Realizing Business Benefits with Cloud-Native Applications

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Agenda

What is Cloud-Native & Why Its Important

Why we need Cloud-Native App : Customers Pain Points / Challenges

Business Benefits with Cloud Native Application

Microservices architecture and its role in cloud-native applications

Cloud Journey & Best practices for minimizing downtime and risks during migration

Customer Success Stories

Veraqor Offers

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What is Cloud-native?

Containers

Serverless

DevOps

APIs

Data

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Why Cloud-native is Important?

Scale to meet any demand

Achieve greater resiliency

Deliver better apps faster

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Why We Need Cloud-Native Apps

KEY CHALLENGES/Pain Points

Increased Demand and Performance Issues: Traditional apps struggle with sudden demand spikes, leading to downtime.

Downtime and Service Interruptions: These issues negatively affect customer experience and disrupt business operations.

Stifling Innovation and Lengthy Development Cycles: Long development cycles delay the release of new features and updates, thus impeding innovation.

Higher CapEx/OpEx: Traditional on-premises applications necessitate substantial initial investments in hardware and infrastructure.

Resource Wastage Due to Static Allocation: Traditional monolithic applications often lead to resource wastage because of static allocation.

Vendor Lock-In: Dependence on a single service provider may restrict flexibility and increase costs.

Time-Consuming Maintenance: Traditional applications necessitate manual maintenance tasks, drawing resources away from strategic initiatives.

Innovation Roadblocks: Legacy systems obstruct innovation due to their complex architectures and inflexible structures.

Poor Security and Compliance: Upholding security and meeting compliance standards present significant challenges in traditional applications.

Subpar Data Availability and Management: Data silos and intricate data management obstruct data availability and insights.

Legacy Systems: These systems are challenging to update and integrate with modern technologies.

Lack of Effective Communication and Collaboration: Traditional applications might lack collaboration features, inhibiting remote work and communication.

Business Value of the Cloud

Cloud technologies are at the center of the digital transformation revolution. The cloud has changed more than the way we implement and manage IT; it is changing the very fabric of business.

Costs

CapEX → OpEx

Transparency

Cost Savings
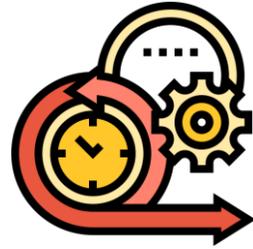
Agility

Instant Provisioning

DevOps and CI/CD

Modern Application architectures

Faster Time to Market
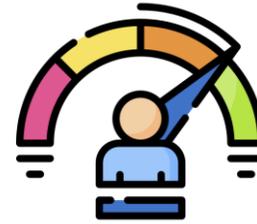
Service Quality

Performance

Scalability

Reliability

Security and Compliance

New Scenarios

Big Data and IoT/Analytics

Machine Learning

Artificial Intelligence

Digital Transformation

Developer Velocity Matters

Stronger developer velocity means more successful developers and better outcomes for your business

- ✓ Higher revenue growth
- ✓ Higher innovation
- ✓ More satisfied customers
- ✓ Higher developer satisfaction and retention rates
- ✓ Improved collaboration
- ✓ Better software

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Cost Savings and Business Benefits

Enabled by Azure App Innovation Products

Microsoft offers application innovation solutions for its Azure platform that enable organizations to build and deliver modern, cloud-native, intelligent applications and realize time-to-market improvements, improved uptime, legacy system cost savings, onboarding efficiencies, and cross-functional productivity gains. The Azure platform also allows software-driven enterprises to consolidate and modernize their existing technology stacks, which promotes a "do more with less" approach.

NET OPERATING PROFIT DUE TO IMPROVED TIME TO MARKET OF NEW APPS Evidence and data.

Azure App Innovation tools helped developers complete work faster and with fewer errors and apply updates faster and more reliably. In addition, Azure's architecture supported common development best practices. Microsoft Azure services also largely handled infrastructure needs, such as security and networking.

