



VMware Horizon View on Hitachi Unified Compute Platform HC Horizon Fast Track Certified

Reference Architecture Guide

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Feedback

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Revision History

Revision	Changes	Date
MK-SL-094-00	Initial release	August 22, 2018
MK-SL-094-01	Changed the test case 2 setup from 2880 minutes to 2880 seconds.	November 13, 2018
MK-SL-094-02	Added the Login VSI logo to the front cover.	November 27, 2018

Table of Contents

Solution Overview	3
Logical Design	5
Key Solution Components	6
Storage Configuration	6
Hardware Components	7
Software Components	7
Solution Design	10
Storage Infrastructure	10
Deploy the Solution	10
Engineering Validation	12
Solution Execution	12
Test Methodology	13
Test Results - Boot Storm	13
Test Results - Login and Steady State (Benchmarking Mode)	16
Login VSI - Test Results	18
Conclusion	24

VMware Horizon View on Hitachi Unified Compute Platform HC Horizon Fast Track Certified

Reference Architecture Guide

Use this reference architecture guide to design a hyper-converged solution for VMware Horizon View virtual desktops on Hitachi Unified Compute Platform HC (UCP HC) systems.

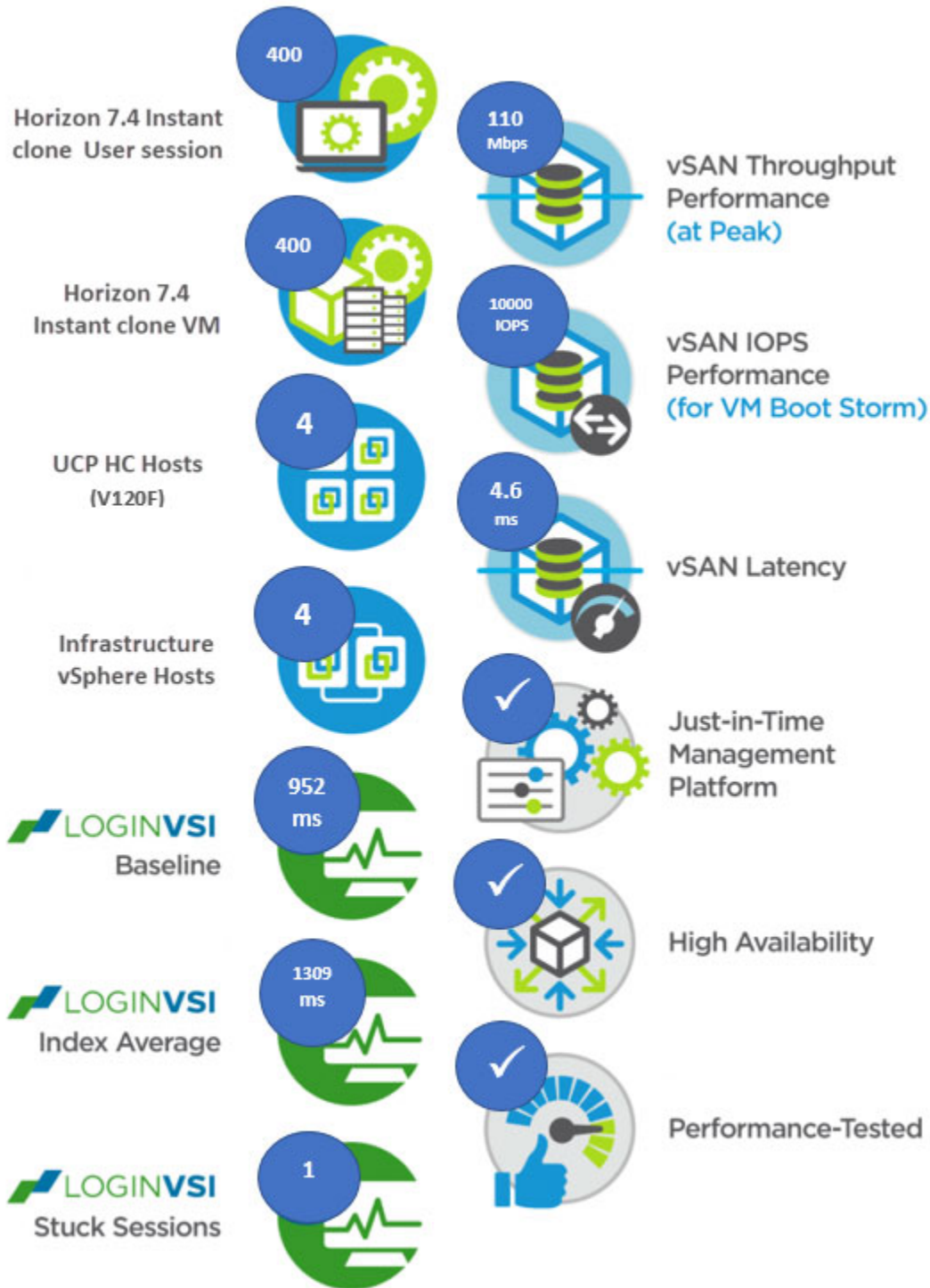
This describes the performance of Microsoft Windows 10 Virtual Desktops on a 4-node Hitachi Unified UCP HC with Knowledge workers using Instant Cloning features.

