SOFTWARE-DEFINED DATA CENTER: GET THE MOST OUT OF TODAY'S INFRASTRUCTURE

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Report Highlights

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Organizations with a Software-Defined Data Center are 75% more likely to use hybrid cloud.

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By deploying a Software-Defined Data Center, businesses are 20% more likely to utilize lifecycle automation.

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Organizations with a Software-Defined Data Center are 35% more likely to reduce IT expenses.

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With a Software-Defined Data Center in place, organizations are 18% more likely to see improved application control.

In this report, we'll look at how a strong foundation in both the cloud and internal data centers is empowering organizations to not only get the most out of their IT infrastructure today, but is also preparing them to be able to better take advantage of new technologies already on their way.

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Running a data center today, no matter the business, is an exercise in managing and overcoming complexity.

We live in an increasingly dynamic, intelligent, and automated world. With powerful programming and cloud services, smart homes can control everything from temperature to lighting to mood music. Personal devices are powered by AI assistants that help get tasks done and get you where you need to go. More powerful AIs are even being used to cure diseases.

However, the technology infrastructure that has traditionally powered the services behind these technologies was, somewhat ironically, not typically seen as all that dynamic, intelligent, or automated. While data centers have been the engine that drives the technology within enterprises, cloud service providers, and big data analytics, much of the technology within them was pretty rigid in how it was used and managed.

But then came the rise of virtualization, hybrid cloud, virtual storage, and all aspects of the Software-Defined Data Center (SDDC). By bringing increased programmability, automation, and intelligence to data center infrastructures, the Software-Defined Data Center (see sidebar) has transformed the data center from a staid platform to one of the most innovative and transformative technology areas within enterprises today.

Really, no part of the information technology infrastructure has seen as much constant change in recent years as the data center. First, virtualization transformed how servers are built and deployed, reducing the need for hardware and the concurrent power and cooling demands. Then, cloud computing pushed the needle even further, letting businesses seamlessly move those virtual servers and applications into the cloud for increased flexibility, reliability, and ease of management.

Software-Defined Data Center:
A Software-defined data center (SDDC) is a data center where all core infrastructure utilizes virtualization and can be deployed in a service model. An SDDC features dynamic automation and integration of the data center thru compute, networking and storage. With this flexible and intelligent infrastructure, an SDDC can quickly adapt to emerging technology needs and provide real-time and end-to-end management and insight into data center activities.

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No part of the information technology infrastructure has seen as much constant change in recent years as the data center.

Now the rise of Software-Defined Data Centers is transforming the data center again. By bringing increased agility, automation, and intelligent services and management to all areas of the data center, the SDDC and new trends in cloud and virtualization are making it possible for businesses to manage the entire lifecycle of their applications and services, and get the most out of both their on-premises and cloud infrastructures.

In this report, we'll look at how a strong foundation in both the cloud and internal data centers is empowering organizations to not only get the most out of their IT infrastructure today, but is also preparing them to be able to better take advantage of new technologies already on their way. We'll also analyze how leading businesses are using these strategies to improve ROI, reduce resource demands and costs, and deliver the services they need to succeed.

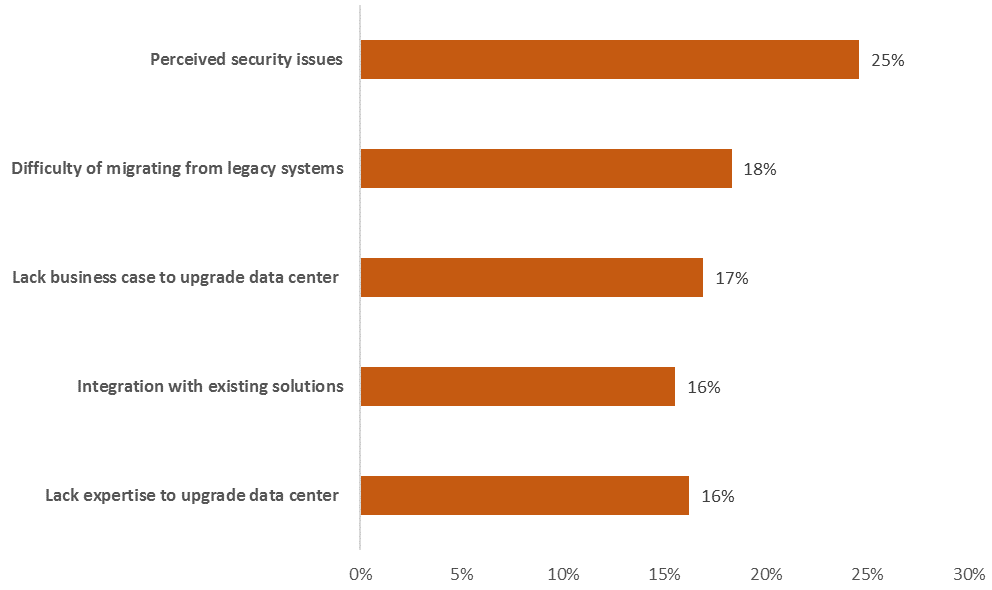
Overcoming the Limitations of Traditional Data Centers

