US Federal Agency

PROFILE

Industry
Government

THE NUMBERS

- 10,000+ user on the private cloud
- Virtualized 10,000+ mailboxes of Microsoft exchange 2007
- Virtual-machine provisioning in less than 60 minutes

IN BRIEF

Objective
- Increase agility with faster provisioning.
- Ensure data security in multi-organization agency with multiple security profiles.

Solution
- Build private cloud delivering self-service provisioning capabilities out of a catalog of pre-configured environments, with the flexibility to re-use the existing IT resources.
- Control access to information and resources according to security profiles.

Business Impact
- Speed provisioning from one month to less than one hour.
- Provide a secure environment for sensitive data.
- Meet SLAs through highly scalable, adaptable, resilient infrastructure.
- Deliver services at a far lower cost: Consumption to become better custodian of taxpayer and environmental resources.

Federal Agency Gains Agility through Private Cloud Integrating Existing Collaboration, Security Solutions

"VMware enabled us to leverage best-of-breed vendor products and homegrown applications to build a cohesive, integrated and secure solution for agile service delivery."

— Architect, Federal Agency

A U.S. Federal Agency that several years ago virtualized its datacenter on the VMware vSphere platform has implemented VMware vCloud Director and VMware vShield to further improve IT services to internal customers. The result is a true private cloud featuring agile self-service, pay-as-you-go chargeback and robust security.

Three key elements of this project are noteworthy: (1) Self-service in the private cloud gives IT customers a simple, two-minute ordering process for provisioning a virtual machine in less than an hour. (2) The agency, which includes multiple organizations with multiple security profiles, uses VMware vShield to segregate the virtual environment so that end users may access only the data and capabilities for which they are authorized. VMware vShield App automatically deploys applications to the appropriate vShield security group. (3) The open nature of the solution allowed the agency to integrate its Microsoft SharePoint, Cerberus security and internally developed chargeback applications. This preserves and extends the value of existing IT investments.

"We built a service catalog of different operating systems for internal users," says a system architect with the agency's IT operation. "The benefits include ease of deployment and use, and the ability for a user to automatically log in to their cloud and see their resources at the click of a button via any Web browser anywhere."

Agility Goals Prompt Creation of Private Cloud Environment

The agency employs more than 10,000 workers, including office staff, engineers and executives. The IT organization serves two main types of internal customers directly: IT service providers and programmatic users with special business requirements. Virtualized applications include Microsoft SharePoint 2007, Microsoft SQL Server 2007 (upgrading 10k+ users to 2010), Microsoft Exchange 2007 (migrating 10k+ mailboxes to 2010), Lotus Notes, IBM WebSphere and BlackBerry Enterprise Server.

Virtualization of some 50 percent of the datacenter environment several years ago enabled the agency to decommission legacy hardware, cut energy costs, reduce consumption and speed provisioning. ROI anticipated in two years had actually occurred within nine months.

"We reduced capital expenditures – we don't have to buy as many servers – and we reduced operating expenses with lower cooling, power and management costs," the architect says.

Success prompted the agency to tackle remaining bottlenecks. The standard process for ordering virtual machines still took too much time. Virtual-machine administrators would send out a detailed email; the IT organization then filled the request. All of this took a day – a vast improvement over the month it took pre-virtualization – but the agency wanted a more automated means to deploy resources to users faster.

That led to creation of the private cloud environment delivering Infrastructure as a Service (IaaS). The agency used assistance from VMware Consulting and a VMware Technical Account Manager (TAM) onsite to accelerate the project for completion within a year instead of the two or more it otherwise would have taken. The VMware team introduced agency engineers to VMware product managers, who in turn oversaw customization of VMware solutions to accommodate the agency's particular use cases.

The availability of Application Programming Interfaces (APIs) in vCloud Director and vShield allowed integration with existing solutions including SharePoint, Cerberus authentication and an in-house- developed chargeback tool.

"We leveraged best-of-breed products and built a cohesive, integrated solution that serves the needs of our user community," the architect says.

vShield Enables Robust Security Across Multiple Profiles

The agency deals with sensitive information across multiple organizations with different security models, which map to different security zones within the VMware architecture. They use vShield to provide that segregation into the virtual environment, mapping the same security model on a physical environment into the virtual infrastructure.

"One of the biggest questions in the adoption of any cloud platform is security," the architect says. "We mapped our physical security requirements into the virtual environment, leveraging vCloud Director and vShield. That enabled us to transform the way we deliver services. In a physical arena, security requires many touch points, many individuals to configure and set up. In a virtual arena, all of that can be orchestrated for you. It drives agility, both in service delivery and on the security side. Every server provisioned in the private cloud meets all of the agency's security requirements."

IT Customers Gain Fast, Easy Access to Virtual Machines

To provision a virtual machine, an agency IT customer logs onto a vCloud Director portal in SharePoint; fills out a simple request form; and enters his security credentials and billing information. That process is 80 percent faster now than it was previously with email. For example, the administrator might wish to deploy a server-based application, such as Microsoft Exchange, to agency end users: "That IT customer can now go directly to the cloud, provision a machine on demand and run their workload on that system," the architect says. "In turn, the office worker who uses the application is going to see more solutions available to him, with a far quicker turnaround cycle."

For the first time, the agency IT organization is able to provide active service level agreements (SLAs). "That's something we couldn't do in a physical environment, because most of the physical servers were single points of failure," the architect says. "By building a highly scalable and adaptive virtual infrastructure, we can provide SLAs to IT customers based on the level of service they select."

For the future, the agency is conducting a desktop virtualization pilot with VMware View and investigating VMware vCenter management products such as Capacity IQ to balance business demand with IT supply.

"It gives us a 'single pane of glass' for transparency," the architect says. "Cloud users will be able view the availability of their deployed vApps and the environment as a whole. What we've achieved here is the vision of the cloud deployed in reality."

IMPLEMENTATION OVERVIEW

VMware Products:

ware vSphere 4.1

VMware vCenter Server

VMware vCloud Director

VMware vShield 1.0

VMware Services:

Consulting

TAM

Applications:

Microsoft SQL Server 2007

Microsoft SharePoint 2007

Microsoft Exchange 2007

Cerberus Security

Lotus Notes

BlackBerry

Platform:

HP Blade Servers – C class chassis

NetApp V-Series Storage

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