accenture

Maximising value from migrating your enterprise to cloud

Everyone's talking about cloud

For organizations, the imperative to move to cloud has only accelerated since the Covid-19 pandemic. The elasticity of cloud capabilities enables organizational systems to be resilient, agile, adaptable, and scalable.

A post-pandemic world defined by high demand for remote work, e-commerce, and virtual learning among other fundamental shifts in consumer demand makes it obligatory for companies to accelerate their journey into the cloud.

Indeed, there is widespread acknowledgment of the promise that cloud brings. For example, in a 2019 survey of more than 200 C-suite leaders of large organizations conducted by the Everest Group, more than 90% suggest that they have adopted cloud in some form, and adoption is accelerating because of high expectations around increased business agility. In contrast, another survey conducted by Accenture found that two-thirds of companies that moved into the cloud are failing to fully realize their expected outcomes. Often, a key reason for this is that many companies do not spend enough time planning the migration. At the other end of the spectrum are companies that spend too much time on planning, leading to analysis-paralysis and no action. What is needed is an 'executable' migration plan that has a long-term view but that can be implemented in the short-term. What's not helping is that CIOs and technology leaders are getting bombarded by conflicting messages on the migration plan—do you lift and shift, migrate and transform, transform and migrate or do you rip everything and start from scratch?

One thing's for sure, large enterprises recognize cloud as the future of enterprise IT and are actively moving on from proofs of concept and small, non-production cloud experiments to production migrations at scale. A recent LogicMonitor study suggests that by 2025, as many as 95% of enterprise workloads will be in the cloud. Cloud migration is a complex, time consuming, resource intensive exercise that might be easy to understand but hard to implement, so treating it as just another IT project means missing the point. It is imperative on companies to spend adequate time on crafting a cloud migration strategy that helps reduce the gap between benefits expectation and realization.

A cloud migration strategy cannot be developed in isolation. It needs to take into consideration the company's most critical business objectives whilst balancing short-term budgets with medium- and long-term rewards. Initial assessments can help formulate a conceptual strategy that is based on a weighted preference for different migration paths. For example, migration techniques will need to be rated for the cost savings they generate against other factors like application complexity, licensing and regulatory requirements. These choices will vary depending on a company's specific business circumstances. In this paper we provide a holistic perspective on how a company can assess and weigh options based on business scenarios and create a tailored cloud migration strategy that helps them maximize value from their investments.

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A primer on cloud migration methods

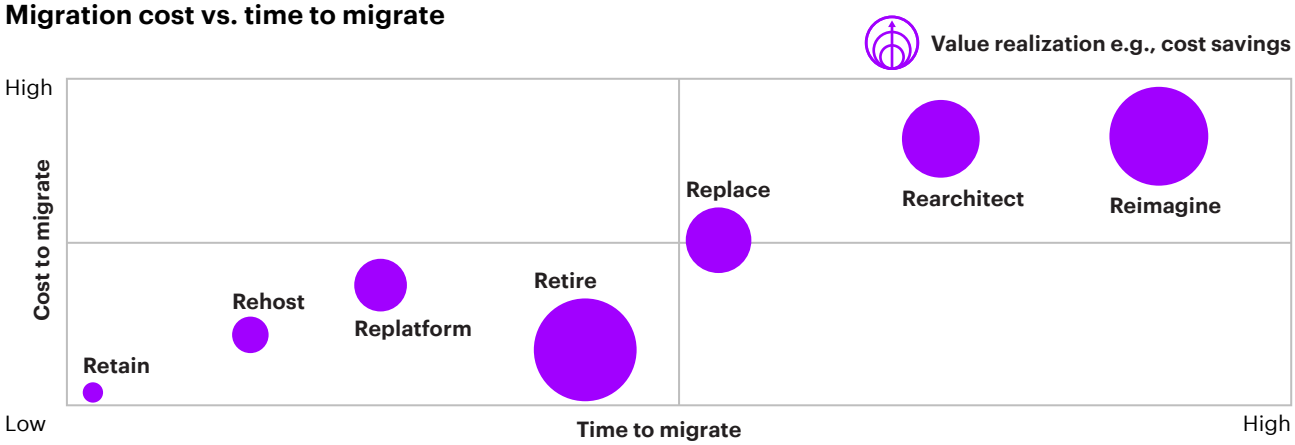
Before embarking on the cloud migration journey, it is critical for companies to: 1. Understand how moving into the cloud will help realize business objectives; and 2. Assess associated costs and capabilities to realize these goals. This will help determine the optimal migration strategy a company should pursue.

