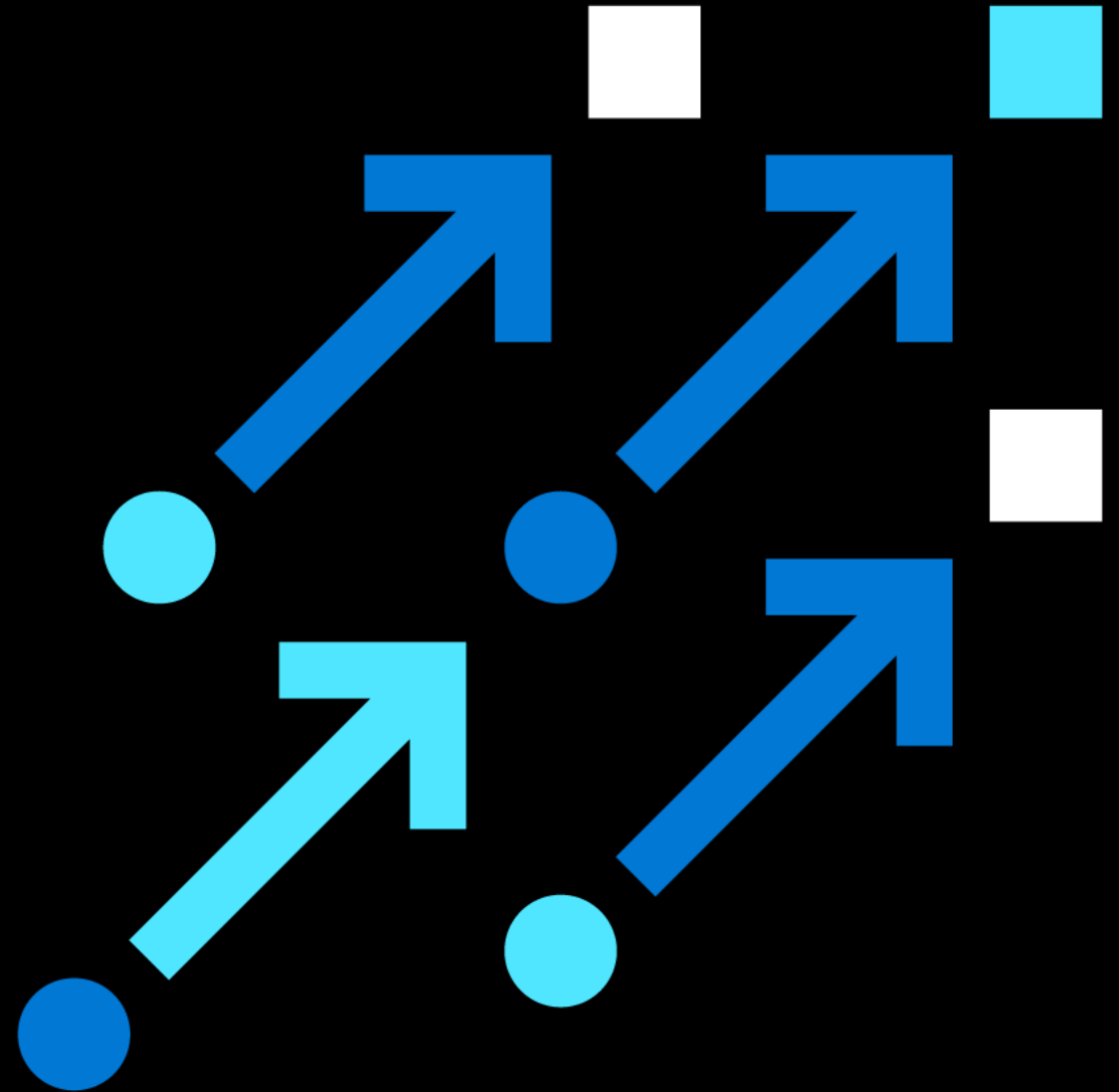


Cloud Migration & Modernization

Syed Safdar Hussain

30-Nov-22



Agenda



Why Companies are moving on Cloud – Why Azure?



Concepts of Migration and Modernization



How to Migrate and Modernize our on-prem workload



Accelerate your Migration with Veraqor

- Application Modernization Approach:
- The 5 Rs (Rehost, Refactor, Rearchitect, Rebuild, and Replace)
- Cloud Migration Strategies
- IaaS, PaaS & SaaS Approaches
- Migration Tools & Tactics



Veraqor Offers



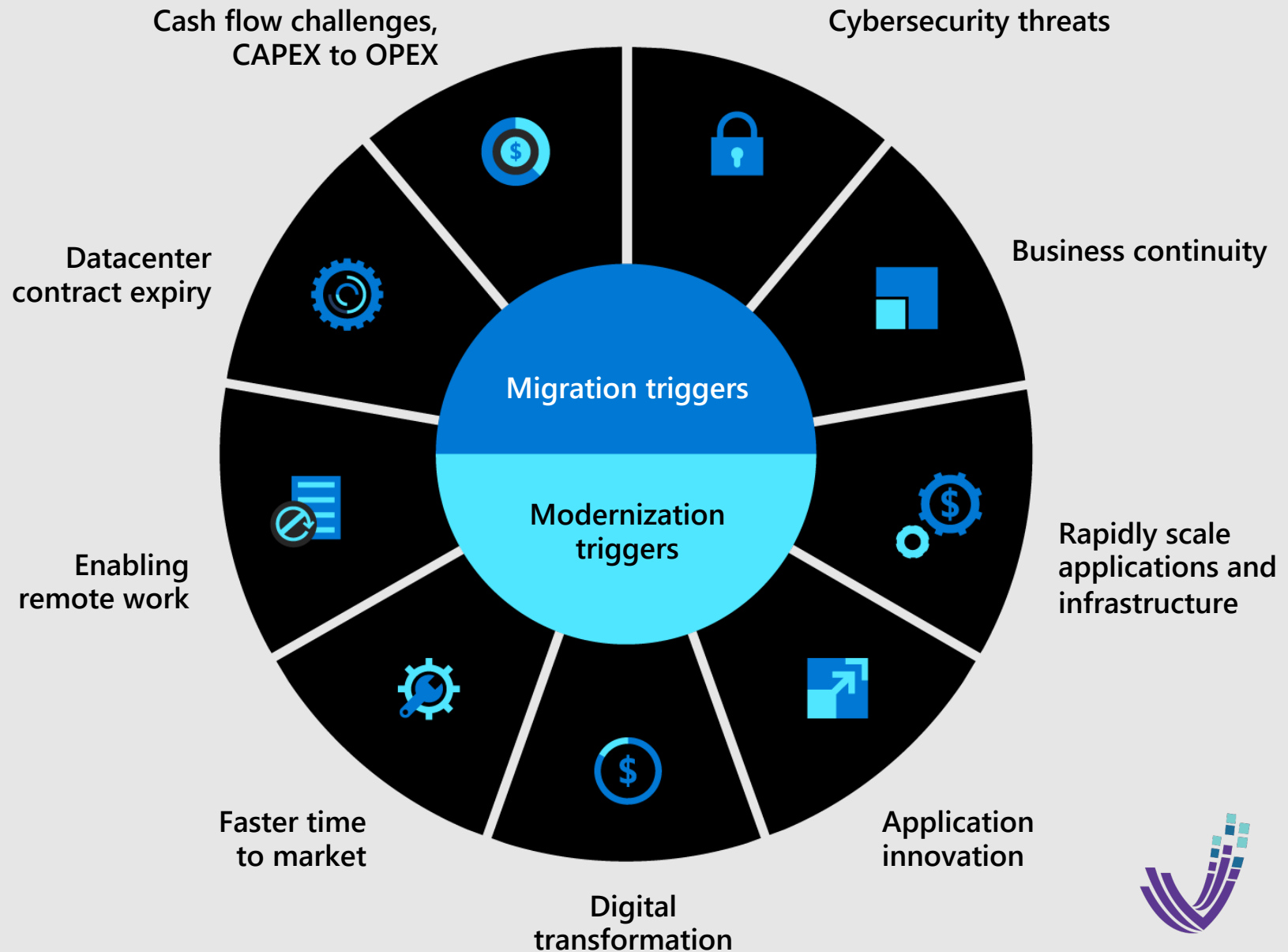
veraqor
unveiling data. unleashing potential