Running a data center today, no matter the business, is an exercise in managing and overcoming complexity. Organizations are identifying and implementing new technologies and strategies that help them stay competitive and improve business outcomes, but that can also bring new challenges and complexities.

At many organizations, they have been deploying technologies like cloud and big data on IT infrastructures that weren't designed to handle today's virtual, dynamic and constantly evolving systems. This has led to increased complexity and hurdles when it comes to managing, securing, and integrating these technologies.

In our recent survey into the transforming data center, we asked organizations about key challenges to running a data center today. In Figure 1 below, we see that businesses are indeed facing many hurdles when it comes to just the core capabilities of their IT infrastructure.

Figure 1: The Rising Challenges of Data Center Management



Source: Aberdeen Group, March 2017 Percentage of respondents, n=142

The top challenge, as one would expect given the regular occurrence of news about data breaches and malware attacks on businesses, is keeping the data center secure. This can be particularly challenging if an outdated IT infrastructure is trying to run new technologies and systems.

However, it's interesting to note that the remaining top five challenges all deal with the complexity of upgrading data center infrastructures. Here we see that businesses are challenged when it comes to justifying upgrades, or even knowing how to carry out a data center upgrade. And we see that they face issues when it

comes to both upgrading from older legacy systems as well as making sure that new data center technologies will be able to integrate with their key enterprise systems.

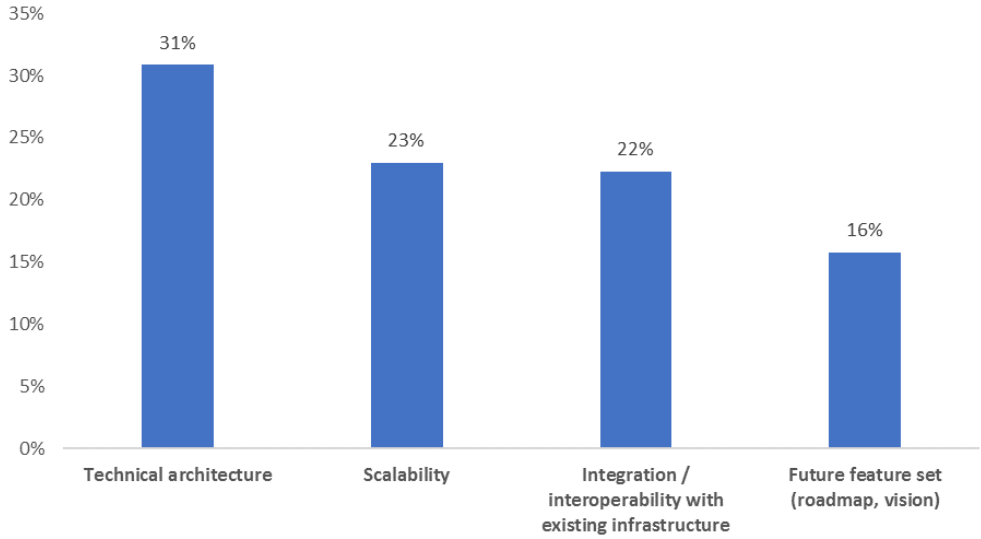
Further, our research shows that the solution to these upgrade challenges may just be the upgrade itself. That's because we are finding that by embracing and deploying new Software-Defined technologies and hybrid cloud infrastructures, organizations are reducing these challenges and gaining key benefits.

Getting to the Right Definition of a Software-Defined Data Center

If the solution to reducing the challenges of a modern data center (and reaping the benefits of a Software-Defined Data Center) is to upgrade and embrace new technologies, just what criteria are businesses focusing on when choosing the solutions they will use to carry out these upgrades? In Figure 2 below, we see the top four criteria that organizations are using when evaluating the technologies they will use to improve their data center and IT infrastructure.

