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A guide to choosing a colocation service provider

Executive summary

As data and applications become increasingly important for small to medium-sized businesses (SMBs), the need for a reliable, high-performance data center is critical. Yet for many SMBs, IT — while a backbone for the business — is definitely not the business. In these situations, selecting the right colocation facility can be a daunting prospect — particularly when considering there is more that goes into a data center than racks of servers. What's more, with today's reliance on virtualization and converged infrastructure, the local colocation that seems like the best, most convenient choice may present overlooked legal ramifications that can be costly in the long term. When exploring colocation options, SMBs would do well to take a big picture assessment that goes beyond simply looking at hardware and software options.

Table of contents

Privacy: More complicated than you may think	2
Security: Both physical and logical	2
Wholesale vs. retail	2
The facility factor	2
Maximizing data center operations	3
Keeping connected	4
Conclusion	4
About Eaton	4
About the author	4



Powering Business Worldwide

Privacy: More complicated than you may think

Virtualization has undoubtedly been a boon for SMBs, allowing many to achieve the flexibility and compute capacity of much larger organizations. However, virtualization can also create challenges that can result in significant legal ramifications. For starters, the U.S. has different laws governing privacy of personal data than Canada, Latin America, or the European Union. SMBs need to explore whether data stored at a colocation will ever be transmitted to another jurisdiction — thereby violating privacy laws. SMBs also need to match their regulatory compliance requirements to the facility they choose. HIPAA, PCI, Sarbanes Oxley, SSAR 16, and SAS 70 are just a few of a number of standards that are meant to regulate how businesses handle sensitive data. Make sure colocation providers have put into place the necessary policies, procedures, and technology that allow their facilities to be compliant, thus allowing SMBs to have their sensitive business data located outside the confines of their own four walls.

Security: Both physical and logical

A colocation by its very definition is a multi-tenant facility. SMBs need to evaluate both physical access to servers and equipment as well as logical access to data and applications. It is fairly simple to determine how well a colocation physically secures access to its facility and equipment; more challenging is determining the integrity of logical security. Colocation services vary drastically, from traditional data center hosting of end user equipment to advanced offerings such as managed IT and cloud. When considering advanced services that take advantage of IT resources from the colocation, be aware that virtualization enables a single server to host applications and data from multiple sources. Determining whether or not a colocation provides for logical separation can be a critical factor when deciding suitability of a particular colocation partner or particular service.

Wholesale vs. retail

Not all colocations are created equal. Wholesale data centers typically provide space for servers and little else. This may be fine for SMBs that don't require additional services and need excess computing capacity now and then. However, given that many SMBs are not in the data center operations business, additional services may be needed. This is where retail data centers come into play.

Such providers offer a multitude of services in addition to just floor and rack space. Those SMBs without dedicated IT staff may want to take advantage of a number of services, such as cloud-based applications, managed hosting, managed storage, and business resiliency, among others. In addition to the variety of services a retail colocation may offer, SMBs should evaluate service level agreement (SLA) options — both in terms of what is offered as well as what the capabilities are to make good on a contract should any issues occur. While many colocations may accurately boast 5-9s in terms of reliability, SMBs need to verify that such facilities have the ability — and the intention — to redress any service level problems that should arise, and do so with a high degree of urgency.

In a report released by the Natural Resources Defense Council (NRDC), the multi-tenant data center type of providers are broken up and defined as seen in next column.

Wholesale colocation

Customer rents entire building or room (cell or pod). Typically pays electricity per use.

Retail colocation

Customer rents cages, cabinets, or racks in shared room. Typically pays per power block.

Managed hosting

Sub-type of wholesale or retail where the IT infrastructure is operated by the provider.

Hyper-scale cloud computing

Managed hosting where the provider owns and operates IT and delivers computing services on a large scale.

The facility factor

In addition to services, SMBs will need to evaluate offerings on the facilities side of the equation. While a colocation may offer enough power, make sure there is redundancy. Is the colocation provider using the latest technology in high efficiency power and sensible thermal management?

These are competitive advantages that will result in lower cost for the provider, and ultimately a better price for the tenant. In addition, check how easy it is to make changes.

- Can you add equipment and can the colocation effectively manage density requirements?
- Is it possible to quickly spin up or spin down servers based on current and projected needs?
- Is cooling adequate and redundant?
- Does the facility promote and encourage proper thermal management practices?
- Does it properly segregate hot and cold air streams to protect the equipment running your data?
- Is there the ability to satisfy your requirements for equipment isolation if that is the case?
- Are racks or even servers within those racks shared with a few other customers, or is there sharing among many other customers?

