Why Data Center Modernization Is Critical To Business Success

Midmarket Results From The Thought Leadership Paper, "Why Faster Refresh Cycles And Modern Infrastructure Are Critical To Business Success"

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Executive Summary

Pursuing agility to truly impact business transformation requires embracing data center modernization as a core competency. Crucial to this is having the most up-to-date IT infrastructure to support the scale and complexity of a changing technology landscape. Companies must embrace this imperative by adopting software-defined data center principles, embracing modernization, and automating their IT management processes. Those that do will propel business innovation and deliver superior customer experiences with fast, secure, and reliable business technology.

In December 2018, Dell Technologies commissioned Forrester Consulting to evaluate the business value of modern infrastructure in company data centers. Forrester conducted an online survey with 508 IT infrastructure technology decision makers in seven countries to explore this topic. This spotlight focuses on the 102 respondents we surveyed at midmarket businesses (MBs) with 100 to 499 employees. We found that while most midmarket firms have a software-defined data center (SDDC) strategy, they have made minimal progress toward adopting SDDC technologies and automating infrastructure management processes — both of which are critical to security and business agility. However, organizations that have embraced modernized IT as a core competency are delivering applications that better meet end user needs and using automation to boost efficiency, security, and innovation.

While 93% of midmarket firms see value in a long-term SDDC strategy, only 11% have broadly implemented SDDC technologies.

Firms with modernized data centers support greater IT efficiency, improved end user app experiences, and higher systems reliability that enables continuous security.

KEY FINDINGS

› **Data center modernization at midmarket firms falls short of what is needed to meet business goals.** To boost profitability and improve products and experiences, technology decision makers are focused on security, cloud, analytics, and digital as top technology investment priorities. However, despite widespread adoption of technologies like converged and hyperconverged infrastructure, MBs have a long way to go toward infrastructure modernization. For example, only 11% have broadly implemented SDDC technologies and just 12% have made "excellent" progress toward automating infrastructure management tasks.

› **The consequence is a lack of agility and unmet business needs.** Limited progress on SDDC technology adoption and automation are hindering business agility. On-premises apps take days, weeks, or even months for 51% of MBs to update and underperform against end user needs for at least 69% of midmarket firms. Limited automation also increases security risks because today's security initiatives are impossible to execute manually.

› **Firms that invest in modernizing their data centers drive better business outcomes than those that do not.** Only 7% of MBs qualify as "Modernized," meaning they invest in SDDC, automation, and other emerging technologies at a faster pace than "Aging" firms. However, MBs can drive competitive advantage by investing in modernization. Modernized firms' on-premises apps are up to 3x more likely to meet end user needs. Their investments in modern servers and automation also yield greater IT efficiency and higher systems reliability, further supporting both security and innovation.

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Midmarket Companies Must Modernize Their Data Centers To Achieve Their Business And Technology Priorities

As midmarket companies pursue business growth, they must deliver differentiated products and experiences without compromising the security of business or customer data. Infrastructure decision makers recognize that they need agile technology to support these goals, which requires upgrading legacy systems and enabling IT innovation. Specifically, IT organizations consider improving their data and analytics capabilities and increasing their use of cloud computing among their top technology priorities. Midmarket firms are also investing in digital experience technologies to improve customer interactions — a third of IT decision makers (ITDMs) consider this a high-priority investment. Security and privacy imperatives underpin all of these initiatives, with 95% of companies rating security and privacy as at least a moderate technology priority (see Figure 1).

