

# Microsoft Azure Well-Architected Framework Workshop & Lab



# Well-Architected Workshop Agenda

The Well-Architected Opportunity for Partners	15 min
Well-Architected Framework standardized process	20 min
Break	15 min
Group formation	10 min
Case Study & Lab rest of the day	
Build your case	
Review the customer case study	20 min
Plan for information collection	15 min
Cost optimization	45 min
Security	30 min
Reliability	60-90 min
Performance & Efficiency	45 min
Operational Excellence	30 min
Create a prioritized plan	30 min ~5h
Break	45 min
Teams presentation	1h
Wrap up	30 min
	Total: <b>~7 h</b>

# Why WAF?

- It helps you deepen customer trust
- As the customer will learn how to use Azure effectively, how to configure security and control they will feel ready for the next workloads, so it is a driver for innovation
- Can be a great pre-sales tool for partners
- It is a structured approach recommended by Microsoft and that partners can use to guide customer conversations with key deliverables

# 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

# Cloud Adoption Framework for Azure

Find offers for your business and technical needs by Cloud Adoption Framework phases

Select business and technical offers from premier Microsoft partners, based on where you are in your digital transformation journey. Offers are aligned to and validated against the guidance in the stages of the Cloud Adoption Framework.

[Get started](#)

The screenshot shows a user interface for finding partners. On the left, a sidebar lists phases: All, Strategy, Plan, Ready, Migration, Innovation, Governance, and Manage. The main area has a title 'All' and a 'Filter by Region' dropdown set to 'Western Europe'. Below are three cards:

- bjss** [BJSS Ltd](#)  
[Azure Well-Architected Framework: 3-Day Assessment](#)
- bjss** [BJSS Ltd](#)  
[Azure Landing Zone: 1-Hr Briefing](#)
- Cybercom** [Cybercom](#)  
[Azure Migration: 10 weeks, Implementation](#)

# WAF & CAF opportunities for partners

<https://www.microsoft.com/azure/partners/adopt>



£3,000

[Contact Me](#)**Publisher**

BJSS Limited

**Service type**

Assessment

**Gold competencies** ⓘ

Cloud Platform

DevOps

Application Integration

**Solution Areas**

App Modernization

Migration

Security

**Industries**

Financial Services

Government

Healthcare + Life Sciences

Professional Services

Retail + Consumer Goods

# Azure Well-Architected Framework: 3-Day Assessment

BJSS Limited

The Microsoft Azure Well-Architected Framework (WAF) assessment is used to quickly validate your current architecture against best practice.

The Microsoft Azure Well-Architected Framework (WAF) assessment is designed to provide clients with high-level guidance and best practices to help you maintain and improve secure, reliable, performant, cost optimised, and operationally excellent applications in the Azure Cloud. It is based on Azure Cloud Adoption Framework.

The assessment covers the following pillars:

**Security:** The ability to protect information, systems, and assets while delivering business value through risk assessments and mitigation strategies

**Reliability:** The ability of a system to recover from infrastructure or service failures, dynamically acquire computing resources to meet demand, and mitigate disruptions such as misconfigurations or transient network issues

**Performance Efficiency:** The ability to use computing resources efficiently to meet system requirements, and to maintain that efficiency as demand changes and technologies evolve

