



Use Azure Well Architected Framework to help you modernize your Apps!

Accelerating your Digital Transformation Journey

Nagendra Mishr – Cloud Solution Architect

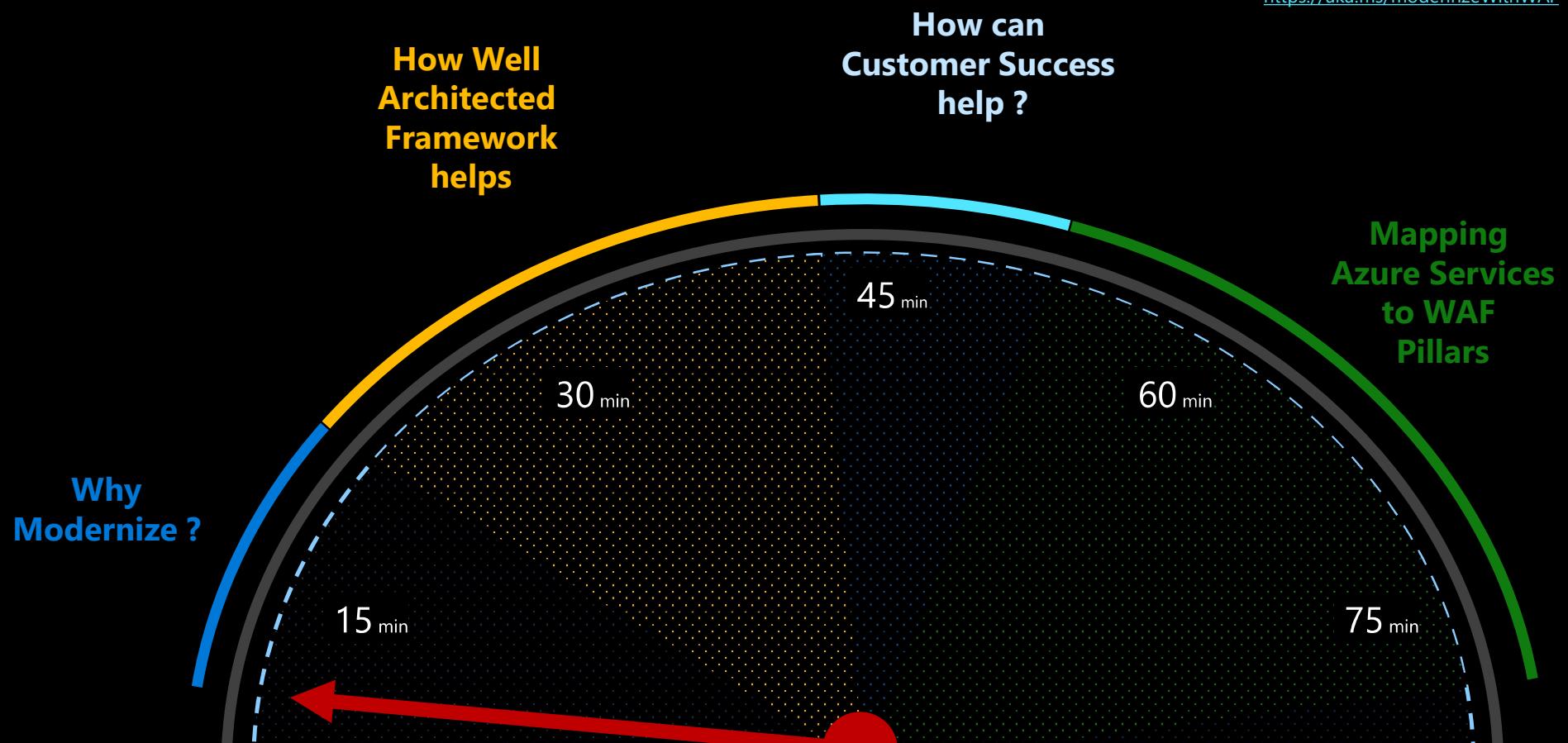
Jerome Vigne – Digital and App Innovation Specialist



Today's Agenda



<https://aka.ms/modernizeWithWAF>



Every company wants to digitally transform

However, realizing true business value
from software remains challenging

20M+

Software engineers worldwide

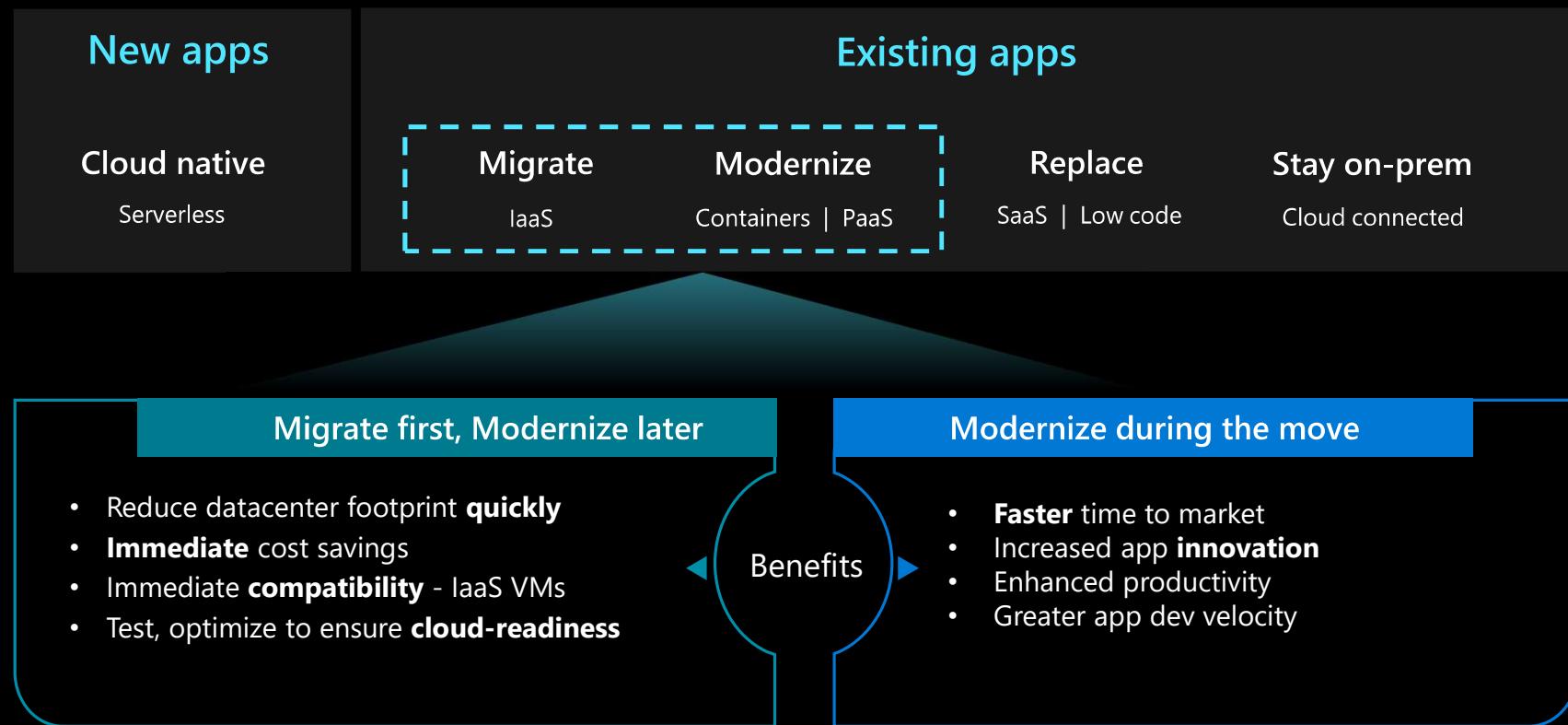
50%

Outside of tech industry

70%

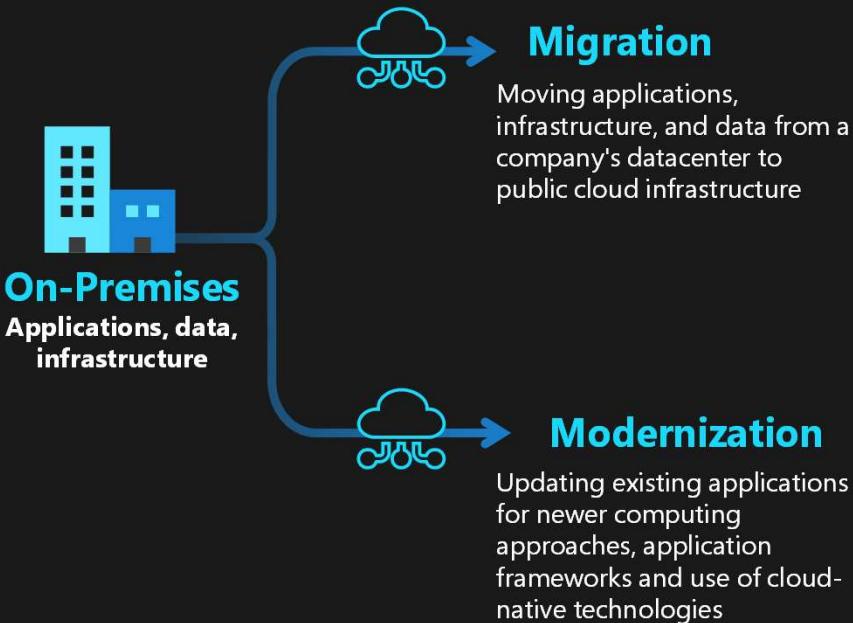
of digital transformation initiatives
do not achieve targeted outcomes

Customer cloud migration and modernization approaches



Understanding Migration and Modernization

Defining Migration and Modernization



Migration and Modernization decision factors

What is the immediate business need?