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List of Benefits after investing on cloud services

Strongly agree   Agree

Benefit	Strongly agree	Agree
Reduced need to maintain local application development tools and infrastructure.	34%	41%
Increased application developer productivity.	33%	37%
Retired resources dedicated to legacy solutions.	31%	50%
Improved time to market and the uptime of business applications.	27%	32%
Improved productivity of DevOps and DevSecOps architects.	26%	40%
Reduced security vulnerabilities and software audit costs.	22%	50%
Reduced developer new hire onboarding and training time.	19%	31%

Base: 191 worldwide decision-making developer managers and executives

Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, April 2023

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ROI
251%

BENEFITS PV
$35.3M

NPV
$25.2

Benefits (Three-Year)

| Benefit	Value
Increased application developer productivity due to Azure app innovation products	$16.9M
Net operating profit due to improved time to market of new applications	$8.3M
Additional value of improved uptime	$4.2M
DevOps and DevSecOps engineer efficiencies gained in application delivery and operations	$3.4M
Additional value due to developer onboarding efficiencies	$1.1M
Consolidation of legacy systems and solutions	$930.0K
IT security audit time savings	$408.2K

"We had outsourced a lot of our development operations, so that was a big black box for us as developers. We didn't know what was going on in production or testing. Now we have control of the whole value stream."
— *Director, platform team, insurance*

"With AKS prebuilt templates and built-in code, developers are self-sufficient, engaged, and empowered. And there's no waiting on deployment time. Now it's just a matter of hours to get something into production, not days, weeks, or even months, like before."

— *Cofounder, AI*

Building cloud-native on Azure
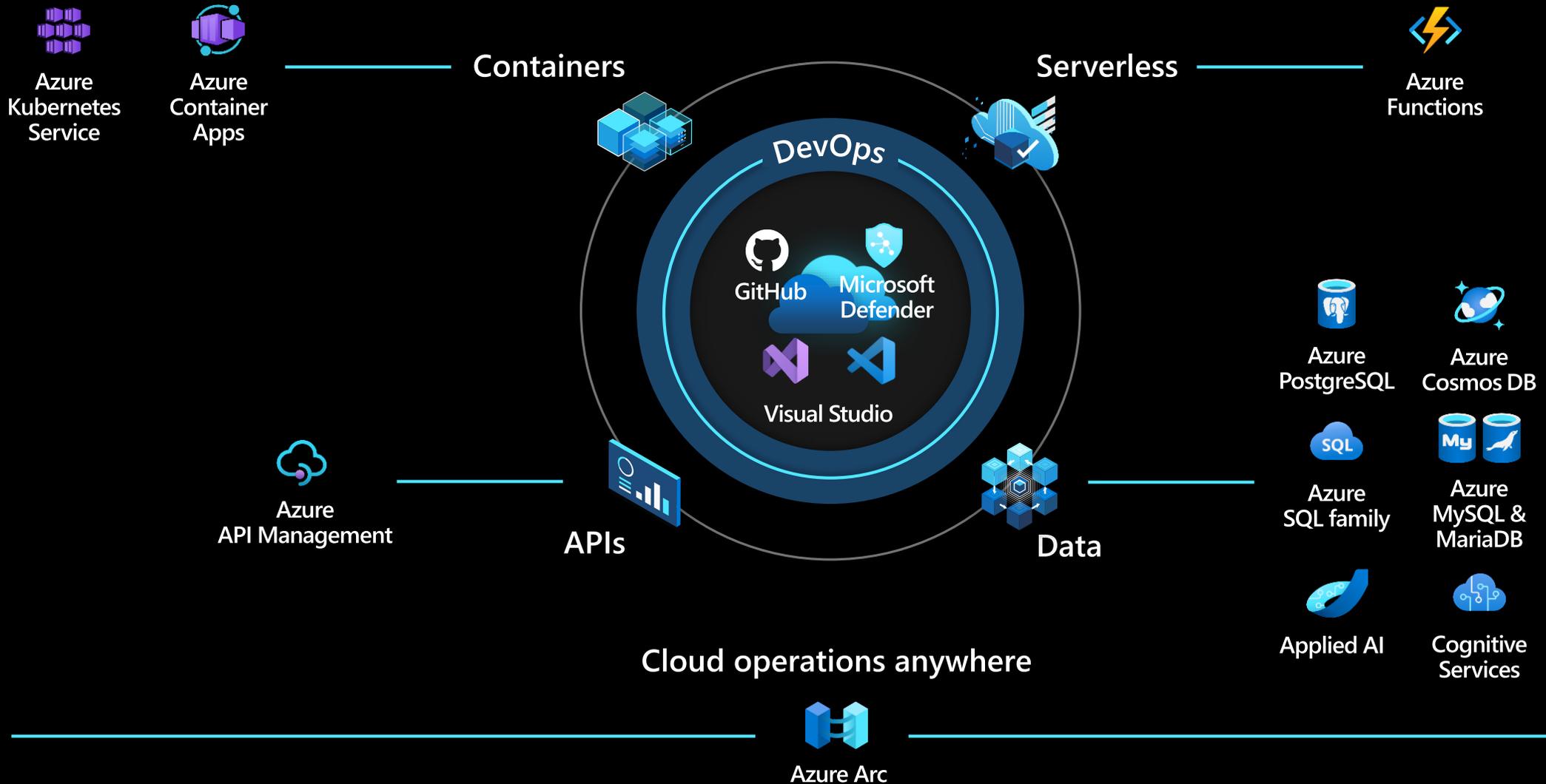
Essential Elements of Cloud-Native Application Development

