

# Microsoft Azure Well-Architected



# Agenda

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



# It's real. It's tangible. It happens.

The **average total cost per breach** has increased from \$3.54 million in 2006 to **\$8.19 million in 2019.**<sup>1</sup>

Companies with incident response teams with testing of IR plans **—saved over \$1.2 million.**<sup>2</sup>

Customers expect their **cloud spend** to further **increase by 47%** in the next 12 months.<sup>2</sup>

**Encryption reduced breach costs** by an average of \$360,000.<sup>3</sup>

1 What Is The Cost Of A Data Breach? By Marty Puranik. Forbes. Dec 2019

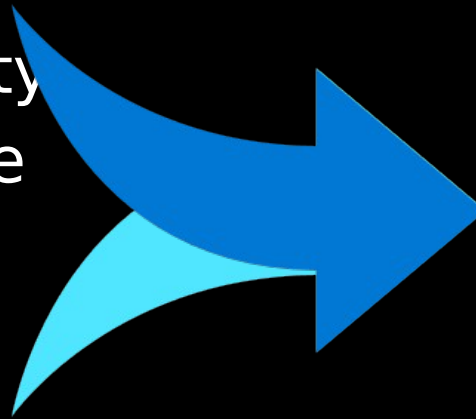
2 Flexera 2020 State of the Cloud Report

