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# Choosing the Right Service Provider for Cloud Infrastructure Outsourcing

Paul Burns

January 29, 2015

*This report is underwritten by QTS.*

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# Executive Summary

To keep pace with new business demands, rising customer expectations, and emerging technologies, IT leaders are realizing an important opportunity: infrastructure outsourcing. These services, including colocation, hosting, and cloud computing, give IT organizations the flexibility and agility to better serve the needs of the business.

Successful infrastructure outsourcing depends greatly on whether enterprises partner with the right service provider. This report explores the benefits of selecting an adaptable, flexible service provider that can offer a broad range of IT outsourcing services.

Key highlights from this report include:

- Enterprises need a mix of infrastructure, and they can benefit from the interdependent value delivered by combining colocation, hosting, and cloud services. Managed services are also a helpful option, whether delivered by an infrastructure provider or a specialized managed service provider (MSP).
- Service providers that offer a full mix of infrastructure options are well positioned to facilitate the enterprise IT journey, which typically involves a wide variety of use cases and the need for multiple infrastructure solutions.
- Many enterprises will benefit from a service provider partner that can assist with customized design and implementation, and meets their requirements for performance, reliability, security, and compliance.
- There are no one-size-fits-all outsourcing solutions. IT organizations need granular customization and flexibility to architect systems that support their unique requirements.
- Cloud computing is a valuable option for infrastructure outsourcing, although it is not expected to meet the complete requirements of every application.

# The Case for Cloud

For decades, IT organizations have used various forms of infrastructure outsourcing, from colocation to shared and dedicated hosting, to achieve benefits that include cost savings, improved IT efficiency, and greater agility. Outsourcing frees the IT organization to focus on delivering new services and driving greater value for the business. It also helps shift capital expenditures (CapEx) to operational expenditures (OpEx). In recent years, cloud computing has emerged as a new form of infrastructure outsourcing—one that offers the benefits of traditional infrastructure outsourcing in addition to several new advantages.

Cloud computing, in the form of infrastructure as a service (IaaS), is the fastest-growing option for infrastructure outsourcing. Cloud services are pay-per-use, so IT organizations only pay for what they need at any given time, leading to greater efficiency and associated reductions in spending. They are also highly elastic, so users—systems administrators, operations staff, software developers, and others—can quickly scale resources up and down. The massive scale enabled by cloud data centers also lets users adjust capacity with large spikes in demand, such as holiday events, so they can maintain service levels and availability during peak conditions.

Software developers are finding new ways to design applications that take advantage of cloud capabilities such as autoscaling, which enables automated provisioning and de-provisioning of resources according to fluctuations in application demand. Cloud computing has also become integral to the DevOps movement as it supports fast application installation and configuration throughout different lifecycle stages.

These benefits help illustrate why cloud computing is becoming a primary IT delivery mechanism, as well as a top consideration for infrastructure outsourcing. Cloud computing has moved past the early-adoption stage and is seeing widespread implementation across industry verticals, including government, finance, and high tech. It is tested and proven, and is being incorporated into long-term IT strategies as a fundamental outsourcing component. Cloud computing has produced tangible benefits and success stories that are encouraging to new adopters.

However, expectations for successful, emerging technologies sometimes outpace enterprise readiness. For example, some proponents make the claim that cloud computing can, and should, immediately replace all other forms of IT infrastructure. What they don't realize is that most applications were not initially designed to run in a cloud environment and certain businesses have strict security and compliance requirements that prevent them from deploying without first adjusting their processes.

# Cloud Challenges

To find an optimal path toward using cloud computing in an infrastructure outsourcing strategy, it is helpful to consider the challenges that new adopters have encountered most frequently.

A common misconception about cloud computing is that everything is automated. While management portals and APIs enable significant infrastructure automation, users still must perform many administrative and operational tasks manually or with additional tools. These may include patching operating systems, installing applications, and integrating with on-premises systems. Beyond simple use cases, multiple types of expertise are needed, including cloud architecture, systems integration, and cloud administration.

