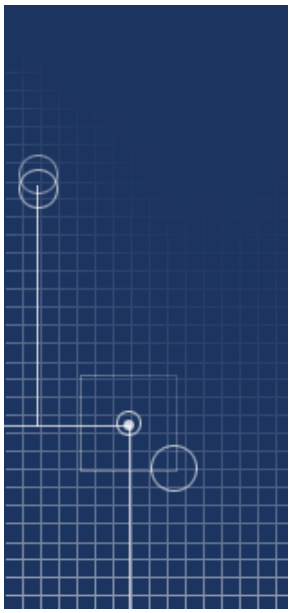

Six Quick Tips

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Data Center Construction

Tips To Keep In Mind As You Build Or Renovate Your Data Center

As technology advances and evolves, constructing or renovating a data center becomes more challenging. Yet it is also an opportunity to breathe new life into IT services. Servers can be situated in a tightly controlled environment where airflow is optimal, helping to reduce long-term operational costs. New blade architecture, virtualization techniques, fiber-optic storage, and wireless technologies can help you keep pace with growing trends and meet the demands of department heads.

These tips for both new construction and remodeling are designed to help you plan for the next decade or two and also include guidance on the actual construction process and how IT can be involved.

Plan For Scalability

Many companies live with the cooling infrastructure in a current data center—for example, the air plenum was likely designed and constructed according to the cooling requirements of the company at the time. According to Jeff Sturgeon, vice president of marketing at Emerson Network Power's Liebert division (www.liebert.com), cooling systems can be designed and installed in a more scalable fashion, allowing you to adjust settings depending on the load. And this works both ways: Admins can monitor cooling more effectively with the latest tools to scale back for lower processing requirements, as well. This preplanned scalability allows IT to keep in lock step with the computing needs of the organization. "Consider scalable power systems that can adjust to your business as it grows and maintain maximum efficiency," says Sturgeon.

Don't Undersize The Data Center

Tom Condon, a senior consultant with System Development Integration (www.sdichicago.com), says one of the most common mistakes in an SME when designing a data center is to undersize it. There is no going back if the data center turns out to be too small, and the only certainty in IT is that companies and end users will continue to find unforeseen ways to use technology. One example that Condon notes is digital video: Just 10 years ago, the concept of using a data center to store data from a video camera was not even on the radar of IT managers, and today it is a regular practice. "With so many nontraditional computing systems now being migrated to computer platforms," says Condon, "we are seeing 'rack wars' where data centers need more space, competing with the traditional IT services" such as email and SQL data.

Create An Initial Mock Layout

More than one data center manager has sketched out a data center design on a napkin over lunch. While this may seem like a simplistic approach, it is still important to make early rough sketches of the floor plan. Christian Jacobson, the vice president of IT at PostcardMania (www.postcardmania.com), a PR consulting firm, is currently designing a 23,000 square foot data center for his company. He says that drawing out cabinet locations—most SMEs will likely need about three to five full-height enclosures—can aid the architects. In addition, he says designing with ample space is a must. “I have found that the easiest and least expensive way to ease heat and cable managements is a single-row configuration, breaking up the server and UPS enclosures with two post wire racks,” says Jacobson.

Design For More Efficient Cooling

Often, it is the small steps you can take during a new construction that have a cumulative effect on cooling architecture. Shawn Mills is the president of Green House Data (www.greenhousedata.com), one of the first green data centers in the U.S. Planning and construction for a new retrofit data center in Cheyenne, Wyo., took nine months and was completed in late June of this year.

“Whether you are a server room or a 100,000-square-foot data center, designing for efficient cooling is imperative,” says Mills. “Pay attention to hot-aisle and cold-aisle alignment. Try to avoid allowing pockets of hot air from flowing through your cold server aisle. Remove cage space altogether; this prevents hot air from one caged area of the data center blowing on the air intake of another aisle. This single effort maximizes the efficiency of a data center and results in a lower energy bill.” ■

by John Brandon

BONUS TIPS

Avoid plumbing-related problems. Actual data center construction is one thing, but according to Dave Donatiello, a project manager with Emtec (www.emtecinc.com), it is the general building construction that can have a detrimental impact on data center operations. For example, he says managers should be conscious of the plumbing for the building and whether it passes over the data center. “Roof drain pipes could be routed directly over the data center,” says Donatiello. “If the pipes cannot be relocated, they should all be wrapped and stainless diverter trays should be installed in the event that a leakage occurs.”

Make your space “convertible.” Tom Condon, a senior consultant with System Development Integration (www.sdichicago.com), says one tip is to build a data center with adjacent space that is highly convertible in the event that you decide to expand. For example, if the data center is located right next to a boiler room or an entryway, it will be much harder to convert the space for data center use. However, if it is office space used for temporary employees or sales agents who are often on the road, the data center can convert the space as needed at a later time and relocate those employees to another part of the building.

Most Helpful Tip: Avoid Easy Standardization

It’s tempting to look to other data centers or design groups and follow a standard plan and construction concept for a data center. According to Dr. Kenneth Uhlman, the Eaton director of data center business development (714/540-4229;

www.eaton.com), there is no one perfect way to design a data center.

“Standardization within your data center will drive simplicity and ease of management, but the right standards for your data center will be different from your competitors’ or neighboring businesses’,” says Uhlman. “Demand that the design engineers maximize the design for your unique requirements and [implement] the best technology options. Data centers change continually to serve shifting priorities, application and transaction volumes reflecting new technologies, regulations, and market forces. Be sure to align with current and future business needs and power utility conditions.”

Best Tip: Consider Offloading Some IT Services

Building or remodeling a data center is a good time to evaluate business-critical services and those that you can potentially offload to a provider, says Greg Hold, CEO of Hold Brothers (www.onli.com), an investment firm based in New Jersey. For example, it might be an opportune time to consider moving some customer relationship management systems to a provider and use the floor space for those servers for other functions. Or, with the advent of hosted storage, the data center design might accommodate more processing power and a smaller area for a storage-area network or for data retention storage. “We are implementing a disaster recovery facility with a third party and using [its] quote software and data center circuits as options to our traders,” says Hold. “The third party is a colocation facility, software partner, and disaster recovery center.”