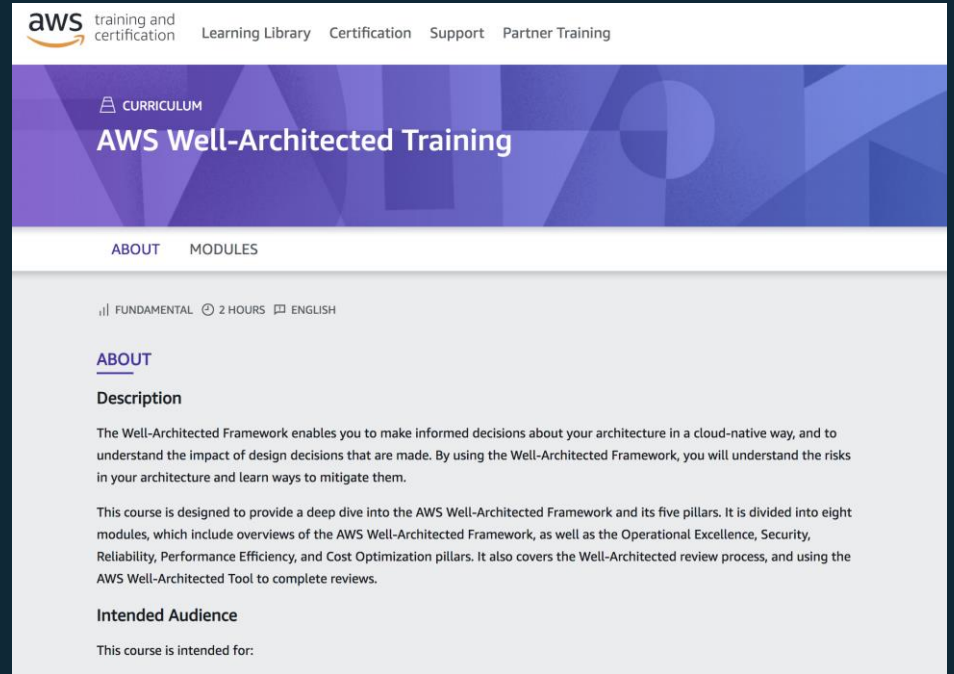
Free training

- The Framework
- Operational Excellence
- Security
- Reliability
- Performance Efficiency
- Cost Optimization
- Well-Architected Review
- AWS Well-Architected Tool

Well-Architected content website

https://wa.aws.amazon.com/

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Well-Architected Labs

WellArchitectedLabs.com

General design principles

Stop guessing your capacity needs

Test systems at production scale

Automate to make architectural experimentation easier

Allow for evolutionary architectures

Drive architectures using data

Improve through game days

Design principles
for operational excellence

Perform operations as code

Annotate documentation

Make frequent, small, reversible changes

Refine operations procedures frequently

Anticipate failure

Learn from all operational failures

Design principles for security

Implement a strong identity foundation

Enable traceability

Apply security at all layers

Automate security best practices

Protect data in transit and at rest

Keep people away from data

Prepare for security events

Design principles for reliability

Test recovery procedures

Automatically recover from failure

Scale horizontally to increase aggregate system availability

Stop guessing capacity

Manage change in automation

Design principles for performance efficiency

Democratize advanced technologies

Go global in minutes

Use serverless architectures

Experiment more often

Mechanical sympathy

Design principles for cost optimization

Adopt a consumption model

Measure overall efficiency

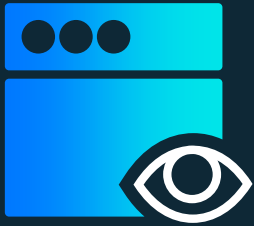Stop spending money on data center operations

Analyze and attribute expenditure

Use managed services to reduce cost of ownership

Getting started

https://aws.amazon.com/well-architected/

Read online resources

Account team or partner

Review first workload

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Thank you

https://aws.amazon.com/well-architected/

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