This environment uses integrated servers, storage systems, and network with storage software in a unified compute converged solution for VDI environments.

The 4-node Hitachi Unified Compute Platform HC provides better performance and throughput with low latency. The dedicated UCP HC V120F nodes run ESXi 6.5 U1 with VMware vSAN 6.6.1 clusters using VMware Horizon View 7.4.

This VDI environment solution uses Microsoft Windows 10 virtual desktops. Figure 1 shows the Instant clone test results for 400 Virtual desktops for this solution.

Figure 1



Performance Validation for this solution used the following benchmarking tool:

- Login VSI 4.1.32

This document is for the following audiences:

- Corporate Desktop administrators
- Storage administrators
- IT help desk
- IT professionals such as a Pre-sale solution team
- Customer CIO

To use this reference architecture guide, you need familiarity with the following:

- VMware Horizon View 7
- UCP HC V120F
- Hyper-Converged Concept
- VMware vSAN
- All Flash Storage
- Login VSI 4.1.32
- VMware esxtop
- VMware ESXi 6.5 U1

Note — These practices were developed in a lab environment. Many things affect production environments beyond prediction or duplication in a lab environment. Follow recommended practice by conducting proof-of-concept testing for acceptable results before implementing this solution in your production environment. Test the implementation in a non-production, isolated test environment that otherwise matches your production environment.

Solution Overview

This describes the solution overview for Horizon View 7.4 with AppVolumes and Instant Clone on Hitachi Unified Compute Platform HC.

Many businesses are constrained by legacy IT infrastructure that is not well suited for VDI initiatives. Siloed data centers, composed of independent compute, storage, and networks with distinct administrative interfaces are inherently inefficient, cumbersome, and costly.

Each platform requires support, maintenance, licensing, power, and cooling—not to mention a set of dedicated resources capable of administrating and maintaining these elements. Rolling out a new application such as VDI becomes a manually intensive, time-consuming proposition involving a number of different technology platforms, management interfaces, and operations teams.

Expanding system capacity can take days or even weeks and require complex provisioning and administration. Troubleshooting problems and performing routine data backup, replication, and recovery tasks can be just as inefficient.

While grappling with this complexity, organizations also need to address challenges that are unique to VDI, including the following:

1. Difficulty sizing VDI workloads upfront, due to the randomness and unpredictability of user behavior
2. Periodic spikes in demand, such as “login storms” and “boot storms”, that may significantly degrade performance if not properly handled
3. High cost of downtime in the event of an outage

Hitachi Unified Compute Platform HC addresses each of these challenges by providing a scalable, building block style approach to deploying infrastructure for VDI, offering the enterprise predictable cost, and delivering a high-performing desktop experience to end users.

For this Solution, VDI Performance has been captured for Knowledge Users.

The workloads used for this solution are based on Login VSI Knowledge workload test. Table 1 lists the applications that Login VSI exercises during workload testing.

Table 1 Workload Application Definition

TABLE 1. WORKLOAD APPLICATION DEFINITION

Workload Type	Knowledge
Applications Exercised	<ul style="list-style-type: none"> ■ Adobe Acrobat ■ Adobe Flash ■ FreeMind ■ Microsoft Excel ■ Microsoft Internet Explorer ■ Microsoft Outlook ■ Microsoft PowerPoint ■ Microsoft Word ■ Photo Viewer ■ 7-Zip ■ 360p Video Playback ■ 720p Video Playback

Table 2 shows Knowledge workload profile with Windows 10.