Why companies are moving to the cloud?

Why move now?

Many factors can influence the decision to modernize or migrate to the cloud.

Understand the top triggers and align goals and milestones.



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

Enterprises are accelerating digital transformation

50%

of organizations report that their workloads and data are in the public cloud, and they expect that number to increase in the coming year

66%

of surveyed organizations reported that their actual cloud usage in the past year has been higher than planned

Discover more resources to help build your cloud business case [here](#)

Top Cloud Initiatives for 2021 Across all Organization



IaaS is fastest growing subsegment, projected to grow 36.6% in 2017, 30.1% CAGR for next 5 years

Gartner and IDC



80% of CIOs will be pressured by their business leaders to evaluate migrating their datacenters to IaaS

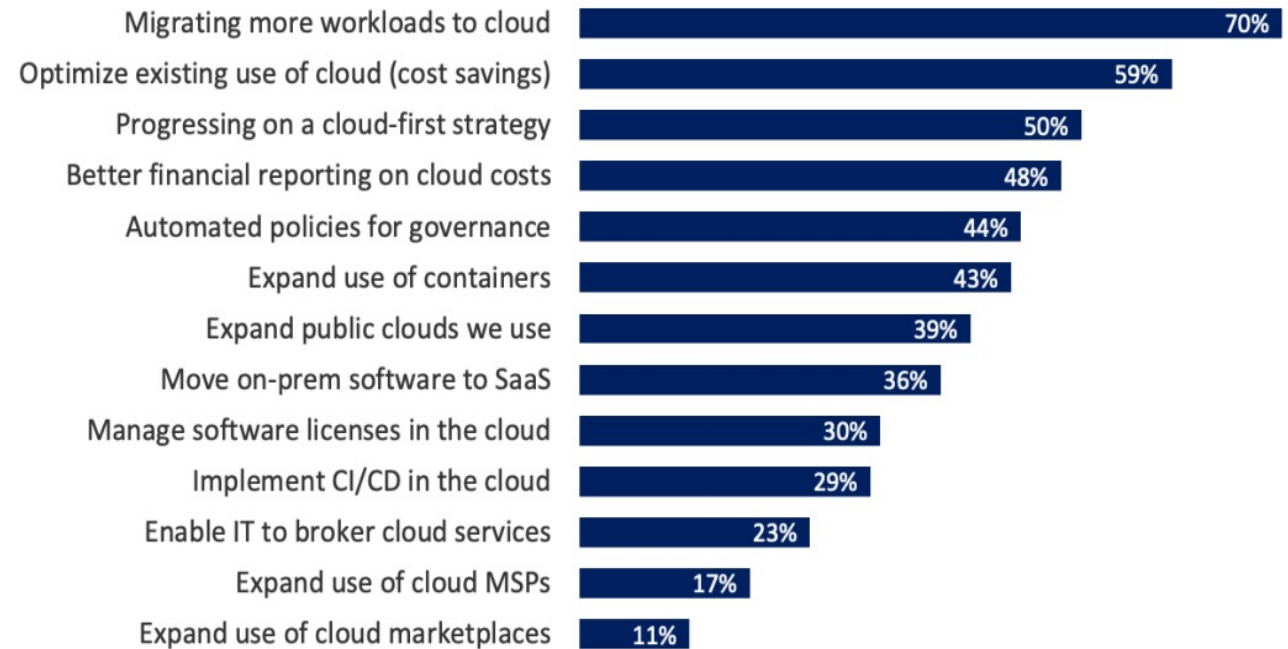
Gartner



Azure PaaS reduces time required to manage apps by 80% and time to deploy a new app by 50%

Forrester

N=155



Source: Flexera 2021 State of the Cloud Report



veraqor
unveiling data. unleashing potential

Top Cloud Initiatives for 2022 Across all Organization



N=753

Source: Flexera 2022 State of the Cloud Report

flexera



veraqor
unveiling data. unleashing potential

Why migrate and modernize to Azure?

Future-proof your business with Azure

Move on your terms with hybrid flexibility.



Innovate faster with a fully managed platform



Enterprise-grade infrastructure for less



Move on your terms with hybrid flexibility



Protect your most valuable assets with trusted cloud security



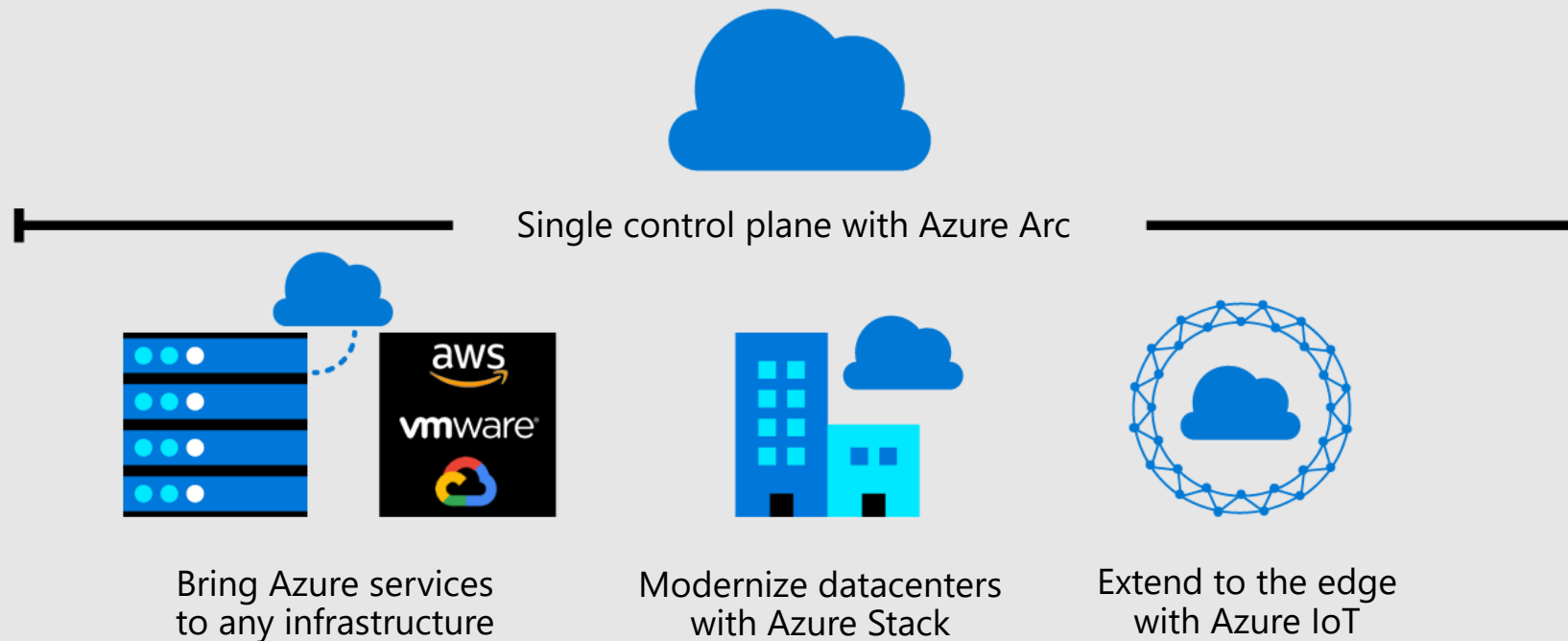
Comprehensive programs to help customers move with confidence