APIs

Asynchronous Message-based Communication

Containers

Orchestration Tools

Microservices

Continuous Integration & Continuous Delivery

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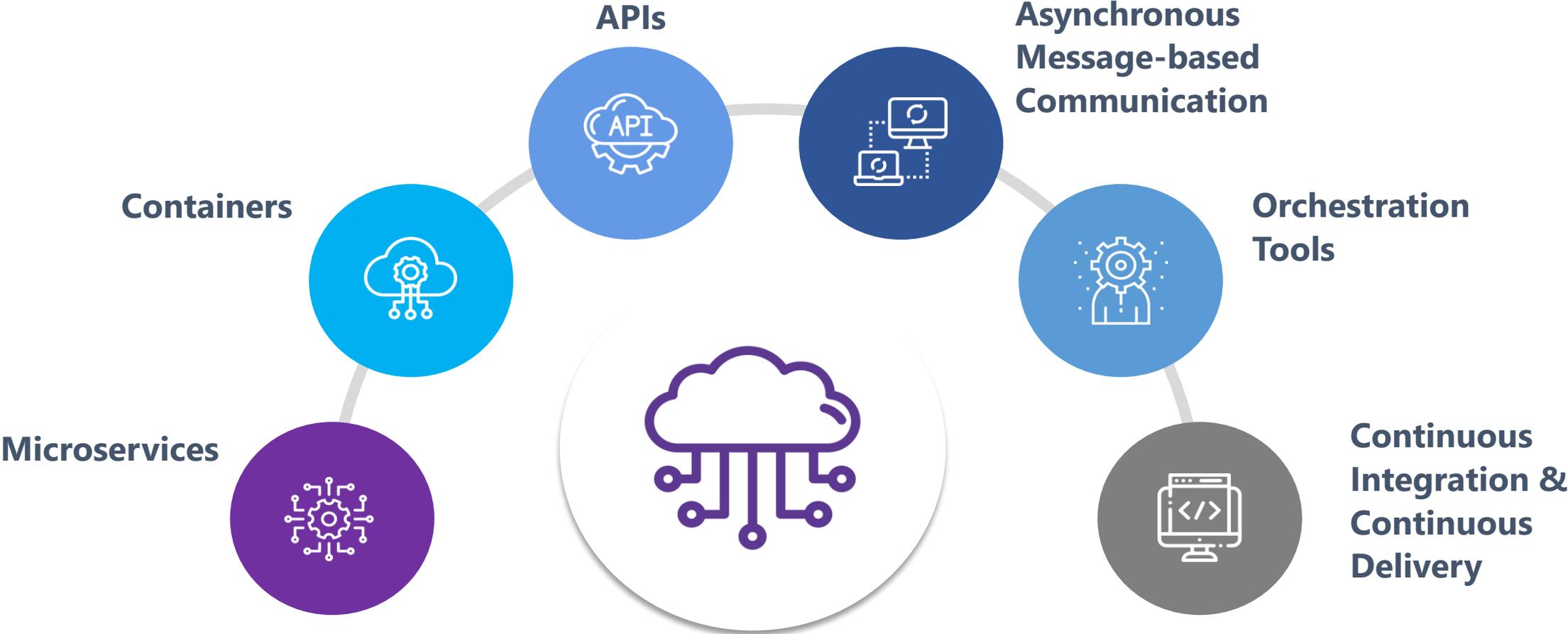
Microservices Architecture & Its Role in Cloud-Native Applications

Microservices architecture and cloud-native applications are closely intertwined concepts that work together to enable modern, scalable, and agile software development.