**Cost Optimization:** The ability to avoid or eliminate unneeded cost or suboptimal resources

**Operational Excellence:** The ability to run and monitor systems to deliver

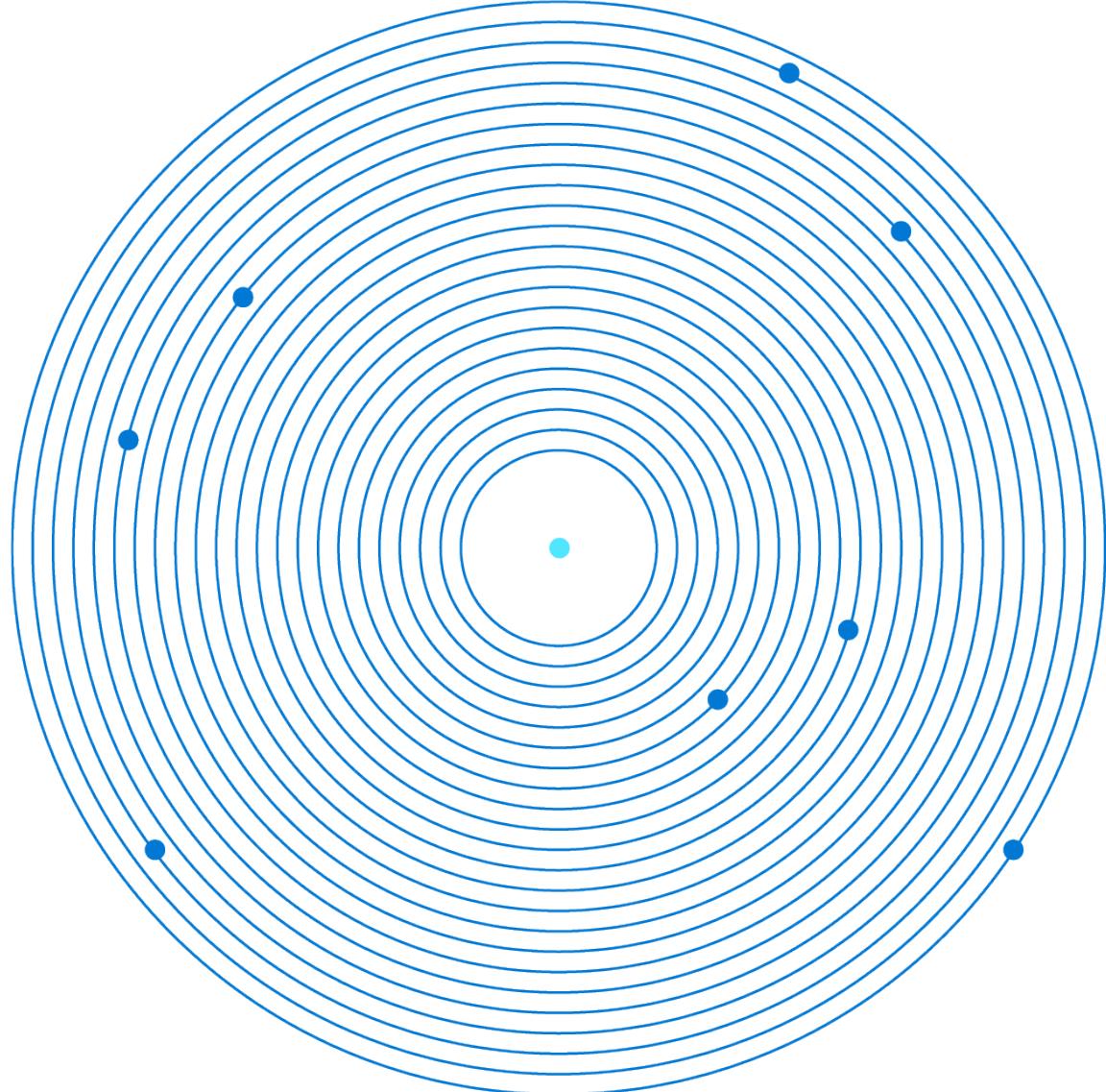
## What is the Well-Architected Framework?

The Microsoft Azure Well-Architected Framework (WAF) assessment is designed to provide clients with high-level guidance and best practices to help you maintain and improve secure, reliable, performant, cost optimised, and operationally excellent applications in the Azure Cloud.



