

Data Center Users' Group Special Report

Energy efficiency and capacity concerns increase

Fall 2012 Survey Results



**DATA CENTER
USERS' GROUP**



Executive Summary

The overarching message that can be derived from the results of the fall 2012 Data Center Users' Group (DCUG) member survey, sponsored by Emerson Network Power, is that data center managers are once again increasingly concerned with energy efficiency. The results also point to a growing need to expand to meet power capacity issues. This year's fall survey results report these notable findings:

- Data center energy costs and equipment efficiency has once again become the top-of-mind issue for DCUG members, with nearly half of the respondents listing it as one of their top facility/network concerns.
- Adequate monitoring and data center management (46.3 percent) and availability (45.7 percent) remain concerns, coming in second and third on the list.
- Capacity issues continue to threaten data center performance levels, with 40 percent of respondents saying that they expect to run out of data center capacity by 2014.
- As in previous years, data centers are running out of power before they run out of physical floor space, with 35 percent of respondents citing power as the primary factor limiting data center capacity.
- Organizations are looking to third-party colocation providers and integrated solutions to help them expand and meet growing capacity needs.

Survey Methodology

The Data Center Users' Group (DCUG) is an association of experienced data center, IT and facility managers formed by Emerson Network Power. Founded in 2003, the DCUG includes approximately 2,000 members who participate in a collaborative, focused forum that addresses the issues, trends, challenges and solutions associated with building and maintaining a highly available, flexible and cost-effective facility. The group's membership comprises executives with a wide variety of IT and facilities management expertise from an assortment of companies, including board member companies Vanguard, Cincinnati Bell Technology Solutions and Delta Air Lines, among others. For more information on the DCUG, including membership and upcoming events, visit www.datacenterug.org.

The DCUG membership is surveyed twice each year to provide members with unique insight into data center trends and to ensure the group's meetings address issues of top concern to the membership. The results discussed in this report are from the DCUG survey that was completed in October 2012, with a total of 164 DCUG members providing answers to the 23 questions. This report highlights a selection of the questions posed in the survey. Access to the full survey data is limited to the DCUG membership.

Respondents to the survey primarily represented data center management (32 percent), facilities management (23 percent), IT management/operations (20 percent) and engineering (10 percent). Primary facility size ranged from less than 500 square feet to greater than 50,000 square feet. Figure 1 shows a specific breakdown.

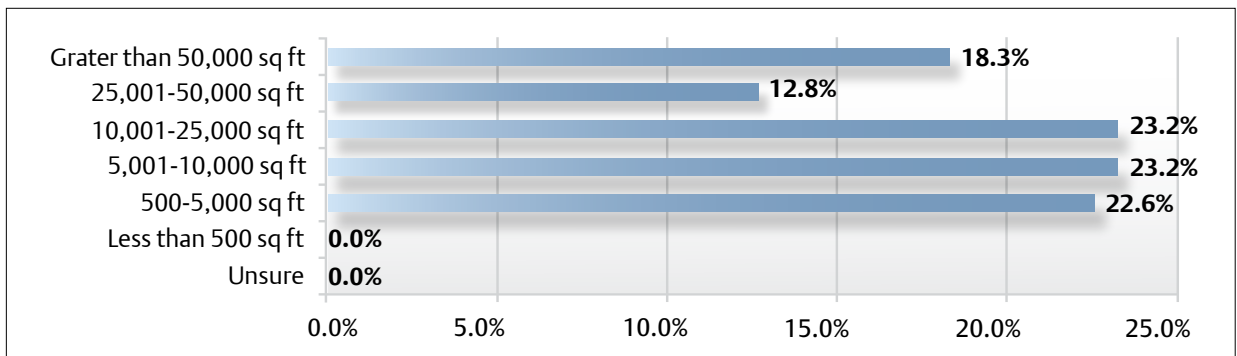


Figure 1. Respondents represented data centers ranging from less than 500 square feet to more than 50,000 square feet.

