Uptime Institute 2016 Data Center Industry Survey Results

Enterprise IT budgets are shrinking, and execs expect to outsource heavily to the cloud in the coming 5 years. In the face of these constraints, enterprise infrastructure teams need to emulate service providers—providing better service and transparency.

BY MATT STANSBERRY
The sixth annual Uptime Institute Data Center Data Center Industry Survey provides an overview of the major trends shaping IT infrastructure delivery and strategy. The survey was conducted via email in February 2016 and includes responses from over 1,000 data center operators and IT practitioners (see Figure 1).

EXECUTIVE SYNOPSIS
Many enterprise IT departments are shrinking, due to budget pressures, IT hardware advances, and the outsourcing of workloads to cloud and colocation providers. At present, the majority of IT groups maintain a mix of assets across enterprise-owned data centers, colocation partners, and cloud platforms, which is consistent with several years of survey data that suggested the shift to cloud computing would be gradual for conservative enterprise IT organizations. However, this year’s data indicate those assumptions may be incorrect. A major shift in IT’s role in the enterprise is imminent—or has already happened unbeknownst to the enterprise IT professional.

This survey explores the rapidly growing relationship between enterprise IT and colocation providers, and also how enterprise IT can work effectively with business functions outside of its discipline, specifically Corporate Sustainability in order to drive efficiencies and demonstrate responsible stewardship of resources.

Uptime Institute concludes that IT will need to move away from its role as a slow-moving centralized service provider, as IT assets become more distributed across locations and platforms, and instead provide corporate governance across the various business lines—evaluating security, costs, and performance of IT for end users.

DEMOGRAPHICS
The sixth annual Uptime Institute Data Center Industry Survey was conducted via email in February 2016, and includes responses from over 1,000 data center operators and IT practitioners (see Figure 1).

2016 Survey Respondents

<table>
<thead>
<tr>
<th>Job Function</th>
<th>Location</th>
<th>Top Verticals</th>
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<tbody>
<tr>
<td>33% Executive</td>
<td>U.S. and Canada 40%</td>
<td>Colocation or Multi-tenant Data Centers</td>
</tr>
<tr>
<td>34% IT Management</td>
<td>Europe 22%</td>
<td>Data Centers 26%</td>
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<tr>
<td>33% Facilities Management</td>
<td>Africa and Middle East 12%</td>
<td>Financial 18%</td>
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<td></td>
<td>Latin America 10%</td>
<td>Telecommunications 14%</td>
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<td></td>
<td>Russia and CIS 3%</td>
<td>Government 10%</td>
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<tr>
<td></td>
<td></td>
<td>Manufacturing 6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Utilities/Energy 6%</td>
</tr>
</tbody>
</table>

Figure 1: Uptime Institute’s survey respondents include 1,000 data center owners, operators and IT practitioners from various industries and locations around the world.

Matt Stansberry
Matt Stansberry is Director of Content and Publications for the Uptime Institute and also serves as program director for the Uptime Institute Symposium, an annual event that brings together 1,500 stakeholders in enterprise IT, data center facilities, and corporate real estate to deal with the critical issues surrounding enterprise computing. He was formerly editorial director for Tech Target’s Data Center and Virtualization media group, and was managing editor of Today’s Facility Manager magazine. He has reported on the convergence of IT and facilities for more than a decade.
The survey respondents are end users—those responsible for managing infrastructure at the world’s largest IT organizations. The participants represent a wide range of industries, with about a 50-50 split between Enterprise IT leaders and Service Providers—those with operational or executive responsibilities in colocation or cloud computing companies.

The roles of the participants range from IT and Facilities Management to Executive, with senior-level participants at the VP-level and above. Multiple geographic regions are represented providing a global perspective.

Regional Differences Are Minor in a Global Economy
Having conducted this survey for six years, Uptime Institute has noticed less variance in responses between regions. Put another way, an IT director at a bank in São Paulo, Brasil, responds to questions in much the same way as a London-based IT exec in the financial industry. The biggest variances appear to relate to company size and job function and between verticals.

Select regional economies are growing faster and might adopt certain technologies more quickly than others, but these differences have no impact on the purpose of this survey: to examine and evaluate the decision making of enterprise IT and data center leaders.