- Cost optimization, flipping CAPEX to OPEX
- Realize cloud benefits quickly

How hard is it to do?

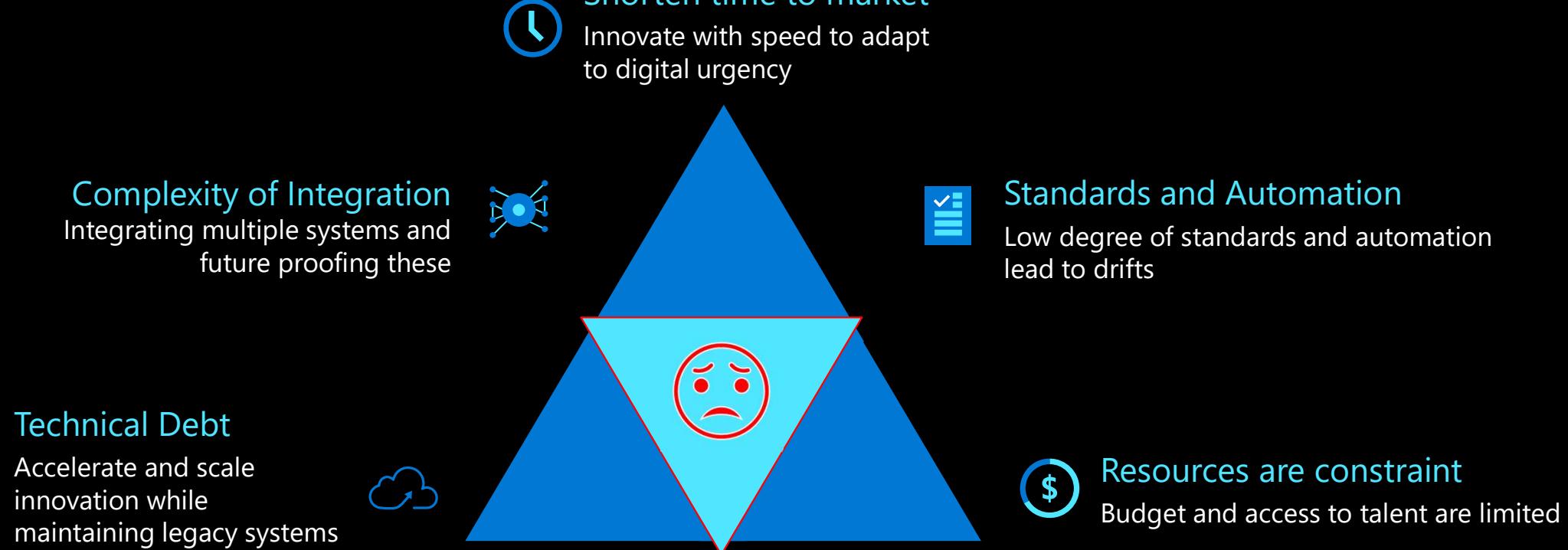
- Complexity, level of skilling or retraining of staff needed.
- Cost and resources needed to refactor or rebuild

Longer-term business goals?

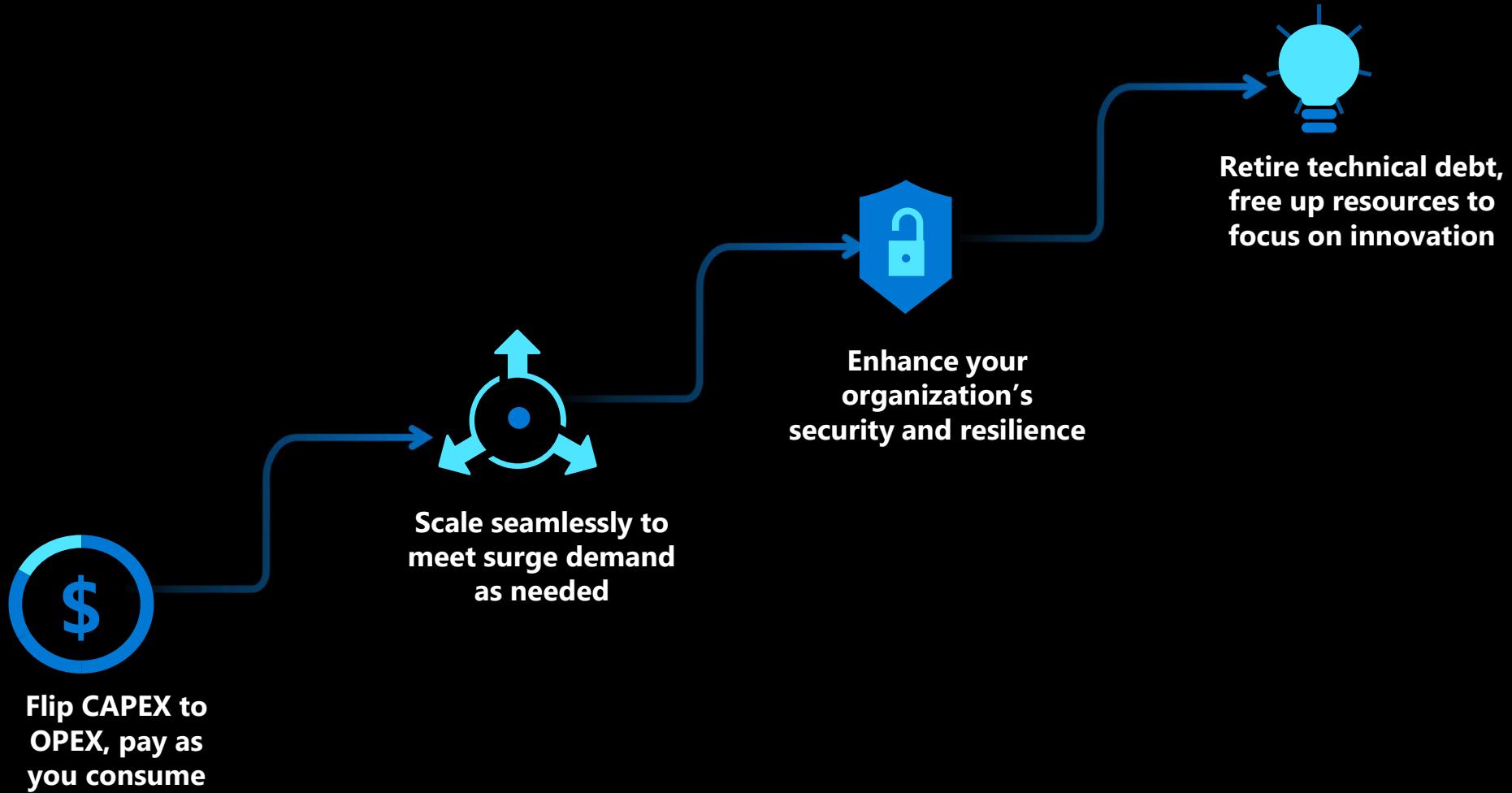
- Time to market, app innovation, productivity, app dev velocity

