

WHITE PAPER

The Datacenter's Role in Delivering Business Innovation: Using DCIM to Enable a Common Management Approach

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EXECUTIVE SUMMARY

In today's information-driven economy, datacenters are the new "factory floor." They play a key role in enabling enterprises to provide service to customers and deliver innovation. Unfortunately, inconsistent information about IT and facilities assets and operations is undermining datacenter teams' ability to deliver the necessary levels of innovation to support business goals.

Datacenter managers at 84% of the organizations in a recent IDC study experienced issues with datacenter power, space, or cooling capacity; asset usage or deployment; or uptime in the past year. These problems resulted in delayed or aborted application rollouts, reduced ability to support customers, and unplanned reallocation of opex and capex budgets away from strategic goals. Inconsistent and/or incomplete information reduced datacenter teams' ability to support business innovation and make maximum use of infrastructure hardware and software investments.

A key strategy for reducing datacenter risk is to adopt a unified approach to management across all aspects of the datacenter. A well-implemented datacenter infrastructure management (DCIM) solution can help IT and facilities teams coordinate management tasks by providing a common view of the truth to boost datacenter operating efficiency in power and cooling as well as IT asset utilization. It also makes it easier for datacenter teams to better tie physical systems to virtual machines, applications, and business services. A well-implemented DCIM solution can help datacenter teams better leverage existing capacity, avoid costly buildouts, and optimize IT workloads in the face of growing complexity, enabling organizations to capitalize more quickly on business innovation.

IN THIS WHITE PAPER

IDC examines the business developments and operations challenges organizations face as they seek to drive innovation and gain more value from their datacenter investments. This white paper draws on findings from an online survey conducted by IDC in September 2012 of 508 IT and facilities executives and managers in midsize and large organizations in the United States, Brazil, the United Kingdom, France, and Germany.

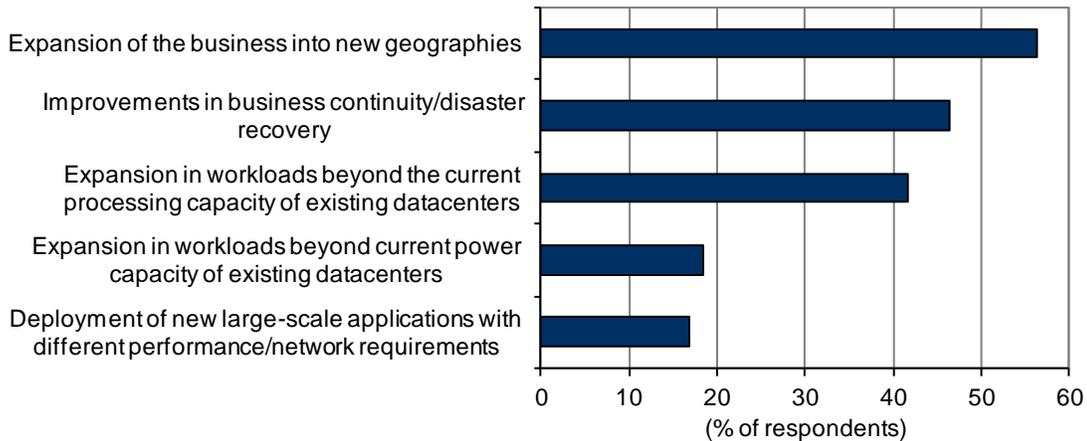
DATACENTERS PLAY KEY ROLE IN DELIVERING BUSINESS INNOVATION

In today's increasingly connected and information-driven world, the datacenter is at the heart of organizations' efforts to provide products and services to individuals and businesses. In addition, as dependence on the datacenter increases, the number of datacenters and datacenter assets is growing. Even if we exclude the smaller server rooms and server closets in small businesses as well as remote branch offices, the number of datacenters in operation worldwide will increase from over 191,000 to almost 202,000 between 2011 and 2014. More significantly, the size of those datacenters is also growing, with total datacenter square footage increasing from 569 million to 737 million over the same period.

According to the IT and facilities executives and managers in this study, the main forces driving increased datacenter capacity include expansion into new geographic markets; supporting faster, better, and/or new services for customers; and improving business resilience with more timely and reliable disaster recovery (see Figure 1).

