



DATA CENTER

Frontier Special Report

Hybrid IT – Supporting Critical Initiatives During a Journey to Digital Modernization

How Hybrid IT leads to a road of success when using cloud, edge, and emerging solutions

Report compiled by: Bill Kleyman, Contributing Editor, Data Center Frontier | EVP of Digital Solutions, Switch



Photo credit: Panchenko Vladimir / Shutterstock

brought to you by

PANDUIT®

Contents

Hybrid IT – Supporting Initiatives During a Journey to Digitally Modernize the Business	2	Chapter4: What’s New? How Data Centers are Leveraging Hybrid IT	11
Executive summary	2	Hybrid IT at the edge of the cloud	11
Introduction	2	Selecting Hybrid IT partners	12
Your data center is changing, are you keeping up?. 3		The Hybrid IT checklist	13
Chapter1: Defining Modern Compute Models – And Where Hybrid IT Stands Apart	4	Chapter5: Hybrid IT Partners Aim to Improve Cloud, Edge, Data Center Deployments	14
Defining compute models and Hybrid IT.....	4	Benefits of infrastructure planning for Hybrid IT deployments	14
Hybrid IT – a focus on creating efficiency and ecosystem unification	5	Essential characteristics for deployment success in the physical infrastructure	15
What makes Hybrid IT different and special.....	5	Data center management that aligns with all aspects of your edge, cloud, and Hybrid IT requirements	15
Chapter2: Cloud and Data Center – We Can All Get Along.....	6	Final Thoughts and a Look Ahead	16
Hybrid IT and cloud – playing nicely together.....	7		
Chapter3: Designing Your Own Hybrid IT Approach .	8		
Getting the Hybrid IT design done right.....	9		
Hybrid IT design: a 10 step approach.....	9		

Hybrid IT – Supporting Initiatives During a Journey to Digitally Modernize the Business

Executive summary

In 2012, the amount of digital data in the world first exceeded a zettabyte; that’s a trillion Gigabytes of information. Today, with even more data being created, new applications being deployed, connected devices being connected, and even further reliance on our data center ecosystems, leaders in the technology space are always looking for ways to differentiate themselves in a digital market. In comes cloud computing, hoping to solve all of the major challenges organizations from all verticals and industries were experiencing. But the cloud didn’t help everyone. Many organizations pulled back from the cloud during a big push around infrastructure and digital repatriation. Hybrid IT has helped these same companies bring in powerful resources from on-premise, colocation, as well as cloud services.

However, it’s not only about cloud computing. New solutions like edge, 5G, IoT, and others are all specifically designed to modernize organizations and deliver powerful experiences to the end-user. So, what do you call this combination of cloud,

connected devices, remote offices, branch locations, edge computing, colocation, and on-premise workloads? **Hybrid IT.**

In this special report, we’ll explore Hybrid IT, how it’s impacting an organization’s ability to scale and deliver new solutions. Furthermore, we’ll dive into some real-world challenges around Hybrid IT, and how you can have a robust hybrid ecosystem while still leveraging some of the most advanced digital solutions.

Introduction

At a very high level, Hybrid IT includes a mix of solutions and services, including data center, SaaS, PaaS, branch offices, edge computing, security services, and others. In fact, from a broader perspective, Hybrid IT can be seen as the culmination of many trends within the IT infrastructure. This includes virtualization, cloud computing, DevOps, hyperconverged infrastructure (HCI), hyperscale data centers, digital transformation initiatives, and so much more. As Gartner [points](#) out, the combination of so many technologies and solutions might make the Hybrid IT approach challenging.

Still, in reality, it can give an organization the most options when deployed and delivered correctly. This is why it's a prevalent concept. **Hybrid IT offers the best of many worlds**—cost optimization, agility, flexibility, scalability, and elasticity benefits of cloud and data center services. And this is all done in conjunction with control, compliance, security, and reliability.

“Hybrid IT architectures will become the footprints that enable organizations to extend beyond their data centers and into cloud services across multiple platforms.” – Santhosh Rao, Senior Director Analyst, Gartner

Your data center is changing, are you keeping up?

Today, it has become evident that data centers make up very critical infrastructure. New technologies are being deployed directly into the IT environment, and the data center is quickly becoming the business platform for a digital economy. Today, we are seeing entire platforms and new services being born directly within hybrid-ready data center environments. *But, it's not just about the cloud.*

Hybrid IT is the intelligent and proper combination of technology solutions that will allow you to leverage multiple services to help you get ahead.

That in mind, the data centers that we operate and the service they provide will only continue to evolve, expand, and become more critical. Our ability to keep up, manage data, and work with emerging solutions are some of the significant drivers for technological innovation, digital modernization, and leveraging hybrid solutions.

Moving forward, more IT environments will see the benefits of the hybrid data center model. Good partners will help administrators learn how to appropriately size, manage, and deploy across several IT platforms, remote locations, edge, and more. This is where *Hybrid IT comes into play*.

Already, new data center services are pushing the capacity of technologies like cloud computing to the next level. Today's digital economy has resulted in massive amounts of data and information being passed through the data center and its services. Now, with edge and 5G, Hybrid IT is tasked with managing more than ever before. However, Hybrid IT doesn't come without its challenges. This includes complexity, fragmentation, difficulties with migration into the cloud, and even issues with disaster recovery. This is why it's so critical to get the Hybrid IT model done right, and to understand the benefits it can bring.