Defining Enterprise, and Addressing Enterprise Issues
For this survey, Uptime Institute has divided respondents into two categories: Enterprise IT and Service Providers. The enterprise IT category includes government, financial industry, manufacturers, retailers, and any other vertical that deploys IT to serve an internal business function. Service Providers include end users at cloud and colocation vendors—any organization that provides IT or infrastructure for customers.

Uptime Institute does not include responses from Service Providers in several areas of this survey. For example, the survey did not ask Service Providers about their server hardware footprints or cloud computing adoption plans. The survey is largely focused on how enterprise IT and infrastructure is deployed and managed, both in enterprise-owned data centers and through off-premise computing models.

Lastly, throughout the survey Uptime Institute uses the generic term colocation. In this survey, colocation applies broadly to any service provider supplying a data center facility, from dedicated facilities to multi-tenant spaces.

BUDGETS: STABLE OR SHRINKING ENTERPRISE IT?
Is the glass half-full or trending toward empty?

For the last five years, around half of enterprise IT departments have faced flat or shrinking overall budgets (combined technology infrastructure of IT and data center facilities). This percentage has held steady in each of Uptime Institute’s surveys and speaks to a close scrutiny of enterprise IT spending. Some enterprise IT organizations are receiving modest budget increases, but fewer than 10% are seeing any significant growth.
This trend is corroborated by 451 Research’s Voice of the Enterprise Data Centers Q4 2015 report, which found 48% of budgets flat or shrinking and less than 6% of respondents will see an annual spending increase over 25%.

Over half of enterprise respondents reported a flat or shrinking server hardware footprint (see Figure 2). This is the first time the survey asked this question, but the result is corroborated by 451 Research.

50% of enterprise budgets flat or shrinking

55% of enterprise server footprints flat or shrinking

Figure 2. Enterprise IT organizations are looking for ways to decrease spending on telecommunications, staffing, facilities infrastructure, and server hardware.

HP Proliant and Dell PowerEdge Servers were listed as the two most critical server platforms for enterprise IT users in 451 Research’s Voice of the Enterprise, Servers and Converged Infrastructure Q4 2015 report. Over half of the respondents planned to cut spending on HP equipment in 2016, and nearly half plan to cut spending on Dell hardware. Respondents report plans for increased spending against Cisco’s converged hardware platforms in 2016. But, for companies that supply the x86 hardware that makes up bulk of data center capacity, dramatic cuts may be coming. Nearly 30% of respondents planned to cut spending on HP server hardware by over 50% in 2016.

Why Are Enterprise Server Footprints Shrinking?

A conversation with 451 Research Director, Peter Christy

The number of server hardware units seems to be flat or declining across the enterprise. I first noted the trend in conversations with the people running advanced enterprise IT departments who participated in Uptime Institute’s Server Roundup program two years ago, and now the survey data confirm that the rest of the industry is starting to see something similar. Does this shrinking server footprint fit your view from the market side?

Christy: It does. All the traditional enterprise server suppliers are seeing flat or even declining businesses. New servers have more capacity than the older ones they replace, and server virtualization makes it much easier to refresh the server infrastructure and take advantage of more powerful and cost-effective hardware. All of that fits what you are seeing.

How are these server hardware trends impacting deployment?

Christy: Moore’s Law can’t last forever, but it is still making progress. Intel just introduced its most recent Xeon E5 v4 series, which features a 25% performance bump over last year. There are more cores per processor. The last version had 18; now they’re up to 22. The cores are smaller and offer more throughput.
Also, server virtualization allows higher server utilization; fewer servers are needed to do the same work. Server virtualization also makes it easier to refresh servers with newer, more cost- and space-effective replacements. Server virtualization has happened rapidly by the historical standards of data center change because it could be done by the server team and because it yielded a quick ROI.

Also, server virtualization has made it easier to move workloads to the cloud, and enterprises are starting to outsource elements of IT to the public cloud so that fewer servers are needed in their private enterprise data centers.

*Our surveys have shown a conservative adoption rate of cloud computing among the enterprise IT groups. But, I see some indications that the industry is poised to make a major shift. What do you think happens next?*

**Christy:** The shift to the public cloud is fascinating. It’s being driven now by the need for enterprises to be more agile—to respond to issues and opportunities more quickly. IT plays an important role in business agility. If IT isn’t agile, it’s hard for a business to be agile. Public cloud services, in particular the market leader Amazon Web Services (AWS), have played a key role in demonstrating the potential value of agile IT and demonstrating what is possible, at least on a platform like AWS.