95% of midmarket companies consider security and privacy at least a moderate technology priority.
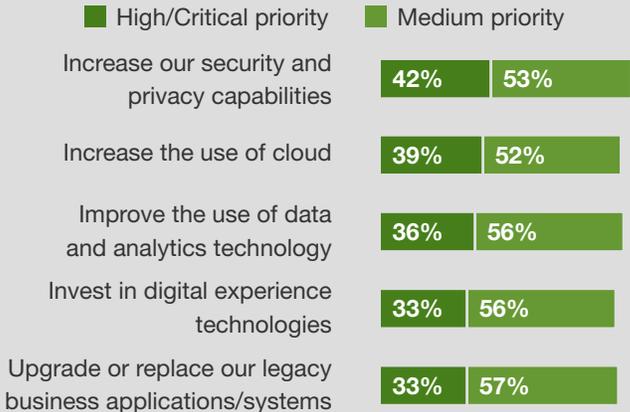
Figure 1

Midmarket businesses prioritize technology investments that help them boost profitability and innovation without compromising security

Key business priorities for infrastructure decision makers at medium businesses:

■ High/Critical priority ■ Medium priority

	High/Critical priority	Medium priority
Grow revenue	48%	46%
Improve the experience of our customers	44%	52%
Improve our products/services	44%	53%
Reduce costs	43%	50%
Improve our ability to innovate	37%	56%

Key technology priorities for IT decision makers at medium businesses*:

■ High/Critical priority ■ Medium priority

	High/Critical priority	Medium priority
Increase our security and privacy capabilities	42%	53%
Increase the use of cloud	39%	52%
Improve the use of data and analytics technology	36%	56%
Invest in digital experience technologies	33%	56%
Upgrade or replace our legacy business applications/systems	33%	57%

Base: 663 infrastructure decision makers at MBs; *907 purchase influencers (past 12 months/next 12 months) at MBs
Sources: Forrester Analytics Global Business Technographics Infrastructure Survey, 2018; *Forrester Analytics Global Business Technographics Priorities And Journey Survey, 2018
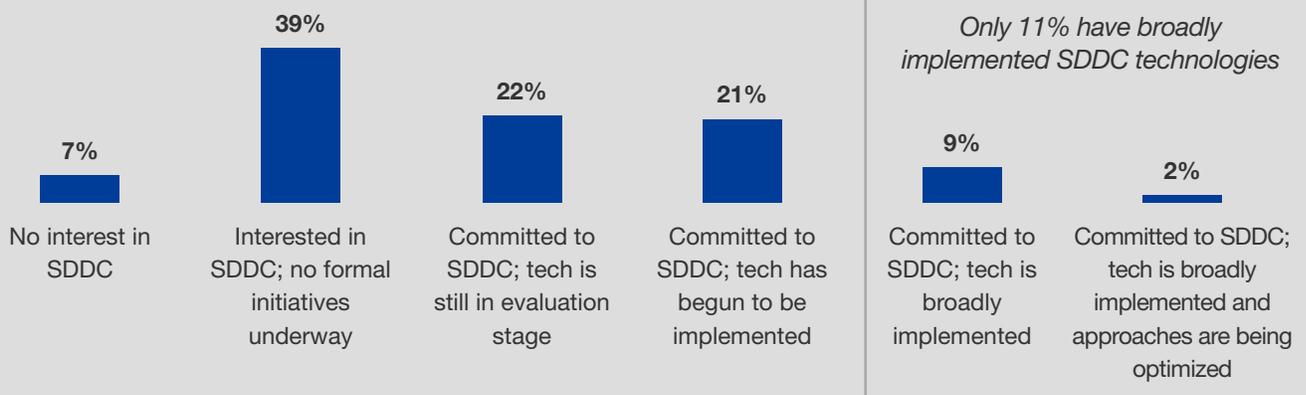
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CURRENT LEVELS OF DATA CENTER MODERNIZATION FALL SHORT OF THESE GOALS

To achieve their business and technology goals, MBs must move to a cloud operating model that supports the agility, automation, and security they require. The realm of what is possible within a company's data center has evolved tremendously since Forrester declared 2013 as "year one" of the software-defined data center (SDDC).[1] IT leaders are embracing different levels of abstraction by using automation tools, containers, software-defined networks, and composable infrastructure.[2]

