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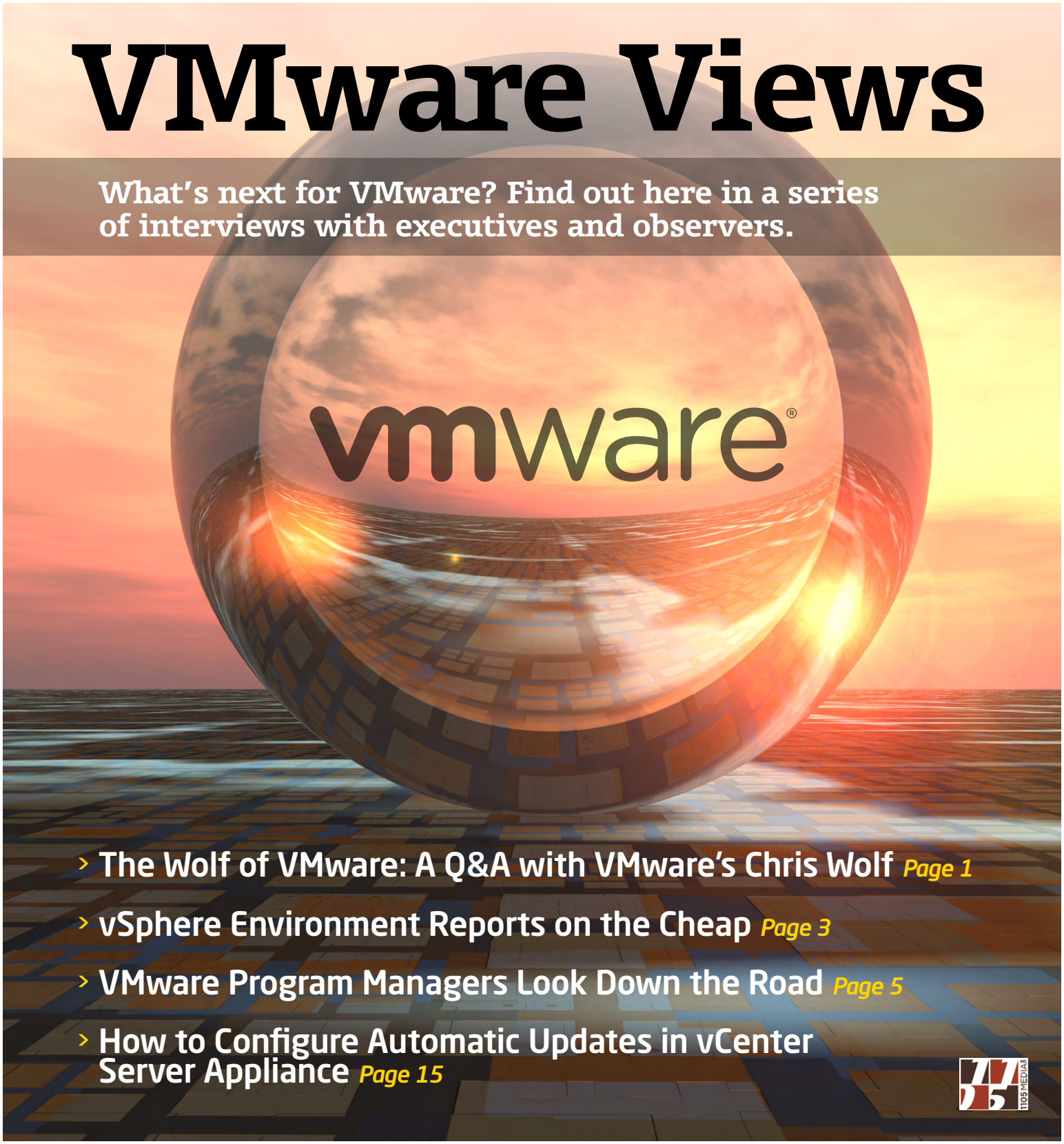


1105 MEDIA

The Wolf of VMware:
A Q&A with VMware's Chris Wolf

From Virtualization Review (kind of) to VMware Americas CTO, Chris Wolf runs to the top of the virtualization ranks.

By Keith Ward

Chris Wolf is one of the most recognizable names in virtualization. A former columnist for Virtualization Review, he's worked as an analyst for the Burton Group and Gartner Inc., and his opinions are highly regarded in the industry. Now he's taken on a new challenge with VMware Inc. Wolf shared some of his thoughts on the state of the industry and his new job with Editor in Chief Keith Ward.

Q: What are the biggest challenges you hear from customers regarding their virtualization efforts?

