



# Microsoft Azure Well-Architected Framework Overview

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# Agenda

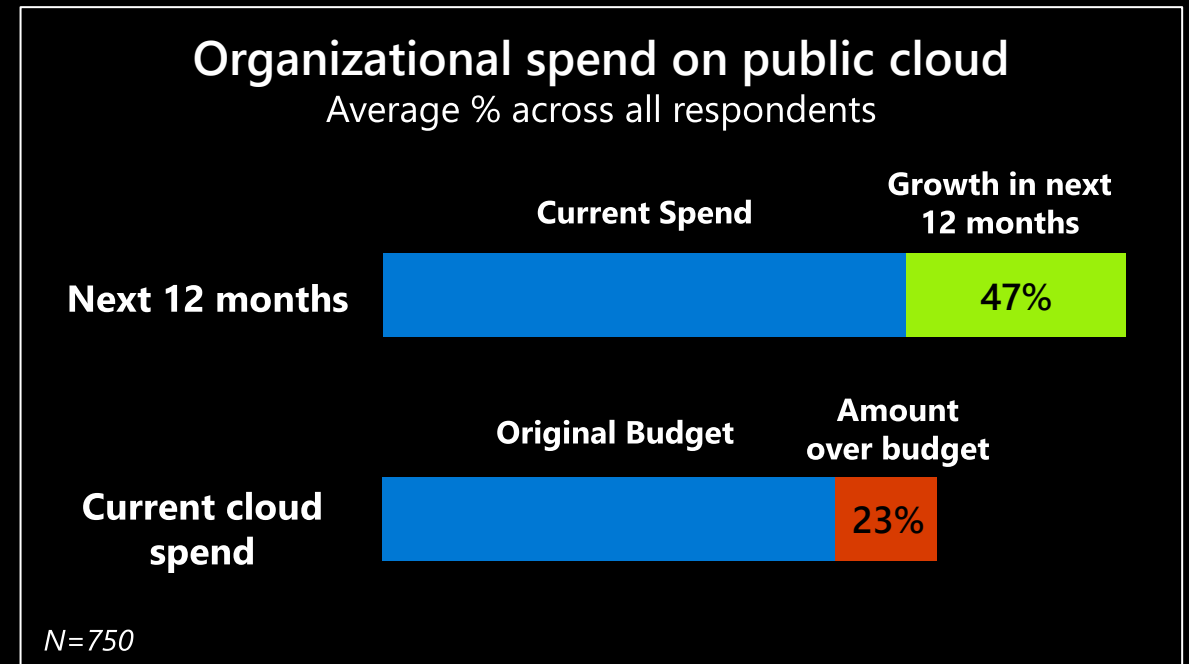
- Why is being well-architected important?
- Overview: Microsoft Azure Well-Architected Framework
- Overcoming workload quality inhibitors
- Resources & Amplification

Why is being well-architected  
important?

# Well-architected solutions enable— cost optimization

It's more critical than ever for customers to get a handle on forecasting and cost optimization<sup>1</sup>

- Customers reported their public cloud spend was over budget by an average of 23 percent<sup>1</sup>
- Respondents expect their cloud spend to further increase by 47 percent in the next 12 months.



<sup>1</sup> Flexera *2020 State of the Cloud Report*

# Well-architected solutions enable— cost savings in security spend

In 2019, encryption, business continuity management, DevSecOps, and threat intelligence sharing **mitigated cost**<sup>1</sup>

- Encryption reduced breach costs by an average of \$360,000.
- Business continuity management reduced the total cost of a data breach by an average of \$280,000.

