The next phase of cloud migration:

The cloud migration factory

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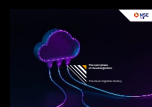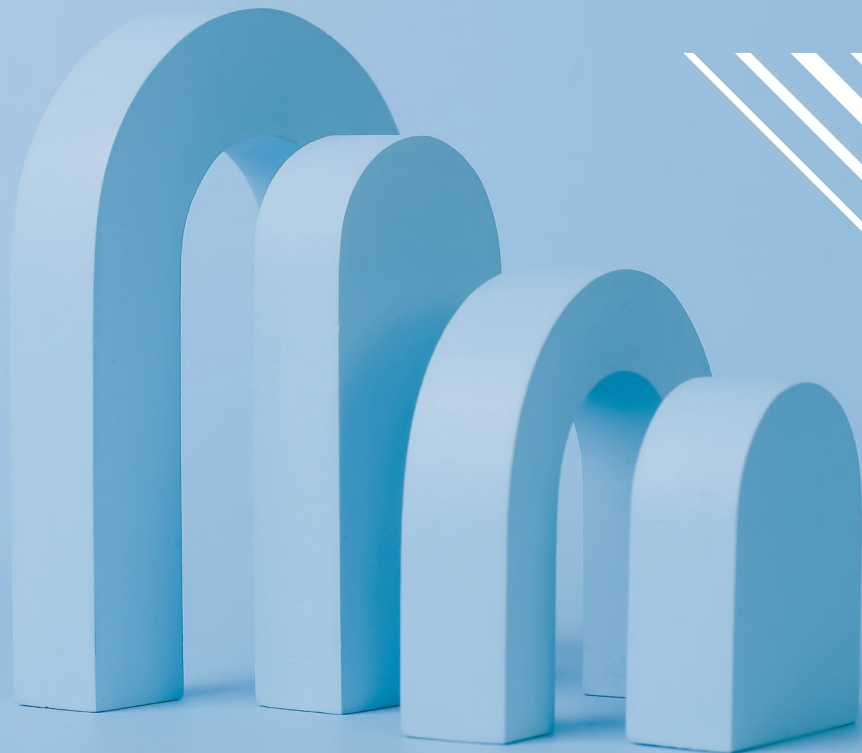
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Introduction

Whether you are a financial services company, retailer, manufacturer, or any other industry entity, becoming a digital-first organization is a mandate in today's business ecosystem. Failure to do so could mean potentially losing out to more future-focused technology adopters and disruptors.

Whether you're a financial services company, retailer, manufacturer, or any other industry entity, becoming a technology-first organization is a mandate in today's business ecosystem. Failure to do so could mean potentially losing out to more future-focused technology adopters and disruptors.

In this context, cloud has emerged as a gamechanger for firms looking to evolve and adapt to dynamic market demands and customer needs. This is evident by the growth rate of the cloud computing market: a projected CAGR of 16.3% through 2026, representing a leap from a market size of USD 445.3 billion in 2021 to USD 947.3 billion in 2026!

However, migrating on-premises applications and workloads (servers, databases, etc.) to the cloud is easier said than done. Whether it's an organization-wide initiative to migrate most enterprise apps to the cloud, or just select departments making the transition at their own pace, cloud migration requires meticulous planning, a well thought-out strategy, and a comprehensive roadmap.

An airtight cloud migration strategy becomes all the more critical for multi-faceted global organizations such as banks. These behemoths typically run on a framework of hundreds of databases, applications, and servers,

built over the course of several decades. Such legacy applications are often resistant to updates and integrations, and moving one application at a time makes the migration process slow and unviable. This is why it is vital to have a cloud migration strategy that undertakes the shifts to cloud in waves (e.g., a few hundred digital enterprise assets at a time per wave).

The best way to achieve this is with a cloud migration factory (CMF).