Today, cloud services are generally self-service rather than managed by the provider. In a self-service environment, systems administrators are responsible for orchestration, integration, disaster recovery (DR), monitoring, and troubleshooting. In fact, most organizations need admins with expertise in managing cloud environments. They may also need separate management tools and processes specifically designed to support cloud environments.

Economic efficiency is one of the more attractive benefits of cloud computing, but costs will not improve if cloud services are used incorrectly. The same mistakes made in on-premises environments can apply to the cloud, including over-provisioning servers. Similarly, some applications may be more expensive to run in a cloud environment than in a fixed colocation or on-premises environment. The cloud provider's pricing model along with the applications' attributes and behaviors impact the total cost.

As more enterprises rely on cloud services for business-critical functionality, they are wary of the fact that cloud failures can and do happen. Cloud providers experience both scheduled and unexpected downtime that affects service availability, just like in other IT environments. Cloud-computing environments are not inherently fault-tolerant. They require explicit use of redundancy and replication to ensure desired levels of availability.

Just like on-premises IT, cloud environments face security and compliance challenges. However, unlike on-premises IT environments, security is a shared responsibility between the cloud provider and its users. Cloud providers generally offer hardened perimeter security while users must properly configure passwords and other settings to ensure end-point security. Similarly, cloud environments are capable of meeting a broad range of compliance requirements, but users must select a provider with the right certifications, such as PCI or HIPAA, for their particular needs.

## Lessons Learned

If there is one thing to learn from early adopters, it's that cloud computing should not be expected to meet the needs of every application and workload. Unless IT organizations start from scratch and develop all new applications, it is unlikely that a cloud environment will support their entire portfolio.

Enterprises tend to have a broad and diverse number of applications, and several issues can keep them from being hosted in the cloud:

- System configurations can be difficult to mirror, particularly since most clouds have a fixed set of system images from which to choose.
- Neighbors on shared hardware contend for resources when servers are oversubscribed among tenants, leading to inconsistent service levels and downtime.
- Audit and change-management processes can be difficult to establish due to limited visibility and a lack of built-in IT service management tools.
- Adopters may face compliance issues if they abuse software license terms, or if their cloud provider does not achieve and maintain compliance certifications.

For these reasons, IT leaders should proceed carefully when determining which applications to move to a cloud environment. Migrating applications takes time and planning, and works best when viewed as an ongoing journey. Some applications may benefit from moving between several different IT environments over their lifetime. Others should remain in their original location indefinitely.

Many early adopters find out too late that they needed implementation advice, customization, or fully managed services. Modern applications are complex assets comprising multiple components, and each tier may depend on unique hardware or dedicated infrastructure to function correctly. A commoditized, self-service cloud may not be suitable for getting these applications to production. Infrastructure technologies and services are advancing rapidly, and the reality is that today's hosting and cloud architectures may be very different from the ones used three years from now. Cloud computing is only one option to consider in planning an IT outsourcing strategy, and knowing when to use cloud services and when to use an alternative is crucial for achieving the expected gains.

# Understand Your Options

There are several options to consider when planning an IT outsourcing strategy. Each caters to a distinct set of enterprise-IT needs. Since each option has individual strengths and weaknesses, it is unusual for IT organizations to adopt just one.

## Colocation

Colocation providers lease space and provide power and cooling within a shared data center. They offer cabinets, cages or suites—each with a different level of customization and isolation—to house customers' servers, storage, and network equipment. Unlike hosting and cloud services, customers must provide all their own hardware.

IT organizations benefit from the provider's expertise in designing, managing and maintaining a data center facility. They also eliminate capital investments in data center infrastructure, such as power distribution units, cooling systems, and backup generators. Colocation facilities offer a highly secure, resilient location from which to remotely deliver services, and infrastructure redundancy enables maximum uptime and reliability for customers' IT assets. Customers maintain control over everything in their environment.