<sup>1</sup> [The Cost of a Data Breach Report, IBM Security, 2019. Conducted by Ponemon Institute LLC](#)



# Well-architected solutions enable— cost savings with resiliency, high-availability, and security automation strategies

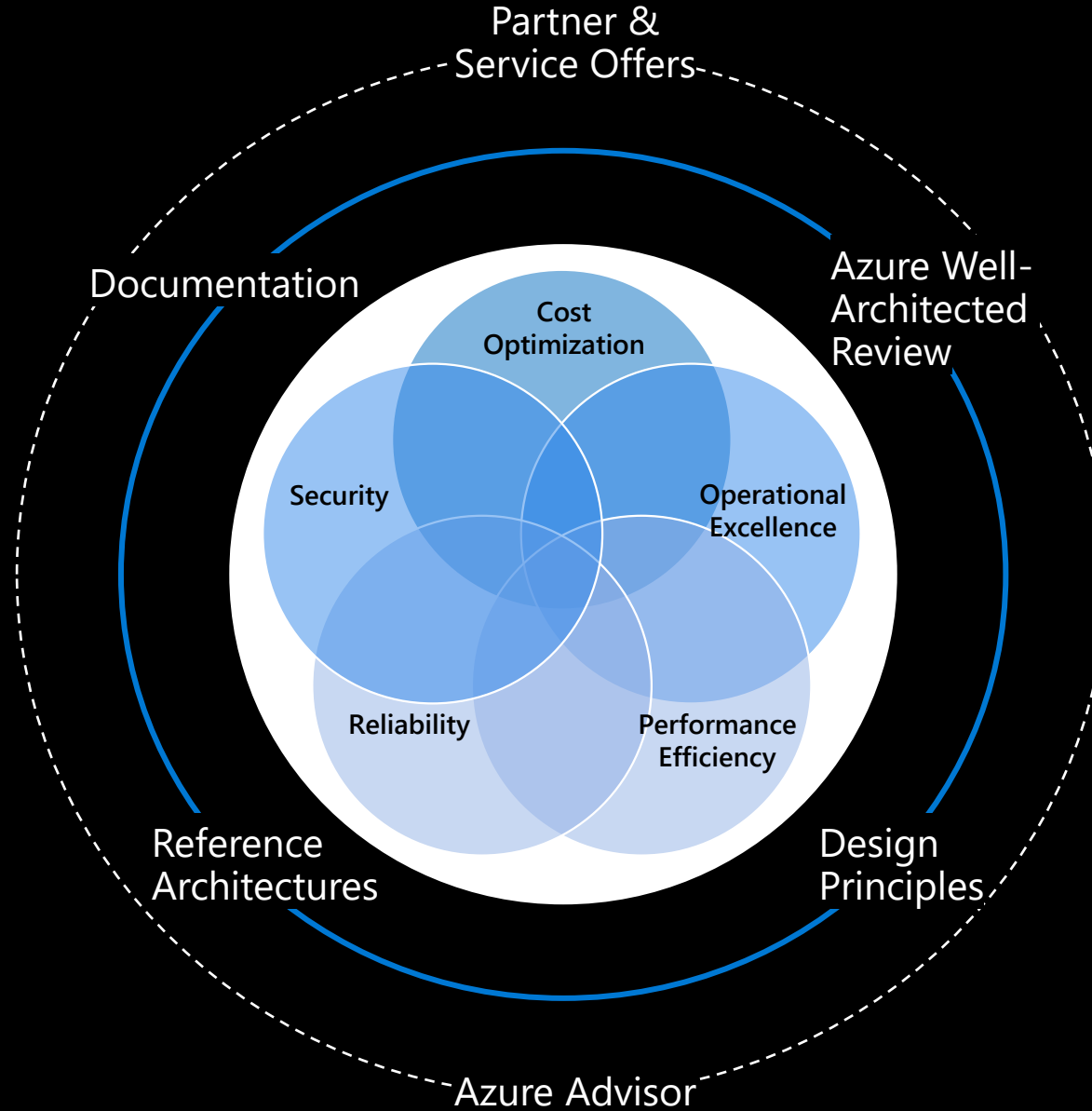
Companies with incident response teams with testing of IR plans —**saved over \$1.2 million<sup>1</sup>**.

## Organizations without security automation experienced breach costs 95 percent higher

- Breach costs rose above 16 percent at organizations without automation deployed, going up from an average of \$4.43 million in 2018 to \$5.16 million in 2019.
- Breach costs decreased by 8 percent at organizations with fully deployed automation, from 2018 to 2019, from an average of \$2.88 million in 2018 to \$2.65 million in 2019.