Most enterprises would prefer a private alternative to the public cloud, but so far that’s been hard to accomplish. Although IT surveys clearly show this reluctance and would lead you to believe the evolution to the public cloud will be slow, other data suggest otherwise.

For the last year, Amazon has broken out AWS as a separate business, and we see that revenues are approaching a US$10-billion run rate, which is growing at more than 50% year over year with 25% profitability. These are all breathtaking numbers, especially in an IT industry that is at best slowly growing.

The shift is also seen in what Intel reports about server CPU sales. Three years ago, Intel said that the cloud segment was growing more rapidly than the enterprise segment but was still much smaller. More recently, Intel said that 2016 would be the crossover year in which cloud sales would exceed enterprise sales.

Finally, all the traditional enterprise IT suppliers (HP, Dell, and IBM) are struggling just to keep the enterprise business flat and looking for ways they can sell to cloud providers. Although the surveys may show that enterprises don’t want rapid evolution to the cloud, other data suggest the change may happen quickly.

*Peter Christy is the Research Director of 451 Research’s Networking Practice. For more than 30 years, Peter has worked with segment leaders in a spectrum of IT and networking technologies. He managed software and system technology for companies including HP, Sun, IBM, Digital Equipment Corp and Apple.*

The impact of flat enterprise IT budgets and shrinking server hardware footprints is now trickling down to the colocation providers *(see Figure 3).*

For the last 5 years, colocation providers have experienced massive growth, trying to keep up with demand. Yet the forces shrinking enterprise IT deployments are now impacting the capital project cycle, even for colocation providers.

Despite a slowdown in new capital projects, the colocation or multi-tenant data center providers are playing a major role in many enterprise IT team’s asset mix. According to the survey, a significant portion of an enterprise’s IT workload is deployed in colocation provider sites. The following section will address the drivers and trends for managing IT assets in these third-party service provider sites.
THIRD-PARTY SERVICE PROVIDER ADOPTION AND MANAGEMENT

For the last 5 years, the majority of survey respondents have reported that some percentage of their IT portfolio resides outside of their enterprise-owned data centers, either in the cloud or in a colocation facility (see Figure 4). In 2016, over 75% of respondents claimed to use some form of off-premise computing. Arguably that number is closer to 100%; as many of the respondents may be unaware of initiatives outside of their purview, and end users might even purposely circumvent traditional IT channels and barriers.

Figure 3. Despite a slowdown in new capital projects, the colocation or multi-tenant data center providers are playing a major role in many enterprise IT team’s asset mix.

Figure 4. Uptime Institute says that these survey numbers may understate the move to off-premises computing by enterprises.
In the years (2012–2016) that the survey has included this question, these numbers have remained fairly static. Despite massive growth in cloud computing revenues, cloud adoption appears to be conservative. And yet, asking this question in a different way to a different segment of the audience yields results that suggest the industry is poised for a major realignment.

About half of the senior executives say they expect the majority of their IT workloads to reside off-premise in cloud or colocation sites in the future. Around 70% of those respondents expect that shift to happen by 2020, and 23% expect that shift to happen by next year.

Uptime Institute saw it coming. The 2013 Data Center Industry Survey found that C-level execs were not paying attention to data center infrastructure cost or performance metrics. At that time, Uptime Institute advocated that data center and IT professionals become more effective at articulating their value to the business or risk being outsourced.

At Uptime Institute Symposium that year, a data center operations director at a very large U.S.-based company said that he was making simple, no-cost changes to the data center that would save his company hundreds of thousands of dollars annually and extend the life of legacy data center assets—offsetting a looming eight-figure capital expense.

To the question “What does your CIO think of your projects?” he responded, “I’ll let you know if I ever meet him.”

Fundamentally this survey takes the pulse of enterprise IT and data center professionals—stakeholders who are not motivated to go to the public cloud, who will attempt to diminish the speed with which it will happen, and who will emphasize the potential problems with cloud computing. While CIOs may be loath to relinquish their empires, other executives in the business lines will demand more scalable, responsive IT on demand.