Colocation services almost always require hands-on implementation and maintenance. This can be a drawback for some. However, colocation providers typically offer "smart hands" for remote assistance, and some offer customer portals that enable visibility and remote management.

Colocation is a great option for customers that want to own and control their IT systems and need a highly redundant and secure facility from which to remotely host their applications.

## Hosting

Hosting providers lease servers, storage and other IT resources, and perform all necessary setup and installations within the data center. Like colocation, the provider is responsible for maintaining the facility and providing power, cooling, and external network connectivity. Unlike colocation, the provider also owns, maintains, and manages the IT hardware.

Customers can simply request additional hardware—or virtual resources, if applicable—when their requirements grow. Depending on the provider and the type of request, new resources may be available almost immediately or within a couple of days. Because the provider is responsible for setting up and

maintaining the hardware, hosting services require little expertise, which makes them a practical option for many IT organizations.

Drawbacks can include a lack of customization and control over the server environment, though some services support granular hardware customization and management control. While hosting services enable a shift from capital to operational expenditures and allow users to focus their limited IT resources on the business rather than management tasks, they still lack the automation enabled by cloud APIs.

Hosting services are a viable option for a wide range of outsourcing use cases, particularly when they don't require full ownership and control of the systems and IT environment.

## Cloud service provider (CSP)

Cloud services offer convenient, self-service infrastructure resources that are highly elastic. Cloud services are billed on a per-use basis, which allows IT organizations to achieve greater levels of efficiency both in spending and resource utilization.

Cloud APIs and automation deliver new levels of agility for both application development and ongoing operations. These APIs enable integration with on-premises systems, applications, and data to deliver the benefits of hybrid IT. Cloud services also enable massive scalability, providing a flexible platform to quickly adjust resource consumption as business needs evolve.

Despite these powerful benefits, some enterprises struggle with cloud computing. The majority of clouds are self-service, so IT operations staffs require the right expertise to properly manage resources. Additionally, many IT organizations are caught off guard by the fact that their existing applications might require modification in order to work properly in a cloud environment.

Cloud computing has proven beneficial for workloads that must scale quickly to accommodate fluctuating demand. Cloud services are also an important part of hybrid IT environments that combine multiple types of infrastructure to host and deliver applications.

## Managed Services

Managed services provide another helpful option for infrastructure outsourcing. Instead of the do-it-yourself approach to colocation, hosting, or cloud computing, managed services allow IT organizations to offload management responsibilities, gain access to expertise they don't have internally, and deliver new projects even when they lack resources.

Managed services capabilities may include:

- Initial service design and deployment, as well as enhancements and upgrades
- Continuous service monitoring for security, performance, and overall health
- Troubleshooting and problem resolution
- Patching and software updates
- Backup and disaster recovery services

Managed services can be layered on top of any of the basic infrastructure outsourcing options: colocation, hosting and cloud computing. They can also be delivered from a variety of sources, including an infrastructure service provider (i.e., a colocation, hosting, or cloud provider) or a third-party MSP. For example, a hosting provider may have a "managed hosting" option, which combines basic infrastructure hosting with application management. Alternatively, a third-party MSP may be hired to deliver managed services for an otherwise self-managed colocation environment.

Well-established MSPs employ teams of experienced engineers, technicians, and project managers that may provide pre-defined and/or custom-managed services. Though these services come at an additional cost, the expertise and offloading of resource-intensive responsibilities is well worth it for many organizations.

# The IT Journey

At no point will today's enterprises simply stop progressing toward new technology and innovations, nor should they. To keep pace with shifting business strategies and changing priorities, IT organizations need to adopt new sources of infrastructure that drive efficiency, agility, and management flexibility. They must also utilize new technologies to deliver enhanced capabilities and services both within the enterprise and to external customers.