But before we delve into the details of the factory itself, let's talk about cloud migration strategies.
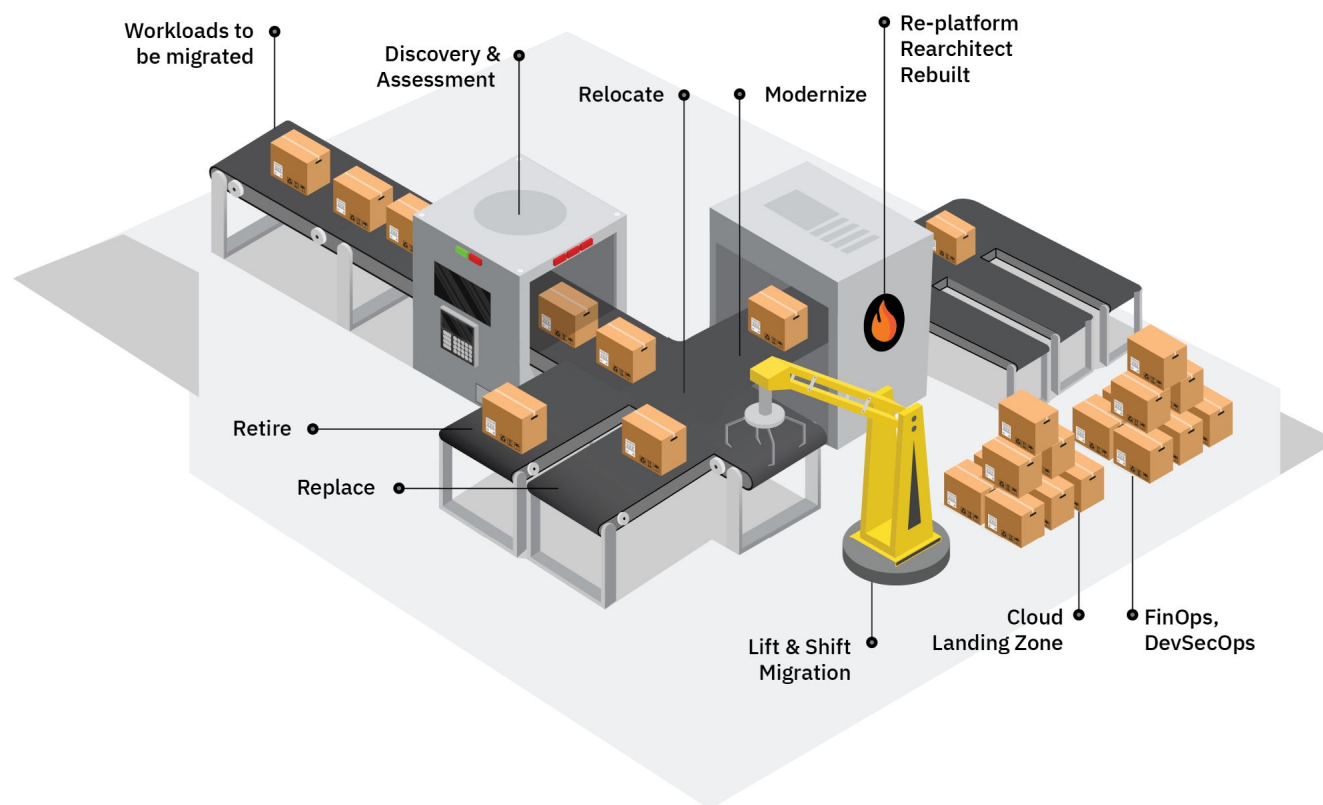
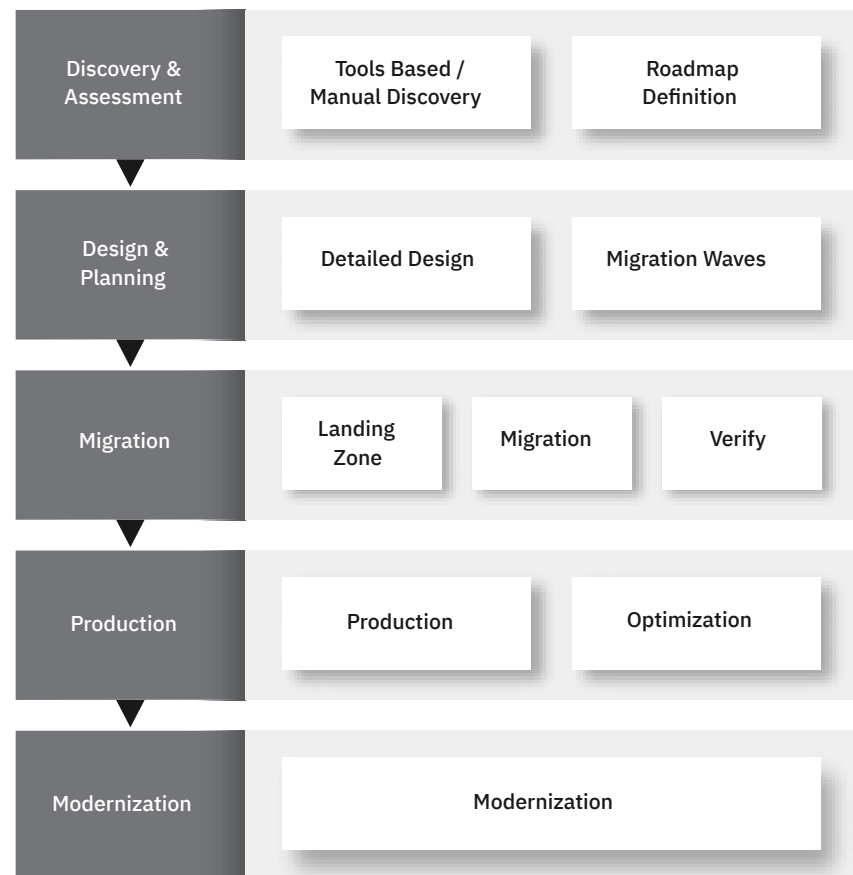**Cloud Migration Factory Layouts**

