

# View Composer Array Integration from VMware on Hitachi NAS Platform



Tech Note

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# View Composer Array Integration from VMware on Hitachi NAS Platform

## Tech Note

Virtual desktop infrastructure (VDI) is a growing presence in the enterprise datacenter. As VDI becomes more predominant in the enterprise, the need to be able to deploy desktops quickly and with less impact on the underlying infrastructure is also growing.

With the release of VMware Horizon View 5.3, the VMware Horizon View Composer Array Integration feature (VCAI) will be supported in production environments (previously a Tech Preview feature in VMware Horizon View 5.2). Hitachi Data Systems is one of the NAS vendors to officially support VCAI at the time of release of VMware Horizon View 5.3, and the feature will be supported by VMware and Hitachi Data Systems for Hitachi NAS Platforms running firmware versions 11.0 or later. VCAI allows the VMware ESXi host to offload the creation of VMware Horizon View linked clones to the Hitachi NAS platform through the use of VAAI native snapshot function. The VCAI feature of Horizon View 5.3 when used with Hitachi NAS Platform provides the following benefits:

- Reduction of overall NFS file system operations on the Hitachi NAS Platform
- Reduction of network bandwidth on the NAS/IP storage network
- Reduction of CPU utilization on the ESXi server during large scale View Composer operations
- Reduction in provisioning times during large scale linked clone pool deployments

Hitachi Data Systems implementation of vSphere API for Array Integration (VAAI) plugin for NAS includes the NFS Native Snapshot primitive which is used by VCAI. The test case results are detailed in Table 1.

**Table 1. Test Case Results**

<i>Test case</i>	<i>Pass/fail criteria</i>	<i>Result</i>
Deploying linked clone desktops with and without VCAI enabled.	Confirm reduction in NFS file system operations on Hitachi NAS Platform	Pass
	Confirm reduction of network bandwidth on the NAS/IP storage network	Pass

This document will illustrate

- A decrease of 96% in IP Storage network traffic on the ESXi hypervisor with VCAI enabled
- A decrease of 89% in NFS file system operations on the Hitachi NAS Platform with VCAI enabled

For implementation details, please contact your Hitachi Data Systems representative.

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**Note** — Testing of this configuration was in a lab environment. Many things affect production environments beyond prediction or duplication in a lab environment. Follow the recommended practice of conducting proof-of-concept testing for acceptable results in a non-production, isolated test environment that otherwise matches your production environment before your production implementation of this solution.

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## Use Case Overview

This tech note will compare deployments of 16 linked clones between VCAI-enabled and VCAI-disabled VMware Horizon View desktop pools.

This use case is designed to show the differences in resource utilization when using the VMware VAAI for NAS plug-in with Hitachi NAS Platform and utilizing VCAI for VMware Horizon View linked clone desktops.

In order to accurately determine differences in resource utilization between a VCAI-enabled linked clone desktop pool and a VCAI-disabled linked clone desktop pool, the following configuration was used:

- Dedicated ESXi host for VCAI-enabled linked clone pool
    - VMware VAAI for NAS VIB installed
    - Dedicated NFS file system on Hitachi NAS Platform
    - VCAI enabled in VMware Horizon View linked clone desktop pool
    - View Storage Accelerator (VSA) enabled in VMware Horizon View linked clone desktop pool
  - Dedicated ESXi host for VCAI-disabled linked clone pool
    - VMware VAAI for NAS VIB not installed
    - Dedicated NFS file system on Hitachi NAS Platform
    - VCAI disabled in VMware Horizon View linked clone desktop pool
    - VSA enabled in VMware Horizon View linked clone desktop pool
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## Tested Components

Table 2 lists the hardware components tested in this tech note.

