

Careful What You Wish For: Poor Colocation Design Could Cost You

Thorough assessment of upfront costs to prevent future system failures

Introduction

While IT professionals often disagree on design and implementation strategies for their data centers, there's one item on which most agree - these are costly investments. From expenditures on equipment to power and cooling, IT infrastructures are among the most significant costs associated with running a business. That's why colocation has emerged as a viable option for small-to-midsized companies – ensuring the reliability, security, and availability of the data center via a third-party service.

Colocation providers (colos) are in a competitive sprint for new customers and their success depends on offering significant levels of uptime while keeping costs low. While colos might be tempted to keep initial investments in facilities and power infrastructures down to save money, this is a woefully shortsighted strategy.

Smaller infrastructure investments up-front could translate into bigger costs later – as the colo tries to keep pace with customer demand for availability, reliability and uptime. It's important not to get caught up in a design that could translate to big costs in the end.

Colocation: A Viable Alternative

Data centers today are big – and getting bigger. According to analyst firm [Canalys](#), the data center infrastructure market is expected to be worth \$152 billion by 2016. These investments in servers, storage, networking, security, and virtualization are up from \$120 billion in 2011.

Take Facebook for example. As of last year, the company invested more than \$1 billion in the infrastructure supporting its social network. This included \$606 million on servers, storage, and network gear in 2011 and an additional \$500 million in 2012.

But not every business is a Google or Facebook – with an ability to spend millions on state-of-the-art infrastructures. Enter the colocation provider. Colocation allows companies to place servers in a provider's rack and share the bandwidth as their own. The provider handles all management, power and cooling – opening the door for significant cost reductions.

Typically, there are several benefits to choosing this alternative:

- **High Bandwidth:** A low-cost, limited bandwidth business-grade DSL line runs about 200 dollars. Service providers are able to offer greater bandwidth and redundancy for network connections at the same price.
- **Outage Protection:** Colocation providers have perfected secure sites with multiple forms of power and data storage back-up, avoiding costly outages.
- **Scalability:** Colos can easily keep pace with business needs, scaling up or down based on customer growth patterns.

- **Security:** The model offers multiple layers of physical and data security, guaranteeing data is always safe.
- **Cost-Efficiency:** Colo alternatives remove costs of data center footprint expansion, new staff, power use, or downtime.

It's estimated there are more than 1,000 colocation data centers in the United States alone. Analyst firm [Research and Markets](#) estimates the market will grow from nearly \$26 billion in 2013 to almost \$45 billion in 2018. Core drivers include increased efficiencies and lower costs.

But this success also depends on a plan a facility customer can benefit from today – and grow with tomorrow. Providers must take a long look at initial design before jumping in. This includes not only IT components, but the power infrastructure behind it.

In the Beginning

When the market first emerged, colocation was driven by price. To quickly attract customers and build out the business, solution providers often architected systems only meeting current customer needs – without room for growth. This often meant developing just enough footprint to handle small-to-mid-sized businesses with a fairly rigid infrastructure to power future operations.

Analyst firm Research and Markets backs up this claim. The firm believes one of the major trends continues to be winning business based on price points. Companies squeeze margins and offer more services to cut through the competitive clutter. The firm [notes](#):

“One of the major trends in the Data Center Colocation Services market in North America is the decreasing prices of colocation services across the region. With an increasing number of colocation vendors entering the market and providing colocation services to enterprises, there is increasing competition being witnessed among vendors. Increasing price competition is leading to decreasing prices and more services being provided to customers.”

This puts the potential for growth and increased market share at risk. Data centers are quickly running out of space, meaning more are turning to the colo model. According to the [Uptime Institute](#), more than one-third of data center facilities were estimated to run out of space, power and cooling by 2012. To ease the burden, nearly 30 percent of companies noted they'll turn to a colocation model. Another [analyst report](#) says the drain on power resources is forcing the C-Suite to look at the colocation alternative as well. The firm reports that the world's major data centers can realistically run out of power, cooling or space by the end of 2014.

