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## Tech & Trends

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## Aging Data Centers: A Plan Breathing New Life Into Elderly Spaces Requires Solid Strategy

Some things get better with age. But while wine and wisdom can benefit from years gone by, data centers generally take the opposite route, struggling through grave challenges in processing, power, space, and other areas over time. Industry experts estimate that the average age for data centers today is 12 years, which represents an eternity in terms of technology and the infrastructure required to support it.

“Today’s servers have tremendous processing capabilities but require more electricity and generate more heat than what legacy data centers were designed to support. Consider that 12 years ago, data centers were being designed with about 50 watts per square foot of cooling, while today, 200 watts per square foot is typical, and designs of 500 watts per square foot aren’t unheard of,” says Douglas Alger, IT architect for physical infrastructure at Cisco ([www.cisco.com](http://www.cisco.com)) and author of “Build the Best Data Center Facility for Your Business.”

Moreover, shrinking servers result in more equipment packed into cabinets, in turn boosting power and cooling demands, overwhelming an older data center’s cable management system, and even testing the weight-bearing limit of floors, Alger says. Add to that the overall less-efficient designs of older data centers, which often lack hot and cold aisles and other cooling and power optimization features, and you quickly have IT teams scrambling for solutions.

### ■ Stay On Schedule

Most data centers are well aware of the aging environments around them, but targeting potential age-related problems while dealing with day-to-day business requirements can be difficult. Matt Kightlinger, director of solutions marketing for the Liebert Products business of Emerson Network Power ([www.liebert.com](http://www.liebert.com)), notes that data center managers have a tendency to be a little slower in making infrastructure investments, but that practice can prove costly.

“A regular equipment refreshment schedule is important. If [data centers] spread out the expense over time, they can keep their IT systems relatively current. I would also suggest keeping the big picture in mind. For example, considering a room-level UPS may mean a larger initial investment, but it would be scalable and more cost-effective in the long run,” Kightlinger says.

When introducing hardware, Alger suggests choosing energy-efficient systems and virtualized servers, because IT organizations can painlessly implement them. “There’s no downtime—you just introduce them as part of your company’s normal hardware refresh cycle. You lighten the load on your older data center’s electrical infrastructure and its cooling systems, and—in the case of virtualization—you can even reduce your cabling density,” Alger says.

Not all attempts at keeping a data center current necessarily require equipment purchases. Because two of the critical issues tied to aging are power and cooling, it’s possible to take simple steps that can prevent problems. For example, Alger recommends boosting efficiency by sealing gaps where air can leak out of the data center plenum (typically via floor tile cutouts where patch cords and other power cords pass through), installing blanking panels, and neatly routing patchcords so that hardware isn’t obstructed.

## ■ Special Needs

Data centers in every industry inevitably face the trials of aging, but some are more sensitive to the effects than others. For example, Alger points to organizations in the education and government arenas, which don’t have the profit-driven business model of other organizations and can’t justify infrastructure upgrades to their data centers based upon the promise of more customer revenue. **Joshua Aaron**, founder of **Business Technology Partners** ([www.btp.net](http://www.btp.net)), says that some market verticals, such as financial services and health care, are nonetheless consistently under the gun to keep their infrastructures up-to-date.

***“[They] have more rapidly advancing needs in storage and processing power and tend to be faster adopters of new technologies to meet these needs,” Aaron says. “This means that their core data center infrastructure often has a shorter shelf life between each new iteration than in some other industries, such as education and government.”***

Christoph Wilfert, general manager of SMB solutions for Microsoft, agrees, explaining that “the extraordinarily high demands on the data center in today’s healthcare environment can limit IT managers’ options as a result of 24/7 system availability requirements and privacy standards. In education, IT managers face administrative peaks as the student populations turns over,” he says.

Regardless of the industry, meeting aging-related problems head-on with best practices can help to diminish their effects. Alger reminds us that all data centers need proper monitoring and management, but legacy environments require extra attention to avoid overtaxing their resources. After all, just because there is an available electrical outlet or cabinet space doesn’t mean there is adequate power and cooling to support more hardware. “Assuming there is can lead to a tripped electrical circuit or a hot spot that is detrimental to hardware over time,” he says. ■

*by Christian Perry*

## **Key Points**

- As servers continue to shrink, demands for power and cooling expand, in turn placing an increasing burden on older infrastructure designed to handle less-demanding servers.

- Adopting a regular equipment refresh schedule can help to keep data centers current and spread the costs required for that new equipment over longer periods.

- Data centers in certain segments, such as education, can find it more difficult to justify upgrades, but good practices go a long way toward boosting the overall effectiveness and efficiency of legacy infrastructures.