The stages of cloud migration

The stages of cloud migration

Though over 60% of all global companies turn to cloud solutions to enhance business transformation, cloud migration is not a simple, one-click process. Quite the opposite, in fact. It requires careful orchestration, planning, and implementation spread across several key stages. And each of these stages, as illustrated in the figure below, is a progressive building block towards full-scale, enterprise-wide cloud migration.

Cloud Migration Stages

Discovery & Assessment	Tools Based / Manual Discovery	Roadmap Definition	
Design & Planning	Detailed Design	Migration Waves	
Migration	Landing Zone	Migration	Verify
Production	Production	Optimization	
Modernization	Modernization		

1. Discovery and assessment

As the first step towards cloud migration, discovery and assessment is carried out using either a tool-based approach or, when tools cannot be deployed, manually. However, leveraging tools is the preferred method, since they can be used for application dependency mapping, which is not possible with manual assessments.

Following an initial discovery and assessment, the next phase is to create a migration roadmap, where we define the different phases of applications to be migrated and their dependencies with other applications and services.

2. Design and planning

The design stage includes both High Level Design (HLD) and Low Level Design (LLD) for each application to be migrated and hosted on the cloud. This stage also includes detailed solution design for each application to be migrated, and the type of migration that will be used for the final process (like re-hosting, re-platforming, re-factoring, etc.).

These migrations are usually conducted in "waves", where applications are clubbed together for migration, based on dependency, criticality, landscape (production, UAT, Dev, etc.), or type of migration. Migration specialists create multiple migration waves based on the number of applications to be migrated, and each migration wave is managed as a separate mini project for better control.