The timing of the survey coincided with the run up to the 2012 presidential election, which is often a time of heightened uncertainty in the business community, with many organizations taking a conservative approach to planning, spending and budgeting. During this timeframe there also appeared an article from The New York Times that was critical of data center energy usage. This caused a renewed discussion in the industry around data center energy efficiency.

Returning Focus on Energy Efficiency- Top concern of Fall 2012


The issue of energy consumption emerged in 2008 as data center power usage significantly increased and the U.S. economy entered a deep recession that forced companies to find ways to reduce spending. IT organizations began to look seriously at energy efficiency in terms of cost savings as well as environmental responsibility. This was reflected in survey data compiled by the DCUG. Members of the group surveyed in 2005 did not include energy efficiency in their top five data center concerns. In spring of 2008, efficiency made the list at No. 5. In spring of 2009, efficiency had moved to the second position.

Energy efficiency dominated industry discussions until a rash of well-publicized data center outages in 2009 led to increased downtime. In the wake of those outages, respondents to the fall 2009 DCUG survey showed a renewed respect for availability. It jumped from the

fourth most important concern just six months earlier to the number one concern. Availability remained in the top three concerns in 2010 and 2011 while energy efficiency sunk back to the fourth concern of data center managers from fall 2009 to spring 2011. Spring 2009 also saw infrastructure monitoring and management enter the top three concerns, rising to the number one spot in the spring of 2010 and 2012.

The fall 2012 DCUG survey results show that, for the second time this year, energy efficiency, availability and infrastructure and monitoring are weighing heavily on the minds of data center professionals. When asked to identify their top three facility/network concerns, 48 percent of respondents cited energy efficiency, making it the leading response to the question. Adequate monitoring and data center management (46.3 percent) and availability (45.7 percent) were second and third on the list of top concerns. (See Figure 2)

To make sense of these results, one only has to understand the period of great change the data center is currently undergoing. Data center managers are struggling to keep pace with growing capacity needs while working under the constraints of tightened budgets and energy efficiency initiatives. New technologies such as virtualization and cloud computing are transforming data centers into dynamic environments, optimizing the space in ways few could have predicted only a few short years ago.

 **Tweet This:**
Energy efficiency named #datacenter managers' No. 1 concern for the first time in @EmrsnNPDataCntr #DCUG survey

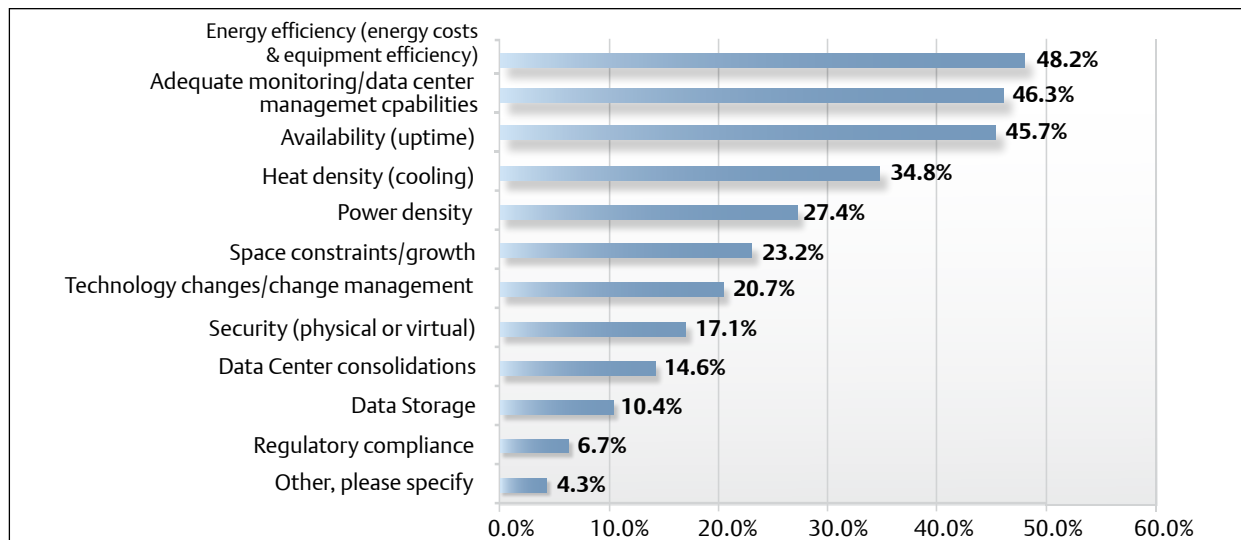


Figure 2. Respondents identified top three facility / network concerns.