Yet, despite these advancements, 40% of midmarket businesses have infrastructure in their data centers that precedes "year one" of the SDDC revolution (i.e., some servers are at least 6 years old). Older servers also lack the built-in security capabilities available in modern servers.[3] And while 93% of midmarket firms see value in a long-term SDDC strategy, only 11% have broadly implemented SDDC technologies (see Figure 2). Our survey also revealed that:

› **Midmarket companies have largely embraced flash storage and converged infrastructure.** Nearly nine in 10 (87%) use hybrid and/or all-flash storage arrays to improve speed and performance in their data centers. An even higher proportion of MBs (93%) use converged and/or hyperconverged infrastructure (CI and/or HCI) to ease complexity through higher levels of abstraction.

› **They have also made moderate progress toward virtualization and data protection.** Nearly half of midmarket firms' on-premises production servers (47%) are virtual machines, which is slightly behind enterprise companies (53%).[4] As environments are virtualized, the data contained therein must be protected. And while most MBs have deployed data protection solutions for public cloud environments, less than half have deployed these solutions for on-premises physical servers (47%) and virtual environments (40%). MBs lag enterprises in data protection practices by 5 to 7 percentage points.

Figure 2

Company's perspective on SDDC technologies:

|				*Only 11% have broadly implemented SDDC technologies*	
7%	39%	22%	21%	9%	2%
No interest in SDDC	Interested in SDDC; no formal initiatives underway	Committed to SDDC; tech is still in evaluation stage	Committed to SDDC; tech has begun to be implemented	Committed to SDDC; tech is broadly implemented	Committed to SDDC; tech is broadly implemented and approaches are being optimized

Base: 102 global IT infrastructure technology decision makers at MBs
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, December 2018

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› **Gaps in automation impede progress.** With workload and data volumes rising exponentially, while the size of IT organizations grow modestly (at best), automation is critical to IT efficiency. Infrastructure automation is also essential to increasing security as would-be attackers will employ the most advanced automation tools to break down perimeters and access valuable data.[5] Yet, while 90% of medium businesses feel they have made at least some progress toward automating infrastructure provisioning, configuration, and change management tasks, only 12% feel they've made excellent progress (see Figure 3). By comparison, 22% of larger companies feel they've made excellent progress on their infrastructure automation journeys.

› **As a result, medium businesses struggle with time-consuming application updates and apps that do not meet end user needs.** Lack of progress toward infrastructure modernization takes its toll on both IT productivity and the end user experience. On average, it takes half of firms (51%) days to weeks, or even months, to deploy new versions of apps into their data centers. On-premises applications also fail to meet the performance needs of end users, in that, less than 30% of firms feel various types of applications completely meet end users' performance needs (see Figure 4).
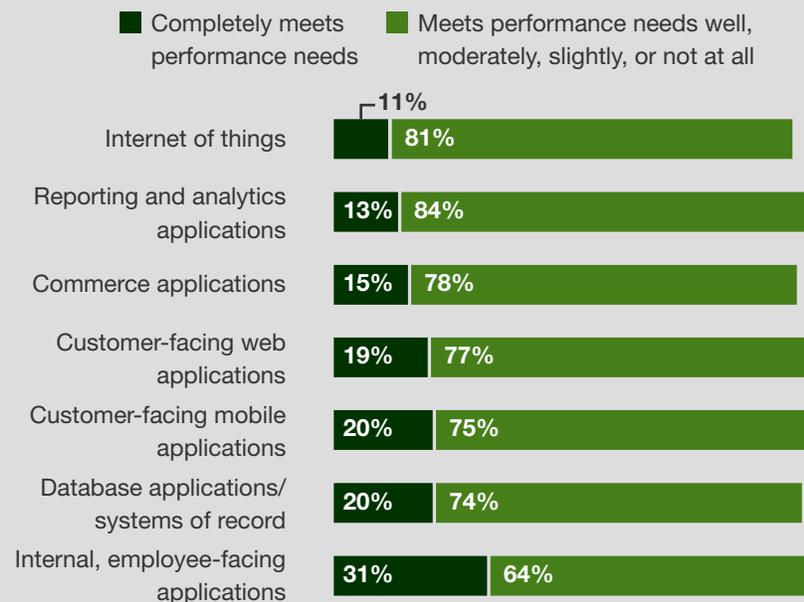
Figure 3