What is worth emphasizing is that there is no one-size fits all migration strategy.

Companies with similar technological environments might have different business objectives and as a result end up with a different mix of approaches.

Accenture's 7R migration framework below is a guide that helps assess the suitability of each migration path along three dimensions: 1. Time to migrate—the amount of time it takes to migrate; 2. Cost to migrate – the amount of requisite budget; and (3) the degree of value realization e.g., cost savings.[1]

Migration cost vs. time to migrate



Rehost – Applications are moved out of on-premise data centers into the cloud environment 'as-is'.

Replatform – Applications are moved out of on-premise data centers into the cloud with a few 'upgrades' that remediate any underlying infrastructural inefficiencies. This may include operating system upgrades, database and middleware remediation or use of containers for example.

Replace – Applications are replaced with more cost-effective Software-as-a-Service alternatives.

Rearchitect – Applications are adapted to cloud native architectures, for example through refactoring to make partial use of cloud native services, or through rebuilding from scratch to make them end to end cloud native.

Reimagine – Business processes are revamped to take advantage of cloud, often by redefining and enhancing core value propositions; supporting applications are repurposed to deliver on this promise.

Retain[2] – Applications are not moved into the cloud because they technically cannot be moved or are left for future upgrade cycles.

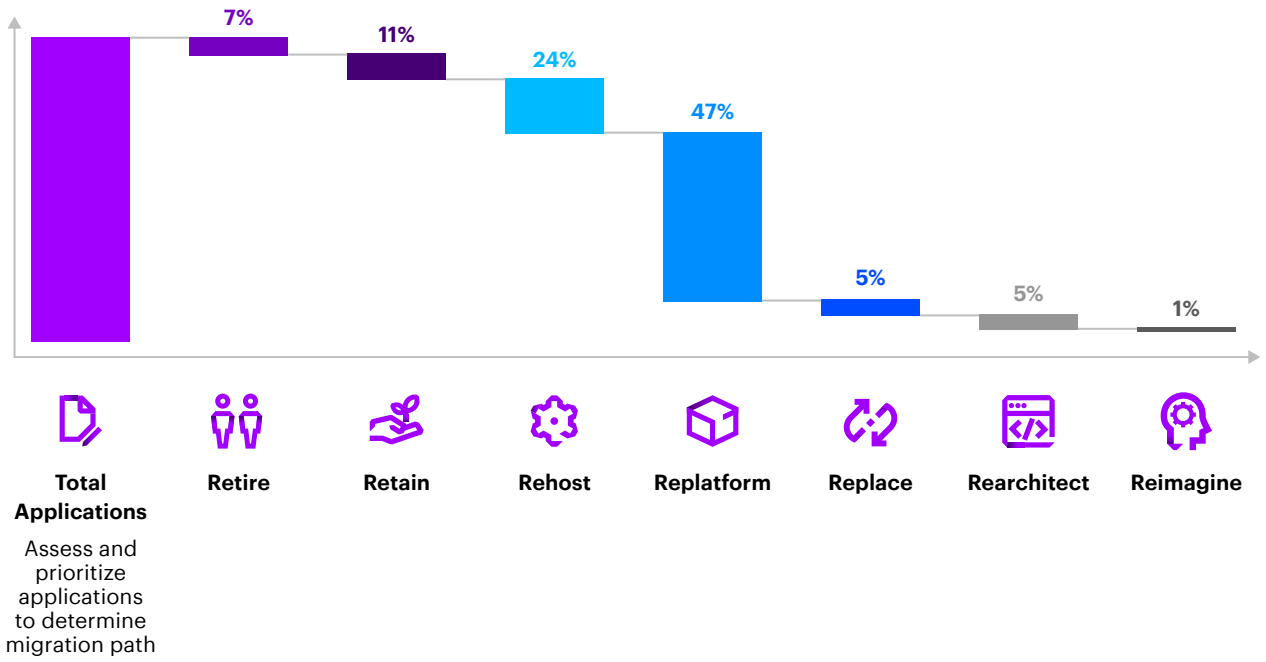
Retire[2] – Applications found no longer to be of any value to the company are culled from the inventory.