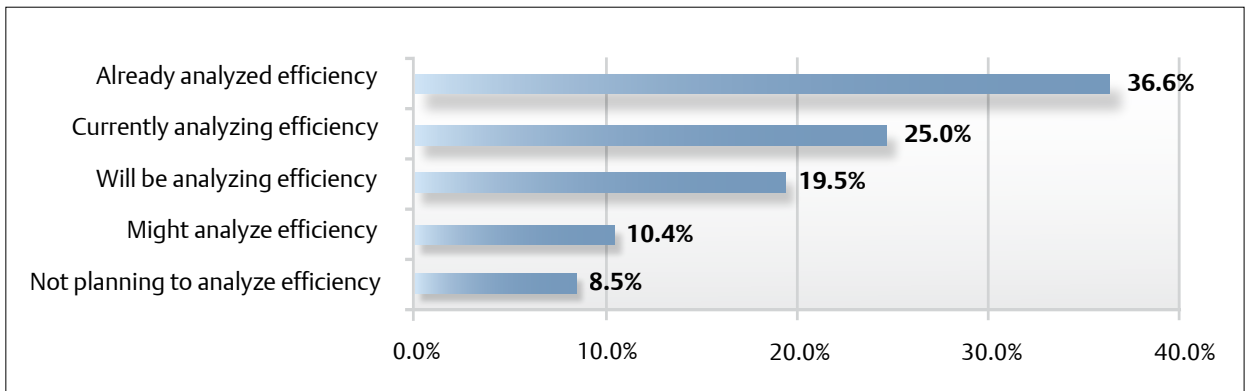


Figure 3. Respondents discuss conducting an efficiency analysis.

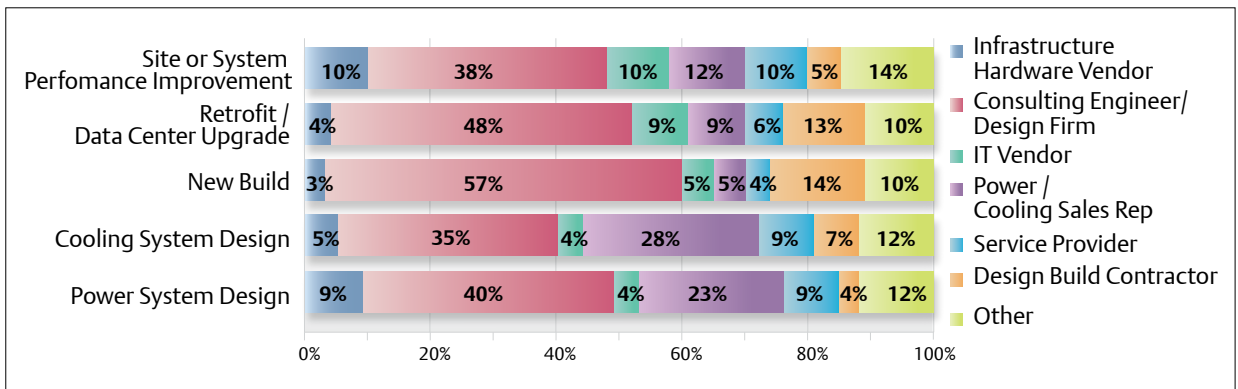


Figure 4. Respondents identify who they turn to for expertise.

The growing complexity of data center environments is forcing many organizations to better track the usage and performance of their assets to ensure IT investments align with the enterprise’s needs—driving the increased interest in monitoring and data center infrastructure management (DCIM). As DCIM tools become more sophisticated and prevalent, data centers are evolving to a new stage of maturity marked by a more proactive approach to management that gives data center managers unprecedented insight into operations and allows them to explore ways to reduce energy consumption and meet growing demand without risking downtime.

