Why Infrastructure Automation Should Be at the Heart of Your Data Center Evolution
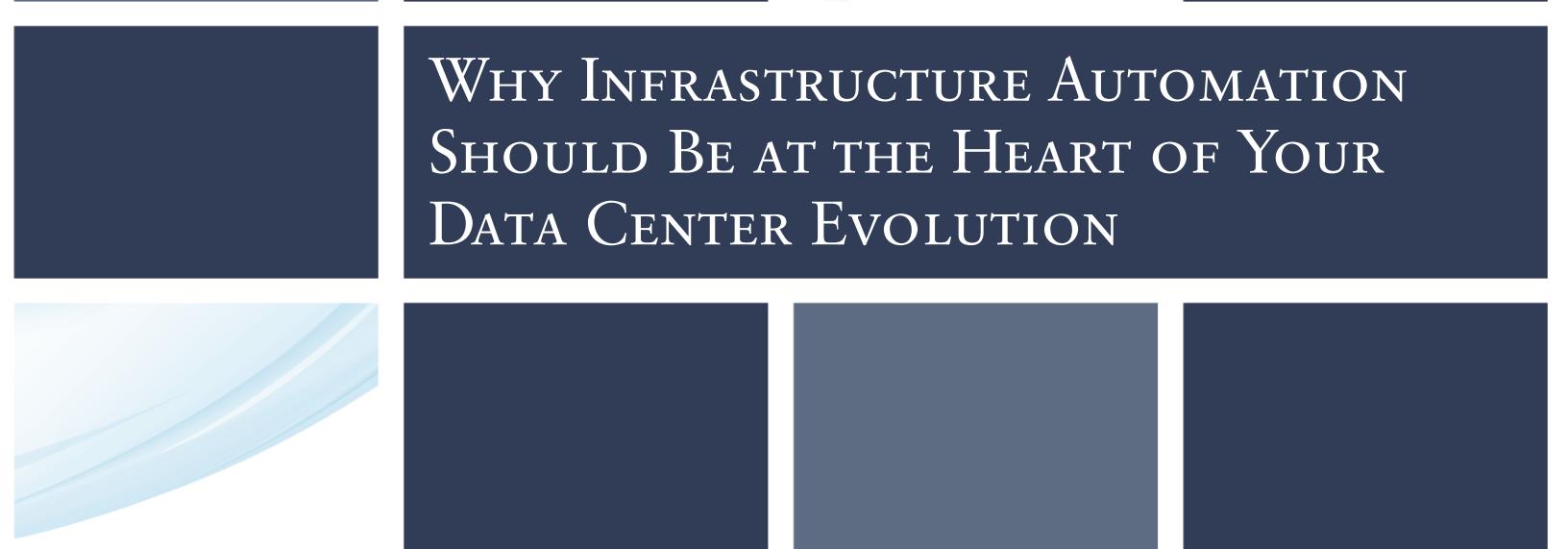
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An Executive Brief Sponsored by HPE

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INTRODUCTION

IT organizations are shedding their old roles as stewards of technology assets, and evolving to become strategic drivers of business growth. However, the relentless pace of technology change and accelerating market demands are taking a toll on both IT operations and the business transformation effort. IT leaders' ability to focus on new imperatives—including strategic innovation, speed-to-market, and continuous service delivery—is being slowed by tactical, day-to-day challenges of keeping the data center running optimally, and ensuring continuous service delivery.

It is clear that optimizing the current data center infrastructure is not sufficient to meet today's needs and those in the foreseeable future. Instead, IT leaders must to evolve their infrastructure to become "change-resilient"—to put in place building blocks (technology, software, services, and processes) that are designed for maximum flexibility.

To that end, enterprises should consider deploying a composable infrastructure that optimizes infrastructure investments and also serves as a gateway to a hybrid IT environment. The infrastructure must be both *software-defined*, to support agility and ease of management, and *automated*, to support consistent, secure, rapid, and error-free provisioning and scaling.

However, changing to a new model and new technology while maintaining existing systems can be difficult and disruptive for an IT organization. This is especially true when knowledgeable resources are not readily available on staff to take on the transformation initiative. That's why more enterprises are turning to expert partners to help evolve the data center and implement automation. In this report, we review how composable infrastructure with automation capabilities can help organizations solve their key IT challenges. We also consider how to choose an expert data center partner to help with the transformation and ongoing management.