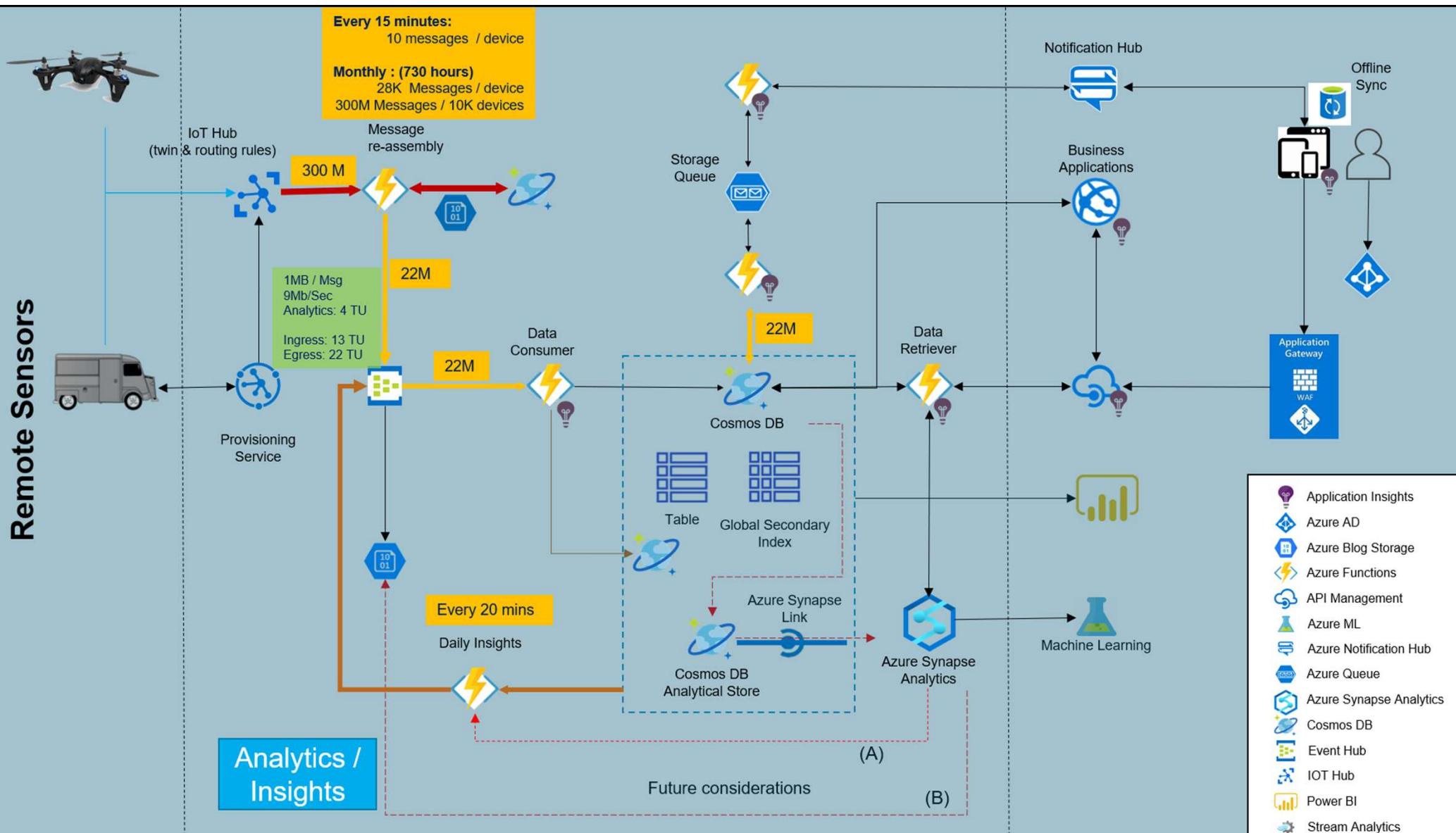
Post Lift-and-shift challenges

The pain we hear about

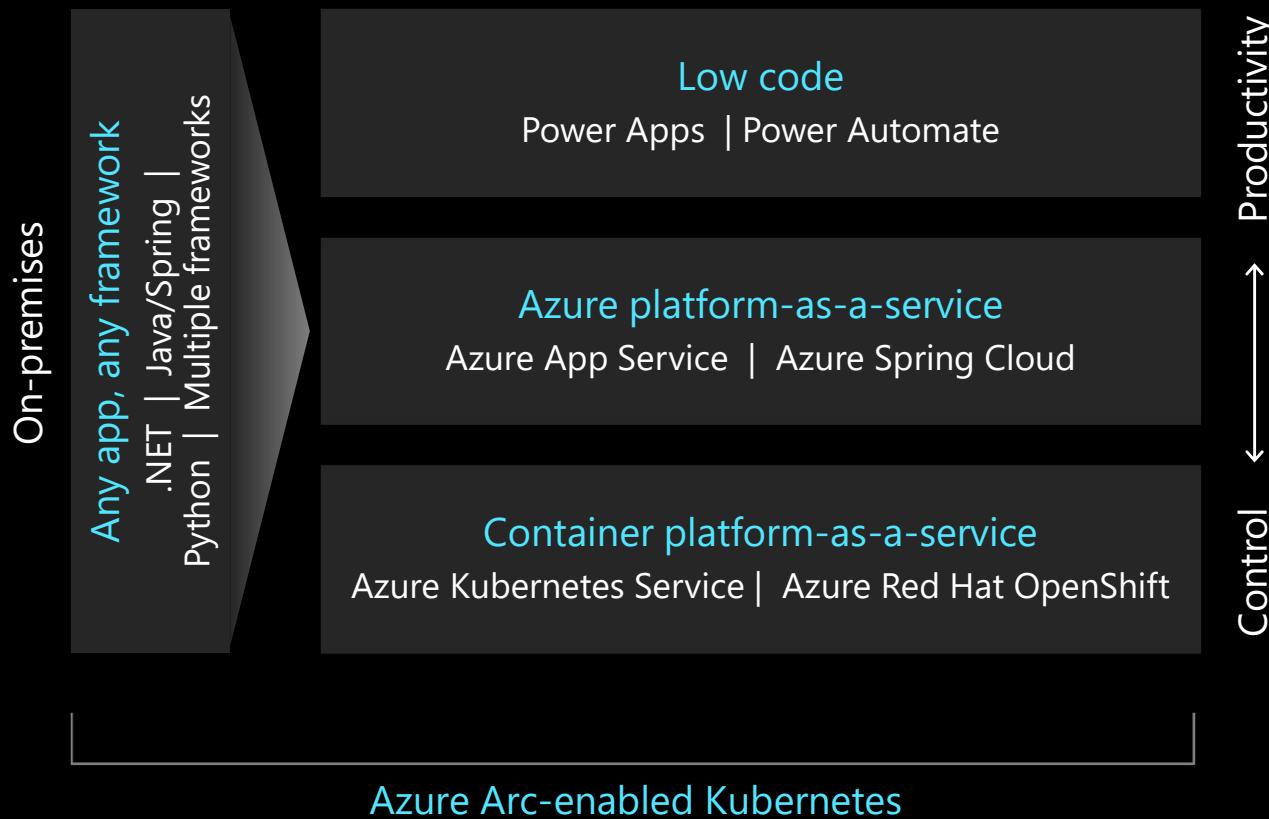


How modernization helps

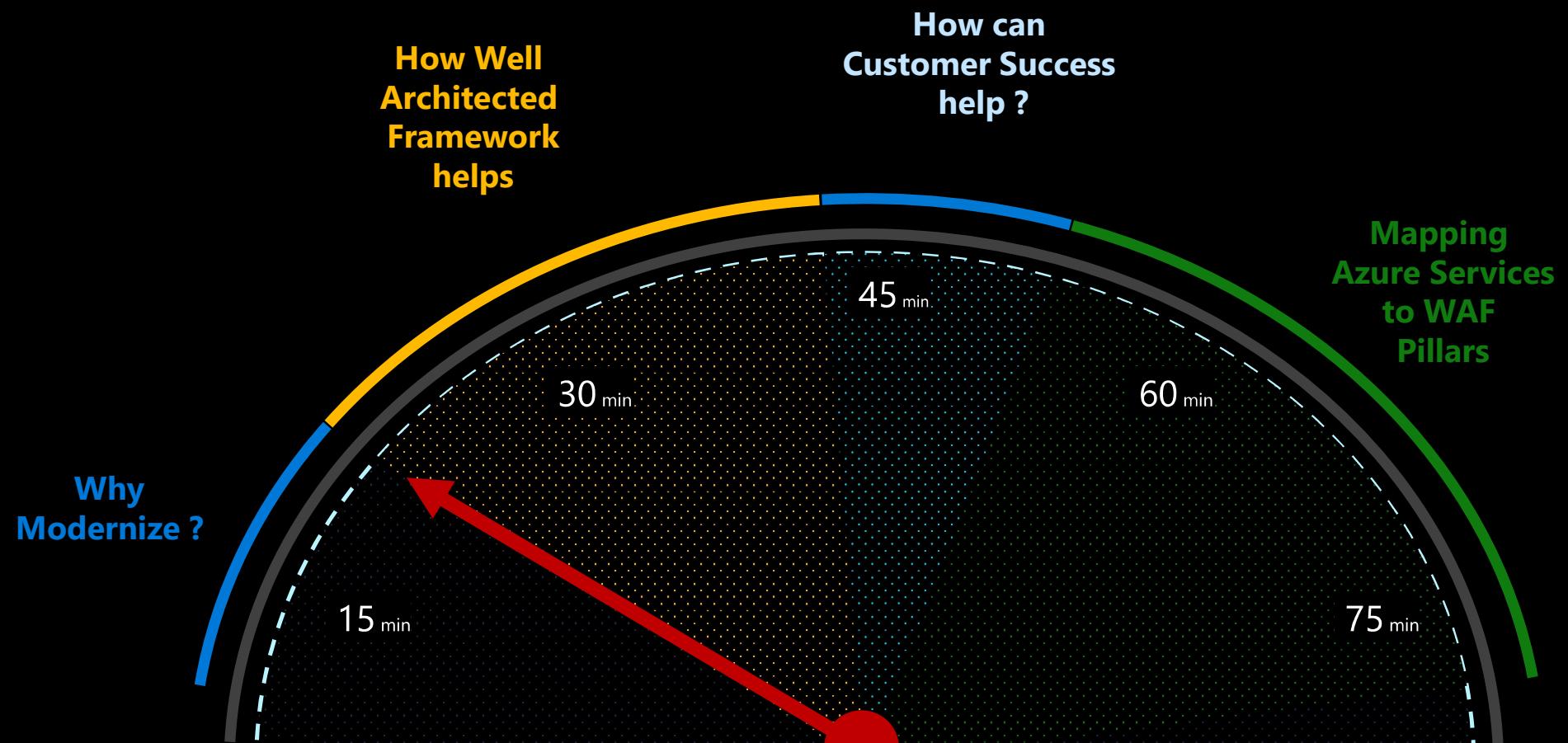




Application modernization options

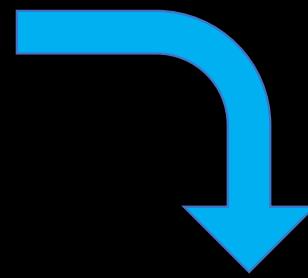
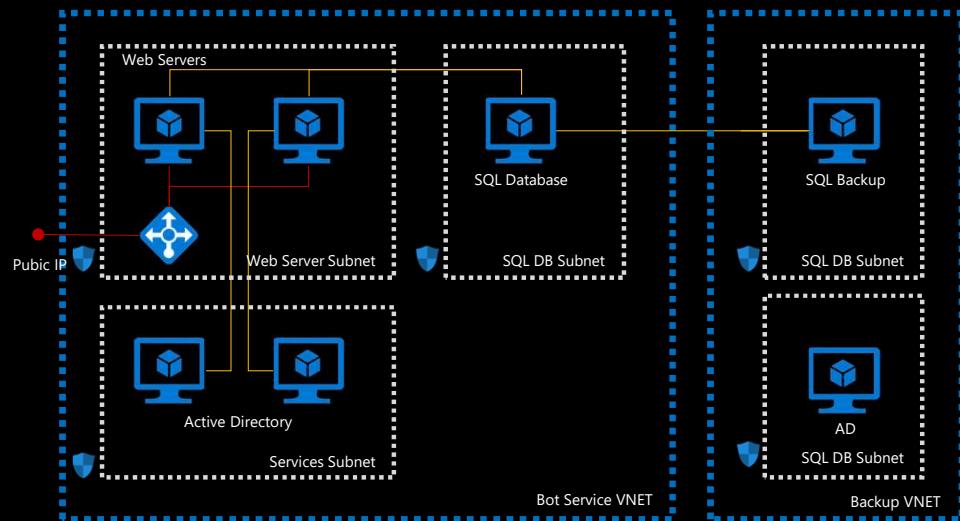


How Well Architected Framework helps

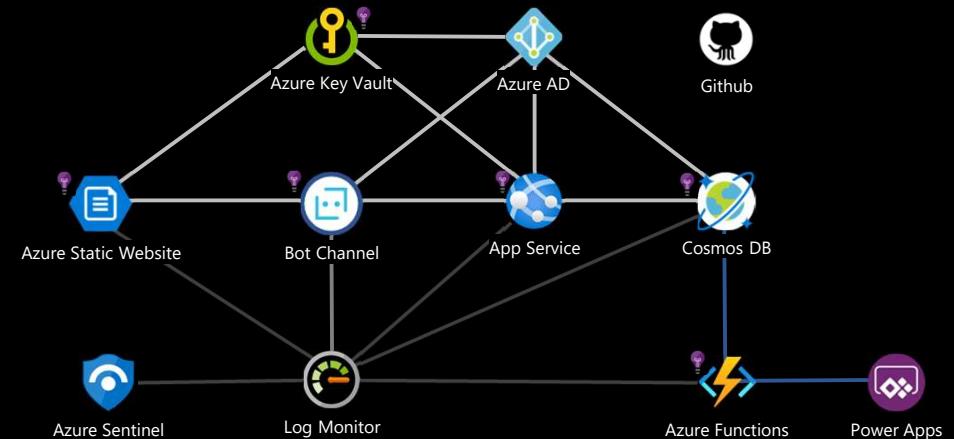


IaaS -> Modernized Architectures

Typical Lift and Shift



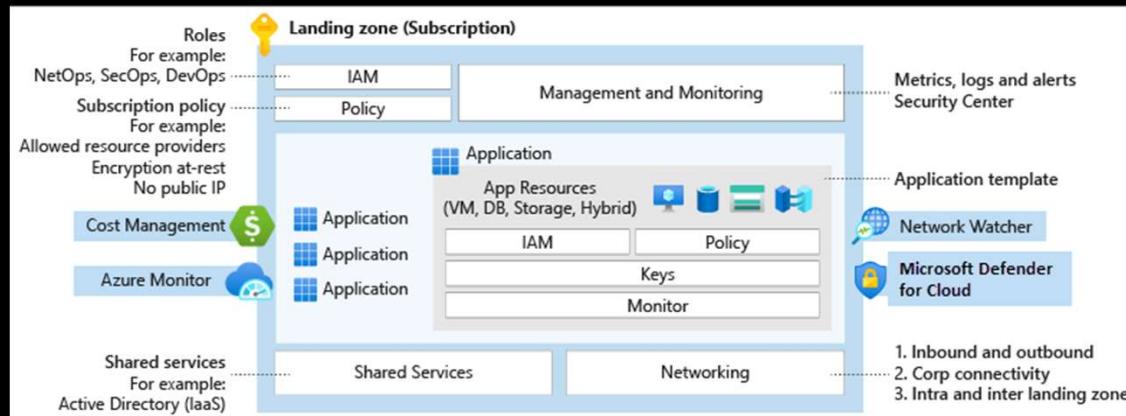
Modernized Architecture



ESLZ: Start With a Landing Zone

Establish the guardrails for your organization - helps to establish independent landing zones while keeping an eye on costs

Landing Zone



[What is an Azure landing zone? - Cloud Adoption Framework](#)

Governance tools



Cost Management

Analyze and **project** spend as well as create budgets for Azure resources.



Management Groups

Define and **assign** privileges to different parts of your organization



Azure Policy

Enforce policies at the management group, subscription or resource group levels



Resource Graph

An up-to-date **catalog** of all your deployed resources



Azure Blueprints

Create reusable deployments that contain resources, policies and RBAC

Azure Well Architect can help to optimize workloads



Build workloads with **confidence** using proven best practices across the 5 pillars: Cost, Operations, Security, Performance and Reliability.



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



Helps you to **focus** your efforts on those activities that will optimize the workload.

Microsoft Azure Well-Architected Framework

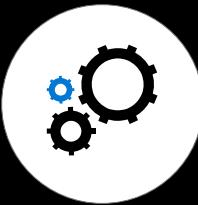
Architecture guidance and best practices, created for architects, developers and solution owners.

