EXECUTIVE REPORT

Seven Critical Success Factors for Choosing A Reliable Data Center Provider

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Introduction

Today, more and more forward-thinking companies across all industries are seeking reliable data center services. As organizations seek to reduce costs, focus IT resources, and extend their reach to meet the demands of global markets, they have a pressing need to store their servers in a secure, safe, and well-connected environment.

A reliable data center provides power and cooling to ensure continuous uptime of your servers, connectivity to ensure your applications and data are available 24/7 to those who need them, and multi-layered security to ensure the safety of mission-critical data.

But not all data centers are created equal.

Very often, the reliability of a data center and the quality of its service depend on the company that owns it. Some data centers are owned by real estate companies, who also own offices, warehouses, shopping centers, etc. They view their data center as a "property," and who see the floor space within it as "space" to be rented out, nothing more. Other data centers are owned by business holding companies who own other types of high-tech and non-high-tech businesses. Often, these real estate and other holding companies have only minimal experience in owning and operating a data center.

If you're looking for data center services, you want to pick a reliable, experienced provider who *specializes* in data centers. The lowest-priced provider will not always give you the best service or the best value for your money. You don't want to incur a security breach or, even worse, a loss of service or mission-critical data because your provider considers a data center to be "just another high-tech warehouse."

There are seven critical success factors to examine when considering a data center provider. They include:

1. Company Experience
2. Financial Stability
3. Physical Infrastructure
4. Physical Security
5. Customer Service and Support
6. Service Level Agreements
7. Pricing Plans Offered

Critical Success Factor #1: Company Experience

The data center company and its experience in the industry are important. Select a data center provider that is able to house your IT footprint for years or even decades to come. Look for a provider who has been in business for at least 10 years to confirm the company has staying power. A significant track record also indicates they have been in business long enough to understand the how to run a reliable data center and deliver excellent service.

If the provider has additional technology holdings, you should find out how serious they are about their data centers. Do they "lump in" data centers or colocation with all the other tech services they provide? Or do they have a separate division that is *dedicated* to their data centers, and to providing their clients with the best possible service?

The provider you select should have *more than one* data center. There's no set number for this, but the more data centers they have, the more serious it shows they are about the business of data centers. Also, the provider you select should be in a *state of strong growth* – that is, they should be building or acquiring new data centers, not just sitting on the ones they have. This shows they are investing in the business and incorporating new technology into their facilities.

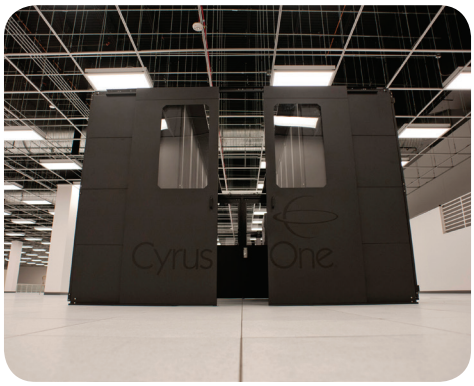
Ask the provider for a list of clients, and for case studies and testimonials from those clients. If they have Fortune 500 or other high-profile clients, it's a sign that major companies have done due diligence on them, and are willing to trust the provider with their IT infrastructure and mission-critical data.

Ask the provider if they service other companies within your industry. If a data center provider specializes in servicing certain industries or verticals (i.e. healthcare, oil & gas), they probably have a good understanding of the needs of clients within those industries (i.e. they understand the HIPAA compliance needs of their healthcare industry clients).

Also, check the provider's web page for biographies of the executive team. How long have they been with the company? How much experience do they have in the data center industry? If the executives have a strong background in data centers, they likely have a better understanding of how successful data centers work, and of the needs and requirements of data center clients.

Finally, ask if the provider has any strategic partnerships that might be beneficial to your company (i.e. they may partner with a cloud services provider who can provide you with Infrastructure as a Service). Also, ask if the provider has received any industry awards or recognition for service to their clients.

Critical Success Factor #2: Financial Stability



You should ensure your data center provider has enough liquidity and assets to deliver long-term services. It can be risky to partner with a provider who may struggle to meet their financial commitments. You don't want to select a provider who may go bankrupt in a few years and leave you scrambling to pull your servers out of their facility before it shuts down.

If the provider is a public company, it should be easy to view their latest financials, which are available in their annual reports filed with the SEC. Private companies are often less willing to share their financial data, and it may require a bit more effort from you to get that information. Public data center companies undergo much more financial scrutiny and are likely a better choice.

If you're looking at a private data center provider, you should request their most recent *audited* financials (i.e. their income statement, balance sheet, cash flow, etc.). The provider should have their financials examined by an independent auditor, such as Ernst & Young or KPMG.

The key element is transparency. If the provider is not willing to share their financial information, or have it audited by an independent auditor, it could be the company is less financially secure than they're willing to admit.

