Just-in-Time Application Delivery with App Volumes

Simplify VDI application management and delivery, with near-native performance for your users with Horizon App Volumes™ backed by Pure Storage.

The Challenge

Managing application installations, upgrades and licensing on both physical systems and desktop pools in a constantly changing environment can present increased challenges. The unpredictable nature of application lifecycles and user requirements can force IT to manage the applications at the virtual desktop master image level. This creates a complex environment of multiple desktop pools and desktop images that need to be maintained individually, simply because the application stack is slightly different amongst their user base. It also forces unnecessary desktop pool maintenance, when applications need to be updated. System performance and reliability are also critical as low latency response times are needed even while the system is scaled or maintenance activities are performed.

The Approach

To take on this challenge we need a new approach to managing applications for virtual desktops. An approach that allows for a very dynamic or Just-in-Time model to delivering the right applications to the right user at login. To succeed it needs to be done in a way where the experience is not only seamless to the end user (i.e. sub-millisecond latency), but allows for simplified management of the VDI solution.

The Solution

By leveraging Horizon App Volumes with a high-performance all-flash storage infrastructure from Pure Storage and Dell Servers, we are able to provide a seamless application delivery experience that performs as close as possible to applications being natively installed in the desktop image.
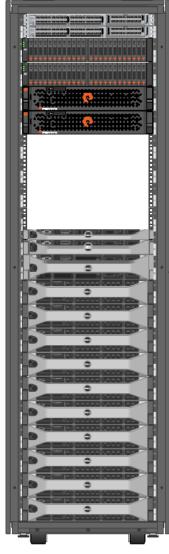
Solution Overview

The RAWC Performance Lab is powered by a Pure Storage Flash Array 420. This all-flash storage infrastructure was used to support a 1,000-user test workload on VMware Horizon View 6 with App Volumes on vSphere 6.0 deployment. Application workload and launch times were simulated using the industry's only true randomized VDI workload generator, RAWC. Testing revealed near native application launch time performance for the seven applications tested.

SAN Switches

Pure Storage FA-420 Dual Controller, 2 shelves
- VM desktop workload

2 X Dell R610
- Horizon Composer
- AD Domain Controller

1 X Dell R710
- Horizon 6.1 Connection Server

10 X Dell R720
- VM Desktop Workload

Key Benefits

Performance

- Near native RAWC application launch time results for 1,000 User workload with 7 real world applications
- Observed significantly faster performance during recompose, boot and login-storms, AV scanning and patch updates compared to a tiered disk array.
- 1000 desktop pool recompose times were half the time of a traditional array with tiered SSD cache (1hr 10min vs. 2hr 30min).

Simplicity

- Easy and fast to deploy storage and compute
- Uniform, scalable architecture
- Integrated management systems

Economy

- Easy administration lowers TCO
- Observed data reduction of 9.7 to 1 reducing actual storage required as well as data center footprint

vmware®

PURE
STORAGE

Native vs AppStack with Pure Storage - 1000 VMs - 2vCPU - 2GB Memory - 3 Runs Avg Open Times

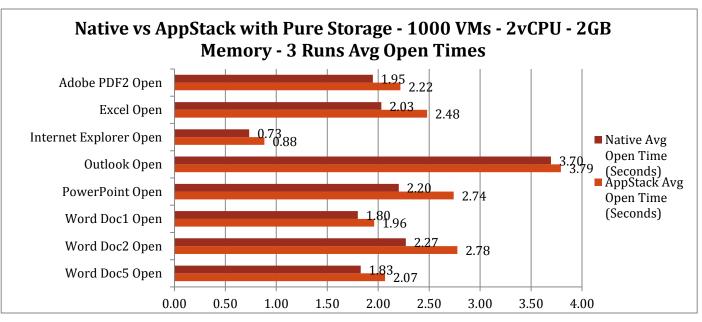| Application	Native Avg Open Time (Seconds)	AppStack Avg Open Time (Seconds)
Adobe PDF2 Open	1.95	2.22
Excel Open	2.03	2.48
Internet Explorer Open	0.73	0.88
Outlook Open	3.70	3.79
PowerPoint Open	2.20	2.74
Word Doc1 Open	1.80	1.96
Word Doc2 Open	2.27	2.78
Word Doc5 Open	1.83	2.07

Figure 1: PureStorage provided near-native application launch times, and dramatically reduced our 1000 linked clone recompose times compared to legacy storage architectures.

Solution Component Overviews

VMware Horizon View enables the simplification of desktop and application management while providing an optimized user experience with high security. Horizon View allows IT to centrally manage desktops, applications, and data while increasing flexibility and customization at the end-point for the user. This enables availability and agility of desktop services unmatched by traditional PCs while reducing the total cost of desktop ownership**.**

VMware Horizon App Volumes provides real-time application delivery with lifecycle management. IT can use App Volumes to instantly deliver applications and data to users without compromising user experience. Infrastructure and management costs are decreased by reducing the number of desktop pools to be managed, number of desktops required, storage capacity, and by separating application management from desktop image management. Unlike traditional application management solutions, App Volumes allows IT to deliver a desktop with no trade-off between user experience and costs.

Pure Storage is the market's leading independent solid-state array vendor and provides highly resilient, all-flash storage for the most demanding VDI requirements. The company's all-flash enterprise arrays offer significant performance and efficiency gains over mechanical disk, at a lower price point per gigabyte stored. Pure Storage FlashArrays provide 10x data reduction in VDI environments, sub-millisecond latency, simplified management, high scalability for customer VDI deployments, and is able to meet the intensive performance demands of the latest VMware Horizon Linked Clones with App Volumes architectures.

To learn more about Pure Storage solutions go to: http://www.purestorage.com