Cloud computing is a valuable new option for infrastructure outsourcing, but it isn't the only one. Most IT leaders should avoid setting their sights on cloud computing, or any other type of infrastructure, as their ultimate or final destination. Cloud computing will play a valuable role in many IT organizations, but there is little to be gained when it is used out of context. Each outsourcing option demonstrates clear strengths and weaknesses, and should be used in ways that align with the applications being served.

## Every Path is Different

The IT journey is not a linear path. Enterprises don't necessarily begin with colocation and then transition through hosting to eventually reach cloud computing. There is no single starting or ending point that IT organizations have in common. Instead, every organization proceeds with its own journey based on unique application portfolios, business objectives, IT skills, staffing levels, and additional factors. At any given point in their journey, IT organizations are likely to need a mix of infrastructures.

There are countless scenarios in the IT journey that can impact the optimal combination of infrastructures:

- A company that initially outsources its infrastructure using colocation could realize one year later that it needs the elasticity of cloud computing in order to deliver a webscale commerce application. In order to share data effectively, it will need high-speed connectivity between environments.

- A company with little IT experience, or one that has strict security and compliance needs, might initially want the benefits of a dedicated hosted environment. However, after experiencing the related management requirements, it may decide that it needs to layer on managed services.

- A company may start with the ambition of moving everything to a public cloud. After realizing that some of its applications will be best served by existing on-premises infrastructure, it may decide to take on a hybrid approach.

It is often helpful to gradually implement an infrastructure-outsourcing strategy. For example, when IT organizations try a new type of outsourced infrastructure, they tend to discover more valuable use cases as they gain experience. Starting with development and test environments is a low-risk way to try new infrastructure options. Once success has been achieved and experience gained, production applications can be migrated for even greater benefit.

Ultimately, long-term strategies should account for multiple outsourcing options and combine them in ways that serve the business. Rather than trying to force-fit applications on a single type of infrastructures, IT leaders should focus on objectives that support business success, such as cost savings, agility, flexibility and efficiency.

# Finding the Right Partner

There are countless colocation, hosting, cloud, and managed service providers to choose from, all with different service offerings. In order to succeed with infrastructure outsourcing, IT leaders need to understand which traits to look for in a service provider. Essential attributes include the types of services offered, flexibility to meet individualized needs, robust security, and appropriate compliance certifications. Many enterprises also need a provider that works with them as a partner and demonstrates industry leadership.

## Choice

Given the need for multiple types of infrastructure, choosing a service provider partner that offers many or all of these services can greatly simplify implementation, support, and management. For example, when it is time to add cloud services in addition to colocation, there is no need to establish an entirely new vendor relationship. Better still, some providers have tight integrations between services. High-speed cross connects that deliver network traffic between colocation and cloud services enable low-latency hybrid environments. This type of architecture enables, for instance, elasticity and scale on the cloud side and isolated data storage on the colocation side.

Adopters should also evaluate whether the providers offers a choice of network carriers or additional services, such as backup and disaster recovery. By purchasing these services from a single provider, IT organizations can greatly streamline the process of adding new features and capabilities while ensuring a consistent level of support for every component. This exclusive relationship will eliminate the need for multiple parties to become involved in setting up new services and troubleshooting issues.

## Flexibility

No business is alike, and every IT organization has unique needs. These can include specialized hardware requirements or the need for additional management support. Providers that offer flexible options for customizing services make all aspects of infrastructure outsourcing easier. They may allow customers to incorporate specialized hardware or tweak infrastructure when requirements change. They may also be willing to work out customized support and services agreements, offering in-depth expertise where it is needed and enabling self-management where the customer wants direct control. Providers should also be flexible in responding to requests and be willing to take a hands-on approach to service issues. Providers

that can respond quickly to complex customer problems are often the key to successfully outsourcing mission-critical systems that require maximum uptime.

## Security and Compliance

Security and compliance are two more vital requirements for infrastructure outsourcing. The level of built-in security tends to vary among service providers. Some have designed their architectures with advanced security capabilities, such as data encryption and multi-factor authentication. Others have simply implemented a hardened perimeter around the environment and expect customers to meet any unique requirements on their own. Encryption and authentication are important features for any enterprise storing and serving sensitive data.