veraqor
unveiling data. unleashing potential

Manage complex IT environments seamlessly as you move

IT investments may span cloud and on-premises for the foreseeable future. Azure hybrid cloud solutions can help reuse, manage, and govern assets across hybrid environments.



89%

of organizations use a hybrid or multi cloud approach. Azure helps ease the complexity of managing and governing this type of environment.

**Security, compliance, management,
and operational benefits**

Security benefits

Safeguard your business assets with multi-layered security tools.

- Prepare for regulatory challenges with the broadest set of cloud compliance certifications from [Azure compliance offerings](#)
- Secure and manage identities, connect your remote workforce, and protect your users from 99.9 percent of identity attacks using [Azure Active Directory](#)

Security is foundational for Microsoft:



\$1B+ annual investment

3,500+ security experts

8T+ signals analyzed for intelligence

Compliance and management benefits

Azure helps customers regulatory challenges with the right modernization and migration tools.

- Increase the efficiency and productivity of managing compliance tools, the compliance environment, and auditing.
- Reduce costs of compliance-related penalties.
- Improve agility in responding to new and ever-changing national and international regulations.
- Enhance the overall productivity of auditing and compliance teams as well as IT support.

91 compliance offerings

\$4.29 million/year

average value achieved by leveraging cloud IaaS for compliance*

*IDC: [Microsoft Azure Is Helping Organizations Manage Regulatory Challenges More Effectively, May 2019](#)

What is Cloud migration and modernization concepts

Understanding cloud services: SaaS, IaaS, and PaaS

Software as a service (SaaS)

allows users to connect to and use cloud-based apps over the internet—for example, email, calendars, and office tools like Microsoft 365.

Advantages of SaaS

- Gain access to sophisticated applications.
- Easily mobilize your workforce.
- Access app data from anywhere.

Infrastructure as a service (IaaS)

is an instant computing infrastructure, provisioned and managed over the internet. It quickly scales up and down with demand, letting you pay only for what you use.

Advantages of IaaS

- Quickly set up and dismantle test and development environments.
- Improve business continuity and disaster recovery.
- Free up your team to focus on innovation rather than on IT infrastructure.

Platform as a service (PaaS)

is a complete development and deployment environment in the cloud. Its resources enable you to deliver everything from cloud-based apps to cloud-enabled enterprise applications.

Advantages of PaaS

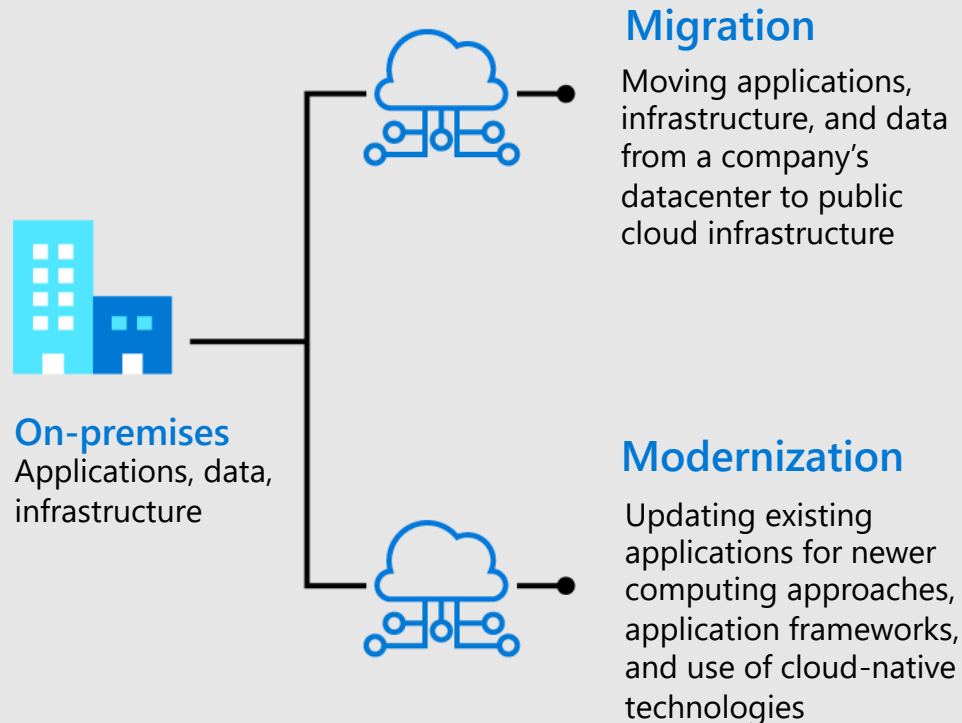
- Cut coding time.
- Develop for multiple platforms, including mobile.
- Support geographically distributed development teams.