FIGURE 1

Factors Driving Increase in Datacenter Capacity



n = 281

Base = respondents forecasting increase in datacenter capacity

Source: IDC Global DCIM Survey, 2012

Each of these factors is a contributor to the fundamental business goal of driving faster innovation in product and service delivery. For example:

- ☒ Financial institutions, consumer products companies, and service providers must respond to increasingly mobile-centric customer bases with secure information services.
- ☒ Government agencies and retailers need to more effectively manage ever greater amounts of constituent data from both public and private data sets.
- ☒ Healthcare, utility, and media organizations need to manage the transition to digital foundations without increasing datacenter energy and IT operating costs.

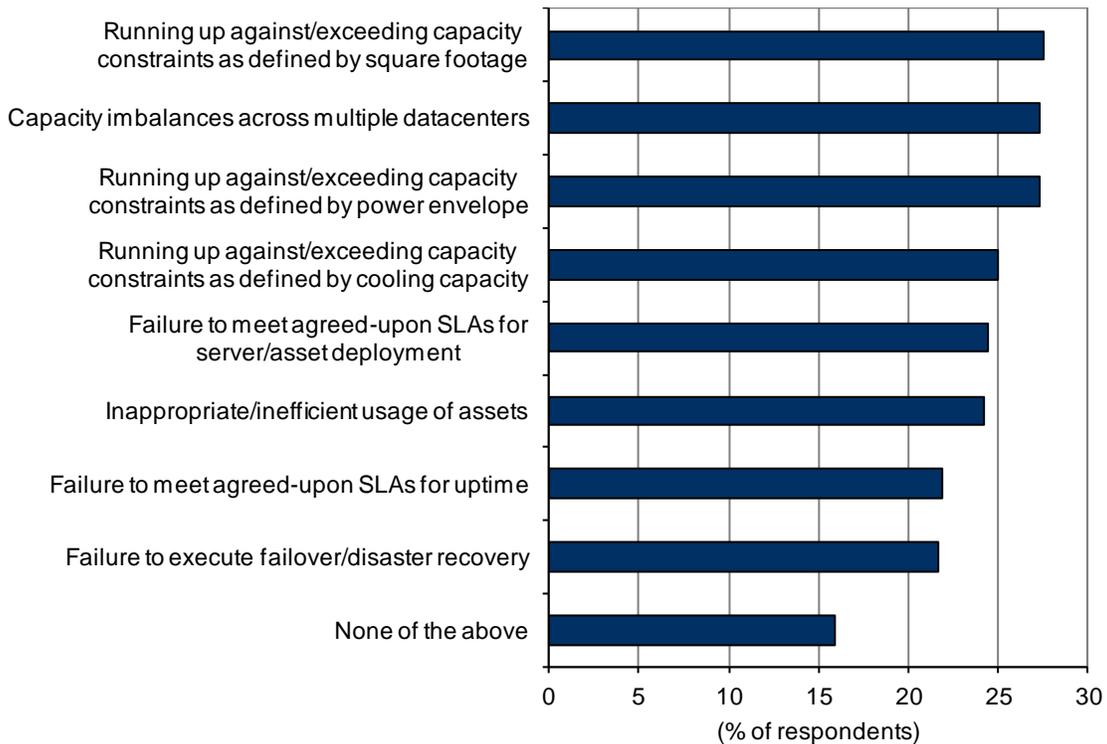
Many people think innovation occurs strictly in design or research and development departments, but innovation is turned into reality on the factory floor or (in the case of information-driven businesses) in the datacenter. Organizations are spending hundreds of billions of dollars each year on the infrastructure deployed in their datacenters and even more on power and cooling, plus IT and facilities support staff, to ensure that current and new applications are highly available. They must ensure this investment is being spent efficiently and effectively and supporting the business' overall goal of delivering innovative new products and services.

Datacenters Are Key Barrier to Innovation

Unfortunately, problems in the datacenter are limiting effective use of datacenter capacity. Eighty-four percent of IT and facilities executives in this study reported that they had one or more incidents in which datacenter facilities constraints in power, space, or cooling or asset management problems or uptime issues negatively impacted business operations. The specific problems were dominated by power, space, and cooling capacity issues as well as imbalances in capacity across multiple datacenters (see Figure 2).