3 The Cost of a Data Breach Report, IBM Security, 2019. Conducted by Ponemon Institute LLC.

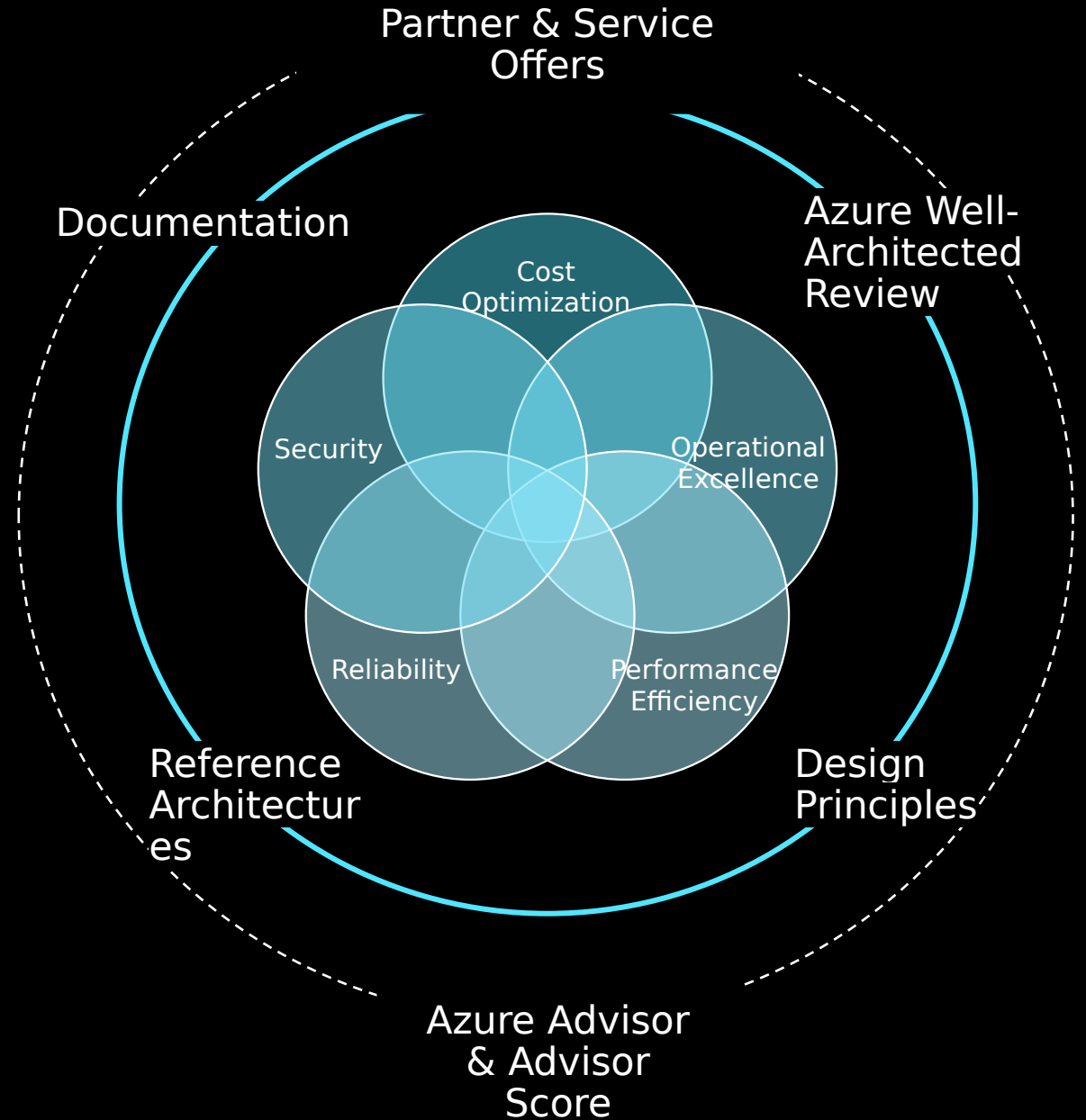


# The value of running well-architected cloud workloads

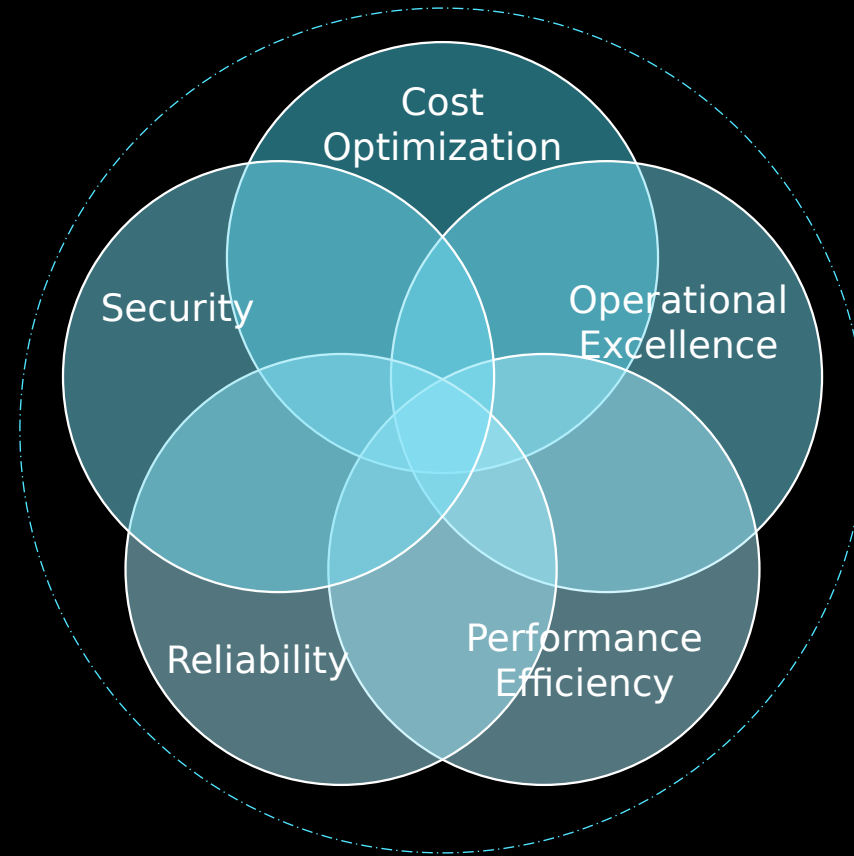
- ✓ Manage budget
- ✓ Improve workloads security
- ✓ Increase incident response
- ✓ Streamline internal processes
- ✓ Avoid costly mistakes
- ✓ Efficient performance