CHALLENGES DRIVING IT TRANSFORMATION

IT leaders are looking to transform every aspect of their organizations—people, processes, technology, and even culture—to prepare themselves to meet a host of new and growing business goals. According to a recent Frost & Sullivan survey of IT decision-makers, the top drivers for transformation are strategic in intent, including:

- Support strategic business goals (cited by 62%)

- Better position the company to take advantage of new technologies (61%)

- Support business agility and market responsiveness (58%)

Top drivers to IT transformation

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Better support strategic business goals	62%
Better position my company to take advantage of new technologies	61%
Support business agility/market responsiveness	58%

% of IT decision-makers
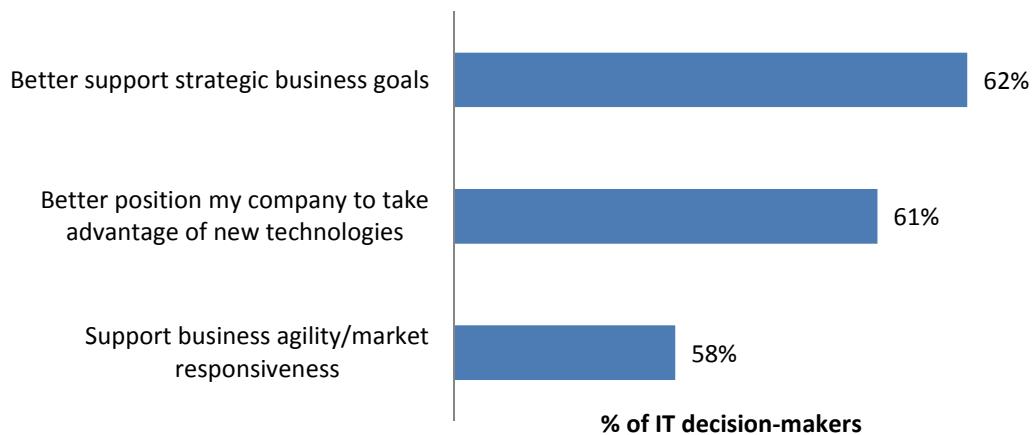
Source: 2015 Frost & Sullivan Cloud Survey

Too often, there is a gap between IT leaders' high-level intentions and their necessary day-to-day activities. Transformation efforts may be sidetracked by tactical challenges involved in running the business. The top 5 challenges cited by IT decision-makers surveyed by Frost & Sullivan are:

- Increasing and high maintenance costs
- Keeping up with new technology
- Capital budget constraints
- Managing multiple data center and cloud environments
- Aging/inefficient servers

Top IT challenges

High maintenance costs	27%
Keeping up with new technology	25%
Capital budget constraints	24%
Managing multiple data center environments	19%
Aging, inefficient servers/equipment	18%

% of IT decision-makers
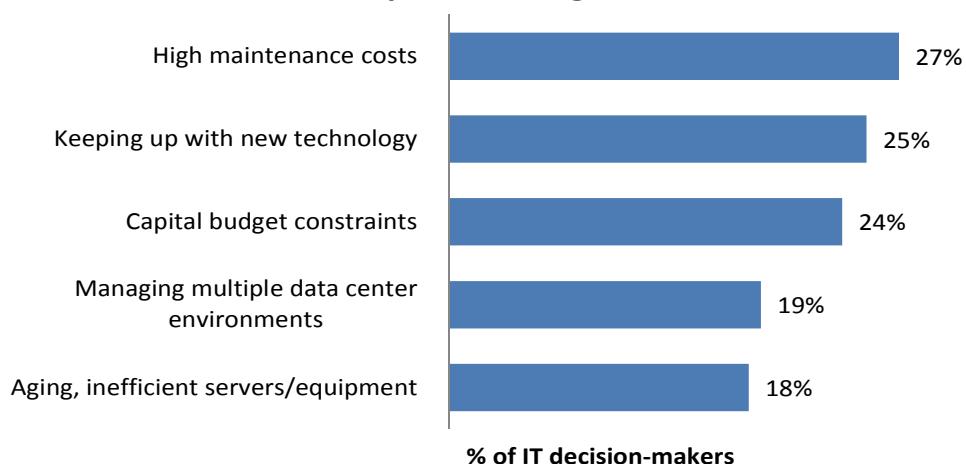
Source: 2015 Frost & Sullivan Cloud Survey

IT organizations are so tied up with day-to-day operations that they have limited resources to determine what steps to take to meet their strategic goals. It's like the lumberjack who is so busy chopping down trees that he doesn't take time to sharpen the axe—the activity is counter-productive.

