

PeerPaper Report

BEST PRACTICES FOR CHOOSING A COMPOSABLE, SOFTWARE-DEFINED INFRASTRUCTURE SOLUTION

Based on Real User Reviews of HPE Synergy

2020



ABSTRACT

IT departments now enjoy many new infrastructure options. These include converged and hyper-converged infrastructure, which simplifies management and enables greater flexibility. Now, with Software-Defined Infrastructure (SDI) or composable infrastructure solutions, there are even more opportunities to save space and improve the efficiency of infrastructure management. IT professionals are developing a growing set of best practice for choosing a composable infrastructure solution. This paper explores these practices, based on real user reviews of HPE Synergy on IT Central Station.

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INTRODUCTION

Infrastructure is no longer just defined by hardware, manual configuration processes and hardware-specific management systems. IT departments have many options, including converged and hyper-converged approaches to deploying compute, storage and networking. However, customers' needs have evolved. They to seek to deploy an infrastructure that is fully flexible, software-defined and automated to run any kind of workload.

Such Software-Defined Infrastructure (SDI), which is increasingly referred to today as “Composable Infrastructure,”

has the potential to simplify management and enable greater flexibility. It can compose fluid pools of physical and virtual compute, storage and fabric resources into any configuration for any workload. It can save on data center space and improve infrastructure efficiency. As the technology matures, IT professionals are developing a growing set of best practices for choosing a composable infrastructure solution. This paper explores these practices and insights, based on real user reviews of HPE Synergy on IT Central Station.

A Brief Overview of Software-Defined Composable Infrastructure

Software-defined composable infrastructure marks a split from the traditional hardware-defined, manual modes of building IT infrastructure. Requiring neither wires nor pliers, software-defined composable infrastructure makes it possible for infrastructure managers to establish, and then manage, infrastructure using just software. This includes software-defined compute, storage and networking. There are no hardware dependencies. Every infrastructure element is programmatically extensible. Advantages of the software-defined composable infrastructure approach include more productive infrastructure management processes as well as the ability to migrate between configurations without downtime.

HPE introduced a composable infrastructure solution, HPE Synergy, in 2016 to power workloads within a



hybrid cloud environment. Composable infrastructure based on HPE Synergy allows organizations to manage their data centers as a dynamic, fluid and flexible pool of resources. It's a software-driven approach for organizations that want to leverage compute, storage and networking capabilities on an as-needed basis.

Overall Competitive Selection Factors

IT Central Station members who manage infrastructure typically go through a careful analysis of competing solutions before choosing a critical technology like composable infrastructure. In their reviews, they discussed how they weighed their options. For example, an IT Director at a small financial services firm explained, “We looked at Dell EMC, VCE, and HPE. [We went with the newest technology](#), which was composable infrastructure. The others were just hyper-converged infrastructure.”

“If someone is looking at HPE Synergy, c7000, or Cisco UCS, Synergy is worth a shot because [it provides a lot of flexibility](#) and automation,” said a Senior Infrastructure Engineer at a retailer with more than 1,000 employees. “It can make the lives of operations team members, or whoever is managing the hardware, much better due to the automation. The biggest thing that I like about Synergy is the automation.”

“ We were able to condense down into four blades, because they are so powerful.

A VP Technology at a small tech services company put it like this: “We vetted out everything under the sun from the UCS side, the Cisco side, the Dell EMC side. We really landed on Synergy because it was the most flexible out of all the solutions. [We have seen ROI](#). Building it to be so powerful, we had six racks of 1 to 2U servers of Dell EMC equipment spread out throughout the data center - six racks of gear. We were able to condense down into four blades, because they are so powerful. That’s a huge ROI and savings for us. We have fewer teams focusing on the overall solution. We have a team of two right now, compared to the team of six or seven people assigned to the whole cloud solution in the past. From an operations perspective, we’re probably saving a good \$150,000 a year.”

Best Practices for Choosing a Composable Infrastructure Solution

What makes a composable infrastructure solution suitable for an IT department? Every company is different, of course, but common themes and best practices emerge from reviews on IT Central Station. These include a focus on unifying infrastructure management tools, future-proofing of infrastructure, automation and storage management integration.



Unify Infrastructure Management Tools and Interfaces

Composable infrastructure thrives when users make the most of its unified management toolset. A Manager at a financial services firm with more than 1,000 employees commented on this capability, saying, “The Synergy environment [provides us with one view](#). We’re able to manage the entire stack, top to bottom, from that single view.” A System Engineer at a comparably-sized manufacturing company noted, “The most valuable feature of this solution is the [ease of deploying servers](#), profiles, and images. Having

that single pane of glass is a good feature for the management of our environment.” Figure 1 compares composable infrastructure’s unified management with that of conventional hardware-based infrastructure.