# Well Architected Assessments Process

<http://bit.ly/WAFWorkshop>

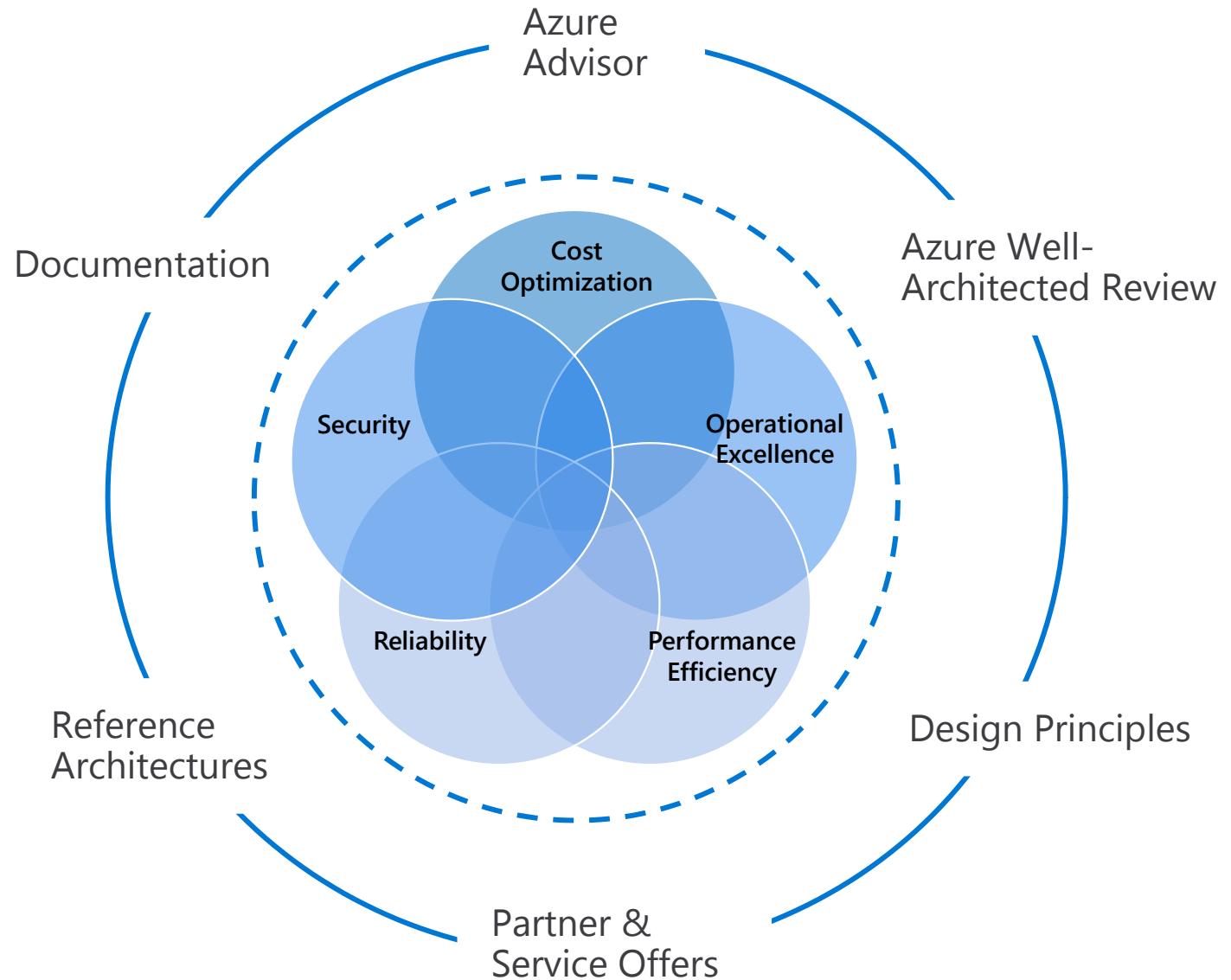


# Microsoft Azure Well-Architected

The Azure Well-Architected Framework is a set of guiding tenets to improve the quality of a workload.

The framework consists of five pillars of architecture excellence :

- Cost optimization
- Operational excellence
- Performance efficiency
- Reliability
- Security



## What are **Well-Architected** Reviews?

Comprehensive end-to-end review of an existing application or proposed design, to identify critical optimizations

Covers all five tenets of the Microsoft Azure Well-Architected Framework, encompassing a wide range of technical topics from Compute, Data and Networking to DevOps

Designed to **identify critical risks** to the design and implementation of an application deployed to Azure

Deliver **prioritized and actionable recommendations** to address each area of concern

# Workshop Approach



Review workshop lasting 1-to-2 days

Can be delivered as compressed virtual workshops spanning 2-to-4 hours



'Top-down' end-to-end assessment of the entire application and its design path

Covering all significant technical domains through the five lenses of Well-Architected tenets



'Question & Answer' format applied to solicit key data points

Relevant application context is required to identify risks and align associated recommendations

# Engagements how-to

This is how we will be working together



Learn about the customer's current state, intentions, requirements and desired future state

Initially be in listen-mode and capture extensive notes and details required to build the initial designs

At various points in this discovery workshop, we will all want to dig into more details by using discovery tools

Topics are **time-boxed** during the discovery workshop we will need to move on to another topic to achieve the goal within time

We will maintain a parking lot to record topics that will need further discussion, and to record action items/owners post Discovery workshop

From this, Propose an initial design to meet your requirements and incorporate our recommended practices

# Well-Architected workshop process



# Review Summary



## Scope



### Next phases

Discovery will enable the following activities in the following phases

The WAF **review phase** is designed to help us better understand customer's production workloads and platform to identify optimization opportunities and backlog:

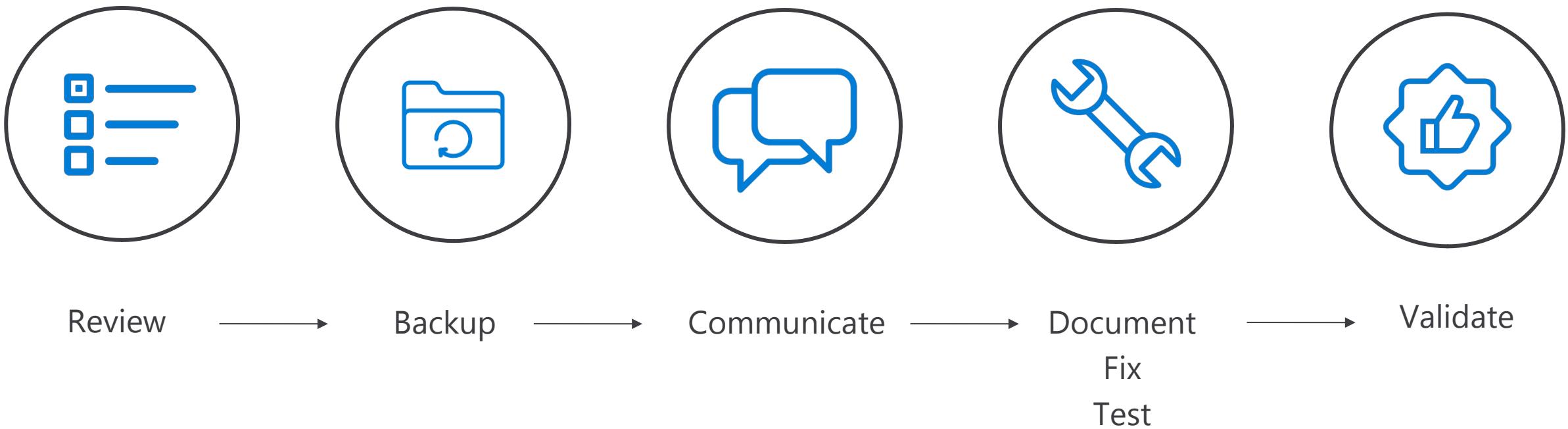
- The discussions will be heavily driven on customer scenarios.
- It will be important to understand customers' priorities from a business perspective. This will guide our optimization proposal.
- will support to run the toolset to capture and document recommended optimizations.