COMPOSABLE INFRASTRUCTURE – THE RIGHT FOUNDATION

IT needs a clear vision for the data center of the future; and that vision should be based on **composable infrastructure**. *Composable* is defined as a framework for pooling, allocating, and managing IT infrastructure resources (server, storage, network, and orchestration), and delivering them as services. The composable framework bridges legacy and cloud infrastructure, creating fluid pools of resources that can quickly be provisioned and released, as applications and workloads dictate.

In contrast to yesterday's hardware-dependent data centers, composable infrastructure is software-defined. It is controlled via a sophisticated intelligence platform that utilizes Application Programming Interfaces (APIs) that quickly and flexibly draw on the resources needed to run applications. A composable environment can derive maximum performance from a wide variety of infrastructure, including legacy servers. An optimally-designed environment would include specially-engineered systems that are configured for maximum flexibility, interconnectivity, and performance.

For enterprises, a composable environment takes the most valuable features of a public cloud (scalability, flexibility, on-demand resources), and extends them across a broad range of physical and virtual infrastructure options. Composable infrastructure enables IT to deliver services with the speed and agility that businesses demand in today's rapid-paced and competitive economy. Furthermore, the right composable infrastructure offers limitless opportunity for your data center to evolve, via a unified API that allows you to deliver new and yet-to-be-developed services to your business.

Benefits of composable infrastructure include:

- **Agility** – Applications can be quickly provisioned, tweaked, scaled, and pulled down, without having to procure and provision additional hardware.

- **Speed** – Automation tools enable you to quickly develop, test, deploy, and update applications, adding functionality and changing services as the market dictates.

- **Flexibility** – Resources can be deployed and re-deployed, as needed, to support business needs.

- **Scalability** – Pooling of available resources and automated provisioning make it easy to quickly scale applications as needed, ensuring consistent application performance without over-provisioning for peak usage.

- **Cost-effective utilization of infrastructure** – Workloads can be placed in the infrastructure that delivers the best combination of performance, security, and price, minimizing unnecessary capital investment in hardware.

AUTOMATION – THE HEART OF THE COMPOSABLE DATA CENTER OF THE FUTURE

Automation is the critical factor that allows IT to leverage composable infrastructure in a way that will support business goals today and into the future. Automation allows processes and tasks to be initiated directly from other software, as needed, based on patterns and policies. Without automation, the benefits of continuous integration and continuous delivery would not be possible: manual efforts would be unsustainable. In fact, without automation, there is no composable infrastructure.

Sometimes called "infrastructure as code," automated provisioning instructions can be written to support a continuous deployment pipeline. For example, the HPE OneView management and orchestration platform integrates with a broad range of automation, development, deployment, and orchestration tools, including Chef, Docker, and Ansys. Then, the instructions can be saved as templates or patterns, which can be stored in a catalogue and made available for use by authorized employees, who do not have to be experienced operations or infrastructure technicians.

Automated provisioning brings many benefits to enterprises:

- **Speed to Market** – Development and operations teams can quickly place new and enhanced applications into production.

- **Consistency, repeatability** – Patterns and templates ensure that applications are repeatable and provisioned the right way, every time. Furthermore, if something goes wrong or the operation fails to execute as expected, the development team can quickly roll back to a previous point in the cycle, and continue production.

- **Scaling** – You can be confident that workloads will scale correctly, improving application performance and user satisfaction.

- **Less trial-and-error** – Replicable templates mean fewer wasted cycles in moving applications to production.

- **Streamlined processes** – Composable infrastructure with automation fits into DevOps and Agile processes for continuous development, test, integration, and delivery of applications.

- **Security and compliance assurance** – Your company's assets can be protected by embedding company policies into templates required for software deployment.

- **IT innovation enablement** – Your developers, architects, and operations teams are able to focus on solving business problems, since they are free from performing endless test-and-deployment cycles.

MAKING IT HAPPEN: DATACENTER CARE – INFRASTRUCTURE AUTOMATION

You may have a clear vision for your data center of the future: an automated, composable data center that seamlessly and frictionlessly gives you access to a world of IT resources—physical and virtual, cloud and traditional, local and remote.

