Demystify Your Cloud Journey

Consider These Factors Before You Embark on One

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Executive Summary

Over the last decade, cloud computing has changed direction from becoming just another tech trend to a establishing itself as key component of any organization's IT strategy. Cloud computing not only brings a whole new level of autonomy and functionality for organizations, but it also brings to the organization a higher level of agility, performance, productivity and scalability; it enables the organization to differentiate its offerings and compete more effectively in the marketplace.

The cloud journey today is well past the initial adoption phase. The question for most organizations is not "What if we move to cloud?" but "What cloud?" and "When?" And then the organization must ensure that the strategy it embarks on achieves its business goals. That said, replacing your IT infrastructure with a cloud-first approach, or even integrating both approaches, on premises and in the cloud, can be a daunting task. Organizations often need the most help in *transforming* their operations and applications to be more automated, digital and agile.

Embark on a Cloud Journey

Digital transformation and embarking on a cloud journey are strategies that range from a simple lift-and-shift approach, which may or may not give you much benefit, to totally re-architecting your applications in a cloud-native format. Embarking on a modernization journey is not an all-or-nothing strategy, and many organizations have embarked on a significant on-premises component with a cloud-first approach in a hybrid cloud manner. It is important to remember that your business should define the application needs, and the application and its needs should determine the right application modernization strategy. In this paper, we discuss the key factors that need to be considered so that you can make an informed decision.

Part I: Cost Factors

One of the benefits of moving to cloud is that technology is paid on a consumption basis: in a pay-as-you-go model. Costs are aligned with usage and resource scalability means that IT costs are better aligned to the business. In contrast to a traditional or purchase or lease, the resource planning, or guesswork, of how much the business might need over the life of an asset is eliminated. It's no longer necessary to buy more than is needed in case the business needs it, nor is there the risk of disrupting the business from not buying enough. Cost is an attractive feature of cloud, but it is by no means the only factor determining your strategy. We have outlined many of the other factors for you to consider below.

Workload Modernization: Cost of Re-Architecture and Refactoring

A careful analysis of each application needs to be done to better understand the long-term benefit of modernization. Application modernization is a sliding scale, and all applications will not benefit by totally re-architecting in cloud-native format. Re-architecting an application into a cloud-native format will incur upfront engineering costs, but it will achieve significant long-term business benefits. Also, certain applications may benefit from a lift-and-shift strategy, while others gain from refactoring.

Based upon the analysis considered above, you should decide which applications:

- Need to be re-engineered with a cloud-native approach for public clouds.

- Should be lifted and shifted to the cloud.

- Should stay on premises, with some in cloud-native format and others in the older traditional architecture.

A careful strategy on what to re-engineer and the extent of the re-engineering will bring significant cost savings and enhance operational efficiencies.

Workload Type: Predictable Versus Spiky

Your IT infrastructure setup is largely dependent on the kind of workload in your organization. If your workload is rather steady, and there are only a few occasional spikes, we recommend that you set up the infrastructure on premises. The setup can have a back-end cloud bolt with a hybrid cloud strategy, for an occasional unexpected burst. On the other hand, if your compute needs vary significantly, our recommendation would be to migrate the application to the cloud.

Workload Life Span

During your application modernization effort, it is essential that you estimate the amount of investment versus the lifespan of your current applications to create the perfect cloud strategy.

Environment: Dev/Test and Production Versus DevOps

For traditional applications, cloud is ideal for development and testing (dev/test) environments as resources can be spun up on demand, test conducted, and resources shut down after the test. This pay-as-you-go model is ideal for short-term compute needs. Cloud also provides greater flexibility for production environments. In contrast, many organizations have moved to a more agile cloud-native approach that adopts CI/CD (continuous integration, continuous delivery) and a DevOps model that automates and merges the tasks and organizational stovepipes of the traditional approach. There is a greater investment in time and resources to create a DevOps environment and to refactor existing applications for this cloud-native model, but the payoff is often far greater in terms of cost savings and gains in flexibility and agility.

Dependencies and Customization

Before you make a decision to migrate an application to the cloud you need to figure out how tightly is this application integrated and dependent with other applications and data sources in your data center. And, assess what level of customization has already gone in. Most enterprise applications that have been deployed on premises have undergone many man-years of customization. So, if control and customization are what is important, it would be prudent to modernize your application with a cloud-first approach and an integrated data lake strategy.