Once you acquire the appropriate financial statements, have your accountant review them in detail. You want to ensure the provider has enough liquidity to meet their short-term and long-term financial obligations.

In general, a provider should have a lower Net Leverage Ratio (net debt/EBITDA) and a higher Interest Coverage Ratio (EBITDA/Fixed Charge). These are the two key metrics for measuring a provider's financial security. (The specific ratios will vary according to the provider's capital structure.)

You should also examine the following elements:

- **Insurance** – Ensure the provider has enough insurance to cover their losses in the event of a major catastrophe. If the provider has limited or no coverage, they could be bankrupted if a disaster strikes just one of their facilities. The provider should carry all-risk property insurance, and their insurance providers should have strong financial strength ratings from A.M. Best Companies.
- **Credit Quality** – The provider should have a revolving line of credit from reputable banks. If it's a public company, it should have a good credit rating from a reputable agency, like S&P or Moody's.
- **Access To Funding** – The provider should have access to bank loans or investors to support future growth for all its clients.

A key question to ask when considering a data center provider is, how large a percentage of the provider's business will you be? If housing your IT footprint will provide them with 50% of their overall business, they may give you better pricing. But if you decide to double your IT footprint, you may end up stretching the provider's finances too thin. You need to ensure they have access to capital markets in order to support your growth.

Calculating the Risks

Before we review the rest of the Critical Success factors, let's take a look at the concept of *risk*. The #1 question on the mind of every company seeking a data center provider is, "How safe will my IT infrastructure and mission-critical data be if I go with this provider?"

For each provider you consider, you need to assess the risks of server or data loss, specifically at the data center where you want to house your IT infrastructure. There are three primary areas of risk assessment:

1. Risk of losing IT servers and/or mission-critical data due to natural or man-made disasters (i.e. hurricanes, floods, earthquakes, fires).
2. Risk of losing data due to failure of data center equipment (i.e. a power outage).
3. Risk of losing data due to a security breach.

To assess these risks, you need to evaluate the location, physical infrastructure, and security systems of the data center where you plan to house your servers. We'll cover this in detail in the next few sections.

For now, you should know this: The data center provider should have a **disaster recovery/ business continuity plan** for *each* of their data center locations. They should have *specific procedures* in place at each data center for what to do in the event of a power outage, a natural disaster, etc. They should have continuity plans to ensure their clients' data and equipment is safe, and IT infrastructures at each facility will continue to function. These plans should be aligned with best practices such as International Standards for business continuity (ISO 22301).

The staff at the data center facility should be well-trained in these disaster recovery procedures. Furthermore, the facility should have regular testing of its disaster prevention elements (i.e. automatic power failover, fire prevention systems) to ensure they will work properly in case of an incident.

Critical Success Factor #3: Physical Infrastructure

Look very carefully at the physical infrastructure of the data center where you wish to store your servers. Ask the data center company to provide a guided tour of the facility for everyone in your company who is involved in the decision making process.

Location

No data center can be made completely 100% risk-free of all types of natural or man-made disasters. Wherever the facility is located, it is usually vulnerable to some type of disaster, whether it's an earthquake, tornado, hurricane, flood, fire, etc.

However, reliable data centers are built to be *disaster proof* — that is, to withstand any disaster that comes their way. There are numerous infrastructure elements that help to make it so, but it starts with the data center's actual physical location.

If the data center is in a flood plain, it should be built on high ground where the flood waters will not be able to reach it. Data centers should not be built next to an airport due to the possibility of airplane accidents, or built in close proximity to any industrial facilities (i.e. nuclear or chemical plants) that might be prone to a disaster.

Physical Structure

A data center should be a reinforced steel-and-concrete structure, with specific features designed to help it withstand anythe types of disasters native to the area. A data center in an earthquake zone should be seismically-retrofitted to withstand a very large quake. A data center in a hurricane or tornado-prone area should have storm protection and shatterproof glass to protect it from high winds.

It is also critical that every data center has a reliable fire prevention system, such as a Very Early Smoke Detection Apparatus (VESDA).

Fully-Redundant Power and Cooling

A reliable data center has multiple levels of redundant power. Its power sources should be equipped with automatic failover, so that if one power source goes down, the facility will automatically switch over to other power sources.

These may include:

- **Local utility circuits** from local power companies. If possible, the data center should have a dual-feed power supply from two separate grids. If one grid goes down, the other grid will continue to provide power to the data center.
- **On-site Power Stations** – Many facilities have their own on-site electrical mini-power station, to provide power to the facility if local utility power goes down.
- **On-site Generators** – Reliable data centers have on-site, fuel-powered, high-capacity electrical generators with enough stored fuel to keep a facility running for days if local power goes out.
- **Uninterruptible Power Supplies (UPS)** – A UPS is basically a room filled with shelves of car batteries that are connected to the facility's central power feed. If the main power feed goes down, the UPS will provide power to the facility until secondary power sources are brought online.

