



WHITE PAPER

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HYBRID IT INFRASTRUCTURE:

Proactive Planning and the Right Provider Make All the Difference

To keep pace with business growth, many companies unintentionally create a hybrid IT infrastructure that adds complexity, costs, and risk. With an intentional, proactive, and well-defined hybrid IT strategy—one that includes on-premises, colocation, private, and public cloud hosting options—companies can achieve the agility, performance, and security that their growing businesses require.



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Table of Contents

Executive Summary	1
Hybrid IT: A Blessing or a Curse?	2
Business and Technology Challenges Caused by Hybrid IT.	4
A Successful Colocation Approach to Hybrid IT	6
Hybrid IT Done Right	7
Summary and Conclusion	9
Next Steps	9
About DataBank	10
About The Authors.	10

Executive Summary

While business growth is generally regarded as a positive trend—and what virtually every company aspires to—it can also lead to growing pains in all parts of the organization. These pains may be felt most acutely in IT, where infrastructure decisions must happen quickly to keep pace with new and unprecedented business demands.

The inevitable result is “hybrid IT,” an infrastructure strategy and resulting architecture that can include a mix of on-premises systems, colocation data centers, and private and public cloud environments. On one hand, hybrid IT can be a good thing, but only if it is carefully designed as a proactive, strategic IT objective. Yet, often hybrid IT environments result from fast, reactive decision-making that leads to a “Frankenstein” architecture with too many mismatched parts. While these hybrid infrastructures may seem to work, the reality is they subject the entire business to excessive challenges and risk.

This white paper will examine the topic of hybrid IT, including a closer look at specific issues it can cause when spiraling out of control. This paper also describes how companies can achieve a truly effective hybrid IT infrastructure, both by selecting the right business partner and by carefully selecting the right mix of hosting and compute options for their business objectives.

Hybrid IT: A Blessing or a Curse?

Imagine this scenario: A company starts to experience real growth as customers embrace its product offerings. In turn, this leads to new growth opportunities: new product launches, supporting services, expansions into new markets, and partnerships with a wide array of companies with complementary products and services. Early success begets future success, and the business begins to grow in all the areas that matter most: customer acquisition and retention, employee headcount, market share, revenues, and profitability.

In many ways, this example seems to be clear evidence of business success, and one that most companies would envy. It's also like the analogy of watching a duck on a pond. By all outward appearances, it seems to be nothing but smooth sailing as the duck glides effortlessly through the water. Yet, below the waterline, hidden from view, the duck's legs paddle furiously to maintain its momentum. The takeaway: Forward progress is not always as easy as it may seem.

SIMPLE BECOMES COMPLEX AS COMPANIES GROW

This is true when it comes to the role of IT in supporting business growth as described in the scenario above, and more specifically, in making strategic, well-informed decisions to build and implement the right IT infrastructure. In this case, a company most likely started with a traditional—and relatively simple—approach such as on-premises hosting for hardware, applications, data, and related services. This starting point makes sense since it gives the business full control over IT assets for maximum performance, agility, management, and security.

However, as a company grows and IT leaders are tasked to support it, they must confront new challenges, make decisions quickly, and ultimately, implement additional infrastructure elements. For example, it might need to increase scalability, add exponential levels of data storage, ensure uptime with redundant systems, improve security and compliance, and so much more.

There are many factors to consider and virtually limitless options to evaluate as IT teams seek the ideal, most cost-effective infrastructure. Where IT may have started with on-premises hosting, it now needs to evaluate colocation data centers, private clouds, public cloud environments, interconnections, specialized tools and technologies, and related services.

Unfortunately, time is not on their side; businesses in growth mode need to make decisions quickly and often without the benefit of strategic, long-term, visionary planning exercises. Internal talent may be an issue, too, since some companies might lack seasoned IT employees with the experience required to make infrastructure decisions and lead successful migrations.

While many companies intentionally choose hybrid IT as a strategic model, many more wind up with hybrid environments as a result of fast, reactive, and short-term decisions. If companies are not careful, these hybrid IT infrastructures can quickly spiral out of control, leading to high costs, excessive complexity, and too much security risk.

What happens next is predictable (but not inevitable). Facing the pressure to quickly support business growth, IT teams respond by adding new elements to their infrastructure, including hardware, private and public cloud products and services, and specialized systems. It quickly adds up to ... a lot. The approach leads to a hybrid IT infrastructure environment (not to be confused with “hybrid cloud”), an architecture design where the company maintains and manages some of its IT assets in-house while also using cloud-based vendors and other service providers for others.