Remember, the data center is much more than just a place to store servers and data. Furthermore, for some organizations, going “all-in” on cloud computing is just not necessary. This is why it's essential to understand the differences between:

- ✓ Cloud computing
- ✓ Edge ecosystems
- ✓ Distributed computing
- ✓ Colocation services
- ✓ New services supporting global operations
- ✓ New data center technologies (convergence, software-defined, microservices, and others)
- ✓ **The Hybrid IT option: All (or a strategic set) of the above**

The right kind of Hybrid IT partner is the kind that will help your organization leverage the most benefit from each of the above IT platforms. Some data center providers are just that—a provider. For those organizations that require a right set of hybrid services mix, it's essential to find the right platform which integrates with your business needs; and can act as a partner, not just a provider. In working with the right partner, it's essential to understand how your environment plays a role, and where the right model will fit in.

In this special report, we will explore:

- ✓ What's new when it comes to hybrid
- ✓ Considerations around deployments (cloud, edge, and beyond)
- ✓ Working with security while reducing complexity
- ✓ How to deploy hybrid while impacting a digital market

Chapter 1

Defining Modern Compute Models – And Where Hybrid IT Stands Apart

Now is an exciting time to be a part of the digital world. We're seeing fascinating deployments where our data centers are supporting some of the most advanced use-cases in the market. This includes working with data-driven solutions, new types of applications and services, and incorporating emerging technologies like AI and machine learning. The cool part is that none of this has to live in one place.

Hybrid is quickly becoming the new normal for those organizations striving to get ahead. But, before you immediately think that this means 'hybrid cloud,' the concept of a Hybrid IT environment is a bit higher level. This means you're leveraging more business and technology solutions to create more efficient environments and better competitive advantages. And, this is why Gartner [predicts](#) that by this year alone, 2020, 90 percent of organizations will adopt hybrid infrastructure management capabilities.

But going hybrid doesn't come without its challenges. Getting Hybrid IT right means working with the right toolsets and the right partners to deploy your environment. As amazing as hybrid can be, you can run into complexity when it's not done right.

“Organizations that adopt hybrid infrastructure technology will optimize costs and increase efficiency. However, it increases the complexity of selecting the right toolset to deliver end-to-end services in a multi-sourced environment.”
– DD Mishra, research director at Gartner

Working with Hybrid, IT can change the way you deliver critical resources. Further, it can help you design an underlying data center ecosystem that's much more robust and efficient. A recent IDC [report](#) found that Hybrid IT allows companies with an on-premises and multi-cloud approach to optimize cost and application performance. Furthermore, it's not only the data center and IT personnel that benefit from a flexible Hybrid IT platform. DevOps and application development teams benefit too! The IDC report found that Hybrid IT serves as a continuous DevOps platform by providing a shared

With increasing server resource capacity and virtualization, multiple workloads per physical server are typical in the cloud, and virtualized architectures.

pool of application program interfaces (APIs) for both on and off-premise resources. In particular, it allows developers and operations teams (DevOps) to dedicate their time to application deployment and delivery rather than infrastructure management.

There are other unique benefits and use-cases as well. But, before we dive even further into Hybrid IT and the underlying ecosystem that supports it all, it's crucial to take a step back and understand where Hybrid IT fits into the overarching cloud and data center model.

Defining compute models and Hybrid IT

Back in the day of traditional compute, it was pretty simple: one server carried one workload.

However, with increasing server resource capacity and virtualization, multiple workloads per physical server are typical in the cloud, and virtualized architectures. Cloud economics, including server cost, resiliency, scalability, and product lifespan, along with enhancements in cloud security, are promoting migration of workloads across servers, both inside the data center and across data centers (even data centers in different geographic areas).

All of this has created a considerable market desire for different types of cloud and data center services. Over the course of the past few years, organizations have established a foundational understanding of the major cloud models. That is, public, private, and hybrid cloud architectures. Today, we've seen new solutions around multi-cloud, and becoming even more prevalent, the edge. Where many already understand how cloud works, edge computing does introduce a new way of delivering data, applications, and services much closer to the user than ever before.

Edge computing

If you haven't heard about edge just yet, you'll undoubtedly be hearing about it very soon. Creating customer intimacy or being able to process data and services as close to the source as possible is one of the primary goals of edge computing. And, there are excellent reasons as to why this technology is booming. According to [Gartner](#), currently, around 10% of enterprise-generated data is created and processed outside a traditional centralized data center or cloud. By 2025, Gartner predicts this figure will reach 50%. This means that services around the edge will continue to evolve and grow. Remember, from the customer's perspective, edge computing can be any service or architecture which helps you simplify and localize the delivery of applications, data sets, and services. It creates a closeness between data, user, and the services being utilized.

To generate this closeness, there is *proximity* that will be critical to manage the volume of information and create a "timely" result. Enabling technologies like 5G and edge computing are making this movement accelerate.

"Organizations that have embarked on a digital business journey have realized that a more decentralized approach is required to address digital business infrastructure requirements," says Santhosh Rao, principal research analyst at Gartner. "As the volume and velocity of data increases, so too does the inefficiency of streaming all this information to a cloud or data center for processing."