**Table 2. Hardware Components**

<i>Hardware</i>	<i>Description</i>	<i>Version</i>	<i>Quantity</i>
Hitachi Unified Storage VM	<ul style="list-style-type: none"> <li>■ Dual controllers</li> <li>■ 16 × 8 Gb/sec Fibre Channel ports</li> <li>■ 64 GB cache memory</li> <li>■ 32 × 600 GB 10k RPM SAS disks, 2.5 inch SFF</li> </ul>	73-02-00-00/01	1
Hitachi NAS Platform 4080	<ul style="list-style-type: none"> <li>■ 2 × 10 Gb/sec Cluster ports</li> <li>■ 4 × 10 Gb/sec Ethernet ports</li> <li>■ 4 × 8 Gb/sec Fibre Channel ports</li> </ul>	11.2.3319.08	2
Hitachi Compute Blade 500 chassis	<ul style="list-style-type: none"> <li>■ 8-blade chassis</li> <li>■ 2 Brocade 5460 Fibre Channel switch modules, each with 6 × 8 Gb/sec uplink ports</li> <li>■ 2 Brocade VDX 6746 Ethernet switch modules, each with 8 × 10 Gb/sec uplink ports</li> <li>■ 2 management modules</li> <li>■ 6 cooling fan modules</li> <li>■ 4 power supply modules</li> </ul>	SVP: A0145-H-7304  5460: FOS 6.3.2d1  VDX6746: NOS 2.0.1_kat4	1
520AH1 server blade	<ul style="list-style-type: none"> <li>■ Half blade</li> <li>■ 2 × 8-core Intel Xeon E5-2680 processor, 2.70 GHz</li> <li>■ 256 GB RAM               <ul style="list-style-type: none"> <li>■ 16 × 16 DIMMs</li> </ul> </li> </ul>	BMC/EFI: 01-59	2

Table 3 lists the software components tested in this Tech Note.

**Table 3. Software Components**

<i>Software</i>	<i>Version</i>
Hitachi Storage Navigator	Microcode Dependent
VMware vCenter server	5.1 Update 1, Build 1123961
VMware ESXi	5.1 Update 1, Build 1065491
VMware Horizon View	5.2.0, Build 987719
Hitachi NAS VAAI VIB (Plug-In)	1.3.38

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## High Level Test Infrastructure

Figure 1 shows a high-level view of the configuration used to test the Hitachi NAS Platform implementation of VAAI and VCAI for VMware Horizon View.

