

NETWORK WORLD

THE CONNECTED ENTERPRISE

APRIL 9, 2012

+10

POWERFUL
IaaS COMPANIES



Infrastructure-as-a-Service

MOMENTUM BUILDING SLOWLY

I.T.
WORKS BETTER
TOGETHER.

See page
4

IT pro drives a cloud makeover

Mark Adams, vice president of IT at HireRight, is living the dream — the chance to completely rethink the infrastructure for a \$300 million software-as-a-service employment screening service company. While the nucleus of the 1,600 employee company has been around for 30-plus years, a three year acquisition spree resulted in data center sprawl, leaving the company with 10 facilities, including company owned and collocation and disaster-recovery sites, some of them overseas. Now HireRight is three quarters of the way through a consolidation effort with a heavy emphasis on cloud. Adams gave an update on the company's modernization progress to *Network World* Editor in Chief John Dix. (See tinyurl.com/ckm8ga2 for a full version of this interview.)



handle up to 300 milliseconds.

But it took a lot of mapping of business functions and groups, putting people into compartmental boxes — these guys should see this slice, these guys should see that slice of applications. So I'd say 50% of it is knowing what people need and getting them correctly allocated, while the other 50% is understanding the limitations of the technology and planning accordingly.

Is part of the goal to reduce the number of components and vendors you're dealing with?

Absolutely. One of the goals was to reduce the cost of administration, and there's not a lot of magic in how you do that. It's simplify, simplify, simplify. If something is complicated, it's going to take a lot of excess work to maintain.

So we looked to take redundancies out of the stack, to narrow it down to a certain set of vendors we felt comfortable with, and we did a lot of bake-offs. Since we are a security first organization, we pretty much encrypt everything. And we have to move large encrypted transactional databases across the wire. So where a lot of the architecture engineering time went was making sure we had that down.

What did you end up with after the simplification effort?

Well, on the server side we started out with the four top-tier vendors and baked it down to one. On the storage side, we had three vendors and baked it down to one. In encryption technology, we really only had three or four vendors we could look at and got that down to one. Load balancers, we had two companies we've worked with over the years and narrowed that to one. Virtualization, we looked at three top-tier ones and narrowed that to one. I have to say virtualization was kind of a horse race, actually. Surprisingly enough, the last time I did this four years ago, it wasn't much of a race, but we had several compelling reasons to go either way with the virtualization vendors.

How about some specifics on suppliers?

For server virtualization we use VMware ESXi. For virtual desktop, which is used on our internal facing cloud, we're using VMware VDI 5.0. And then for the server stack we have a combination of Linux Red Hat

► See Adams, page 18

Where did you start with this consolidation effort?

We are a software-as-a-service company and we looked at our 10 data center footprint and asked ourselves "do we really need 10?" So we started thinking about, if we collapse to this, if we refresh that, if we could go with one Tier 1 storage vendor, what did all of that look like? And as we kept going we finally realized that for HireRight four data centers is the best. In this case, more is not more; less is more.

When did you start the process?

Just about two years ago. And it's still ongoing. We have two different kinds of clouds, a customer-facing cloud, which supports the software-as-a-service portals, and an internal back-office cloud for operations. So we looked at what's the next step for that? If we could consolidate everything down and go 100% virtual and introduce some of the flashier elements of virtualization — dynamic processing, being able to move things around, if we could load up our blade servers with lots of memory — what would that footprint look like? And in our case, it got pretty lean, pretty dense.

On the back-office cloud, were you able to accommodate all the assets you came by in the acquisitions?

Yes. That was helped by the fact that a few years ago we went pretty heavily into virtual desktops. One thing that's unique about HireRight is we are a security first company, and then we look at performance and uptime. We are considered a credit reporting agency, so

when we built this thing out, VDI got a lot of our attention. You can secure it well and scale it extremely well. So that's what we built our cloud around, keeping the data in one spot, not allowing it to go anywhere.

How do you define cloud?

When we talk about our back-office cloud we're talking about a certain set of tools in the application tier that have to have maximum up time and have to be available from anywhere in the world. So we built a cloud stack around that.

We wanted to be able to expose one interface to our employees and then control the backend horsepower we throw at it and be able to shift that horsepower around depending upon where the work is at any given time.

So being an international company, we didn't want to be limited to having to VPN into one location. We built it around the idea that, anywhere you are, at any time, with your certain set of security protocols, we'll give you access. The data's going to pretty much stay where it is and not leave. So that's our definition of our internal facing cloud. We have accomplished that through a variety of technologies, but it's been scaling quite well. We've put thousands of workers on it.

How hard was it to get right?

HireRight has used Citrix for a lot of years and because of that we knew going in what does and doesn't work. One of the things we don't really care about is the network speed coming in. We've architected the solution to

Converged infrastructure creates new job roles

BY ANN BEDNARZ

AS THE IT silos come down, tech pros need to beef up their skills to stay relevant and maximize the business benefits of cloud computing, virtualization, unified networking and big data, according to Cisco and EMC, which have teamed to offer training targeted at tech's hottest data center disciplines.

