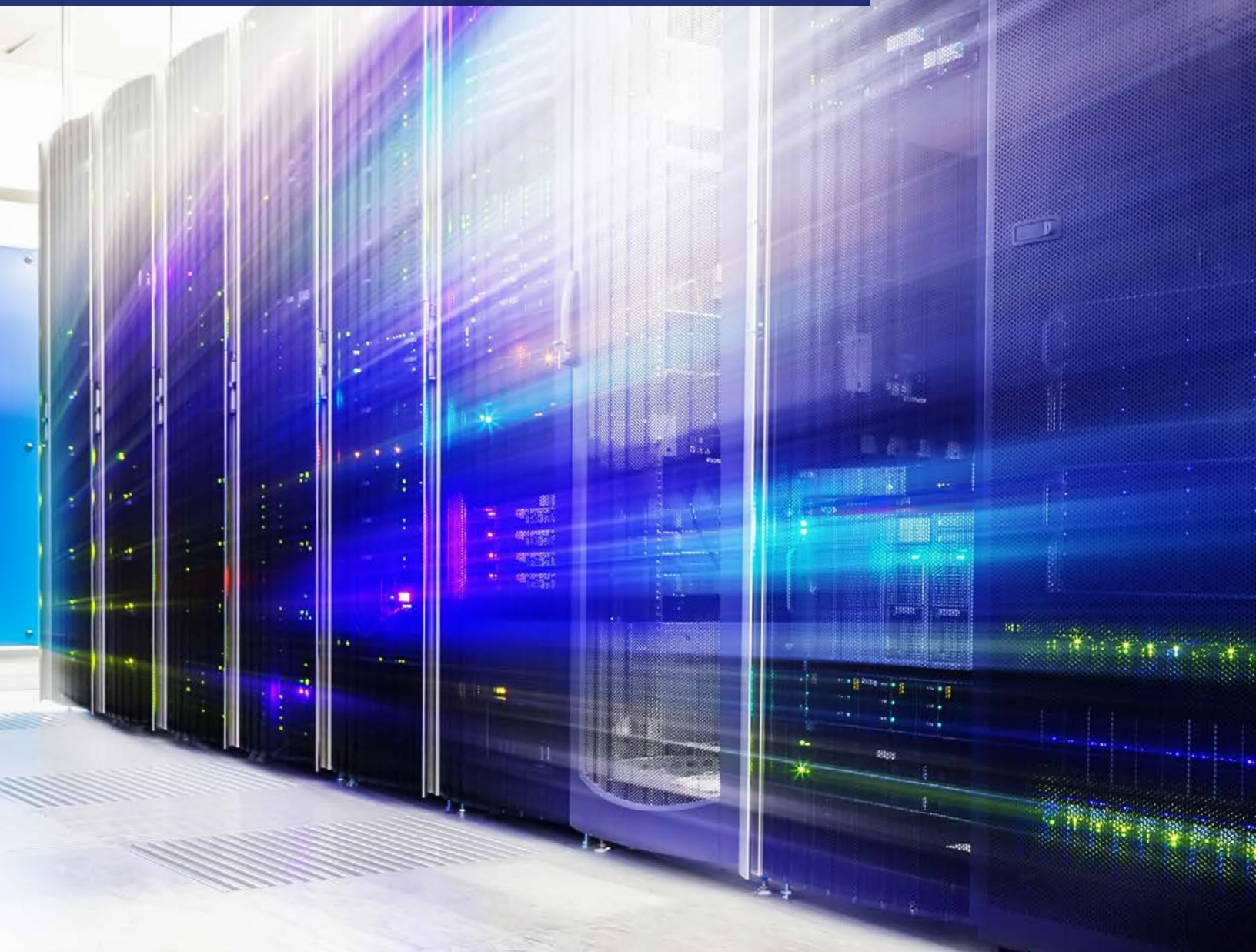


QTS



A NEW ERA: HYBRID IT AND THE FULLY-INTEGRATED PROVIDER



ABSTRACT

In every industry, IT professionals are watching their roles and objectives evolve rapidly. The world is now digital and data is at the core of how enterprises, governments and individuals manage their core functions. The impact of data is being felt beyond the IT department; it is reverberating through every aspect of our lives.