Microservices architecture is an approach to software design and development where a complex application is broken down into smaller, loosely coupled, and independently deployable services. Each service focuses on a specific business functionality and communicates with other services through well-defined APIs. These services can be developed, deployed, and scaled independently, which promotes flexibility, maintainability, and faster development cycles.

- Scalability and Elasticity
- Resilience and Fault Isolation
- Continuous Deployment and Integration
- Flexibility and Innovation:
- Resource Efficiency
- DevOps Practices
- Distributed and Decentralized Data Management
- Isolation of Concerns
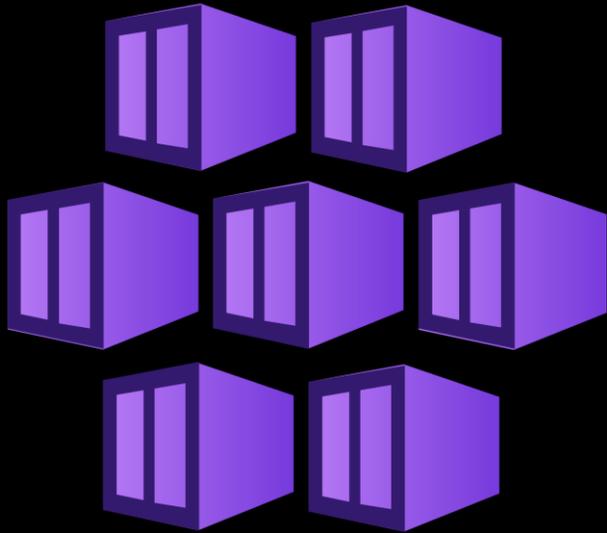
Azure Kubernetes Service (AKS)

Managed Kubernetes in the cloud

The fastest way to spin up managed Kubernetes clusters

Seamless DevSecOps with CI/CD integration

Availability in more regions than any other cloud provider

Best Practices of Cloud Native Application

Microservices Architecture: Design apps as a collection of loosely coupled microservices, each for specific business functions

Containers & Orchestration: Use containerization (e.g., Docker) to package applications & dependencies consistently

Stateless Services: Design services to be stateless, allowing them to scale and recover easily

API-first Design: Design APIs before services to enhance interoperability & improve communication

Automation & DevOps: Implement Continuous Integration & Continuous Development (CI/CD) pipelines, adopt Infrastructure as Code (IaC)

Scalability & Elasticity: Design horizontally scalable applications & use auto-scaling for dynamic resource adjustment

Resilience & Fault Tolerance: Design for failure and implement redundancy, failover mechanisms, and distributed architectures for high availability

Observability & Monitoring: Incorporate logging, monitoring & tracing to gain performance insights and observe key metrics

Cloud Native Data Management: Choose cloud native databases & storage solutions, use distributed caching, NoSQL databases

Agile Development & Iteration: Embrace agile methodologies & prioritize value/need-based features

Cloud Provider Agnostic: Build applications that are easily migrated between multiple cloud platforms or providers

Testability: Adopt testing strategies like Unit, Integration, and E2E Testing to align with fast-paced cloud-native development

Security & Compliance: Implement security measures such as authentication, authorization, and encryption and ensure regular patch updates

Documentation & Collaboration: Maintain comprehensive documentation of architecture, APIs, & processes to foster collaboration between development, operations other teams

Well-Architected Framework Pillars

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

PERFORMANCE EFFICIENCY

RELIABILITY

SECURITY

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How to Migrate Your On-prem Workload on Cloud?

The Big Picture of Migration

Prior to defining the practice strategy, it is helpful to understand the migration process. At a high level, it can be broken down into three key phases:

Assess   Migrate   Optimize

ASSESS

The assessment phase is where the team will use a mixture of software tools and consultancy best practices to discover what applications can be migrated, what their current configurations are, the people within the customer organization that will be impacted by the migration, and the dependencies of the application. The output of the assessment will include a comprehensive plan for what to do with the application and the expectations on availability and functionality.