# Microsoft Azure Well- Architected



# Microsoft Azure Well- Architected Framework



# Well-architect & optimize workloads for success



Build workloads with **confidence** using proven best practices



**Actionable & simple-to-use** deep technical resources to design workloads that show results



Know where to **focus** to optimize workloads

# 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**



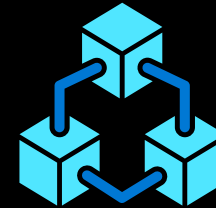
**Operational  
Excellence**



**Performance  
Efficiency**



**Reliability**



**Security**



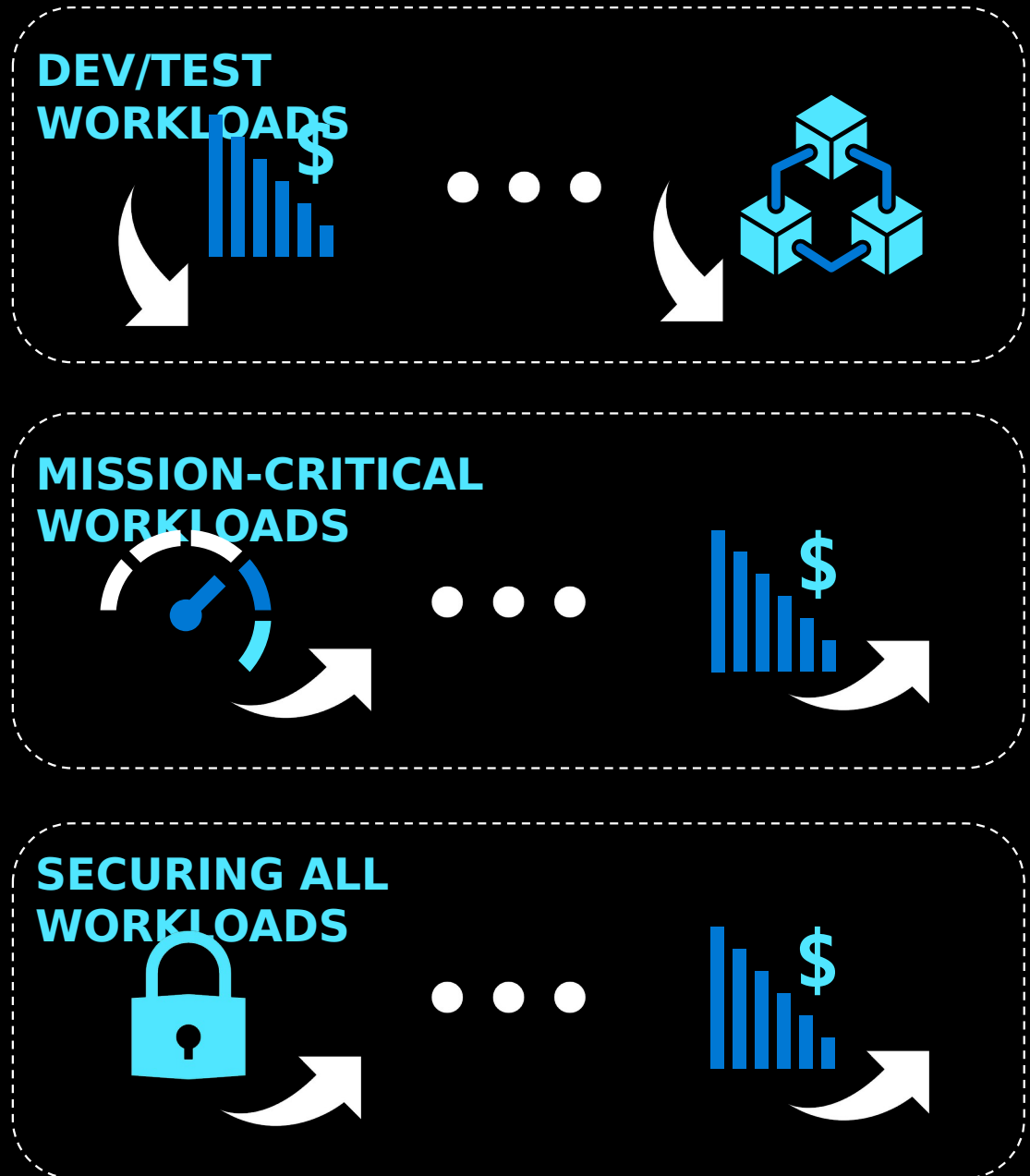
<https://aka.ms/wellarchitected/framework>