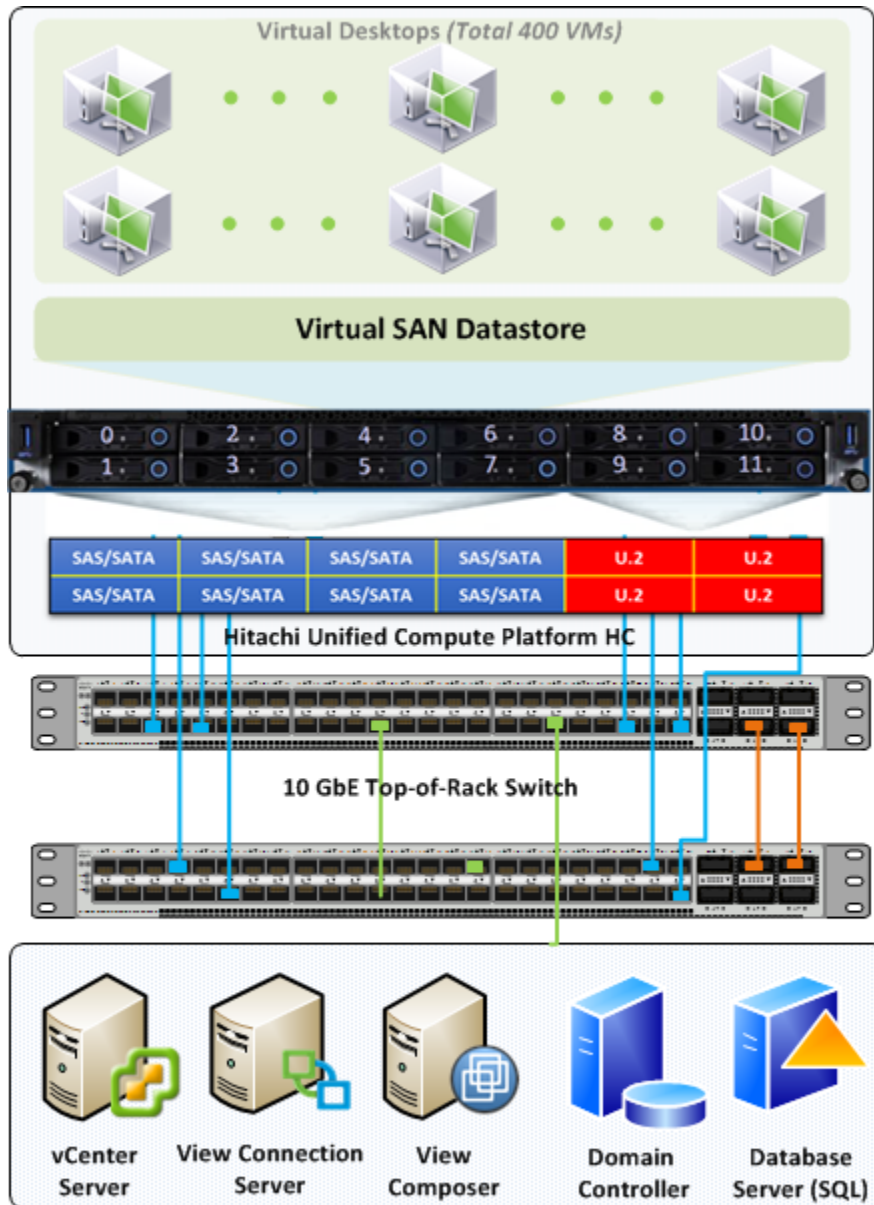
TABLE 2. WORKLOAD PROFILE FOR WINDOWS 10 VDI USERS

Workload Profile	VM OS	vCPU	VM Memory
Knowledge Worker	Windows 10	2	2 GB

Logical Design

Figure 2 shows the high-level infrastructure for this solution.

Figure 2



ISL Link

10 GbE Network Interfacing and cabling
Management Network

Key Solution Components

The key solution components for this solution are listed in Table 3, Table 4, and Table 5.

Storage Configuration

The UCP HC all flash array has the following configuration:

TABLE 3. STORAGE CONFIGURATION

UCP HC All Flash Array	
Number of Nodes	4
Number of Virtual Desktop	400 (100 per node)
Number of SSDs	1 × Intel SSD DC P3600 Series NVMe (1.6 TB, 2.5", U.2), for cache 3 × Intel SSD DC S4500 Series (1.92 TB, 2.5"), for capacity
Disk space requirement	vsanDatastore 21.05 TB
RAID Configuration	5 with FTT=1