Enterprise Licensing

If you're already paying for an enterprise license, look at your license terms carefully. Determine what is covered and what is not if the same application is used on a public cloud or in a hybrid cloud approach.

Operations Costs

Apart from the abovementioned factors, there are also operational costs involved with any kind of IT infrastructure. You have to factor in multiple costs of keeping the infrastructure running, and maintaining the hardware, software, support staff, server room, climate control, fault tolerance, disaster recovery and so forth. While cloud subscription covers most of these costs, ensure that you are clear about what is covered and what is not, and what you are responsible for, as cloud is a shared responsibility model.

Recommendations for Managing Costs

a. *Consider the total cost of ownership (TCO) beyond application modernization:* A careful analysis of each application needs to be done based upon the many factors mentioned above, to better understand the long-term benefit with modernization. Based upon that you should decide which applications need to be re-engineered with a cloud-native approach for public clouds, which should be lifted and shifted to the cloud, and which should stay on premises: some in cloud-native format and others in older, traditional architecture.

b. *Understand your terms of subscription:* Public clouds have a high level of resiliency and availability, but you need to understand what is covered in your subscription. It is important to know what you're getting into and what additional costs you will incur to achieve service level agreements (SLAs) that are equivalent to those you have on premises today.

c. *It's not all about costs:* Costs are important, but moving to the cloud should be more than a cost driver. Cloud brings a variety of capabilities that can help you differentiate your offering in the marketplace, drive increased revenue and gain market share.

Part II: Agility

Agility is one factor where the cloud has a clear advantage over an on-premises setup. With digital transformation, comes the advent of more seamless and scalable application and compute environments.

On the cloud, you can spin up an environment for your development team at a moment's notice. Multiple environments can be spun up, even in parallel. Also, various add-on services are available in the cloud on demand (for example, data lake, Hadoop analytics, Tibco, Media Services and so forth), which just cannot be available on demand, on premises.

Recommendations for Agility

a. *Consider a DevOps methodology:* Organizations that have deployed a CI/CD DevOps pipeline methodology have achieved significantly faster time to market, with significantly lower failure rates, while incorporating more revisions (see Figure 1).
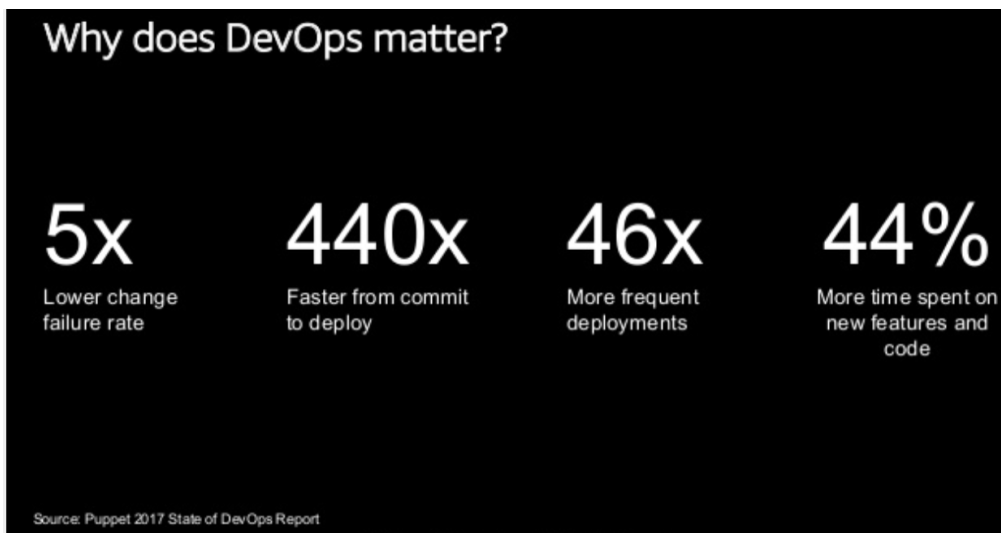

Figure 1. Impact of DevOps on Software Development

b. *Consider segregating the application layer from the data layer:* One of the key strategies to achieve more agility is to segregate the application layer from the data layer. Embarking on a data segregation strategy while deploying a common data lake across all your applications will significantly increase your ability to offer more value-added capabilities like hyperpersonalization and analytics. It will allow you to leverage data across all your applications and other public data sources.