The DCUG survey results show that this renewed concern about energy efficiency is leading to action. When asked if they have or will be conducting an analysis of the efficiency of their data center equipment, 62 percent of respondents stated that they have already or are currently analyzing efficiency. Another 19 percent said they will be conducting the analysis in the near future. (See Figure 3.)

As data center managers embark on energy efficiency initiatives, the DCUG survey results show they are turning to trusted partners whom they believe best understand their needs. Along with consulting engineering and design firms, this also includes the sales force of power and cooling equipment manufacturers. When asked who they turn to first for expertise in power and cooling system design, 23 percent and 28 percent of respondents cited power and cooling sales representatives, respectively (see Figure 4). When asked who they believe best understands their power, cooling and efficiency needs, 26 percent, 23 percent and 15 percent cited the sales reps, respectively. (See Figure 5.)

Capacity issues remain a threat

Along with energy efficiency rising back to the number one concern, capacity issues continue to threaten to strain resources and negatively impact performance levels. Forty percent of DCUG respondents said they expect to run out of data center capacity by 2014, with another 29 percent expecting capacity constraints by 2017 (see Figure 6).

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40% of #datacenter managers will run out of capacity by 2014- most exhausting power & cooling before floor space #DCUG

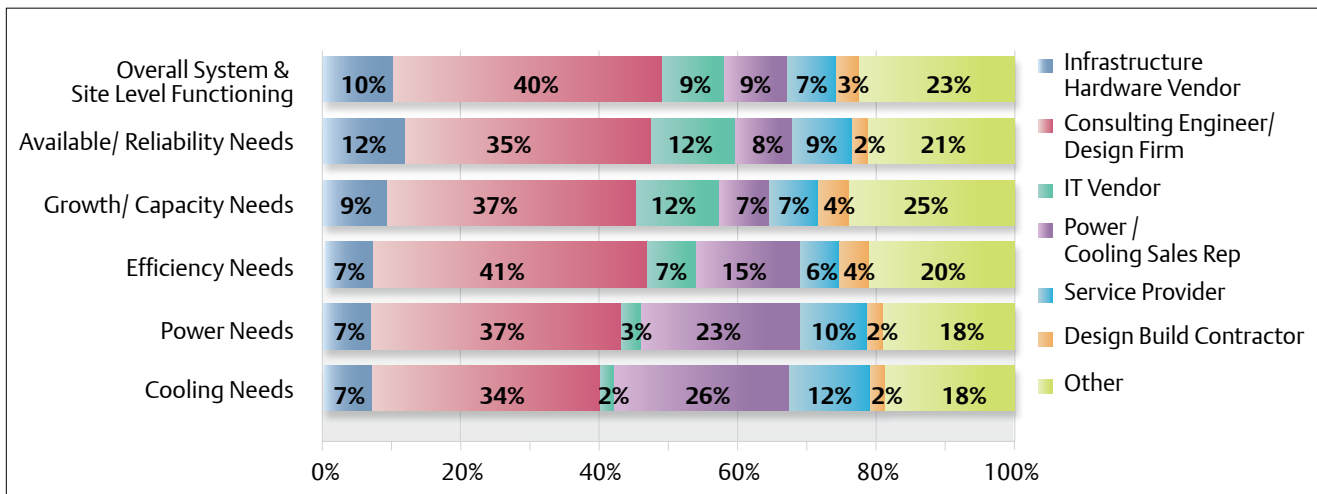


Figure 5. Respondents identify who best understand their needs.