Hardware Components

TABLE 4. HARDWARE COMPONENTS

Vendor	Hardware	Detail Description	Version	Quantity
Hitachi Vantara	Advanced Server DS120	<ul style="list-style-type: none"> ■ 4 node cluster with ESXi 6.5 u1 ■ DS120 Server (per host) ■ Intel Xeon Gold 6140 CPU (18C, 2.3GHz, 135W) ■ Memory: 256 GB DDR4 2666Mhz (per host) ■ 2 × 10 GbE NIC ports SFP 28 Mellanox MT27630 [ConnectX-4LX] 1GbE Base-T RJ45 port for remote (out-of-band) management ■ 1 × Intel SSD DC P3600 Series NVMe (1.6 TB, 2.5", U.2), for cache ■ 2 fully redundant power supplies ■ 3 × Intel SSD DC S4500 Series (1.92 TB, 2.5"), for capacity ■ Fault-tolerant Virtual SAN datastore 	BIOS Version: 3A08.H2 BMC: 3.16.06	1
Cisco	Top-of-Rack 10 GbE switch	Cisco Nexus 93180YC-EX NX-OS Version	Firmware: 7.0(3)I4(6)	2

Software Components

TABLE 5. SOFTWARE COMPONENTS

Software	Version	Function
VMware vCenter server	6.5. U1, Build 5973321	Management console
VMware ESXi	6.5. U1, Build 7388607	Operating system
VMware vSphere Web Client	6.5. U1, Build 5973321	Management console
Microsoft Windows Server 2012	Datacenter, R2	Operating system
Microsoft SQL Server	2012 SP1	Database server
Microsoft Windows 10	Enterprise Edition, SP1	Operating system

TABLE 5. SOFTWARE COMPONENTS (CONTINUED)

Software	Version	Function
VMware Horizon View	VMware Horizon View 7.4, GA	Management console
VMware Horizon Client	4.7.0, Build	Management console
Login VSI	4.1.32.1	Benchmarking tool

Table 6 shows VMware Horizon View 7.4 Components.

TABLE 6. VMWARE HORIZON VIEW 7.4 COMPONENTS

Server Name	vCPU	Memory	Disk Size	Disk Type	Operating System
View Connection Server	4	16 GB	40 GB	Eager Zeroed Thick	Windows Server 2012 R2
View Composer	4	12 GB	40 GB	Eager Zeroed Thick	Windows Server 2012 R2
Domain Controller	4	8 GB	40 GB	Eager Zeroed Thick	Windows Server 2012 R2
Database Server	4	16 GB	40 GB (operating system) 60 GB (data)	Eager Zeroed Thick	Windows Server 2012 R2 Microsoft SQL Server 2014 SP1

All of these virtual machines were configured with LSI Logic SAS Controller. The domain controller was deployed to support user authentication and domain services for the VMware Horizon infrastructure.

The compute nodes were configured as follows:

- **UCP HC V120F Cluster:** All four VMware ESXi 6.5 U1 nodes for knowledge user desktops.
- **VMware Horizon management and administration components:** placed on a separate infrastructure cluster.

Unified Compute Platform HC

[Unified Compute Platform](#)

UCP HC is integrated compute, storage, virtualization and high availability in a simple, scalable, easy-to-manage hyperconverged infrastructure powered by VMware vSphere and Virtual SAN (VSAN).

VMware Horizon

[VMware Horizon](#) transforms static desktops into secure, virtual workspaces that can be delivered on demand. Provision virtual or remote desktops and applications through a single VDI platform to streamline management and easily entitle end users.

Dynamically allocate resources with virtual storage, virtual compute, and virtual networking to simplify management and drive down costs. With Horizon, reduce day-to-day operations costs with a single platform that allows you to extend virtualization from the datacenter to your devices.

Login VSI

[Login VSI](#) successfully predicts, validates, and manages the performance of virtualized desktop environments

Login VSI makes it easy to load test, benchmark, and plan capacity to improve end user experience and productivity for even the most complex virtualized desktop environments. Login VSI tests performance using virtual users, so your real users benefit from consistently great performance.

With Login VSI, you can gain performance insights that enable you to:

- Predict the performance impact of necessary updates and upgrades
- Know the maximum user capacity of your current infrastructure
- Understand the end users' perspective on performance

With agentless installation and minimal infrastructure requirements, Login VSI works in any Windows-based virtualized desktop environment including VMware Horizon View, Citrix XenDesktop and XenApp, and Microsoft Remote Desktop Services (Terminal Services).

When used for benchmarking, the product measures the total response times of several specific user operations being performed within a desktop workload, in a scripted loop. The baseline is the measurement of the specific operational response times performed in the desktop workload, measured in milliseconds (ms). Two values, in particular, are very important: VSIbase and VSImax.

1] VSIbase - A score reflecting the response time of specific operations performed in the desktop workload when there is little or no stress on the system. A low baseline indicates a better user experience and a well-tuned desktop image—resulting in applications responding faster within the environment.