3. Migration

The first step of any migration is to design and build a cloud landing zone. But what exactly does this mean? In the context of cloud migration, these landing zones are meant to help enterprises set up, utilize, and scale their cloud frameworks from a secure starting point. These zones are dynamic in nature and capable of adopting more cloud-based infrastructure as your enterprise's needs grow over time. Since a landing zone spans so many different areas (including networks, identity management, resource management, security, etc.), several considerations must go into what constitutes the initial landing zone.

However, if your enterprise has already built a landing zone, then you can conduct a landing zone assessment to analyze the starting point and assess whether it aligns with the latest regulatory recommendations and compliances.

At the migration stage, all the actual migration activities occur in accordance with the final design and plan, and based on the pre-decided migration waves, applications are migrated and stabilized. Post the actual migration, we typically conduct a performance benchmarking exercise, where all these applications are put in to stabilize the phase, application performance is fine-tuned, and the outcomes are optimized.

4. Production

In the production stage, the entire post-migrated landscape is put into stabilization mode. Here, we continue monitoring the entire landscape and fine tune the performance of the applications to achieve the required specifications.

We also run a cost optimization process during this stage, based on the overall performance of the applications. There are multiple ways to do this, such as right sizing, the purchase of commitment plans (savings, reservations, etc.), and choosing the right CPU architecture like AMD, NVIDIA, etc. We can also evaluate additional infrastructure provisioned during the migration such as migration copies, snapshots, etc., and optimize the overall storage utilization.

5. Modernization

Cloud migration is an evolving journey. Re-hosting applications from on-premises to cloud will give enterprises several immediate benefits like higher availability and scalability. However, the real benefits of moving to cloud will only be achieved by leveraging modernization methods like cloud native technologies (PAAS services, APIs etc.) or application modernization techniques (containerization, quantum computing etc.).

The best way to migrate applications to the cloud: The 6 R's

The best way to migrate applications to the cloud: The 6 R's

The discovery and assessment phase is usually when organizations start to think about how to migrate their applications. At this point, the migration team must define clear answers to the following questions:

• What constitutes the digital environment?
• What interdependencies exist between applications and systems?
• What assets will be easier or harder to migrate?
• What is the best way to migrate each application?

Once these answers are firmly established, enterprises can develop a plan to migrate all their assets in the desired order. Though, of course, the complexity of this migration process will vary depending on existing architecture and licensing agreements (as well as compatibility). Usually, when we consider the whole ecosystem of applications that need to be migrated based on a complexity spectrum, monolithic legacy frameworks will occupy the high-complexity category, while something like a virtualized service-oriented framework will be considered a low-complexity migration.

It's advisable to begin with a low-complexity application, as this will be easier to migrate and will have a higher chance of providing positive encouragement for more complex migrations in the future.

With this approach of starting with low-complexity migrations firmly in place, here are six of the most common application migration strategies used by enterprises that constitute the six "R's":

1. Rehosting

While many early cloud projects lean towards new development opportunities via cloud-native capabilities, speedy, large-scale migrations for legacy systems often use a "lift and shift" approach, where the majority of applications are simply rehosted.

While several rehosting initiatives can be automated with the right tools, some customers do prefer a manual approach as it allows them to understand how to best apply their existing systems to newer cloud platforms.

Additionally, applications that are already operating on the cloud are easier to optimize as well. This is partly due to your organization's capacity to deploy talent with the right skillsets to handle the re-architecting process, and because the heavy lifting with the migration process has already been completed.

