

Data Centers

Better Data Management

How Data Centers & Colocation Can Provide Superior Data Management

According to industry research, hardware failure accounts for 40% of data loss in the US, while 29% is the fault of human error. It is estimated that 6% of all computers will experience data loss in any year. The Strategic Research Institute found that companies who cannot resume operations within 10 days of a natural disaster are unlikely to be in business for over a year. With the growing dependency on data for almost all aspects of company operations, these statistics should be frightening to business executives and IT staffs. Critical data losses can occur from an array of causes, from burgeoning malware and savvy hackers to the increasingly frequent storms like Sandy and Isaac. A top priority for C-suite and IT leaders should be to implement measures that ensure the safety and security of their data through effective management and backup systems. Utilizing data center class infrastructure to manage both backup and production environments can virtually guarantee data preservation and uptime, minimizing business exposure and losses related to failures.

THE VALUE OF DATA CENTERS

There is nothing new about the idea of creating and securely storing a company's backup data. Safeguarding critical business information is a

fundamental best practice, not to mention common sense. Infrastructure as a Service (IaaS), however, is a more recent development that is rapidly gaining popularity, and for good reason. The offsite storage and management of both backup and production (real-time) business data provides major benefits that increase data security and compliance, save cost, add efficiency and more. Advances in technology and growth in the number and quality of data centers have made it an attractive option that every business should consider.

HOW DATA CENTERS WORKS

To over-simplify it, data centers provide the storage of a business's data in an offsite location. It can be backup data and/or production data that the business uses to function in real time. The underlying principle is to increase security of the data and gain a variety of other benefits. It is important to understand that there is a wide range of options and approaches to leveraging data centers. Each business must decide what is right for its specific needs and situation. In addition, there are variations and supplemental services that can be provided – shared environments, for example. Such issues will be addressed in a future article.

Types of Data Centers – Depending on the requirements and preferences of the business, data center services can widely range, from simple warehousing of data to ultra-secure data hosting and



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management with top-level, comprehensive services. Each colocation provider offers their own menu of options, including complete managed data service.

Data Center Servers – In some situations, colocation is achieved by physically locating a business’s servers in the provider’s facility. The servers remain the company’s property and can only be accessed by those the owner authorizes. In other cases, the data center also supplies the servers. The data center provider is responsible for the security of the servers and the environment within which they reside. They also ensure the power supply, HVAC, network connections and other services. The extent to which these services are guaranteed depends on the level of the data center – see below.

Data Center Description – While every data center differs, they typically are large, specially constructed buildings that are designed for maximum security and reliable maintenance of utilities and services. The inside is divided into bays, where individual servers can be segregated and protected from unauthorized access. There is also an array of systems in place to prevent damage from fire, water, temperature and other threats. Robust security systems are in place, typically with 24x7x365 video monitoring, alarms, sensors and other safeguards.

Data Center Tiers – Data centers have ratings, from Tier 1 to Tier 4, reflecting their security, reliability and other factors. The standards for the tiers were set by the Telecommunications Industry Association and accredited by ANSI (American National Standards Institute). Following are the Tier requirements:

Tier 1

- Single non-redundant distribution path serving the IT equipment
- Non-redundant capacity components
- Basic site infrastructure with expected availability of 99.671%

Tier 2

- Meets or exceeds all Tier 1 requirements
- Redundant site infrastructure capacity components with expected availability of 99.741%

Tier 3

- Meets or exceeds all Tier 1 and Tier 2 requirements
- Multiple independent distribution paths serving the IT equipment
- All IT equipment must be dual-powered and fully compatible with the topology of a site’s architecture
- Concurrently maintainable site infrastructure with expected availability of 99.982%



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Tier 4

- Meets or exceeds all Tier 1, Tier 2 and Tier 3 requirements
- All cooling equipment is independently dual-powered, including chillers and heating, ventilating and air-conditioning (HVAC) systems
- Fault-tolerant site infrastructure with electrical power storage and distribution facilities with expected availability of 99.995%

While the difference between the Tiers may seem negligible, it's not. Over a year it could be that a Tier 4 data center is unavailable for 26.28 minutes, while a Tier 3 center could be unavailable for 94.608 minutes – over an hour longer. That can be a very meaningful difference when a critical data is inaccessible.

DATA CENTER BENEFITS

The advantages of storing backup data offsite in a colocation center are extensive, as is clear in the list below. The same is true of production data that businesses use in real time. The idea of locating critical operational data offsite may make some uncomfortable at first, but with closer examination, it is clearly the best approach in many situations. The key benefits are:

- **Security** – data centers typically have rigorous security systems and procedures that protect data from unauthorized access and potential compromise
- **Power Backup** – depending on the level of the center, redundant power supply virtually ensures uninterrupted operation
- **Climate Control** – facilities are carefully designed for optimal conditions and backup systems are usually in place to maintain the ideal environment
- **Access Control** – the physical design and features of data centers, as well as their security systems, ensure that only authorized individuals can gain access to data
- **Compliance with Industry, Manufacturer and Agency Requirements** – data centers usually meet the stringent standards required for management of data for financial, medical, public companies and other monitored industries and applications
- **Redundant Network Connections** – higher level facilities and services offer totally independent backup network connections that ensure uninterrupted data access when the primary provider goes down
- **Bandwidth/Latency** – data centers typically maintain ample network bandwidth with low latency to ensure support of demanding requirements, including real-time data access and streaming
- **Flexibility** – data center providers can offer a variety of services and options, which can be changed at any time to meet the evolving needs of a business



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- **Staying Current** – data centers regularly and automatically update their hardware and software to remain current and function optimally
- **Support** – data center providers maintain staffs of knowledgeable IT professionals to provide services and support to businesses
- **Economy** – in many cases, maintaining data in a data center actually saves cost by reducing the demands on IT and administrative staff
- **Energy** – significant energy and cost can be saved by not needing to run servers, cooling equipment and other systems

A key benefit is that data centers can enable in-house IT departments to function more effectively and economically. In addition to relieving overburdened staff of repetitive, routine tasks so they can focus on more critical issues, data center professionals with advanced certifications can provide high-level services, eliminating the need for companies to maintain that level of specialized expertise on staff.

HOW TO TRANSITION TO COLOCATION

If, after careful exploration and consideration, utilization of data center services is the best approach, a business needs to:

- Determine Data Needs
- Identify the Necessary Level of Data Center Required – Tier 1, 2, 3 or 4
- Evaluate Service Providers
- Select a Package of Services
- Create a Transition Plan
- Ensure Backup is Available
- Communicate with Affected Staff
- Implement

SUMMARY

The benefits of data centers go far beyond simply backing up data offsite. It can be a totally different approach to optimally managing data that provides an array of benefits, from superior security, reliability and compliance to better flexibility, functionality, efficiency and economy. In the event of an outage or in-house data issues, colocation can ensure uninterrupted operations and save a business significant cost and other problems. The key to success with data centers and colocation is doing careful needs analysis, provider assessment and planning before proceeding. Getting outside counsel is a good idea for many businesses. With the right program and provider in place, the benefits of colocation can be impressive.

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