Part III: Security, Risks and Compliance

Security

Many technology and security experts believe that your data would be most secure in the cloud, protected by a rigid firewall and with the guarantee of the cloud vendor. However, others still believe that storing data in the cloud opens it up to more risks and vulnerabilities.

Cloud is a shared responsibility model. As such, it offers significant advantages once you evaluate the shared security model. In the cloud, you can remediate and recover faster since the vendor's security experts are monitoring and defending attacks continuously. You can shut down the routing table and bring up a new zone. Recovery and remediation are faster in the cloud than on premises.

Risks: Switching Costs

Thinking about switching cloud providers? Think again. The switching costs across clouds could be high. If you decide to move across clouds, some of the applications may need to be re-architected as some of the underlying capabilities and data services available by one cloud provider may not be accessible from another cloud provider. There is, also, the massive cost of data migration, which needs to be considered. The ingress, or storing of data and applications onto the cloud, is usually free, but there are often egress costs associated with data going out. It's best to have a well-thought-out hybrid and multicloud strategy before leveraging the best of public clouds. A cloud-agnostic approach from the start may save headaches later.

Compliance

Organizations around the world are faced with a growing burden of compliance, propelled by new regulations, including:

- General Data Protection Regulation (GDPR) in the European Union region.

- Health Insurance Portability and Accountability Act (HIPAA) for private health information.

- Family Educational Rights and Privacy Act (FERPA).

Companies that fall under the jurisdiction of these acts, or are looking to scale globally, must ensure that they are compliant at all times.

Therefore, if you choose a public cloud, make sure you've done your due diligence and ensured that your solution is compliant and meets your business requirements. Different public clouds provide different levels of compliance certifications. It is essential, now more than ever, to make sure no data is compromised and that the employees', partners' and customers' privacy is not violated. Work with a trusted partner who can ensure your compliance needs.

Recommendations for Managing Risks and Ensuring Security and Compliance

a. *Understand the cloud shared responsibility model:* This will help you clearly understand what you are responsible for and what the cloud vendor will handle (see Figure 2).
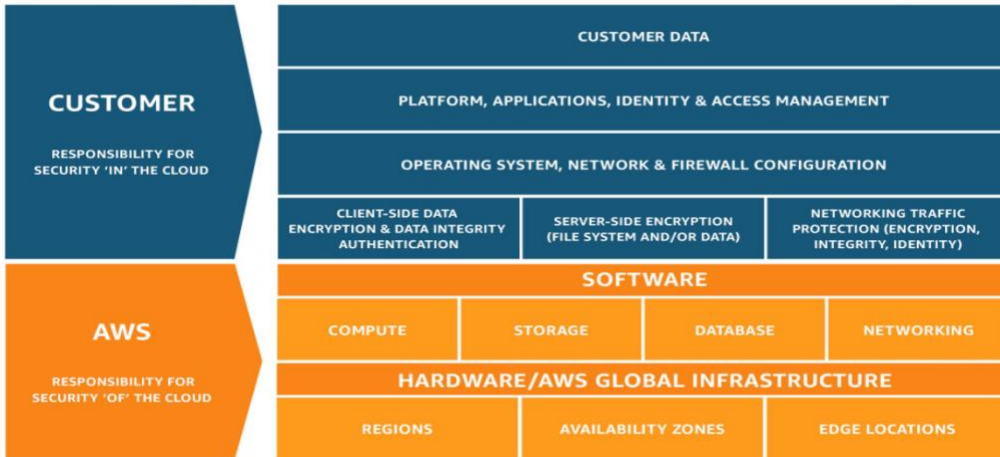
Figure 2. Cloud Shared Responsibility Model

b. *Embark on a multicloud and hybrid cloud strategy:* Having a well-thought-out strategy that spans on-premises and public clouds will allow you to leverage best-in-industry components and reduce risks.