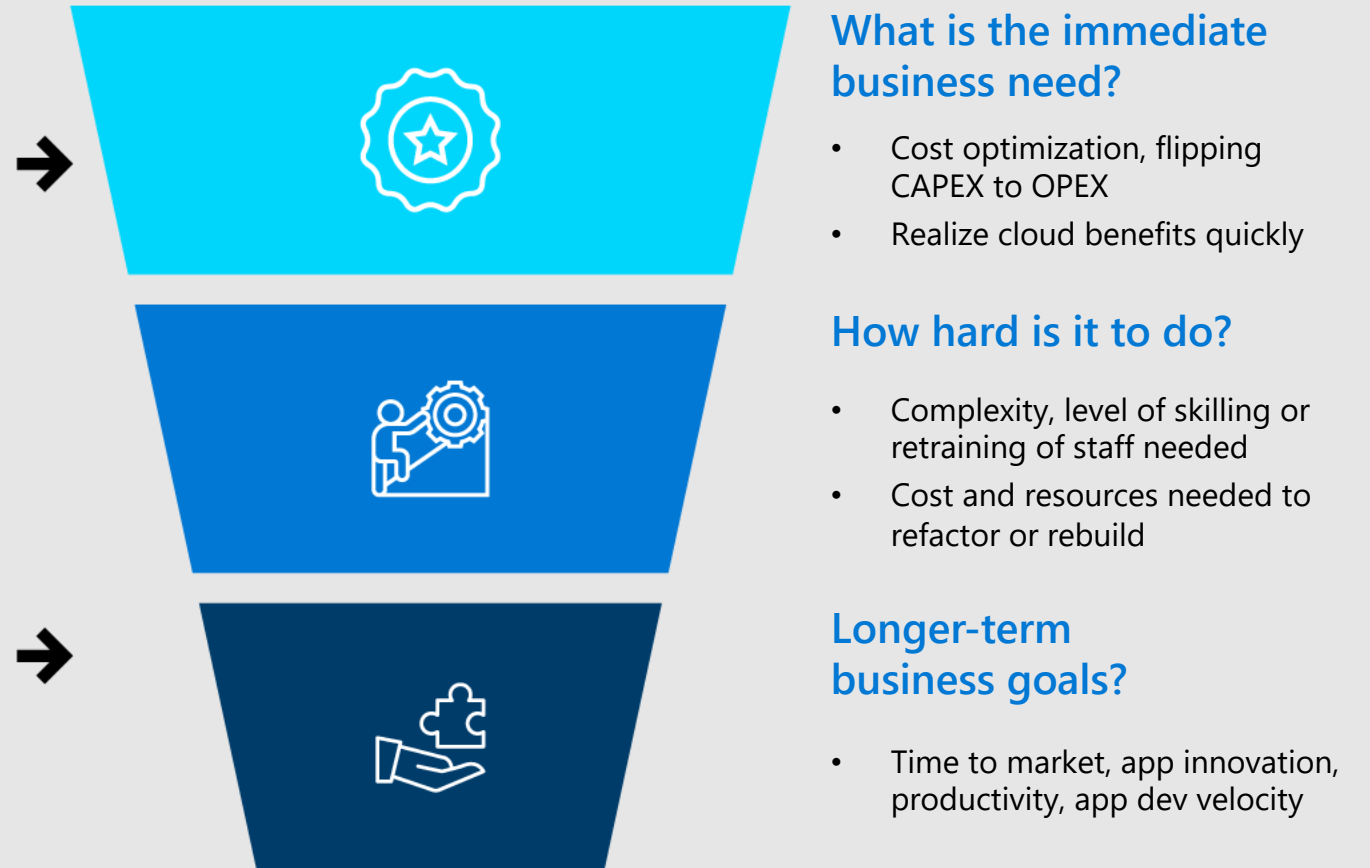
Understanding migration and modernization

From the process to the benefits, learn how—and why—IT leaders prioritize moving to the cloud.

Defining migration and modernization



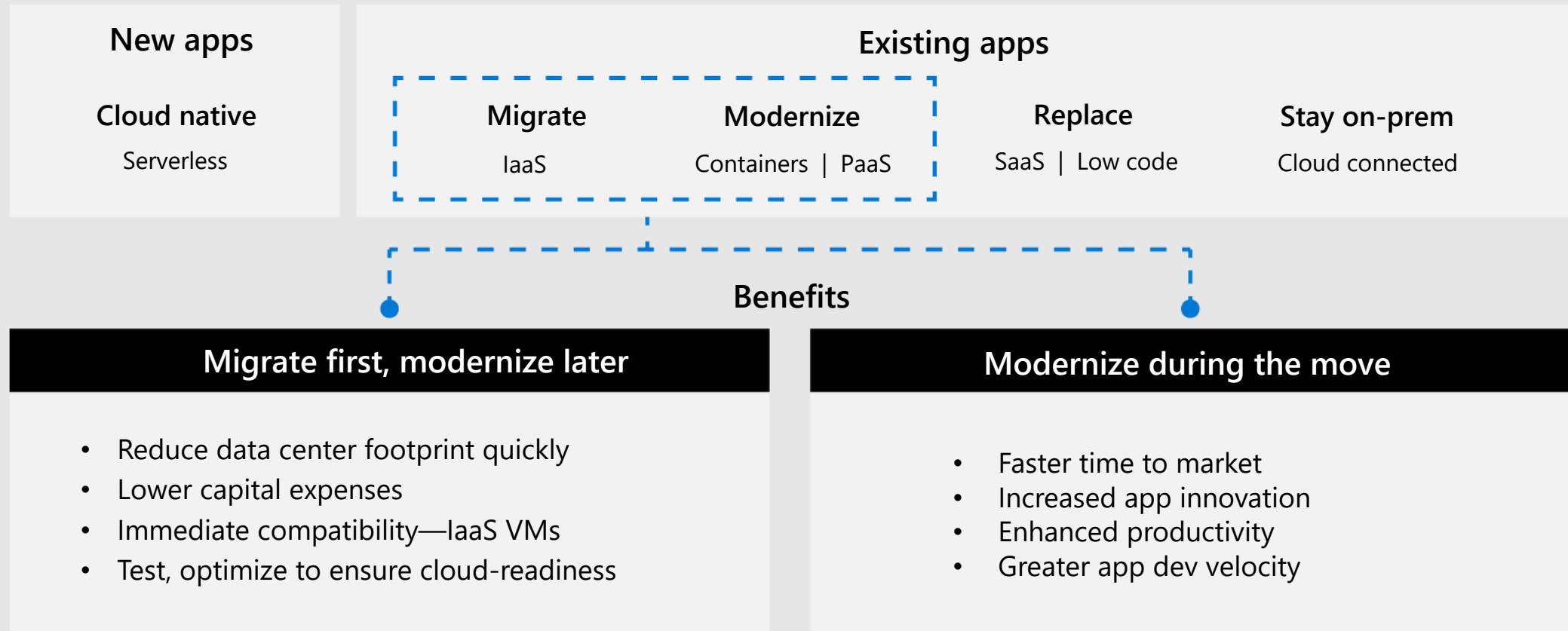
Migration and modernization decision factors