Data enables communication and commerce and is the driving force behind globalization. Data is also revolutionizing how we consume media and changing how we interact with our government and elected officials. This pervasive presence means the digital landscape is growing larger and more complex. **Now, more than ever, CIOs and CTOs are challenged to build sustainable IT strategies against a constantly changing backdrop.** To understand where IT is going and be able to plan ahead, it is important to understand the evolving role data centers play in day-to-day IT management and how hybrid IT is driving strategy. Data has moved out of the back office and into the forefront of how organizations and people build relationships, enhance experiences and streamline operations.

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INTRODUCTION

The rate at which the volume of data is growing is shattering all expectations. The International Data Corporation predicts that the amount of high-value data worth analyzing will double by 2020 and that 60 percent of that information will be actionable.¹ Regardless of size, any organization that has a website, utilizes email communication, processes payment information or digitally stores employee and customer information is impacted by data creation and consumption. But these digital footprints come with a great deal of responsibilities and challenges. This mission critical and sensitive data must be managed, moved, cataloged, stored and protected. Enterprises are quickly realizing that the resources required are exceeding their in-house capabilities. So, who are they trusting with these most valued assets? Data center providers.

The role of the data center is changing – from the early data center iterations of the 1950s to the massive, infrastructure-rich facilities we see today. Wired Magazine identifies today's business real estate landscape as "The Data Center Era."² In this new era, CIOs are looking to data center providers (DCPs) to bring much more to the table than just space, power and cooling. DCPs are in a unique position to offer a comprehensive seamless approach to infrastructure design, products, solutions, management and protection that scales in a cost-effective way. This integrated approach to support, services and infrastructure is what IT decision makers are looking for to enhance their strategies.

Enterprises are quickly realizing that the resources required to store, analyze, transmit and protect mission-critical and sensitive data are exceeding their in-house capabilities. So, who are they trusting with these most valued assets? Data center providers.

THE EVOLUTION OF THE DATA CENTER

MECHANICAL TABULATORS

Long before the arrival of computers, society began trying to answer the question of how to automate data processing. One of the early solutions was the punched card. Invented by Herman Hollerith, the founder of the Tabulating Machine Company (which would later become part of IBM), these "mechanical tabulators" were first used by the United States Census Bureau in 1890.³ This punched card system was a semi-automated process for data analysis that was significantly faster than human efforts.

MAINFRAMES AND SERVER ROOMS

Roughly 60 years later, the concept of the data center emerged after the invention of the computer.⁴ This first computer looked nothing like the modern personal computer. The Electronic Numerical Integrator and Computer (ENIAC) was a machine used by the United States Army to store artillery firing codes. Within a decade, mainframe computers were offering commercial and

government organizations increased computing capacity while centralizing computer operations. These organizations soon began building facilities to house these sophisticated machines.

The data center underwent yet another transformation during the first Internet, or “Dot-Com,” boom of the 1990s. Faced with the need to expand their IT infrastructure quickly, companies began building on-site server rooms. As these organizations’ digital footprints continued to expand, they added on to these server rooms, while larger organizations began to build their own private data center facilities.

THE EMERGENCE OF THE DATA CENTER PROVIDER

Soon the technology industry realized that companies were quickly outgrowing their on-premise infrastructures. As the need for computing capacity continued to increase (by a factor of 1,000 from 2005 to 2015), data center providers emerged as the solution.⁵ These providers possessed the resources, vision and expertise needed to design mega data centers with the advanced infrastructure, space, power and connectivity systems needed to support a broad spectrum of environments. But soon, the technology industry would undergo yet another transformative phase: the arrival of cloud computing.

THE GREAT CLOUD SHIFT AND THE IMPACT OF HYBRID IT

1999-2006: CLOUD COMPUTING ENTERS THE MAINSTREAM

With the founding of Salesforce.com in 1999, cloud computing emerged as a revolutionary way to deliver enterprise applications over the internet.⁶ Then Silicon Valley experienced a movement that changed the internet as we know it: Web 2.0. Instead of just accessing or viewing web content, users began generating content. The internet suddenly became a collaborative space, where websites enabled and encouraged social interactions, digital sharing and original content creation. As more individuals began contributing content, the size of the internet expanded and the volume of space needed to store, transmit and analyze data increased exponentially.

With more content being created, transmitted and stored, enterprises began turning to the cloud to get the rapid provision, streamlined management and universal network access needed to keep up.⁷ Cloud computing continued to grow and in 2002, Amazon Web Services expanded cloud-based services to include storage, computation and human intelligence.⁶ Enterprises and government agencies began changing the way they housed data and applications, moving them off physical hard drives and into the cloud over the next decade.