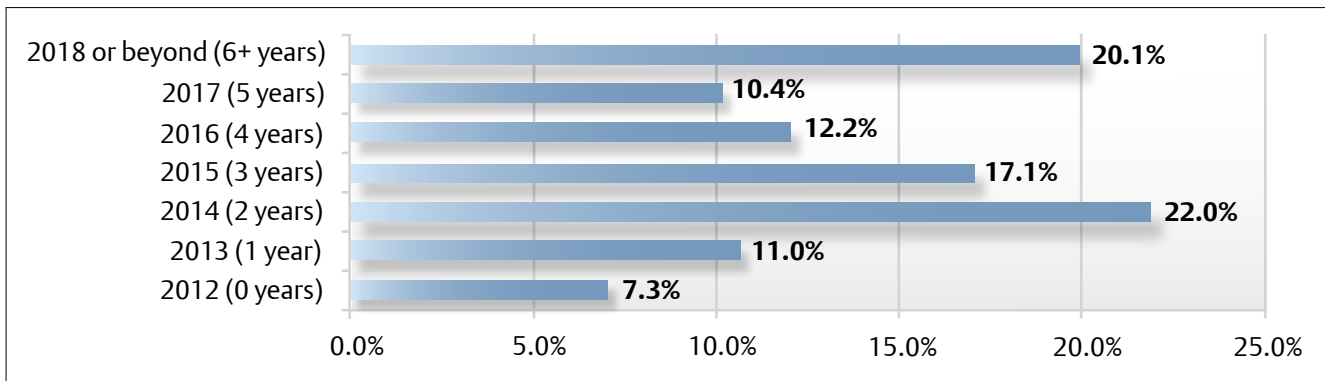


Figure 6. Respondents project data center capacity constraints.

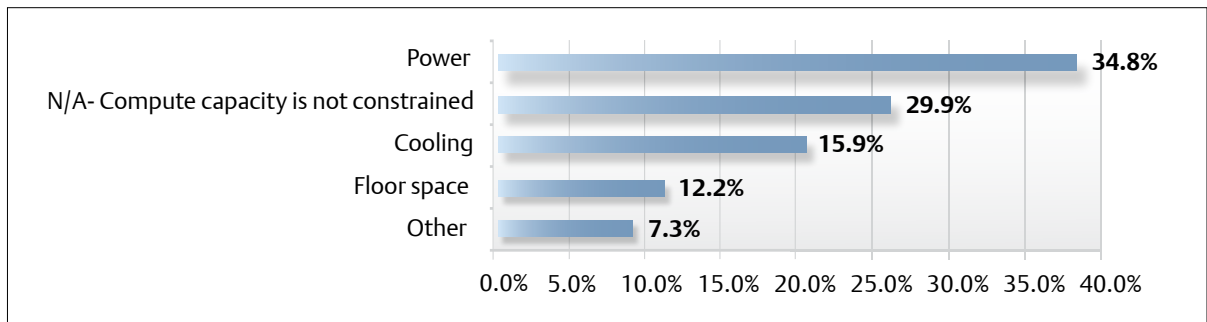


Figure 7. Respondents name factors limiting data center capacity

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#DCUG survey:
#datacenter managers
exploring colocation
and modular solutions
to address diminishing
capacities

As in previous years, the survey also shows that data centers are running out of power and cooling before they run out of physical floor space. Thirty-five percent of respondents cited power as the primary factor limiting data center capacity, while 16 percent cited cooling. Only 12 percent gave floor space as the primary factor (see Figure 7).

These results make sense when one again considers how the data center environment is evolving. As mentioned earlier in the report, data center managers are struggling to keep pace with growing capacity needs while working under the constraints of tightened budgets and energy efficiency initiatives. Traditionally, data centers were designed with extra headroom to accommodate growth. However, during the last decade, capacity demands escalated so quickly that added IT capacity consumed available headroom and outpaced supply in terms of floor space, as well as power and cooling capacity.

Within recent years, new technologies such as virtualization and cloud computing having been transforming data centers into dynamic environments and providing data center managers opportunities to better optimize physical space. However, these results underscore the present need for many data center operators to expand their data center operations to add additional capacity.

Decisions about how to expand seem to be coalescing around two options; one of which is utilizing third-party colocation providers. Thirty-eight percent of respondents reported having decided to colocate either their entire data center operation or a portion of it. The growing interest in this option reaffirms the related finding from the spring 2012 DCUG survey, which had 68 percent of respondents agreeing that few companies will own and operate dedicated data centers in 2020. As the focus shifts from the actual data center facility toward the data center infrastructure, it is becoming easier for companies to utilize colocation facilities.