A: Chris Wolf: Organizations are often challenged with taking the next step. They have highly mature virtualization deployments, and want to realize the full benefits of a software-defined enterprise. They often see a future in running applications on lower cost x86 infrastructure that provides most compute, storage, network and security services. While they strive to reach the end state, they're unsure of how to safely navigate to it. Great use cases as entry points to a pure software-defined datacenter (SDDC) include development and test, tier-4 workloads such as back-end IT reporting applications, and modern Web-scale applications that run on a resilient application platform.

When the application stack is natively redundant, there's no value in running that stack on enterprise hardware with additional and unnecessary redundancy.

When the application stack is natively redundant, there's no value in running that stack on enterprise hardware with additional and unnecessary redundancy. As an IT team gains confidence with operating the software-defined environment, it can add additional workloads. This is a journey that will take several years, and finding the right use cases to be able to take that first step is critical.

Q: What are the most important future areas of virtualization, as server virtualization is well established now?

A: IT organizations are increasingly getting pressured to significantly improve agility. In most environments, storage, networking and security remain the primary provisioning bottlenecks. Virtualization

and software-defined infrastructure can shorten infrastructure provisioning from weeks to minutes or even seconds. You can also drastically reduce complexity... why are we still basing security decisions on an IP address, which is an arbitrary number that can change? That degree of complexity is unnecessary and illogical with today's technology. Once enterprises shift their security controls to be based on application containers instead of IP addresses, they often ask, "Why didn't I do this sooner?"

Q: How does VMware overcome the fear that some organizations have of vendor lock-in?

A: Lock-in fears are often driven by an IT services industry that wants enterprises to have complex environments so that they can sell them additional services and maintenance. I often tell VMware clients that complexity is great for profits, just not their profits. Fear over lock-in, combined with bad advice, can lead organizations to focus so much on capex savings that they're blind to significantly higher opex costs associated with integrating and operating several diverse platforms. Public cloud providers are highly standardized for a reason—they achieve greater scale and reliability at lower costs.

Lock-in fears are often driven by an IT services industry that wants enterprises to have complex environments so that they can sell them additional services and maintenance.

While basic math can tell anyone that fewer variables in a datacenter enables automation at lower costs, we understand that many enterprises require choice. VMware provides choice in multiple areas through our cloud management platform, vCloud Automation Center (vCAC). vCAC allows organizations to deploy applications and services to multiple cloud providers and to multiple virtualization platforms within their datacenters. On vCAC, our vSphere platform is just one supported platform of many.

Q: What do you do with VMware, and why did you join the company?

A: As the Americas CTO, I do many of the same things I did at Gartner. I work closely with the key decision makers at end-user organizations across the Americas and collaborate on their current and future needs. By staying in lock-step with our clients' strategic thinking, I'm able to work closely with our product teams to ensure that we're delivering the right technology solutions at the right time. My position allows me to have a direct influence on shaping technology's future, and that certainly motivates me to come to work every day. **VR**

Keith Ward is the editor in chief of Virtualization Review.

vSphere Environment Reports on the Cheap

PowerCLI and vCheck combine for a powerful, inexpensive solution. By James Brown

I prefer solutions that have proven reliability, a solid reputation and are either free or low cost.

In an enterprise vSphere environment, there are times where you need a lot of critical information about various vCenter servers, ESXi hosts and other components. I currently have a customer with an extensive vSphere environment who needs reporting done frequently, in detail, automated and sometimes on demand.

There are many third-party applications that will do the job, but some are very costly and have built-in limitations. I prefer solutions that have proven reliability, a solid reputation and are either free or low cost.

A current customer requested that my team provide detailed and on-demand reporting of their vSphere environment, at a thrifty price. Our choice was to utilize VMware PowerCLI. PowerCLI is one of the best VMware reporting solutions available, once you learn the basics and how to properly use it.

PowerCLI interfaces with Microsoft Windows PowerShell; it's a vendor-specific addition to the core Windows PowerShell environment. In this instance, I used a PowerCLI script called vCheck. This script searches the vSphere environment and can generate configuration,

status, summary and other detailed information on your vCenter, host, virtual machines, datastores, virtual networks and clusters. vCheck isn't well known in the VMware community, but it's extremely user-friendly.

Here are the steps to get vCheck up and running in your vSphere environment:

1. Download and install the latest versions of PowerCLI and Windows PowerShell. (If you're downloading the most current version of Windows PowerShell 4.0, please make a note that it's now part of the Windows Management Framework 4.0.)
2. Download the latest version of vCheck.
3. Ensure you have vCenter Server 2.5 or later.
4. Ensure you have a Microsoft Active Directory Administrator account.