Cost Optimization



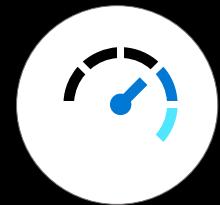
Azure Hybrid Benefit
Reserve Instances
Shutdown
Resize
Move to PAAS
Stakeholder buy in
Autoscale

Operational Excellence



DevOps
Deployment
Monitor
Processes and cadence

Performance Efficiency



Design for scaling
Monitor performance
Design Patterns

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

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

Perform an Azure Well Architected Assessment

Well Architected assessments help to understand how your solution performs across the different pillars



Cost Optimization



Operational Excellence



Performance Efficiency



Reliability



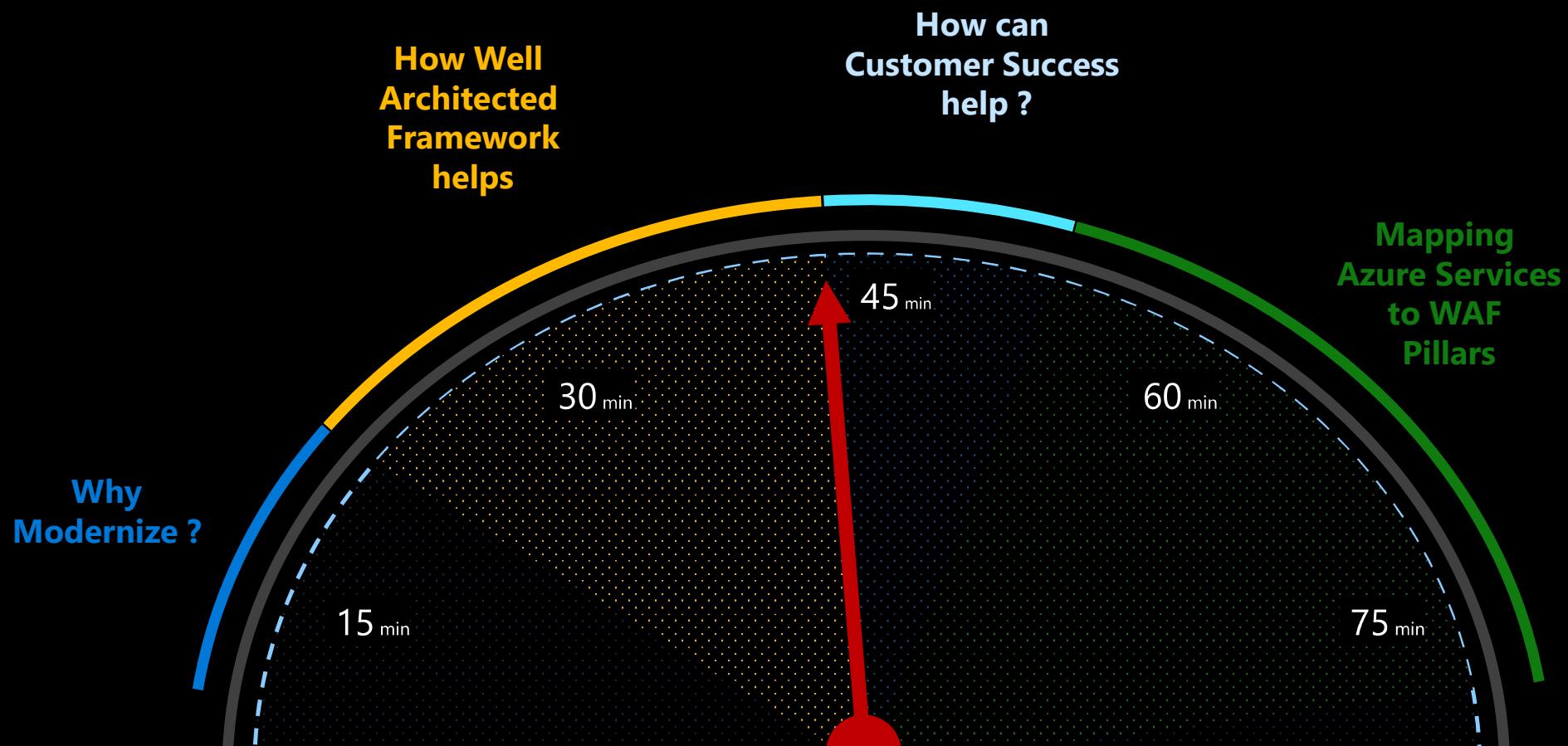
Security

WAF assessments are performed after your solution has been deployed and give you insight into how your application will behave over time. They are organized by pillars with each pillar providing in-depth coverage on various aspects of your design. Assessments can be run by customers or via partners.

[Microsoft Assessments](#)

Evaluate your business strategies and receive curated guidance from Microsoft Assessments.

How can Customer Success help ?



How can Customer Success help you?

The CSU can guide you in your Azure journey

What we do

- Architecture Design Sessions
- Proof of Concepts
- Product Demonstration
- Rapid Prototyping (POC / MVP)
- Best practices guidance
- Education
- Cloud Center of Excellence
- Organizational Guidance

Who we work with

- Rich eco-system of Partners
- Customers
- Product Engineering

Who we are

- Cloud Solution Architect
- Customer Engineer
- Specialist
- Customer Success Account Manager
- Support Engineer

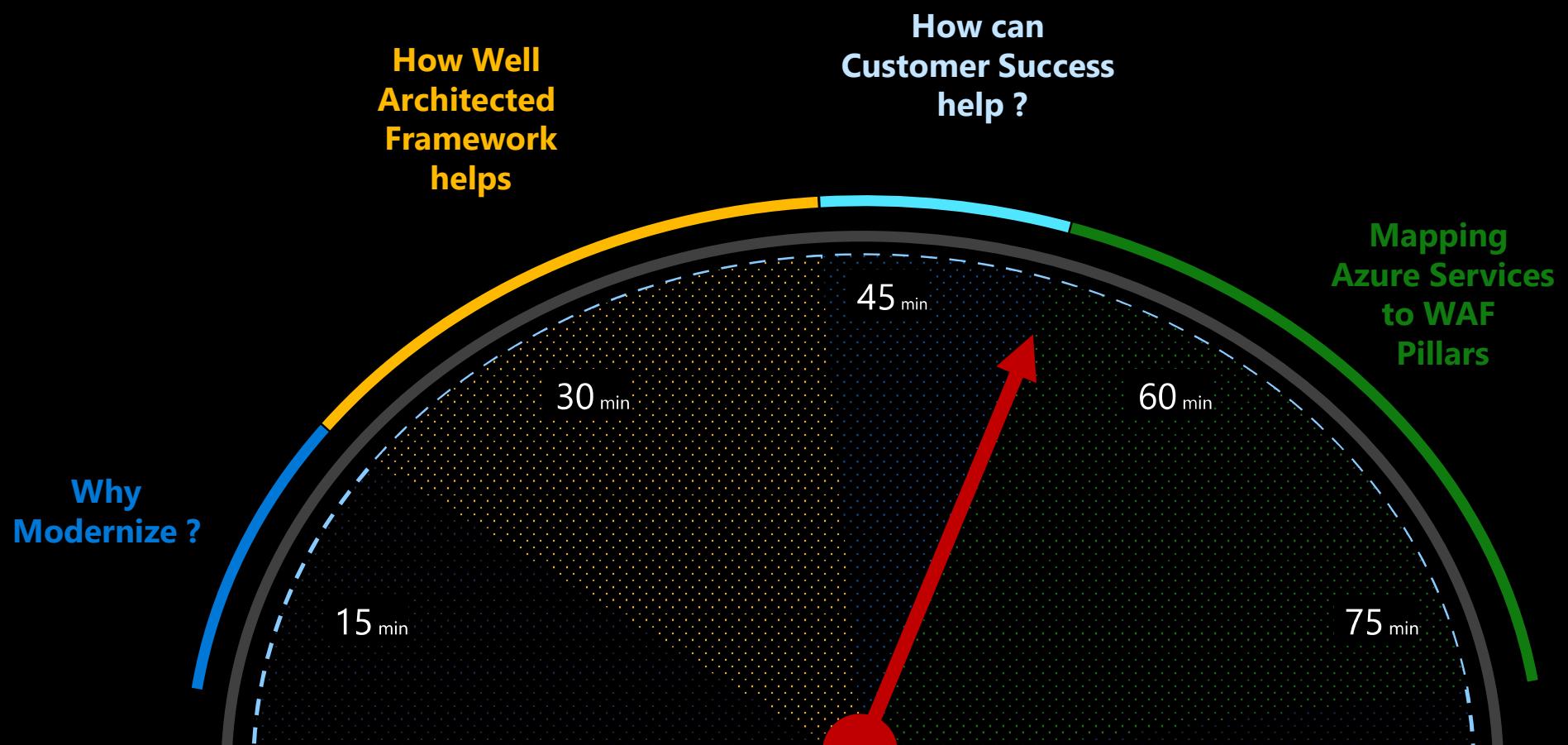
How we engage

- Cloud Adoption
- Application Migration and Modernization Program



<https://aka.ms/modernizeWithWAF>

Mapping Azure Services to WAF Pillars



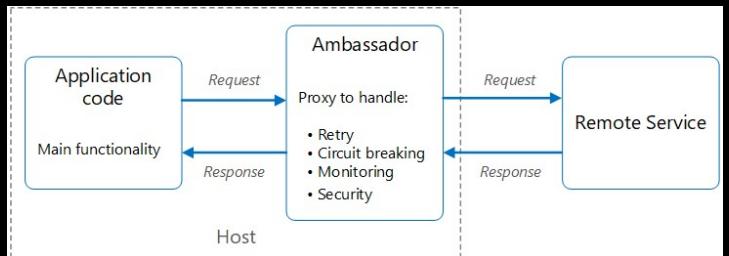
Exploit Design Patterns within your solution



