



# **THE ULTIMATE GUIDE FOR IT MANAGERS FACING PRESSURE FOR CLOUD TRANSFORMATION**

**STRATEGY, OPTIONS, IMPLEMENTATION, & ADOPTION**

# CRITICAL CONSIDERATIONS

When moving on-premises business-critical applications to the cloud, there are critical considerations that span technical, operational, and business domains. Below are three key components not to be overlooked when defining your cloud migration strategy:

- **Establishing a shared vision** – Ensuring you have set goals and an executive-level sponsor.
- **Understanding your why** – Why are you migrating to the cloud in the first place?
- **Defining business impact** – What impact do you expect from your migration efforts and are your goals realistic based on the chosen implementation approach?

## Establishing a Shared Vision



### ESTABLISHING A SHARED VISION

The landscape of on-premises systems is often governed by many stakeholders, both business and IT, with competing goals, risk profiles, and expected outcomes from a migration effort. Having a clear vision for your migration initiative with key roles and responsibilities defined is critical to the timeliness, investment, and overall success of your project. Finding an executive sponsor to unite the various groups, make decisions, and define the business goals and expected outcomes is vital in risk management.

As part of creating this shared vision, the executive sponsor needs to ensure:

- **Goal Alignment** – Having a shared vision among various business and IT stakeholders sets direction and expectations. A shared vision allows all parties, including vendors and internal resources, to understand the goal(s) and the role they'll play for the project.
- **Sufficient Budgeting and Resource Allocation** – Appropriate investment and talent resources must be assigned for executing tasks before the start of the migration effort.
- **Proper Documentation of Existing Systems** – Critical information about on-premises systems and operations is often either insufficient or missing entirely. System documentation is mandatory to migrate systems and uphold their intended purpose.
- **Product Ownership** – On-premises business application suites are often acquired or internally developed. Original vendors may be out of business, so products are no longer viable. Conversely, the custom product may no longer be supported or understood. An owner needs to be designated to determine the future of the product.

- **Organizational Change Management** – Without user adoption, your cloud migration will fail. Change management efforts enable cloud technology adoption and require proper planning and execution from the start.

The considerations outlined above should be discussed upfront, and partnerships among stakeholder groups must be established to accomplish the intended goal(s) of migration under executive sponsor leadership.

# Understand Your Why



## UNDERSTAND YOUR WHY

You've heard the stories about failed cloud migrations. Those stories often start with misaligned expectations and a rushed execution, which are among the top reasons cloud migrations result in a backslide to on-premises environments. Migrating to the cloud isn't a silver bullet – not every organization will experience cost savings or even immediate functionality improvements from a rehost migration.

As an IT director or manager, it's critical to ensure executive sponsors understand how different migration approaches align to anticipated outcomes. There's often pressure from leadership to migrate to the cloud, and understandably with countless cloud benefits and the many challenges associated with aging on-premises solutions. However, understanding and communicating what's realistic for your organization and how different approaches will address various business goals is crucial.

## CLOUD TRANSFORMATION CAN WAIT

Sound familiar? It's not a sentiment you would expect from most IT decision-makers. However, it's something we hear from an increasing number of organizations.

The benefits of a well-thought-out cloud transformation roadmap are not lost on them. Often, they know that in an ideal world, they would start with an in-depth assessment of their application portfolio. They also realize the need to develop a robust cloud governance model upfront. And ultimately, they understand the need to take an iterative migration approach that incorporates organizational change management practices.

At the same time, these decision-makers face real challenges with existing IT infrastructure and can't afford to wait months or years for a successful cloud transformation to take shape. And this challenge isn't limited to organizations with fast-approaching deadlines for data center lease renewal or end of support products, either.

## A TWO-STEP APPROACH TO CLOUD TRANSFORMATION

When balancing two competing initiatives – an immediate need to move out of your data center and carefully crafting a cloud transformation strategy – we often recommend a two-step approach that addresses both your short- and long-term needs.

1. **Tactical Rehost** – Moving the current data center footprint as-is to the cloud.
2. **Strategic Cloud Transformation** – Once operational in the cloud, incrementally and opportunistically modernize according to your business goals.

On the surface, step one above may appear wasteful, as we are duplicating your current footprint in Azure. But keep in mind that step one is designed for completion in days or weeks, not months or years. As a result, the duplication is minimized. At the same time, this immediately puts you in a position to leverage Azure capabilities, giving you tangible benefits with minimal to no changes to your existing footprint.

