9 Keys to a Pain-Free Cloud Migration

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Whether you're motivated by aging equipment, costly CAPEX, or digital transformation, migrating existing workloads to the cloud with Infrastructure-as-a-Service (IaaS) will simplify your day-to-day tasks and help you meet your goals. So, where should you start? First things first – you want to make sure you understand the migration process and technologies available in order to avoid a painful experience that disrupts your business.

It's a Hybrid Cloud World

Companies are embracing the cloud for its ability to meet new IT challenges. After realizing the benefits that the cloud offers, they then look to their existing on-premises environment. Hardware starts to age, data center operations are costly, and IT personnel spend more time managing infrastructure than advancing the business. Migrating existing workloads to the cloud can help address all of these issues. But, in order to achieve a successful migration, there are things to consider.

What do you move?
How will you get it to the cloud?
How do you manage and access your data once it's there?
What do you look for in a cloud partner?

> "Before you move anything to the cloud, take inventory of the data and applications you currently have. They need to be assessed and tiered according to business criticality."

Assess Your On-Premises

Before you move anything to the cloud, take inventory of the data and applications you currently have. They need to be assessed and tiered according to business criticality. Can any of your applications be decommissioned? This is important to consider, especially since you pay for the cloud resources you use. You want to make sure you really understand the various workloads you have so you can size accordingly. You also want to consider how much of your environment is virtual and how much is physical – some workloads may reside on physical equipment while others are housed in a virtual environment. It can also be helpful to identify any critical components, like specific networking requirements, physical appliances, and other features, that will require special care in a cloud.

By listing and tiering your existing applications, you can identify a plan for how you will organize your new systems in the cloud and when to move them. Some cloud providers can utilize a discovery tool to catalogue and inventory your environment, which enables you to calculate the cloud resources you'll need and the associated costs. Once you understand the full range of applications you'll migrate, you will be able to better select a provider that can address your needs.

Leverage the Power of Technology

If you think about it, disaster recovery (DR) is basically just a live migration. Disaster recovery solutions are able to replicate data in a continuous fashion and fail over to a secondary location with virtually no downtime or lost data. The speed at which failovers happen with quality DR technologies is measured in seconds, with recovery points measured in minutes. So, there is almost no downtime – the migration is effectively "live."

There are multiple technologies that can achieve these goals, many tuned specifically to virtual environments. As migration, unlike disaster recovery, is a planned event, it is easy to take the time to replicate the data and then pull the trigger at a convenient time. Even so, most organizations like the comfort of knowing their cloud provider is available, should anything go wrong. With this in mind, you want to make an effort to seek a vendor that offers round the clock technical support at a cost-effective price.

Portability of a VMware Platform

One benefit of selecting a cloud provider with a platform that matches your on- premises environment is the ease of migration. For VMware users, VMware-based cloud environments can be an easier transition for a number of reasons— including the initial migration of workloads and templates.

There are multiple tools that can make the cloud migration process simpler for VMware users:

> VMware vCloud Extender – This tool creates a Layer 2 VPN between your environment and your VMware-based cloud provider. This delivers a secure connection and helps you transition your virtual machines to the cloud.
Another benefit is the VPN allows for environments that are in the cloud to continue talking to your local environment, meaning you can take your time and test systems as they move over.

> Disaster Recovery – As discussed earlier, there are a variety of disaster recovery tools that will help you migrate the environment. Some cloud providers will also assist in setting up the DR software and may even handle the license fees in the short term for the use of migration.

> New Virtual Machines (VMs) – Sometimes an application has been living on the same system for so long that it needs a refresh. A cloud migration can be the perfect time to back up the important data from the system and build out a new, clean system in the cloud. Maybe you needed to roll out a new version of the OS in order to upgrade the application? Some cloud providers will take care of OS license costs for you making it easy to get the version you need. Once a new system is configured, restore the application data and the migration is complete – with a new coat of paint!

> Export and Import of VM Images – Many cloud providers will allow you to upload entire virtual machines into the environment. However, this may be less efficient than some of the other methods mentioned because it does require that the virtual machine is off and then transferred which could be a lengthy process.