Final configuration of vCheck is a somewhat lengthy, but straightforward, process.

Once you have the vCheck perquisites completed, launch your downloaded *.\vCheck.ps1 script from the PowerCLI command window. After the initial completion and configuration of the *.\vCheck.ps1 script, subsequent uses of the script won't require any additional input. Create a batch file to be run as a scheduled task:

```
C:\WINDOWS\system32\windowspowershell\v1.0\powershell.exe
 -PSConsoleFile "C:\Program Files\VMware\Infrastructure\vSphere PowerCLI\
vim.psc1"
 -command "&{C:\scripts\myscript.ps1}"
```

Save the batch file to run vCheck as a scheduled task (that is, vCheck.cmd).

You now have the necessary foundation established. Final configuration of vCheck is a somewhat lengthy, but straightforward, process: this vCheck Detailed Setup video will walk you through the remaining configuration and completion process.

Once your vCheck vSphere reporting project is complete, you'll have the vCheck script generating your automated, detailed and on-demand vSphere environment reports. The reports are customizable, allowing them to scale as your vSphere environment grows. You'll also save a lot of money over an expensive, but limited, vSphere reporting system. **VR**

James Brown, vExpert, VCP, MCSE, is a senior virtualization engineer and CEO of Virtuxperts and VMware Users Group Leader in Las Vegas, NV. James' area of expertise includes virtualization, infrastructure and Windows systems.

VMware Program Managers Look Down the Road

Top VMware executives driving strategies for end-user computing, network virtualization and hybrid cloud talk about the year ahead. By Michael Domingo

You've heard about the pressure VMware top-line executives face when it comes to executing on well-defined strategies, because you hear from them at VMworld and at every quarterly earnings call. But deep in the trenches, where the programming is mapped out and the marketing is formulated, that's where the program managers face career-changing pressures to implement and deliver the final product. In this article, you'll hear from Erik Frieberg on end-user computing (EUC), Steve Mullaney on network virtualization and Mathew Lodge on vCloud Hybrid Service (since renamed vCloud Air).

Erik Frieberg, Vice President, Product Marketing, End-User Computing

Q: Virtualization Review: Why all the fuss about EUC? Isn't it just about giving users what they want?

A: Erik Frieberg: Across VMware, as you're talking with other people here, you should be hearing a consistent message,that the environment is changing. You go back far enough, from the mainframe to client-server, to now, where we're entering the mobile cloud era.

I think what's changing consistently here is scale. You're always impressed by, in essence, the next scale. It's literally from what was thousands to tens of thousands to millions to, now, billions of users.

You're always impressed by, in essence, the next scale.

I remember marketing things around the dawn of the Internet... We'd take applications, maybe one where there might be hundreds of users making airline reservations, then exposing that to the Web where it might have tens of thousands or even a million users. And now you're out there with apps loading up on the platform with tens of millions or hundreds of millions of people.

The scale is consistently going up. With this, it's not just the scale, but the cloud delivery, the social aspects and the Big Data... We really see this evolving, not just for the users, but if you look in the organizations [it's] the number of apps having to roll out to internal people, to employees, out to their customers. So, the number of applications that people are interacting with has gone from thousands to hundreds of thousands. I think Apple is close to a million apps on their store. [It has] clearly billions of downloads, and almost a million apps just in the iTunes Store.

So, organizations are trying to figure out how they manage their mobile apps, their HTML, their internal apps they've had for 20, 30 years. It's a significant change.

VR: Give us some context and give us a view of the VMware vision as it concerns EUC.

EF: With VMware, our heritage is really around the virtualized infrastructure, starting off with compute [and] moving into storage and networking, and software-defined datacenter. [Our customers] are also probably using the cloud. We have this hybrid approach, where you can have your workloads on-premises or in the cloud. Then we

have the management and automation to make this highly efficient. As you move around, you're not doing this manually, you're doing it in an automated way.

The vision for this is what we call the software-defined datacenter. In the end user space, what we're doing is leveraging the infrastructure, but now going out to the end users, and asking, "How does this impact on-premises or the cloud... really, the management and infrastructure of devices affecting how you approach the desktop, how do you approach the mobile, how do you approach the social—another way to say this is files and collaboration.

What we see is that PCs with Windows are just about a third of the operating systems, so it's a lot of mix and match of BYO Android or iOS.