FIGURE 2

Datacenter Problems That Have Occurred Over the Past 12 Months



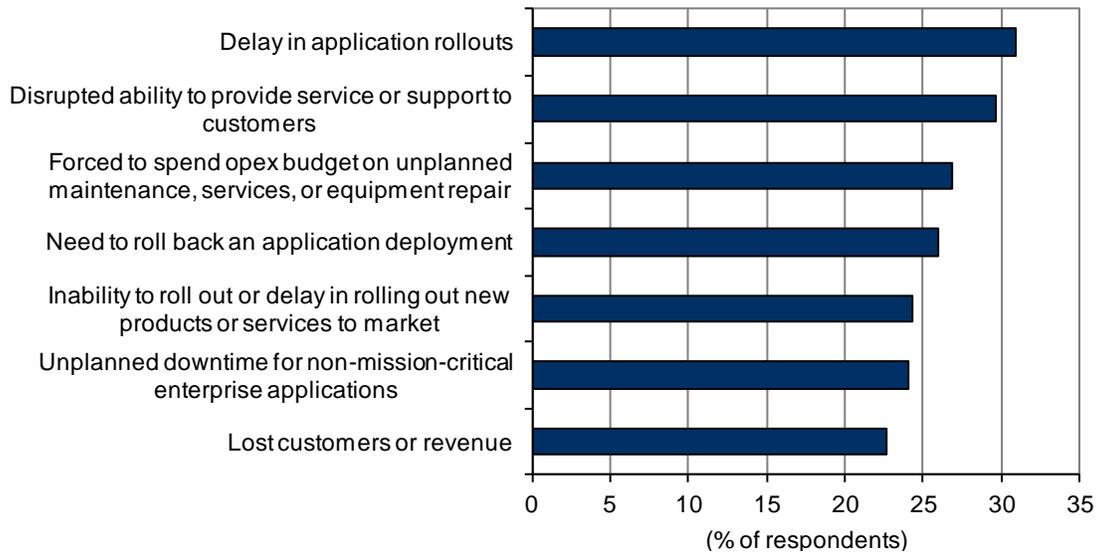
n = 508

Source: IDC Global DCIM Survey, 2012

The leading consequences of problems in the datacenter are delays in application rollouts or rollback of application deployments, disruptions in the ability to provide service to customers, and spending outside the opex budget (see Figure 3).

FIGURE 3

Consequences of Problems in the Datacenter



n = 427

Base = respondents who have had one or more datacenter problem(s)

Source: IDC Global DCIM Survey, 2012

A significant number of IT and facilities executives and managers experience problems related to datacenter capacity or management that restrict their ability to release new applications and services or to provide required levels of service to customers. The remainder of this white paper assesses the factors contributing to these problems and discusses how adopting a common, integrated approach to datacenter management can boost datacenter operating efficiency in terms of space, power, and cooling as well as improve asset utilization, reduce risk, and enable more agile business innovation.

WHY THINGS GO WRONG IN DATACENTERS

Some enterprises are addressing growing business demand by adding new datacenter capacity. In fact, on average, across all respondents, datacenter capacity is expected to grow by 7% over the next two years. However, adding capacity without addressing underlying issues in coordination and management will provide, at best, only short-term gains. Adding capacity as a "solution" to issues in the datacenter is akin to putting a Band-Aid on the underlying problems: A simplistic, brute force approach on its own won't work.

For many enterprises, however, adding capacity isn't practical. Depending on their approach to datacenter design, many cannot "build out an extra room" like in a home. These organizations have to embark on major retrofits or build new datacenters. Both approaches require major capital outlays, a nonstarter for many companies in these challenging economic times.

When IDC speaks with datacenter teams, they usually give three reasons why things go wrong: out-of-date or poorly designed datacenters, divided datacenter operations, and inconsistent or incomplete information about IT and facilities assets. All three issues can make things more challenging, but inconsistent information is the area where organizations can most quickly and economically make changes to improve efficiency in datacenter asset use and operations.

Outdated Datacenters

Most enterprises have a large number of datacenters, server rooms, and closets, and no two enterprises look alike. Despite the trend toward IT consolidation, organizations still have assets split among different locations. These datacenters are often at different maturity levels. While 43% of respondents characterize their datacenters as "state of the art or highly efficient," the other 57% have either inefficient or moderately efficient datacenters.