This trend began gaining steam in 2016. Gartner and other industry analysts are calling this massive cloud migration the “Cloud Shift,” forecasting that more than \$1 trillion in IT spending will shift to new cloud categories by 2020. Gartner goes on to characterize cloud computing as “one of the most disruptive forces of the digital age.”⁸ IDG is projecting that the average company plans to devote 28% of its IT budget to cloud computing in 2017 and 70 percent of all organizations will have at least one application in the cloud.⁹

THE CLOUD QUESTION: NO LONGER “WHAT IS IT?” BUT NOW “WHICH IS BEST?”

The cloud landscape offers four distinct delivery models: public, community, private and hybrid. A variety of factors impact an organization’s decision regarding which cloud best fits its needs, which can range from compliance to management capabilities. Most organizations rely on a combination of cloud models when building their IT strategies. In the RightScale 2017 State of the Cloud Report, 85 percent of enterprises reported having a multi-cloud strategy.¹⁰

Public clouds offer the best economies of scale, built on shared resources that are utilized on a pay-as-you-go model. A **community** cloud also offers a shared experience, but is purpose-built for an IT sector with shared interests and needs. A **private** cloud offers the most advanced security, customization and control and is valuable when an organization has access to the necessary resources and expertise to utilize next-generation technology effectively.



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The **hybrid** cloud model utilizes a combination of cloud services: both public and private. Despite operating independently of one another, these infrastructures can integrate with each other via encrypted connections. This approach allows IT decision makers to take advantage of the control and security provided by a private cloud, while enjoying the flexibility and economy of its public counterpart. The RightScale survey results revealed that hybrid cloud is the “preferred enterprise strategy,” with adoption jumping from 58 percent in 2015 to 71 percent in 2016.¹⁰

Forbes Magazine characterized the great cloud shift as involving “the transformation of today’s cloud from simply renting hardware to offering managed turnkey services that complete the abstraction away from the underlying hardware.”¹¹ CIOs are turning to their data center providers to enhance their visibility and control, while streamlining IT management and reducing complexity. Data centers now provide more than just space, power, cooling and security – they play a vital role in helping enterprises build hybrid strategies that engage both in-house and outsourced resources that integrate systems and reduce inefficiency.

Hybrid cloud is the “preferred enterprise strategy,” with adoption jumping from 58 percent in 2015 to 71 percent in 2016.

-RIGHTSCALE

AS THE ROLE OF DATA EXPANDS, IT STRATEGIES EVOLVE

It is clear that CIOs and CTOs are diversifying their IT strategy to include multiple clouds as a way to take advantage of the best features of each model. But this diversification is also present in how they approach designing, hosting and managing their IT infrastructures as a whole.

Data centers are best positioned to support IT decision makers' hybrid objectives, providing valuable expertise, experience and resources as companies decide where they will host their IT infrastructure and who will manage it.

MORE THAN JUST HYBRID CLOUD – THE MOVE TO HYBRID IT

In addition to diversifying their cloud utilization, CIOs are diversifying their entire IT infrastructure and how they manage and maintain that infrastructure. When enterprise IT infrastructure solutions are engaging a combination of both cloud and on-premise technologies, as well as both in-house and third-party personnel, this is commonly referred to as **Hybrid IT**. Data center providers are answering the growing utilization of the hybrid IT model with solutions designed to enable diversification while decreasing complexity. Hybrid IT solutions help enterprises balance the need for economy and agility with their need for performance and availability.

THE PATH FORWARD

Data center providers are now the partner that can empower enterprises, organizations and agencies to harness the **power of data**. Whether or not a DCP can offer fully-integrated solutions is becoming the **differentiator** as enterprises and government agencies seek to increase the number of responsibilities they outsource. Siloed approaches to infrastructure design, support, management and security are a thing of the past, as CIOs and CTOs are investing more trust in their data center provider and expecting a partnership, not a transactional relationship.

Those expectations include:

- + Speed of Delivery
- + Quality of Service and Support
- + Visibility and Control
- + Cost-Effective, Custom Strategies
- + Fully-Integrated Products, Solutions and Services

SPEED OF DELIVERY

Enterprises are looking to scale rapidly and want a data center provider that can keep pace. The ability to scale, and eliminate costly delay starts with a company's data center design philosophy. Incremental growth is emerging as an innovative design philosophy that enables providers to eliminate constraints that lead to a delayed delivery in services and improve a customer's time to value with a phased approach to construction. When adopting an incremental growth strategy, DCPs can scale infrastructure as demand grows.