Your edge use-cases are entirely dependent on your business and your long-term requirements. For example, they can be mobile devices used in healthcare, or they can be static—like connected smart systems for managing an entire building.

"A wearable health monitor is an example of a basic edge solution. It can locally analyze data like heart rate or sleep patterns and provide recommendations without a frequent need to connect to the cloud," says Rao.

Edge computing isn't only critical to understand; it also plays a significant role in Hybrid IT and how data centers are changing their market strategies to support a growing number of distributed users.

Hybrid IT—a focus on creating efficiency and ecosystem unification

Hybrid IT is a compute structure where an organization aims to manage some of its IT resources in-house while still giving users the ability to leverage some cloud-based resources for other initiatives.

There are other similarities between the hybrid cloud and Hybrid IT. That is, they both work to help reduce costs and increase the flexibility and agility of enterprises today. And, they both involve cloud computing and multiple geographical disbursements of IT services and resources.

So, while it is true that the hybrid cloud is a facet of Hybrid IT, and they share some similarities, *they are not the same*.

What makes Hybrid IT different and special

A Hybrid IT approach allows an organization explicitly to continuously maintain compliance, control, IT governance, and more. Beyond that, there are a few big differences as well. First of all, Hybrid IT is not about any one piece of technology. Instead, the entire concept revolves around an approach, strategy, or blueprint which governs the deployment and delivery of applications, digital services, and critical resources.

As both a technology and business model, Hybrid IT bridges the typically disparate worlds of business IT solutions involving legacy and cloud applications. Here's one of the most significant differences between hybrid cloud and Hybrid IT:

The goal of Hybrid IT is to enable agile delivery models in easier fashion while leveraging cloud-ready data center resources that provide users with the tools they need when they need them.

When done right, Hybrid IT is all about helping IT and business people attain a composable level of infrastructure. This type of design would span throughout the entire data center that allows physical compute, storage, and network resources all to be delivered as services.

Secondly, as cool as Hybrid IT may seem, there are instances when deploying this kind of model can go south. A poor Hybrid IT design can lead to a few challenges. This includes:

► **Complexity and fragmentation**

This is arguably the biggest challenge that comes from Hybrid IT models. When teams aren't communicating or when business leaders aren't involved, you will have a fragmented and complex IT environment. This is honestly the last thing you'd ever want as it will slow down your innovation capabilities, and most of all, it'll impact your business.

► **Issues with disaster recovery and resiliency**

If you don't have a clear vision into your data center or Hybrid IT ecosystem, how do you expect to keep it healthy and up and running? Most of all, if you have confusion in your ecosystem, you'll also experience problems with latency and service delivery, another issue you want to avoid.

► **Challenges with scaling**

A poor Hybrid IT deployment can also lead to issues with scalability. This usually happens as

a result of losing track of your resources and a misunderstanding around where cloud and on-premises resources are being used. In a fast-paced economy, not being able to scale to meet demand can be a severe problem.

► **Confusing to the admins and staff**

On the one hand, Hybrid IT aims to deliver all of the benefits of a cloud-like delivery model while still leveraging on-premises resources, with some cloud utilization. However, without proper documentation, processes, and updates to the team, this can all get pretty confusing. A reliable Hybrid IT deployment must revolve around good partnerships with data center providers, clear communication with cloud operators, and constant updates to the business and technology teams.

Finally, working with Hybrid IT doesn't have to be a nightmare. However, to get it right, you need to make sure that your Hybrid IT strategy ultimately plays nice with the cloud.

Chapter 2

Cloud and Data Center—We Can All Get Along

During the 2019 Data Center World conference, there was a particular question and concern around the impacts of cloud on the modern data center. Although the cloud will continue to play a critical role in how we deliver core applications and services, **it will not replace data center solutions**. This is evident by the types of investments that major cloud providers are making in having their solutions run within your data center. Major providers are delivering architectures that are designed to help you run native cloud solutions, right inside of your own data center. **This is the cloud telling all of us that data locality, application performance, and working with local resources is still significant.**

In the most recent AFCOM State of the Data Center [report](#), we saw a significant trend in how organizations are leveraging cloud solutions. Trends are showing that cloud now has a broader meaning where it's not just public cloud solutions.

As the report points out, *three in four respondents (72%) report noticing a trend for organizations*

to move away from public cloud and looking to colocation or private data centers. As mentioned earlier, the definition around a private and hybrid cloud is becoming increasingly blurred as major cloud providers (AWS Outposts, for example) are offering their native solutions directly on-premises at a data center site. Currently, 52% of respondents have implemented some type of private cloud solution, and 48% are leveraging some sort of public cloud solution.

Finally, when it comes to the reasons to move to the cloud, respondents indicated some fascinating points. The cloud trends with the most impact on respondent organizations include IoT growth resulting in more big data (47%), data center operations management (DCOM) tools (42%), and integration with AI, data-driven services, and machine learning (39%).

All of this translates to a better understanding of cloud, and where Hybrid IT makes sense.