➔ Related Research: *Building a Data Center to Meet the Challenges of Today's Technologies*

Figure 2: Making the Right Choices for a Data Center Upgrade



Source: Aberdeen Group, March 2017 percentage of respondents, n=139

The most interesting thing about this list is that cost isn't one of the top criteria. While many people would expect cost of solutions to be the main factor, we instead see that organizations are focusing on the criteria that show the quality of a solution, and how it will help a business succeed: Is this a well-designed solution that meets or exceeds capability requirements? Can the solution scale to meet the increasing demands that data centers see today? Will this data center solution be able to easily integrate and work with existing systems (a factor that is especially vital for hybrid infrastructures looking to get the most out of their cloud and on-premises systems)? And, is this solution designed to be able to grow and excel as new technologies continue to emerge?

Cloud, On-premises, and the Right Data Center Infrastructure

We've seen that businesses are challenged by the complexities of upgrading their data centers to meet modern needs and demands. And we've found that when evaluating solutions, organizations rank quality and ability to integrate as key factors. These issues all

point directly at the implementation of a Software-Defined Data Center. With its automation, flexibility, and ability to grow with new demands and technologies, an SDDC approach is the perfect fit.

But what are the technologies, processes, and strategies businesses follow when implementing a Software-Defined Data Center? What are the key differentiators that make these organizations stand apart from others?

Figure 3: Software-Defined Data Center Businesses vs. All Others

As Figure 3 above shows, organizations with a Software-Defined Data Center are more likely to take advantage of real-time management and monitoring capabilities and to use automation within their application and service lifecycles.

But probably most important is how much more likely these businesses are (75%) to deploy hybrid cloud infrastructures as a key element of their SDDC. They are poised to best leverage the benefits of a Software-Defined Data Center—with a strong foundation built on powerful on-premises virtualization systems that's tied to a flexible, scalable public cloud infrastructure.

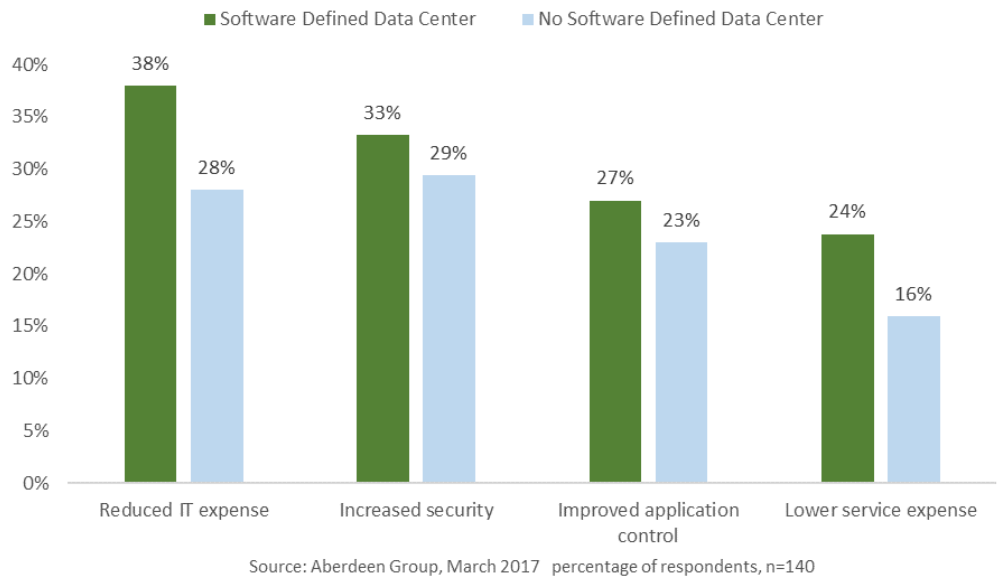
With a well implemented hybrid cloud infrastructure, leading businesses can effectively deploy capabilities and services where they best fit, whether it's on-premises or the public cloud. They can build more resilient, high-performance systems that take advantage of cloud and on-premises to boost disaster recovery and that let services run at their best. And, they can more effectively utilize cutting-edge cloud-based services—such as big data analytics and cognitive computing—in order to help their organization innovate and stay ahead of the competition.