2. Re-platforming

With this method, we aren't changing the core architecture of the applications that will be migrated, but instead, are taking a few select cloud optimizations to achieve specific benefits—usually by leveraging cloud PAAS services. For example, if you're looking to reduce the amount of time spent on database management, you can choose to migrate to a database-as-a-service platform like Azure Database or migrate to a fully managed platform like Azure Apps.
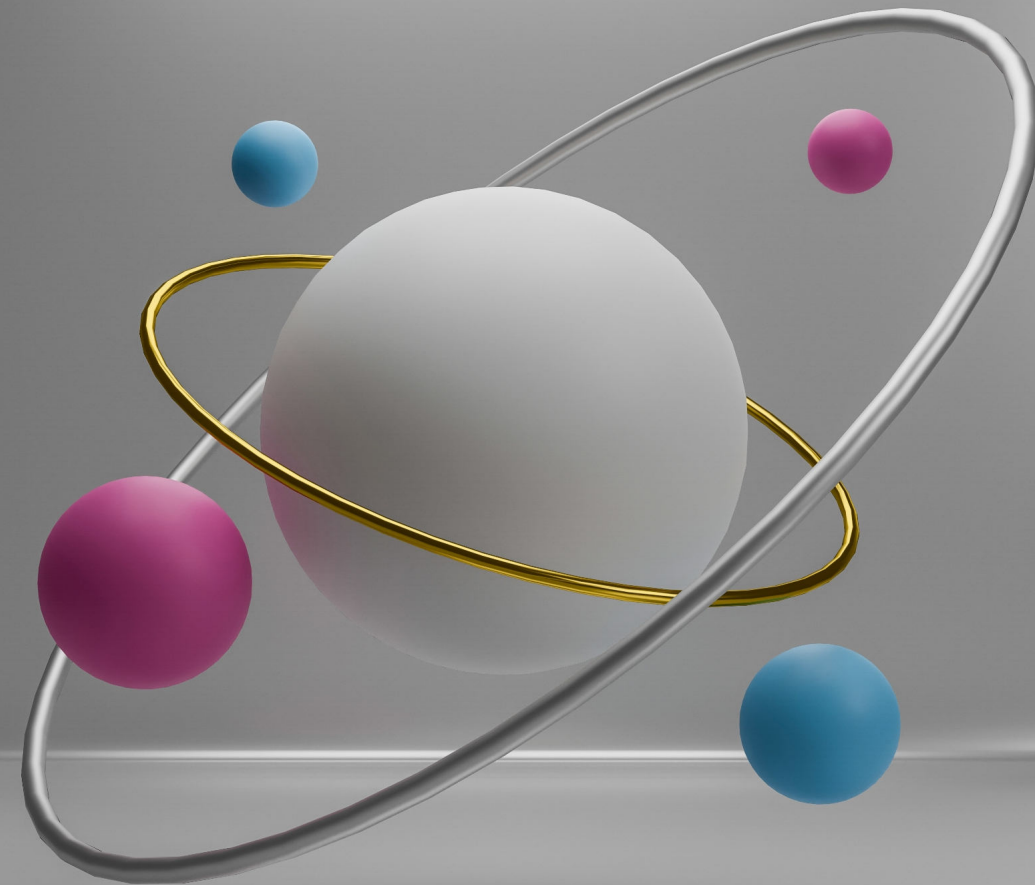
3. Repurchasing-Moving to a different product

Simply put, this involves selecting a different product that is more in line with your organizational needs. This is commonly done when migrations involve moving to a SaaS platform, such as shifting an HR system to Workday or a CRM to salesforce.com etc.

4. Refactoring

Enterprises usually rebuild applications using cloud-native features because they need to add critical features or scale up their infrastructure. In other words, refactoring is carried out for processes that would be difficult to complete in the existing application's environment, such as migrating legacy architecture to a service-oriented model to improve agility and business continuity. It is important to note, however, that this process tends to be very expensive, but expenses can be mitigated by organizations who have a good product-market fit.

5. Retiring

Sometimes, it is better to simply turn off assets that are no longer useful or that can be replaced with ones with greater functionality. During the migration process, a quick survey of each functional area to judge their viability is important. This way, your organization can boost savings and direct resources to other more crucial areas that require attention.