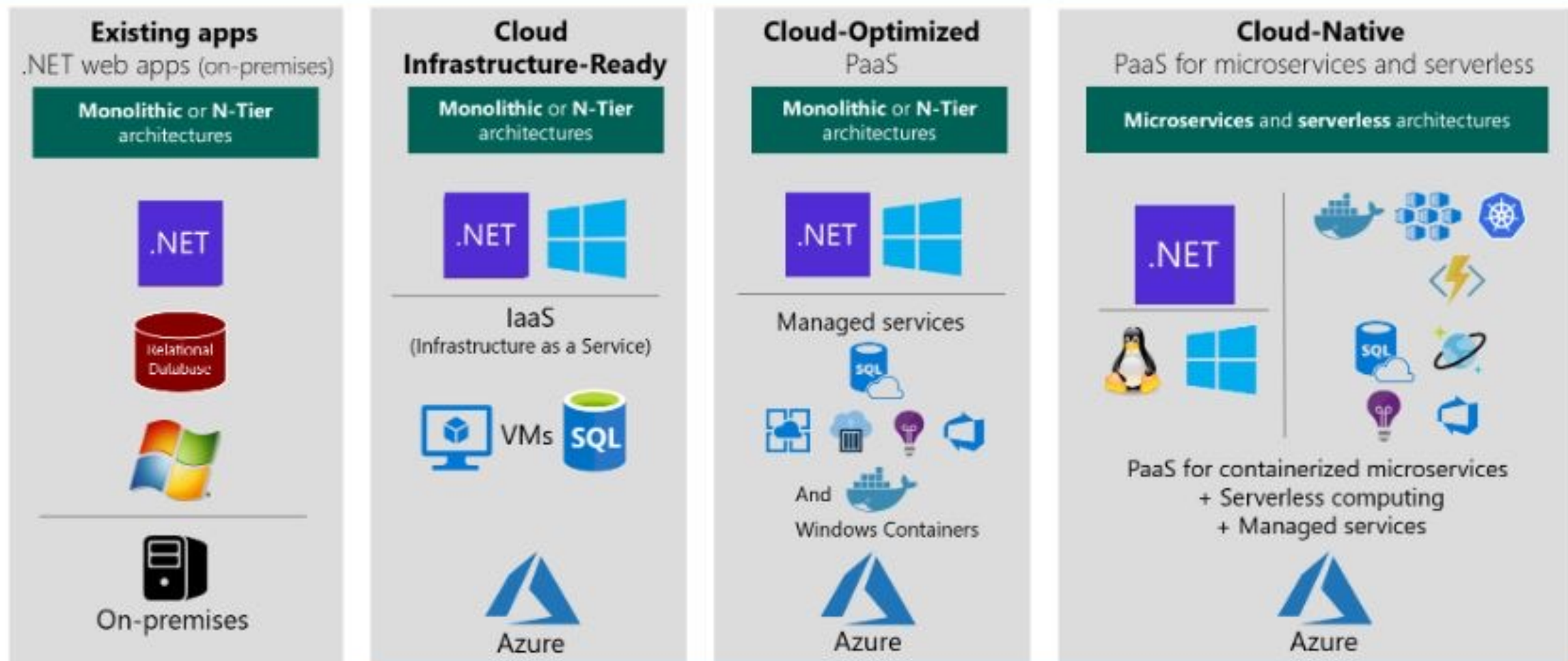
Prioritizing cloud migration and modernization

Where does your cloud adoption journey begin?

Depending if your apps are new, existing, or not custom-built, there's different options for how you proceed forward.



Maturity model for .NET applications modernization



Base Cloud Environment and cross-cutting concerns: Network, Hybrid-cloud, Identity/Auth, Cost control and Operations model

Migrate / Rehost

Modernize

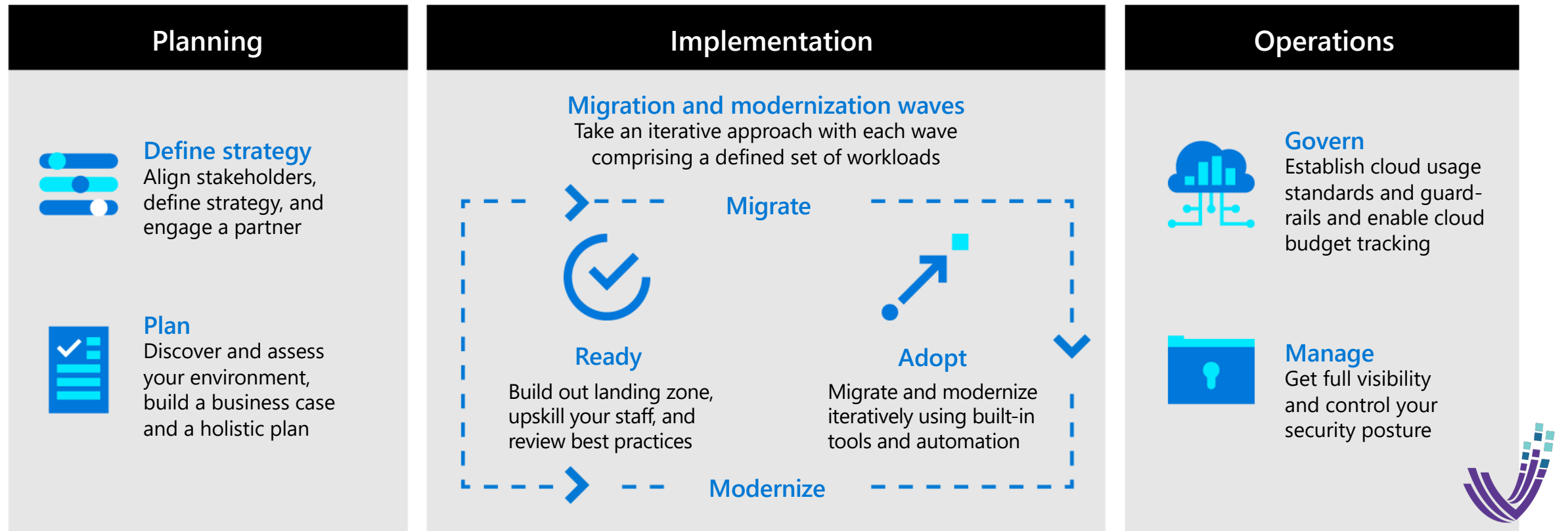
Minimal code changes

Architected for the cloud, needs new code

How to migrate our on-prem workload on cloud?

Steps for migrating and modernizing to the cloud

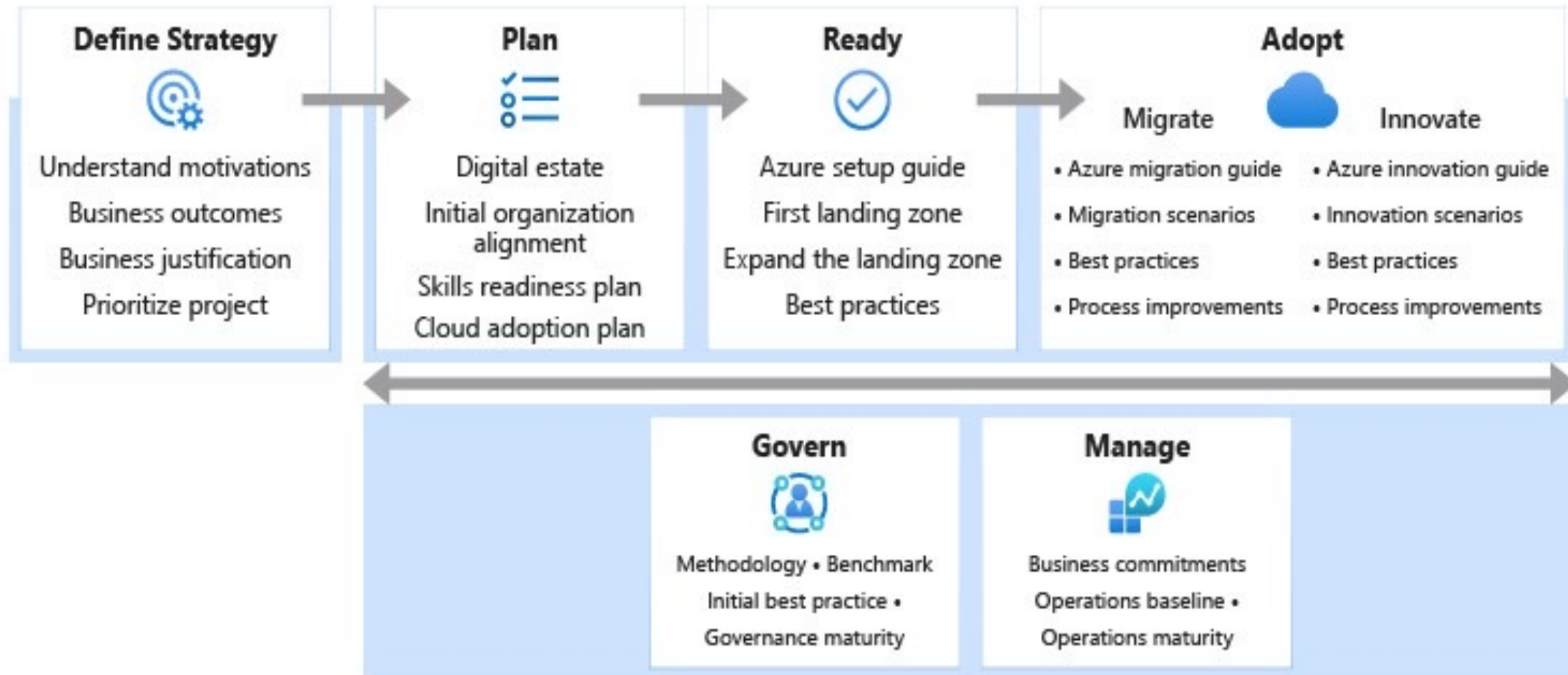
While the cloud adoption journey can vary for different organizations, it can help to break your cloud migration project into phases:



Cloud Adoption Framework (CAF)



Microsoft Cloud Adoption Framework
for Azure



Governance Model

Govern

Define Corporate Policy

Business Risks



Document evolving business risks and the business' tolerance for risk, based on data classification and application criticality

Policy & Compliance



Convert Risk decisions into policy statements to establish cloud adoption boundaries.

Process



Establish processes to monitor violations and adherence to corporate policies.

Five Disciplines of Cloud Governance



Cost Management

Evaluate & monitor costs, limit IT spend, scale to meet need, create cost accountability



Security Baseline

Ensure compliance with IT Security requirements by applying a security baseline to all adoption efforts



Resource Consistency

Ensure consistency in resource configuration. Enforce practices for on-boarding, recovery, and discoverability



Identity Baseline

Ensure the baseline for identity and access are enforced by consistently applying role definitions and assignments



Deployment Acceleration

Accelerate deployment through centralization, consistency, and standardization across deployment templates

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

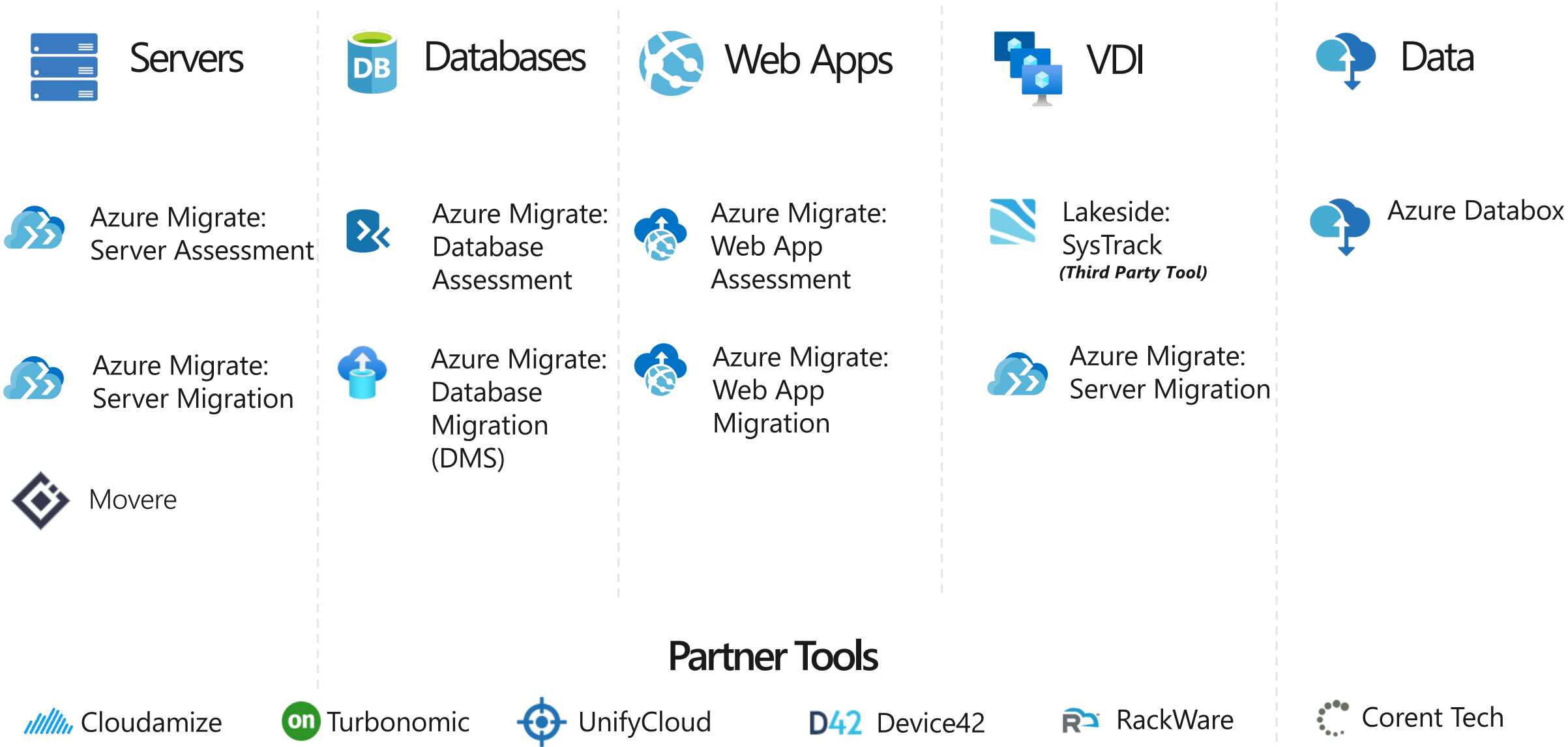
In the optimization phase, partners will use Azure security and management resources to govern, secure, and monitor the cloud applications in Azure. This is also the time to look for opportunities to optimize spending. Common tasks at this stage are:

- 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.