[1] Although there are many metrics for value realization, we chose cost savings as the example since it is relatively tangible and immediate;

[2] While Retain and Retire are not actual migration paths they are key decisions that will inform the migration plan

In practice, rarely does a company stick to just one migration path. Usually a unique combination of multiple paths discussed above becomes the core of a company's migration strategy. For example, taking a purist's view, a typical migration strategy might look something like this. To balance risk and reward in migrating to the cloud, a company might want to retire whatever it can, replatform or repurchase as much as possible, and rearchitect only a small amount. It might also identify a certain pool of applications to retain for the time being only to replace or rearchitect aligned with future upgrade cycles. Finally, the company might just want to rehost anything else of value. A representative breakdown of value is shown in the graph below.

Illustrative value breakdown of modern migration cases



Common migration scenarios and journeys

CIOs and technology leaders more than ever need to consider their technology landscape as an opportunity for business differentiation, a means to gain efficiency, enable innovation and launch new ideas to market fast. The chosen cloud migration strategy determines how a company can achieve this differentiation.

However, a lack of alignment between business scenarios and chosen migration strategy is hindering companies to maximize value from cloud investments.

For example, many companies that succumbed to the temptation of the rehosting path without assessing business requirements are not realizing expected returns.

Below we discuss three common scenarios that companies find themselves in and how each scenario influences a company's migration path. These scenarios are not meant to be mutually exclusive and should only be treated as guiding principles. At a more granular level (at the individual application level), it is expected that companies will need to employ multiple migration paths.

Scenario 1
Back against the wall

This scenario applies to companies that find themselves in a time-pressured situation to move their workloads into the cloud. Examples include companies that are facing data center lease expiry or have a mergers and acquisitions consolidation deadline. Both these examples usually have a hard 'move-by-date'. Other situations that are time-pressured but don't necessarily have a hard 'move-by-date' include companies that are facing severe short-term budget constraints, that are looking for some immediate cost savings, that have identified acute security vulnerabilities or have failed several critical audits creating unacceptable business risk.

Rapid VM Rehosting: The time pressure in all these situations implies an emphasis on maximizing Rapid Virtual Machine (VM) rehosting as a viable migration path, supported by a small amount of necessary replatforming, as it allows companies to move as quickly and as cheaply as possible. For example, when ENEL, the global utility company with more than 70 million customers, was facing contract renewals of its outsourced data centers, top ENEL executives sought to move to the Cloud. Two words that appropriately capture the scope of this migration are "massive" and "fast". With executive sponsorship Accenture helped ENEL move around 10,000 workloads spanning across 30 countries into the public cloud, in just 9 months. ENEL's rapid rehosting into the cloud generated 60% cost savings on storage, 20% savings in compute power and a decrease in provisioning time from 3-4 weeks to 2 days. These material results were instrumental in convincing ENEL's leaders to continue the company's cloud transformation journey with a second phase of re-platforming in the cloud. Although the focus of Rapid VM rehosting is on 'speed', it is essential for companies to adapt to a "move and improve" strategy once the rehosting is completed. This is because running VMs has the highest ongoing OPEX cost of any public cloud model. Without ongoing modernization of workloads rehosted into the cloud, it is unlikely that companies will be able to sustain the ongoing costs. It's safe to say that moving into the cloud through Rapid VM Rehosting is only the start of a company's journey in the cloud and not realizing this, might mean being left behind by competition.