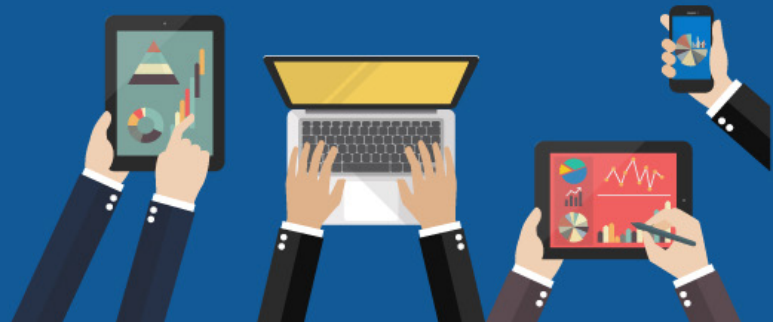
## QUESTIONS TO ASK TO UNDERSTAND YOUR WHY

Depending on your business goals, step one may not make sense. To get to the root of goals and expectations for your migration effort, consider the following questions with your stakeholders and executive sponsor as you build your roadmap:

1. What are your business objectives for cloud adoption, and how will they help further the company vision?
2. Is there a set timeline to complete the cloud migration effort?
3. What internal and external resources are available to support a cloud migration?
4. How many applications are in your portfolio, and do you plan to migrate everything, or are you considering a hybrid model approach?
5. What are the technical requirements and interdependencies of your applications? How will you assess cloud readiness?
6. What are the necessary governance, security, and compliance considerations?
7. Who will be responsible for moving workloads to the new cloud platform? Who will perform the migration, and manage the workloads? Will you be doing it by yourself, or will it be a shared initiative?
8. How do you intend to use automation to reduce manual efforts and streamline provisioning and governance?

As you answer the questions above, you may find that a rehost effort indicated in step one is sufficient. Likewise, you may choose to explore a lead horse application approach as part of your migration strategy. This type of approach may help you better understand the value derived from various modernization tactics outlined in step two.

# Uncovered Cloud Benefits



## UNCOVERED BENEFITS OF THE CLOUD

Above all, most organizations move to the cloud in pursuit of remaining competitive, managing risk, and replacing aging hardware. Having a good understanding of all the benefits the cloud has to offer allows for alignment with stakeholders. From this alignment, the possibilities and the potential to gain buy-in on an exploration of various approaches through a proof of concept in tandem with initial rehost migration efforts can be achieved.

### IMMEDIATE BENEFITS OF A REHOST MIGRATION

- **Improve the security posture** – Once you are in Azure, you tap into security capabilities, such as intrusion detection and denial of service attack, solely by being in Azure.
- **Replace aging hardware** – Your hardware may be getting old but isn't old enough for a Capex-powered refresh. Moving your VMs to Azure decouples you from the underlying hardware. You can better manage the costs with options like Reserved Instance (RI) pricing that can offer an up to 80% discount based on a one- or three-year commitment. You can also combine RI with Azure Hybrid Benefits (AHUB) which provides discounts for licenses already owned. And don't forget to take into account the savings from decreased needs for power, networks, real estate, and the cost of resources to manage all the on-premises assets.
- **Disaster Recovery (DR)** – Few organizations have a DR plan setup that is conducive for ongoing DR tests. Having an effective DR plan is one of the most critical responsibilities of IT and is made easy with Azure.
- **Extended lease of life on out of support software** – If you are running an Operating System (OS), such as Windows Server 2008 or SQL Server 2008, moving to Azure extends the security updates for up to three years from the “end of support” date.
- **Getting out of the business of “baby-sitting” database servers** – Azure managed instances offer you the ability to take your existing on-premises SQL Server databases and move them to Azure with minimal downtime. Once your database is an Azure SQL Managed Instance, you don't have to worry about patching and backup, significantly reducing the cost of ownership.
- **Take baby steps towards automation and self-service** – Self-service is one of the key focus areas for most IT organizations. Since every aspect of Azure is API driven, organizations can take baby steps towards automated provisioning.
- **Get closer to a data lake** – You have likely heard the quote “AI is the new electricity”. We know that Artificial Intelligence (AI) needs lots and lots of data to train the Machine Learning (ML) algorithms. By moving to Azure, it's that much easier to capture the “data exhaust” coming out the applications in a service like Azure Data Lake. In turn, Azure Data Lake can help turn this data into intelligence.

