Successfully Navigating Key Aspects of Cloud Migration

Organizations must consider application compatibility, operational complexity, and other factors to ensure cloud migration success.

While many companies have already migrated some of their workloads into the cloud, studies indicate that it is just the beginning of their journey. The 2023 Thales Data Threat report notes that 66 percent of corporate respondents keep more than 40 percent of their data in the cloud, up from 53 percent of respondents a year earlier.[1] Security, compliance, and location requirements make it particularly difficult for enterprises to move certain workloads into the public cloud. Navigating a migration requires making strategic choices about which workloads to keep on-premises and which to host on public, dedicated, private, or managed cloud servers.

A 2023 Google report noted that 33 percent of IT leaders expect to migrate more on-premise workloads to the cloud in the near future.[2] The biggest driver of cloud adoption for enterprises, according to the report, is the current economic climate and the focus on fiscal efficiency. Organizations may consider leveraging cloud services as a way to avoid large capital outlays.

But as with any large-scale digital transformation project, it is vital to have the right strategic approach to ensure projects produce the desired immediate and long-term impacts. While cloud migration typically reduces long-term costs and positions organizations to take advantage of other technology advancements like generative artificial intelligence (AI), it does not always lower operational costs in the short term. That is why doing careful research, having the right strategy, and understanding cloud options are critical.

In this paper, we will provide an overview of the core strategies organizations should consider when approaching their cloud migration projects to ensure success. These considerations include:

- Conducting a business needs assessment to align goals with technology demands

- Ensuring application compatibility

- Identifying dependencies between application components, data, reusable services (e.g., identity and access management) and overarching system architecture

- Planning for operational complexity

- Managing resources properly

- Ensuring proper vendor choice

- Handling compliance

- Prioritizing change management strategies

Business Needs Assessment

The first step of a cloud migration is determining what your organization is looking to accomplish. Having clarity around goals will help guide choices such as whether you want to reduce capital costs, take advantage of more cloud-based applications, or deploy new technologies. Goal clarity will also make it easier to set a timeline and identify the metrics necessary to measure progress toward goals.

- Understand what cloud capabilities you want to leverage.

- Create a roadmap for your cloud migration that clarifies what cloud maturity will look like for your organization and when you will get there.

- Use the migration as an opportunity to rethink your business architecture and find efficiencies, rather than simply moving everything, as-is, into the cloud.

- Focus on creating an adaptable cloud infrastructure to ensure that it will meet your needs no matter what technology goals you have in the future.

Software Compatibilities

Cloud migrations might lead to compatibility issues, and applications may need to be refactored during a migration. Before a cloud migration, it's imperative to evaluate your application ecosystem to understand how compatibility issues might affect the performance and reliability of critical applications.

Ensure applications and data are compatible with the cloud services and infrastructure you want to use.

Take a phased approach to cloud migration that includes quick wins and lays out a path for sunsetting old tools or acquiring new ones.

Plan ways to mitigate potential network latency and solve for degraded application performance.

Understand whether you will need to decouple components as part of your migration.

Assess the need to reconfigure or refactor applications.

Operational Complexity

Most organizations now have hybrid cloud and multi-cloud environments. This operational complexity around where data lives and how it moves can bring challenges. For example, when there is an outage, how do you know which environment could be causing it? Managing a complex environment requires new tools and dedicated engineers.

01 Hire site reliability engineers (SREs) to help manage the complexity of the environment.

02 Implement more observability- and telemetry-focused applications to better understand performance, such as platform-specific options like Azure Monitor, or Google Cloud's enterprise observability products. Stand-alone products like Datadog, AppDynamics, Dynatrace, New Relic, Honeycomb, and others can also help organizations better locate issues when there is an outage.

03 Use tools that enable organizations to ingest unstructured information from logs and transform it into actionable data, for example, Splunk, Grafana, Prometheus, and Amazon CloudWatch.