With Accenture myNav and its Accelerate module, Accenture helps companies not only rehost applications into the cloud quickly but also helps in the modernization of these applications once moved. Accelerate methodology and its associated tools have been successfully applied in the field for over a decade and has moved more than 200,000 application workloads with scopes ranging from hundreds to thousands of workloads at a time.

> **Accenture MyNav is our proprietary cloud business case, migration planning, workflow and decision support tool designed to enable our road-tested migration methodology, provide solutions to common challenges and enhance migration control.**

Scenario 2
Balanced speed, cost and benefit

This scenario applies to those companies that are looking to balance the need to increase their speed to market capabilities with the associated costs and availability of talent. Typically, cost savings are the single biggest motivator for companies to make their move to the cloud. Leaders often want more bang for their buck i.e., more infrastructure for the same money. The right cloud solution for a company can help realize a reduction in ongoing OPEX savings. At the same time, leaders also see speed to market capability i.e., the ability to ship updates, patches, and new features quickly to existing applications and launch brand new applications at speed and scale as a critical differentiator. However, a company's efforts to increase its speed to market capabilities should not jeopardize availability of current services. So, for companies who are looking to manage the trade-off between migration cost, ongoing OPEX reductions and increasing speed to market capabilities, replatforming to containers should be a priority focus, supported by some rearchitecting quick wins.

Containerization. Replatforming using container technology is rapidly becoming the most viable option for companies that seek to modernize their legacy applications without the complexity of ripping and replacing the entire technology stack.

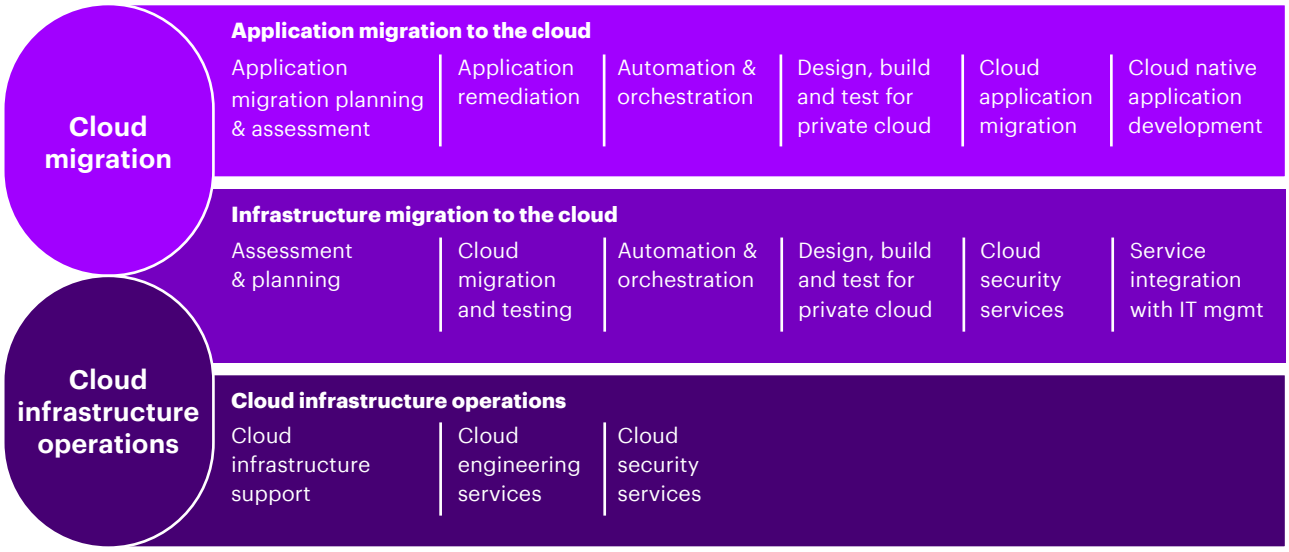
Containers are lightweight application hosting environments that share the kernel of the host operating system precluding the need for a guest operating system, unlike virtual machines (VMs) that still need their own operating systems. As a result, a container-based environment can be anywhere between 25%-50% less resource intensive compared to a VM based environment.[3] Also, container-based environments can make applications highly portable making it easier to avoid platform lock in and enabling the company to adapt to a multi-cloud world. While DevSecOps methodology can be applied to rapidly rehosted applications in VMs, container-based environments enable more comprehensive use of the methodology allowing companies to ship software almost 13X faster compared to applications that are on-premise.