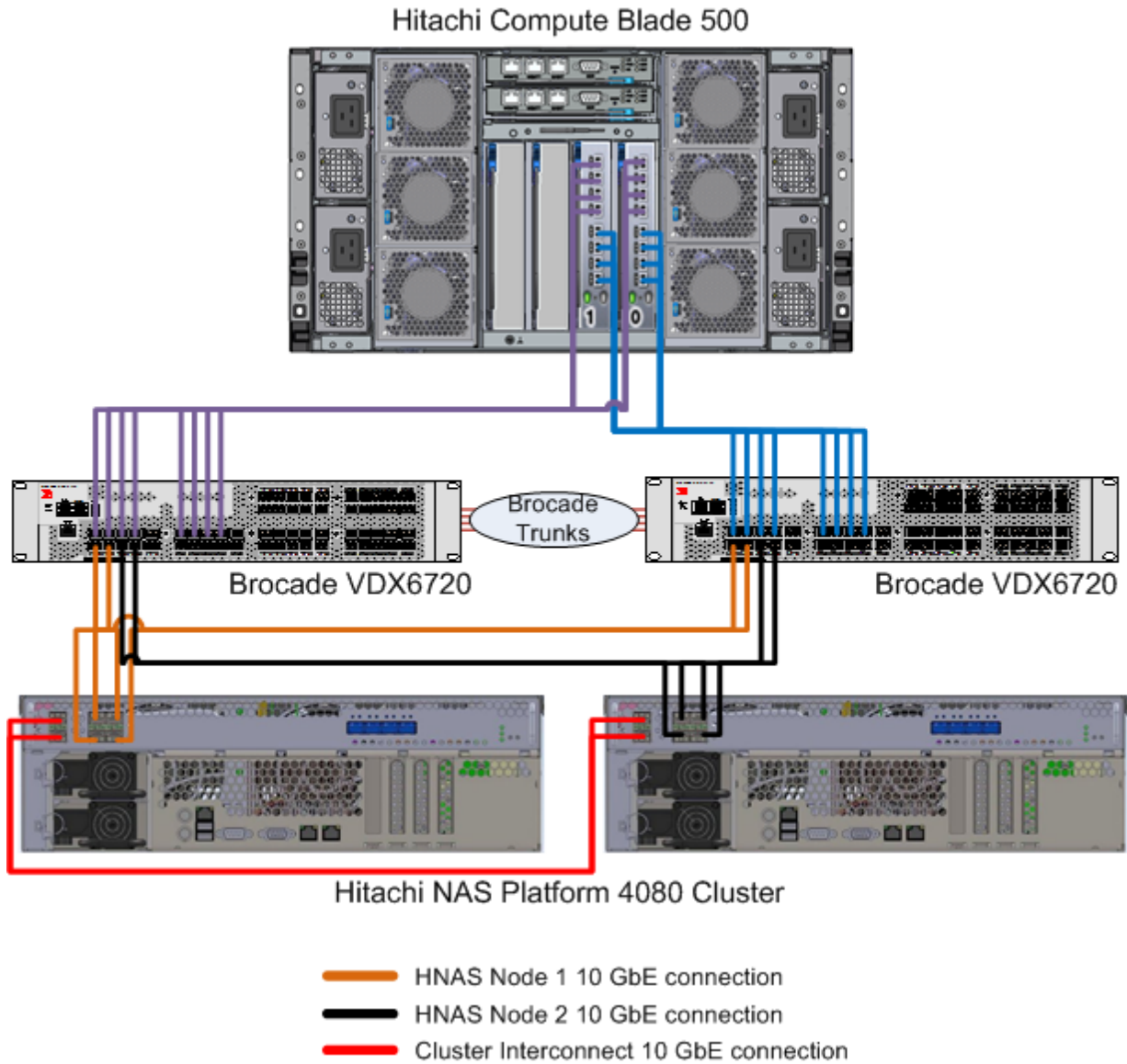


Figure 1

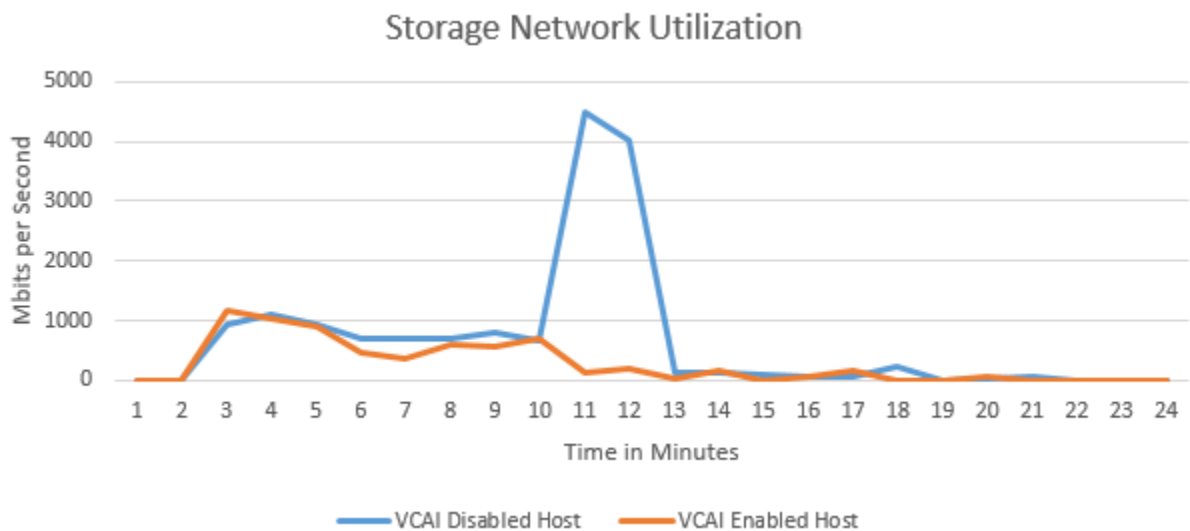
## Test Results

Figure 2 shows the vmnic traffic comparison for the NFS/IP storage network port group between the two hypervisors used during this testing. Note that during the majority of the provisioning operation, the NFS/IP storage network port group traffic is similar.

For the first ten minutes of the provisioning operations, the desktop gold image is being copied to the target NFS datastore for its respective linked clone desktop pool.

Between minutes 10 and 13, a significant change in vmnic traffic between the two hypervisors was observed. During this time, the linked clone desktops virtual disk files are created. This illustrates the network utilization benefits of VCAI, as the VCAI-enabled host has significantly lower storage network utilization as compared to its VCAI-disabled counterpart.