Of course, few companies have just one datacenter. Maintaining multiple datacenters is often an outcome of a firm's previous merger and acquisition activity. In other cases, companies choose to operate multiple datacenters for improved application responsiveness, disaster recovery/failover, data governance, or sovereignty rules. Dispersal of IT assets across multiple datacenters can lead to inconsistencies in datacenter age, quality, and practices.

All of these scenarios can pose challenges to datacenter managers that must be addressed through governance and management processes; however, it's unrealistic for organizations to simply eliminate datacenters or magically make them all state of the art. Enterprises must optimize the datacenters they have, and doing so will require focus on datacenter operations and datacenter management information.

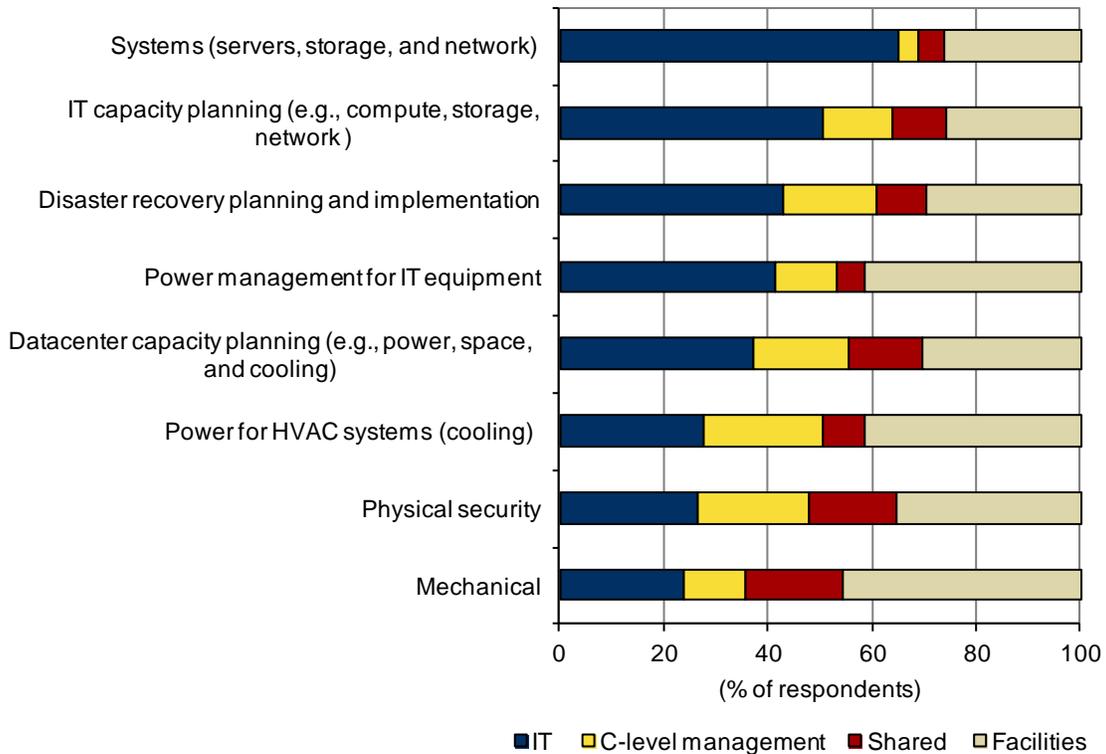
Disjointed Datacenter Operations

Another frequently cited issue is the divided nature of datacenter management. Responsibility for a broad range of datacenter aspects, from servers and storage administration to power management, capacity planning, and physical security, is split between IT and facilities. Facilities priorities and practices can affect IT, while IT priorities and practices can affect facilities. For example, an IT decision to implement high-density blade servers for a virtual environment can place unplanned strains on power and cooling systems or create unwanted hotspots in the facility.

Figure 4 shows that responsibility for issues including capacity planning, power, and physical security even falls outside both of these groups and rolls up to C-level executives (such as the CFO). With different groups "owning" different datacenter systems and components, inconsistency in measurement, policies, and processes is a major risk.

FIGURE 4

Divided Responsibility Is Common in the Datacenter



n = 296

Base = respondents with separate IT and facilities organizations

Source: IDC Global DCIM Survey, 2012

Governance challenges in datacenter management contribute to this situation. For 58% of respondents, IT and facilities live in separate organizations. This can hinder their ability to manage datacenter operations on a day-to-day basis (for example, increasing mean times to resolution for datacenter issues) and limits their ability to reach consensus and execute on business goals and initiatives.