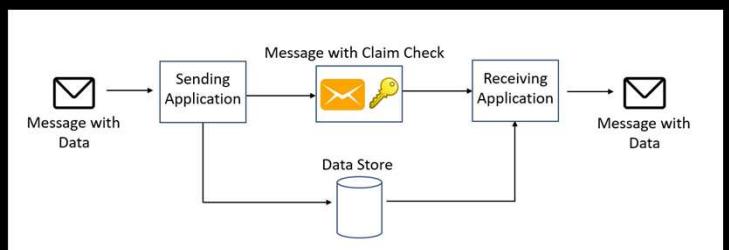
Use appropriate Design Patterns to improve reliability and performance

Ambassador	Claim Check	Federated Identity	Leader Election	Sidecar
Anti-Corruption Layer	Compensating Transaction	Gatekeeper	Materialized View	Static Content Hosting
Async Request-Reply	Competing Consumers	Gateway Aggregation	Pipes and Filters	Strangler Fig
Backends for Frontends	Compute Resource Consolidation	Gateway Offloading	Priority Queue	Throttling
Bulkhead	CQRS	Gateway Routing	Retry	Valet Key
Cache-Aside	Deployment Stamps	Geodes	Scheduler Agent Supervisor	
Choreography	Event Sourcing	Health Endpoint Monitoring	Sequential Convoy	
Circuit Breaker	External Config Store	Index Table	Sharding	

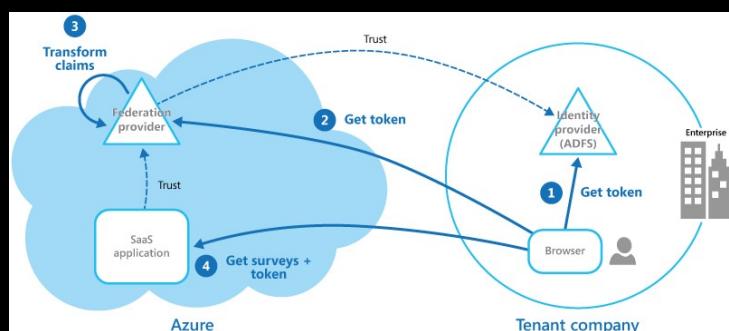
Ambassador



Claim Check



Federated Identity



[Cloud design patterns - Azure Architecture Center](#)

Use PaaS, Serverless and Event based services

Serverless and Event based architectures streamline costs and improve reliability



APIM



App Service



Azure Functions



Cosmos DB



Event Grid



Event Hub



Logic App



Static Website



SQL DB

Common Use Cases



Machine Learning



Real-time Stream processing



Workflows And orchestration



Scheduled Task automation



IoT-connected backends



Web/Mobile Application backends

Increase **responsiveness** and **operational efficiencies**

while reducing **Costs**. Serverless includes **on demand** compute, database and messaging capabilities and work well with the Microsoft tools ecosystems.

Combined with PaaS, they address several pillars of the **Well Architected Framework**.

Compute in Azure

Picking the right compute service

AKS, OpenShift, SpringBoot



Fastest and simplest
manage any virtual r
level service.



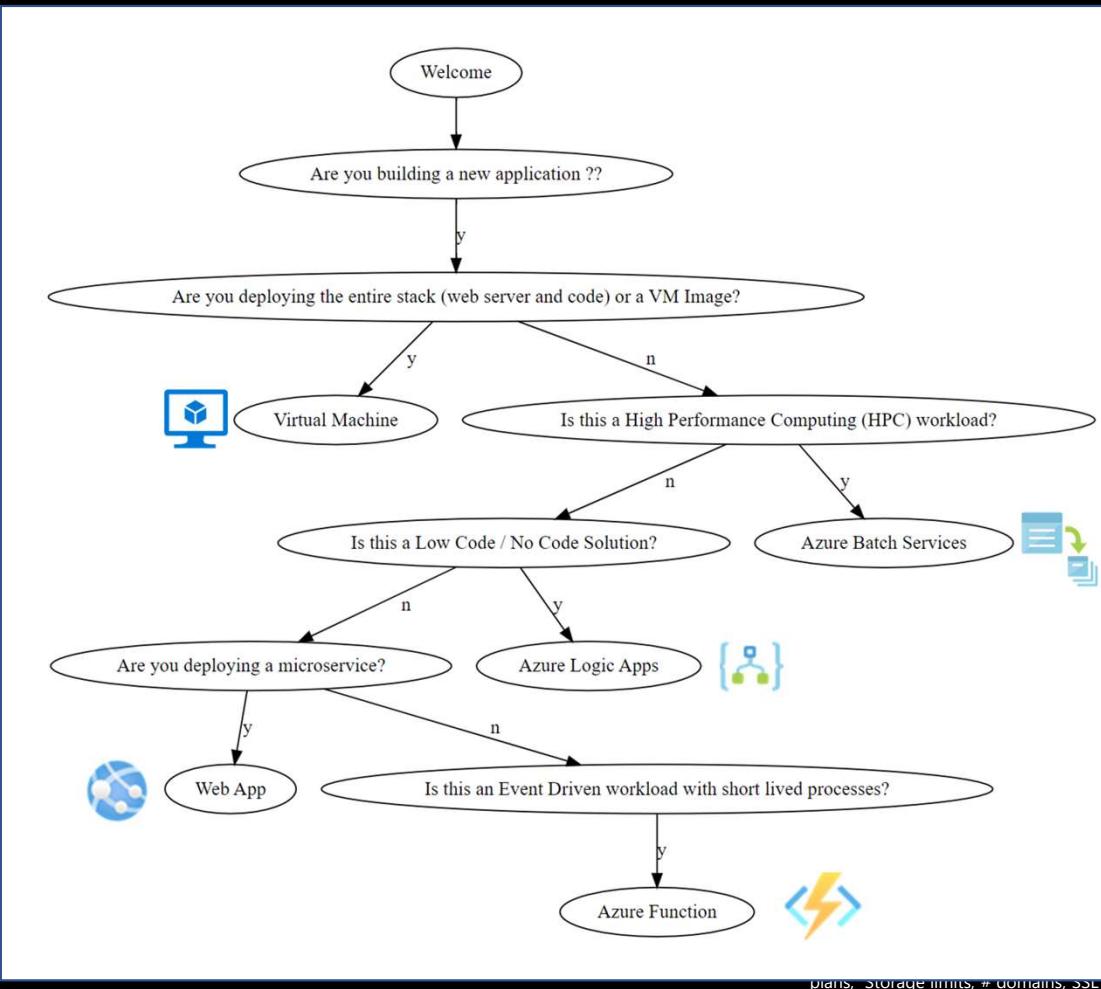
Optimize your Kuber
recommendations ba
thousands of enterpr



OpenShift provides h
on demand, monitorin



Deploy Spring Boot n
changes



s → 10+

Standard

instances, storage, CPU limits,
debugger connections, # certs, #
LB, Always on, backups, Webjobs,

→ Output Binding

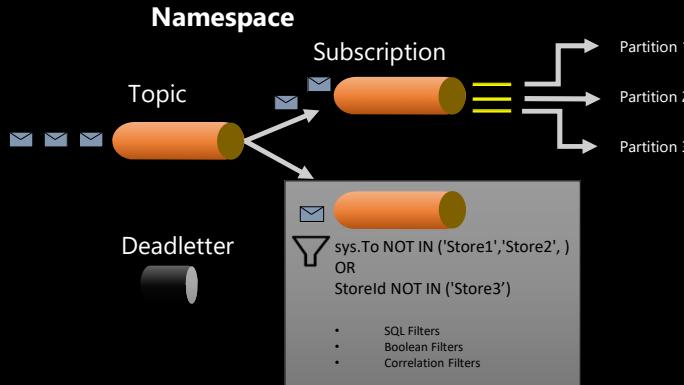
Dedicated ASE Kubernetes

memory, Max instances, # functions, #
plans, Storage limits, # domains, SSL support for custom domain