<sup>1</sup> [The Cost of a Data Breach Report, IBM Security, 2019. Conducted by Ponemon Institute LLC](#)

# Well-Architected at Microsoft



# Overview: Azure Well-Architected Framework



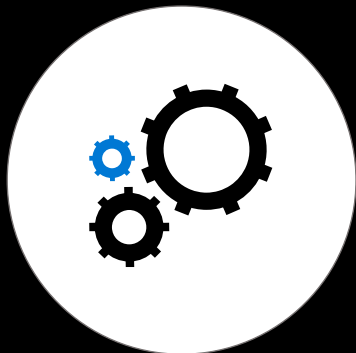
# Microsoft Azure Well-Architected Framework

Architecture guidance and best practices, created for architects, developers and solution owners, to improve the quality of their workloads, based on 5 aligned and connected pillars

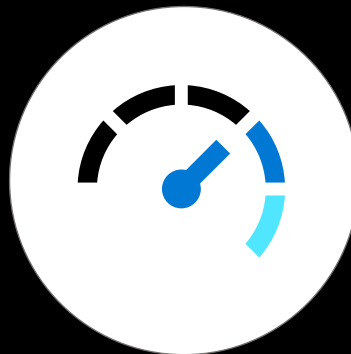
Cost  
Optimization



Operational  
Excellence



Performance  
Efficiency



Reliability



Security





# Manage and optimize your Azure costs with tools, offers, and guidance from Microsoft



## Understand and forecast your costs

- Monitor your bill, set budgets, and allocate spending to teams and projects with **Azure Cost Management + Billing**
- Forecast costs for future investments with the **Azure pricing and TCO calculator**



## Cost optimize your workloads

- Optimize your resources with **Azure Advisor**
- Follow workload design best practices with the **Azure Well-Architecture Framework**
- Save with Azure offers and licensing terms like the **Azure Hybrid Benefit** and **Reservations**



## Control your costs

- Establish spending objectives and policies using the **Microsoft Cloud Adoption Framework for Azure**
- Implement cost controls in **Azure Policy** so your teams can go fast while complying with policy

# Design cloud workloads able to adapt to changes and maintain performance levels



Performance Efficiency offers you the knowledge to improve the performance of your workloads by optimizing network and storage resources, monitoring processes, and designing efficient and scalable applications.



## Active response to performance issues

- Evaluate workload quality levels with [Azure Monitor](#) and [Log Analytics](#)
- Assess and remediate deep application performance issues and trends with [Azure Application Insights](#).
- Adopt optimal performance recommendations with [Azure Advisor](#).



## Optimal service execution

- Manage resource scaling with [Azure SQL Database](#) and [Azure App Services](#)
- Optimize your network and storage with [Azure Cosmos DB](#), [Azure Traffic Manager](#) and [Azure Cache for Redis](#), etc.
- Select the [right type of resources](#) for your business needs.



## Efficient trade-offs within applications

- Design cost-efficient data management and storage processes facilitated by [Azure Advisor](#).
- Develop and implement queueing processes with [Azure Functions](#) to hand-off processing work to a service.

# Build, deploy, and manage workloads with trustworthy processes



Operational Excellence offers you the guidelines to create a sustainable application environment within building, deploying and maintaining workloads, while relying on automation, monitoring and testing.



## Agile and Accurate Processes

- Apply [DevOps](#) to break down barriers between development and operations within the cloud journey.
- Reduce process risks by automating workloads with [Azure Automation](#), [Azure CLI](#) and [Azure PowerShell](#).
- Enjoy the flexibility of creating agile and independent workloads with [Microservices](#).



## Focused and assertive application monitoring

- Dive deep into your workloads' information with [Log Analytics](#) for infrastructure and with [Azure Application Insights](#) for application trends.
- Manage the health of your system and activity logging by consuming core monitoring insights provided by [Azure Monitor](#).



## Continuous Improvement

- Build and test workloads with [Continuous Integration and Continuous Delivery \(CI/CD\)](#) both in development and production stages.
- Perform extensive automated testing with [Azure Pipelines](#) or manual testing with [Azure Testing Plans](#).