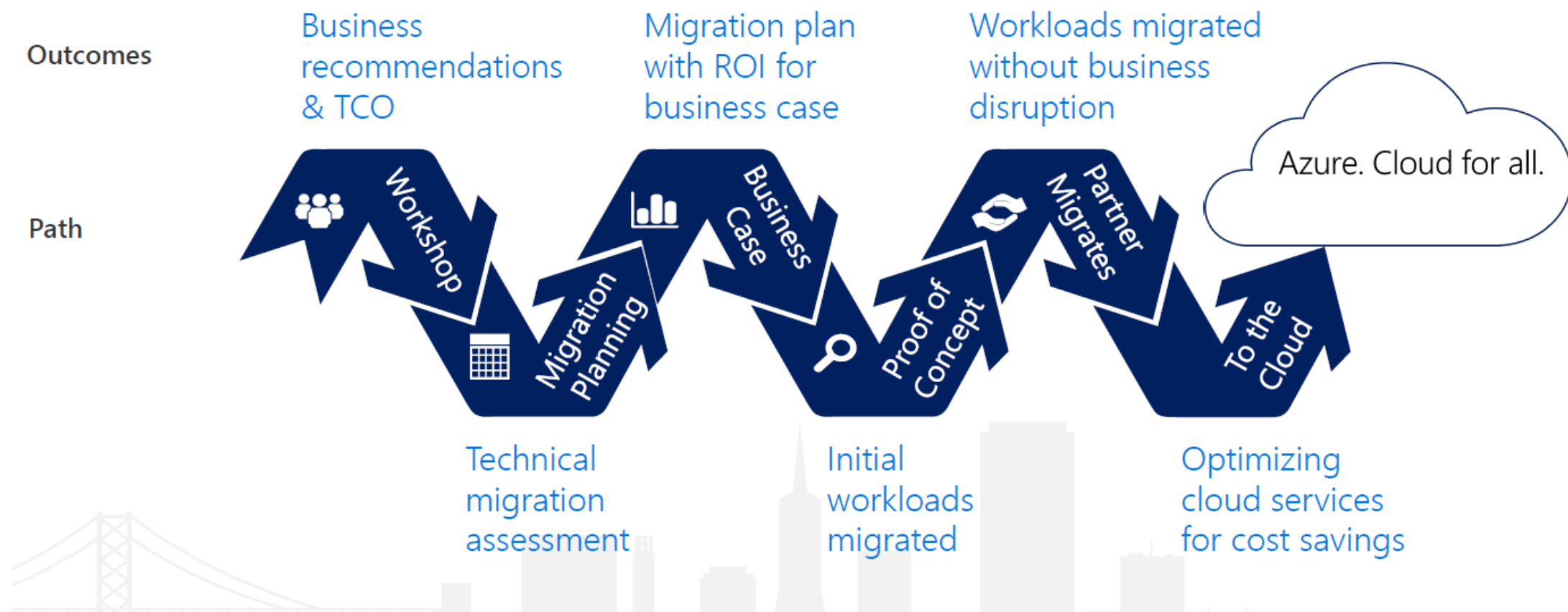


veraqor
unveiling data. unleashing potential

Choice of tools for every stage and every requirement



What is the lowest risk path to the cloud?



Migration and modernization approaches

Different criteria will inform which approach is best for your business.

Approach	Description	Common Business Drivers	Quantitative Considerations	Qualitative Considerations
Rehost	Move workloads to virtual machines in the cloud with minimal change to overall architecture	Reduce capital expense Free up datacenter space Achieve rapid ROI in the cloud	VM size (CPU, memory, storage) Dependencies (network traffic) Asset compatibility	Tolerance for change Business priorities Critical business events Process dependencies
Refactor	Make minimal changes to optimize for the cloud for IaaS and PaaS environments	Faster and shorter updates Code portability Greater cloud efficiency (resources, speed cost)	Application asset size (CPU, memory, storage) Dependencies (network traffic) User traffic (page views, time on page, load time) Development platform (languages, data platform, middle-tier services)	Continued business investments Bursting options/timelines Business process dependencies
Rearchitect	Modify existing app architecture/code to optimize for the cloud	Application scale and agility Easier adoption of new cloud capabilities Mix of technology stacks	Application asset size (CPU, memory, storage) Dependencies (network traffic) User traffic (page views, time on page, load time) Development platform (languages, data platform, middle-tier services)	Growing business investments Operating costs Potential feedback loops and DevOps investments
Rebuild	Rebuild applications from scratch using cloud-native technologies	Accelerate innovation Build apps faster Reduce operational cost	Application asset size (CPU, memory, storage) Dependencies (network traffic) User traffic (page views, time on page, load time) Development platform (languages, data platform, middle-tier services)	Declining end-user satisfaction Business processes limited by functionality Potential cost, experience, or revenue gains
Replace	Leverage an existing SaaS application that provides the necessary functionality for the hosted app	Standardize around industry-best practices Accelerate adoption of business process-driven approaches Reallocate development investments into applications that create competitive differentiation or advantages	General operating cost reductions VM size (CPU, memory, storage) Dependencies (network traffic) Assets to be retired	Cost-benefit analysis of the current architecture versus a SaaS solution Business process maps Data schemas Custom or automated processes

Migration Strategies: Rehost App (lift & shift)



Rehost
(lift and shift)

What is it?

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



Refactor

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



Rearchitect

Example

Move a line of business application to Azure VMs



Rebuild

On-premises

Application tier



Data tier



SQL Server
(on Windows Server)

Application tier



Data tier



Azure

Application tier



Azure IaaS VMs

Data tier



Azure SQL Database
Managed Instance

Application tier



Azure IaaS VMs

Data tier



Azure Database for
PostgreSQL/MySQL



Azure Site
Recovery



Azure
Database
Migration
Service



veraqor
unveiling data. unleashing potential

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



Azure SQL Database
Managed Instance



veraqor
unveiling data. unleashing potential

Migration Strategies: Rearchitect Application



Rehost
(lift and shift)



Refactor



Rearchitect



Rebuild

What is it?

Rearchitecting is to modify or extend the existing application's architecture / code base, and optimize it for cloud platform and better scalability

Example

Decompose a monolithic application into microservices that work together and readily scale on Azure; rearchitect SQL Server to a fully managed Azure SQL Database

On-premises

Application tier



.....
Data tier



SQL Server
(on Windows Server)



Azure

Application tier



Azure Container Service
(AKS)

.....
Data tier



Azure SQL Database



veraqor
unveiling data. unleashing potential

Migration Strategies: Rebuild Application



Rehost
(lift and shift)



Refactor



Rearchitect



Rebuild

What is it?

Rebuild the application from scratch using cloud-native technologies on Azure PaaS

Example

Build greenfield applications with innovative cloud native technologies like Azure Functions, Logic Apps, Cognitive Service, Azure Cosmos DB and more