In many cases, companies plan for and implement hybrid IT infrastructure models to meet their scalability, performance, security, and budgetary requirements. For example, a recent IDG survey commissioned by Google found 80% of companies reported that hybrid cloud capabilities were one of their key considerations when selecting a cloud provider.¹

However, if hybrid IT becomes something that happens without proactive planning—resulting in a “Frankenstein” type of infrastructure architecture—it can lead to many different business and technology challenges.

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of companies reported hybrid cloud capabilities among key considerations when selecting a cloud provider.¹

¹ IDG (commissioned by Google Cloud), “No Turning Back: How the Pandemic Reshaped Digital Business Agendas,” 2021.

Business and Technology Challenges Caused by Hybrid IT

To be clear, well-known hyperscale cloud providers offer many valuable products and services that can help companies increase overall agility, improve scalability, and reduce costs. At one point, these benefits were so compelling that it looked like virtually all workload hosting would move to the public cloud.

Many companies are now rethinking this strategy since it can create real, and significant, challenges in hybrid IT environments. Making fast, ill-informed decisions related to public cloud hosting can lead to business and technology issues that adversely affect the IT staff, budget, and security.

OVERWHELMING IT TEAMS

As companies are attracted to hyperscalers or other public cloud vendors, many underestimate just how complex it is to manage a cloud-hosted infrastructure. The migration effort may be difficult right from the start, leading to questions and potential missteps. Alternatively, it can quickly grow out of control as the business needs additional products, services, and options. Maintaining this environment can be extremely time-consuming and require extensive training and learning on the fly to respond to changing dynamics and requirements—not an ideal model for such an important part of the business.

Worse, this approach can lead to the wrong decisions and outcomes. One example is the case of a company looking to host and deploy customer-facing applications at the edge of their network—decentralizing data in order to reduce latency and provide better experiences. The IT team didn't realize they needed to select redundant zones as part of their configuration in the public cloud. This resulted in centralized data storage—defeating the entire purpose.

In another scenario, a company's IT staff may have the right experience to start, only to become overwhelmed as the infrastructure becomes more complicated as additional products and options are added. A developer may know to add a virtual machine but may also lack the experience needed to secure it effectively or make it work in the network.

In cases like these, unfortunately, many of the larger public cloud vendors do not offer personal support services and, instead, rely on a self-service model in which customers must navigate knowledge bases, FAQs, and other website content. In extreme cases, companies may also have to hire expensive third-party consultants to help achieve their goals. As a result, hybrid IT infrastructure can quickly snowball and force employees to spend too much time learning as they go, attempting to make the right decisions, and then maintaining and troubleshooting their system.

SURPRISINGLY HIGH COSTS OF THE PUBLIC CLOUD

Survey participants reported that their public cloud spend was over budget by an average of 13% and they expected their cloud spend to increase by 30 percent in the next 12 months.

Source: Check Point, "The 2022 Cloud Security Report"

SURPRISINGLY HIGH COSTS

Many companies are often surprised by the costs associated with public cloud infrastructure. Hyperscalers and other public cloud vendors enjoy the reputation of being less expensive than on-premises or private cloud alternatives, but this is not always true. Recent research conducted by IDG found that, when asked to describe their top five public cloud challenges, 40% of enterprises struggle with the cost of their cloud solutions—a topic-cited response.²

Their concern is well founded for a number of reasons. First, most public cloud vendors offer contract *estimates*, not a fixed monthly billing amount. These estimates cite additional services, such as data management fees, as optional line items with prices that seem to be extremely low but can be deceptive. For example, cloud vendors charge data egress fees for mere pennies per gigabyte of data. While many CIOs or business leaders go into these arrangements intending not to use these services, often the company's needs change, such as application throughput, resulting in a larger monthly bill that is not what they expected.

Unfortunately, many of these invoices are not just incrementally higher but exponentially more than expected. It is not uncommon for companies to receive invoices that are three, five, or even ten times higher than what they had budgeted. Research shows that many companies face similar challenges. In one survey, respondents indicated that their public cloud spend was over budget by an average of 13% and they expected their cloud spend to increase by nearly 30 percent in the next 12 months.³

This alone is a major reason why many companies are now choosing to reconsider public cloud hosting and re-evaluating other options such as reverting back to on-premises infrastructure or colocation data centers that provide more predictable costs.