Even the idea of not treating those three different things as siloed, for us in End-User Computing, the idea of a virtual workspace ties all these applications together to a single workspace that is location-independent, device-independent, and gives you access to everything you need to get the job done. It really doesn't matter if you're a desktop user, mobile user.

We call this vision our secure virtual workspace. We like to say it's for enabling you to work at the speed of life. It really transforms the two dimensions we see in the marketplace around desktop Windows application delivery and what people are trying to do with the mobile space, with the mobile apps, the tablets, iPads, all that infrastructure, and bringing it together into an environment that can span your desktop and laptop and tablet.

If I asked you several years ago, "What's the dominant operating system that your business systems are riding on from an end user's perspective?" you would have said 99.9 percent, it's Windows. Now if I ask you today, if you think of all the devices your users are using and the breakout of operating systems. We go to a lot of companies and what we see is that PCs with Windows are just about a third of the operating systems, tablets are making huge inroads, and so it's a lot of mix and match of BYO Android or iOS. And the surveys are showing that the devices are about a third iOS, Android, Windows.

Similarly, if you start to look over at what's going on with location, as well as files, I talked to people who say, "I don't have a Dropbox solution, I have a Dropbox problem," regarding the management of content. The other aspect is, as you get proliferation of devices, my

Mac can't run Windows software natively, so should I build an iOS application directly, or should I go HTML5. And what about Android in the mix?

So, as we approach the market, that's what we hear that the market is struggling with as far as: "What's my desktop infrastructure? Here, it's VMware or Citrix. What am I doing on the mobile side? It's AirWatch, Good Technology, MobileIron... There's a lot of interest in social, and VMware's a leader here with SocialCast and Jive. But I also need my data, Box, Dropbox, AirWatch, and I need something to tie all this together..."

Getting a predictable monthly bill from VMware is an easy way to go.

What we saw was a lot of opportunity in this area, but people are kind of frustrated with what we call "point solution pileup"—all these individual solutions, but not working together. When you take a business process like onboarding an employee, it could take weeks. You get them their Mac on day one, but getting them access to applications might take days after that, and even weeks. And then there's also the informal software—"Oh, we use Dropbox to share things"—that lie under the corporate radar.

VMware saw an opportunity here, where we said we can bring all this together between our access on the Horizon side and acquisition of AirWatch to tie together your desktop, your mobile, as well as all these things we like to call workplace services—identity, social, data—together to this single, secure environment.

That's the background of the story. Things we've done to progress this story: Almost a year ago, we acquired Desktone and we saw this opportunity to see more and more companies decide that they want to get their desktops from the cloud. Three things were driving this. One was predictable economics. It's definitely true; I think you can run [on-premises] virtualized desktops cheaper than you can get them from the cloud, but at the same time, you have to take the risk of the up-front investment to do that. Getting a predictable monthly bill from VMware or one of our partners is an easy way to go. Second, we see is skills. Maybe you don't have the right people because of geography or other things to run this for you, so a lot of people want to go to Desktop as a Service because they don't have the skills. Third is seasonality. We just came out of tax season, so we can think of a company that, for four months out of the year, might have

an increase of 20 percent in employees, or other organizations that have high numbers of contractors. The overall number of IP is relatively flat, but different groups are adding and subtracting significant numbers.

So, there's a huge opportunity in what we're seeing in Desktop as a Service delivered from the cloud.

We've made announcements around Cisco and what we're doing there, in essence, providing the infrastructure for this cloud business, with F5 and networking, and with Google and Chromebooks.

We see significant penetration with Google Chromebooks into classroom environments, particularly around management.

We see significant penetration with Google Chromebooks into classroom environments, particularly around management. Chromebooks are a very easy-to-manage device. That's great—I can get access to all these HTML apps, but what about all the Windows apps in my corporate environment, or even schools? So, we're partnering with them where schools or enterprises can use a Chromebook, but then get all the Windows apps or desktops delivered down to them so they can run them in the environment.

VR: EUC has a wide spectrum of products right now. Is there some difficulty in keeping them strategically aligned with the mission of the group?

EF: It's wide, but not wide, at the same time. The end user is the target person we're focused on enabling. I think that is well defined. It tends to be people who work in enterprises or in an education environment. But the focus is really around application or desktop experiences. The complexity that's happenings is that idea that I'm in a single or two locations running a Windows PC has changed. Now, there are questions around: I want access to this app on an iPad; I'm moving around to different locations; adding new capabilities.

End users are starting to be more demanding, so how do I still deliver all those utilities that an end user needs, but do it with the right security and compliance and desired productivity. The target remains very focused; we're just adding more components to offer a more complete solution.