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After this workshop, organize and analyze the information shared by the customer:

- Prepare the initial backlog of optimizations (in Azure DevOps)
- Prioritize with the customer what optimization will be implemented during the following sprints

# Remediation steps



# Deliverables examples

- Recommendations and Optimizations Plan
- Architecture diagram
- Infra as Code, PowerShell Script, Pipelines
- Azure Monitor Workbook

# Well Architected Lab

# Learning Objectives

In this whiteboard design session, you will look at how to design for converting/extending an existing architecture to align to WAF principles and best practices. Throughout the whiteboard design session, you will look at the various configuration options and services to help build resilient, secure, performant and reliable architectures that optimize costs.

At the end of the workshop, you will be better able to design and use the Azure Well Architected Framework pillars. The workshop will cover:

- WAF tooling
- Cost Optimization best practices
- Reliability
- Performance Efficiency
- Operational Excellence
- Security

## Azure Well Architected Pillars



# Groups, team leaders and coaches

# Customer Scenario - Description

- Contoso Inc., is an Insurance Company headquartered in Madrid, provides insurance solutions across Europe.
- **Mobile agents** located across the continent visit claimants to verify their claims and upload information using the Claims Application.
- Headquarters is in Madrid, Spain with various **branch locations**.
- Contoso IT group is a classic shop, mainly focused on infrastructure, **little automation** in operations. They **use legacy tools** for monitoring, governance, security and deployments.
- The **AppDev department's skill set is dated**, predominantly focused on client/server development.
- The organization has an **Internet-based claims application** they recently deployed into Azure.
- The current design relies on a single SQL Server VM and a single AD VM. Web servers use a load-balancer with TCP probe.

# Customer Scenario - Description

- Branch offices are connected to Azure using Site-to-Site VPNs with on-site RRAS server.
- Customers have reported **reliability issues** with the claims application. Failures were correlated to **service health issues with the SQL VM**.
- **Network connectivity issues** between the branch offices and the corporate office have occurred intermittently. Every time there is a failure in connectivity, IT team needs to travel to the branch office to troubleshoot on site.
- Disk storage has a heightened level of attention due to a critical server running out of disk space, highlighting gaps in proactive monitoring.
- Recent stability issues with the claims application prompted Contoso to perform a business impact analysis of the application.
- The result is an executive mandate **to achieve an SLA of at least 99.95%** for the claims application, with RTO of 4 hours and RPO of 6 hours, plus backup of all critical VMs and data.

# Customer Scenario - Description

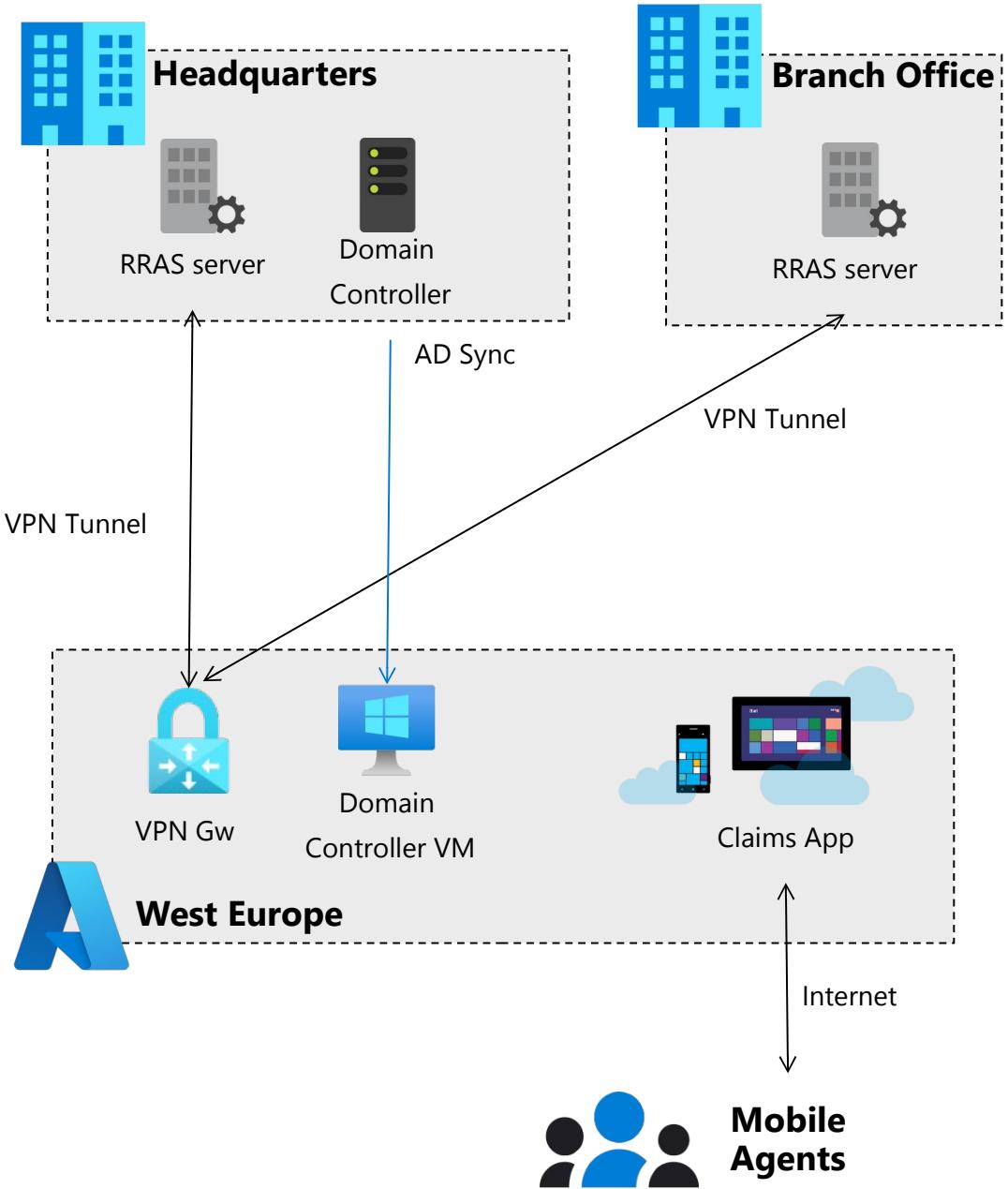
- The App Dev team is working on a **next-generation PaaS-based implementation** of the claims application. This is based on a Web App and Azure SQL Database.
- The need to achieve a similar level of resilience as the IaaS-based version, otherwise the business will not agree to migrate to PaaS.
- They need to improve in the application's time to market as competition in the industry is fierce, they **need to implement automation** not only for their infrastructure provisioning but also for code deployment. They only have a pipeline for production code deployment
- As they plan on moving to PaaS they need to **modernize their day-2 operational toolset**.