Hybrid IT and cloud—playing nicely together

With a greater understanding of cloud computing, there will also be better integration around Hybrid IT. That said, it's important to examine where cloud and Hybrid IT join forces to make a difference:

- ▶ Both cloud computing and Hybrid IT will leverage multiple geographical disbursements of IT services and resources. This means in a Hybrid IT model, you can leverage on-premise resources as well as cloud to distribute your critical services. However, it doesn't necessarily have to be the cloud either. You can specifically focus on delivering cloud-like services all from a controlled colocation or data center resource.
- ▶ There are a few driving forces when it comes to the adoption of Hybrid IT. One of those is the need to create cost-effectiveness of cloud components such as software-as-a-service and storage-as-a-service. Working with a combination of both cloud and Hybrid IT, you'll be able to reduce costs while still increasing the flexibility and agility of your organization.

In a Hybrid IT scenario, you can leverage cloud-like delivery models to accomplish data security.

- ▶ Another critical driver around Hybrid IT is the need to maintain control of data. Hybrid IT aims explicitly at giving you the most amount of control over where data is being stored. In a Hybrid IT scenario, you can leverage cloud-like delivery models to accomplish data security. So, think of a colocation service that has cloud data services running within. You're still leveraging a private cloud, but have access to a few cloud data resources you can use. This allows you to keep all of your data internally while using cloud-like services for data optimization.
- ▶ A robust Hybrid IT deployment alongside the cloud will simply allow you to respond more quickly to the ever-quickenning pace of a digital economy. This means giving your IT department the ability to respond as soon as possible to rapidly changing business needs.
- ▶ Hybrid IT, alongside cloud, introduces new cost structures into the enterprise that offer budgetary advantages and allow for greater control of costs.

Here's another critical point to help you understand where Hybrid IT and cloud work together. In a Hybrid IT environment, enterprises can continue to get value out of their existing infrastructure (sometimes legacy) until a technology or business event makes it worthwhile or necessary to replace it with a cloud-based alternative. This can include significant hardware or software upgrades, the need to decommission or consolidate a part of a data center, a fundamental change in business processes, or even a merger and acquisition.

If you're working with a capable data center partner and you have *a good Hybrid IT strategy in place*, allowing some of those systems to continue to operate while still being economically feasible can make all the sense in the world. Hybrid IT can act as your gateway into new and emerging technologies by allowing you to adopt those systems at your own pace. And there are significant benefits to making this happen. This includes:

- ▶ **Security, data integrity, and control**

Maintaining control of your data is extremely important. It can become a bit more challenging when the cloud is involved. Remember, you will still need to secure your applications, ensure your databases are encrypted, and that you lock down access. Believe it or not, some of these security practices are not turned on by default when it comes to the cloud. For example, [according to recent statistics](#), as many as 7% of all Amazon Web Services (AWS) S3 servers are entirely publicly accessible without any authentication, and 35% are unencrypted. This means administrators need to go into their S3 buckets and enable encryption. Working with Hybrid IT allows you to know what needs to live in the cloud and what doesn't. This means keeping tabs on all of your applications and the flow of data between cloud and on-premises resources.

- ▶ **You are bridging legacy into next-generation**

In some cases, migrating legacy applications to the cloud may be so daunting that the decision is made to leave them be. It's in these situations that you may find that the app is still bringing you value, it's still operating quickly, and it can even help you be agile. Just because it can move to the cloud doesn't mean it always should. However, Hybrid IT allows you to be on the ready for the time that your business and tech landscape evolve and need to push that resource into the cloud.

► **Efficiency, latency sensitivity, and end-user productivity**

Not everything belongs in the cloud. This is a big reason why technologies around the edge and distributed computing are proliferating. A good Hybrid IT strategy will take the edge, your data center, your colocation partner, and the cloud all into consideration. Most of all, it'll allow you to ease into new concepts like edge without having to dump all of your workloads there all at once.

► **Compliance, governance, and risk mitigation**

Hybrid IT models allow you to move data, whether legacy or modern, at your own pace. Geopolitical challenges, as well as geographical distribution of resources, can all prove to be challenging with working with a cloud-only model. However, Hybrid IT allows you to leverage existing systems, even if they're legacy, alongside more modern solutions. Again, unlike a hybrid cloud scenario, Hybrid IT will enable you to leverage cloud-like services to continue to use your existing systems while still planning for the future.

To get started, many organizations are turning to providers of retail colocation data centers, hosted colocation data centers, and cloud-based facilities.

To create a Hybrid IT approach, you have to take a step back and understand how it applies to your business. And you'll need to understand:

- How you can achieve better control costs
- How you can improve service level agreements
- What an actual Hybrid IT model looks like

To get started, many organizations are turning to providers of retail colocation data centers, hosted colocation data centers, and cloud-based facilities. Most of all, they're turning to partners that are both cloud and edge-ready. To that extent, here's what you need to know to develop a Hybrid IT mindset.

