Embracing Hyperconvergence to Reduce Complexity and Streamline Data Center Management

As told by Bill Tracy, VP of Technology Solutions, Structured

At Structured, we do things a little differently from other technology integrators. We offer a wide range of IT solutions from network security to storage, but what sets us apart is our emphasis on engineering. Our ratio of on-staff engineers to sales professionals is roughly three-to-one, and their average tenure with us is an impressive 10 years.

We value experience because the best way to stay in front of trends is to have observed and understood past ones. If you've worked with cutting-edge solutions for a decade or more, you're better positioned to assess the potential of new technologies.

For the sake of our clients, we must stay ahead of the curve and this philosophy dictates the solutions we adopt for internal use. What better way to know what works and what doesn't than to implement a product for ourselves?

I firmly believe in leveraging the latest technology and in updating our processes to reflect current best practices. However, I don't believe in change for its own sake. Every IT investment must offer solid ROI. Over time, I have come to realize the best way to invest your money is to simplify your setup. By this, I don't mean that less is always more. Instead, what is required is finding the easiest and most cost-effective way to achieve your IT objectives.

The Challenge of Simplification

As VP of Technology Solutions at Structured, I oversee strategy and vision for the solutions we deliver. We architect and design data centers as well as virtualization, compute, and storage systems for clients. In many cases, we then entrust our Managed Services team to monitor, update, and operate these environments. We also manage our in-house data centers.

Recently, we faced an internal IT challenge. The servers and storage arrays composing our production and test environments were all reaching end-of-life at roughly the same time. If either our servers or our storage arrays were more recent, we might have opted for just a partial upgrade. But since all the gear became ineffective to support, we decided to replace everything at once.

> **Social Share: Multiple sets of hardware reaching EOL at the same time? Use this as your chance to rebuild from the ground up.**

I seized this opportunity to simplify our internal data center and began to ask the important questions. How could we streamline our production and test environments? How could we

make it easier to perform updates and upgrades? Could we consolidate product support by reducing the number of potential suppliers from many to one?

Leading by Example and Learning From Mistakes

The answers to these questions shifted the way we approach our internal IT infrastructure and impacted the way we design, deploy, and manage our clients' data centers.

In a perfect world, the team could upgrade an entire environment with a single click, but as it stood, they had to deal with a patchwork of solutions to get everything done. The resultant confusion caused delays and excessively taxed our Data Center and Managed Services teams. We had no easy way to provision or spin up servers to demo and evaluate software, test upgrades, or troubleshoot system and application-level conflicts. Setting up proof-of-concept environments to evaluate new solutions was tricky, too.

At the same time, we wanted to streamline our backup and recovery process. We audited our entire setup and realized that we were backing up our storage arrays to a second storage array within the production environment. This was not an ideal design, but it was a great reminder to always re-evaluate strategy and architecture, even if what you are doing is working.

Choosing the Best Hyperconvergence Solution

After looking at our needs from various angles and asking strategic questions, an obvious answer emerged. We would move our highly virtualized production and test environments to a hyperconverged infrastructure (HCI). As a solutions integrator, Structured has access to the top names in hyperconvergence. We sell, service, and maintain HPE SimpliVity, VMware vSAN, and Nutanix.

All three of these solutions would allow us to reduce the number of boxes, cables, and connectors that drive our infrastructure. But Nutanix is a self-contained platform that includes all the apps we need to manage every aspect of our software-defined infrastructure.

For example, in our previous mixed environment, we had to purchase a third-party hypervisor. Nutanix includes Acropolis Hypervisor as part of its package. In a hyperconverged environment, having to buy a separate hypervisor is the equivalent of having to buy a third-party web browser for a desktop or mobile OS. It feels like we're back in the 1990s.

Nutanix advertises that it combines storage and compute in one appliance and provides a single touchpoint for setting up and maintaining the hyperconverged environment. But saying something doesn't make it true, and so our engineers set out to see whether Nutanix delivered on its promises.

Moving to Nutanix with Minimal Disruption
We purchased a Nutanix node, set up a test environment, and went ahead with some simple migrations. We didn't try moving mission-critical servers at first, but the process proved smooth and downtime was minimal. We quickly ramped up our efforts and started migrating machines crucial to Structured's commercial operations.

Once again, everything was seamless. Soon thereafter, we felt safe to embark on the biggest test: migrating our production environment to Nutanix. In the process, we consolidated our file-sharing services. Previously, we'd hosted files on a virtual machine running Windows File Server, but we were able to move all this data to our Nutanix HCI cluster via Nutanix Files.

Our goal was minimal disruption and, truth be told, we migrated our production environment to Nutanix in stealth mode. No one was inconvenienced or unsettled—the migration epitomized the perfect "non-event."

A Successful Migration
The success of this migration is bankable. I can point to our experience and say to our clients, "This is what we're using. Here's what it can do. We have cut down on complexity and have adopted a more efficient workflow."

Instead of using different systems to do separate storage array, server, operating system, and hypervisor updates, our engineers can make all of these changes within Nutanix. Consolidating these processes eliminates downtime and the need for reboots. This allows our Managed Services team to implement changes during a regular business day. Our engineers no longer have to stay after hours or lose sleep to upgrade our clients' environments.

Preparing these updates has also been massively simplified. We take a snapshot, do a backup, clone the environment, and spin up a test scenario to ensure that everything works as expected. Once we are confident that an update isn't disrupting the test environment, we roll it out to the production environment.

To be clear, we had never experienced more than half an hour of downtime with our previous production environment, but zero minutes is a lot better than 30 minutes… especially in IT where time is marked in milliseconds.

Simplifying and Sizing Our Data Center
In terms of our physical infrastructure, we have reduced a half rack of servers and storage arrays to three Nutanix nodes. We use less space and generate less heat, which lowers our air conditioning bill. We have also minimized cable clutter.

With Nutanix, you get the best of both worlds—the less *and* the more. Nutanix nodes occupy less space, and they allow us to do more with a single platform. However, hyperconverged

appliances combine storage and compute, and this requires you to think differently about sizing your data center.

In a hyperconverged environment, storage controllers are purpose-built PCs that double as servers, so you must think in terms of buying enough processing power to run I/O to your storage. You can't just think about the number of virtual machines you'll be running.

The number of nodes you buy should reflect the amount of storage you need, and the rule of thumb with storage is to always buy more than you think you need.

Good for Big and Small

To conclude, I'd like to clear up a misconception about Nutanix in particular and hyperconverged infrastructure in general. Clients often see hyperconvergence as an enterprise solution. However, few consider scaling down this technology for smaller applications, although this scenario can be quite elegant.

> **Social Share: Hyperconvergence isn't just for the enterprise. It can also vastly improve smaller applications.**

For example, we recently upgraded a client's video surveillance server to Nutanix. Despite having massive amounts of data, the client hooked up all its existing surveillance feeds into an appliance that fits in a storage closet. Plus, this Nutanix solution gives them capacity to add more video feeds in the future. You wouldn't normally think of a Nutanix node in this context, but it turned out to be the perfect answer.

As a trusted partner to our clients, I am happy to recommend Nutanix hyperconverged infrastructure. As a firm believer in leading by example, I am proud to show off our streamlined data center and our improved workflows. We are eager to accomplish the same on behalf of our customers.