“ The single pane of glass management is huge...

A Services Support Supervisor at a government agency with over 5,000 employees valued Synergy’s [“ease of management](#) and single pane of glass for everything.” He said, “The single

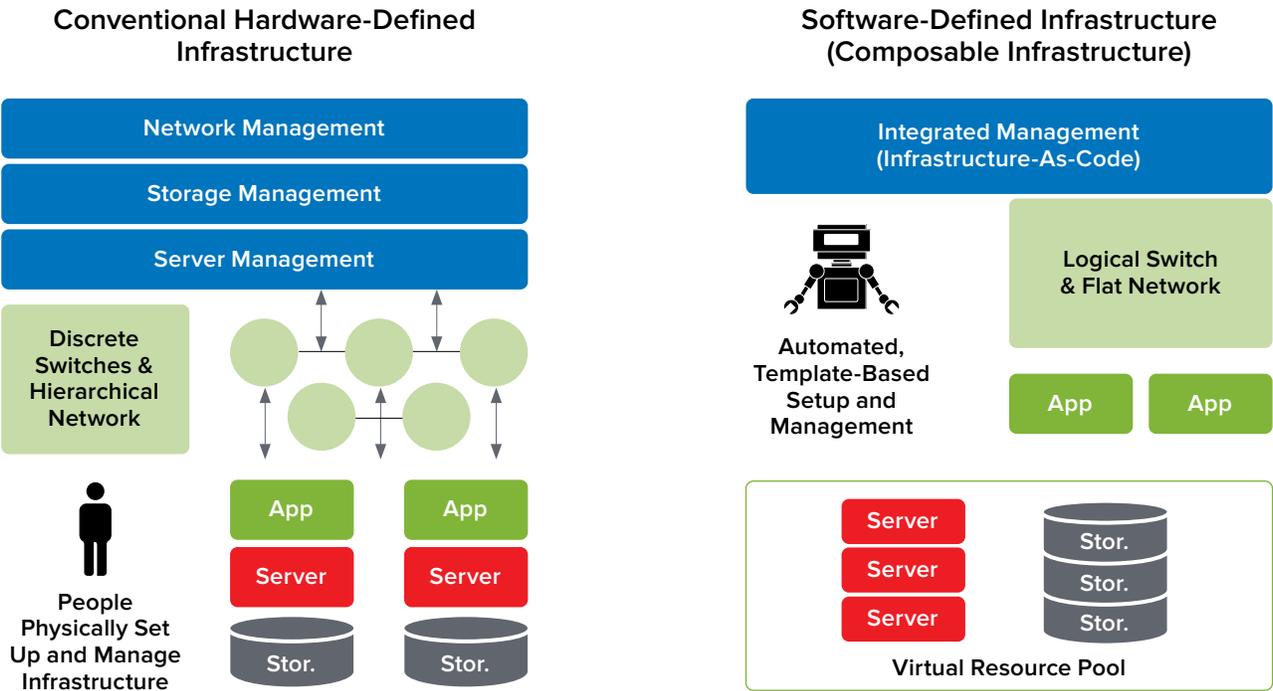


Figure 1 - Comparing management functions and the role of people in conventional vs. composable Infrastructure

pane of glass management is huge, because in all our previous systems, depending on what we were managing, we would go to a different management point. Being able to go to one spot to get everything is helpful. I find that server profile creation is a lot easier in OneView than it was previously. We are able to stay compliant with firmware and updates, because we are assigning server profiles and reapplying them when there are changes. This makes everything a lot simpler.”

Seek Solutions That Enable Ease of Use

“Synergy is [much easier to use](#), which is saving us time,” said a Network Specialist at a healthcare company with more than 1,000 employees. This remark underscores the importance of ease of use and management when it comes to

selecting a composable infrastructure solution. He added, “We are able to set the profiles for firmware upgrades. This makes the process for the care and feeding of the IT environment much simpler, quicker, and cleaner.” A Senior Systems Engineer at a healthcare company with over 500 employees shared, “[It makes it simpler](#) for me to manage my environment. It is one pane of glass, compared to multiple.” Other comments highlighting the importance of ease of use include:

- “The biggest lesson I learned from using this solution is that [it is a lot simpler](#) than what I thought it was going to be like, when we were going to deploy. I would rate Synergy as ten out ten because it’s easy to use, rock-solid, straightforward to deploy and easy to expand.” - CIO at a university with over 200 employees
- “We have had very low infrastructure

requirements because of [its simple setup](#). It has helped us dramatically improve our SLAs. The manageability is its most valuable feature. It is a fully managed platform, which is very simple to manage. It lets us set up servers quickly” - SVP Data Technology at a marketing services firm with over 50 employees