# It's all about the trade-offs

Business requirements influence workload architecture decisions

<https://aka.ms/wellarchitected/framework>



# 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



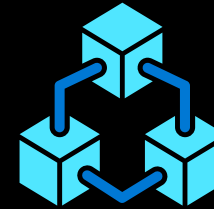
- Lack of rapid issue identification
- No deployment automation
- Absence of communication mechanisms and dashboards
- Unclear expectations and business outcomes
- No visibility on root cause for events

## 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 threat detection mechanism
- Lack of security threat response plan
- No encryption process

# 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

# When to think about getting well-architected?

- ✓ Leverage **Azure Advisor Score** to identify optimization opportunities
- ✓ Understand **changes needed or incidents** occurred
- ✓ Review **Well-Architecture Framework**
- ✓ Consider architecture design **trade offs** to achieve business goals
- ✓ Define and **implement recommendations**
- ✓ Establish a **regular cadence** for workload optimization



DESIGN &  
DEPLOY **NEW**  
WORKLOADS



- ✓ Align workload architecture to **business priorities**
- ✓ Review **Well-Architecture Framework**
- ✓ Leverage the **Azure Well-Architected Review** to assess workload architecture design
- ✓ Consider architecture design **trade offs** to achieve business goals
- ✓ **Build, deploy and manage** workloads on Azure



OPTIMIZE  
**EXISTING**  
WORKLOADS

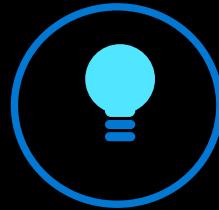
# Architect & optimize workloads for success, with these Microsoft resources



## **Leverage assessment**

Azure Well-Architected Review

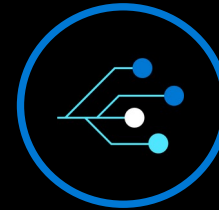
([aka.ms/wellarchitected/review](https://aka.ms/wellarchitected/review))



## **Get trained**

Well-Architected Learning Path

([aka.ms/wellarchitected/learn](https://aka.ms/wellarchitected/learn))



## **Browse Reference Architectures**

Azure Architectures

([aka.ms/wellarchitected/referencearch](https://aka.ms/wellarchitected/referencearch))



## **Review Design Principles**

Well-Architected Design Principles

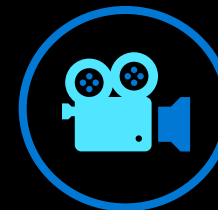
([aka.ms/wellarchitected/designprinciples](https://aka.ms/wellarchitected/designprinciples))



## **Review the Documentation**

Azure Well-Architected Framework

([aka.ms/wellarchitected/framework](https://aka.ms/wellarchitected/framework))



## **Azure Enablement Show**

Channel 9 Show

([aka.ms/azenable](https://aka.ms/azenable))

**NEW**

# Well-Architected Engagement Flow

Microsoft Consumption Process



## KEY OUTCOMES

Team alignment, customer/workload(s) Identified

Customer commitment & engagement planning

Assess workload(s)

Customer commitment & action planning

Recommendation & implementation

Enhancement of Azure environment & measure progress

## SUCCESS CRITERIA

*Opportunity identified and resources committed*

*Customer stakeholder buy-in and sponsorship confirmed*

*Technical deep-dive to identify recommendations*

*Implementation plan finalized and agreed*

*Customer implements the agreed plan*

*Platform Operationalization*

## KEY ACTIVITIES

### Align Business Outcomes

Identify customer for well-architected engagement and identify potential workload(s) based on business criticality.

Understand customer context, including impacting events like outages, security breaches, and related engagements.

Identify customer stakeholders and leadership sponsors.

### Define Scope & Objectives

Establish the value and benefits of the Well-Architected engagement.

Understand experienced issues, if any.

Agree on target workload(s) and key pillars (WAF).

Execute Well-Architected Review, accordingly.

- ✓ Overview deck
- ✓ Well-Architected Review

### Gather Data & Assess

Assess the end-to-end workload(s) current architecture and design trajectory.

Identify critical risks jeopardizing workload(s) architecture.