A reliable data center requires *highly-available, fully-redundant cooling*. For example, the facility may have multiple Computer Room Air Conditioning (CRAC) units equipped with automatic failover, so if one CRAC unit fails, cooling will automatically switch over to other units.

Critical Success Factor #3: Physical Infrastructure (cont'd)

There are some factors to consider in relation to a data center's physical infrastructure are not related to its disaster preparedness. Often, these relate to your own business, your current IT infrastructure, and your plans for future growth.

Location-Part II

In terms of the data center's actual location, where you store your IT footprint often depends on the needs of your company. Some companies prefer to keep their IT infrastructure within easy driving distance of their company headquarters or base of operations. For example, a company located in New Orleans may choose to house their footprint in a Houston-area data center.

Other companies have no problem with housing their infrastructure in a remote city, as long as there's an airport there so they can fly in whenever they need to inspect their IT footprint. This usually works best for companies with multiple nationwide locations. For example, a company with offices or facilities in New York, Atlanta, Minneapolis, and San Francisco may choose to house its IT infrastructure in a Cincinnati data center.

Available Space and Future Scalability

You should know how much floor space, power, and cooling your IT footprint will require, and whether or not the data center facility has that amount of space, power, and cooling available.

A good data center will have *room and power for future growth.* You should assess your needs for future IT scalability, and ensure the data center can accommodate these needs. Ask how many watts per square foot (WPSF) are available, and about the maximum/minimum power densities.

Also, ask for a diagram of the layout and design of the data center floor, and use it to determine how much space you need for your current IT footprint, and how much additional space is available in case you need to expand.

Look for a data center that has a "Best in Class" rating in terms of Power Usage Effectiveness (PUE). The more effective a data center is at using their power, the less you will pay monthly for power to run your IT footprint.

Cooling Specifications

In addition to power, a reliable data center will provide the necessary cooling for your IT footprint. It should meet and exceed ASHRAE standards regarding temperature and humidity.

Connectivity

A reliable data center will offer robust, highly-resilient, and flexible links to multiple network carriers (i.e. AT&T, Verizon, Level 3), and available bandwidth to support your connectivity needs. You should be able to "pay as you go" according to the amount of bandwidth you use, and to scale bandwidth up and down during peak and low times of server activity.

You may also want to look for a data center provider that offers robust, low-cost city-to-city transit and metro connectivity. While this is an optional service, it is critical if your company wants to set-up Disaster Recovery using interconnected, multiple data centers with the same provider.

LEED Certifications

If reducing your carbon footprint is important to your company, you should look for a data center facility with LEED certification.

Critical Success Factor #4: Physical Security

A reliable data center will have multiple layers of security to protect the IT infrastructures and data it houses. Visitors to the facility will need to pass through these multiple layers in order to visit their company's IT footprint.

An example of this type of multi-layered security:

1. **The exterior of the data center is surrounded by a high fence.** Visitors must check in at a security gate when entering the parking lot.
2. **The entrance area is a secured area,** separated from the rest of the facility, and monitored by 24/7 security staff.
3. **Visitors must sign in at the entrance area.** They must present a government-issued RFID enhanced photo ID, undergo biometric scanning (i.e. fingerprint and retina scanning), and pass through an anti-passback door to enter the data center area.
4. **Visitors must be escorted** to their company's space on the data center floor by security personnel.
5. **Each client's IT infrastructure will be stored inside a locked, dedicated cage or cabinet.** Visitors must have a key, RFID key card, and/or PIN number for keypad locks to enter the caged area.

The interior of the data center should include a series of waiting rooms and security-operated locked doors designed to control and limit visitor access to various parts of the building. All areas of the data center should be monitored by electronic security, such as 24-hour video surveillance and interior and exterior alarms.

The data center should have an established set of security procedures that govern who has access to the facility, how visitor access privileges and required IDs are issued and recorded, and procedures to follow in the event of a security breach.

The data center should be manned by a 24/7 security staff. Ask the data center company for details about the security and on-site staff at the data center, including:

- **Training** – The security staff should be well-trained and familiar with the facility's security procedures.
- **Background Checks** – The members of the staff should have undergone rigorous background checks prior to being hired.
- **Non-Disclosure Agreements** – You should know what types of NDAs the security staff has been required to sign, in addition to your own NDAs.
- **Third-Party Vendors** – If the data center company uses third-party vendors to provide security and other staff, you should know who those vendors are and what kinds of background checks they do for their employees.

Finally, the data center facility should be rated for regulatory compliance. Ask the provider for documentation that the facility has been audited for HIPAA, SSAE-16, SOX, FISMA, PCI-DSS, and any other regulations you require.