Software-Defined Data Center Plus Hybrid Cloud is a Winning Recipe

Often, when a new and heavily hyped technology comes out, there are doubters. These skeptics might agree that the technology is cool, but they don't believe it can deliver tangible benefits.

However, when it comes to Software-Defined Data Centers, it's fairly simple to dismiss these concerns. That's because our research shows that businesses that deploy Software-Defined Data Centers see a number of significant benefits, as depicted in Figure 4. And, even more importantly, these benefits go a long way toward addressing the key data center concerns that we saw in Figure 1.

Figure 4: The Clearly Defined Benefits of a Software-Defined Data Center



Source: Aberdeen Group, March 2017 percentage of respondents, n=140

Businesses who deployed SDDC also reported reduced IT expenses. These organizations were able to pull off the key strategy of upgrading their infrastructure and improving capabilities while simultaneously reducing costs. These benefits, along with the reported gains of lower service expenses and reduced need for hardware, make it much easier to overcome the challenge of justifying the business case for a data center upgrade.

Software-Defined Data Center businesses also reported increased security, which means the new technology not only didn't lead to new security issues, it addressed older problems from the previous data center. These organizations also saw improved application control, meaning they were able to leverage the increased automation, intelligence, and flexibility of the infrastructure to build a more dynamic and agile IT operation.

Key Takeaways

When it comes to data centers—or really all elements of an IT infrastructure today—the adage of "evolve or die" rings fairly true. With the rapid transformation that businesses are seeing, especially with the rise of the Software-Defined Data Center and hybrid cloud, organizations with out-of-date infrastructures unable to meet modern demands will quickly find themselves losing out to more nimble competitors.

However, making the move to a modern data center and IT infrastructure need not be painful. Aberdeen research has shown that organizations that leverage hybrid cloud and Software-Defined Data Centers gain a number of key benefits, including reduced costs, improved security, and increased agility.

To achieve these benefits and prepare their infrastructure for today's Software-Defined era, businesses should:

- ➔ **Map out all their cloud and on-premises requirements.** For some applications and capabilities, the public cloud makes the most sense—while for others, on-premises is the best choice. Smart organizations don't just throw everything at the cloud or keep everything internal. By determining the ideal infrastructure for all key processes and services, they get the most out of their new IT infrastructure.

- ➔ **Build the strongest on-premises foundation.** When it comes to building almost anything to last—to be strong and stable—a strong foundation is a must. This is definitely true for a Software-Defined Data Center. With a powerful and up-to-date server and virtual infrastructure in place, leading organizations are well positioned to succeed in today's demanding ecosystem.

- **Get everything integrated and working together.** One of the key criteria of any data center upgrade is the ability to integrate with existing systems. For hybrid cloud, this means on-premises and cloud systems that work together seamlessly. In a Software-Defined Data Center, it means ensuring every key application, service, and core hardware is integrated to leverage the dynamic and automated capabilities that the infrastructure upgrade brings.

- **Technology innovation is ongoing. Be ready for what comes next.** New technologies are constantly coming onto the scene, and they can have a huge impact on businesses and their IT infrastructures. From intelligent AIs and cognitive computing to virtual fabrics and hyperconverged systems, innovative technologies are bringing new opportunities and challenges. Businesses that have built a flexible and dynamic IT foundation will able to effectively leverage these innovations to grow while avoiding the challenges and complexities that less prepared businesses will face.

In the world of technology, a lot of innovation has taken place on the edges, where users meet the bleeding edge, while the data center engines of these technologies remained static.

And now it's the data center's time to shine. New technologies like the Software-Defined Data Center and hybrid cloud are enabling businesses to increase their agility and ability to innovate while reducing costs and improving security.

Just as in automobiles, where cool electric and automated driving systems are shifting attention away from interiors to what's under the hood, the data center engine has become the key technology

differentiator for businesses today. So, businesses need to ask themselves: Do they want to be stuck with a data center that's the equivalent of a horse and buggy, or do they want to drive their business to the future with a Software-Defined engine built for success?

For more information on this or other research topics, please visit www.aberdeen.com.

Related Research

Building a Data Center to Meet the Challenges of Today's Technologies; March 2017
Transform to a More Agile IT Infrastructure With Private Cloud; January 2017
Ending IT Struggles Through Better Virtualization Strategies; November 2016
Data Center Leaders Embrace New Technologies; September 2016

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