IT organization's progress towards infrastructure automation:
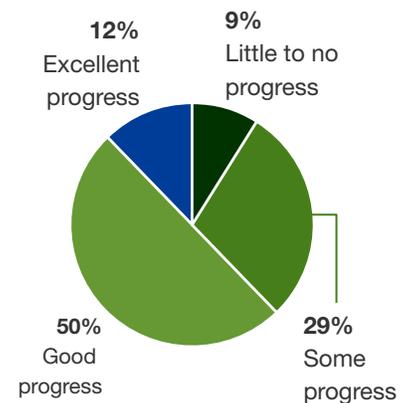
- 12% Excellent progress
- 9% Little to no progress
- 29% Some progress
- 50% Good progress

Base: 102 global IT infrastructure technology decision makers at MBs
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, December 2018

Figure 4

"For the applications that run on-premises in your organization's data centers, to what extent does application performance meet the needs of end users?"

■ Completely meets performance needs
■ Meets performance needs well, moderately, slightly, or not at all

Application	Completely meets	Meets well/moderately/slightly/not at all
Internet of things	11%	81%
Reporting and analytics applications	13%	84%
Commerce applications	15%	78%
Customer-facing web applications	19%	77%
Customer-facing mobile applications	20%	75%
Database applications/ systems of record	20%	74%
Internal, employee-facing applications	31%	64%

Base: 102 global IT infrastructure technology decision makers at MBs
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, December 2018


Lack of modernization impedes UX: Less than a third of on-premises apps completely meet end user needs.

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Modernized Data Centers Support Secure, Fast, Reliable Apps That Drive Business Innovation

Our global survey included a maturity framework to assess the extent to which companies embrace modernized IT as a core competency, as defined by the progress being made toward a series of infrastructure and automation attributes.[6] Forrester has also used this framework in prior Dell-commissioned studies. While Modernized firms exist at the intersection of high modern infrastructure and high automation maturity, Aging firms are on the other extreme. Evaluating companies through the lens of modern infrastructure, and comparing their survey results across a range of metrics, reveals the many benefits of modernization. Our research for midmarket to enterprise companies has shown that:

› **Midmarket companies lag larger firms in IT modernization.** Only 7% of MBs qualified as being completely Modernized, based on the modern infrastructure maturity framework, while 15% of larger firms achieved this distinction. Midmarket firms need to catch up in order to capture the business outcomes that larger organizations have seen from modernization.

› **Modernized firms run data centers that are up to 3x more likely to meet end user needs.**[7] Modernized firms are investing in more computing power to support emerging technologies, and their investments help them deliver on-premises apps that are up to 3x more likely to meet end user needs than Aging firms. Customer-facing web applications are among the strongest performing on-premises apps: 43% of Modernized firms said these apps meet end user performance needs completely versus 14% of Aging firms — a 3.1x difference (see Figure 5). Modernized firms also reap more business benefits from newer server investments where it matters most, in data center security, employee productivity, improved CX, and increased innovation.

