From Zero to Hyperconverged in 90 Days

by Stephen Balman

My superpower is building data centers in 90 days or less. I've done it twice already: once in the early 2000s using traditional three-tier servers, switches, and SANs; and then again four years ago using hyperconverged infrastructure.

You may ask, "How can you set something up so fast?" and the answer would be to move quickly and live the Boy Scout motto, "Be prepared." But what does that really mean?

Understanding Our Business

The first rule of building infrastructure is understanding your business. If you're a biomedical research facility running molecular simulations and crunching clinical trial data, you're going to need a lot more compute and storage than a company like ours.

Here at Residential Design Services (RDS), we are an industry leader partnering with builders in eleven states to offer their homebuyers a brilliant interior design experience, while delivering outstanding quality products, installations, and service.

While we do use software to design interiors, this area is just one of our major applications. The bulk of our computing involves invoicing, assembling quotes, responding to RFPs, and running the business side of our operations. Our IT infrastructure is optimized to support these enterprise operations.

Accepting the 90-Day Challenge

When I began as the Director of IT for RDS, we'd been outsourcing IT for years, and our data center was a mess of obsolete hardware that was running low on capacity. Some of our servers and switches were 11 years old, dating back to 2005. We were running VMware on ancient Dell servers, and we were using Microsoft for our remote desktops. We also had Microsoft Exchange on-prem and were managing our network and our operations with freeware.

It was no surprise that we were always running into problems. The network was slow, we were short on storage, and our servers could barely run existing applications.

Backup and recovery were non-existent, and we needed to rebuild our data center from scratch. The possibilities were exciting, but I also knew it would be a tough feat with an added caveat—my challenge upon accepting the position was to completely overhaul everything in 90 days. There was little we could salvage, and there was no time to waste.

Embarking on an Extreme IT Makeover

You probably think I'm nuts, but there's a beginning, middle, and end to this type of digital transformation story, and the plot is always the same: Things have fallen apart, and you've run

out of options. You can no longer fix what's broken, so you throw it out and replace it with tech that works.

> **We've all been there: Your existing #IT infrastructure is falling apart, and you can no longer fix what's broken. It's time to replace it with #tech that works. #Nutanixstories**

It is the IT equivalent of an extreme makeover, and the priority is to preserve or enhance your internal processes and operational procedures. I like to move fast, so I immediately took stock of our infrastructure needs and looked at everything available in the marketplace.

The networking part was easy. We were already running Cisco switches, so I moved everything to the latest generation of Cisco hardware, added their wireless access points, and deployed Cisco Meraki to manage our network on the cloud.

Rethinking Our Data Center

I then turned my attention to our data center. Our servers and SANs were well past their prime—not only as hardware but also as architecture. I'd heard about hyperconvergence, but I'd never deployed it before.

Wasting no time, I looked at the major players. At first, I gravitated to Cisco, as we'd already gone with their switches. Their HCI solution had only recently launched, however, and it was going through growing pains. I also looked at Dell EMC and HPE SimpliVity, but walked away uncertain from both. Each of these solutions had its benefits, but none was the right fit.

> **The perfect partner has a clear vision of their future, including where they'll be in five years, and what their platform will resemble. #Nutanixstories**

I had a clear set of criteria: I wanted increased speed and capacity, room to grow, and an easy-to-manage environment. I was also looking for a partner with a clear vision of the future. Where would they be five years down the line, and what would their platform resemble?

I found all the above in Nutanix. Their sales team not only presented a better product, but also understood that my accelerated timeline left no room for a proof of concept. Their demos proved they had the tools I needed, and their engineers worked with me to architect and size the solution.

Betting the Farm on Nutanix

My initial goal was to build a stable and fast environment with room to grow. Our SQL databases were getting hammered with queries that saturated network bandwidth and taxed our CPUs and aging hard drives.

I started with two shelves and five Nutanix nodes. This hardware met all our compute and storage needs while running at 40–50% capacity. It also gave us the physical space to add three more nodes in the future without having to buy an extra shelf.

You could say I was betting the farm on Nutanix, but it was a low-risk gamble. Everything looked great on paper and they had a capable support team who helped us through the initial deployment. Nutanix also played well with our hypervisor of choice, VMware ESXi, which further accelerated the rollout.