MIGRATE

The migration phase is when the recommendations in the assessment plan are put into place. The following steps are usually taken.
• Setup Azure subscriptions using best practices for security, connectivity, policies and general governance prior to migration to ensure that customers are using Azure correctly from the start.
• Perform the migration using the prescribed method identified in the assessment plan: rehost, retire, replace, rearchitect or retain.
• Evaluate and test to ensure the migrated application meets the criteria outlined in the assessment.

Learn more about rehosting applications in the Lift and Shift section of the playbook, and to learn more about rearchitecting applications for Azure see the Modernizing Apps section.

OPTIMIZE

In the optimization phase, partners will use Azure security and management resources to govern, secure, and monitor the cloud applications in Azure. This is also the time to look for opportunities to optimize spending. Common tasks at this stage are:
• Review Azure Cost Management and Azure Advisor to track spending and identify areas for cost savings.
• Evaluate migrated applications for opportunities to right size over provisioned virtual machines and services.
• Implement automation to resize or stop based on a utilization schedule.
• Identify applications that could benefit from optimization with platform as a service (PaaS) services or containers.

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Cloud Migration and Modernization Journey with Veraqor

Planning → **Execution** → **Production**

Stakeholder alignment → Business case → Discover and assess →

Migration — Servers/Data/VDI

Modernization — Apps/Data

Cloud-native — New Intelligent Apps

Migration waves

→ **Manage & Govern**

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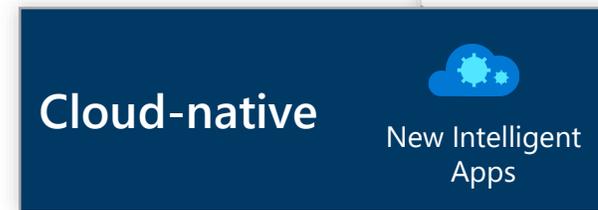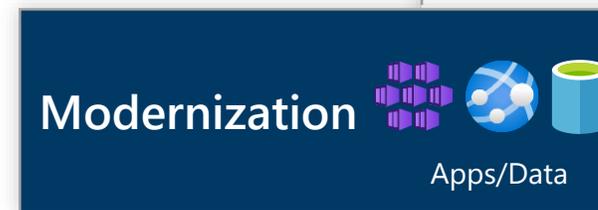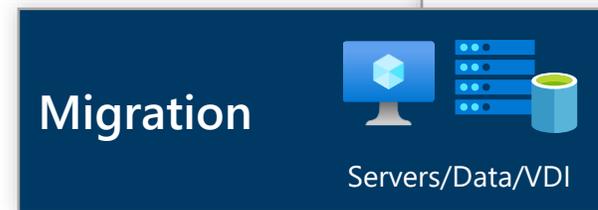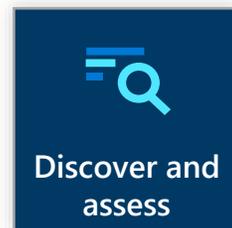
What is the Lowest Risk Path to the Cloud?
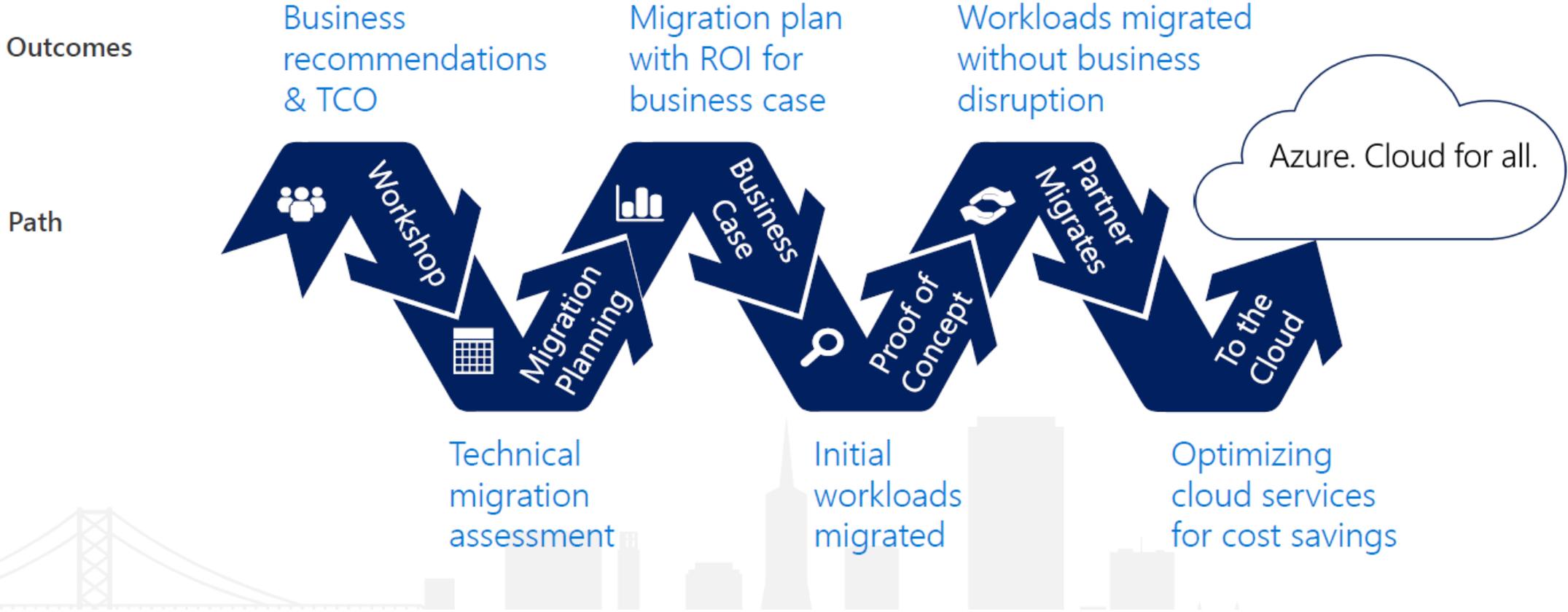
Migration Strategies: Rehost App (Lift & Shift)