Chapter 3

Designing Your Own Hybrid IT Approach

Believe it or not, you might already be doing Hybrid IT. Or, at the very least a version of it. Another essential point to understand is that if you need to retain control of either legacy systems or sensitive pieces of infrastructure, you don't need to feel bad. *Not everything belongs in the cloud, and Hybrid IT can help you prepare for that level of digital modernization; at your own pace.*

In a recent IDC [study](#), almost all interviewees (90%) said that their firms currently have a Hybrid IT strategy in place. Furthermore, all the firms with a Hybrid IT strategy have their core business applications deployed in multiple locations. But, it's not always easy to get it right. As one IDC respondent describes, Hybrid IT is more complicated when it comes to deployment and ongoing management. The initial setup of the process takes some time, and training people on how to use the different portals further extends deployment timelines. Every time something new comes up, it's always a challenge because people don't necessarily

like to learn anything new. There's still a learning curve, and they are usually not too happy about it. Change management is always a headache.

However, if done right, Hybrid IT enables businesses with an on-premises and multi-cloud strategy to optimize cost across these resources.

According to the IDC report, Hybrid IT can make you a very agile, cloud-ready organization. Hybrid IT empowers the IT organization to take on the role of a "virtual cloud service provider" (VCSP) as a part of its core competency. IT and business teams can select the right mix of public and private cloud resources to establish a "hybrid infrastructure real estate," with dynamic clouds of infrastructure as a service (IaaS), container as a service (CaaS), and virtual machine as a service (VMaaS). This enables the rapid provisioning of virtual machines, containers, and even bare-metal instances as required for current- and next-generation applications.

Getting the Hybrid IT design done right

IDC believes that the opportunity for IT infrastructure partners is now. Technology and data center partners need to build Hybrid IT stacks and combine them with partner ecosystems to meet the urgent needs of enterprises struggling to reap the benefits of a “real” Hybrid IT.

“If IT infrastructure suppliers are going to keep themselves relevant, they need to embrace Hybrid IT today. Our current IT suppliers will become irrelevant for us if they don’t come up with innovative Hybrid IT solutions as we shift our infrastructure to the public cloud.”

– IDC Report Interviewee

Hybrid IT design: a 10 step approach

1 Partner with a company that will drive digital transformation and IT modernization.

You’re not looking for a technology vendor or a manufacturer that can promise you the stars. You want a partner that deeply understands both your technology and your business goals. Some partners will scoff at Hybrid IT models and will want to simply ‘rip off the bandage;’ in some cases forcing you into an ecosystem, you might not be ready for. A good technology partner can help you build a reliable and efficient physical infrastructure that delivers service reliability and cost-effective solutions for your Hybrid IT initiatives.

2 Map out your entire business, technology systems, and all.

One of the biggest downfalls of Hybrid IT are hidden pieces of the technology landscape or a misaligned business initiative. If you have a Hybrid IT ecosystem or want to deploy one, ensure you have all stakeholders at the table when you discuss the solution. Detractors and people who don’t support your approach likely don’t understand what you’re trying to do or what their role would be in a Hybrid IT state. Business champions will be just as crucial in creating a Hybrid IT approach as the technologies supporting it all.

3 Legacy is not your enemy, but you need to be aware of it and plan around it.

There’s a reason why IBM AS400 systems are still in operation. They work, they don’t break, and they support large organizations and vast use-cases. But, in many cases, they’re seen as legacy solutions. However, this doesn’t make them your mortal enemy. You can have a legacy system still operating and still bringing you value. But there will come a time when you may need to move off of these systems potentially. Hybrid IT is specifically designed to make that transition much more manageable. Leveraging cloud-ready Hybrid IT partners help you create a roadmap to the future and how to work with legacy systems effectively.

4 Small steps into the future include incorporating converged systems, higher levels of density, and cloud utilization.

A Hybrid IT design must continuously look at ways to optimize operations and improve overall efficiency. This is why leaders must regularly examine architectural pieces that will help them get ahead. For example, you may work with a technology partner that offers a family of converged infrastructure solutions for colocation and cloud hosting providers that include hardware, software, and services. When it comes to Hybrid IT, this can help you develop a positive path forward for your business to cost-effectively support and adapt to evolving technologies and changing business demands. Further, these solutions can help improve productivity by accelerating data center deployment tasks and enabling intelligent management of data center assets; for both legacy and modern systems.

5 Geography and distributed users will play a role in how you deploy Hybrid IT.

Your data, applications, and services are more dispersed than ever before. This is why you need to work with a partner who can help you address common edge issues like consistency between deployments, reliability, remote installation, monitoring and management, and security. Hybrid IT does not have to slow down edge deployments. If anything, your partner can provide both a Hybrid IT framework while still supporting edge deployments.

6 Create a data management and migration plan.

Outside of mapping out your applications and services, you need to understand your data requirements, how they'll be growing, and how you leverage data today. A significant driver around Hybrid IT is maintaining control of your data and how it gets distributed. When it comes to data, the underlying physical infrastructure can have a significant impact on the performance, efficiency, and reliability of your data center and the information it processes. As you take on your Hybrid IT and future initiatives, take into consideration essential infrastructure elements, how the information will be processed and stored, and what your partner can do to increase both security and resiliency of your data.