- “The most valuable features of this solution [are the ease of management](#) and the integration with OneView. The ease that we can allocate servers during busy times helps us to manage our IT landscape.” - Advisor System Administrator at a financial services firm with over 200 employees
- “[It’s very scalable](#). We like the idea that we can put four chassis in one of our racks, and we can connect up to 25 chassis, so the scalability to us, and being able to sync all those into one management portal, is unheard of. You can’t really sync that many blades and chassis together in any other platform.” - VP Technology at a tech services company with over 50 employees

Future-Proof Infrastructure

One advantage of composable infrastructure is its ability to prevent major disruptions in future infrastructure upgrades. A best practice, therefore, is to look for future-proofing capabilities in a composable infrastructure solution. For example, according to a Senior Hardware Engineer, “Synergy is [first in class for composable infrastructure](#). It has the scalability that meets our future needs and the automation that builds into something that we are really looking forward to using.”

A Systems Engineer at a tech services company with more than 10,000 employees remarked, “We needed to upgrade our hardware to be

compatible with newer versions of VMware. Since we are basically an HPE shop, it was either newer blades for the c7000 chassis or a Synergy chassis. The Synergy chassis is the [move of the future](#), which is what mainly influenced the purchase decision.” The government Services Support Supervisor said, “The most valuable feature is the future proofing. As an agency, we are looking at the future constantly and evolving with what is coming out. As we buy new equipment, we are buying Synergy instead of continuing to buy c7000 blade enclosures and BL Series blades. Thus, I [don’t have to do a forklift upgrade in the future](#).”

“ It has helped us dramatically improve our SLAs.

“We use this solution to run both our production and non-production environments. We currently do not have any cloud initiatives, but we bought it so that we can be [future protected for the cloud](#),” said the manufacturing System Engineer. An Operational database administrator at a healthcare company with more than 1,000 employees similar shared, “We used a different solution previously, but we switched because of the ease of management, and in addition, [this solution is future proof](#).”

Push for Efficiency and Fast Deployment

IT Central Station members recommend pushing for efficiency and fast deployment in a composable infrastructure solution. As a CIO at a university with over 200 employees explained, “When it comes to implementing new business requirements, if they need more machines, or the number of students increases in that particular discipline, [it’s very easy to replicate](#) our current

machines. Getting things online and being able to provide those workstations is much faster. Once we have it up and running, to deploy new virtual machines there is probably a 90 percent decrease in the time needed to get them up to speed.”

“We have seen an [improvement in the efficiency](#) of our IT infrastructure,” observed the healthcare Network Specialist. “It is faster to do firmware upgrades through the deployment of new bladed servers. It makes our deployment time go faster, decreasing the process time by half. The big time savings are on the upgrade process.” The financial services Manager added, “I would say Synergy has [decreased our deployment time](#) by about 80 percent and it has reduced our cost of operations.”

From the perspective of a System Engineer at a healthcare company with more than 1,000 employees, “Synergy also helps us [implement new business requirements quickly](#). We can deploy new ESX servers faster than we could on the previous c-series blade systems. It has positively affected the efficiency of our IT infrastructure team quite a bit in the last year. We spend less than a day deploying new hosts, where it would take us a week previously. So our deployment time is about one-fifth of what it was.”

Automate As Way to Make Fewer Errors

The university CIO advised, “Make sure you understand the whole solution.” He noted, “If you’re used to doing things the old, manual way, make sure you understand what OneView does, and how it can [automate and orchestrate](#) bringing the platform up to speed, and then, what happens after that. If you do that, you’ll easily see that it’s a big time-saver and it’s much easier to manage.”

The retail Senior Infrastructure Engineer concurred, saying, “There is no comparison between installing a server by hand versus having everything automated in place. That makes a big difference. By automating [we can avert human errors](#). Life becomes easier and operations become much easier.” An Architect at a retailer with more than 10,000 employees further commented, “The automated updates and integration with OneView will ultimately [help us run a more resilient infrastructure](#)”

Leverage Templates to Speed Up Deployments

Templates are one of composable infrastructure’s most appealing features. As a Senior Systems Engineer at a healthcare company with over 500 employees characterized them, “Spinning up an environment is much quicker, because I don’t have to reconfigure networking and redesign everything from the ground up. I throw a new blade into the frame and [configure it based off a template](#).” This mattered to him because “the solution has improved the efficiency of our IT infrastructure teams by taking less time to set stuff up, reducing our deployment time. The solution has positively affected the productivity of the development team by creating environments quickly.” Other IT Central Stations who weighed in on the value of templates shared the following observations:

“... the solution has improved the efficiency of our IT infrastructure teams...”