VR: It seems like you're working in a more flexible environment, as opposed to the days when you were focused mainly

on Windows solutions. The cloud changes things.

EF: I'd call those days monolithic. People want choice around different types of apps, different locations, different devices. We have a demo where we literally show you going from using a PC at your desk, but then closing it down, taking a phone, plugging it into a monitor and guess what happens? Your entire desktop reappears just as the state you left it. The flexibility of how I access information from any device from any location we can easily see.

Steve Mullaney, Senior Vice President and General Manager, Networking and Security Business Unit

VR: Before we start, can you tell me about the name, Nicira, and also about the naming of the product, NSX? Is there any relation?

Steve Mullaney: The classic thing with startups, where before I even got there, all the domains were taken. Nicira is actually a Sanskrit word meaning "vigilant." The company from the very beginning was very security focused. Martin Casado used to work for the intelligence agencies before he went to get his Ph.D. at Stanford. A lot of our early work was with the NSA and CIA and others, so there's always been a big security bent. So, vigilance and being vigilant says a lot of things from a security perspective. The domain wasn't taken, we liked the word, we took it.

It is interesting, even back then, when you look at network virtualization, the real benefit is you're changing the operational model of networking and security, and not being coupled to the physical infrastructure and creating a programmatic environment such that now you can, in software, decide what you want to go and do. It's like what happened with compute virtualization: Once you decouple, now you can enable innovation. The area that we're going to be focused on probably for the next few years, even maybe a few more, is security. That's going to be a huge push for us at VMworld. Now that you've decoupled and now that you have all this context of the information of where you're at, there's a lot of things we can do from a security perspective that you can't do in a hardware-defined datacenter. That innovation is something we had as a vision back at Nicira.

Here's what is going to happen in a software-defined datacenter: Security is going to be better. Now, once you've decoupled and now

once you've created this, where you virtualized all the physical infrastructure, you're now going to be able to make everything better. And the first thing we're going to prove that on is security. It's a huge opportunity.

VR: What does that tell VMware's security partners? Does this become a competitive thing or is there a cooperative opportunity?

SM: That's the great thing about it. I was at Palo Alto Networks for two years. I was interim CEO there, it's my second-favorite company. Guess what? They're a partner of ours. It's probably one of the best partnerships I've been involved in, in my 30 years. In most partnerships, there's someone who kind of mostly wins, and someone who mostly kind of loses. And then it eventually deconstructs; the guy who's losing figures it out.

In most partnerships, there's someone who kind of mostly wins, and someone who mostly kind of loses.

This [partnership] is actually a win-win situation where it is very complimentary to what we're doing. We're creating an ecosystem where, because of what we're doing, we're actually enabling Palo Alto Networks to plug into our platform and sell the VMware series of their firewall, where before they were having difficulty getting it into datacenters. It didn't have live line rate performance, the operational model wasn't very good... so it was really difficult for people to deploy and it was performance-limiting. Now that they plug into our platform, we handle a lot of the operational model and we can offload them such that only the traffic that needs advanced firewalling, like the app binding, the content ID, we can steer to their VM series only the traffic that needs to get there, so that they're not getting flooded with all that traffic. We can handle all the other stuff with our firewall that's built into NSX. It's a very complimentary solution that customers absolutely love.

And it's a great example to all the ecosystem partners that says, "We're not coming after your business; we're actually going to enable you to sell more." It's also going to enable us to sell more. But think of us as a networking and security virtualization platform, upon which we're going to partner with all kinds of people, and it's going to be a one-pus-one-equals-three type of model.

VR: What's the state of NSX at this point? It's been a year since the acquisition, so how much of your master plan have you seen take shape?

SM: 2013 was all about insertion. It's the classic Geoffrey A. Moore's "Crossing the Chasm." You got a classic transformation, you got new technology, you've got to go to the early adopters. You've got to get them to implement, you've got to prove it, you've got to get customer references, such that the people across the chasm, they won't buy unless the crazy people have bought first. So, 2013 was about getting the crazy people to use it.

Where we're at now in 2014, I don't know if I'd say we're fully across the chasm, but we are for sure just about across. It's not the crazy people anymore. It's everyday enterprises. We've pretty much been, since the start of 2014, integrating it into the VMware sales organization. That's pretty much all I've spent my time on. It's now about ramping and scaling. This is the crossing-the-chasm type of thing, we're we saying this thing needs to scale, which means we need to empower VMware, we need to empower the VMware channels. It's hitting across all verticals. It's kind of in that mode right now where we're getting tremendous pull from the market.