7 It's not all about the cloud, but you'll need to plan for the journey.

The cool part about Hybrid IT is the ability to work with the environment that just right for your apps and services. That said, even if the cloud isn't an option for you today, there's a chance that it might be soon. But, again, it doesn't have to be. Hybrid IT is about the freedom to select the right environment based on your specific requirements. Need to stay on-premise because of data sovereignty? Or, maybe scaling out a particular service or application just doesn't make sense in the cloud. Working with a good partner that understands both Hybrid IT and the underlying physical ecosystem is essential. Look for partners that offer a comprehensive portfolio of cloud computing solutions and advisory services that take aim at the key physical infrastructure characteristics that impact cloud performance. This enables organizations to focus on the intricacies of growing their business instead of the complexity of their cloud infrastructure while minimizing risk.

8 Work to minimize risk, security issues, and complexity.

On that note, the last thing you want to do is introduce higher levels of complexity and fragmentation into your existing environment. If what you're doing feels complex or is making you spend more time manually managing systems, pause for a second and take a step back. Hybrid IT, when done right, is an enabler for digital transformation, not a detractor. A good partner can help you create a design as well as a pathway into the future where your existing operations remain smooth and uncluttered.

9 Always involve your people.

The best Hybrid IT approaches will include champions from all over the company. This can be someone in marketing using a specific application (possibly running on a legacy part of your business) to your facility operations teams that monitor and manage your cloud-ready ecosystem. They'll all have a say in how to make the deployment and management of your Hybrid IT platform far more efficient.

10 Challenge your partners and suppliers to ensure they can help you grow and evolve.

When working with Hybrid IT, you can run into challenges and issues. This is why if you're working with a partner, be sure to challenge their capabilities and ensure they can meet your demands. This means working with a partner who can help you facilitate the journey to a cloud-enabled data center, depending on your focus. Are they able to better help you with asset tracking in a Hybrid IT ecosystem? Ask them for a use-case. Or, maybe they promise you a reduction around deployment times. Be sure to ask them for some real-world metrics and examples. Working on modernization projects can be challenging enough. A good partner can make that entire process far more straightforward. But, it'll be up to you to ensure your partner can meet your technology and business goals.

Finally, you'll need to put this all together. There is no single blueprint for becoming a Hybrid IT environment. However, there are good approaches and best practices. One crucial factor to consider is that Hybrid IT acts as a bridge into the future. However, you never really want to stop on the bridge and admire the view. It'll get old pretty quickly. The goal of Hybrid IT is to help you create that bridge into cloud and modernization and also to help you cross it.

Hybrid IT doesn't have to be complicated unless you somehow design it that way. But, to make sure you get it right, working with a good partner that is experienced in Hybrid IT strategies that encompass edge, cloud, colocation, and on-premises solutions can go a long way. It's these types of partners that help facilitate your journey into the cloud, while still providing underlying systems capable of handling a wide variety of Hybrid IT requirements.

Chapter 4

What's New? How Data Centers are Leveraging Hybrid IT

Throughout our discussion, we see that Hybrid IT isn't necessarily a jump into the cloud. Instead, it's also an approach to creating a cloud-like ecosystem. So, what's new, and how are organizations incorporating a cloud solution into an overall Hybrid IT strategy? To understand it, you have to look at the **edge**.

Hybrid IT at the edge of the cloud

Edge computing is poised to revolutionize the way we communicate, share data, and access critical resources. Edge ecosystems are specifically designed to help bring core services, data, parts of the cloud, and applications far closer to the user than ever before. And, in a world where 'slow is the new down,' creating an efficient edge platform is more important now than ever in the past. This means working with latency-sensitive applications, ensuring proper performance, and working with truly resilient solutions.

Today, edge already supports some of the most critical functions in our society. This includes:

- ▶ Healthcare (remote and rural regions)
- ▶ Manufacturing
- ▶ Pharmaceuticals
- ▶ Automotive
- ▶ Entertainment (think Netflix, Disney+, and others)
- ▶ And so much more

But it's not entirely easy to make edge work effectively. Remember, these aren't just 'smaller' or less critical data centers. They're still essential pieces of your infrastructure. And yet, locating compute functions where the data is generated and used comes with a unique set of challenges:

- ▶ Remote and geographically distributed sites
- ▶ Lack of dedicated on-site IT personnel
- ▶ Non-traditional IT spaces with limited environmental controls



Hybrid IT and edge play very well together when you have standardized designs coupled with intelligent management capabilities.

Further, the challenge becomes translating and working with Hybrid IT and traditional IT capabilities at the edge. This is a big reason why dependable network infrastructure helps address these challenges. A blend of enclosures, pre-configured offerings, intelligent solutions, and standards-based cabling and connectivity ensure that edge networks perform as needed, limiting issues or downtime. You want to be able to run these ecosystems with as little impact on your staff as possible. This is why efficient edge environments don't require a lot of people to manage them and can function in distributed locations.

For example, building intelligence into the installation is the single most significant factor in remote monitoring, edge management, and control. Solutions like those from Panduit's SmartZone™ are powerful tools for managing everything from access to power delivery to environmental issues.

Working with partners that have a broad portfolio of infrastructure solutions can help you configure the perfect solution for your specific environment.

It's with these kinds of designs that you're leveraging data to make better decisions in real-time and even proactively. In working with Hybrid IT and the edge, the overarching goal must be to continue to reduce complexity and infrastructure management fragmentation. Hybrid IT and edge play very well together when you have standardized designs coupled with intelligent management capabilities.