Gather key subscription IDs and Advisor Score data.

- ✓ Advisor Score
- ✓ WA gather and analyze guidance
- ✓ Workshop deck

### Report Findings & Create Action Plan

Capture key findings and recommendations in a report.

Prioritize recommendations according to risk, customer impact or priority.

Gain customer commitment to action provided recommendations.

Define an implementation plan and establish next steps to action committed recommendations.

- ✓ Action Plan template

### Recommendations Implementation

Customer implements recommendations captured in the plan report

Support customer execution and address any questions or comments from the customer

Ensure the customer understands the approaches taken so that they can replicate it to other workload(s)

### Measure & Optimize

Measure implementation for issued recommendations, through Advisor Score and Well-Architected Review. Compare to these two at the beginning of the engagement and discuss new posture with customer.

Report against quantified data points to capture remaining risk exposure.

- ✓ Well-Architected Review
- ✓ Advisor Score



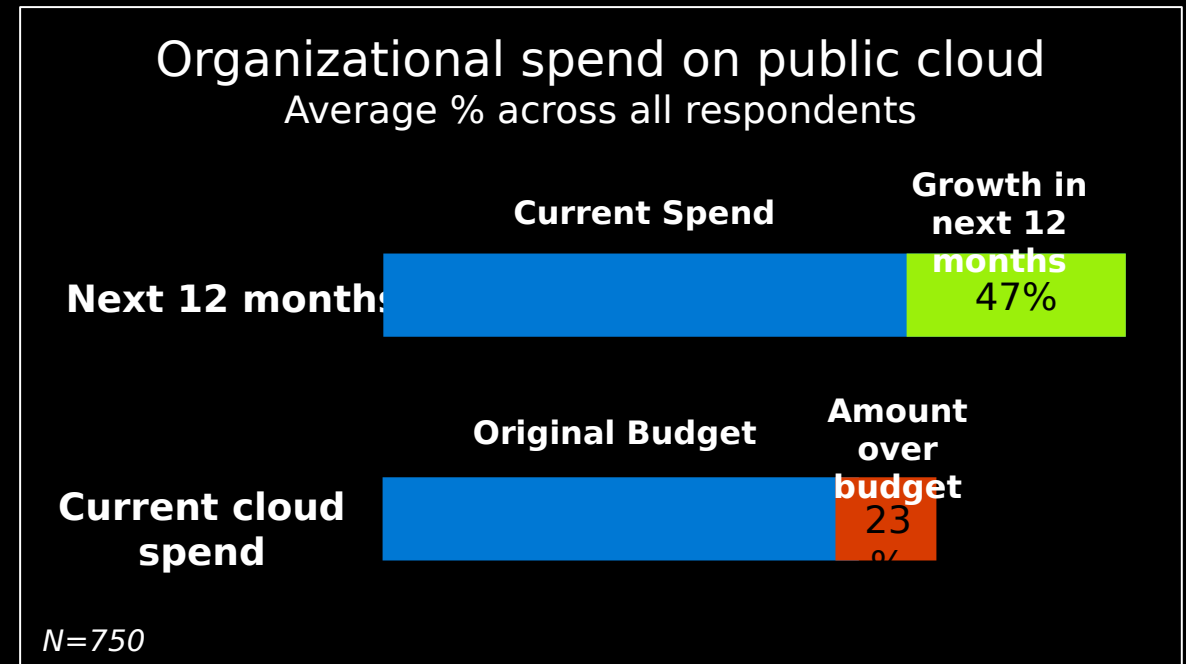
Thank you!