Azure

Application tier



Azure Functions



Azure Logic Apps

.....
Data tier



Azure SQL Database



Azure Cosmos DB



veraqor
unveiling data. unleashing potential

Serverless app platform components in Azure

Development

IDE support



Integrated DevOps

 Local development Monitoring Visual Debug History

Platform

Functions

- Developer productivity
- Triggers and Bindings
- Flexible deployment options

 Logic Apps

- Visual designer
- 170+ connectors
- Functions orchestration

 Event Grid

- Manage all events in one place
- Near real-time delivery
- Broad coverage

Database



Storage



Security



IoT

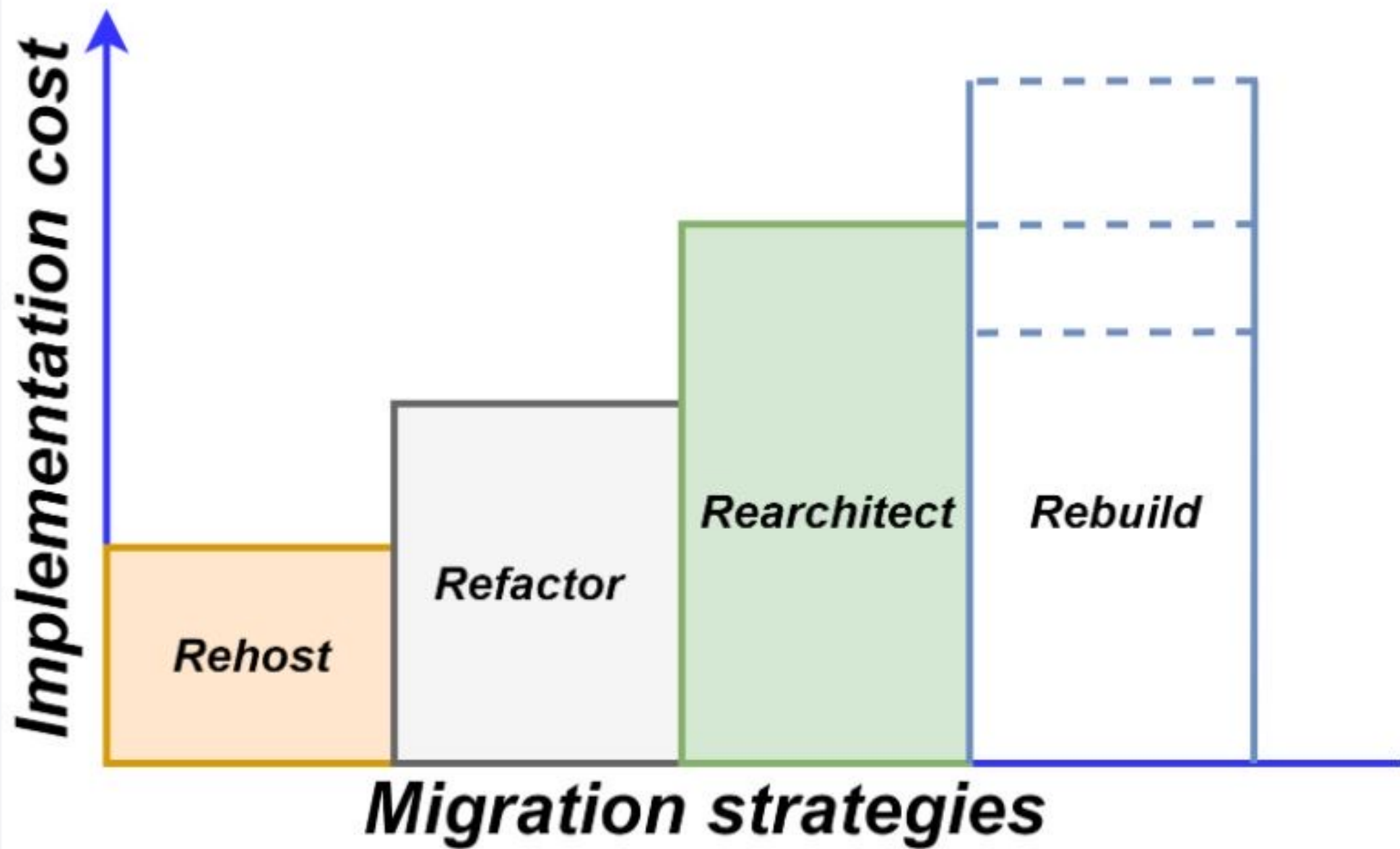


Analytics

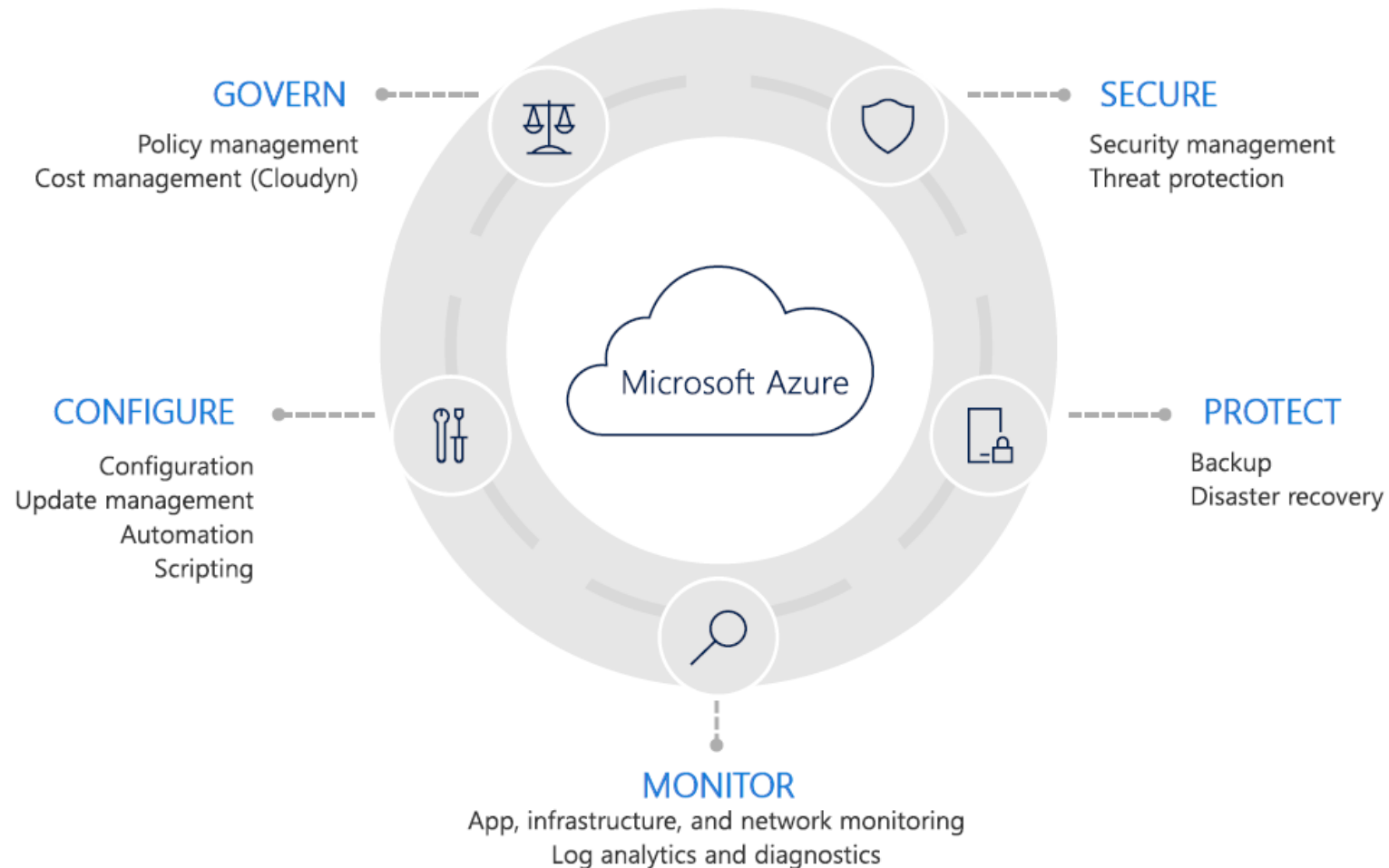


Intelligence





Optimize : Secure, Well Managed & Cost-Efficient



How can Veraqor Help?



Thank you!

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

Need help? Please write to:
mtu@veraqr.io