6. Retaining

Ultimately, your cloud migration plans should only include the assets that make sense for your business. There will be cases where certain applications are either still under warranty, have been recently upgraded, or you simply don't want to move those assets. That being said, it is also important to remember that the value of your assets will change when moving from on-premise to cloud, leaving you with fewer reasons to retain these systems in their current state.
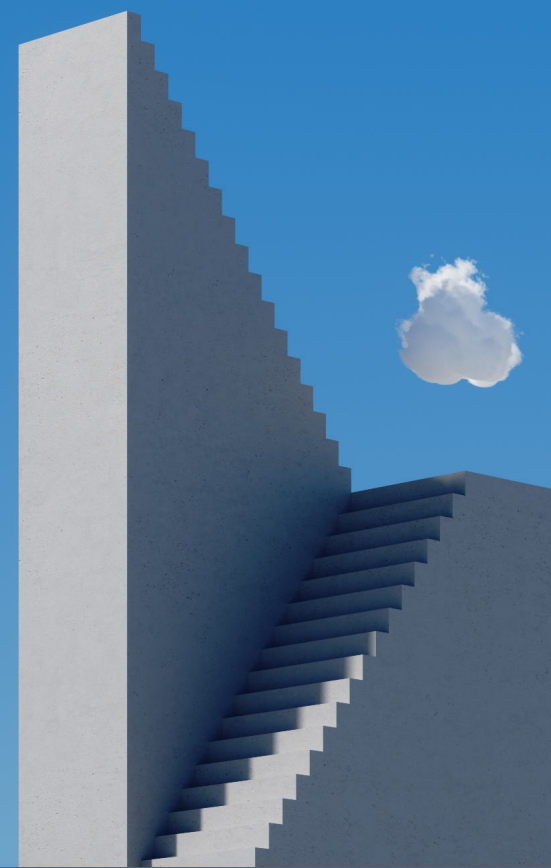
What constitutes a cloud migration factory?

What constitutes a cloud migration factory?

Now that we have a better understanding of both cloud migration stages and strategies, we can move on to what a cloud migration factory brings to the table. First and foremost, the term "factory" can be a bit misleading, as this isn't really a large-scale industrial factory churning out cloud migration solutions on an assembly line. In simple terms, a cloud migration factory is a collection of tools, specialists, and processes that work together in a systematic manner to ensure a streamlined cloud migration process. The factory uses patterns learned from previous migration waves to improve final outcomes with the targeted application of various design, automation, and security thresholds. This makes sense when we learn that up to 20 to 50% of enterprise application portfolios consist of repeating patterns that can be easily optimized through a cloud migration factory.

The cloud migration factory process has the following approach:

Standard design

We build a standard design for cloud migration and landing zones based on industry best practices,
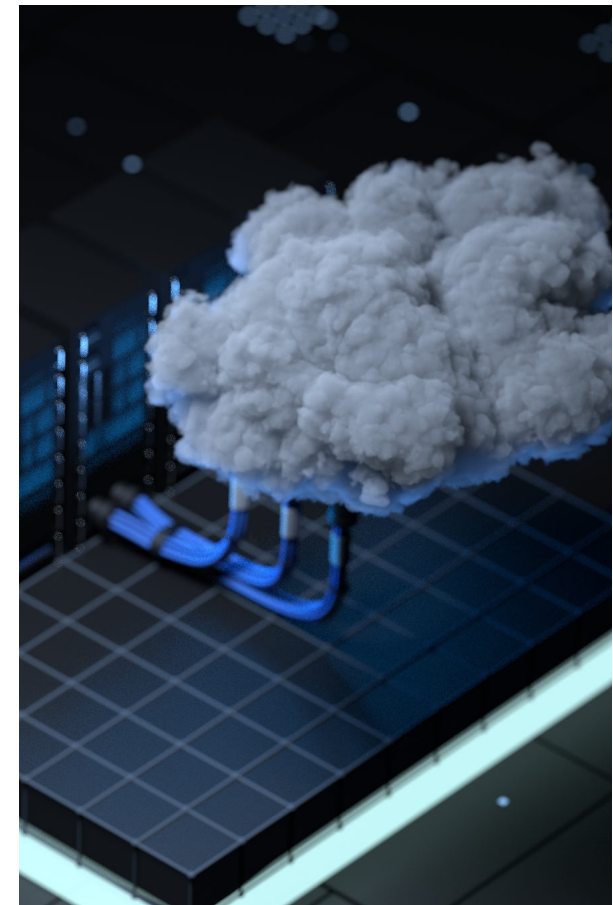
compliance, and cloud reference architectures. Standard designs help to achieve cloud migrations at a faster pace and a larger scale due to their limited learning curve and greater efficiency. Standardization also helps in defining automation frameworks and brings in efficiency to cloud deployments and overall migrations.