› **Modernized firms also drive significant business outcomes from automation.** A November 2018 Dell-commissioned study on server automation showed that Modernized firms are 2x more likely than Aging firms to report lower opex as a benefit of automation (44% versus 21%), with an average reduction of 16% — or 2.3x the reduction that Aging firms reported.[8] The majority have also experienced higher systems reliability (61% of Modernized firms cited this benefit versus 32% of Aging firms), with an average 21% reduction in service outages. This reliability boost supports continuous security and ensures that systems are not slowing down the pace of innovation.
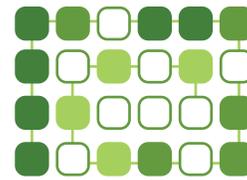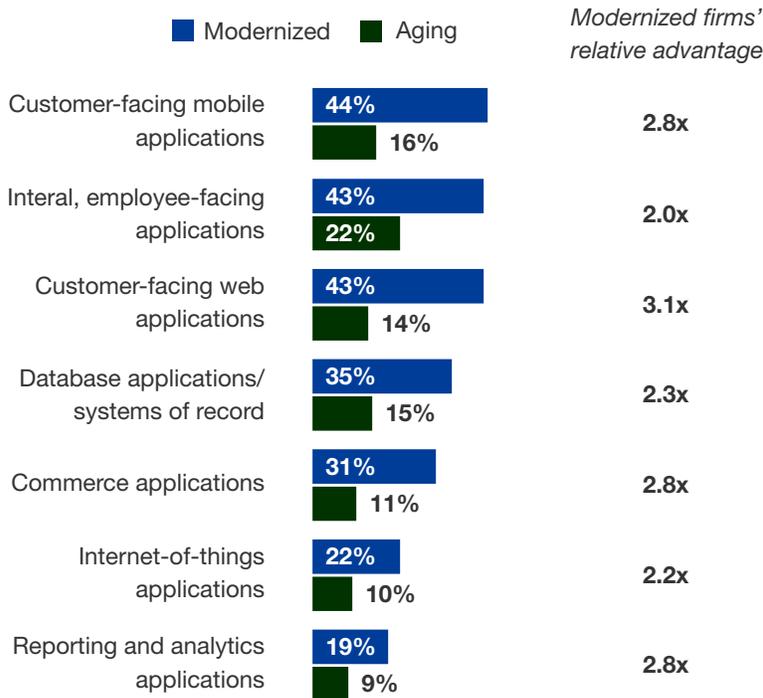
Only **7%** of MBs qualify as Modernized, while **15%** of larger firms achieved this distinction.

Modernized firms are using server automation to support continuous security. **61%** have seen higher systems reliability, with an average **21%** reduction in service outages.

Figure 5

Percent of respondents who feel on-premises applications completely meet the performance needs of end users

	Modernized	Aging	Modernized firms' relative advantage
Customer-facing mobile applications	44%	16%	2.8x
Interal, employee-facing applications	43%	22%	2.0x
Customer-facing web applications	43%	14%	3.1x
Database applications/ systems of record	35%	15%	2.3x
Commerce applications	31%	11%	2.8x
Internet-of-things applications	22%	10%	2.2x
Reporting and analytics applications	19%	9%	2.8x

Modernized firms leverage modern servers, SDDC technologies, and automation to deliver applications that are up to 3x more likely to meet end user needs than those delivered by Aging firms.

Base: 508 global IT infrastructure technology decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, December 2018

Key Recommendations

Delivering secure, fast, reliable software that supports business innovation and agility requires companies to embrace modernized infrastructure, from automation and virtualization tools down to the servers. Forrester's in-depth survey of IT infrastructure technology decision makers about server modernization yielded several important recommendations:

Align your infrastructure strategy around a modern SDDC. Many of the organizations we surveyed have started their software-defined journey, whether it be in compute, storage, or networking. However, few align organizations have aligned all three, combining them with automation and infrastructure-as-code. Take a holistic approach to deliver faster results.

Leverage the SDDC to reduce risk. It may seem odd, but the more frequently you update infrastructure, the less risk you take on. When you build out infrastructure-as-code down to the hardware level, you are not only aligning infrastructure to application release life cycles (making programmers happy), you're also introducing a cadence where vulnerabilities sit in production much less often, which makes your compliance folks happy as well.