# Customer Scenario - Description

- Security is a big concern as their deployment is internet facing and distributed. They need to **design their system securely** both in the cloud and branch offices.
- The insurance industry is subject to regulatory standards that they need to align to and provide the mechanisms to **enforce compliance guidelines** as well as provide auditing information when requested.
- Cost is a concern; they need to **optimize their current spending** with the IaaS design before planning for the next-gen PaaS deployment

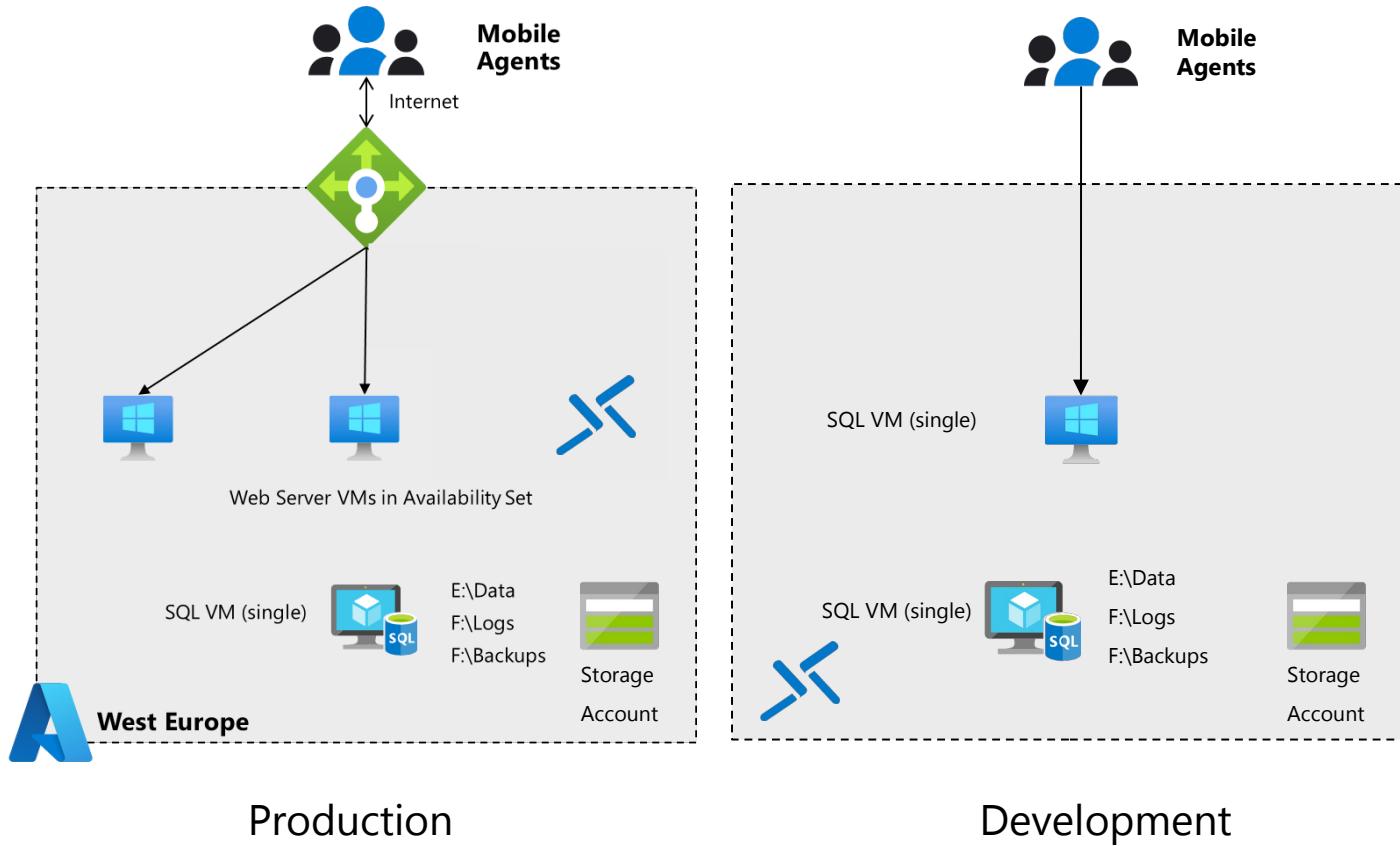
# Customer Scenario - Architecture

- Currently have a single domain controller deployed in West Europe
- Connectivity is enabled with a site-to-site VPN gateway



# Customer Scenario - Architecture

- Claims Application:
  - Web servers deployed into an availability set
  - SQL Server backend (single VM)
  - GRS Storage account for object storage
  - Azure Bastion is deployed to manage the VM access.
- West Europe



# Customer Scenario – Additional Facts

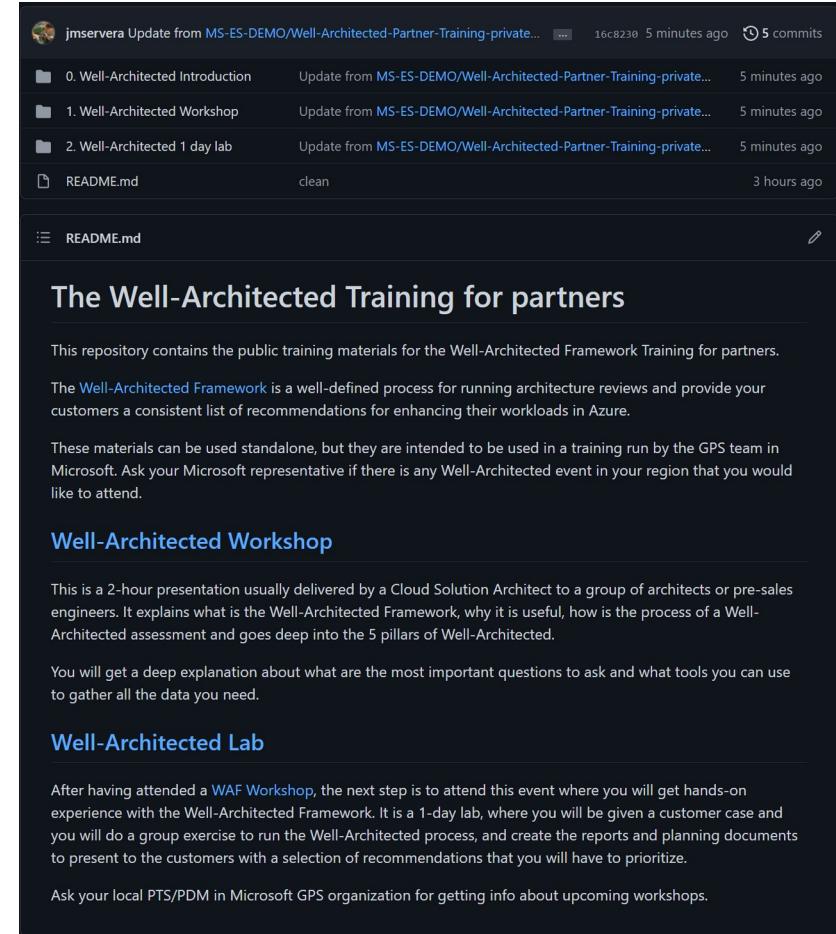
- Development Environment uses the same size VMs and settings as Production.
- AppDev team only access the environment 9:00-17:00 Monday through Friday.
- All services are deployed in pay-as-you-go mode.
- Platform doesn't use any WAF but NSG are configured. Claims Apps has not been configured SSL, yet.
- There is no up/down autoscaling set up.
- Any new version of the application is deployed manually. For monitoring they use an agent-based 3<sup>rd</sup> party tool for the infrastructure metrics, there is no APM. No security or governance solution implemented. They use Azure Backup.
- There is a mismatch of the expected consumption for the deployed resources and what they are being charged. They do not know where those charges may be coming from.

# Customer Objections



# Lab Materials

<https://aka.ms/WAF-Training>



The screenshot shows a GitHub repository page for 'MS-ES-DEMO/Well-Architected-Partner-Training-private'. The repository has 5 commits and was updated 5 minutes ago. It contains four files: '0. Well-Architected Introduction', '1. Well-Architected Workshop', '2. Well-Architected 1 day lab', and 'README.md'. The 'README.md' file is the current file being viewed.

## The Well-Architected Training for partners

This repository contains the public training materials for the Well-Architected Framework Training for partners. The Well-Architected Framework is a well-defined process for running architecture reviews and provide your customers a consistent list of recommendations for enhancing their workloads in Azure. These materials can be used standalone, but they are intended to be used in a training run by the GPS team in Microsoft. Ask your Microsoft representative if there is any Well-Architected event in your region that you would like to attend.

