



QTS HOW TO DEVELOP AN EFFECTIVE CLOUD STRATEGY

In the era of digital business, timing is everything. The ability to launch applications quickly and add capacity as soon as need arises is critical for companies that want to compete with data-driven peers and fast-moving startups. Many IT leaders are turning to the cloud to meet their digital business needs, and with good reason. Cloud-based services, including systems and infrastructure, enable business agility, especially the ability to get systems running quickly and to scale up promptly as business needs demand.

But the cloud is far from a silver bullet. In fact, the mass movement to cloud-based services creates peer pressure that can obscure the judgment of IT leaders. Without an objective assessment of the strengths and weaknesses of specific cloud services, as well as a clearheaded appraisal of an organization's IT needs, disappointment with cloud services is likely.

The key is to find, and then optimize, the right cloud service for a given application or infrastructure requirement. A poor match will yield slow performance and unreliability, while ultimately dissatisfying customers and employees. Haphazard monitoring of cloud services can lead to unexpected cost overruns that quickly erode projected savings and even increase expenses.

ASSESSMENT

Rather than plunge into an array of cloud-based applications and services, you should step back and carefully assess your needs. Start by taking inventory of the workload types you are running now and plan to run in the future. Keep in mind that every workload is different, with its own requirements, particularly for scaling up or down on demand.

Because it's not uncommon for organizations to lose track of some of the workloads they are running, automated tools might be helpful to scan the entire environment and deliver a report, which can be double-checked against a manual review. Along with the workloads themselves, performance and cost should be studied and workloads with high costs and low performance should be flagged.

A significant part of the assessment process is to gain an understanding of the ways in which applications interact. Application interdependencies can be quite complex and many factors can come into play. For example, network latencies can prevent applications from delivering timely communications to one another, which can degrade performance or even keep an application from running altogether.

You should pay particular attention to applications that depend on seasonal cycles, such as holiday shopping. These applications might require significantly expanded capacity before and during that time. During the rest of the year, they should revert to a lower capacity to avoid unnecessary costs.

One characteristic that must be studied is the data itself. Is it subject to European privacy guidelines, for example? If so, do data sovereignty requirements dictate that it must remain within one country's national boundaries?

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WHAT IS IMPORTANT?

Once you know the workloads you are running, you should delve further by examining the priorities for each workload. Common evaluation criteria include:

- + **Leveraging existing investments:** If the workload has reached a level of maturity and is running smoothly, then it is a good candidate to be left as-is to achieve the maximum level of return for the investment already made.
- + **Assessing agility and scalability needs:** A number of different types of workloads require agility and scalability. Retail application demand spikes around the holiday season. Agricultural applications tie to planting and harvesting schedules. Furthermore, new business models that achieve sudden success might need huge amounts of capacity at the drop of a hat.

- + **Determining security and compliance requirements:** Although all workloads should be kept safe from data theft, some require rigorous security because they process highly sensitive data, such as bank account, health record, and social security information. Compliance with PCI DSS, HIPAA, and other security standards requires that the tightest security measures be applied. Penalties for noncompliance are too great to take chances.
- + **Lowering costs:** If cost reduction is paramount, such as for office productivity applications, it is important to select the most economical cloud services available for the workload, and then monitor closely. Diligent attention to the type and amount of cloud services consumed is necessary to prevent billing surprises.
- + **Focusing on the core business:** Although nearly all cloud services promise to enable businesses to take their attention off of IT infrastructure in order to focus on the core business, cloud services themselves can be complex to purchase and manage. Study just how much time and trouble your cloud services might be consuming.
- + **Extending a VMware environment:** Many organizations have committed to a VMware virtualized environment in their data center, which creates unnecessary difficulty to run another type of virtualized environment in the cloud. For these environments, VMware-based services in the cloud are a high priority.
- + **Supporting cloud-native applications:** When an application is launched first in the cloud, there is less need to remain in lockstep with an existing data center environment. However, it is important to map out an organization's environment for the immediate future so that basic standards can be applied to new applications.
- + **Improving operational efficiencies:** Routine IT tasks, such as provisioning and ongoing management of services, takes time, money, and skilled staff. Using an effectively managed cloud-based service can lower costs in all of these areas.

CLOUD CHOICES

Once you understand the workloads that you are running now and in the future, it is time to take a look at the characteristics of different cloud services so you can match your workloads to the right services. There are five basic categories:

PRIVATE OR HOSTED PRIVATE

A virtualized environment running on-premises or at a service provider's location, a private cloud typically consists of servers, storage, and networking infrastructure, as well as databases and applications. For some mission-critical applications, particularly those that process sensitive data and data that is subject to sovereignty requirements, a private cloud may be the only appropriate choice.