- “As a result of the solution, our IT infrastructure is about [60 percent more efficient](#) than it used to be. DR was a big issue for us. Also, server provisioning, especially with the approach of using server templates and profiles, speeds up

the time to market for servers. That’s something that otherwise would probably take a couple of days to get done. Now it’s just a push of a button, we’re talking about it taking seconds to a minute.” - Manager at a financial services firm with more than 1,000 employees

- “Today we’re using a stateless Auto Deploy, which [guarantees consistency](#) across all of our ESX hosts, but that is only possible if we’re using template-driven and standardized processes on the hardware. We can guarantee all of our network and our storage, the firmware baselines - everything is exactly the same for every system that sits within a cluster. It has improved management of our IT landscape because we spend a lot less time dealing with inconsistencies and things like firmware and driver management.”- System Engineer at a healthcare company with more than 1,000 employees
- “We stick a blade in, [build a server profile](#) from the template, and it just goes.” - Senior Server

Engineer at a tech services company with over 5,000 employees

- “Secondarily, the temporal value of it. If I only need a particular amount of compute for a specific period of time during business hours, then at night, I’m running a bunch of batch jobs, or doing something else, that ability to swap a profile, [swap templates](#), and have compute assigned to something else, saves significant amount of money. As long as you are tying it into the automation and orchestration layers, it becomes much easier to do.” - Architect at a tech services company
- “Synergy also streamlines the work that our infrastructure teams have to do. They configure things once, upfront, and [build deployment templates](#). That, along with good documentation, means any member of the team, with very little training, is able to deploy systems.” - IT Infrastructure Manager at a security firm with more than 1,000 employees

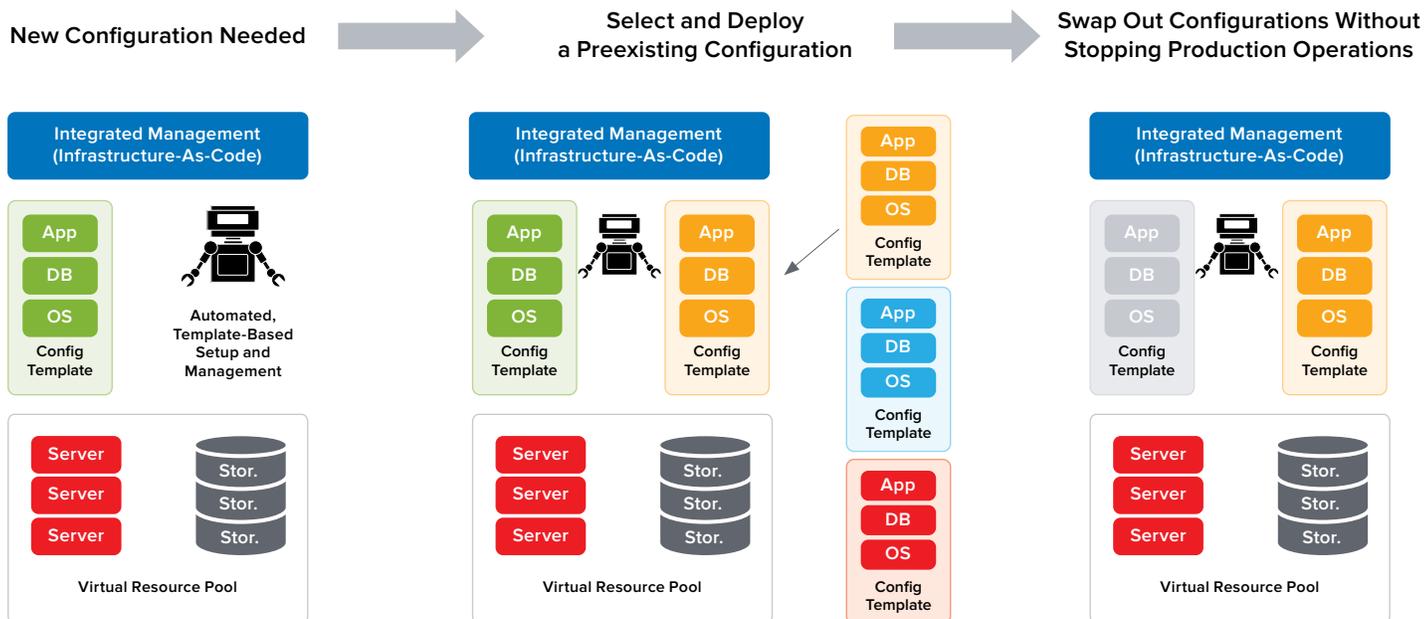


Figure 2 - How composable infrastructure, with templates, enables infrastructure managers to swap out system configurations by using pre-existing templates - without stopping production operations