Critical Success Factor #5: Customer Service and Support

A reliable data center will provide its clients with high-end customer service and support. The data center should have a well-trained and attentive 24/7 on-site staff, in addition to the security staff.

The on-site staff will be responsible for managing and monitoring the health of the facility and its systems, providing maintenance and storage, handling shipping and receiving, etc.

The data center should have an on-site control center that controls and monitors all systems at the facility, including IT system operations, power levels, temperature, humidity, and video surveillance. Clients of the data center should have access to real-time reporting, so they can monitor the status of their IT systems at all times.

Also, the data center should have a set of established procedures for daily operations, ongoing preventative maintenance, and frequent testing of systems. The staff should be trained in established procedures for what to do in case of an "event" (i.e. a power outage, an incoming hurricane), and the data center should have a system for notifying clients of that facility when an event has occurred or will occur.

The data center staff should provide you with support for things like moving in, installing, or expanding your IT footprint, moving your servers to a different location on the data center floor, server capacity planning and optimization, network engineering assistance, and security compliance review for HIPAA, SOX, etc.

Critical Success Factor #6: Service Level Agreements

You should look for a provider who offers a Service Level Agreement (SLA) with a written guarantee of 100% continuous uptime of power and cooling, plus a guarantee of 99.999% (or "five nines") reliability of their underlying data center infrastructure.

The SLA should also spell out what, if any, kind of compensation for business loss you will receive if the provider fails to meet their uptime goals. Providers usually offer a service level credit (i.e. one month of free rent and power) as compensation if your IT infrastructure goes down due to a system failure.

Critical Success Factor #7: Pricing Plans Offered

Ask the data center what the basic rates are for hosting, and how their pricing plans are structured. The questions you should ask include:

1. Are fees charged on a monthly/annual basis, or on a set fee basis?
2. How will pricing be affected if the client requires an expansion of services during the contract term?
3. Are there any hidden fees, such as "fuel surcharges, rent, charge-backs, connections, etc.?"
4. Is it a "triple-net" lease? If so review the terms of the lease carefully since, unexpected costs such as real estate taxes, insurance repairs, and utilities charges can be added on top of your lease payments.

Conclusion: Take a Closer Look

Your goal should be to choose a data center provider who will be a *reliable business partner* with you, not just a provider of services.

Your company's success depends on high availability of your IT footprint and the security of your mission-critical data. Therefore, you have the right to thoroughly screen a data center provider before you sign with them, and to ask for as much transparency as possible from the provider.

A reliable data center provider will be experienced, have financial security, and be in a state of growth. Their facilities will have a strong, disaster-proof physical infrastructure, fully-redundant power and cooling, carrier-neutral connectivity, multiple layers of security, and a well-trained and reliable security and on-site staff.

Furthermore, the data center provider should be willing to guarantee 100% continuous uptime and availability in their Service Level Agreements. The more information you can get from a data center provider about these elements, the easier it will be for you to make an informed decision and choose a reliable partner for the long-term.

About CyrusOne

With over two dozen data centers across the globe, CyrusOne helps many of the world's largest global businesses – including 9 of the Fortune 20 companies and over 130 of the Fortune 1000 – and companies of all sizes take advantage of the latest data center technology and realize top operational efficiencies through:

- **Flexible design** – Scalable, customized data center solutions engineered with Massively Modular® data center technology to align with your business needs
- **Personalized service** – High touch customer service delivered by data center experts
- **Full transparency** – Full transparency in communication, management, and service delivery
- **High reliability** – Excellent availability using state of the art technology backed by 100 percent service level agreements (SLA)
- **CyrusOne National IX** – Offers low-cost metro connectivity and city-to-city transport in an ever growing number of cities across the US.

About the Author

Mr. Anubhav Raj is the Treasurer and Vice President of Investor Relations at CyrusOne. In this role, Mr. Raj is responsible for overseeing the company's Treasury department, capital markets activities, as well as the strategic direction of the company's Investor Relations program.

Prior to this role, Mr. Raj served in various capacities at CyrusOne, including being a lead advisor to the executive management team helping to manage the company's successful Initial Public Offering. Mr. Raj was previously a management consultant within Deloitte's Strategy and Operations practice, working with Fortune 100 clients across the Consumer and Industrial Products, Manufacturing, Healthcare and Life Sciences industries. His primary role was developing corporate growth strategies for clients, which encapsulated long-term strategic planning, comprehensive M&A analysis, and capital structure and financing optimization. Mr. Raj also has experience within the investment banking industry with Citigroup's global advisory practice and venture capital industry with Parkview Ventures' early-stage technology fund.

Mr. Raj graduated magna cum laude from Duke University with a Bachelors of Science in Economics and is currently completing a Master of Business Administration from Columbia Business School.