To accurately gauge your comfort level with multi-tenancy, these are the types of questions that require thorough examination to select the colocation that's right for your SMB.

Clearly, selecting a data center is an involved process that requires due diligence on the part of an SMB. Yet considering the mission-critical role data and applications play for many SMBs, it is important to do your homework. With virtualization and globalization, even those SMBs with only a local presence need to be aware of the implications that privacy requirements around the world could have on their operations. SMBs need to select a colocation they trust as a true partner. While the selection process may seem daunting, begin by looking at those colocation providers that have a reputation for service and reliability. If location is a priority, evaluate those facilities that are close enough to afford convenient site visits, then delve into the inner workings of those providers — everything from procedures and policies to hardware, software, and power equipment. One important criteria worth noting is whether a data center has SOC 2 certification, an independent designation that attests to adherence to security, availability, process, and privacy controls. Choosing such a data center can offer assurances that an SMB's data is adequately safeguarded.

Maximizing data center operations

To find the most appropriate data center, SMBs need to do thorough research. After all, their business depends on IT. Yet selecting the right data center is only one part of the equation. To ensure maximum operational effectiveness based on an SMB's individual reliability and security needs, it's necessary to think on a granular level. After all, most colocations are focused on the operations of the facility overall. It's the job of an SMB to take care of operations down to the rack level to get the most out of the data center.

Whether an SMB has a rack, a group of racks, or equipment segregated in a caged section, it's important to be able to monitor and manage its own equipment within the facility. Even though a colocation may have superior thermal management and heat rejection systems throughout the facility, an SMB's individual rack may be vulnerable to hot spots caused by neighboring racks. Environmental rack monitors and probes can keep tabs on racks, allowing SMBs to know temperature and humidity levels for their specific equipment.

For SMBs that require reliability and availability above all else, installing a UPS at the rack level can provide an additional measure of redundancy. When evaluating UPS devices, SMBs should look for the following features:

- Hot swappable to ensure continuous uptime
- Integration with intelligent power management software for remote management via a secure Web browser or SMTP interface
- Customized UPS settings

To ensure reliable and cost-effective power operations, combine a rack UPS with an intelligent rack power distribution unit or rack PDU. Taken together, these two devices can provide detailed and granular information to ensure efficient rack operations. Ideally, intelligent rack PDUs should have the following features:

- Outlet-level management to provide receptacle-level information about your equipment with $\pm 1\%$ billing grade metering to ensure accuracy
- Modern low profile form factor to facilitate proper airflow within the rack, and a high temperature rating to handle the hot conditions at the back of the rack
- Ease of installation, without zip ties and screwdrivers, to improve installation time and minimize additional labor costs that are incurred from the colocation provider
- Plug grip retention to reduce the risk of inadvertently disconnecting a plug
- Robust mounting options to facilitate various equipment configurations
- Color-coded outlet sections to prevent unbalanced loading and streamline troubleshooting



Figure 1. Color-coded outlet sections match a corresponding circuit breaker to easily identify which one feeds corresponding outlets and prevent unbalanced loading that would unnecessarily trip a breaker.



Figure 2. IEC outlet grip secures plugs in place with a lever-actuated grip that's integrated into each outlet. Once the levers click into the grip position, the plugs are secured from accidental disconnect due to bumps or vibrations without the need for special power cords.

Keep connecting

Along with monitoring outsourced equipment and environmental conditions at a colocation, SMBs need to monitor and manage what remains behind, the on-premise IT components that ensure connectivity with the colocation facility. For onsite equipment, SMBs need to pay attention to power conditioning, security measures, and cooling and heating practices. In effect, SMBs need to operate a data center in a box — a concept that encompasses organization, protection, and management.

When it comes to organization, racks that include cable management options can both streamline troubleshooting and reduce the incidence of human error. Protection of on-premise equipment can include the use of rackmount UPS devices with form factors that fit into the confines of network closets, as well as UPS devices that support virtualization via a network card.

On the management side, intelligent power management software used in conjunction with environmental probes and rack monitors enable SMBs to accurately gauge how efficiently onsite equipment is operating and identify issues before they become full-blown problems. Such management tools allow IT administrators to remotely monitor and manage multiple devices across the network from a single interface, so they get the right information in the most preferable way to manage the IT environment.

Conclusion

While selecting the right data center in terms of the facility, location, and reliability is critically important, SMBs need to understand they can realize significant value when they insist on maximizing the operation. SMBs should not assume their equipment is well-tended just because the colocation is operating smoothly, and therefore SMBs should take the initiative when it comes to organizing, protecting, and managing their own equipment — both at the colocation as well as on-premise.

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