Use Software-Defined Aspects of the Solution

It may sound obvious, but it's essential to use the software-defined aspects of composable infrastructure. Not everyone takes advantage. A Director at a tech company with more than 10,000 employees offered a number of insights into this practice. He said "Synergy has actually challenged us to rethink how our IT infrastructure teams are structured. So, we're still dealing with that. Our hope is that by having OneView, Synergy, and [software-defined](#) that we will realize the value statement over time." As he explained, "We bought in pretty early to the composability story and being able to software-define the compute. We are realizing a fair amount of that. The biggest lesson learned is that if you really buy into software-defined and start moving to infrastructure as code, there is a lot of power potential there, if you can just stay the course."

Take Advantage of Infrastructure As Code via API

Composable infrastructure turns infrastructure into code. A Cloud Architect at a manufacturing company with more than 1,000 employees put this feature into context, sharing that "The solution delivered efficiency to our IT infrastructure team with the [infrastructure as code](#) and the ease and agility to deploy. We are still in the transformational phase, but the benefit will definitely be the infrastructure of code components. The initial setup is straightforward. The infrastructures as code enables you to fill out the configuration before you even deploy it, then it is just a one-touch deployment."

The VP Technology further shared, "When a new

cluster would come in, they would have to write the code for that cluster and it would take them a week or two just to put the right code together and deliver it to the customer. [Now they've written it for the whole Synergy platform](#), so we just slide a blade in and it comes online."

Integrate Storage Management

The complexities of storage can sometimes lead infrastructure managers to neglect optimal storage integration. But, storage is part of composable infrastructure. Integrating storage management into a composable infrastructure solution makes it easy. This benefits the infrastructure manager. "Storage-wise, I don't have to order more storage," said an Information Specialist at a government agency with over 5,000 employees. "[It is so modular](#) that I can pick and add what I need."

“ It helps us manage our IT landscape because it is easy, standard, and very consolidated.

A Service Manager at a financial services firm with more than 10,000 employees remarked, "It helps us manage our IT landscape because it is easy, standard, and very consolidated. You don't need to have the storage and communications apart, because [it's all consolidated](#)." For the IT Director at the financial services firm, Synergy "has made our IT infrastructure teams more efficient. Previously, we had a standard infrastructure, which was compute, power, and storage. They had to run from one place to another to create a virtual machine. Now they can do [everything in one shot](#)."

Go for Hybrid Cloud Compatibility

Many IT Central Station members are pursuing a hybrid cloud strategy or have it in the “not yet, but soon” category. For this reason, it’s a wise practice to select a composable infrastructure solution that supports hybrid cloud. As an IT Infrastructure Manager at a security firm with more than 1,000 employees explained, “In terms of a [hybrid-cloud environment](#), we use it for our database workloads. We have records management systems and dispatch systems which have critical databases which we run on these platforms.”

According to a System Architect at a tech vendor, “In a [hybrid cloud environment](#), the solution enables us to run lot of databases, then different

homegrown in-house developed stuff that we use for media servers and compression servers.” An Architect at a tech services company like reported, “From a hybrid cloud perspective, Synergies are more seen for the potential of integrating into orchestrated and automated deployments, so they can have [cloud-like functionality on-premise](#).”

“The solution enables us to run [VDI, backups, and web platforms](#) for our organization in a hybrid cloud environment,” said a Technical Consultant at a manufacturing company with more than 1,000 employees. The government Information Specialist praised Synergy because, “In a hybrid cloud environment, [the solution enables us to do SQL](#). We are able to move it up and take it down.” For the Cloud Architect, “This product is basically a step in our [transformation to be more hybrid](#).”

CONCLUSION

IT professionals continue to build on a growing set of best practices for selecting the best software-defined composable infrastructure solution. With competing composable infrastructure offerings on the market, IT Central Station members recommend unifying infrastructure management tools and interfaces and seeking solutions that enable ease of use. Future-proofing infrastructure is a

further requirement of the composable infrastructure selection process, along with the push for infrastructure efficiency and fast deployment. Automation figures prominently into best practices, as do templates. Ultimately, selecting a composable infrastructure solution is about finding and then leveraging the maximum value from the solution's innate infrastructure-as-code capabilities.

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