To be clear, there will not be an exodus of enterprise data centers’ workloads to the cloud. Sunk investments, human nature, and organizational resistance will sustain many traditional enterprise IT roles into the foreseeable future. And yet, as business lines demand agility and transparency, enterprise IT will need to emulate service providers, as they will increasingly be competing with them. Additionally, IT and data center teams can reorient to provide corporate governance, advising and assisting business lines with service provider procurement and managing vendor relationships.

Survey: Top Drivers for MTDC Adoption

*In your own words, what are the drivers for colocation adoption?*

- Reduce churn of noncritical workloads into critical space
- Mergers/Acquisitions activity
- Disaster recovery site off the same power grid
- Executive directive to divest owned data center infrastructure
- Global expansion
- Avoid large capital expenses of new site build
- Not core business
- Lack of confidence in staff/resources
Despite major adoption of cloud and colocation, the outsourcing model is not a panacea. According to 2016 Survey Data:

• 40% of enterprise respondents are paying more for colocation contracts than they had initially planned or expected
• Nearly one-third of respondents had experienced an outage at a colocation vendor site
• Over 60% of respondents said the penalty clause in their Service Level Agreement (SLA) would not adequately offset the cost of that outage to the business

To be fair, customer satisfaction levels are high. Almost half the respondents reported being satisfied or very satisfied with their primary provider, while 7% said they were dissatisfied or very dissatisfied. In 2015, enterprise IT organizations reported experiencing slightly more outages in their enterprise-owned sites over a 2-year period than their colocation service providers.

That said, enterprise IT organizations paying a premium for a third party to deliver data center capacity should hold service providers to higher standards than their own organization. There is significant room for improvement in vetting, negotiating, and managing those relationships.

**Enterprise IT on Colocation Providers**

What is the length of the typical contract commitment you make to a colocation or multi-tenant data center provider?

- Under 2 years 12%
- 2-4 years 39%
- 4-5 years 25%
- Over 5 years 24%

How many separate colocation or multi-tenant data center providers is your organization currently using?

- One 30%
- Two to Three 35%
- Three to Five 13%
- Over Five 22%

Does your organization consider third-party certifications such as the Uptime Institute’s Tier Certification and/or M&O Stamp of Approval as part of the vetting process for considering potential colocation candidates?

- Yes 65%
- No 35%
THE CORPORATE SUSTAINABILITY DEPARTMENT

Uptime Institute has tracked data center trends and sentiments in this survey for 6 years, but the last 3 years of survey responses illustrate a major shift in IT Infrastructure Efficiency prioritization. The survey results from 2014–16 demonstrates how Corporate Sustainability will have a major impact on IT departments going forward.

In 2014, many enterprise IT organizations were sitting on recently built (last 5 years) data center facilities that were underutilized due to forecasting errors. Senior IT and data center staff relied heavily on skewed PUE metrics as an indicator of success—touting the efficiency of the cooling systems in a partially loaded facility (that in hindsight should never have been built at that scale) as a metric senior management should care about.

Nearly half the respondents were not auditing their sites for comatose server hardware at all, as addressing this issue would only make overall utilization look worse. Yet 80% of respondents reported achieving U.S. Green Building Council’s LEED designation or other green building award, which provided very little environmental or financial return in the context of the data center.

It is not surprising that respondents reported C-suite executives were not interested in data center efficiency or performance.

In 2015, organizations with major IT infrastructure investments began to try to address root problems, but struggled to get organizational buy-in. The primary culprits of organizational inefficiency had been ignored for years:

• Poor demand and capacity planning within and across functions
• Significant failings in asset management and utilization
• Lack of financial accountability

These problems stemmed from a disconnect between IT Infrastructure costs and the business lines. Accurate forecasting and asset utilization are not prioritized if no one is held accountable for those functions. In many cases, the facility or corporate real estate teams owned an underutilized data center investment that was considered as an undifferentiated cost center, totally unattributed to the IT department or the lines of business. Many IT leaders realized chargeback would address the chronic problems with IT efficiency.

**Chargeback** is a method of charging internal consumers (e.g., departments, functional units) for the IT services they used. Instead of bundling all IT costs under the IT department, a chargeback program allocates the various costs of delivering IT (e.g., services, hardware, software, maintenance) to the business units that consume them (See “IT Chargeback Drives Efficiency” *The Uptime Institute Journal*, vol. 6, p. 22).