Rehost (lift and shift)

Refactor

Rearchitect

Rebuild

What is it?

Redeploy an existing application to a cloud platform without modifying its code

The application is migrated "as is", which provides baseline cloud benefits without the risk or costs of making code changes

Example

Move a line of business application to Azure VMs
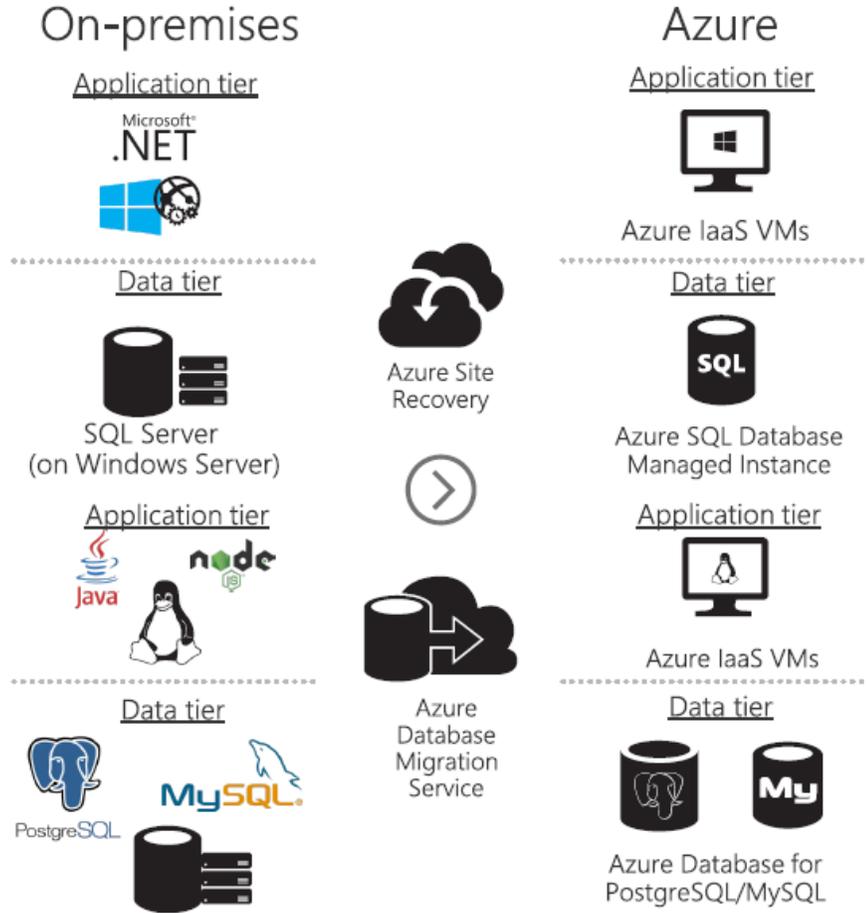
Migration Strategies: Refactor Application

