



The Azure Migration Toolbox

Challenges, Tools, and Tips for Successful Migration



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Introduction

As more and more enterprises move to Microsoft Azure for their cloud services, there are many considerations they'll need to assess, and challenges to consider. This includes, for example, moving applications to a new region or seeking better coverage for highly available (HA) deployment.

Success stories for enterprises migrating to Azure are not hard to find. For example, [Adobe](#) just recently announced a strategic partnership that brings Adobe's creative Marketing Cloud platform to Azure; [GE Healthcare](#) utilized multiple Azure-deployed applications to create a more scalable platform for delivering their applications; and [Jet.com](#) – using both Dot Net and open source technologies – built its entire e-commerce platform on Azure. As these success stories continue, [more and more technologies](#) are constantly emerging to support these types of use cases.

Migrating to Azure or any other cloud provider involves the need for comprehensive service and workload mobility between on-premise and in-cloud workloads, and control over the way an enterprise can continue to run and manage their apps and services on various platforms. Moreover, migrating should include application-related considerations such as compatibility and the cost of running the application on on-demand cloud resources. For Azure specifically, there are several pricing models to choose from – each of which can have a critical impact on the estimated ROI for an enterprise to migrate.

Security and compliance should also be looked at closely. Microsoft recently announced general availability of their [Azure Security Center \(ASC\)](#) for enterprise customers, giving them a platform to merge Microsoft security research with insights and tools to defend any global threats customers may face. Microsoft is currently investing more than \$1 billion in research and development each year to advance their capabilities [in these areas](#).

In this paper, users will learn about what it takes to move to Azure, the tools for the job, and concrete steps you can take to start your migration.

Cloud Migration Challenges: Moving to Azure

When Microsoft introduced Azure a few years ago, many enterprises were unsure of its advantages over AWS. AWS had a variety of web services, and Azure was set up as a Platform-as-a-Service (PaaS) with only a few services. This made it difficult for corporations to migrate on-premise, legacy apps without a great deal of re-architecting or “rebuilding”. Since migrating to the cloud includes proprietary custom deployments with a large number of integrations and interdependencies, moving to run on a PaaS, in some cases, isn’t even feasible. Large modifications may be required if an enterprise’s application architecture does not completely follow distributed cloud architectures.

However, the advent of products such as [Azure Virtual Machines](#) allow for the option to lift and shift, or “rehost” as [Gartner](#) refers to the option of moving applications without making changes to its architecture. This allows for a fast cloud migration solution without the big investment required to modify existing code and frameworks.

With any migration of this type, compatibility issues factor in as well. This can include differences between Azure storage and an enterprise’s existing application storage, or incompatibilities with supported commands or variable types, where the source database was created with obsolete versions of database software.

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Application Discovery Tools

When migrating, one of the first things customers must consider is what applications in their organization are being used, how they are being used and who is using them. These types of discovery tools are a strength of Azure – and are provided as part of Microsoft’s [Cloud App Discovery](#) feature. This advanced feature set combines application access management, directory services, identity governance and a rich standards-based platform for developers.

Migration Tools

Planning and choosing which tools to utilize for a migration is important as well. This includes utilizing Azure native migration tools such as [Azure Site Recovery](#), which allows replication of VMware machines. Azure Site Recovery can include tools that enable users to move workloads in and out of the public cloud, Virtual Machines (VMs), or tools needed for copying the network and security controls to the cloud. [Azure Active Directory \(AD\)](#) is another solution that can be easily integrated with an existing on-premise Active Directory, giving organizations the ability to deploy a unified identity and access management.

Another tool that was recently released, and should be considered, is [Azure Stack](#), which enables easy access to public cloud resources that can scale when and how enterprises need it. Azure Stack is designed with native uniformity of applications and services – unlike AWS where enterprises often need to go over the web, use different platforms and services, etc.