SECURITY RISKS AND COMPLIANCE CONCERNS

Data privacy and overall security are also real concerns for any organization. According to recent research, 75 percent of enterprises reported that cloud security was their top concern and the most pressing challenge cited was “the misconfiguration of cloud infrastructure.” (This second statistic reinforces the IT staff challenges described earlier.)⁴

Keeping company and customer data secure will continue to be a major challenge in the future. So, too, will governance and compliance. Companies today need to have cloud-usage policies that are clearly defined, and similarly, restrict access to various cloud applications. This means that only certain employees should be allowed to use cloud services, depending on their position, responsibilities, or permissions. While restricting access to appropriate personnel improves security, it can also help companies avoid cost surprises and improve operating budget management.

² IDG, “IDG Cloud Computing Study,” 2020.

³ Flexera, “The Flexera 2022 State of the Cloud Report,” 2022.

⁴ Check Point, “2022 Cloud Security Report,” 2022.

When it comes to compliance, many cloud providers may not do enough to help companies streamline processes, adhere to regulations, and easily demonstrate compliance. Many different regulations—such as HIPAA, PCI DSS, Sarbanes-Oxley, and GDPR—all have rigorous standards related to data privacy.

THE NEED FOR A BETTER SOLUTION

All of these concerns point to the need for an effective hybrid IT infrastructure where these challenges can be identified, planned for, and easily addressed in a best-fit architecture design.

A Successful Colocation Approach to Hybrid IT

One growing company faced a challenge: what to do with its legacy IBM AS/400 servers as it attempted to modernize applications to work on Microsoft Windows-based computers and operating systems. On one hand, it could replace all its servers—an expensive and ultimately cost-prohibitive option—or they could turn to a flexible provider such as DataBank that could offer colocation and cloud-based managed servers and services.

A hybrid approach was the best choice – colocation for the IBM AS/400 servers and DataBank's managed Infrastructure as a Service to serve as a resource pool for virtual machines. This solution reduced application latency and took advantage of DataBank's cross-connects to integrate security tools and services for maximum security and streamlined compliance.

Today, the company continues to deliver the scalability and agility the business requires by working closely with the DataBank team to add new compute resources as needed and has successfully grown to the point where it has now doubled its use of virtual machines.

Hybrid IT Done Right

Consider another analogy: When it comes to financial investing, savvy investors understand the value in diversification and select a balanced portfolio of stocks, bonds, mutual funds, and other financial instruments to minimize risk and achieve the best outcome possible. This is how growing businesses should view their IT assets and infrastructure. In addition to selecting the right hosting products, they should also carefully evaluate the partner who will ultimately deliver the infrastructure products and services.

Like smart investors, savvy companies realize that hybrid IT can provide the scalability, agility, and performance they require. To continue the financial analogy, investors also realize that results are not guaranteed. As this applies to enterprise IT teams, this means they need to partner with technology companies who understand their objectives, shape their long-term vision and strategy, and provide the right mix of hybrid IT options to meet their goals.

Companies tend to benefit the most from a truly consultative approach to selecting and deploying IT assets and infrastructure. Ideally, prospective vendors should first seek to understand the company's business, their current technology, including what's working and what is not, and what business or technical goal they're attempting to achieve. This may not always be possible when working with large public cloud providers who may require high monthly billing contracts to engage with professional services and consulting teams.

Potential infrastructure partners should be able to advise their clients on the ideal hybrid infrastructure for their workloads. This is especially true for growing companies with workloads that can't or shouldn't be moved to the cloud. After initial experience with public cloud offerings, businesses learned that many workloads are best hosted on-premises or in colocation facilities. Technology providers who can provide a best-of-all-worlds approach—one that provides colocation hosting, private cloud, and access to public clouds—are often the best suited to deliver the most effective hybrid IT solutions.

Planning a purpose-built Hybrid IT environment requires an infrastructure partner that delivers these essential service—for hybrid IT done right.

COLOCATION DATA CENTERS

Colocation data centers designed to the most rigorous standards with all the space, power, and security vital IT assets need, now and into the future. Colocation data centers should also provide dense, carrier-neutral network access for 100% uptime, service-level agreements, and business continuity.