## ADDITIONAL BENEFITS OF STRATEGIC CLOUD TRANSFORMATION

Migration options that are more involved than rehosting may be worth your consideration if your organization requires more cloud benefits than a rehost can offer. Organizations looking to modernize through re-platforming or refactoring may be motivated by cloud benefits such as:

- Faster time to market, product release cycles, and/or pace of innovation
- Enriched customer and end-user experiences
- Improved employee technology, collaboration, and processes
- Better reliability and networking speeds
- Reduced cost of labor and/or maintenance
- Ability to leverage emerging technology
- Built-in disaster recovery options
- Flexibility and scalability
- Data security
- Cost allocation for budgeting and showback/chargeback
- Move from a capital expense (CAPEX) to an operating expense (OPEX), or realize CAPEX by buying resource commitments

If you are facing tight timelines to migrate, a rehost effort can help you address immediate needs or challenges. During your initial migration, you can look to a proof of concept to gain a further understanding of the business impact various approaches have to offer while incrementally progressing cloud transformation. Below we address how to approach a rehost initiative, along with additional information about other migration tactics.

**To learn more about the different approaches to migration and modernization, download our free whitepaper.**

**LEARN MORE**

# Getting Started with Rehosting



## GETTING STARTED WITH REHOSTING

The challenges of moving on-premises business-critical applications to the cloud span technical, operational, and business domains. The key areas we cover in an initial rehost strategy include:

- Defining the cloud availability and recovery strategy upfront
- Conducting a data center assessment
- Assessing the business operations impact
- Building an effective migration plan
- Defining the system cutover plan upfront
- Testing as much as possible before cutover

## PLAN FOR AVAILABILITY AND RECOVERY UPFRONT

Migrating on-premises applications to a new environment they were not initially designed for needs careful evaluation concerning high availability and disaster recovery. The way these applications function, especially commercial off the shelf (COTS) packages, may rule out some of the standard cloud platform availability services that can typically be leveraged in the cloud environment for custom applications.

## CONDUCT A DATA CENTER ASSESSMENT

From a technical standpoint, on-premises business applications may have several cloud migration “risk factors”. Risks include dependencies on out of support Windows OS versions and frameworks, limited product upgrade paths, and situations where the original application vendors no longer provide support. This could be due to changes in product strategy, merger/acquisitions of the vendor, or the vendor has gone out of business.

Determining the readiness of an on-premises application when migrating it to the cloud, particularly COTS-package applications, is very critical. Prior to going down the path of migration, a fact-based assessment of the technical risk factors and available migration options must be conducted. A firm go/no-go decision on rehosting (versus retire/replace with a new system) should be made as early as possible in the project.



The readiness assessment needs to be thorough with consideration of all architectural components including proprietary data persistence storage mechanisms or data exchange communication protocols, add-ons or other vendor external product dependencies, customizations implemented for the specific client business processes, etc. Any gaps in conducting the data center assessment prior to starting the migration can potentially render the whole effort unsuccessful. Building the partnerships among on-premises systems stakeholders and product owners discussed earlier is key to supporting this analysis.

**Some important aspects of this assessment include:**

- 1. Target Deployment Environment Compatibility Assessment** – Examine all system upgrade paths and supporting platform system components. After this examination, you can rule out any basic incompatibility issues in deploying the migrated applications in the cloud environment. For example, if the on-premises application is a COTS product, is there a version that runs on the available OS and Database platforms in the desired target cloud deployment architecture?

Another important area to assess is the required connectivity between the application(s) to be migrated. Can the types of required communication methods be supported in a cloud virtual network environment with potential connections back to the on-premises network and applications?

A related key consideration is latency and authentication/authorization issues associated with moving on-premises client/server-based applications with thick clients to a cloud environment. You'll need to consider how the end-users will connect to the systems (ex: Virtual desktops). Also, consider how the end-user will perform tasks like exporting data and running reports from the on-premises system back onto their local PCs.

- 2. Security and Compliance Assessment** – Identify the security and compliance requirements for the system and identify what cloud-based controls and mechanisms will be needed to meet these requirements. Map out the key security and compliance scenarios and verify whether the new cloud environment will meet these scenarios.
- 3. Performance Assessment** – Creating a list of business transactions that are representative of the different workloads is essential. Define response time requirements for these business transactions based on business needs and the current system's performance Service Level Agreements (SLAs). Performance feasibility needs to determine how these SLAs can be met in the new cloud environment.
- 4. Scalability Assessment** – Especially for COTS-packaged applications, what are the available options for scaling (scale-out or scale-up)?
- 5. Availability Assessment** – Again, for COTS-packaged applications, in particular, analyze possible failure scenarios and determine what mechanisms are available for early detection of failures and potential options for recovery/restart to meet required SLAs, Return to Operations (RTO) and Restore Point Objectives (RPO) requirements.
- 6. Data Migration Assessment** – The rehost method may include first time and incremental data migration as well. Detailed analysis of the data migration scenarios for the applications is required, and the amount of time required for the migration and its readiness during the cutover time window must be assessed.