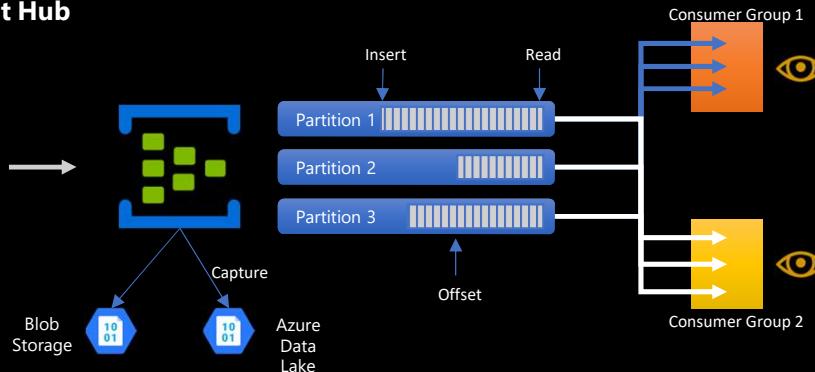
Messaging and Events in Azure

Picking the right service

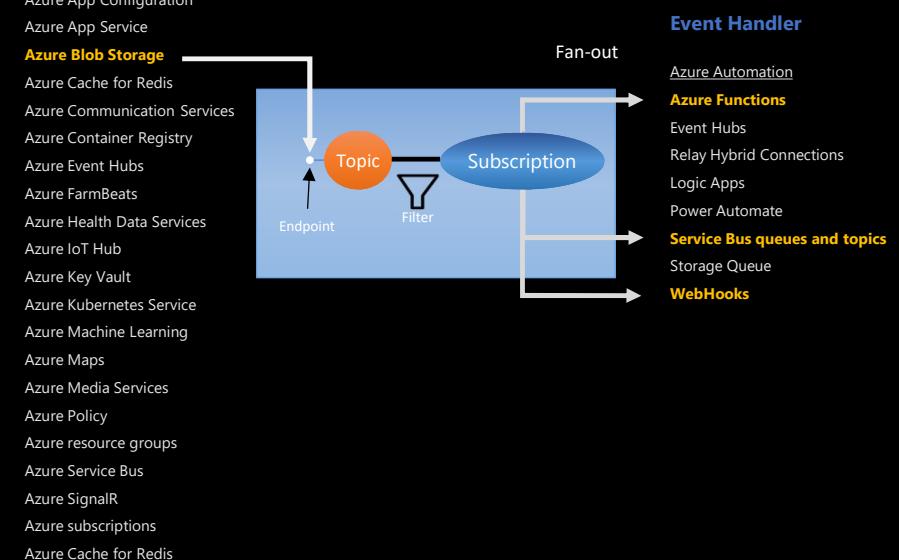
Service Bus



Event Hub



Event Grid



State Store

Picking the right State storage service

Relational DB



CosmosDB



- Each transaction has an RU cost (network, memory, CPU)
- Each second, the sum of RU's cannot exceed threshold RU's

Cache



Redis Cache

256 ← → 200,000

Plans:

Basic Standard Premium Enterprise Enterprise Flash

Memory, Availability, Private Link, Replication & Failover, Zones, Data Persistence, Clustering, VNET, RedisBloom, Redis Timeseries, Redis on Flash, # Connections

Azure Blobs, Azure Files and Azure Tables



a service for storing large amounts of unstructured object data, such as text or binary data.



Offers fully managed cloud file shares that you can access from anywhere via the industry standard Server Message Block (SMB) protocol.



Store structured NoSQL data in the cloud, providing a key/attribute store with a schemaless design.

Glue Services

Picking the right glue service

APIM



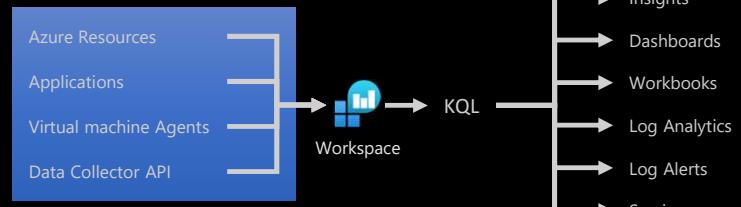
Plans: Consumption Developer Basic Standard Premium Isolated
Cache, # Scale Units, SLA, Isolation, Limits, Dev Portal, # custom domains, AAD , AZ, VNET, Multi-Region, self hosted gateway, compute isolation,

Azure Monitor



Collects and organizes log and performance data from monitored resources.