# Reliability

Enable systems to recover from failures and continue to function



Define **availability and recovery requirements** based on decomposed workloads and business needs



Use **architectural best practices** to identify possible failure points in your proposed/existing architecture and determine how the application will respond to failure



Test with **simulations and forced failovers** to test both detection and recovery from various failures



Deploy the application **consistently** using reliable and repeatable processes



Monitor **application health** to detect failures, monitor indicators of potential failures, and gauge the health of your applications

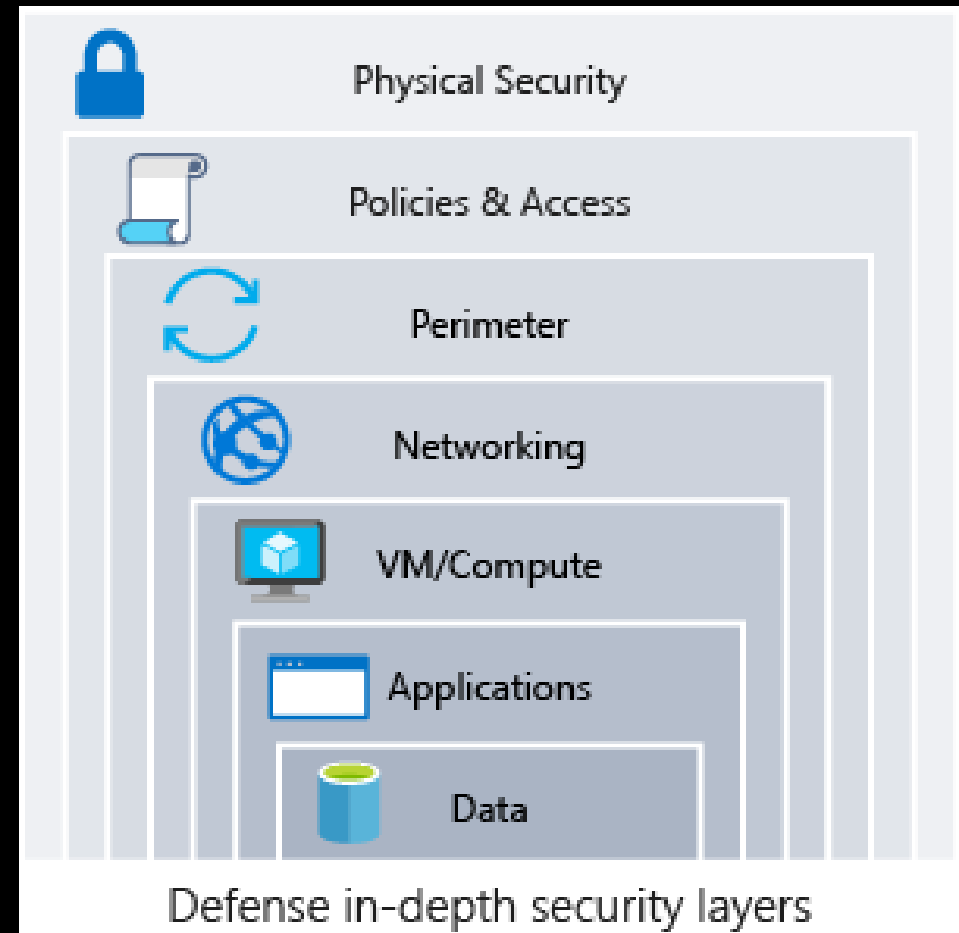


Respond to **failures and disasters** by determining how best to address it based on established strategies

# Security



Responsibility	On-prem	IaaS	PaaS	SaaS
Data governance & rights management	Customer	Customer	Customer	Customer
Client endpoints	Customer	Customer	Customer	Customer
Account & access management	Customer	Customer	Customer	Customer
Identity & directory infrastructure	Customer	Customer	Microsoft	Microsoft
Application	Customer	Customer	Microsoft	Microsoft
Network controls	Customer	Customer	Microsoft	Microsoft
Operating system	Customer	Customer	Microsoft	Microsoft
Physical hosts	Customer	Microsoft	Microsoft	Microsoft
Physical network	Customer	Microsoft	Microsoft	Microsoft
Physical datacenter	Customer	Microsoft	Microsoft	Microsoft
<div><div></div> Microsoft <div></div> Customer</div>				