This functionality often raises a concern about support for migration from non-VMware hypervisors onto a VMware-based cloud. However, the DR mechanism described above for migration is hypervisor-agnostic, enabling a seamless transition with minimal re-configuration. Rest assured, your cloud provider should be able to accommodate your workloads, regardless of your on-premises platform.

*Companies with Hyper V environment also share similar benefits when migrating to the cloud

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Migration of Physical Workloads

Physical systems are often the most trying during cloud migrations. They can be the last vestiges of older IT strategies, and often remain part of the IT environment because they are necessary and critical to operating the business. However, there are instances when moving them to the cloud is beneficial to the business.

There are a couple of options when migrating physical systems. The first is that you virtualize the ones that can be virtualized. It is possible to virtualize a physical system as part of the migration process if you use various software options. Of course, it is often the case that these systems remain physical precisely because their operations or their licensing model precludes their virtualization.

The second option is to find a cloud provider that supports the provisioning of physical systems within the cloud, whether these are standard servers or co-located custom systems. If the physical workload would benefit from proximity to the virtual machines you're migrating, it may be necessary to move it to the cloud and host it alongside your cloud applications.

Depending on your storage footprint, the configuration of the environment and the frequency with which data changes within the application, traditional methods of mi-grating these systems can be onerous and result in some downtime. There are, how-ever, DR-type options that can mirror the system and target another physical system co-located within the cloud.

Data Seeding and Manual Migration

Seeding often feels like the top-of-mind solution for migration. There's a sense that shipping drives around the world is the best alternative – mostly because that process had dominated for decades. However, in this age of virtualization and of relatively large network pipes, seeding can be a costly, inefficient and error-prone process.

Alternatively, if data sets are sufficiently large, seeding may be the best option for transferring information to the cloud. Often, vendors will provide encrypted drives that allow you to transfer your data, and then manually import it into the cloud with help from an on-site technician.

Seeding can also be used to jumpstart the migration process. By seeding the cloud data center with a point in time of your environment, you can then utilize your standard network connection with the cloud to sync any changes before preparing for the cut over. This could give you the benefit of seeding with the same downtime as traditional DR software solutions.

> "If data sets are sufficiently large, seeding may be the best option for transferring information to the cloud. Often, vendors will provide encrypted drives that allow you to transfer your data, and then manually import it into the cloud with help from an on-site technician."

Network Connectivity

Typically, a move to cloud will initiate questions regarding the nature of your network connectivity. Because a greater set of your applications will be accessed over that pipe, and because migration and replication consume some bandwidth, it is best to double-check your current configuration to ensure it is sufficient.

Most organizations will find they have more than enough bandwidth for most cloud use cases, but it's best to prepare if that is not the case.

The Management Challenge

Once your workloads have migrated to the cloud environment, you'll have to manage them using the tools provided by your cloud vendor. That means that you'll need to evaluate what management tools are available and how different that environment will feel from your on-premises one.

Often, moving to the cloud can mean losing visibility into performance metrics, long-term history, and even cost. All of these can greatly increase the burden of managing your cloud workloads – and introduce some fear with respect to billing and costs. While migration to cloud front-loads a set of questions regarding getting there in the first place, the ongoing management is equally critical to your cloud decision.

Finally, operating in the cloud will, at some point, require a call to support. Take the time to examine the support options from your cloud providers, including access to phone support when you need it – and for a reasonable cost. Upselling support is one way cloud vendors can make seemingly low prices grow exponentially.

> "A true cloud partner will work with you not just on the migration itself, but also on assessing your needs, establishing a plan, and triaging any issues on the back-end."

Getting Started and Sifting Through the Options

As you move forward with your cloud migration process, it can be helpful to discuss options with an architect or sales engineer. Each organization has different workloads, priorities and technical considerations, which often make sifting through web pages and feature lists onerous. A partner in the cloud will work with you not just on the migration itself, but also on assessing your needs, establishing a plan, and triaging any issues on the back-end.

When you forge a strong partnership with your cloud provider, moving to the cloud can open up new opportunities for you and your company – and there are straightforward ways to get started today!

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