New job roles are emerging as companies adopt converged infrastructures, shift to cloud architectures, and wrangle with massive data stores, and enterprises need to prepare the IT workforce to handle their new roles, the vendors say.

"There's some confusion around cloud, cloud-based services, and how to leverage the cloud as part of an overall organizational transformation. How do you move from classical data centers to virtual data centers to cloud-based data centers?" says Anthony Bryant, director of learning services at Learning@Cisco. "There's also confusion around how to transform the technical talent within this arena."

Unveiled this week, the training initiative from Cisco and EMC also includes resources from VMware. Their joint education bundles provide courseware and certifications related to cloud architecture, virtualization, storage, data center networking and data science. The bundles are organized around specific disciplines and job roles, including cloud

Skills gaps drive training investments

U.S. companies' **training budgets climbed 9.5%** to an average of \$800 per learner in 2011.

SOURCE: BERSIN & ASSOCIATES

architect, systems administrator, backup and recovery, data center network design and data scientist.

"The lines between the traditional silos, or pillars, in IT are starting to blur" in today's IT-as-a-service, cloud-based data center environments, says Alok Shrivastava, senior director of education services at EMC. "They have to, because one group or one function making a decision impacts everybody else," he says. "You might be a system admin or DBA or network admin, and you need to understand what's going on across the different technology areas in the data center."

In the Cisco/EMC/VMware training model, there's a path associated with each discipline that prescribes the required courses to become proficient. For instance, the systems administrator path requires these courses: Cloud Infrastructure and Services, VMware vSphere: Install, Configure, Manage, and Cisco Data Center Unified Computing Implementation (DCUCI). Someone aspiring to be a data center network architect could follow a learning path that includes these courses: EMC Cloud Infrastructure and Services, Cisco Data Center Unified Fabric (DCUFD), and Configuring Cisco Nexus Data Center (CCNDC).

IT pros can opt to purchase courses by the bundle or individually. The training is delivered via instructor-led courses, instructor-led video training, or, in certain cases, on-site instruction at a customer premises.

From the perspective of a CIO of a 1,000-person IT organization, "the success of cloud transformation depends on the team. Beyond the technologies, unless the team has bought into it and has developed new skill sets, the project could very well fail," Shrivastava says. "It becomes extremely critical for CIOs to transform the workforce." ■

q&a

► **Adams, from page 16**

and Windows, depending upon the function. We do mostly Oracle, but we do have some Windows SQL databases for reporting.

Are all your desktops virtual or just a subset?

Right now it's a subset. I'd say we're about 55% virtual. We do have whole offices on VDI, though. Our road map is to have pretty much everybody on a virtual solution in the next year and a half to two years. Our work-at-home teams are all on virtual.

Do you still use Citrix?

We previously used Citrix and transitioned over to VMware.

How about on the server side. What did you end up with there?

We are a Cisco UCS shop, but I'll tell you that was a really interesting bake-off. We were an HP shop. We had strong HP loyalty.

What swayed you the other way?

I'd say two things. There's the technology stack. UCS is very dense in terms of memory footprint which helps for virtualization, so

we saw a lift from that. But frankly it was the effort Cisco put in. They put a lot of engineering time against it to ask us what our applications did, what kind of CPU power we needed, what kind of memory footprint we had, and took the time to engineer it so we didn't have to overbuy.

Our primary U.S. data center is down in Nashville, and we put a lot of density in there because we realized it's not about the amount of square footage you have, it's how you use the footage. And we asked, how high can we stack? UCS can stack pretty high if you do it correctly, so we can get quite a few blades in each cabinet.

And do I understand you ended up with EMC on the storage side?

Yeah, EMC pairs pretty well with UCS. EMC put in a lot of effort helping us architect the right solution for VDI. With VDI it's not necessarily about how many spindles you have going, it's about how the data is cached in memory. So we did work with EMC, VMware, Cisco, Brocade, all these guys came together because we run a decent-size VMware VDI desktop implementation, so they were very helpful in getting it right. And on top of that, we have encryption engines running across

everything, so I'd say from a technology stack infrastructure perspective, it really was that kind of perfect blend of speed, virtualization, high uptime and high density.

So the data centers are finished, but how far along are you in the UCS build-out?

We have a lot of UCS chassis installed. As far as the actual migration, we're about 75% done. So that's why we feel confident at this point that we're seeing the returns that we've spec'd out. It's working quite well, and I'm very pleasantly surprised at just how far we can go. We started this project expecting to go from 10 to six data centers. But as we looked closely at it and at some of the redundancies we could eliminate, it became apparent we could go from 10 to four. We can't go much further below four because we have to keep an international presence and everybody has to have a DR site, so it was kind of the bare minimum.

So, is the cloud service you provide to customers supported by this as well?

Yes, we have similar type of infrastructure but split out into different security zones, etc. A combination of Java and .Net stacks, load balanced and secured. ■