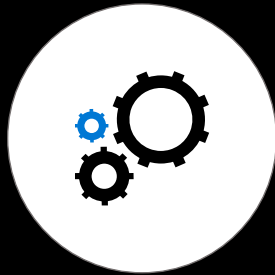
# Best practices to drive workload quality

## Cost Optimization



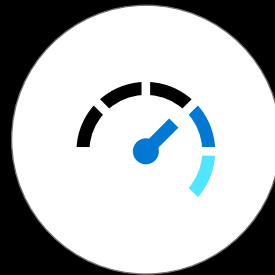
- ✓ Azure Hybrid Benefit
- ✓ Reserve Instances
- ✓ Shutdown
- ✓ Resize
- ✓ Move to PAAS

## Operational Excellence



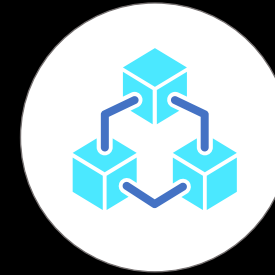
- ✓ DevOps
- ✓ Deployment
- ✓ Monitor
- ✓ Processes and cadence

## Performance Efficiency



- ✓ Design for scaling
- ✓ Monitor performance

## Reliability



- ✓ Define requirements
- ✓ Test with simulations and forced failovers
- ✓ Deploy consistently
- ✓ Monitor health
- ✓ Respond to failure and disaster

## Security

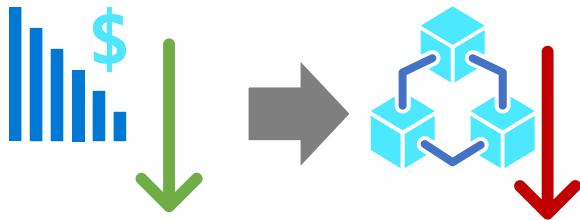


- ✓ Identity and access management
- ✓ Infra protection
- ✓ App security
- ✓ Data encryption and sovereignty
- ✓ Security operations

# Doing business means making trade-offs

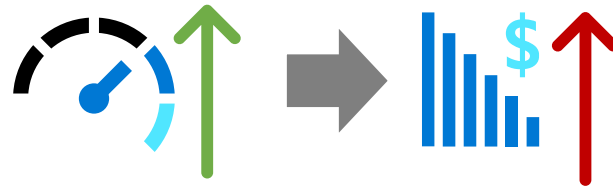
Business requirements influence workload architecture decisions

## DEVELOPMENT WORKLOADS



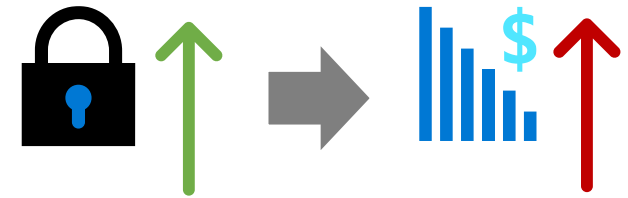
*Optimizing costs in dev workloads may be the right approach, even when it may impact reliability, if it is in line with business expectations*

## MISSION-CRITICAL WORKLOADS



*Improving performance for a mission-critical workload may be the right business decision, even at the expense of increased costs.*

## SECURING ALL WORKLOADS



*Surge in cyber attacks drive workload security investments, as organizations attempt to protect their most valuable asset: data*



# Overcoming workload quality inhibitors

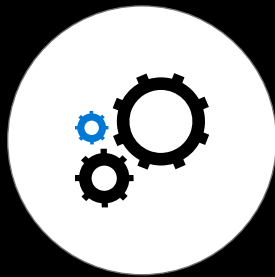
# Overcoming workload quality inhibitors

## Cost Optimization



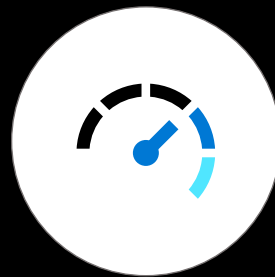
- No cost and usage monitoring
- Unclear on underused or orphaned resources
- Lack of structure billing management
- Budget reductions due to lack of support for cloud adoption by LT/board

