

# BUILDING BLOCKS

Rearchitecting The Data Center  
For Private Cloud With  
Converged Infrastructure





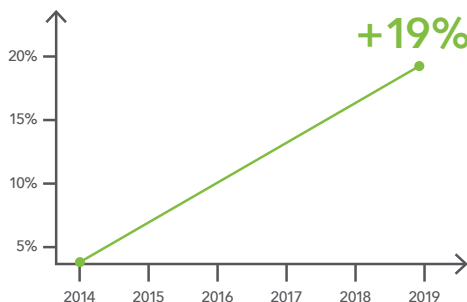
## BUILDING BLOCKS: Rearchitecting the Data Center for Private Cloud With Converged Infrastructure

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According to Cisco's latest [Global Cloud Index](#), data center traffic will triple by 2018. To handle the added traffic, data centers must be more efficient and agile than ever. It's clear the cloud will play a key role in enabling IT to meet 21st-century demands. But it's also safe to assume that for the foreseeable future, organizations will continue to rely on their on-premises data centers to handle a variety of workloads. And many of those data centers are in need of a significant reboot. But because pan-modernization isn't typically in the budget, IT managers will need to find ways to meet business needs without rearchitecting the data center all at once.

For businesses bound to traditional data center refresh cycles, adopting a converged infrastructure (CI) system can be a good first step on the path to cloud-like agility. CI systems, such as FlexPod, VCE vBlock or HP ConvergedSystem, give IT a way to quickly implement a set of compute, storage and networking resources that can be pre-configured for specific applications, deployed significantly faster than traditional infrastructure with a repeatable process, and managed together from an integrated console.

Total Integrated System Spending



Also called integrated systems, CI is catching on quickly as a path to private cloud because of the way it can simplify and speed application deployment. In its 2015 Forecast Analysis for Integrated Systems, Gartner reported that total integrated system spending will increase at a compound annual growth rate (CAGR) of 19% from 2014 through 2019, reaching a total of \$20.4 billion. This is a significant increase in the proportion of overall data center hardware spending that this category represents, up from 7.9% in 2013 to 22.6% in 2019.\*

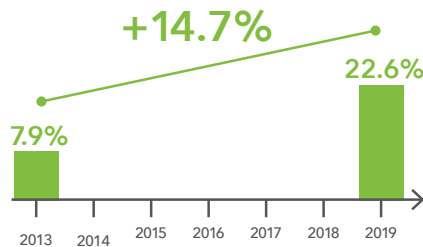
Many companies test CI by adopting a single unit and deploying a single application on it. If that goes well, the company is likely to continue adding CI systems one by one to accommodate new application requests. This initial piece-by-piece implementation is effective for several reasons: it provides a way to test how CI will function in a specific data center, and with a minimal investment, it can help IT demonstrate a clear return on data center modernization. With executive buy-in, IT can begin moving toward a new infrastructure model, one CI unit at a time.

Without an appropriate management layer in place, however, this approach can become problematic. [In a 2013 article on CIO.com](#), Allen Bernard noted that "While converged infrastructure seems to solve many provisioning problems, for the moment it's being deployed as little islands of capability for ERP, SharePoint or virtual



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Proportion of Overall Data Center Hardware Spending That Integrated Systems Represents



desktop infrastructure. This isn't inherently a bad thing – these applications have to be provisioned somehow, after all – but if CI isn't embraced as a design concept, then you may still end up with a lot of siloed capability employed to meet very specific use cases, not a data center fabric that responds dynamically and uses all available resources." When CI is employed to meet separate, specific use cases, IT managers run the risk of simply replacing the old set of compute, networking and storage silos with another set.

To ensure the long-term viability of a CI model, IT needs to see how each new infrastructure acquisition integrates into the fabric of the existing data center. To enable a true private cloud environment, IT needs a tool to help them see how new hardware acquisitions will complement existing compute, network and storage resources. With the right software tools, it will be possible to view new CI resources as part of existing compute, network and storage availability. That visibility gives IT managers who don't have the time or expertise to build a DIY private cloud a viable option for providing infrastructure services and deploying applications faster.

This white paper will examine how enterprise IT teams can shift how they add new converged infrastructure to an existing data center to both ensure the long-term effectiveness of CI and create a flexible, scalable infrastructure model that will prepare them for private or hybrid cloud.

### 1

## Establish Standards and Long-term Goals

Before the first new infrastructure acquisition, it's important to have an idea of what a completely modernized version of your data center will look like - even if you plan to get there little by little. That means you'll need to define standards and apply them to any new hardware acquisition. Requirements may include particular vendors, interoperability with existing systems, cost thresholds, and an ease-of-use requirement. This is also a good time to establish standards for procurement policies, workload lifecycle management, operations management and business goals.

In Gartner's Solution Path for Evolving from Server Virtualization to Private Cloud, analyst Alan D. Waite notes that establishing standards early on can reduce complexity down the road. With standardization, "Performance is normalized across the infrastructure, which becomes



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*Alan D. Waite, Gartner*

more important as you automate provisioning and workload placement later. Support complexity and downtime are also reduced by limiting the number of environments dealt with by the support organization.”

Waite continues, “Webscale providers achieve their cost and agility advantages by ruthlessly enforcing simple standards at multiple layers. This should be your goal as well. Thus, the first phase focuses on establishing a standardized, repeatable process for deploying, hosting and managing the lifecycle of virtualized workloads.”\*\*

You’ll also need to begin building a business case for continued adoption. According to William Freedman, who shares a [sample business case on Tom’s IT Pro](#), a converged infrastructure system will pay for itself in less than two-and-a-half years.