Automation

Cloud automation tools like Terraform can help automate the entire process of cloud deployments and configuration. For example, Cloudxchange.io - An NSEIT Company, leverages Terraform to automate complete cloud landscapes including landing zone deployments, infrastructure creation, and third party security application deployments like NGFW, WAF etc.

Security policies and guardrails

Most cloud service providers like AWS, Azure, or GCP provide controls for implementing various policies and guardrails for cloud deployments. This helps customers define boundaries for their cloud deployments and build security governance frameworks that specifically align with their setups. It is important to note that in a typical cloud migration factory model, all the policies and guardrails as per the industry best practices are already pre-configured for deployment. This is great for enterprises across the board, as studies show that 90% of organizations are planning to increase their cloud security spending in 2023 and beyond.

The benefits of
a cloud migration
factory

The benefits of a cloud migration factory

Adopting a cloud migration factory approach offers several key advantages for enterprises embarking on their cloud journey. These include:

Accelerated time-to-value

By leveraging automation and predefined processes, a cloud migration factory significantly reduces the time required to migrate applications and workloads. This allows businesses to accrue the benefits of the cloud such as improved scalability, cost savings, and enhanced agility faster.

Cost efficiency

Cloud migration factories enable enterprises to optimize their cloud infrastructure usage, ensuring resources are provisioned and utilized effectively. This helps eliminate unnecessary costs associated with underutilized servers and infrastructure, ultimately leading to substantial cost savings.

Reduced risk and disruption

Migrating to the cloud can be a risky endeavor, with potential disruptions to business operations. A cloud migration factory mitigates these risks by using proven methodologies, minimizing downtime, and enabling organizations to rollback if issues arise during the migration process.

Scalability and flexibility

The cloud provides unparalleled scalability, allowing businesses to quickly adapt to changing demands. A cloud migration factory ensures that applications and workloads are migrated in a scalable manner, leveraging cloud-native services and architectures to drive future growth and flexibility.

All that
clouds well

All that clouds well

A cloud migration factory provides organizations with a structured and efficient approach to navigate the complexities of migrating to the cloud. By leveraging automation, standardization, and best practices, enterprises can accelerate their journey to the cloud while minimizing risk and disruption.

With the benefits of cost efficiency, scalability, and increased agility, a cloud migration factory empowers organizations to unlock the full potential of the cloud, harness its transformative capabilities, and stay ahead in today's competitive digital landscape.

But investing in a cloud migration factory approach requires careful planning and collaboration with experienced cloud migration partners. Such a partner can ensure a successful transition and equip you for long-term, sustainable growth.

To learn how we can help your organization reap the benefits of digital and cloud transformation, write to connect@nseit.com.

Source Links:

1. https://www.businesswire.com/news/home/20211112005486/en/Global-947.3B-Cloud-Computing-Market-Outlook-2026-by-Service-Model-Deployment-Model-Organization-Size-Vertical-and-Region---ResearchAndMarkets.com

2. https://www.forbes.com/sites/paulnoelguely/2022/06/14/cloud-sector-boom-accelerated-by-digital-transformation/?sh=166a01c0447b

3. https://www.gartner.com/en/documents/1485116

4. https://aws.amazon.com/solutions/implementations/cloud-migration-factory-on-aws/

5. https://www.zdnet.com/article/cloud-computing-is-booming-but-these-are-the-challenges-that-lie-ahead/

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