The important note here is that each data center application and environment have unique characteristics that demand solutions that address those characteristics, and edge deployments are no exception. The infrastructure for a highly protected indoor environment will be vastly different than what is needed for a harsh space, for example. Working with partners that have a broad portfolio of infrastructure solutions can help you configure the perfect solution for your specific environment.

Selecting Hybrid IT partners

In a world of constant change, you do need a partner more than just a provider. Cloud computing is playing an increasing role in many data center's Hybrid IT strategies. However, the same factors that enable virtualization and cloud computing to provide greater flexibility and scalability can also create a discernible impact on the physical infrastructure of the data center that is delivering these services. A robust and scalable physical infrastructure is a critical element that aids in the evolution of digital modernization.

To that extent, as a colocation or cloud hosting provider supporting Hybrid IT initiatives, there is paramount responsibility to maintain uptime for (in many cases) multiple customers. Because of this, you need ways to optimize cooling, better manage power usage, and to build a scalable, robust physical infrastructure that can scale to meet your customers' growing demands. And you must do all of this while keeping costs under control.

This is a big reason why you need to select a partner with a complete family of Converged Infrastructure Solutions for colocation and cloud hosting providers that include hardware, software, and services that can help you:

- ▶ Maximize your revenue and profitability through optimized cooling, space utilization, lowered power, and new value-added service opportunities
- ▶ Improve productivity by accelerating data center as well as edge deployment tasks and enabling intelligent management of data center and edge assets, freeing up staff resources to work on a more strategic project
- ▶ Develop a positive path forward for your business to cost-effectively support and adapt to evolving technologies and changing business demands
- ▶ By addressing unique physical infrastructure power, cooling, space and connectivity requirements, your Hybrid IT partner enables you to optimize and maintain operational performance while reducing costs to achieve a faster return on investment (ROI)

To help guide you in selecting the right infrastructure, cloud, and Hybrid IT partner, consider the following checklist to get started.

The Hybrid IT checklist

Complete this checklist for each solution you review. In doing this checklist, you might find that a given solution meets more requirements than others. Similarly, you might have needs that are not on this list. You'll want to find a solution that meets your 'must-have' requirements as far as importance to your use-case.

Feature/Requirement	Availability / Meets Requirements Yes = 1 / No = 0	Importance Rating (1-10) Low to High
Example Feature	Yes (1)	8
Physical Location (Edge, Colo, Private)		
Power Management		
Efficient Cooling		
Green Technology Adoption/Certifications		
Customer Service		
Business Integration		
Cloud-Like Capabilities		
Support for Legacy Architecture		
Engineering Expertise		
Response time ('x' minutes/hours)		
Contracts and SLAs		
DCIM, Edge, and Data Center Management Tools		
Customer Satisfaction		
Managed Services		
Multi-Environment Deployment Capability (harsh, remote, urban, etc.)		
Multi-Tenancy Capabilities		
Disaster Recovery Options		
Density and Converged Architecture Solutions		
Expansion and Scale Capabilities		
Security and Compliance		
TOTALS		

Chapter 5

Hybrid IT Partners Aim to Improve Cloud, Edge, Data Center Deployments

There are those in the industry with the apparent capability to take a step back and help you see the big picture. It's those types of partners that you want in your corner. A unified approach to logical and physical systems architecture is imperative to adequately address the migration to cloud computing and how to leverage Hybrid IT properly. To make this process much more effective, partners like Panduit help enterprises align, converge, and optimize critical systems—communication, computing, control, power, and security—to build a smarter, unified business foundation that is tightly coupled with IT.

A robust physical infrastructure foundation ensures reliability, agility, and security to drive business advantages and overall success.

When working with Hybrid IT solutions, cloud deployment requires a robust and unified physical infrastructure to maximize the benefits of reduced costs and downtime, increased flexibility, and simplified implementation.

Therefore, organizations need to consider the physical infrastructure design while working with Hybrid IT and before adopting cloud architecture. A robust physical infrastructure foundation ensures reliability, agility, and security to drive business advantages and overall success. Also, designing a centrally managed and integrated logical and physical infrastructure is key to avoiding challenges that are typical with the silo-based method of deploying and managing the physical infrastructure, such as downtime and higher operational costs.

Benefits of infrastructure planning for Hybrid IT deployments

The main advantages of solutions that help prepare the infrastructure for Hybrid IT and cloud deployment include reduced unplanned outages and infrastructure management costs, which increase the time available for strategic activities and ensure faster delivery. Other benefits include decreased infrastructure complexity, better operational control, improved confidence instability, and a documented

and approved delivery process. Scalability and improved capacity utilization are also key benefits.

Infrastructure planning can be made simple when working with a technology provider, like Panduit, that incorporates a vast partner ecosystem including distributors, system integrators, consultants, contractors, and installers to design, deploy, implement and maintain standards-based physical infrastructure solutions of unmatched quality.

The Panduit Certified Design is delivered by Panduit or by trained and certified Panduit® ONESM Partners, to help clients fill persistent gaps within their network infrastructure. This service helps reduce uncertainty and risk around the physical network implementation by planning out pathways, distribution cabinet designs, and device connection maps. It includes consideration of environmental factors such as required in TIA-1005, with other applicable network cabling standards.