### Well-Architected Workshop

This is a 2-hour presentation usually delivered by a Cloud Solution Architect to a group of architects or pre-sales engineers. It explains what is the Well-Architected Framework, why it is useful, how is the process of a Well-Architected assessment and goes deep into the 5 pillars of Well-Architected. You will get a deep explanation about what are the most important questions to ask and what tools you can use to gather all the data you need.

### Well-Architected Lab

After having attended a WAF Workshop, the next step is to attend this event where you will get hands-on experience with the Well-Architected Framework. It is a 1-day lab, where you will be given a customer case and you will do a group exercise to run the Well-Architected process, and create the reports and planning documents to present to the customers with a selection of recommendations that you will have to prioritize. Ask your local PTS/PDM in Microsoft GPS organization for getting info about upcoming workshops.

# Step 1 – Review the customer case study

## Assignment

- Customer mindmap
- Stakeholder analysis
- Top requirements lists

## Success Criteria

- Customer mindmap
- Stakeholder analysis

## Timeframe

- 20 minutes

# Step 2 – Plan for Information Collection

Review and analyze customer needs and plan for WAF alignment.

## Assignment

Analyze the provided information and answer these questions:

- Do I need any additional information? If so, what would that be?
- How could you get that information?
- What tools would you use?, if any.
- Which stakeholders from the customer do you need?

## Success Criteria

List of techniques and tools you will use to collect information:

- Azure native
- 3<sup>rd</sup> party
- Custom build
- Can include procedures, meetings, etc.

## Timeframe

- 15 minutes

# Cost Estimate Pre-WAF

Service type	Custom name	Description	Estimated monthly cost
VPN Gateway		VPN Gateways, VpnGw1 tier, 730 gateway hour(s), 10 S2S tunnels, 128 P2S tunnels, 0 GB, Inter-VNET VPN gateway type	138,70
Azure Bastion		730 Hours, 5 GB Outbound Data Transfer	138,70
Azure Bastion		730 Hours, 5 GB Outbound Data Transfer	138,70
Storage Accounts		Block Blob Storage, General Purpose V2, GRS Redundancy, Hot Access Tier, 1 TB Capacity - Pay as you go, 100,000 Write operations, 100,000 List and Create Container Operations, 100,000 Read operations, 100,000 Archive High Priority Read, 1 Other operations. 1,000 GB Data Retrieval, 1,000 GB Archive High Priority Retrieval, 1,000 GB Data Write, 1000 GB Geo-replication data transfer	62,34
Virtual Machines	SQL-Dev	1 D2s v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), SQL Standard (Pay as you go); 1 managed disk – P1; Inter Region transfer type, 5 GB outbound data transfer from West Europe to East Asia	447,54
Storage Accounts	SQL VM data	Page blobs (Unmanaged Disks included), Standard, ZRS Redundancy, General Purpose V2, 1,000 GB Capacity, 100 Operations for Unmanaged Disks, 10,000 Write operations for Page Blobs, 10,000 Write additional IO units, 10,000 Read operations for Page Blobs, 10,000 Read additional IO units, 10,000 Delete operations for Page Blobs	307,07
Virtual Machines	webVM-dev	1 D2s v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), SQL Standard (Pay as you go); 1 managed disk – P1; Inter Region transfer type, 5 GB outbound data transfer from West Europe to East Asia	447,54
Virtual Machines	ADVM-pro	1 D2s v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 1 managed disk – P1; Inter Region transfer type, 5 GB outbound data transfer from West Europe to East Asia	155,54
Storage Accounts	ADVM-pro	Page blobs (Unmanaged Disks included), Standard, GRS Redundancy, General Purpose V2, 1,000 GB Capacity, 100 Operations for Unmanaged Disks, 10,000 Write operations for Page Blobs, 10,000 Write additional IO units, 10,000 Read operations for Page Blobs, 10,000 Read additional IO units, 10,000 Delete operations for Page Blobs	450,55
Storage Accounts	storage-pro	Page blobs (Unmanaged Disks included), Standard, LRS Redundancy, General Purpose V2, 1 GB Capacity, 100 Operations for Unmanaged Disks, 10,000 Write operations for Page Blobs, 10,000 Write additional IO units, 10,000 Read operations for Page Blobs, 10,000 Read additional IO units, 10,000 Delete operations for Page Blobs	204,30
Virtual Machines	SQL -pro	1 D2s v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), SQL Enterprise (Pay as you go); 0 managed disks – P1; Inter Region transfer type, 5 GB outbound data transfer from West Europe to East Asia	1.249,76
Storage Accounts	SQL pro	Managed Disks, Premium SSD, LRS Redundancy, P40 Disk Type 1 Disks; Pay as you go	284,94
Virtual Machines	Web1pro	2 D2s v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 0 managed disks – P1; Inter Region transfer type, 5 GB outbound data transfer from West Europe to East Asia	309,52
Load Balancing	LB-Pro	Standard Tier: 5 Rules, 1,000 GB Data Processed	23,25
Azure Backup		Azure VMs, 7 Instance(s) x 1 TB, LRS Redundancy, Moderate Average Daily Churn, 17 TB Average monthly backup data, 1 TB Average monthly snapshot usage data	697,31
Support		Support Licensing Program	0,00 Microsoft Online Services Agreement
		<b>Total</b>	<b>5.057,83</b>

