

### General Information

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# Data Center Setup Snags

## Learn From Past Mistakes In Power & Cooling Setups, Data Center Design & Personnel Decisions

### Key Points

- Common data center setup mistakes can be grouped into three categories: power and cooling, design, and people and processes.
- Today's cutting-edge technology is a double-edged sword, as it provides more functionality but has higher requirements. Proper power and cooling are essential to ensure good technology does not become a problem.
- The importance of establishing key processes, and hiring the right personnel to implement them, is vital to success.

It is critical that IT administrators engaged in the task of setting up data centers pay heed to the lessons learned from mistakes made by previous businesses. Paying close attention to these lessons can provide a roadmap to successfully navigating the complex task of setting up a data center and avoiding extremely costly mistakes. After all, as George Santayana once said, "Those who cannot learn from history are doomed to repeat it."

### Power & Cooling

Data centers are filled with high-end computing equipment necessary for getting business done. Unfortunately, this hard-working equipment requires a lot of power and generates a lot of heat, so power and cooling considerations are vital to success in data center design.

The work to get power and cooling right begins with the design phase, before anything is built. A common mistake, says Steve Suesens, category manager at Staples Technology Solutions ([www.staplestechnologies.com](http://www.staplestechnologies.com)), is inaccurately forecasting power



and cooling needs.

The availability of high-density, high-performance equipment crammed into smaller and smaller rack space is taxing data centers from a cooling and power perspective, he adds. Failing to accurately forecast power and cooling needs could lead to costly facility upgrades and sky-high energy bills.

Suesens says the solution is a data center infrastructure assessment to help organizations accurately assess their power needs and determine the optimal equipment layout and selection.

Another potential power and cooling misstep, says Mickey S. Zandi, managing principal, consulting services, at SunGard Availability Services ([www.availability.sungard.com](http://www.availability.sungard.com)), is the failure by admins to watch their data center temperatures. Virtualization, which is leading to server consolidation and the increased use of blade architectures, creates the

need for additional blade servers, says Zandi.

This can lead to the creation of high-density zones, which in turn generate hot zones. Overpopulating a cabinet or having multiple high-density blade enclosures can also lead to hot zones, he adds, which create high temperatures and excessive power draw. So, administrators should pay careful attention to both usage and procurement for blade servers as well as the placement of existing and incoming equipment.

## ■ Data Center Design

Long before construction begins, the design of the data center is the first task that must be accomplished. The design is the blueprint that will ultimately determine how a data center functions in the future once it begins operations.

Bob Venero, CEO of Future Tech Enterprise ([www.ftei.com](http://www.ftei.com)), says a common mistake is the tendency by designers to accommodate the possibility of future business requirements by oversizing the actual data center square footage as well as the mechanical and electrical equipment support infrastructure. Venero says this can result in significantly higher expenditures on front-end cooling and power equipment that is often not maximized and exposes the data center to unnecessary operating costs.

The solution, he adds, is designing the data center in a modular capacity so that facilities operate efficiently and match space and technology requirements with business objectives.

Another design lesson is the integration of IT, power, and cooling considerations into the infrastructure design based on anticipated load density, specified in kilowatts per rack, says Gary Wong, director of applications engineering for Wright Line ([www.wrightline.com](http://www.wrightline.com)). Also, says Wong, the floor layout requires collaboration between IT, electrical, and mechanical engineering disciplines. A properly managed integrated design is the best way to avoid “stranded” capacity, he says.

Modular racks are the best way to meet the challenge provided by the lack of standardization for server configurations, says Saleh Tousi, CEO at SmarttNet ([www.smartt.com](http://www.smartt.com)). A modular rack, he adds, allows the removal or addition of certain types of components in order to accommodate railings, third-party cable management components, or unusual power requirements.

## ■ People & Processes

Once a data center is up and running, administrators must establish processes to efficiently meet business objectives. Understanding personnel needs is also essential. The best processes will not succeed without the right personnel to implement them.

A common mistake is the failure of administrators and managers to hire the correct personnel for the job and the assumption that roles and responsibilities are clearly defined and understood, says Randy Ortiz, director of data center design and engineering at Internap ([www.internap.com](http://www.internap.com)). Once personnel—hopefully the best suited for the job—are in place, failing to provide the proper training and guidance can cause staff to have to react to issues and concerns that could be avoided.

On a lighter note, says SmarttNet’s Tousi, providing onsite coffee and vending machines helps technicians burning the candle at both ends when working on a server at 3 a.m.

## ■ Important Lessons

At the end of the day, paying close attention to previous data center mistakes can result in the best practices that are so essential to data center setup success. A roadmap to success is already in place; all administrators and enterprises have to do is follow it. After all, no one wants to be the guy who repeats mistakes and lands on the wrong side of history. ■

*by Sixto Ortiz Jr.*

## **Best Lesson Learned: Plan Ahead**

Jill Eckhaus, CEO of AFCOM ([www.afcom.com](http://www.afcom.com)), says the biggest mistake data center managers can make is not asking themselves “what if”? Many data center managers set up data centers only to realize in six months or two years that their needs have changed, Eckhaus explains. These managers failed to ask themselves what would happen if the need arose to increase the size of their data center, increase power, or deal with a natural disaster. Now, these managers must contend with costly upgrades, a piece of bad news no business executive ever wants to hear.