



SUNGARD

SELECTING A COLOCATION DATA CENTER

White Paper Series

In the past decade, the proliferation of colocation data centers that house and host servers has made moving servers out of house a viable option for those who need to build or enhance IT capability. You no longer have to keep your servers in-house – along with all the headaches that come with it: power, UPS and back-up power, cooling, communication backbone, security, and a long list of additional concerns.

WHY CONSIDER COLOCATION?

In fact, moving your server to the comfort of a server hotel makes a lot of sense. You can improve your capability (particularly communication speed) and reliability while reducing cost and keeping your server in a safer and better-suited environment. With smart implementation, you can gain the power of the IT big dogs on a small dog's diet.

Think about it. Why does your IT department need to worry about power grids, cooling water pumps, and diesel generators? How does burdening your IT department with these concerns help your organization focus on its mission and achieve its goals? Simply put, it does not. Your IT department should focus on executing in areas that are truly useful to the organization, not on batteries and cold water. Freeing up important IT resources is a boon to an organization: smoother interfaces, faster processes, improved applications. Moreover, IT leaders are freer in their ability to strategically plan for meeting future needs without worrying about square feet and power capacity.

With colocation, you use your server, configured as you choose, off site at a state-of-the-art data center facility. A first-rate colocation data center has plenty of reliable redundant utility power, advanced UPS systems, and diesel generators to ensure the power is always available. They have an extensive communication backbone and infrastructure to deliver the highest level of data rates with redundancy. They have efficient and reliable cooling systems. All the things you don't want to do they can do better and more cheaply.

Bottom line, using a colocation facility gives you:

- Improved power and cooling reliability
- Increased and redundant bandwidth and data rates

- Basic hands-on services
- Retained control of your server – hardware, OS, software, and interface
- All at a lower cost

COLOCATION PROVIDES THE BEST OF BOTH WORLDS

For most organizations, the opportunity to improve performance with more reliability at a lower cost, while freeing the IT staff to focus on tasks and competencies more directly aligned with organization's mission is a no brainer.

While outsourcing the facility overhead, with colocation you retain complete control of you IT configuration. You install your server, run your operating system, and load your applications. Since it is your server – you control and operate it, plus you can upgrade it, reconfigure it, or replace it when and how you want. You do not relinquish control - you relinquish the headaches; the best of both worlds.

In some cases, organizations may have security concerns where it makes more sense to keep the servers under direct physical control. Frequently, a colocation facility can provide additional physical security, such as secure cages or monitored suites to meet your security concerns. Large organizations might have IT infrastructure requirements so vast that it is simply more cost effective to build and manage their own data centers. Colocation data centers, however, can provide large suites with staff offices to meet hefty IT requirements while still reducing fixed facility costs. Locale could also be an issue.

“Historically, the cost of storage, replication licenses, bandwidth, and redundant hardware at the recovery site made an advanced DR protection too expensive for anything but the most critical IT systems. But given the declining cost of storage, the range of affordable replication options, bandwidth optimization techniques, virtualization, colocation, and cloud services, companies of all sizes and industries have the ability to improve recovery objectives from days to hours.”

Forrester Research:
The Past, Present and Future of Replication
(September 2, 2010)

FINDING THE RIGHT COLOCATION DATA CENTER

Choosing the right colocation data center is the key to maximizing the advantages of colocation while minimizing the disadvantages. Once you have decided that colocation is the right move for your organization, the key to success is finding a colocation partner best suited to your unique IT needs.

The cost of selecting a colocation data center that does not meet your expectations could be significant. It is time consuming and expensive to move the servers to another location. Even worse, you risk unexpected down time or poor performance, hampering internal processes and turning off customers.

How can you make the right decision? It comes down to doing the due diligence in comparing your organization's needs to colocation provider capabilities

Data Center Location and Access: Some people feel better knowing they can visit their server without much trouble. If you value proximity, then a convenient locale is a consideration. While the odds are your server will work just fine without you there, some feel having it too far away should something go wrong is too great of risk. If resistance is a barrier, a nearby location might also increase buy-in.

Access privileges vary between facilities, so be aware of each data centers policies, such as:

When can you access the server?