Thus, the need for colocation providers has never been more important. It's no longer the best strategy to go for the quick sale with low price. Focus must be on building the data center right from the start – with an ability to adapt and add-on infrastructure and power needs alongside the customer.

Powering for Growth

One of the most critical components of any colocation facility is the power necessary to keep it running. With the growing threat of outages, protecting core information and ensuring near 100 percent uptime is essential. One need only look at today's headlines to see how costly power failure can be.

In July 2013, Sears reported that two consecutive power failures cost the company more than \$2 million in lost profits – not including the \$3 million cost of fixing the problem. The culprit was one of the most essential pieces of a data center power infrastructure: the uninterruptible power supply (UPS). UPS systems are electrical components providing emergency energy to a load when main power fails. As opposed to an emergency generator, the system is designed to offer near-instantaneous protection.

When the same situation is transposed to a colocation environment, it can cost customers. That's why taking a cost-cutting view into the power infrastructure can be so devastating. Analysts note one of the biggest downfalls of service providers is their inability to future-proof power infrastructures. Scalability is always a concern in planning for [power](#):

“With this continual demand for [colocation services], there are also heightened concerns about scalability features along with cost-effective management of the need for increasing computing resources and the related power capacity. Budding businesses seeking colocation facilities can future-proof their data center investment by selecting a facility that leverages a high-density scalable infrastructure for future upgradability.”

In planning for expansion, technologies such as Diesel-based UPS (DRUPS) are now taking center stage as core enablers of a scalable power system – and colos must stop and take notice.

DRUPS: Putting the “UP” in UPS

Diesel Rotary Uninterruptible Power Supply (DRUPS) is the only system with an ability to provide **continuous** power. These highly scalable systems can often be the foundation to highly scalable power that grows alongside the business. Batteries can store limited energy, meaning they're suitable for only minutes once power goes down. However, DRUPS devices can back up the battery or flywheel with a diesel generator – ensuring continuous operations as needed.

For colos to avoid devastating power loss, a DRUPS system should be the centerpiece of its growth strategy. With a life expectancy of nearly 30 years, systems can withstand both current and future infrastructure needs. Colos can reap the benefits of cost savings while still planning for the future and leveraging scalability. Additionally, environmental costs are significantly reduced as the service provider no longer needs to worry about the environmental impact of battery disposal.

Additionally, if a service provider can build within a smaller physical footprint, there are lower costs associated with developing the space to ensure they remain competitive. On the average, DRUPS systems typically occupy 50 percent of the square footage of comparable battery systems. This translates into high scalability with no need for additional footprint for accommodation of a growing infrastructure. Also, service providers aren't required to spend

excessive amounts of money to keep temperatures low – as DRUPS systems don't require overcooling. Again, this contributes to scalability, allowing more room for equipment and less for cooling.

Of course, there's the impact to downtime – the very lifeblood of a colo. A DRUPS system is specifically designed to drive uptime and reliability no matter what the infrastructure size. While static UPS systems only recharge after main voltage is returned, a rotary system with diesel back-up can recharge whether there's an outage or not.

And they do it more quickly. Static systems take several hours to recharge. With a rotary option, this is cut to no more than 10 minutes. By providing immediate power, there's an added layer of protection. With analysts estimating the average cost of data center downtime at \$8,000 per minute, this could mean the difference between a colo's success and failure.

Taking a high-level view, a DRUPS system can be an effective foundation for any colocation provider. The strategy ensures they can harness a power infrastructure driving reliability now – with the scalability needs for the future.

Be Prepared

The colocation industry is rapidly expanding, as typical data centers quickly run out of physical space. With increased demand, service providers must act now to future-proof their infrastructure and plan for current and future uptime. With potential costs to physically upgrade a poorly designed infrastructure running into the millions, now's the time for colos to plan for the future.

Because to survive and thrive in today's business environment, the answer can often be found with DRUPS at the core.