However, simply combining datacenter activities into a single organization is not necessarily the answer. There are important benefits to specialization — just as different types of doctors specialize in different areas of medicine, efficient datacenter operations requires specialists in a broad range of areas, including mechanical, electrical, IT systems, security, and facilities. These specialists must have common systems, information, and processes they can use to work together toward the same goals, just as a cardiologist and a general practitioner can better and more cost effectively manage a patient's health if they work from a common set of information.

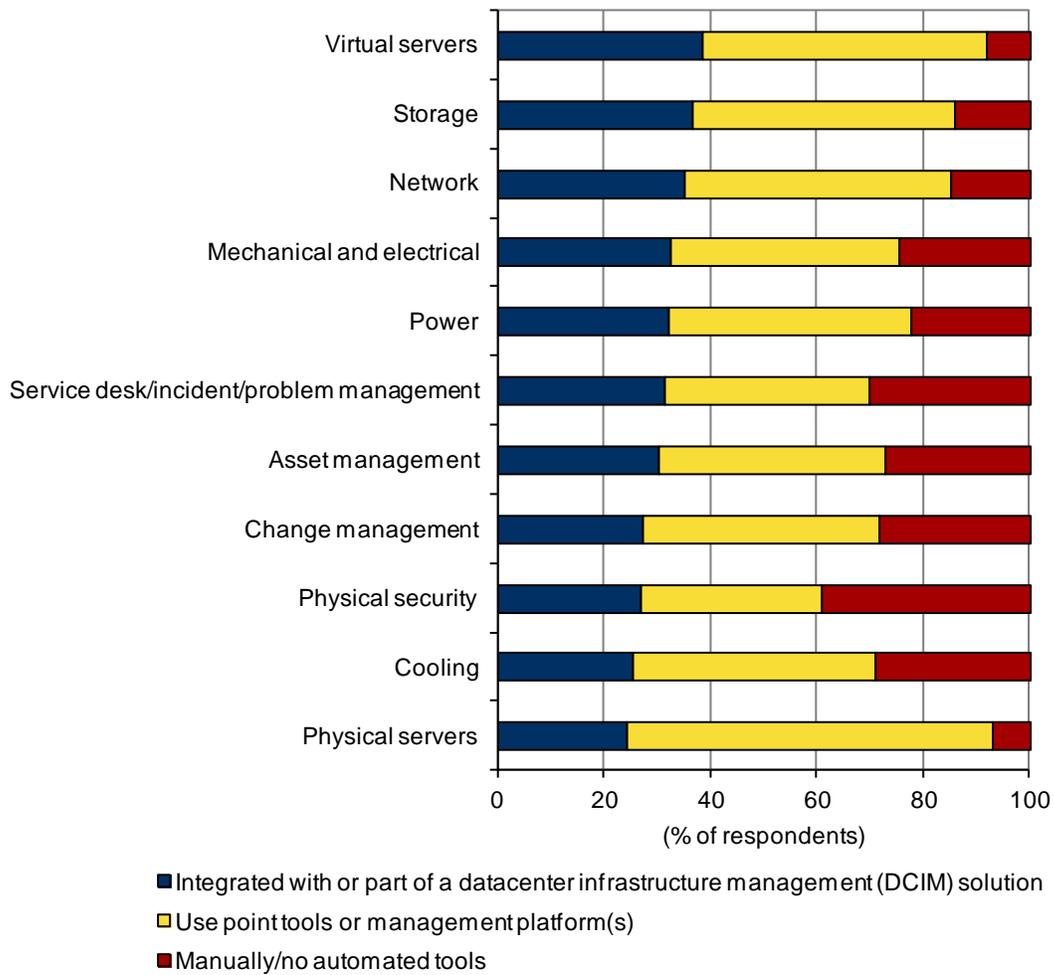
Inconsistent Datacenter Information

The primary factor limiting the ability of most datacenter teams to effectively plan, optimize, and operate their datacenters is the lack of reliable, authoritative, relevant, and timely information that they can use to manage the datacenter and all the assets in it.

Only a little more than one-third (37%) of surveyed organizations said they have a single set of tools in use across both IT and facilities (see Figure 5). Virtual servers are most likely to be managed with a single set of tools, but many other areas, including physical servers, cooling, and security, are much more likely to be managed with separate tools or, worse, managed manually with no automated tools at all.