In 2015, less than a third of survey respondents said that their organizations had deployed a chargeback accounting method. In May of that year, Uptime Institute gathered a group of senior stakeholders for the Executive Assembly for Efficient IT. The group comprised leaders from large financial, healthcare, retail, and web-scale IT organizations; the purpose of the meeting was to share experiences, success stories, and challenges to improving IT efficiency.

Nearly every organization in the room had struggled to implement chargeback, but almost all of them were in process and realized they needed to reach out to counterparts in other disciplines within the business to make the most of these efforts.

In 2016, infrastructure leaders said that they face strong internal resistance to addressing chronic inefficiency. In order to implement accountability and efficiency measures, the projects needed senior-level support. These efforts would not succeed as bottom-up initiatives. With that knowledge, infrastructure teams reached out to their counterparts in other disciplines (see Figure 5).
Which major business functions or departments are consistently absent from major IT infrastructure decisions?

1. Finance
2. Risk
3. Sustainability

Figure 5. IT reached out to partner with finance, risk, and even Corporate Sustainability to gain executive visibility and traction to address chronic problems.

Increasingly, Corporate Sustainability drives decisions at large companies, as this function can affect the investor community, stock price, and capitalization. Many companies meet these challenges by creating sustainability offices that have both C-level visibility and broad staff participation across all business units and facilities, including IT.

As Uptime Institute Chief Operating Officer Julian Kudritzki wrote in Network World in April 2016:

Two years ago, a place at the table for sustainability would have been provocative, and perhaps evoked derision. In 2015, less than a tenth of enterprise IT stakeholders had confidence in Corporate Sustainability to affect IT efficiency and costs. One short year later, 2016 is a vastly different matter, and the data suggests that the time of Corporate Sustainability in IT is here now: 70% of enterprise IT organizations actively participate in Corporate Sustainability efforts. The influence of an outside party breaks down the ‘thwart by silo’ effect that has been the cause of so much well meaning, and often fruitless, energies to reshape IT.

The relationship between Corporate Sustainability and enterprise IT is really just getting started. There are good signs for the potential of this relationship, but also signals that entrenched behaviors and metrics will be difficult to overcome.

The relationship so far, according to the survey stakeholders, has been overwhelmingly positive:

• 73% report that sustainability executives understand the data you provide and use it properly
• 44% report having a beneficial relationship with Corporate Sustainability
• Less than 10% claim that Corporate Sustainability efforts pose a risk to IT performance or availability or create needless work

And yet, the reporting functionality has a long way to go. If IT infrastructure leaders are motivated to improve the accountability and efficiency of their organizations, Corporate Sustainability is a great partner for gaining C-level buy-in and funding for projects.

But in many cases, IT Infrastructure teams are still relying on the least meaningful metrics to drive efficiency.

The majority of IT departments are positioning total data center power consumption, LEED certifications, and total data center power usage as primary indications of efficient stewardship of environmental and corporate resources.

Infrastructure leaders should not co-opt the Corporate Sustainability department to continue to perpetuate the fallacy that efficient computer room air conditioning is indicative of an efficient IT organization.
Rather companies need to use this visibility and executive influence to address the chronic efficiency problems in a holistic manner, for the sake of their businesses, but also the very existence of enterprise IT, as increasingly these organizations will be forced to compete with the cloud (See “A Holistic Approach to Reducing Cost and Resource Consumption” The Uptime Institute Journal, vol. 4, p. 18).

CONCLUSIONS
Enterprise IT budgets and server footprints are in decline, and that trend will continue. Outsourcing is rampant in the face of opaque costs and chronically poor capacity planning.

In the face of budget constraints and competition from service providers, leading enterprise IT organizations are trying to drive efficiency and transparency to compete with the cloud.

In the face of these challenges, infrastructure executives have reached out to business stakeholders in other parts of the organization to become more responsive. Most IT organizations are partnering with Corporate Sustainability, but the efforts are still primarily focusing on least impactful aspects of efficiency.

As IT assets become more distributed across locations and platforms, IT needs to move away from its role as a slow-moving centralized service provider, and instead provide corporate governance across the various lines of business—evaluating security, costs, efficiency, and performance of IT for end users.

Questions?
Please contact your regional representative online: http://uptimeinstitute.com/contact-us, email us at: info@uptimeinstitute.com, or by phone at: +1 206.706.4149