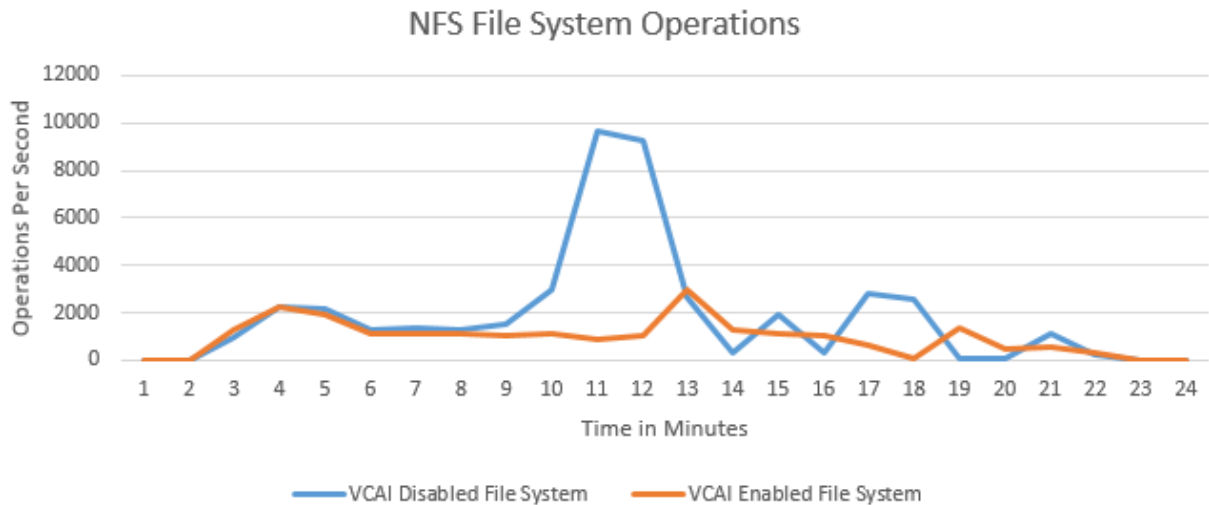
Minutes 14 through 24 illustrate the storage network utilization during the time in which the ESXi hosts customize the linked clone desktops.



**Figure 2**

Figure 3 shows the NFS file system operations per second for the two dedicated NFS file systems used during this testing.

Between minutes 10 and 13, an increase in NFS file system operations is observed on the VCAI-disabled host. This increase directly corresponds to the increase in vmnic utilization shown in Figure 2 and illustrates the increased workload on the hypervisor during VCAI-disabled provisioning. This difference illustrates the benefits of the Native NFS Snapshot primitive for VAAI being used on the Hitachi NAS Platform to natively clone and create the linked clone desktops when VCAI is enabled.



**Figure 3**

## For More Information

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