Measure success with business-centric KPIs. Server to admin ratios are commonly brought up as metrics for infrastructure and operations professionals to track. However, more important are metrics borrowed from continuous delivery — like meeting end user requirements, mean-time-to-approve changes and rework rate. Track these to verify if your modernization efforts are succeeding or stalled.
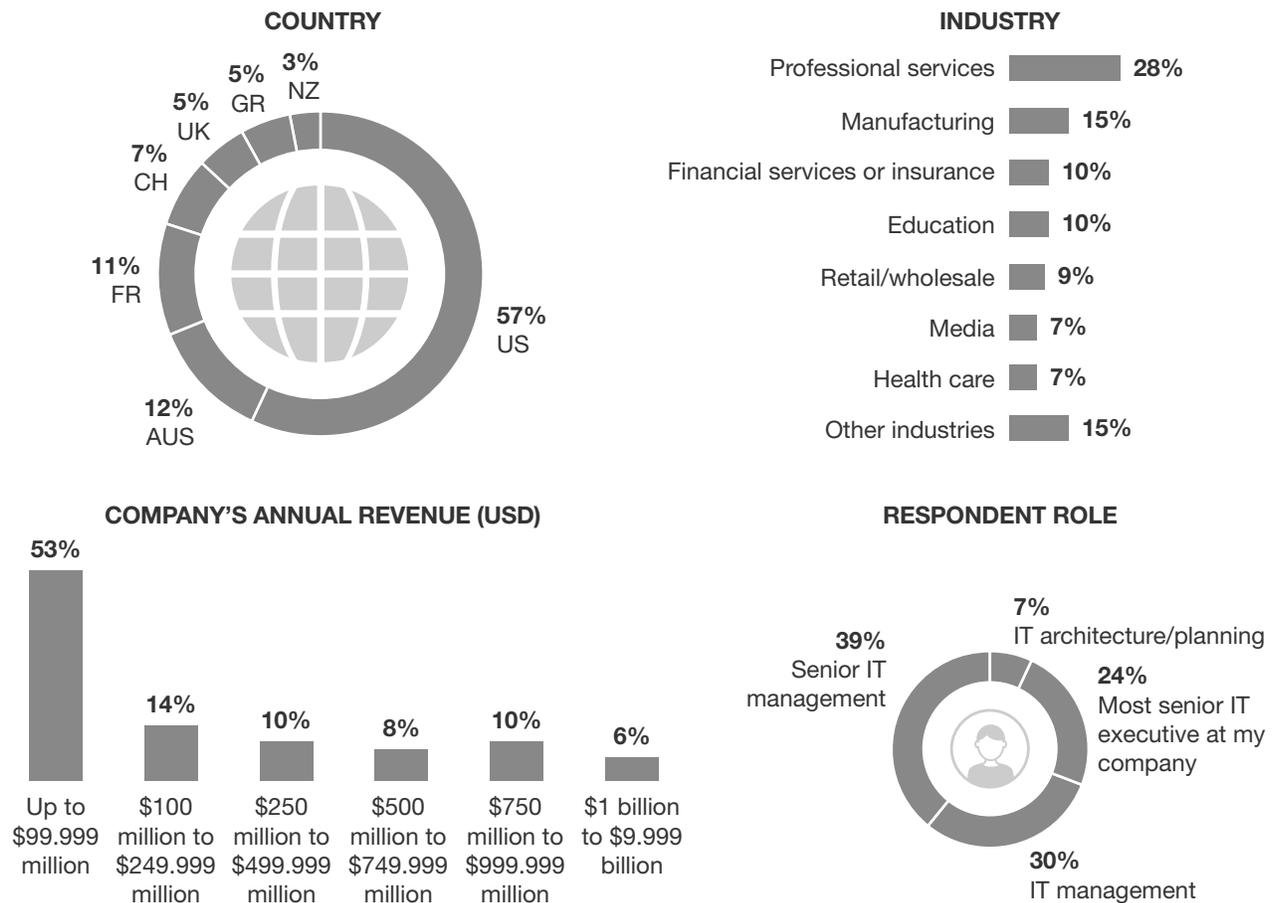
Watch for modernization road bumps. As companies modernize, some common challenges bubble up. Integration challenges — particularly between multiple clouds — are frequently cited. Lack of automation is another common roadblock, with some companies continuing to rely on manual tools built for a bygone era. Leverage expertise from integration teams and OEMs that have addressed these challenges before.