Colocation data centers should offer valuable amenities—such as physical and digital access controls, loading docks, parking, conference rooms, office space, parking, and other options. They should also offer a high number of facilities situated around North America and even the globe to support any company's objectives related to disaster recovery, performance and latency, customer demands, and total service costs. These can even include edge modular data centers to reduce application latency for clustered and rural users or for applications that requiring compute resources in a far-flung, non-centralized location.

Similar to savvy investors who diversify their portfolios to balance performance and risk, experienced IT leaders realize they need a wide array of hosting options and related services to maximize their hybrid IT performance.

INTERCONNECTIONS

To support hybrid IT infrastructure and workloads, companies should also make sure their hosting partners can provide a wide array of interconnections with on-ramps to public cloud platforms as well as other connection options to run their business in the way that works best for them. These can include cross-connects, Internet Exchanges, Data Center Interconnects (DCI), Internet connectivity, and cloud connectivity.

With different options for physical and virtual connections, companies can make the best choices to exchange data, provide business continuity and custom services, and support mission-critical business practices.

MANAGED SECURITY SERVICES

Today's companies may also require security solutions and approaches other than attempting to manage IT security themselves. This can include multi-layered, defense-in-depth security solutions and managed services to provide comprehensive protection over critical data and sensitive information.

Since hybrid IT environments can quickly spiral out of control, asking existing IT staff to manage ongoing security efforts may be ill-advised and may subject the organization to too much risk. To overcome these challenges, IT leaders should look for hosting providers who can offer a wide portfolio of specialized security services managed by expert, dedicated professionals. Ideally, these services will consist of controls related to physical security, network/perimeter access, and system hosting, as well as continuous monitoring to protect hybrid IT environments.

COMPLIANCE FRAMEWORKS

The security services above help keep infrastructure safe, but they also provide compliance frameworks to address even the most stringent regulations. This is critical to complying with regulations such as FedRAMP, FISMA, HIPAA, PCI-DSS, NIST, SSAE-18, and GDPR. Additionally, colocation vendors can “own” the vast majority of compliance controls, whereas hyperscale cloud providers might not provide as many—if at all.

COST-EFFECTIVE DATA STORAGE SOLUTIONS

It is also important to make the best choice related to data storage and management to avoid surprising high costs that can occur later. Many companies prefer data storage solutions that provide the hyper-scalability growing businesses demand but without surprising fees related to data ingress/egress or API calls. These data storage solutions should also reduce complexity with industry-standard API protocols to support easy data storage and retrieval.

Providers able to deliver such a full range of solutions and services can help growing businesses control mission-critical IT infrastructure to achieve their specific goals without any trade-offs.

Summary and Conclusion

Faced with high-paced growth and changing requirements for their infrastructure needs, many companies today react by implementing a hybrid IT model. While every business' version of perfect will be very different, one thing is clear: they need to approach hybrid IT from a planning perspective and not just a reactionary process to add new technologies and options without a larger plan for how it will all work together.

While using the public cloud for all workloads is a viable option, often many companies quickly discover that an over-reliance on this model, or not fully understanding its full implications, can lead to real issues related to personnel, budget, and security. Instead, these companies require a hybrid IT environment where applications and data reside in some combination of on-premises data center, colocation facility, private and public clouds, or at the network edge. Such a hybrid IT model helps enterprises manage the escalating costs, reduce operational risks, and prevent vendor lock-in.

Today, working with a true consultative partner can help any organization choose from a wide array of options to go develop an IT hybrid infrastructure that truly helps them accomplish their goals and objectives.

Next Steps

To learn more about DataBank, and how we're helping our customers achieve their goals related to hybrid IT, please visit www.databank.com today.

About DataBank

DataBank enables the world's largest enterprises, technology, and content providers to consistently deploy and manage their infrastructure, applications, and data on the right platform, at the right time, in the right place. Our colocation and edge infrastructure footprint consists of 65+ data centers and 20 interconnection hubs in 27+ markets, on-ramps to an ecosystem of cloud providers, and a modular edge data center platform with virtually unlimited reach.

We combine these platforms with contract portability, managed security, compliance enablement, hands-on support, and a guarantee of 100% uptime availability, to give our customers absolute confidence in their IT infrastructure and the power to create a limitless digital future for their business.

About The Authors



Eric Carter has two decades of experience delivering technical solutions for businesses of all sizes. Today he works with sales leaders to design efficient, budget-friendly solutions and process improvements for DataBank customers.



Rob Zimmerman has more than 20 years of experience as an engineering leader. Customers and colleagues credit him with broad insights that bring technology to life for businesses.