Matthew Lodge, Vice President, Cloud Services

VR: Can you give us a year-later assessment of VMware's standing among the competition of hybrid cloud players?

Matthew Lodge: Clearly there has been an uptake in interest among customers of the hybrid cloud over the last 12 months. When you look at the surveys from Gartner and Forrester Research, the one message that comes through clearly is that customers are much more interested in hybrid cloud. Part of the reason for that is, they realize that they're going to have an array of datacenters plus cloud technology, and they're going to want the best of both worlds.

I think what has happened as a result is that essentially we can go and talk about cloud washing, and maybe folks like IBM can claim that their hosting is just like cloud—well, no, not really. The thing about the cloud being about programmatic control, APIs and not using tickets like having service on the Internet, I think the same thing is going on with hybrid cloud. The thing that matters to customers is the integration between the two worlds. They're in datacenters, what they're doing in public clouds, that's what's interesting and valuable to them. Hybrid cloud is not just like saying, well, you have your datacenter and I have a cloud, can we put the two together? In terms of the state of the hybrid cloud, that's where we are.

What we see from our customers, VMware has a very interesting value proposition for them in terms of making it easier to adopt public cloud and making it much easier to extend what they currently do and therefore keep their costs down. We remove a lot of the barriers to cloud adoption and at the same time open up a pathway for them to transform how they build and run applications, modernize and build new applications, and take advantage of cloud infrastructure.

In terms of companies being really successful with hybrid cloud outside of VMware, Microsoft is giving it a strong play with Azure. I think Rackspace was very much on the hybrid track, but that's been very challenging for them. The fact that they're for sale is dampening their ability to execute.

There's no point trying to focus on any particular competitor because you'll just always be behind because you'll never understand what your customers want.

VR: You mention Gartner, and we follow its numbers. What it says is that vCloud Hybrid Service competes directly with Amazon Web Services. Does that type of competition shape your strategy or have any bearing on what your plans are moving forward?

ML: We don't have a strategy of chasing anybody. Our objective is to understand what our customers do and then execute on that as quickly as we can and as strongly as we can. There's no point trying to focus on any particular competitor because you'll just always be behind because you'll never understand what your customers want.

What we saw from our customer base is that customers like the idea of a public cloud, but the challenge was it was radically different in how it operated in the View model of applications, how they managed it, how they did networking, how storage works... all of those things were all different. What that led to was very niche adoption for enterprises. They didn't have a clean plate. It was very hard to adopt. So, you basically had to build something from scratch in order to do anything. So what we saw was some value that we could deliver to customers that want all the benefits of public cloud, the ability to adopt it very easily, the dynamic nature of the agility, but at the same time you also want to be able to leverage your existing investment in applications, data and infrastructure in your team. That was the problem we set out to solve, and that led us to implement and do different things.

Hybridity is a core value proposition for vHCS.

I wrote a blog post, turned out to be one of the most popular blog posts of all time, which is about, "Here are the 10 things you can do on vHCS that you can't do with AWS." It's a very concrete way of encapsulating how we're solving a different problem.

VR: That brings me to my last question. Can you let us peek into your plans moving forward as you approach VMworld 2014?

ML: We've been very clear about the geographic expansion. We added the New Jersey location to the U.S.... and we're continuing our expansion into EMEA and APJ. We're going to continue to do that. We've come a long way in nine months from when we first talked about capabilities last year and that's a very important thing to our customers. The other thing is we're going to continue to deliver hybrid capabilities. Hybridity is a core value proposition for vHCS. It's very easy for organizations to bring along what they already have, link their existing applications to the public cloud and do that in a very seamless fashion. **VR**

Michael Domingo has held several positions at 1105 Media, and is currently the editor in chief of Visual Studio Magazine.

How to Configure Automatic Updates in vCenter Server Appliance

By Rick Vanover

If you haven't given a good look at the VMware vCenter Server Appliance (vCSA) since version 5.5, it's time to do so. The vCSA has a good use case and increased scale compared to previous editions. I've been using it in both production and lab environments, and I wanted to take a look at one feature in particular: Automatic Updates.

