VMWARE USES ITS OWN VCLOUD DIRECTOR SOLUTION TO CONSOLIDATE INTERNAL CLOUDS AND EXPERIENCE CUSTOMER CHALLENGES

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INDUSTRY
VIRTUALIZATION SOFTWARE

LOCATION
PALO ALTO, CALIFORNIA

KEY CHALLENGES
- Learn firsthand what it takes to run an IT-as-a-service operation.
- Consolidate many clouds into a single cloud for all internal services.
- Capture the efficiencies and ease of the cloud for internal usage.

SOLUTION
VMware consolidated many clouds into one with the VMware vCloud Director solution and the rest of the VMware stack. The company's internal OneCloud platform now runs more than 90,000 VMs, with 90 percent of them on the vCloud Director platform.

BUSINESS BENEFITS
- Internal customer costs shifted from CapEx to OpEx with transparent billing
- Overall CapEx reduced by eliminating small independent systems
- Customer support cases resolved more quickly with easy environment replication

When VMware was looking to consolidate many of its own small internal clouds into one cloud for improved efficiency, the company wanted to learn firsthand what it takes to operate its IT organization as an internal service provider. Powered by VMware vCloud Director® cloud management, VMware launched its OneCloud platform in 2012 that now runs more than 100,000 virtual machines (VMs) for internal users. The solution has eliminated the need to manage many small systems, reduced CapEx, improved and automated security, and shifted internal customer costs to OpEx.

VMware, a global leader in virtualization, cloud infrastructure, and business mobility solutions, helps enterprises accelerate their digital transformation with solutions for the data center that help its more than 500,000 customers and 75,000 partners around the world be more agile and profitable.

The Challenge

Back in 2010 and 2011, VMware observed that many of its customers were wrestling with their shift to the cloud, and the company wanted to better understand the challenges these customers were having implementing its products in real-world conditions. In addition, numerous VMware business units and groups had created their own small clouds over the years and the company was experiencing "cloud sprawl," akin to the server sprawl organizations used to deal with.

The proliferation of small clouds was leading to poor resource utilization, possible security vulnerabilities, and duplication of efforts, as well as straining the CapEx budgets of some internal groups. VMware wanted to pool resources to reduce equipment requirements, CapEx, and administration costs, while also providing increased interoperability and visibility into usage. The goal was to more fully capture the efficiencies and ease of the cloud for internal cloud services while learning about the challenges its customer IT organizations experience.

The Solution

VMware launched its OneCloud project in 2012 partly to consolidate its disparate internal clouds into one cloud program. "One purpose of OneCloud was to take our department and transform it into an IaaS service business, so our IT team could learn firsthand what it takes to run an IaaS operation, just like our customers," says Matthew Meyer, OneCloud solution architect.

The OneCloud team considered several options, including solutions based on OpenStack open source software; but the decision to use the VMware vCloud Director platform and the rest of the VMware stack—VMware vSphere® server

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MATTHEW MEYER
ONECLOUD SOLUTION ARCHITECT
VMWARE

VMWARE FOOTPRINT
• VMware vCloud Director
• VMware vSphere
• VMware NSX
• VMware vCenter
• VMware vRealize Automation
• VMware Integrated OpenStack
• VMware vRealize Operations Manager
• VMware Virtual SAN™

PLATFORM
• VMware Cloud Foundation packages
• Cisco UCS

virtualization, VMware NSX® network virtualization, and VMware vCenter™ server management—offered several advantages. First, most internal groups were already using these tools. Second, VMware believed in "eating its own dog food." As Meyer explains, "We believe that making our developers feel our own products' pain points leads to better end products."

The OneCloud team spent three months working with architecture and infrastructure teams, product managers, and development teams to meticulously craft a stable architecture. Then they bought the hardware, which includes a mix of Cisco UCS and VMware Cloud Foundation packages that roll up a Software-Defined Data Center (SDDC) with equipment from different vendors that they configure into a tested and validated solution, with a little automation input.

OneCloud is now running more than 550 virtual data center environments that are built upon 22 different cloud instances. The platform runs more than 90,000 VMs with 706 terabytes of memory and 18 petabytes of storage allocated, with 90 percent of those VMs on the vCloud Director platform. The other 10 percent of the VMs are on one of the two other cloud management platforms that OneCloud operates: VMware® Integrated OpenStack and the VMware vRealize® Operations Manager™ solution.

All OneCloud tenant workloads are placed in OneCloud based on their business criticality, separating production and nonproduction workloads, with three tiers of service available. OneCloud operational teams are spread across the globe, supporting customers around the clock. Development teams regularly work with customers to develop new add-on services to meet requirements.

The OneCloud team is tasked with running prerelease VMware software for four weeks before the software ships, acting as a final test gate for core products. The process frequently catches minor bugs that occur at extreme scale and sometimes catches showstopper bugs that are extremely valuable to identify.

Business Results and Benefits

The OneCloud initiative has allowed VMware IT staff to experience and learn from every stage of launching an IT-as-a-service business, allowing them to better understand their customers and build better products.

Thanks to OneCloud, VMware can now meter and report on utilization across each business unit for the first time. This enables the company to accurately charge each group for the actual internal IT services they use. Meyer explains that "by the way OneCloud is funded and charged, internal customers are able to basically eliminate their CapEx costs, shifting them to OpEx."

One of the first OneCloud tenants was VMware SC Labs, a group that provides hundreds of VMware sales consultants the resources they need for software demos. Previously, engineers were given their own little stacks of servers and storage that sat under their desks. SC Labs moved it all to OneCloud, which allows it to save significantly on CapEx, reduce administrative headaches, and improve performance and reliability, benefits enjoyed by other OneCloud users as well.

For example, the VMware support team needs to reproduce bugs related to support cases within specific customer environments. It can now rebuild the environment in OneCloud and then try to reproduce the bug instead of buying and setting up hardware to reproduce the environment. By using OneCloud, the support organization now resolves cases much faster, which Meyer calls "a pretty big win."

The education group, a revenue-generating tenant of OneCloud, had increasingly demanding requirements for online training and event-driven surges in usage. OneCloud met its needs by providing high-performance cloud availability service-level agreements (SLAs).

Before OneCloud, the VMware network security group had to continually evaluate different requests from different teams. By consolidating to OneCloud, it has a known architecture with three defined security zones, each preapproved by the security team. "As we deploy a tenant in a certain security zone, the environment automatically inherits all the security requirements dictated to us by the security team," explains Meyer. "The vCloud Director solution just makes it incredibly simple."

Looking Ahead

Meyer is excited about future vCloud Director development and improvement and will upgrade OneCloud to the newest version. "vCloud Director is always going to be our main platform," says Meyer, "and we're working with the development team to get a list of desired features into upcoming versions." The OneCloud team is also continuing to evolve its VMware vRealize® Automation™ platform and is evaluating the emerging open source Project Photon OS™ by VMware.

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