PUBLIC

Services from providers such as Amazon Web Services (AWS), Microsoft, Google, and many others are widely popular and can handle many different workloads. Development and testing work in particular is frequently deployed on public clouds such as AWS. For Microsoft back-office

applications, especially in conjunction with Office 365, it makes sense to utilize Microsoft's Azure cloud service. Although they might not be the first choice for data with sovereignty requirements, public clouds can handle such data if controls that govern where applications run and where data is stored are used.

OPEN SOURCE

The OpenStack cloud platform is attractive for organizations with a commitment to Linux and open source software in a private cloud. Although many cloud service providers offer a platform that implements OpenStack, some, such as HPE and Cisco, have trimmed their OpenStack-based services recently.

MANAGED HOSTED

When a company leases dedicated servers and related hardware from a service provider, the infrastructure remains at the hosting provider's facility where it is managed. Managed hosting can enable a company to avoid major responsibility for infrastructure, while retaining control over it.

INDUSTRY COMPLIANT

There are specific clouds for use by particular industries such as healthcare providers or government agencies, each implementing practices intended to comply with relevant standards. In healthcare, HIPAA compliance is essential; for federal government agencies, compliance with FedRAMP security guidelines is required for cloud services.

The first candidates for migration should be applications created specifically to run on cloud services, often known as “cloud-native” applications. Close behind should be usage-based applications.

IMPLEMENTATION: GETTING TO THE CLOUD

When you have identified all of your workloads and matched them to the most appropriate cloud services, the next step is to create a schedule for migration. The first candidates, naturally, should be applications created specifically to run on cloud services, often known as “cloud-native” applications. Close behind should be usage-based applications. These are the most economical to run on cloud services, since the application typically does not run all the time. And you only pay for the services that you actually use.

Some applications, as previously mentioned, are not appropriate for public cloud services and should remain on-premises or in a hosted private environment. In addition to applications that process sensitive data or data subject to regulation, applications that need to run 24/7 and that require a high volume of input and output (I/O) are best run on a private cloud. Over time,

applications that must run all the time will run up public cloud service charges that can get expensive. Similarly, applications that require high uptime might best be run on a private cloud/ hosted private cloud, since outages at even the most widely used services can last for hours.

For many organizations, it is best to develop a hybrid cloud strategy that accommodates change over time. While some private cloud applications will never go away, public cloud usage might increase gradually as more applications appropriate to the public cloud are deployed.

MONITORING AND OPTIMIZATION

Once a cloud strategy has been embarked upon, tracking and fine-tuning cloud performance, uptime, utilization, and costs are critical to realizing the strategic benefit.

MINIMIZE HIDDEN COSTS

IT leaders should understand that cloud services can present a minefield of hidden costs. Here are some steps to take control:



Turn off applications that are not needed. Application testing and development is a prime example. The DevOps team might be hard at work during the day, but may go home at night, so it's unnecessary to pay for cloud services then. It's smart to automate usage schedules to power down the environment at night so after-hours costs are not incurred.



Apply high levels of security only to workloads that require it. Keeping a workload in compliance with the PCI DSS or HIPAA security standards can be expensive.



Limit data snapshots and backups to those that are needed for data integrity and recovery purposes. Storing snapshot and backup data beyond its useful period can generate huge unnecessary costs.



Keep a close eye on data traffic. The bandwidth needed to get data to and from the cloud is expensive. Sending data back and forth unnecessarily wastes money.



Use automated tools to perform routine tasks. If a threshold is reached and an application needs to burst to the cloud for additional capacity, such a tool can enable this to be done automatically without manager intervention.

Monitoring and optimization often can be best achieved with expert assistance. A partner such as QTS effectively deploys automated tools, responds to security alerts, and realizes cost savings across multiple clouds, from one central point.

DOWN THE ROAD: ADAPTING TO CHANGE

It's no secret to IT executives that business needs evolve dramatically over time, and the corresponding IT infrastructure must change to keep pace. The most beneficial approach, therefore, is to maintain flexibility in managing on-premises, cloud, and hybrid cloud environments.

Because many companies are unaccustomed to advancing to the cloud, an expert partner such as QTS helps simplify the move, as cloud services are adopted or discarded, and as on-premises infrastructure is built up or left behind.

QTS understands that progression is not a straight line to a final destination and delivers the best guidance to companies competing in today's digital business environment.

CONTRIBUTORS

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