QUALITY OF SERVICE AND SUPPORT

Speed and quality top organizational priority lists. As CIOs expand the amount of IT management they outsource, they are also expanding the amount of trust and faith they are placing in their partners. They want a provider that has a customer-centric vision and utilizes a hands-on approach. Furthermore, security and compliance are paramount. CIOs and CTOs constantly face new threats and new regulations and as their IT footprint expands, so does their attack surface. With more software, systems and applications comes more entry points for cybercriminals.

Offering quality service and support requires an integrated approach to security and compliance. While compliance and security interplay, they require separate dedicated teams that engage with each other constantly to mitigate risk and assess any threats. Most organizations turn to data center providers because they lack the in-house personnel to build robust compliance and security teams.

VISIBILITY AND CONTROL

As roles evolve and in-house teams share the responsibilities of IT management with their data center providers, they will require in-depth visibility and control that seamlessly integrates with their existing environment and protocols. In addition, they need immediate, up-to-date access to data that can help them make informed real time decisions about their IT strategy.

Data center providers are becoming trusted partners to deliver access and the ability to engage CIOs and CTOs with their IT environment in a simple, seamless way – anytime, anywhere and from any device. DCPs have transformed into innovators of the IT space as they design fully digitized platforms that can enable the mass production and customization of highly optimized hybrid IT solutions.

COST-EFFECTIVE, CUSTOM STRATEGIES

When a provider only offers white box solutions or rigid service packages, the customer is expected to adapt their environment and strategy. Often this leads to unnecessary redundancies or gaps in service coverage. But with a fully-integrated services platform, the provider can build a data center strategy that is tailored to meet the unique security, compliance and management needs of each customer.

Furthermore, these strategies should improve operational efficiency, minimize risk exposure and allow the in-house team to focus on how an IT strategy can further organizational objectives. The hallmarks of hybrid IT are (1) allowing your internal team to focus on the role of data in achieving organizational objectives while (2) utilizing a DCP's robust and diverse expertise to keep pace with technological advancements. The hybrid IT model helps overwhelmed in-house IT personnel and enables cost-effective innovation.

FULLY-INTEGRATED PRODUCTS, SOLUTIONS AND SERVICES

Hybrid IT involves the ability to consolidate, integrate and manage complex systems, applications and compute resources. Integration is vital to providing real-time visibility into IT management and minimizing liabilities with precision. A fully-integrated platform also enables a data center provider to offer high-touch support by centralizing and connecting all management, analytics and issue resolution efforts.

QTS: INNOVATIVE FOR WHERE IT IS GOING

Building an integrated solutions platform doesn't happen overnight. At QTS, our commitment to offering agile, flexible and smart solutions has driven our efforts to build a fully-integrated portfolio of industry-leading services since 2003.

We're committed to serving our customers at every point of their hybrid IT journey and building long-term partnerships. As our customers move more of their infrastructure into the hybrid IT model, we provide invaluable guidance, expertise and support when augmenting their in-house resources, compute and network capabilities.

While adopting a hybrid IT model may be a bold strategy, it is also a pragmatic solution to facing an increasingly dynamic data landscape. Consumers and companies are constantly faced with managing evolving software and hardware standards. As organizations look to safeguard mission-critical data and mitigate risk, partnering with a fully-integrated partner can enable an IT team to utilize cutting-edge technologies and advanced expertise without making major capital investments.

QTS offers the nation's only fully-integrated technology services platform. This integration means our customers get more value out of their IT solutions. Fully-integrated solutions offer the flexibility needed when building a true hybrid IT strategy and scalability that enables your solutions to evolve as your data needs grow. Furthermore, our fully-integrated services platform is built on industry-leading security and compliance designed to offer maximum performance and peace of mind. At QTS, we're committed to providing hardened, redundant infrastructure and unceasing service and support.

CONTRIBUTORS

ABOUT QTS | 877.QTS.DATA | QTSDATACENTERS.COM

QTS Realty Trust, Inc. (NYSE: QTS) is a leading provider of secure, compliant data center, hybrid cloud and managed services. QTS features the nation's only fully integrated technology services platform providing flexible, scalable solutions for the federal government, financial services, healthcare and high tech industries. QTS owns, operates or manages more than 5 million square feet of data center space and supports more than 1,100 customers in North America, Europe and Asia Pacific. In addition, QTS' Critical Facilities Management (CFM) provides increased efficiency and greater performance for third-party data center owners and operators.