However, you may continue to be slowed down by day-to-day activities. How can you transform to the data center environment you need? For many businesses, the answer is to turn to third-party expert services. In fact, according to the Frost & Sullivan survey, fully 91% of IT decision-makers have engaged (or plan to) an expert third-party for assistance with their IT transformation initiatives.

The right services provider can offer a range of professional and ongoing management services, including design and planning, "best practices," and support. Depending on your needs, strengths, and resources, the provider can advise, train, or supplement your own staff.

In the hands of an expert partner, like HPE with its HPE Datacenter Care Services, your company can benefit in

multiple ways. The provider should offload or minimize the day-to-day operational tasks associated with running a highly-tuned and efficient data center. At the same time, the provider should help you realize your vision of the future, by implementing a composable infrastructure model that incorporates infrastructure automation. With infrastructure automation, IT's maintenance burden decreases, and business productivity and responsiveness increase.

When you subscribe to a comprehensive service like HPE Datacenter Care Services with Infrastructure Automation, you can be confident that your vision and your day-to-day operations are fully aligned, and that every infrastructure investment will lead you toward the flexible, change-resilient future.

CHOOSING A DATA CENTER INFRASTRUCTURE AUTOMATION PARTNER

It takes trust and confidence to put your infrastructure operations in the hands of a partner. This is especially true when you may be navigating unfamiliar and complex territory, like composable infrastructure and automation. While a number of industry participants offer data center services, choosing the right partner is imperative. How can you tell which partner is right to help you with your transformation?

Here is a checklist of what to look for:

- **Expertise in "composable infrastructure"** – The term and concept are fairly new. Be sure your partner is an industry leader and pioneer.

- **Experience in infrastructure automation** – Your data center evolution depends on the automation of more and more functions. Ensure that your partner has deep expertise.

- **Full range of transition services** – For many businesses, the shift to composable and automation can require major changes not only to infrastructure, but to development and delivery processes, and even organizational structure. Choose a partner that offers a range of professional services, including coaching and best-practices advice, to assist the transition.

- **Access to technical experts** – It's not enough for the partner company to have "institutional" expertise. To support your transformation, you need to have direct access to experts whenever you need advice and help. This includes access to infrastructure automation experts, who will help you maximize the value from your composable infrastructure.

- **Experienced data center partner** – You're not going to do a rip-and-replace, so you need a provider that is well versed in managing real-life enterprise data centers. Don't settle for "ad hoc" engagements where the provider may be making up the process as they go along; instead look for tried-and-true methodologies.

- **Flexible platform** – The automation layer should enable you to integrate with best-of-breed solutions, both proprietary and open source. Be sure your provider supports a unified API for easy integration of a range of tools and templates.

- **Ability to simplify the complex** – Managing all the various components of a hybrid IT environment is challenging; but the right partner will shield you from complexity while providing you with the details

you need to make informed decisions. Look for a partner whose technology platform integrates with your other management systems, providing you with visibility and reporting on the functions that are important to you.

- **Range of infrastructure options** – Your partner must be an expert in a range of IT solutions, with access to next-generation composable technology platforms, as well as the ability to work with existing generations and other types of hardware you may have in your data center.

- **Full range of data center services** – To accelerate your transformation to strategic service provider to the business, it makes sense to rely on your expert partner to help with the daily operation and optimization of your data center. Many companies find that the business value associated with faster deployments, increased employee productivity, and market responsiveness, make the service relationship cost-effective for the business.

THE LAST WORD

In the future, successful businesses will be those that can develop and harness technologies faster than competitors. To support the business, IT leaders must drive technology-based innovation, while continuing to meet business expectations for application performance, data protection and availability, and cost-efficiency.

Today, doing it all means IT organizations must be fast, flexible, responsive, and ready for change. This requires adopting a new infrastructure model: composable infrastructure with automated functionality. But for most businesses, transformation will require expert assistance. Partnering with a Datacenter Care Services partner with deep expertise in composable and infrastructure automation will ensure that your transition runs smoothly, and your IT infrastructure remains aligned with your business goals.

Change is never easy. But when your composable infrastructure is automated, your business will have the right foundation in place to use technology to: anticipate, disrupt, and outpace the market.

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