# Customer input - Ask the bot



Teams: <https://aka.ms/CTOBotES>



Telegram: [https://telegram.me/contoso\\_insurance\\_cto\\_bot](https://telegram.me/contoso_insurance_cto_bot)



Web: <https://aka.ms/CTOBotESWeb>

WAF Review: [https://aka.ms/waf\\_review](https://aka.ms/waf_review)

The screenshot shows a Microsoft Teams chat window titled "WAF the Bot Chat". The bot's profile picture is a blue robot head with green eyes. The user asks "como está desplegado el motor de datos?" at 11:05. The bot responds with "Hello and welcome!" and "Lo tenemos todo desplegado cerca de nuestros clientes en una única región, la de Western Europe".

# Step 3 – Cost Optimization

## Assignment

Analyze the provided information and answer these questions:

- Are there any hidden costs in the current architecture? How can you identify them?
- Can the current IaaS architecture be more cost-effective? How?
- How would you keep track of cloud expenditure?
- What will be the cost impact of your new architecture recommendations?

## Success Criteria

- Checklist of best practices to be implemented in the IaaS architecture to improve costs
- List of operational changes that need to be implemented to improve cloud expenditure and keep track of costs
- Estimate of the impact once recommendations have been applied

## Timeframe

- 45 minutes

# Step 4 – Security

## Assignment

Analyze the provided information and answer these questions:

- Are the user connections to the Claims App secure? Both from branches and Mobile agents?
- How would compliance?
- Is the architecture ready to respond in case of an attack?.
- How is the organization's security going to be monitored, audited, and reported?

## Success Criteria

- List of recommendations to be implemented
- High level architecture including security best practices and recommendations
- Tooling and solutions that should be in place

## Timeframe

- 30 minutes

# Step 5 – Reliability

## Assignment

Analyze the provided information and answer these questions:

- How will you provide an SLA in excess of 99.95% (per month) for the overall claims application? Consider all application tiers: web, DB, DC. Consider an IaaS approach.
- How can you improve the reliability for the Contoso branch office VPN connections?
- Are your VMs and databases covered from data corruption or accidental deletion?.
- How will you monitor and alert on your resources?
- How can the PaaS implementation achieve an equivalent level of resiliency?

## Success Criteria

- Reliability recommendations to be implemented
- High level architecture of the IaaS deployment with your recommendations
- High level architecture with a PaaS design
- Estimation of your solutions SLA

## Timeframe

- 60-90 minutes

# Step 6 – Performance Efficiency

## Assignment

Analyze the architectures you just proposed and explain:

- Can you provide a solution that scales to meet the public demand? How would this solution change in an PaaS architecture?
- How can you improve the performance visibility and alerting? Are all the tiers covered?
- Is there a more proactive approach?
- Is the architecture properly sized? Consider cost analysis to determine how much you can improve.

## Success Criteria

- High level architecture design that is able to meet demand, both IaaS and PaaS
- Description on how your architecture scales
- Metrics and Tooling changes required to support application scalability and design

## Timeframe

- 45minutes

# Step 7 – Operational Excellence

## Assignment

Analyze the provided information and your architecture to answer these questions:

- How would you optimize App time to market?
- What would you automate? Does PaaS improve the operations?
- Would you change anything in the current monitoring set up? Why?
- What changes would you introduce in the deployment?.
- Is the architecture prepared for the unexpected and to catch mistakes?

## Success Criteria

- List of best practices to be implemented for DevOps
- Tooling and required
- Tests and procedures to be changed in application deployment

## Timeframe

- 45 minutes

# Step 8 – Create a plan

## Assignment

Analyze the provided information and answer these questions:

- What are the most important recommendations?
- Are those recommendations immediately actionable?
- Are the recommendations aligned with the business perspective?
- Do you have a clear architecture diagram for the mid and long-term proposals?
- How will you measure the success of the enhancements?

## Success Criteria

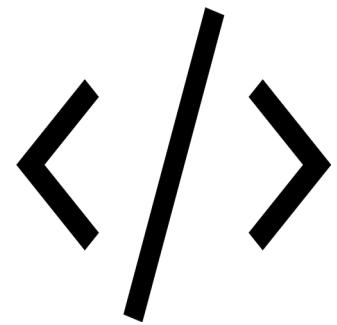
- Backlog with prioritized recommendations
- Mid/long-term architectures
- Impact and success metrics

## Timeframe

- 30 minutes

# Teams Presentations

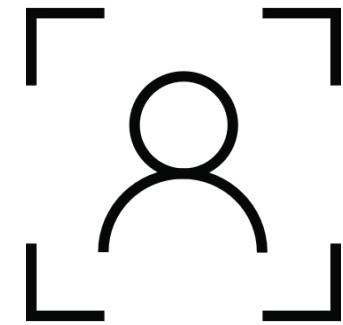
# Call To Action



Create your own practice  
offer in Marketplace



Communicate your  
specializations



Work with your PDM/PTS



Thank you.