I've given a lot of thought to the update process for my vSphere environment. In the early days of my virtualization work, I was very

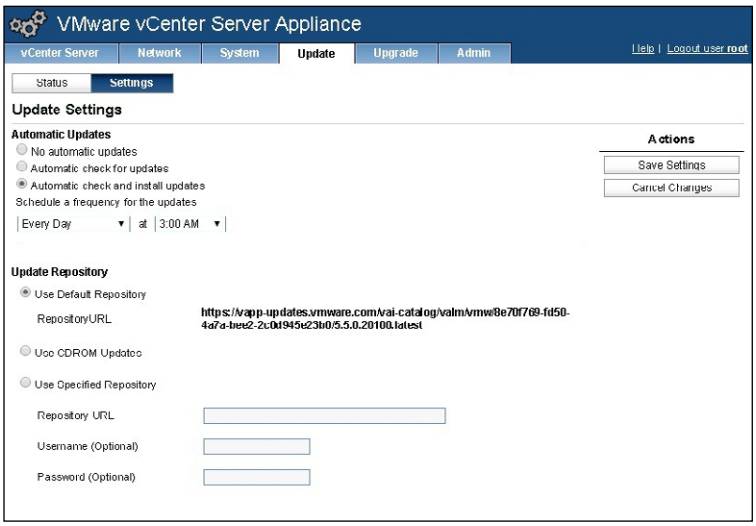


Figure 1. Configuring Automatic Updates in the vCenter Server appliance.

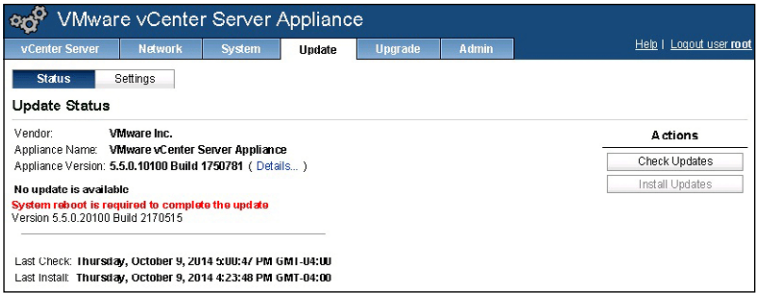


Figure 2. Updating the vCenter Server appliance.

standoffish about updating in general. As I became more comfortable—regarding infrastructure supportability, in particular—I was much more willing to update. The update process is different than the upgrade process, which installs major versions. vSphere Update Manager makes easy work of the process, and continues to make it easier for vSphere administrators to keep the components both updated and upgraded.

The job of vCSA is to host the vCenter Server application, and that application needs to be updated occasionally. The good thing about the appliance is that it's quite easy to do with new (since vSphere 5.5) Automatic Updates. The Automatic Updates feature is configured in the administration page (5480 port interface) of the vCSA, as shown in **Figure 1**.

As a safety feature, once updates are retrieved, the vCSA has to be rebooted. This is a good safeguard, as you wouldn't want to have a high availability (HA) event or Distributed Resource Scheduler (DRS) rules not perform as expected. When Automatic Updates has an update that needs to be installed, you simply reboot the vCSA. You'll see a message similar to **Figure 2** when you have an update eligible for installation.

Upon the subsequent boot, the vCSA will have the newer build and be updated. If you're using the vSphere Client (Windows application), you may need to update that, as well. This is a pretty seamless way to update the vCSA, and has served me well thus far. Are you using the Automatic Updates feature? If so, how has it worked out for you? Let me know in the comments. **VR**

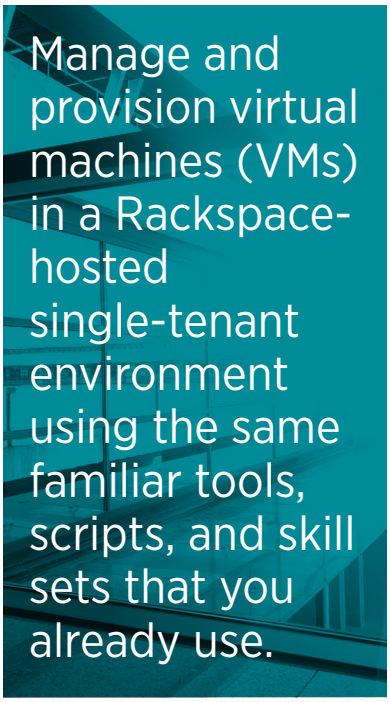
Disaster Recovery Planning

Be Prepared with Disaster Recovery-to-the-Cloud

Challenge

Worse case scenarios do happen. Unfortunately, many businesses are not prepared for them. IT assets around the world remain unprotected and vulnerable to unexpected outages because traditional disaster recovery (DR) solutions have been overly complex and costly to deploy. They've also been a hassle to maintain. Yet all that is changing for companies interested in self-managing their DR plans.