Finnish Railway partnered with Accenture to modernize their core legacy application by creating a "Container-as-a-Service" solution on the public cloud. The move was planned using Accenture's Cloud Factory which is a framework that combines Accenture's industrialized capabilities with proprietary tools and methods to speed migration. The project resulted in generating more than 50% of cost savings for Finnish Railway who are scaling this methodology across their entire application portfolio.

[3] 451Research suggests that resource savings of using containers over VMs is a factor of two variables 1. Number of workloads per server and 2. Footprint of O/S per workload.

Accenture cloud factory

Speed cloud migration and improve quality with highly specialized teams, solution accelerators, automated tools, agile infrastructure and security.



However, containerization does require relatively higher migration costs and timelines compared to rapid VM rehosting. First, not all applications might be suitable candidates for containerization. For example, popular container technologies support most Linux versions and thus most Linux based applications but there is less support available for non-linux legacy operating systems, although the most recent versions of Windows operating systems are generally supported. Second, container developers are difficult to find and can be costly. The cost of moving directly to containers can increase migration costs by almost 30% thanks to the need for several minor development efforts.

For example, these costs include:

- Designing and developing the container images themselves
- Designing and building the container registry and integrating container images into the registry
- Adapting the application to run in a container

But the long-term benefits of flexibility, speed to market, lower cloud resource consumption compared to VMs, and the ability to extend a lease of life to legacy applications typically makes these costs worthwhile.