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Appendix A: Methodology

This spotlight focuses on the midmarket business results (those from companies with 100 to 499 employees) of a broader global study.

In this study, Forrester conducted an online survey of 508 organizations across industries in the US, the UK, Germany, France, Australia, New Zealand, and China to evaluate the business value of refreshing servers and infrastructure in enterprise IT departments. Survey participants included decision makers in IT management and IT architecture/planning roles with significant purchase involvement for servers and/or virtualization/private cloud. Questions provided to the participants asked about infrastructure technology adoption, management and automation practices, server refresh cycles, progress toward SDDC, and benefits of replacing aging servers with modern servers. Respondents were offered a small incentive as a thank you for time spent on the survey. The study was completed in December 2018.

Appendix B: Demographics

COUNTRY

- 3% NZ
- 5% GR
- 5% UK
- 7% CH
- 11% FR
- 12% AUS
- 57% US

INDUSTRY

- Professional services — 28%
- Manufacturing — 15%
- Financial services or insurance — 10%
- Education — 10%
- Retail/wholesale — 9%
- Media — 7%
- Health care — 7%
- Other industries — 15%

COMPANY'S ANNUAL REVENUE (USD)

- Up to $99.999 million — 53%
- $100 million to $249.999 million — 14%
- $250 million to $499.999 million — 10%
- $500 million to $749.999 million — 8%
- $750 million to $999.999 million — 10%
- $1 billion to $9.999 billion — 6%

RESPONDENT ROLE

- 7% IT architecture/planning
- 24% Most senior IT executive at my company
- 30% IT management
- 39% Senior IT management

Base: 102 global IT infrastructure technology decision makers at medium businesses
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, December 2018

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Appendix C: Supplemental Material

RELATED FORRESTER RESEARCH

"The Software-Defined Data Center Comes Of Age," Forrester Research, Inc., October 30, 2017.

"Reform Legacy Operations For Composable Infrastructure," Forrester Research, Inc., January 19, 2017.

"Become A Unicorn With Infrastructure-As-Code," Forrester Research, Inc., September 19, 2018.

Appendix D: Endnotes

[1] Source: "Server Virtualization Predictions For 2013," Forrester Research, Inc., March 15, 2013.

[2] Source: "The Software-Defined Data Center Comes Of Age," Forrester Research, Inc., October 30, 2017.

[3] For more insights about the benefits of faster server refresh cycles (and the consequences of not refreshing your servers), read the thought leadership spotlight, "Faster Server Refresh Cycles Boost Innovation And Security For Midmarket Businesses," a commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2019.

[4] For the purposes of this study, enterprises are defined as companies with 1,000 or more employees.

[5] Source: "Reduce Risk And Improve Security Through Infrastructure Automation," Forrester Research, Inc., June 22, 2018.

[6] The modernized IT maturity framework is defined by the adoption of and progress toward virtualization, scale-out storage, software-defined data center technologies, converged/hyperconverged infrastructure, data protection, infrastructure automation, and self-service for provisioning. For more details on this framework, read the full study, "Why Faster Refresh Cycles And Modern Infrastructure Management Are Critical To Business Success," a commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2019.

[7] Due to sample size constraints in the midmarket business segment, the comparisons between Modernized and Aging companies discussed in this paragraph reflect the overall study results across company sizes.

[8] Source: "Insights From Modernized IT: How To Achieve The Greatest Success As You Automate," a commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, November 2018.

To learn more about the project sponsor, Dell Technologies Mid-Market IT Solutions, visit the website.

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