- 7. Production Cutover Method Assessment** – The cutover strategy can vary significantly, based on the type of business application. Consider the constraints that interdependence between the migrated applications and remaining on-premises applications will have on the cutover approach. These can determine if the migration can be performed incrementally or must be done all at once.

Determine if it's possible to have the migrated system in the cloud run in parallel with the on-premises system. Can the parallel operations support be running entire business functions or selected portions of business functions? You'll need to consider what resource (technical, staffing, and budgetary) requirements exist for the cutover strategy, and the overall cost and productivity impacts to ongoing business operations.

**Get a low cost assessment of your readiness to migrate to a cloud service, such as Microsoft Azure.**

**LEARN MORE**

## CONDUCT A BUSINESS IMPACT ASSESSMENT

In addition to performing the data center migration assessment to determine the appropriate migration approach, it is also important to consider the business operational impacts of the migration. This impact can be experienced during both the migration and post-migration stages of the project. Some key items to consider include:

- 1. Operational Impacts** – What are the new system's operational dependencies in terms of the business users' skills, support, and operational costs? This would determine the operational readiness of the new cloud-deployed system.
- 2. Staffing and Vendor Impacts** – Prepare a list of internal staff resources and roles required for performing the migration and a list of external parties, including on-premises system product vendors. Evaluate the costs of obtaining those resources.
- 3. Schedule Impacts** – This entails determining the timeline and the schedule based on the availability of all the resources involved, factoring in the interdependencies of various activities within each workstream and across workstreams. Allowing calculated room in the schedule to accommodate the unplanned delays in the availability of the resources and assess the potential delays of dependent tasks and the impact of the business constraints related to cost and timing. This makes the drafting of the migration timeline and the schedule a complex process that needs serious effort and commitment.

## **BUILD AN EFFECTIVE MIGRATION PLAN**

Business and technical ownership of on-premises application suites are spread across multiple entities and teams. While planning for migration of these apps, there are inherent dependencies across internal and external teams. Creating a comprehensive application cloud migration plan that captures the essence of the entire roadmap, timeline and schedule is the key difference between success and failure.

### **DEFINE ENTRY AND EXIT GATES**

Migration of on-premises applications must be carefully managed to minimize the disruption to business operations. One way to ensure that migration plans progress in a stable way, is to have well-defined entry and exit gates for each phase of the migration. This would include cloud architecture deployment definition, initial cloud environment configuration, deploying initial test versions of the migrated application to the new environment, and so on.

Each gate should have well-defined entry criteria that must be reviewed and agreed to by all the stakeholders and approved by the migration project owner. All team leads (technical and business) that make up the migration team are also required to sign off at each entry/exit stage. Along with the entry/exit criteria, key technical, cost and schedule risks must also be identified and managed throughout each phase of the project.

### **EXPECT IMPLEMENTATION SURPRISES DURING MIGRATION**

Migration to the cloud environment, especially for COTS-product based applications may uncover previously unanticipated technical surprises. These surprises are often due to the lack of information/knowledge on the on-premises systems and their sometimes-hidden architecture dependencies on the original platforms they were designed to operate. Consider these types of risks when developing the migration plan and include planning for risks that the vendors of these COTS applications bring in.

Careful and upfront planning in defining the ownership of the final goal, feasibility assessment, master plan, and milestone checklists will reduce implementation surprises.

### **PERFORM CONTINUOUS VERIFICATION**

In on-premises projects like these, there is a tendency to wait for a complete deliverable before verification activities begin. This is partly to do with how verification planning is laid out, and partly the mindset of initiating verification on having a complete deliverable. This adds to uncertainties that are quite difficult to resolve later in the schedule. On-premises migration would thus need continuous verification and validation that provides timely feedback for the course correction.

## CUTOVER PLAN

Generally, it's difficult to adopt a parallel run with on-premises application cutover because of the design constraints. This situation brings in two specific challenges; first – the cutover time window will be short; secondly the rollback from the cloud to an on-premises environment is a challenging composition.