FIGURE 5

Management Tools Are Manual and Fragmented



n = 508

Source: IDC Global DCIM Survey, 2012

IT and facilities administrators and capacity planners are dealing with multiple and often incompatible versions of the truth. Without reliable and accurate visibility into critical datacenter infrastructure metrics, decision making suffers. They can't perform reliable capacity planning, accurately diagnose issues, or optimize for power, cooling, network connectivity, and rack and floor space. Operational tasks such as systems placement are more difficult, and monitoring metrics such as power usage effectiveness (PUE) are less accurate.

BENEFITS OF A COMMON APPROACH TO DATACENTER MANAGEMENT

Over half of the datacenter managers IDC surveyed said there would be value in using an integrated DCIM system. Respondents' greatest priorities for management through an integrated tool encompass power, cooling, IT hardware, and IT workloads to deliver functions such as real-time monitoring of power, temperature, and other variables; alerts and alarms for power and cooling; inventory and asset management; and capacity analysis and planning. DCIM solutions with a consolidated, integrated approach to datacenter management provide a common platform for capacity planning, provisioning, and problem diagnostics. They provide valuable, meaningful information across datacenter assets, environment, and resource use and status. The solutions also provide a collaborative environment or workspace for IT and facilities personnel to document/implement processes and implement policies.

DCIM solutions enable organizations to gain a greater understanding of not only physical assets and systems but also applications, virtual machines, and business services and how they tie back to the infrastructure components. The solutions capture information that is critical for planning, modeling, reporting, and real-time decision making across both physical and virtual assets.

While some staff are hesitant to hand over control to automated datacenter systems, a large minority are open to the idea of implementing automated control of selected systems in the datacenter. For example, 44% of respondents indicated that they are willing to consider automating control of cooling systems (e.g., by changing fan speeds in air conditioning systems), and as many as 40% said they are willing to consider automating the control of IT workloads to increase power efficiency (e.g., by moving virtual machines or workloads based on power or environmental factors).

Respondents believe that managing these functions with integrated tools can greatly reduce the amount of time datacenter teams spend on forecasting, performing impact analysis, and investigating problems. Improving overall service delivery allows datacenter teams to address immediate operational requirements, improve long-term planning, and deliver better results for the business services they are supporting.

FINAL THOUGHTS

C-level management is demanding business innovation, and IT and facilities must work better together to deliver the necessary levels of innovation to support business goals. Implementing a common platform for datacenter management with an integrated DCIM solution makes it more practical for these two groups to optimize operations.

Addressing issues merely at the subsystem or individual discipline level rather than at the datacenter level will not be an effective long-term strategy for most organizations.

☒ **Fragmentation calls for a unified approach to datacenter management.**

Despite aggressive consolidation plans, datacenters remain highly fragmented in terms of number, type, size, sophistication, and organizational responsibilities. Increased demands on datacenter facilities combined with trends such as virtualization are aggravating power and cooling planning and management. Improving consistency in datacenter operations is a critical requirement for any effort to accelerate application development/rollout and reduce operating costs.

☒ **The full benefits of DCIM deployment require broad scope of integration.**

Adopting a DCIM solution can play an important role in meeting datacenter objectives, but fully realizing the advantages of DCIM requires a broad view across all key IT and facilities asset classes and coverage of a cross-functional set of processes. It is not enough to just deploy point management systems for individual elements of the datacenter; the greatest benefits accrue when major datacenter components important to the organization are included. This approach doesn't preclude stepwise targeting of specific functional areas, however. Organizations need to address areas — such as integrated capacity planning, assisted asset placement, and root cause analysis — that encompass IT and facilities dependencies.

☒ **Use DCIM solution to enable change in processes and culture.**

A well-implemented DCIM solution makes it possible for teams to leverage the best available data and practices from each discipline and utilize them in concert rather than in conflict. DCIM not only enables improved operations, greater agility, and lower risk but also can rapidly accelerate such tasks as data collection and routine calculations and analysis, enabling staff to focus on higher-level activities such as strategizing, engineering, and implementing improved datacenter systems and approaches. While it is important to have areas of specialization in IT and facilities, DCIM provides a common set of tools, data, and processes for both groups to optimize management of the overall datacenter.

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