Rehost (lift and shift)	
Refactor	
Rearchitect	
Rebuild	

What is it?

Minimally alter application code or configuration changes necessary to optimize the application for Azure PaaS and take better advantage of cloud

Example

Refactor your existing app to Azure App Service or Azure Container Services (AKS), refactor your SQL Server to Azure SQL Database Managed Instance.

On-premises

Application tier

Web application

Data tier

SQL Server
(on Windows Server)

Azure

Application tier

Azure App Service

Data tier

SQL

Azure SQL Database
Managed Instance

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Instant IoT
data streaming

Ingest and analyze high volumes of IoT data and generate real-time recommendations and insights

- Real-time data ingestion and processing pipeline capable of detection and notification within seconds

- Secure API gateway that connects to back-end services running anywhere

- Elastic provisioning of compute capacity without the need to manage the infrastructure

Azure Pipelines

Azure Container Registry

GitHub

Azure Web Apps

Azure Kubernetes Service

GPS and sensor

Azure API Management

Azure Key Vault

Azure Database for PostgreSQL

Azure Databricks

End user

Ingest service

Analysis service

Map matching service

Azure Cache for Redis

Azure Cosmos DB

Apache Kafka on Azure HDInsight

Data scientists

splunk>

What Can We Do For You?

Complimentary Offers for Customers

Business Outcome Strategy Workshop & Roadmap

Understanding the complexities and best practices to get you where you want to be.

A complimentary 2-hour advisory session to assess your current state and provide the guidance you need.

Deeper Solution Session & Briefing

See what Veraqor can do for you! An hour-long envisioning workshop explores the impact of digital transformation and innovation to help customers with vision-setting, strategy, roadmaps, and organizational alignment.

Architectural Design Sessions

This custom 4-hours session focuses on your technical solution objectives and aligns them with specific components of solutions to help you not only meet your goals but also capitalize on them.

Industry Best Practices, Tools & Frameworks

This custom 1-hour session focuses on guidance of best practices working directly with our specialized architects on innovative new capabilities and well-architected framework.

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How Can Veraqor Help?

Briefing

Understand cloud native software development and application migration possibilities

Briefly discuss opportunities of cloud native application development and application modernization using cloud native technologies..

Reference Architecture Design Session with some customer examples & demo environment would be presented

Duration: 2 Hours
Investment: **FREE**

Assessment

Receive an end-to-end analysis and mapping of their IT infrastructure or business need, taking into consideration customer plans, current deployment, usage, processes, and data

Evaluate your overall IT landscape in relation to your on-premises and cloud Native strategy

Provide a prioritization plan for modernization & the cloud Best practices for implementing cloud-native development based on readiness, cost, and labor

Duration: 3 Weeks
Investment: **$5,000**

Proof of Concept

POC provides a test bed where we can map your use-cases using cloud native services on cloud

High level design, Analysis and Planning report, Pre-Engagement Questionnaire

It makes your business more efficient and saves time and money

Duration: 6 Weeks
Investment: **$10,000**

Implementation

Working Solution that includes Cloud environment, and suitable Cloud destination for customer workload

Implement proposed architecture by using cloud native services such as Kubernetes Service, Azure Functions, App Service, DevOps and a variety of Azure databases.

Faster time to market, Business Continuity, Application Innovation, Digital transformation, Cost optimization, Security.

Duration: 8-10 Weeks
Investment: **$16,000**

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Thank you!

Please spare a moment to fill out the survey after this webinar.

Need help? Please write to:

mtu@veraqor.io

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