Extra attention and careful planning can help alleviate some of these difficulties of cutover. Important aspects to capture in the plan are:

1. Cutover tasks schedule, execution duration, the owner(s) and timeline
2. Go/no-go verification checklist and test plan
3. Composition of the post go-live stabilization team
4. Execution of disaster recovery fire drills
5. Consolidation of operational production procedures
6. On-going production support as Managed Services

If this is your first rehosting project, consider working with a consultant who understands common challenges and increase the likelihood of project success. This will allow you to show wins fast and quickly level up your team's skill set through exposure to expert resources.

**Considering rehosting? Assess the cloud readiness of your on-premises applications.**

**GET AN ASSESSMENT**

# Modernization Approaches



## OTHER COMMON MODERNIZATION APPROACHES

Rehosting isn't your only option, but it's often the first place organizations with tight timelines start as they test the viability of alternative options. Below are other approaches you may consider as part of your transformation journey.

### REVISE OR RE-PLATFORMING

Utilize the power of lightweight, stand-alone containers to package code, runtime, system tools, system libraries, and settings to run on-premises software in the cloud seamlessly. This approach captures an application and application tiers “as-is” in containers and runs on a managed orchestrator like Azure Kubernetes Service, requiring minimal changes to the existing codebase. This will get you halfway to a fully realized cloud maturity model and allows you to take advantage of cloud benefits such as flexibility, efficiency, and more without fully re-architecting your apps. For more details of this approach, including a demo, read [Migrate and Modernize with Kubernetes on Azure Government](#).

### REFACTORING

Re-architecture cloud compatible on-premises applications to fully realize the features of cloud-optimized and cloud-native application architectures using Platform as a Service (PaaS) and “serverless” technologies. Refactoring typically requires more significant recoding of an existing application. However, this method takes advantage of the best of what public cloud has to offer – managed offerings for all application components. If the data center migration assessment doesn't limit the potential cloud maturity model of your apps, then time and cost should factor into your decision. Not all applications warrant the investment of moving to a platform as a service (PaaS) model or developing a cloud-native or cloud-optimized application model. For modern applications with the best long-term agility and value for the organization, you may benefit from investing in cloud-optimized and cloud-native application architectures. For more information, check out our [“Full PaaS” Approach to Modernizing Legacy Apps](#).

### REBUILD

Completely rewrite your applications using cloud-native technologies like Kubernetes, Envoy, and Istio. Read our blog, [What Are Cloud-Native Technologies & How Are They Different from Traditional PaaS Offerings](#), for more information.

## REPLACE

Consider replacing the application's underlying technology if there's an out-of-the-box or customizable software that accomplishes what you need. There is any number of "as a service" offerings that may be a good fit for your application. Some options include SharePoint Online, CRM, or an equivalent application developed using a no-code/low-code platform like Microsoft Power Platform.

## HAVE YOU CONSIDERED A HYBRID APPROACH?

It's important to understand that apps are often not limited to a single approach. Each situation is different based on long- and short-term goals, budget, and timeline. At the end of the day, you may require a hybrid or staged approach. For ultimate success, know your options and find a partner you can trust. Consider starting with an application assessment exercise or a proof of concept to test the viability and outcomes of each approach.

# Feeling Stuck?



## FEELING STUCK?

If you're stuck in analysis paralysis, work with a consultant that's been through various migration projects, from start to finish, and understands the common challenges and complexities of different approaches.

Whether you're considering Azure, Office 365, Power Platform, or another cloud platform, AIS has a range of Adoption Frameworks and Assessments that can help you better understand your options. With our help, create a shared vision, and align business goals to the appropriate migration approaches.

**Get your cloud migration started on the right foot. Contact AIS today.**

**CONTACT US**

# AIS CLOUD CREDENTIALS

AIS has been cutting our teeth with public cloud infrastructure since 2008 through our partnerships with Microsoft and AWS. Given our unparalleled Azure technical expertise; often, Microsoft turns to us to build Azure reference architectures and blueprints for migrating complex application environments into Azure. And we've created a proven Cloud Adoption Framework that provides step-by-step guidance and best practices in moving to the cloud.

As a company built on a foundation of application development and software consulting capabilities, AIS is uniquely qualified to take our clients through all phases of cloud adoption. We can move clients from quick "lifting and shifting" of existing applications into cloud infrastructure services (IaaS) to refactoring applications harnessing native cloud platform as a service (PaaS) and software as a service (SaaS) capabilities.

We have helped scores of complex commercial enterprises and government organizations migrate to Azure, AWS, Office 365, and Dynamics 365. We will spend the time to understand your business needs and workload requirements. We'll then outline a meticulous cloud plan that meets your scalability, governance, security, and budget needs.

## INDUSTRY PARTNERS



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