Build a better cloud

Understanding your options for
a smart migration strategy

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Cloud appeal

Global adoption of the cloud is accelerating at a dizzying rate each year with businesses of all sizes realizing the cost-saving, flexibility, and scalability benefits of migrating and running applications in the cloud. In a 2016 survey*, F5 found that 67 percent of the respondents identified themselves as "Cloud First," and three cloud models—private, public, and SaaS—dominated the top five IT strategic trends.

As pressure to move applications to cloud and hybrid environments intensifies, IT teams must grapple with sometimes significant migration challenges. Though each migration is different, there are several common considerations to keep in mind to help you on your own cloud journey. This guide provides a blueprint to help you think through many of the long-term impacts of your migration options and establish a strong foundation for your cloud migration strategy. The end result should be a migration strategy that leaves you in a position to support your technology as your business scales.

To stay or go: an app-by-app assessment

A critical part of any cloud-migration strategy should be to classify your applications based on whether it makes sense to migrate them. Analysis of your apps will reveal that some apps need to remain in-house due to regulatory, compliance, or lifecycle considerations. For example, apps that are nearing end of life would most likely remain in-house until they divest.

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Apps that will migrate to the cloud do so in two main ways. You can re-architect the app into a cloud-native app, if necessary, for deployment. Resource-intensive apps tend to be re-architected for the cloud, otherwise they may experience latency and performance issues. However, re-architecture can often be time-consuming and expensive, and doing so can delay your migration to the cloud.

As an alternative, you can "lift-and-shift" the app to the cloud. The lift-and-shift method of app migration allows you to migrate the app to the cloud without re-architecture by simply replicating the app in the cloud with minimal adjustments. This method, though, may not use the features the cloud offers, and as a result, can be more expensive to run in the long-term due to a disjointed set of tools, consoles, dashboards, and policy languages.

In some cases, you may decide to lift-and-shift key applications to the cloud, while pursuing a re-architecture strategy in the background. That gives you the benefit of immediate access to cloud capabilities while ensuring those applications will ultimately evolve to better meet critical business needs.

Deciding which method will depend on the app you're migrating and the business requirements of the migration.

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Future flexibility

Once you decide which applications to move to the cloud, whether you rewrite or lift-and-shift, the next question to address is the degree to which those applications need to stay flexible in the cloud. In other words, are you comfortable going all-in with a specific cloud vendor or do you need to preserve the flexibility to move all or part of the application to other environments in the future.

Going all-in with a single cloud vendor leverages the cloud features for all your app's key components. For example, you may choose to store your data in a cloud-native database service, rather than run your own database. This results in full integration, cloud agility, and faster time to migration, but it also ties you more heavily to that vendor. This is a good approach if you're pressed for time and staff resources or plan for using only one cloud vendor for a longer period.

But even with a straight lift-and-shift app migration, you can adjust the app and make it flexible to various degrees. That might involve, for example, using cloud-neutral tools like your own database or application delivery services, while relying on the cloud for everything else. If you want to change cloud platforms or convert from a public to private cloud in the future, the process will be much easier. Your cloud supplier also could be more driven to help you, since they know you can move more easily between cloud providers. This is a good approach if you have the time, staff resources, company-specific knowledge, and anticipate possibly changing or using multiple cloud vendors.

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Deciding whether to go all-in or retain full or partial flexibility will depend on your app's requirements and what the business demands. Those decisions will have long-term consequences, so you want to consider future business and technology requirements as much as possible. Essentially, if cloud flexibility is important to you, you need to be prepared to shoulder some additional costs. You will either pay those costs upfront by designing a cloud-neutral architecture, or you will need to plan to pay at some future point when you choose to migrate.

Supporting your app in the cloud

When it comes to cloud migration, it's all about the application. Making your app at home in the cloud will require some adjustment for both the app and the cloud environment.

THE APP: You may need to adapt certain aspects of the app for it to operate correctly in the cloud. Storage, networking, and base operating system image considerations are common when deciding how to migrate an app. You should also standardize on a base operating image as much as possible.