## Operational Excellence



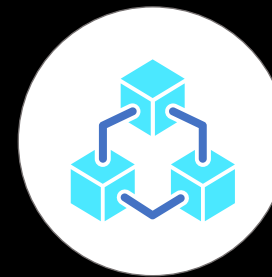
- Lack of rapid issue identification
- No deployment automation
- Absence of communication mechanisms and dashboards
- Unclear expectations and business outcomes
- No visibility on root cause for events

## Performance Efficiency



- No monitoring new services
- No monitoring current workloads health
- No design for scaling
- Lack of rigor and guidance for technology and architecture selection

## Reliability



- Unclear on resiliency features/capabilities for better architecture design
- Lack of data back up practices
- No monitoring current workloads health
- No resiliency testing
- No support for disaster recovery

## Security



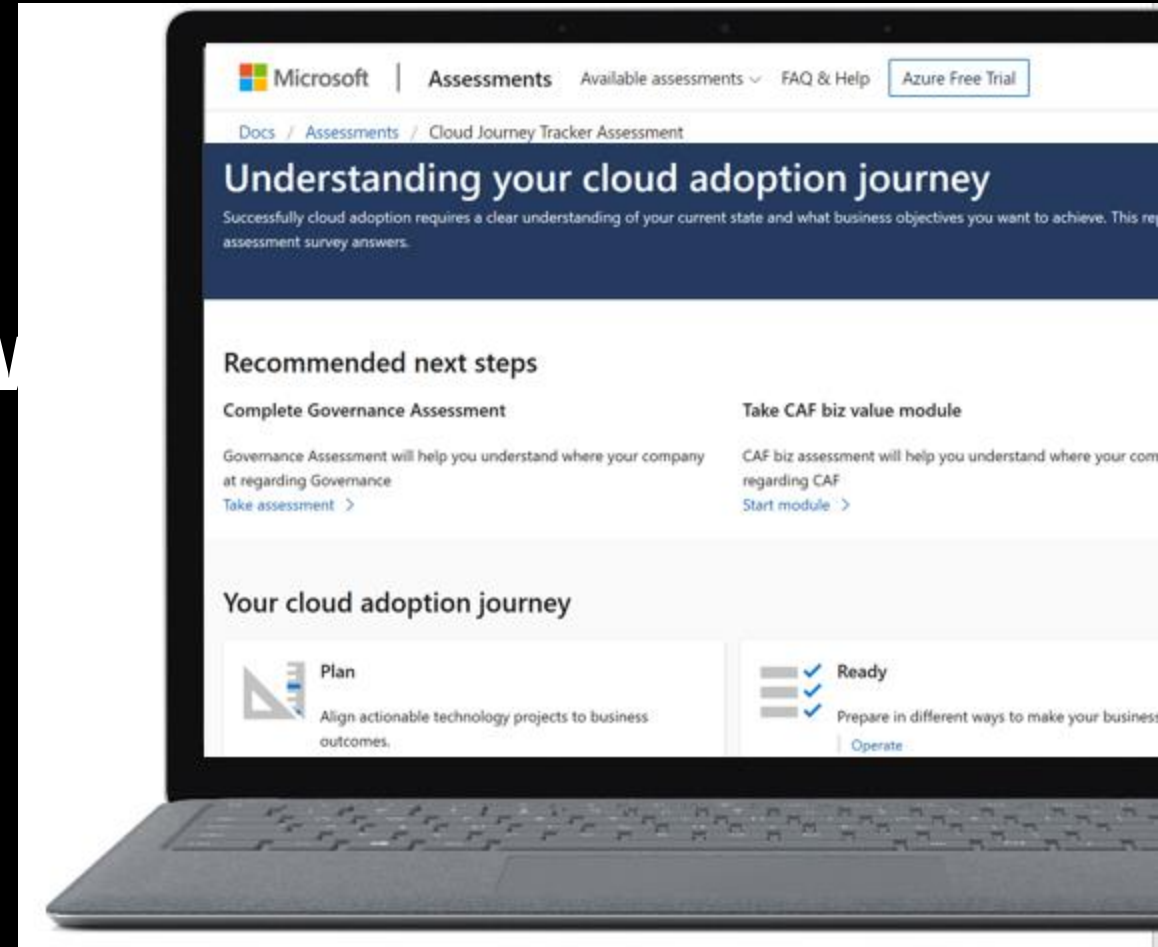
- No access control mechanism (authentication)
- No security thread detection mechanism
- Lack of security thread response plan
- No encryption process