- Analyze
- Alert
- Visualize
- Get Insights
- Retrieve
- Export



Application Insights



Application Insights

- Detect
- Diagnose
- Inspect
- Improve



Managed Identity



User Assigned Identity



System Assigned

RBAC

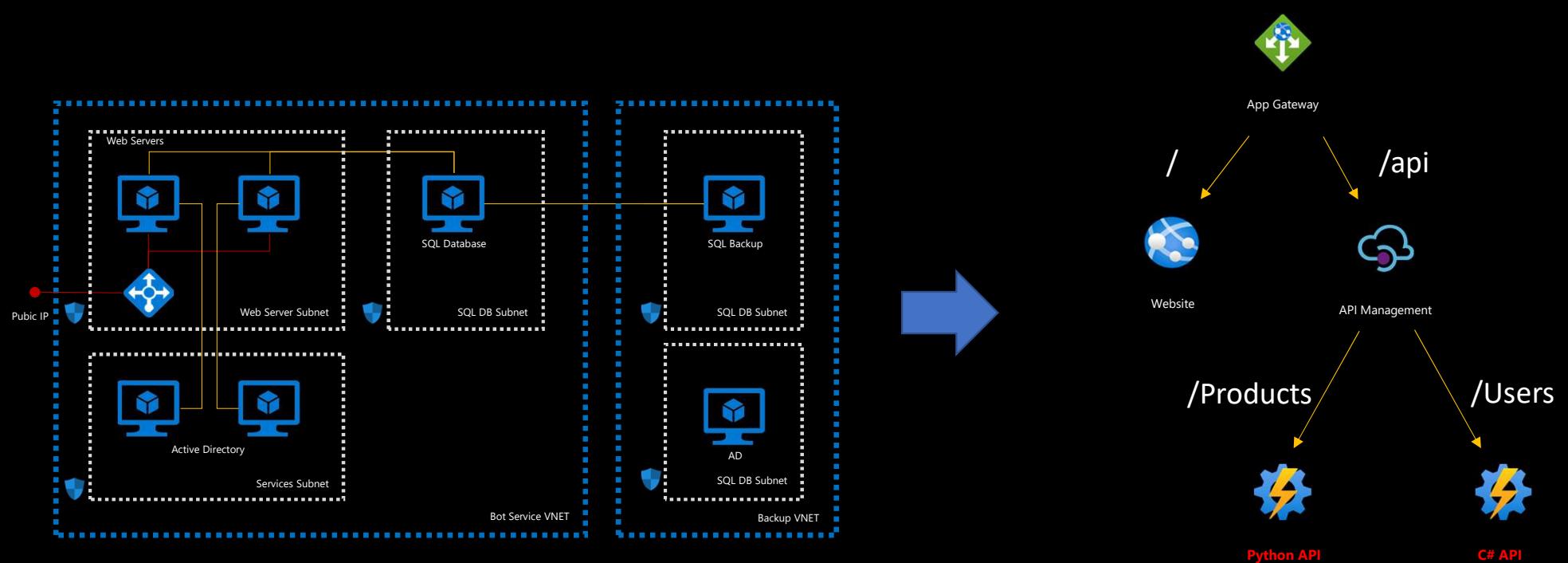
Identity

Role

Privilege

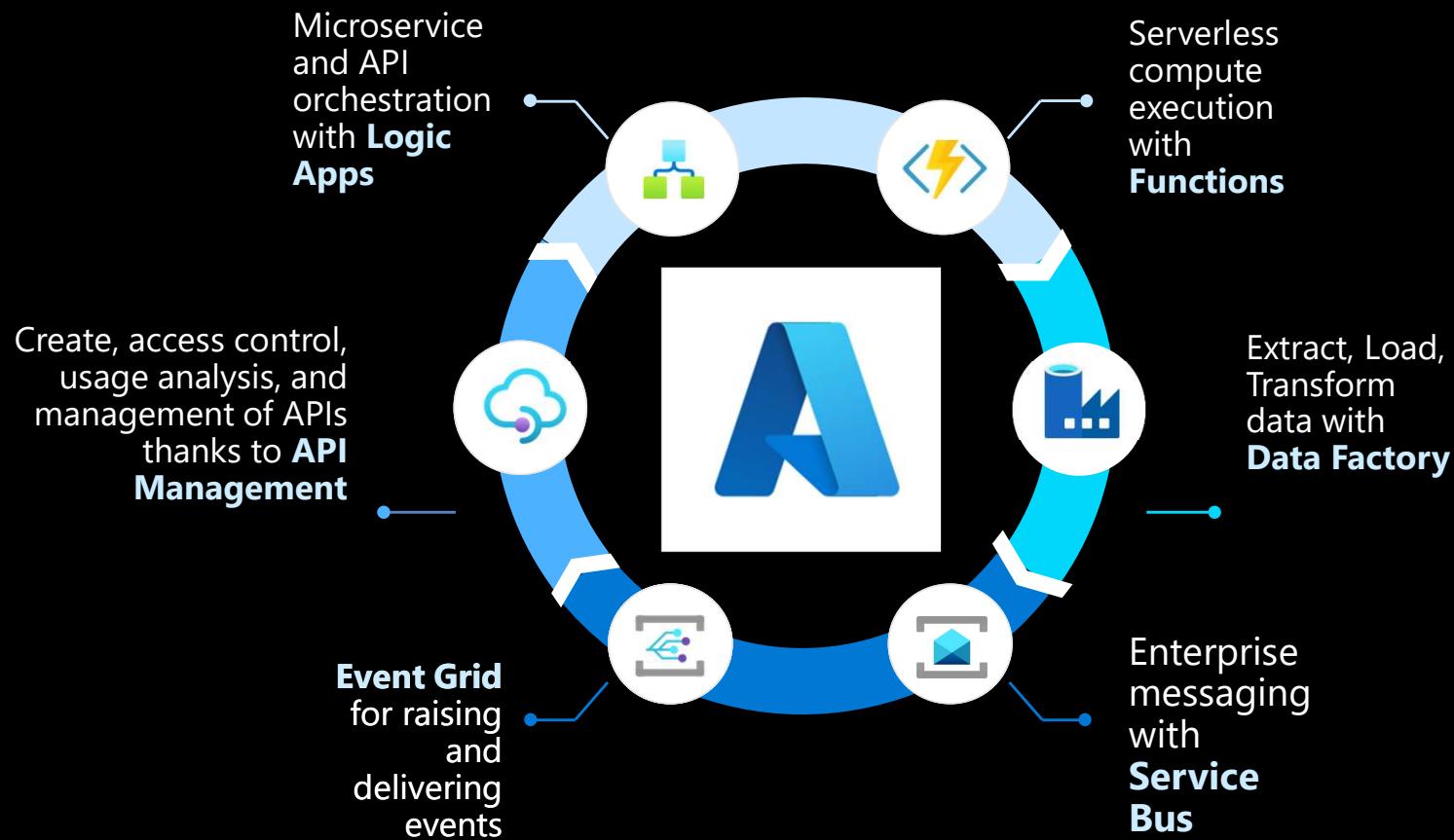
Apache / PHP website modernization

How we modernized an Apache portal



Azure Integration Services

These serverless workloads can be implemented outside your application



AI and machine learning in Azure

Domain specific pretrained models

To simplify solution development



Vision



Speech



Language



Decision

Familiar data science tools

To simplify model development



Visual Studio Code



Azure Notebooks



Jupyter



Command line

Popular frameworks

To build advanced deep learning solutions



PyTorch



TensorFlow



Scikit-Learn



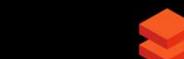
ONNX

Productive services

To empower data science and development teams



Azure Machine Learning



Azure Databricks



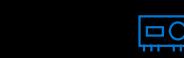
Machine Learning VMs

Powerful infrastructure

To accelerate deep learning



CPU



GPU



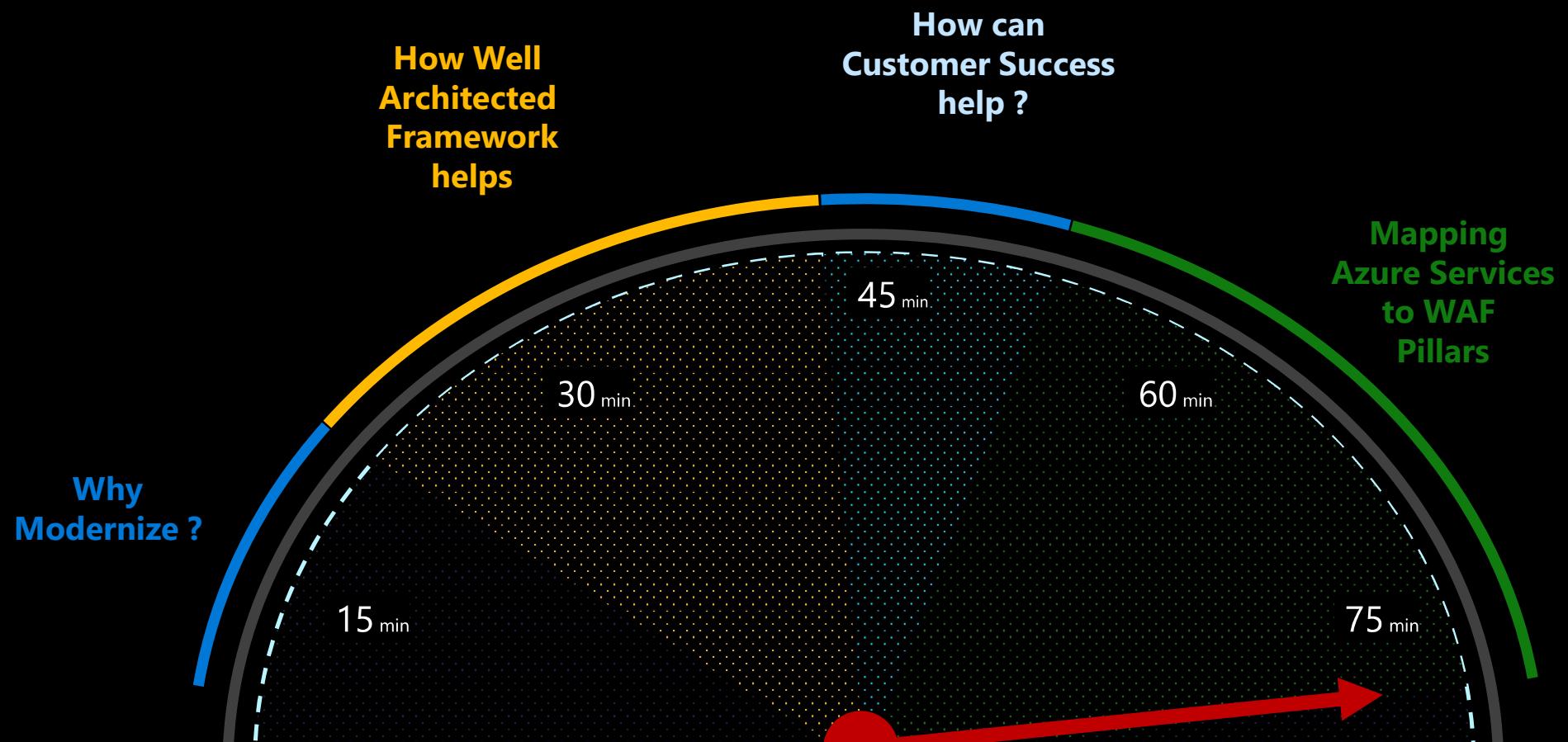
FPGA



From the Intelligent Cloud to the Intelligent Edge



Today's Agenda



Where to go from here:

Engage with your Microsoft Team

Specialist

Cloud Solution Architect

Customer Success Acct Manager

Customer Engineer

Training & Hands on Labs

Curated step-by-step tutorials: [Microsoft Learn](#)

Immersive deep training: [Microsoft OpenHack Virtual Experience](#)

Enterprise Skilling: [Enterprise Skills Initiative](#)

Professional Skilling: [Browse Certifications and Exams](#)

Migration & Modernization

Azure Migration & Modernization Program (AMMP): Contact your Microsoft Team

Migration Overview: [Azure Migration and Modernization Center](#)

Microsoft Migration Assessment : Contact your Microsoft Team

Technical Documentation

[Landing Zones](#)

[Event Driven Architectures](#)

[Azure Well Architected Framework](#)

[Serverless Architectures](#)

[Governance tools](#)

[Design Patterns](#)

[Architecture Discovery](#)

Online Assessments –

App and Data Modernization Readiness Tool

Azure Well-Architected Review

Cloud Adoption Strategy Evaluator

Cloud Journey Tracker

Developer Velocity

DevOps Capability Assessment

Governance Benchmark

Power Platform Adoption Assessment

Strategic Migration Assessment and Readiness Tool



<https://aka.ms/modernizeWithWAF>