Open Source Collaboration Tools

Additional tools helping encourage Microsoft enterprise adoption include open source collaboration tools such as [Docker Swarm](#), community partners, and [pure play cloud orchestration](#) and management solutions such as

Cloudify. For [hybrid cloud](#) configurations, Microsoft's hybrid strategy has also helped encouraged enterprises to gradually adopt its cloud platform. This strategy has become a key Azure sales tool that enables Windows customers to better integrate local applications with counterpart services running in the cloud.

Cloud Orchestration Tools for Migration

Currently, enterprise deployments also require enterprise-grade management and orchestration, and that's where standards such as [TOSCA](#) - a standardization initiative that enhances the interoperability and portability of cloud applications and services across clouds throughout their lifecycle - come into play. [Cloudify](#) is the largest open source implementation of TOSCA today, and takes advantage of the specific capabilities and features that Azure has to offer to support an enterprise-grade cloud. Cloudify is a third-party tool deeply integrated with Microsoft that automates the process of configuration, installation, deployment, and post-deployment such as monitoring, remediation, and auto-scaling of your infrastructure and application stack.

Microsoft's Enterprise Agreement

Another aspect of the migration is the business arrangement that enterprises already have with Microsoft. Microsoft's [Enterprise Agreement \(EA\)](#) is helping drive enterprise adoption of Azure by providing enterprises with a single agreement for central IT and other departments to maintain control over cloud operations through a single entity. When migrating, the EA is needed to enjoy all the benefits that Azure presents to its customers.

Steps for Migration

To summarize, the following are the three main steps to take into account when migrating to Azure.

1. **Discovery and Assessment:** Make sure to map your applications and assess which Azure features and tools should be used. In this phase you'll decide which applications will be migrated first.
2. **Proof-of-Concept (PoC):** Build the environment and run tests to make sure all requirements are fulfilled. Throughout this stage, you should also evaluate the cost of running on Azure, and ultimately your migration's expected ROI.
3. **The Migration:** This last step requires the blueprint that includes all components that need to be deployed as well as a complete switchover operational plan (including a rollback plan). Here you need to consider, in particular, the methods and tools to migrate and sync data.

Hybrid Cloud Orchestration

Whether you are looking for a hybrid cloud option to diversify your stack and resources or completely migrate over to Azure, cloud orchestration is a key component to consider. Cloudify supports all the major IaaS providers: AWS, OpenStack, VMware, Google Cloud, and of course, Azure. When planning a hybrid strategy, portability of your application stack is of the utmost importance.

Cloud portability is the enabler of hybrid cloud. Running your application on multiple clouds as a unified infrastructure, or having the ability to run the application on multiple infrastructures separately, is the goal of

hybrid cloud, and building your application for cloud portability is what will get you there. Read more about [cloud portability](#) and how to achieve [true hybrid cloud](#) without compromising on the least common denominator cloud infrastructure.

By utilizing open source, standards-based orchestration, hybrid cloud can not only be achieved, but done better to allow for future-proofing, migration, cloud bursting, and more to be easily accomplished.

Final Notes

Enterprises today that migrate to Microsoft Azure should feel comfortable with the tools, services, applications and methodologies needed not only to migrate, but also maintain an enterprise-grade cloud deployment once the migration is complete. These include IT operations concerns such as backup, security, and other considerations, as well as overall enterprise interests such as cost efficiency and building a Proof of Concept (PoC). This will give the user greater clarity and understanding about the cloud migration and the challenges it can face. All this, alongside Microsoft's investment in building a robust ecosystem of supportive tooling, enables added support and functionality that gives their users greater flexibility and control.

Microsoft has a long track record, and considerable experience, in the enterprise market, and, over the last few years, has invested heavily in cloud-related technologies such as infrastructure services, worldwide data centers, and more. With over 600 services – including mobile, storage, data management, and others – Microsoft is well-positioned to continue its rise as the fastest-growing cloud infrastructure platform today.



www.getcloudify.org