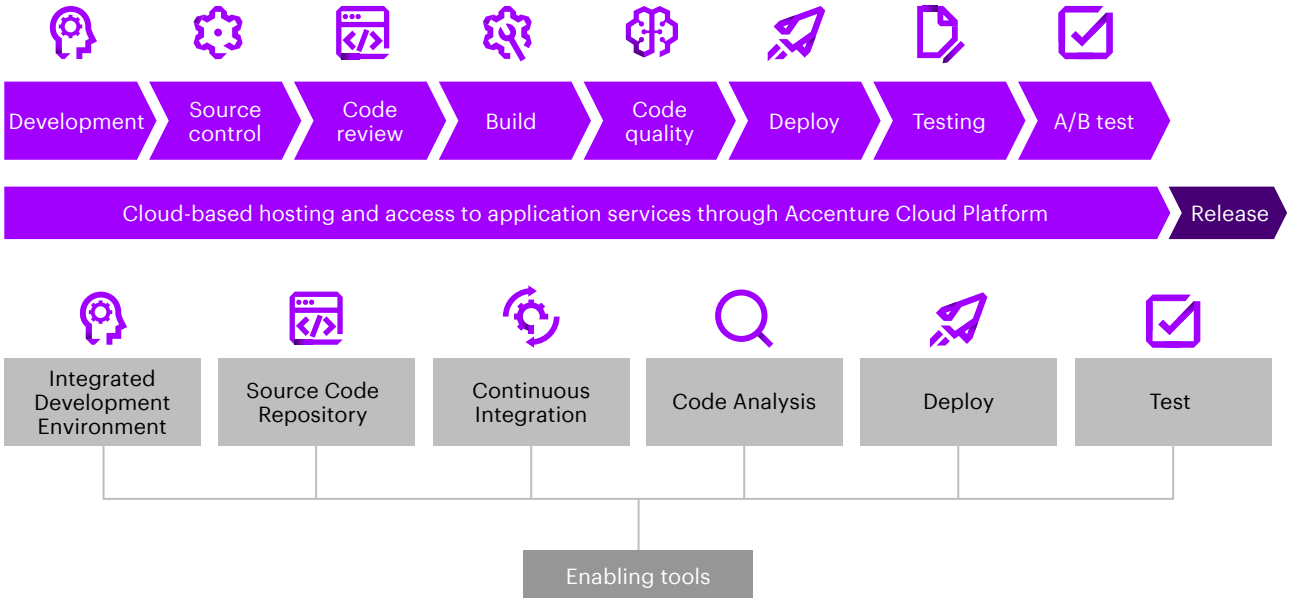
Scenario 3
Innovate for the future

This scenario applies to companies that are moving to the cloud because it is the inevitable future and want to be ahead of the curve. These companies look to formulate a cloud-first strategy by embracing cutting edge cloud capabilities to compete with digital natives, to gain first mover advantage, and by doing so to create a compelling value proposition. These companies acknowledge that there is a need fundamentally to rewire and realign the core of the company's technology, process, and people and are committed to making this change, albeit gradually. For such companies the migration path is modernization viewed as a combination of rearchitecting, replacing, or reimagining with minimal rehosting and replatforming. For example, Accenture helped Mercedes Benz reimagine how it delivers digital marketing, sales and solutions to its markets globally. With OneWeb, a cloud-based solution that consolidated a previously fragmented online presence, Mercedes Benz was able to deliver exciting new functionality and relevant content to its customers quickly and at a global scale. Since the initial success, the OneWeb platform has been rolled out to 22 countries and handles over 3 million unique visitors each month. Nevertheless, any variant of modernization is a major undertaking for any company and will need a lot of perseverance and commitment.

Application Modernization. Applications that are rearchitected or reimagined generally have the lowest ongoing OPEX costs. This is because they are built with cloud native architectures that are best positioned to reduce operational overheads and risks by automating common activities like change-requests, patch management, and providing full lifecycle services to provision and manage the infrastructure. But the unique value proposition of cloud native application architectures is their abstraction from underlying infrastructure, both logical (e.g. operating systems and databases) as well as physical.

The consequential granularity enables a fully decentralized architecture. Large applications are decomposed, only later to be reconstructed into collections of smaller, independent, API-enabled microservices that are portable and reusable. As monolithic applications become atomic, development methods must evolve from waterfall to agile. While using DevSecOps methodology for rehosted VM and containerized environments is a matter of degree, it becomes essential to a successful microservices model. Using DevSecOps in the production environments of microservices speeds up the company's ability to bring an application from design stage into production without compromising aspects of quality and security. Accenture helps its clients continuously deliver across the application lifecycle by implementing its market proven DevSecOps methodology.

Accenture's DevSecOps Platform is a cloud-hosted development environment that enables continuous testing, deployment, and maintenance of applications ensuring continuous delivery and integration.



These architectures are well suited to greenfield builds but are complex undertakings for brownfield scenarios where legacy architectures may not always be suitable to convert to microservices. It is worth noting that rearchitecting or reimagining is not risk free. For example, rewriting core applications in theory may introduce new bugs that need resolving and until such time could provide inferior experience. However, this risk in practice is substantially lower today than in the past considering access to the ever-increasing gamut of managed services offerings combined with the modularity of cloud native environments that allows for reuse of standardized and tested code snippets. Another risk is of platform lock-in, i.e. the more cloud native your application is, the more tightly coupled to a specific cloud platform it becomes.

Although the benefits of modernizing applications often outweigh the risks, for many companies there is a cost barrier to address. When modernizing, the implementation costs and write-off costs of legacy applications can run to tens or even hundreds of millions of dollars. Specifically, depending on the nature of the legacy environment that needs modernizing and the complexities involved in the business processes, implementation costs can be very high. Because of this, instead of going all-in, cloud native projects involving modernization are typically prioritized first and foremost for applications which are core to the business or have high seasonal variances in resource consumption and therefore higher benefits from adopting cloud native architecture. Also, it is common for many companies to schedule major technology upgrade cycles with large pre-approved investments. It can be prudent to use these investments to rearchitect or reimagine legacy application suites rather than upgrading in place. The same strategy applies for replacing legacy applications with brand new ready to go Software-as-a-Service applications.