A DR-to-the-cloud deployment that leverages Rackspace® services and VMware® and EMC® technologies is practical and affordable for organizations of all sizes. It helps make the restoration of your business operations possible by replicating both the enterprise application environment and the data hosted by the applications running on-premise. Unlike a backup model—where data must be restored to the original application environment—DR-to-the-cloud brings replicated data up at a service provider site. That data then temporarily runs on a replicated application environment at the target site to help ensure complete business continuance until service onsite can be restored.



Solution

Your organization can self-manage a validated DR-to-the-cloud configuration that combines Rackspace's Dedicated VMware® vCenter Server™ offering with three proven technologies—EMC® RecoverPoint appliance (RPA) for bidirectional replication, EMC® VNX® series for SAN storage, and VMware® vCenter™ Site Recovery Manager™ for runbook automation and failover protection.

Dedicated vCenter lets your IT team manage and provision virtual machines (VMs) in a Rackspace-hosted single-tenant environment using the same familiar tools, scripts, and skill sets that you already use to manage your onsite VMware environment. RPA provides bidirectional data replication between the source data center and the Rackspace target site. Off-premises, Rackspace provides VNX series storage, a leading hardware array for file, block, and object storage that remains synchronized with your onsite storage array via replication.

Because Dedicated vCenter provides direct access to the VMware vSphere® API, your central IT organization can leverage its own license of Site Recovery Manager to provide automated failover of on-premises production environments to the Rackspace target site. While automating and simplifying the recovery process to a DR site, Site Recovery Manager also allows your IT team to create recovery plans, perform non-disruptive testing, automate the execution of recovery plans with a single command, and reconfigure VM networking at the recovery site.

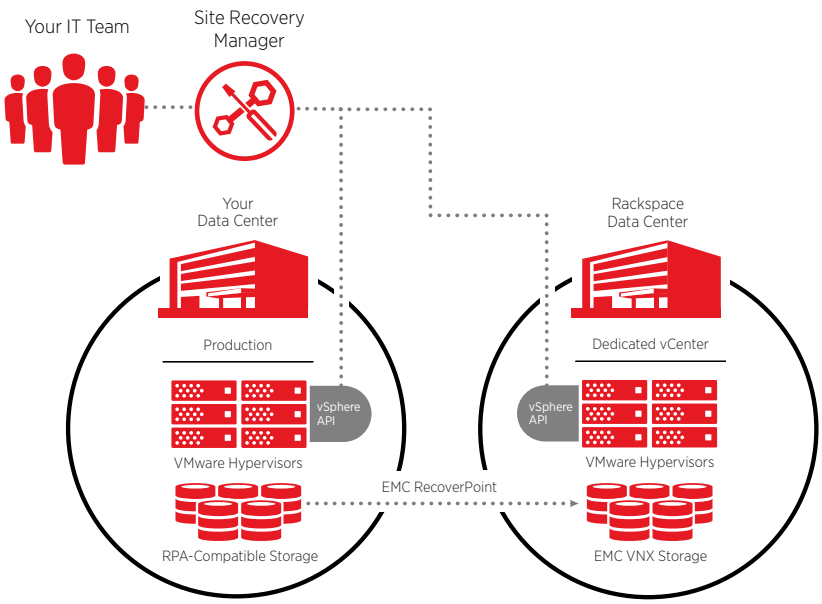
Integrated, self-managed DR-to-the-cloud deployment benefits:

Save **Time**

Lower **Costs**

Keep **IT Control**

Gain a Trusted **Service Partner**



Benefits

An integrated, self-managed DR-to-the-cloud deployment provides an effective alternative to expensive, onsite DR solutions. Give your organization the insurance policy it needs to quickly recover critical business processes and achieve the following benefits:

- **Save time** – Because internal IT staff manages your DR plan, your business can be assured business-critical applications will successfully be brought up within the recovery point objectives (RPOs) and recovery time objectives (RTOs) defined by your specific business needs.
- **Lower costs** – Instead of building out a dedicated DR data center, your business can simply replicate critical VMs to the target recovery site. IT can also leverage your DR footprint as a development and testing (dev/test) sandbox using Site Recovery Manager to automatically power down the dev/test VMs and power up the production VMs specified in your recovery plan.
- **Keep IT in control** – IT staff can use your organization's license of Site Recovery Manager or any other DR tool compatible with the vSphere API to manage your recovery process.
- **Gain a trusted service partner** – Rackspace has over 14 years of experience and more than 40,000 VMs under management, and the company offers its exceptional customer service, Fanatical Support®. VMware Certified Professionals at Rackspace are available to help your IT team architect, implement, and troubleshoot your hosted environment.

For more information, visit
http://www.rackspace.com/managed-virtualization/dedicated-vcenter

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