c. *Put in place a DevOps life-cycle shareholder organizational structure:* Organizations that have deployed a CI/CD DevOps pipeline methodology have achieved significantly faster time to market, with significantly lower failure rates while incorporating more revisions. However, the key to deploying a CI/CD pipeline and reducing risks is to ensure that you have a shareholder organization in place with aligned responsibility across architects, developers, testers and operations group (see Figure 3).
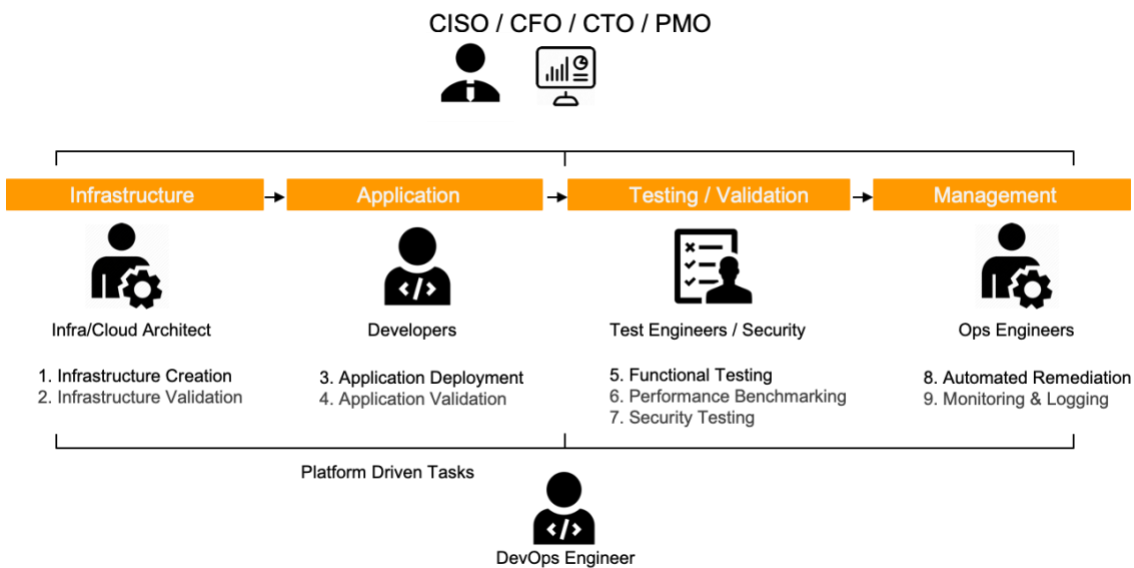
CISO = chief information security officer, CFO = chief financial officer, CTO = chief technology officer, PMO = project management office

Figure 3. DevOps Life-Cycle Shareholder Organizational Structure

d. *Understand the compliance certification offerings of your cloud vendor:* Compliance certification offerings vary by cloud vendor. There are many of them by country and by industry. It is critical that you ensure that your certification needs are met.

e. *Consider a managed services offering:* Moving to the cloud could be daunting, especially with employees still learning new skill sets, and new processes being put in place. To reduce risks, consider vendors offering both on-premises and cloud solutions. Look for vendors with the right credentials who can onboard you, set the processes, train the personnel, and manage your soluton for you for a sustained period, until best practices are ingrained in your organization.

Summary

Should cloud and multicloud be a part of your IT strategy? Of course. But, what should your cloud transformation strategy be? Which applications should you move to the cloud and which you should keep on premises? Which application should be modernized to be cloud native? Look for a partner with skill, experience and process to help you make the transformation to cloud with the least risk and the most automation.

A carefully set out plan to modernize your applications to leverage best-in-industry cloud capabilities could lead to significant cost savings and operational efficiencies. A very detailed TCO evaluation is required before making such a strategic decision, while keeping in mind the risks and other business drivers, which are equally important. Again, partner with a vendor who can help you estimate all your costs up front and approximate the savings.

Embarking on a cloud journey is not a decision that you make once, forget and sit back. It is something that you re-evaluate time and again. It's a journey which goes far beyond application modernization. It's about people, processes and culture. With time, the needs of your business change and your day-to-day processes evolve, and your requirements change. Partner with a vendor who understands the holistic approach to the cloud journey, who can modernize the applications, onboard the organization, help you with process changes and even manage the solution for your organization till the cloud-first culture is deeply rooted in your organization.

It is an important decision, but if made correctly with the right partner, will reap many long-term benefits and drive competitive advantage.

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