# Overcoming Cloud Challenges with Multi-tenant Data Centers

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As IT executives develop the blueprints and architecture needed to deliver on their digital transformation initiatives, the growing challenge of connecting to a myriad of partners, providers and platforms looms. Digital infrastructure is becoming increasingly distributed and local communications providers from a company-owned data center may not be able to meet the bandwidth, latency, location and cost requirements necessary to realize their digital goals.

Many IT organizations have leveraged the cloud to deploy scalable infrastructure and are now looking to the cloud to address their growing connectivity needs. Let's explore some of the challenges of leveraging the cloud for connectivity across an increasingly distributed IT environment, and how a multi-tenant data center can play a key role in meeting the need to connect all the infrastructure and partners required of today's digital businesses.
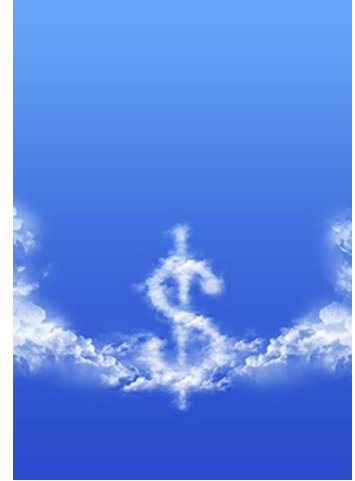
Challenges of the cloud

Determining which workloads are appropriate for the cloud and how to address the connectivity requirements of businesses' current and future plans are important issues in planning an evolving IT architecture. As not all applications will be suitable, there are many factors to consider.
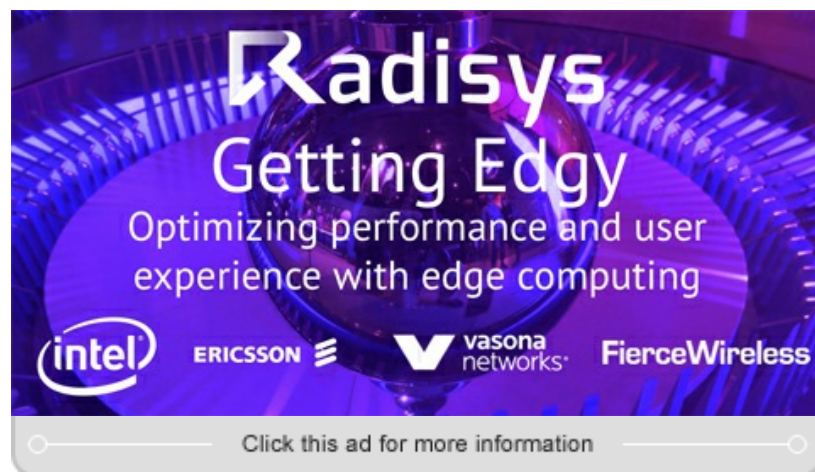
Security and privacy

Moving intellectual property and sensitive data from the confines of company-controlled servers to a cloud-based solution outside of company firewalls may introduce risk. The problem with risk and vulnerabilities is that they keep changing with every new advance we make in technology.

Application performance

Cloud environments are necessarily standardized to handle the most prominent configurations and needs. Therefore, it may not be possible to tune complex applications in a cloud environment, resulting in poor performance.

Compliance

Many industries are subject to compliance regulations that limit the ways sensitive data can be stored and distributed. The vagueness of these requirements combined with the uncertainty of how cloud providers can ensure compliance may result in companies maintaining strict data control to protect against fines.

Connectivity

While it's true that the cloud may enhance connectivity when compared to the options available from your own data center, there are still challenges inherent in cloud implementations.

Configuring and managing network services in a cloud environment to connect to the myriad of partners, business locations, applications and devices in today's digital environment can be quite complex. The responsibility to set up, test and manage these services rests with the customer and can be challenging without deep cloud networking expertise. The more endpoints involved, the more complex the process.

Networking costs in a cloud environment can be unpredictable. Usage-based pricing, multiple chargeable components—for example port hours, number of endpoints, distance, and others—and multi-cloud scenarios all contribute to higher-than-expected costs.

Overcoming cloud challenges with multi-tenant data centers

Although the cloud offers great benefits to IT, it does not solve the connectivity challenges to distributed assets. Let's look how a carrier-neutral, Tier 3-rated multi-tenant data center with rich connectivity can become an integral part of your digital infrastructure.