# Azure Well-Architected Review

Assessment

# Microsoft Azure Well-Architected Review

<https://aka.ms/architecture/review>



# Using the Azure Well-Architected Review

This web-based assessment helps improve the quality of a workload by

- **Examining the workload** across the 5 pillars of the Azure Well Architected Framework (Reliability, Cost Optimization, Security, Operations Excellence, and Performance Efficiency)
- **Providing specific guidance** to improve architecture and overcome detected hurdles effectively
- **Proactively focusing** on the pillar where most attention is needed

### Microsoft Azure Well-Architected Review

Examine your workload through the lenses of reliability, cost management, operational excellence, security and performance efficiency [20 minutes].

Assessment name \*

Microsoft Azure Well-Architected Review - workload #1

Choose your interests

☐ Cost Optimization  
An effective architecture achieves business goals and ROI requirements while keeping costs within the allocated budget.

☐ Operational Excellence  
To ensure that your application is running effectively over time, consider multiple perspectives, from both an application and infrastructure angles. Your strategy must include the processes that you implement so that your users are getting the right experience.

☐ Performance Efficiency  
Prioritize scalability as you design and implement phases. Scalability leads to lower maintenance costs, better user experience, and

☐ Reliability  
In a cloud environment, you must design your architecture to prevent all failures.

☐ Security  
Security is one of the most important considerations in your architecture design. It provides assurances against threats that could negatively impact your workload. In the following sections, you will learn how to apply security to Azure.

### Recommendations for your workload

Actionable items to consider implementing to improve your workload across the five pillars of the Azure Architecture Framework

**Your overall results**

**MODERATE** Almost there. You have some room to improve your current environment, but you're on track. If you continue to optimize, you'll soon be ready for successful cloud enablement.

Low 0-33 Medium 33-67 High 67-100 Your result: 37/100

**Categories that influenced your results**

Resiliency	<div></div>	MODERATE
Cost	<div></div>	MODERATE
Scalability	<div></div>	MODERATE
DevOps	<div></div>	MODERATE
Security	<div></div>	CRITICAL

You can find out how to improve on individual categories by reviewing the recommendations below in the report.

### Next Steps

**Review the 'pillars of a great Azure architecture' learn module**

You want to build great things on Azure, but you're not sure exactly what that means. Using key principles throughout your architecture regardless of technology choice, can help you design, build, and continuously...

[Visit Microsoft Learn >](#)

**Review the Azure Architecture Framework**

A successful cloud solution implementations requires focus on these five pillars of architecture excellence: Cost, DevOps, Resiliency, Scalability, and Security.

[Visit Azure Architecture Center >](#)

**Review the 'how to incorporate security into your architecture design' learn module**

Learn how to incorporate security into your architecture design, and discover the tools that Azure provides to help you create a secure environment through all the layers of your architecture.

[Launch the design for security >](#)

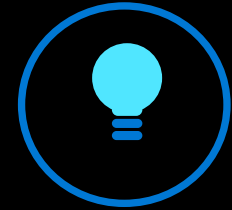
# Architect & optimize workloads for success



**Take assessment**  
[Microsoft Azure  
Well-Architected  
Review](#)



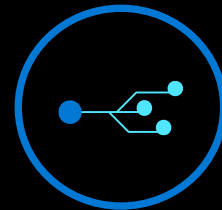
**Read  
Documentation**  
[Well-Architected  
Framework](#)



**Complete  
Training**  
[Well-Architected  
Learn module](#)



**Browse Reference  
Architectures**  
[Azure Architectures](#)



**Review Design  
Principles**  
[Well-Architected  
design patterns](#)

Thank you!