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Get Started on your migration journey

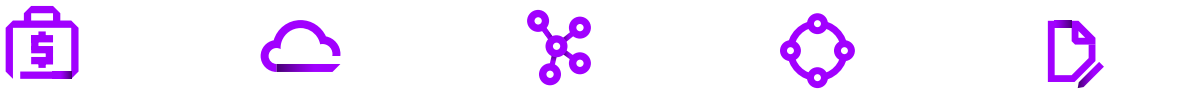
As already addressed every company's cloud migration path will be different and identifying the right cloud solution can be complicated. Accenture's myNav can help companies navigate their way out of these complications and get them ready to begin migrating with confidence within a few short weeks.

How can MyNav help with cloud migration?

- MyNav automates the discovery and scanning process of your technical infrastructure and its dependencies to assess cloud readiness.
- Combining the output of the discovery phase with a repository of more than 34,000 cloud projects and over 100 industry-specific and pre-configured solutions deployed globally across all industries, MyNav provides recommendations on 'best fit' migration methods and target architectures.
- If not already selected, MyNav also recommends the most appropriate cloud platform(s) that align with business objectives.
- In summary, MyNav helps build a solid migration business case grounded in business objectives and goals and enables you to plan your migration with confidence.

Platform that helps our clients navigate the complex cloud landscape

Architecture capabilities



Cloud business management	Cloud readiness & architecture	Cloud network planning	Architecture & simulation	Cloud migration planning
Build high level business case for cloud migration through discovery and industry cost benchmarks.	Assess client application portfolio and identify 'best fit' solutions for cloud adoption using an AI engine.	Measure and visualize network layer performance for cloud.	Generate architecture after simulating the scaled up model through enhanced load.	Discover & assess client's landscape and develop high level migration plan.

Cloud segments

Discover	Assess	Plan	Architect	Simulate
Scans and assesses the clients' existing infrastructure landscape and recommends a specific cloud infrastructure posture.		**Automated (AI) engine provides output,** built on Accenture's curated cloud expertise repository.		**Simulates and tests the scaled up model** for the client's recommended cloud target state.

Summary

For most enterprises a target mix of retained on premise, rehosted cloud VMs, replatformed containers and eventually rearchitected, replaced or even reimagined cloud native is going to be a reality.

The decisions that companies make will need to be a matter of emphasis based on business requirements and current circumstances.

If there is no time-pressure, for example of data center exit, we recommend planning a healthy percentage of migrations direct to containers to take advantage of the cost-benefit trade-off of this path. Even in situations that require companies to rush to the cloud through rapid VM rehosting it is highly recommended to continue with the modernization journey in the cloud. With evergreening of the underlying technology taken care of by the cloud provider companies should leverage the power of cloud to enable digital capabilities from application replatforming and rearchitecting. For those with more time, this continuous improvement journey approach can be extended to include legacy migrations to cloud, whereby whole business processes are reimagined rather than refreshed in situ.

With the right operating model CIOs should view their migration to cloud as their last significant migration effort for the foreseeable future, as upgrades can be performed on a more regular basis in smaller chunks resulting in less cost and risk than in a large, one-off transformation program. There is a significant shortfall of the requisite talent in the market that might make cloud native projects difficult to commission. However, given the positive impact that migrating and operating in the cloud has on a company's future business competitiveness it is highly recommended that companies still press ahead with their plans. If current in house or partner capabilities need enhancing, then a rapid reskilling of employees and an upgraded partner strategy can help leverage the best of advanced cloud strata and deployment models.

These cloud migration paths, supported by enablers like myNav and Cloud Factory, will help set up the foundational technical architecture and consumption cost model aligned with business objectives, whether triggered by M&A, availability or security risk, contractual necessity or simply a desire to improve competitiveness and customer experience. Additionally, to realize fully the promised benefits of cloud companies must also transform their operations to take advantage of the new agility opportunities whilst actively managing cost. This requires a new operating model with new IT processes and reimagined business processes.

Because of the pandemic every enterprise and government is now rethinking how quickly they need to complete their digital transformations, leading to accelerated cloud adoption plans. However not all paths to cloud are equal in terms of achieving business outcomes, requiring a thorough consideration of the starting point, business drivers and then migration approach. With target architectures aligned to strategic business objectives the power of the cloud can enable organisations successfully to reinvent their business models.

Authors

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