Customers also need assurance that the provider meets their specific compliance requirements. Compliance can be difficult to establish when multiple types of infrastructure are being outsourced. For example, the payment card industry has special regulations for storing transaction data in a multitenant environment. To maintain compliance, customers will need to match the provider's certifications and the right type of infrastructure with their anticipated use cases. Outstanding service providers maintain compliance with multiple industry certifications and list them for customers to compare. Common compliance certifications include PCI, HIPAA, SOC 1 and 2, and Safe Harbor compliance. Because compliance is an ongoing process and not something that can be accomplished once and then forgotten, service providers should set aside dedicated resources that ensure customers will maintain compliance regardless of environmental or regulation changes.

## Partner

Many IT organizations need a service provider that will help them through the infrastructure-outsourcing journey by being adaptable and flexible to their IT needs. For them, it makes sense to choose a provider that they can partner with to accomplish their objectives—in other words, a provider that does not require them to change their business processes and does not require forklift upgrades. Some service providers can assist in designing and deploying the right hardware architecture while others offer in-depth managed services to install, configure, test, monitor, and maintain applications.

In any case, IT leaders should choose a partner that is reliable and responsive to direct requests for help, guidance and support. Support that is 24/7 is an imperative for most IT organizations, especially those that have deployed mission-critical systems. The service provider should take a hands-on approach to managing service issues and customer requests. Ideally, new adopters want a service provider that has

technical expertise and experience serving a variety of customers from different industry verticals with greatly varying requirements, and that is willing to adapt to their unique needs to ensure their success.

## Leadership

There are several ways that service providers can demonstrate industry leadership, and choosing a provider that excels in these respects provides a number of benefits. For example, providers that implement best-of-breed technologies and continue to upgrade their hardware enable their customers to take advantage of new capabilities and experience better performance.

Service providers may also demonstrate leadership by handling sophisticated implementation projects and by helping customers with complex problems. Business needs change over time, so leading providers should offer a broad array of services that can be implemented as their customers' requirements evolve. Identifying service providers with the right breadth of experience and services will help IT organizations accelerate time to production while also eliminating roadblocks such as time-consuming troubleshooting. A leading provider should not be singularly committed to one approach but should always be looking for ways to provide additional benefits to users.

# Key takeaways

Most IT organizations can no longer support enterprise requirements using only a single type of IT infrastructure. Hybrid initiatives, evolving business needs, and changing user expectations require several types of infrastructure in order to deliver uncompromised agility, efficiency, performance and flexibility.

When planning their IT outsourcing strategy, IT leaders should remember the following:

- There is much value for enterprises to be found in combining colocation, hosting, and cloud services. Managed services are a worthy option to consider, too.
- Those service providers offering a well-rounded mix of infrastructure solutions are best-suited for the enterprise IT journey.
- For many enterprises, finding a service provider partner to help with customized design and implementation offers huge benefits.
- Granular customization is key for outsourcing solutions, since there is no one-size-fits-all solution. Enterprises need flexible, customized systems to support their specific requirements.
- Enterprises must bear in mind that cloud computing, though a valuable option for infrastructure outsourcing, will not likely meet the complete requirements of every application.

# About Paul Burns

Paul Burns is a Gigaom Research Analyst and the president and founder of Neovise, an IT industry analyst firm launched in 2009 to focus on cloud computing. Burns also writes articles for industry publications, speaks at industry events, and is quoted by a variety of media organizations.

Burns has over 25 years of experience in the IT industry, driving strategy for enterprise software solutions through product management, competitive analysis, and business planning. He has held a series of leadership positions in marketing and R&D, and he was research director of the IT service management practice at another industry analyst firm. Burns earned both a B.S. in Computer Science and an M.B.A. from Colorado State University.

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