When we launched the new platform, our applications started to fly and database I/O went from a crawl to warp speed. Our end-users were ecstatic, and the team I assembled to bring IT in-house also fell in love with Nutanix because it made their job so much easier.

Alerts, Reports, and More

Nutanix alerts us before there's a problem so we can address it before things escalate. The interface provides the information we need to troubleshoot applications that are running in our production environment.

If a user comes to us and says that an app is running slowly, we can check what's happening on our end. If there's a hardware problem, we'll take care of it. If there isn't, we can say, "Your app is using 25% of your CPU and 40% of your memory. Could you check with the developer?" Nutanix gives us actionable analytics that allows us to diagnose issues, locate bottlenecks, and close security breaches.

We get daily reports that tell us how the environment is performing and also provide network and resource usage statistics. We can monitor trends, reallocate resources, and plan future expansion. Nutanix provides a single-pane-of-glass view into everything we need to know to manage our infrastructure today and tomorrow.

Replacing Our ERP

Once we deployed Nutanix and saw that everything was going smoothly, we started to look at ways of improving our new production environment. Replacing our ERP was part of the plan from the start, but we couldn't move on that until after we'd upgraded our data center.

We ended up choosing Microsoft Dynamics NAV. For security reasons, we set it up on-prem using a private cloud.

I never doubted our hardware could handle it. There was some concern about our offices across the country connecting to our data center in Phoenix, but there was no need to worry. We have four nines network uptime—99.99% available and operational service. The combination of Nutanix and Cisco Meraki is just that good.

Moving Up to Acropolis
Our next leap of faith was moving from VMware ESXi to Nutanix's native Acropolis Hypervisor (AHV). We made the switch about 18 months after we moved to Nutanix and we haven't looked back.

> **Moving to the right hypervisor can save nearly half a million dollars in VMware licensing fees alone. #Nutanixstories**

The technical benefits are obvious. We can spin up and manage virtual machines from a single management system without having to leave the Nutanix environment. As a bonus, my team only has to learn one platform. We can get more done with less training, but the economic impact is far greater than saving on employee instruction.

By moving to AVH, we saved $150,000 in VMware licensing fees alone. Using ESXi, we had to pay a fee for every virtual machine we were using, but there is no extra cost for spinning up VMs with Acropolis. We can now reallocate that money to Windows licenses and other applications so that we can offer our users a superior IT environment.

Scaling with a Small Team
RDS embarked on an aggressive program of mergers and acquisitions. As a consequence of this expansion, we tripled our IT user base from about 400 employees to more than 1,200 in the span of three years. And since we switched to AHV before we tripled our size, we've probably saved a total of $500,000 in VMware licenses.

We achieved this growth with a small IT team. Two of us handle network operations, and there are six people working on our help desk. We also work with four application engineers, who are all consultants.

Everyone has to pull their weight on such a small team, but if we're ever short-staffed, any one of us can pick up the slack. The Nutanix dashboard is highly intuitive, and we all know how to respond to an alert. Plus, we all know the technical wizards at Nutanix have our backs when the going gets rough. This new infrastructure has been a key part of how our small team has handled this level of growth.

Nutanix Magic Takes Center Stage
A couple of years ago, one of our Nutanix nodes failed. Our Network Operations Manager, Brandon Davis, didn't panic. The platform had already duplicated everything on that node to another one. I joke that it wasn't automatic—it was Nutanix magic. It booted from this backup and then took the defective node offline. Nutanix then assigned an engineer to replace it.

When the engineer went in, he unwittingly pulled out a live node. And so, we were left with two nodes out of commission and one confused tech.

Our production environment slowed down, but it never went offline. It took a few minutes to figure out the issue, but I wasn't worried. I stepped out of my office to take a look at our wallboard and saw that our systems and networks were fully functional.

Nutanix saved our skin.

A New Infrastructure Handling Exponential Growth in No Time at All

I'm proud of everything we've accomplished with Nutanix. It's a cost-effective solution that's easy to manage and has plenty of room to grow.

If we need more storage or CPUs, we can add a new node or another shelf. If we need a new VM, we can spin it up in Acropolis. RDS can double in size in a short period of time and never miss a beat.

Nutanix has also streamlined the way we backup and restore our production environment. It offers everything we need in a convenient package that combines hardware and software with excellent customer service.

There are few sure things in life, but if I had to bet on IT infrastructure once again, I wouldn't hesitate anymore. I would go all in and wager everything on Nutanix.