- Who can access the server? Are IDs and access lists required?
- Do you need to provide advance notice for access, or can you arrive at any time?

Co-location Facility Power and Cooling: While most colocation data center facilities make many claims about reliability, many of these claims are more marketing

tool than demonstrated fact. Validate any claims they make about power reliability. You can start by verifying that utility power is provided by two independent substations, and that they have agreements with the power utility for priority in re-establishing power. Ask about UPS and diesel generator preventative maintenance procedures and verification methods. (It is easy to fill out a checklist without doing anything.) Ask questions such as:

- How long will the UPS operate the facility?
- When was the last power outage and for how long?
- Did everything perform as expected during the outage?
- How long do the generators run on a tank of fuel?
- How will they refuel the generators in case of long-term power outage?
- Have they considered multiple failures or conducted a Failure Modes and Effects Analysis (FMEA)?

How they respond and how easily they back-up their claims about power reliability might either raise your comfort level or increase your doubts. The same type of questions should be asked about the cooling system and its redundancy, including a FMEA. A good colocation provider is prepared for a worst-case scenario and can demonstrate it.

Beside reliability concerns, power represents one of the biggest costs of operating a data center – both financially (up to 35-40%) and environmentally. Consider asking providers if they have short term and long terms plans to control power costs. For example, are they integrating any green methods such as solar panels, wind turbines, or smart building technologies? A well-managed colocation center should have awareness that an innovative power approach can benefit the facility, their clients, and the community.

“Successful data center outsourcing enables companies to control and reduce IT operations cost, focus on core business initiatives, improve end-user service levels and access critical IT skills, processes, methodologies, infrastructure and global resources of outsourcers. They can also focus IT staff on strategic business projects, shift capital investments in IT to outsourcers and move to an opex-based model, enable scalability of IT applications and improvement of speed to market and provide resources and capacity to match the needs of the business.”

Gartner:
Hype Cycle for IT Outsourcing, 2010
(July 30, 2010)

Data Center Communication Backbone: After knowing that your server's basic needs for power and cooling are met, the next priority should be verifying how well your server would be connected to the outside world. Since an important reason for considering colocation is improved reliability and increased bandwidth at a lower cost, you should verify that the colocation facility can provide it. Ask to see a diagram of the communication backbone and ask about their standard service provider and its performance record. As with power and cooling, there should be communication, reliability and redundancy verified through testing and through a FMEA or similar analysis.

Consider asking:

- Who is the primary Internet Service Provider?
- How many other providers are available on site?
- What is the available bandwidth?
- What security measures are in place to prevent virtual invaders?
- Are they open to working with new providers?
- How often is connectivity and switching hardware maintained and updated?

Be at least somewhat concerned if a facility wants to lock you into their provider. In addition, it might be a deal breaker if you have a great relationship with an ISP, but you would not be able to use them in a particular facility.

Colocation Building and Security: You may not be able to tell everything about an operation by the physical appearance of the building, but it says something about them. Note how well the building is maintained as well as how clean and organized it seems. There is a good chance that an operation that does these basic things right are also doing a good job at higher-level functions. It is natural to be concerned about a colocation data center that cannot keep up with routine building repairs and cleanliness.

Building considerations could include:

- Does the building have certifications of its ability to withstand natural disasters?
- Do disaster preparedness and recovery plans exist?
- How were the plans created and have they undergone simulation or testing?
- How often are the plans reviewed and updated?

Depending on how they respond, ask for evidence to verify the response. For example, if they claim that disaster recovery plans are reviewed and updated yearly, then ask for evidence to support it. Note the revision date of the document. If it has not been updated for years then it is probably not being seriously reviewed. Some of these disaster concerns might be regional, but there are few places in the U.S., or the world, that are not at risk for any kind of natural disaster.

If security is a particular concern, then prepare a security checklist.

- What are the security measures and systems?
- Who can gain access to the facility and where can they go with or without an escort?
- What security records are maintained?
- Are security cages available to limit access to your server racks?
- Are fire suppression techniques electronics-friendly?

Colocation Center Staff and Services: You should be very interested in the colocation staff, the level, and the quality of service they can provide. Consider asking questions such as:

- What are the education and technical requirements for the staff?
- Is the facility committed to providing regular training?
- Do they encourage the staff to keep their skills up-to-date through on-going education?