### 2

## Take Stock of Assets and Create a Migration Roadmap

Once you’ve chosen how to standardize, it’s important to assess existing assets against the new standards. This will help you determine a reasonable timeline and set realistic goals on your path to modernization. As you take inventory, it may become clear that certain legacy hardware will soon be rendered obsolete.

At this point, it’s time to take a closer look at where applications reside and evaluate whether applications running on the hardware that is closest to retirement need to be migrated to something newer. There will likely be some infrastructure and applications you can leave alone – such as a legacy application that’s running just fine in relative isolation on a set of virtual machines – while others will fare better on the new infrastructure. Having a clear picture of how your data center will look after the next refresh cycle will enable you to evaluate requests for new applications with future architecture choices in mind.

Consolidating and minimizing legacy infrastructure ensures that what’s left behind isn’t lost in a sea of virtual sprawl. A smaller amount of legacy hardware, with less variety, will be more likely to receive the support it needs to remain useful until it is retired. More importantly, consolidation will make it much easier to see where you have gaps, and what to focus on when the budget allows for new acquisitions.



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[According to Neil Nikolaisen](#), “Complex IT is the enemy of agility.” The CIO at Western Governors University and contributor to TechTarget says standardizing hardware is one of the most significant ways to simplify the data center.

As you begin to acquire new hardware, don’t be tempted to go with the vendor that strikes the best price-performance balance unless other standards are met. In almost all instances, it will be essential to choose a hardware platform with the ability to integrate with vendor-agnostic management tools and orchestration models. As software-defined infrastructure gains traction, more and better tools will become available on the market, and you’ll want the flexibility to choose the ones that best meet your needs. That choice might be vastly different today than a year from now. If the management software you use is dependent on the hardware you buy, you’ll be placing too many limitations on future software and hardware choices.

**“Complex IT is the enemy of agility.”**

*Neil Nikolaisen*

Another factor to consider is how long the vendor has been in business. Nikolaisen suggests choosing market-leading infrastructure components “that will be around for at least a few years.” When he inherited an IT department that had already standardized its servers and storage, but with a third-tier provider, he quickly switched to more mainstream technologies. It might not be realistic to switch a large number of infrastructure components at once, but it’s important to begin applying this thinking to your refresh cycles now.

And while pre-configured converged infrastructure is a surefire way to standardize, it is possible to create your own converged infrastructure models by choosing the components that best suit your needs. Either way, there’s a risk that one of the components you’ve standardized on won’t be around a few years down the road. If your management software is portable, you’ll at least have a path for moving off the platform.



### Proactively Evolve the IT-customer Relationship

Some of the most important aspects of infrastructure transformation do not concern hardware and software. [In an article on common pitfalls in IT transformation](#), Chuck Hollis says that to truly transform, “We must exit the familiar world of product feature/function, and enter the squishy and uncomfortable world of people and politics.”



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As you stand up new infrastructure that is capable of being controlled via software, you'll be able to offer new capabilities to your internal customers. While the first few deployments might be for specific applications or to migrate existing ones, eventually, you'll be offering a whole new way of deploying applications. It's best to begin thinking about how this will change the way you interact with internal customers.

To ensure a smooth transition, IT must become a trusted broker of all infrastructure services with the ability to offer business users the best infrastructure options for both their applications and their budgets. If you haven't already, begin working with internal groups - application owners, developers and other lines of business that regularly interact with IT - to understand their service requirements. Use those requirements to guide you as you define graduated service levels. Look to infrastructure as a service providers as a model, and develop tiers with varying levels of capacity, availability and performance that will suit different application types.

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If your organization uses Amazon Web Services, Microsoft Azure or other public cloud providers, you can add it as an option among your service set. To maintain oversight of your entire cloud environment, including what's stored and run in the public cloud, you'll have to become the broker of public cloud services. Putting it alongside a menu of other offerings will help demonstrate to internal customers that you're willing to weigh all possible infrastructure options side-by-side and choose the best one. If your organization is not yet using public cloud, consider how you will integrate with external cloud providers in the future. During each step of the process, design your data center with the possibility of a hybrid future in mind.

You'll also need to think about how project funding might evolve as you move toward converged infrastructure and a service-based model. Like public cloud providers, you'll want to guarantee certain levels of support, reliability and performance in a defined service level agreement. Customers can then select their required service level, based on application requirements, from a standardized list. While it might just be to demonstrate how this affects IT resources, it would be wise to consider including costs on this list.

Some business units may push back, especially if they are unaccustomed to a chargeback model. A pay-as-you-go model in which customers pay only for the services they have used at the end of



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each month may help ease the transition. It will also help you keep an eye on how your pricing for internal services compares to public cloud pricing, which could prevent unnecessary costs.

Transparent billing can also help educate customers about their infrastructure service consumption patterns and how different types of infrastructure are able to meet their requirements. In turn, users may begin to see the value of going through IT for infrastructure services. For example, an application owner may realize that certain workloads cost less to launch in the cloud and later move on premises. The effect of each of these practices is the lowest chargeback possible for the user; reliable, consistent service levels; and a clear demonstration that IT is aligned with the goals of the users and the business.

\* Gartner, Forecast Analysis: Integrated Systems, Worldwide, 1Q15 Update, Adrian O'Connell, 05 August 2015

\*\* Gartner, Solution Path for Evolving From Server Virtualization to Private Cloud, Alan D. Waite, 19 June 2015

### About StrataCloud

StrataCloud is building a platform to enable cloud-like agility in enterprise data centers. StrataCloud's platform abstracts data center resources into a software defined layer, automates infrastructure installation and application provisioning and enables IT to deliver defined service levels for applications with the speed, agility and consistency of the cloud.

Learn more at [www.stratacloud.com](http://www.stratacloud.com).

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