# 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**

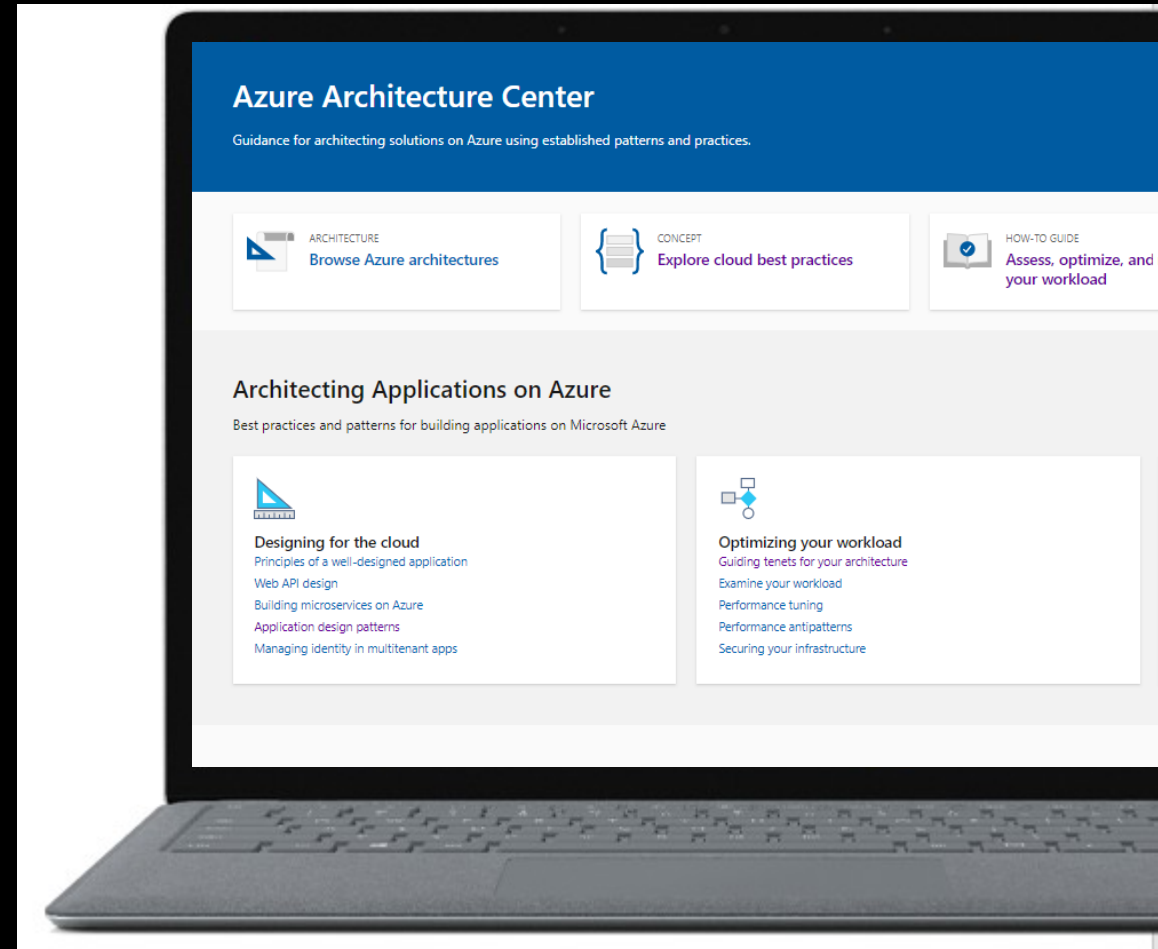
- Breach costs rose above 16 percent at organizations without automation deployed, going up from an average of \$4.43 million in 2018 to \$5.16 million in 2019.
- Breach costs decreased by 8 percent at organizations with fully deployed automation, from 2018 to 2019, from an average of \$2.88 million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