THE CLOUD: You will need to adapt the cloud environment by lining it with more enterprise services for app optimization, increased protection and better traffic management. Since public cloud vendors won't adjust their environment to suit your app and capabilities, you need to ensure the services you want to move are cloud-compatible and if they will run in the cloud. Another important consideration is how licensing is handled and if you can apply those licenses to a public cloud provider or bring them back in-house for use in a private-cloud environment in the future.

Expect the unexpected

Even seemingly simple migrations may reveal unexpected dependencies. You might, for example, have an application that has evolved to rely on complex application delivery policies or routing tricks to work properly. Those services might not be obvious to the application owner or even to the current network team responsible for the application. The application may need special attention in the cloud, like specialized health checks or other specific procedures to remain highly available. Assuming you can't totally rewrite the application, you may have to find new solutions to existing problems. Look for opportunities to test your migration as early as possible in the process to give your team time to address unexpected issues.

Rethink application security

Regardless of how you migrate your applications to the cloud, you'll need to decide if you'll use your cloud vendor's native security tools or leverage your own for deterrent, preventative, detective and corrective controls. Many, though not all, concerns about security in the cloud are overblown. At the infrastructure level, the cloud is often more secure than private data centers. And because managing security services is complex and error-prone, relying on pre-configured, tested security services available from your cloud vendor may make sense.

That said, some applications and their associated data have security requirements that cannot be met exclusively in the cloud. Plus, for applications that need to remain portable between environments, it makes sense to build a portable security stack that provides consistent protection across environments.

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As you move to the cloud, the security solutions that worked in your data center may not be the most appropriate. This is a good time to reevaluate your security stack to assess whether you have the right vendors in place. Consolidating providers often works in cloud environments because the value of simplified operations increases.

Migrating operations

Keep in mind that when you migrate applications to the cloud, you are not only migrating the apps, but also the operations that support them. As a result, you'll need to ensure the people and the processes for the apps can follow the apps to the cloud.

To ensure your apps perform properly once in the cloud, you'll need to evaluate your existing toolsets for cloud-readiness and adapt them to fit a cloud-operational model. Since much of the benefit of the cloud is increased agility, in many cases your teams will be leveraging new tools in newer, more automated workflows. That may mean team members who are accustomed to box-level controls will need to update their skills to work in a programmable, API-driven environment.

It is also important to evaluate your support options in the cloud. In some cases, support contracts differ significantly between on-premises and cloud installations. It is important to understand your support options before you need to invoke them.

Creating a training plan as well as improving communication and documentation around new processes can help ensure for a smooth migration and for operational efficiency once in the cloud.

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Hybridize your apps

Not all parts of your application can or should migrate to the cloud. In these cases you may want to run your app with one foot in the cloud and one foot in your own data center. Even if your core data needs to stay put, you can still leverage compute services from various cloud providers.

For example, if you have an app that contains sensitive or regulatory data you cannot store on the cloud, you may decide to keep your database on-premises and run the app on the cloud. You will have then created a truly hybrid app, giving you some of the advantages of using cloud services without having to store the sensitive or regulated data off-site.

If you deploy a hybrid app, you'll want to keep in mind how the parts of the app will communicate and if it is feasible to run an app split between locations. You will want to pay close attention to the type of connectivity that is available to you, as well as the additional costs involved. Latency is a critical concern as well and may be a deal breaker if latency is too high, since the resulting application performance could prove unacceptable.

Cloud Interconnect:
speed and security for critical apps

If you need fast access to multiple cloud locations, and a simpler pricing model, you might consider using a cloud interconnect service. Colocating some infrastructure with an interconnect service offers a number of advantages for hybrid applications. They typically offer lower latency as well as discounted connectivity. When security is a top priority, cloud interconnect services offer an additional advantage: The ability to leverage high-performance security hardware.

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For applications that require the highest level of application and data security, positioning purpose-built hardware that can rapidly ingest and process encrypted traffic and apply security controls at the edge of the cloud (e.g., in a colocation facility) offers the best combination of security, performance, and agility available today.

Conclusion

Each cloud migration effort is unique and there's no single path. The information in this guide is meant to support your migration journey and realize the full benefits of the cloud. The migration process requires you to make important decisions about your applications in the context of your new cloud environment and your business needs. Understanding these decisions and the results of them is critical for a successful migration.

Explore what cloud options are available, information about them, and other supporting services here.

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