An organization that is committed to the learning

"[I]f you're thinking of building a new data center, keep in mind that colocation, outsourcing, and cloud computing can be significantly more energy efficient and give you access to greener sources of energy like solar, wind, hydro, or geothermal electricity."

Forrester Research:
Green IT Plans and Activities Persist in 2010 Despite
Lack of Formal Budgets and Priorities
(July 27, 2010)

and growth of its staff is one that also likely promotes professional conduct and critical thinking. Also, note how the colocation data center carries out its regular service functions. Ask to observe regular maintenance or service being conducted and review how the maintenance is scheduled, conducted, and logged.

- Does the staff seem to follow best practices, such as ESD protection?
- Is there an integrated monitoring system with automatic alerts and required acknowledgment?
- Is there on-site technical staff 24/7?

Good practices indicate that the colocation data center takes regular and preventative maintenance seriously with a professional approach. Ask to see maintenance records and reports on services for which they are responsible. You should be particularly interested in downtime – best case, average, and worst case.

In terms of services, you may be only interested in some basic hands-on services for now, but you might want to keep your options open for increased outsourced technical support in the future. The more well-rounded the services and features are, the better they would be able to meet your needs down the road. For example, while owning your own servers works for now, the direction of IT will likely move to more hosted services and cloud computing. Building a relationship with a partner capable of meeting future IT needs could be a great advantage. Service questions to consider asking include:

- What services are available?
- How much maintenance time is included in the contract?
- What is the hourly rate for additional services?
- How is additional time tracked and billed?
- Are monitoring and recommendation services available?

Available Colocation Expansion: Another important factor to consider is how well this colocation facility seems capable of meeting future expansion needs. Would you be able to expand your IT infrastructure quickly, in their facility, should you need or want to do so? Compare strategic five and ten year plans to the colocation facility's ability to meet those needs. This also relates to the issues brought up in the services section about their ability to provide more managed services and cloud computing.

Colocation Cost: While one of the main reasons you are considering a colocation facility is to reduce cost, the difficulty is not in comparing cost. It is in comparing the value you will receive for the price you pay and how well the amenities align with your needs. The costs

and fees associated with using the facility should be straightforward. One thing to be concerned about, however, is making sure you understand what is included in the fee and what is not. For example, are a certain number of facility technical hours for installation and set-up included, or will there be an extra charge? Cost needs to be an important consideration, but a decision driven primarily by cost will likely result in a poor decision. Finding a colocation facility that is competitively priced and best meets your needs will probably be the most cost effective decision in the end, even if the initial cost is higher.

Building a Colocation Data Center Relationship:

Finally, another important but frequently overlooked factor in making any vendor or service decision is the value a good relationship brings. A good relationship means you have confidence and trust in them as well as mutual respect. Consider the relationships factor when selecting a colocation facility, especially when other factors seem equal. You are much more likely to be satisfied with a colocation facility if you are able to build a positive business relationship with them.

These are just the basics in selecting a colocation facility. Every organization and its IT needs are different, so high priorities in your organization need to be weighted appropriately while considering colocation facilities.

USE PROPER RESOURCES TO SELECT A COLOCATION DATA CENTER

When you begin to investigate which colocation data center to use, a good approach might be to form a cross functional committee that includes several IT areas of expertise, and maybe even a facilities or maintenance manager. Develop and use a checklist or a questionnaire to evaluate (the questions listed here can be a good starting point) each colocation facility. You may even want to hire an outside independent consultant who specializes in this area to help you with your evaluations. If their assistance steers you in the right direction and helps prevent a costly mistake, their expertise would be well worth the expense.

The thing to remember when building IT infrastructure, both in-house and using colocation, is to expect the worst and prepare for it. Research and surveys show that unexpected events and failures happen all the time. More than 80% of data centers will experience a major system failure every five years, and a significant number of them experience multiple failures in that time. Tremendous resources are required at higher-quality data centers to avoid these occurrences. It takes effort and due diligence to prevent and mitigate major failures no matter where the servers are located.

www.sungardas.com

SunGard Availability Services

680 East Swedesford Road

Wayne, PA 19087

800-468-7483

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