Documentation

# Microsoft Azure Architecture Center

<https://aka.ms/architecture>



Documentation

# Microsoft Azure Well-Architected Framework

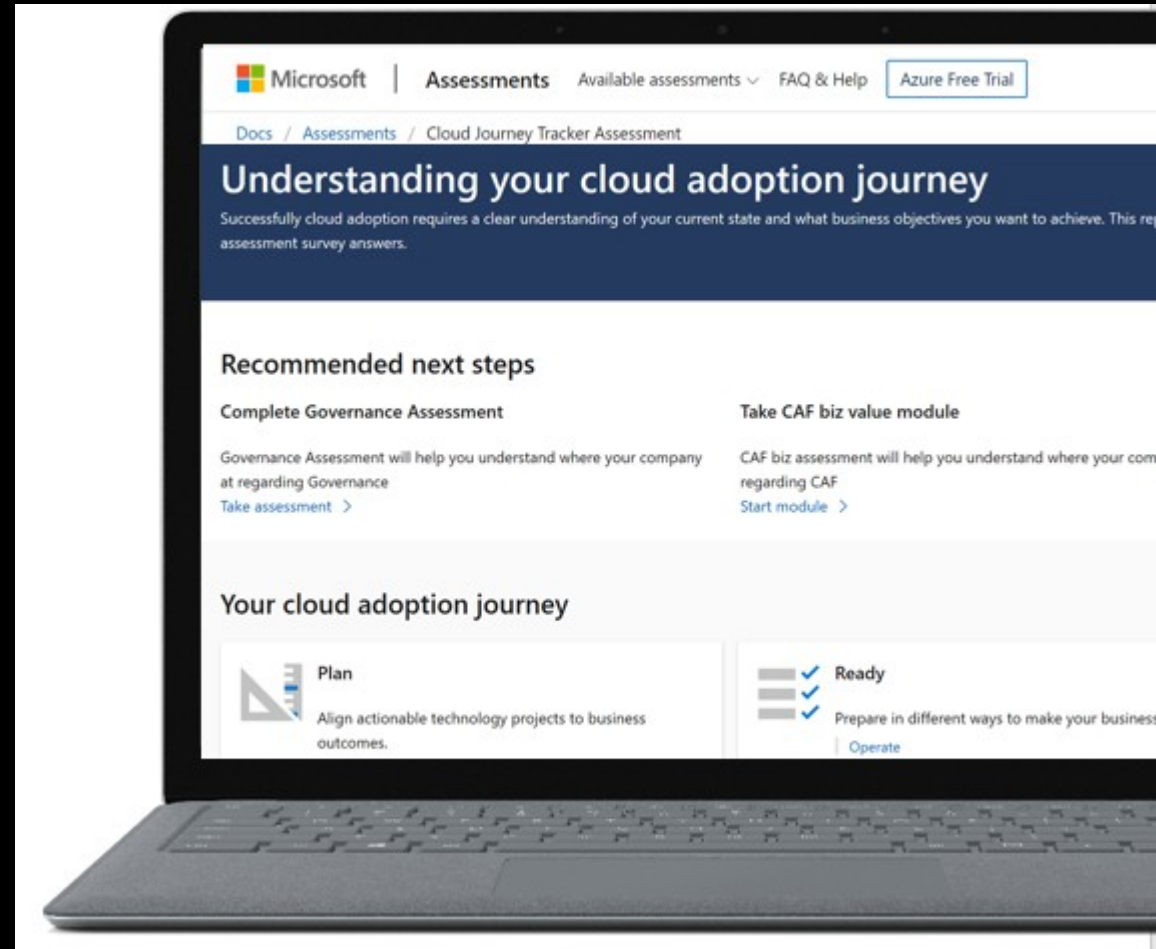
<https://aka.ms/wellarchitected/framework>



Assessment

# Microsoft Azure Well-Architected Review

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



Score

# Microsoft Azure Advisor Score

<https://aka.ms/advisorscore>



# Individual Pillars Messaging & Positioning Framework



# 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



## 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



## 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



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



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



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



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



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

# Well-Architected | WA Framework | Security



## Build and manage proactively secured workloads

Security offers you the guidelines to protect, detect and respond to threats across your Azure environment.



### Built on a secure foundation

- Build [zero-trust architecture](#) across workloads with end-to-end security.
- Embrace 'shared' responsibility to leverage Azure's [security investments, resources and compliance certifications](#).
- Design assuming failure with [multi-layer protection controls](#).



### Proactively stay secure with native controls

- Continuously manage your cloud security posture from a single pane of glass with [Azure Security Center](#).
- Protect your applications, networks, and workloads with [Azure Network Security Solutions](#).
- Manage identity and access across workloads with [Azure Active Directory](#).



### Detect and respond to threats

- Detect and investigate attacks with [Azure Sentinel](#) providing intelligent security analytics.
- Work with the [Microsoft Intelligent Security Graph](#) and leverage large-scale intelligence from 8 trillion collected threat signals analyzed daily.
- Embrace automation and native tools like [Azure Defender](#) to get threat protection for all workloads