Resource Management

Migrating to a cloud environment is often expected to deliver cost savings. However, the reality is a bit more complicated. Enterprises generally experience additional upfront costs during the migration and need to carefully manage cloud costs to ensure that savings are eventually realized. Companies can experience efficiencies over time from reducing capital investments in on-premise infrastructure and not having to migrate to new servers when renewing on-premise hardware. Before migration, it is important to evaluate the short-term and long-term costs, so your organization understands how to control cloud costs and effectively allocate resources.

- Calculate the total cost of ownership for cloud databases, other third-party SaaS products, software licenses, network costs, compute costs, and more. Make sure projections include both immediate and long-term costs.

- Allocate resources based on predicted cloud spending. Determine what tools may be available within the cloud platform to help with this analysis.

Vendor Choice

The vendor you choose and the contract you negotiate are critical to cloud migration efforts. These two things have a significant impact and could determine your organization's ability to achieve cloud migration goals. For example, if you choose a vendor that does not fully align with your organization's operational and mission-focused goals, there is a risk of getting locked into a long-term contract, and you could end up paying much more than expected toward cloud costs. Navigating your vendor relationship effectively also helps your organization get the best return on investment and allows for the most flexibility to pivot to another cloud provider in the future if the need arises.

Understand the cloud provider landscape, the cost differences between providers, and how the landscape is likely to shift in the future.

Determine what is included in a cloud contract and how best to negotiate one that will reduce your organization's costs while giving you maximum flexibility.

Use open-source technology as you refactor your applications to guarantee you will have flexibility in the future and avoid technology lock-in with minimal dependency on vendor platforms.

Create a strategy that allows your organization to leverage the best of what managed cloud services offer while maintaining the flexibility to adapt to the changing technology landscape.

Compliance and Security

Depending on your industry, your organization might have to comply with complex data storage and usage requirements and security regulations. For example, a government entity may need to use the GovCloud to stay protected and compliant, whereas a healthcare provider must use a HIPAA-compliant cloud provider. With new data privacy regulations emerging in many fields, it is critical that organizations design a hybrid cloud environment that allows them to adapt quickly to new regulations.

- Map and understand the usage requirements or restrictions your data has before migrating.

- Assess various cloud vendor platforms for their accreditations and security-and-compliance feature set, along with any cost implications that come with these.

- Allocate resources to assess and manage migration-related risks, implement encryption, and ensure the security of your data.

- Create a cloud infrastructure strategy that is adaptive to future changes in regulations.

- Carefully design your infrastructure to move data efficiently between on-premises and the cloud with real-time latency.

Change Management

Migrating to the cloud requires comprehensive change management to ensure success. It includes making changes to your team, training staff on new technologies and service offerings, and changing vendors/contracts. The change management process should include a detailed plan to ensure your organization has the resources and skills it needs to manage your changing environment.

- Plan for changes in human resource allocations. For example, your organization may need fewer IT administrators and more site-reliability engineers and cloud engineers after the migration.

- Allocate resources toward contractors to help support your team during the migration.

- Create a strategy to retrain existing talent and recruit new employees.

- Evaluate your existing IT vendors to determine if you will need to replace the vendors you currently use.

When it comes to a cloud migration, it is critical to be strategic. Attending to these core areas as you plan your migration will ensure that your cloud journey is successful and reduces your risk as you adopt an evolved cloud-maturity model. Guidehouse is the perfect partner to help you create and execute on your cloud migration strategy. Whether you want to decommission on-premises servers to save on capital costs or prepare your organization to leverage technology like generative AI, our deep, cross-functional expertise will help you manage risk and take advantage of opportunities with cloud migrations and technology transformation projects of all sizes.

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1 "2023 Thales Data Threat Report", 2023, https://cpl.thalesgroup.com/data-threat-report#download-popup.
2 Franklin, Blair. The digital forecast: 40-plus cloud computing stats and trends to know in 2023. Google Cloud. January 27, 2023. https://cloud.google.com/blog/transform/top-cloud-computing-trends-facts-statistics-2023.

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