The other option being considered by many data center managers is implementing integrated solutions. This new generation of infrastructure systems is designed for simplified configuration and greater scalability, enabling systems to be right-sized during the design phase. Virtually every component of the physical infrastructure is now available in a modular design. These modular systems especially help in managing a data center infrastructure that experiences fluctuations in capacity needs.

Modularity can be applied to specific infrastructure equipment such as UPS systems that can be expanded by adding power cores, or rack power distribution units with swappable power strip receptacles, power cords and power modules. Modularity can also be achieved holistically by quickly adding modular chilled water plants or containerized power enclosures to a data center when capacity is being added on a large scale.

When asked if they have implemented any integrated solutions, respondents indicated that they already implemented or plan to implement IT enclosures (17 percent), power enclosures (11 percent) and integrated rack infrastructures (11 percent). A greater number of respondents stated that they are still considering the options (21 percent for IT enclosures, 23 percent for power enclosures and 34 percent for integrated rack infrastructure) (see Figure 8).

The results indicate that many data center professionals are beginning to understand that modularity and scalability of infrastructure equipment reduces costs and improves deployment speed during construction and at a room and rack level when adding capacity. These modular systems are typically integrated packages of equipment and controls that are built and pretested in a factory environment. In many cases, these modular systems can be deployed in as little as 14 to 16 weeks. The shorter deployment time, combined with the “build it as you need approach” offered by modularity, allows data centers to quickly meet fluctuating demands while lowering CAPEX (capital expenditure) costs.

Conclusion

Results of the Data Center Users’ Group fall 2012 survey provide a revealing look into the changes occurring throughout data centers.

While each facility is uniquely different, the insights provided by the more than 160 survey participants serve as an accurate representation of what’s going on inside the data center, including these two notable realities:

- Today’s data center managers continue to struggle to balance organizational pressure to meet growing demand while delivering efficiency and availability.
- Many organizations understand the important role third-party colocation providers and integrated solutions can play in meeting growing capacity needs while simplifying deployment time and lowering operational costs.

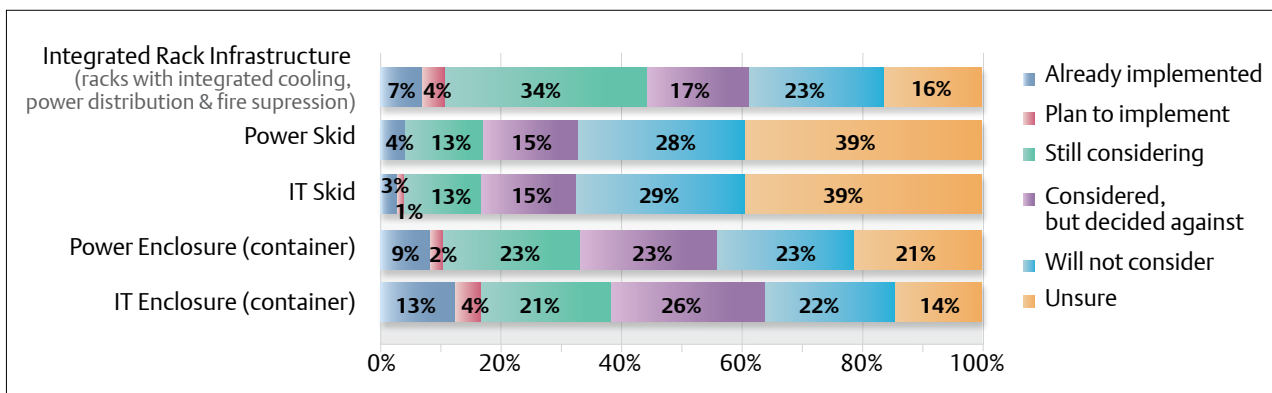


Figure 8. Respondents consider integrated solutions.

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