A multi-tenant data center offers the opportunity to move compute and storage infrastructure into a colocation facility that is highly connected to the networks you need to support today's distributed IT while leveraging the cloud for suitable applications. Infrastructure within the data center can connect with cloud apps using a hybrid cloud or multi-cloud model, while also connecting to other partners, providers and platforms necessary to support your business. A strong data center partner can enable the agility needed in today's fast-moving IT environments and can help future-proof your digital architecture. As you evaluate potential options, here are some key considerations for your search:

Reliability

Maintaining 100 percent uptime is the goal. Check for a multi-tenant data center provider with at least a Tier 3 rating (per Uptime Institute's standards), redundant power distribution and resilient networks with physically diverse routes and latency guarantees. A good data center provider is happy to inform potential clients of their SLAs and reliability record. Often, the reliability of a modern Tier 3 data center will far exceed an older, company-owned facility. When attempting to gain information from a cloud provider, it may be difficult to get the topology or architecture of their network.

Security & Privacy

Placing company infrastructure in a secure data center rather than a cloud environment enables more control, visibility, and accountability. The customer manages the digital security infrastructure as well as the appropriate policies and procedures. The data center provider should be able to describe the multiple layers of physical security in place to protect your company's equipment.

Application Performance

Multi-tenant data centers can improve application performance in several ways. Performance may be improved through the customer's deployment of specialized hardware. Tuning certain platform parameters may help application performance by providing control of the hardware, versus not when utilizing a cloud provider's platform. Finally, application performance can be enhanced by

deploying compute resources in data center locations physically close to end customers. Cloud data centers—and even their content delivery locations—tend to be located only in major metropolitan areas.

Compliance

A secure, multi-tenant data center with appropriate certifications housing company-owned infrastructure can often enable businesses to more readily meet their compliance requirements than business-owned data centers or cloud alternatives. For the enterprise doing business in Europe, and the associated [General Data Privacy Regulation (GDPR) concerns](#), having sensitive data in a secured colocation space is very attractive. That is especially true with the threat of heavy fines for non-compliance.

Connectivity: a key ingredient for today's distributed infrastructure

Connectivity is where a modern, richly connected, multi-tenant data center shines. With proximity to high-speed optical fiber paths, you can get anywhere from there—and fast. At the same time, you can protect your sensitive data by keeping it on your own equipment in a secure facility and know exactly where it is. You can deploy workloads where they make the most economical sense and still privately connect to applications running in the cloud.

A local, multi-tenant data center partner focusing on robust connectivity also has the expert staff to design and implement the network to meet your requirements. An edge data center in a Tier 2 market has the added benefit of bringing connectivity options and speed where it was previously difficult to obtain. When finding a partner with proven expertise, look for following attributes:

Carrier neutral

To meet clients' varied connectivity needs, the data center provider should build in a variety of carriers. A network fabric connecting each data center location offers clients their choice of carriers across the entire provider's footprint.

High-bandwidth connectivity

Data centers should have high-capacity bandwidth of at least 100Gbps. Businesses often cannot get this capacity from their business location.

Private network fabric

Data centers should supply private, low-latency connectivity from every data center to multiple Internet exchanges to enable access to hundreds of providers for a truly global reach.

Software-defined network

Data centers should enable rapid provisioning of services to match the speed of today's digital business. This is an essential consideration.

Cloud provider connectivity

A multi-tenant data center should provide direct private connections to all major cloud providers and support hybrid and multi-cloud configurations.

Local support

Data centers should have proven expertise in networking and connectivity. A client must have access to knowledgeable staff to help design, configure and manage network connections. This reduces the burden on your existing staff and eliminates the need to hire hard-to-find, qualified candidates.

As the digital revolution continues to accelerate, nobody without a crystal ball can tell where it's going. A few things are certain, though, and among them is the reality that the days of managing everything from a company's local data center are rapidly coming to an end. The need to engage and connect to an increasing number of entities is a principle you can count on. Businesses need partners that provide them the agility and expertise to navigate, attack and respond. So, consider how a local multi-tenant data center partner can sit at the core of your business's digital infrastructure to ensure you're ready for the challenge. And buckle your seat belt for the ride!