Panduit Certified Designs incorporate products that are manufactured and warranted upon installation so organizations can easily enable a Hybrid IT strategy.

A recent survey of Chief Information Officers (CIOs) indicates that 92% feel that minimizing unplanned outages is critical or very important when preparing their organization's infrastructure for private and/or hybrid deployments. When asked about reduced infrastructure management costs, 89% also feel it is imperative.

► Minimize Unplanned Downtime

Advanced technologies deployed in a traditional architecture can lead to increased complexity and leave critical systems vulnerable to faults, unexpected downtime, and more extended Mean Time to Repair (MTTR). This leads to decreased productivity, lost customers, and a negative impact on the bottom line. Although downtime can never be eliminated, integrated logical to physical architectures enable faster diagnoses to detect the threat of faults such as broken or compromised network performance before downtime occurs. This is an essential goal of Hybrid IT initiatives, followed closely with cost controls.

► **Lower Costs**

Panduit leverages proven methodologies and global best practices to provide solutions that allow enterprises to fully leverage assets and reduce costs. This approach enables data center managers at the core and at the edge to shorten implementation time and costs by removing complications and delivering engineered, tested, and validated solutions optimized for a given technology application. As a result, Hybrid IT, alongside cloud deployments, can optimize real estate, improve energy efficiency, and reduce complexity.

Essential characteristics for deployment success in the physical infrastructure

There are five specific characteristics in a physical infrastructure solution that are key to working with the cloud as well as Hybrid IT:

- 1 Agility** – handle moves, adds and changes for added flexibility and capacity management
- 2 Sustainability** – maximize real estate utilization and optimize power and cooling efficiency
- 3 Visibility** – maintain control of data process and real-time visibility into network reliability, bandwidth, IT asset health and capacity when leveraging third-party cloud vendors
- 4 Management** – maintain intelligent control, leveraging smart systems and advanced DCIM solutions, to manage cloud, edge, and primary colocation facilities
- 5 Innovation** – build intelligence into the installation to enhance remote monitoring, management, and control; leverage data-driven solutions to make better decisions around everything from security and access to edge deployments and connectivity

It's these characteristics that help you both today and in the near future. Good data center and Hybrid IT partners not only help you with design, but they also advise your business as you grow and evolve your requirements.

Data center management that aligns with all aspects of your edge, cloud, and Hybrid IT requirements

Panduit and their [partners](#) specifically aim to ensure that each element of your data center is installed correctly and aligned to work together. This can mean the difference between prolonged network downtime or finding the problem before it occurs.

Assessments go a step further to help you understand how business interacts with your technology, where there are legacy components, and how to work with them effectively.

There's another big difference in working with a partner that goes far beyond the data center and Hybrid IT solutions. True innovators in the journey through digital innovation are also advisors. Panduit [Advisory Services](#) offers physical infrastructure assessments that help you provide a solid foundation for cloud, edge, and Hybrid IT environments. These assessments evaluate critical components of your physical infrastructure, such as power availability, cooling capacity and efficiency, energy efficiency, cabinet placement, network connectivity, cable pathways, identification and labeling, and telecommunications grounding and bonding. They go a step further to help you understand how business interacts with your technology, where there are legacy components, and how to work with them effectively. Finally, they aim to better understand your journey into the cloud, edge, and future systems.

So, to get started, you only need to begin the conversation. Where are you in your Hybrid IT journey? Are you looking to cloud or the edge? What can you do to support your emerging service requirements better? Most of all, how can cloud, edge, and even Hybrid IT help you gain a competitive advantage?

Working with a good technology partner can make all the difference in how you use technology today and how you innovate in the future.

Final Thoughts and a Look Ahead

We have all quickly become digital natives in a world that have only seen constant growth around data, services, and the applications we use daily. To that extent, we've also seen a maturity in the market that has allowed organizations to better understand their data center IT requirements.

Many of those companies adopted a Hybrid IT approach to allow further them to ease into digital modernization efforts. To recap briefly, as both a technology and business model, Hybrid IT bridges the usually separate worlds of business IT solutions, specifically involving legacy and cloud applications.

The goal of Hybrid IT is to create agile delivery models while leveraging cloud-ready data center resources, that provide users with the tools they need when they need them.

As we discussed earlier in the report, Hybrid IT includes a mix of solutions and services, including data center, SaaS, PaaS, branch offices, edge computing, security services, and others. In fact, from a broader perspective, Hybrid IT can be seen as the culmination of many trends within the IT infrastructure.

To that extent, where are you in your IT or Hybrid IT journey? Have you looked at a data center partner that can deliver on both primary and edge requirements? When deploying Hybrid IT infrastructure in traditional data centers, it is crucial to understand that a Hybrid IT-enabled data center needs to be able to **lay the foundation** for a successful virtualized environment. This requires the data center to have the capability to handle the operational strains that occur as a result of various applications.

Hybrid IT allows for rapid deployment capabilities, as well as improved storage and data accessibility solutions. This all contributes to an optimized data center and edge ecosystem.

Getting started on this journey doesn't have to be a challenge. First, complete that checklist and really understand your priorities and where there is value. Then, work with a good data center, cloud, and Hybrid IT partner that can guide you through the technology landscape and build an ecosystem to support your needs both in today's digital market and in a much more connected future.