2] VSImax - The maximum number of desktop sessions attainable on the host before experiencing degradation in both host and desktop performance.

Both values, VSIbase and VSImax, offer undeniable proof (vendor independent, industry standard, and easy to understand) to innovative technology vendors of the power, the scalability, and the benefits of their software and hardware solutions, in a virtual desktop environment.

VMware Virtual SAN 6.6.1 (vSAN)

[vSAN](#) is the industry-leading software that powers hyperconverged Infrastructure solutions.

VMware hyperconverged software combines compute, networking, storage, and management resources into a hyperconverged infrastructure appliance to create a simple, easy to deploy, all-in-one solution.

Cisco

[Cisco Nexus](#) 9000 Series are designed to tune datacenter networks into modern, automated environments that deliver exceptional application performance and effective IT operations. Cisco Nexus 9000 Series Switches provide the foundation for the Cisco Application Centric Infrastructure(ACI) and deliver savings in capital expenditures (CapEx) and operating expenses (OpEx) to achieve an agile IT environment. As you plan your Cisco ACI implementation, Cisco Nexus 9000 Series Switches can be deployed in standalone mode.

Solution Design

The infrastructure servers for VMware Horizon 7 and UCP HC DS120 used for this solution are placed on separate infrastructure clusters with dedicated resources.

Storage Infrastructure

SAN Architecture for this reference architecture is not a requirement as UCP HC DS120 is used with VMware vSAN, which is local drive clustering.

Deploy the Solution

To deploy this solution requires doing the following procedures.

Deploy VMware Horizon View VMs

VMware Horizon View is the virtual desktop host platform for VMware vSphere that offers advantages for both end users and IT staff. End users are no longer locked into a particular machine and can access their system and files from anywhere at any time. Horizon View transforms IT by simplifying and automating desktop and application management.

Install and configure the following core Horizon View components:

1. **View Connection Server:** The most important VMware View component is the View Connection Server. The View Connection Server is a connection broker and is responsible for authenticating clients and connecting them to the appropriate virtual desktop.
2. **View Administrator:** The View Administrator or management console is a web component for deploying and managing virtual desktops.
3. **View Client:** Establishes a connection from physical devices to a View Connection Server. View Client is installed on the user's devices (such as thin clients, zero clients, mobile devices, laptops, desktops, or any other devices supported by View Client).
4. **View agent:** The application installed on virtual desktops that allows VMware View to manage access from clients.

Deploy Login VSI for Load Generation

The launchers and Login VSI environment are configured and managed by a centralized management console. Only Knowledge profile was used:

Knowledge Worker Workload

The Knowledge Worker workload places a more severe demand on the environment and represents a number of users that are accessing the system Master Image for Windows 10 Virtual Desktop.

- Create a Master image for Windows 10
- Create a Virtual Machine
- Install the Windows 10 Operating System
- Configure the Operating System
- Run VMware Windows 10 Optimizer
- Install VMware Tools
- Install View Agent
- Shutdown VM
- Snapshot VM

Table 7 shows a VM profile for Windows 10.

TABLE 7. KNOWLEDGE WORKER WINDOWS 10 GOLDEN IMAGE CONFIGURATION

Knowledge Worker Golden Image Configuration	
vRAM	2 GB
vCPU	2
OS HDD	42 GB
vNIC1	1

Deploy Windows 10 Instant Clones - Automated Desktop Pool

Provision the Windows 10 instant clones for Knowledge Workers:

1. Go to **View Administrator**, click select and add **View Connection Server**, and **Add vCenter to View Administrator**.
2. Create a new **Desktop pool** using the **Automated Desktop pool** option for Instant clone.
3. Proceed with naming pattern for your Desktop pool (for example **Knowledge-Pool**).
4. Select Windows 10 Snapshot for **Knowledge** users to create three different pools.
5. Select storage option as UCP HC DS120 **vSAN Datastore** to deploy instant clones.

Deploy VMware App Volumes 2.11

App Volumes take desktop and application environments to the next level by providing dramatically faster application delivery and unified application and user management, while reducing demands on IT management.

With App Volumes, IT can instantly deliver or upgrade applications to virtual desktop and published application environments in seconds and at scale. Read-only virtual disks called AppStacks store applications, and administrators can instantly attach to individual or groups of virtual desktops published application servers, or users, with the click of a button. To the end user, applications perform as if they were natively installed. App Volumes also support user profiles by attaching Writable Volumes at logon.

Engineering Validation

This explains how the environment was validated.

Solution Execution

Execution of this solution consists of the following procedures.

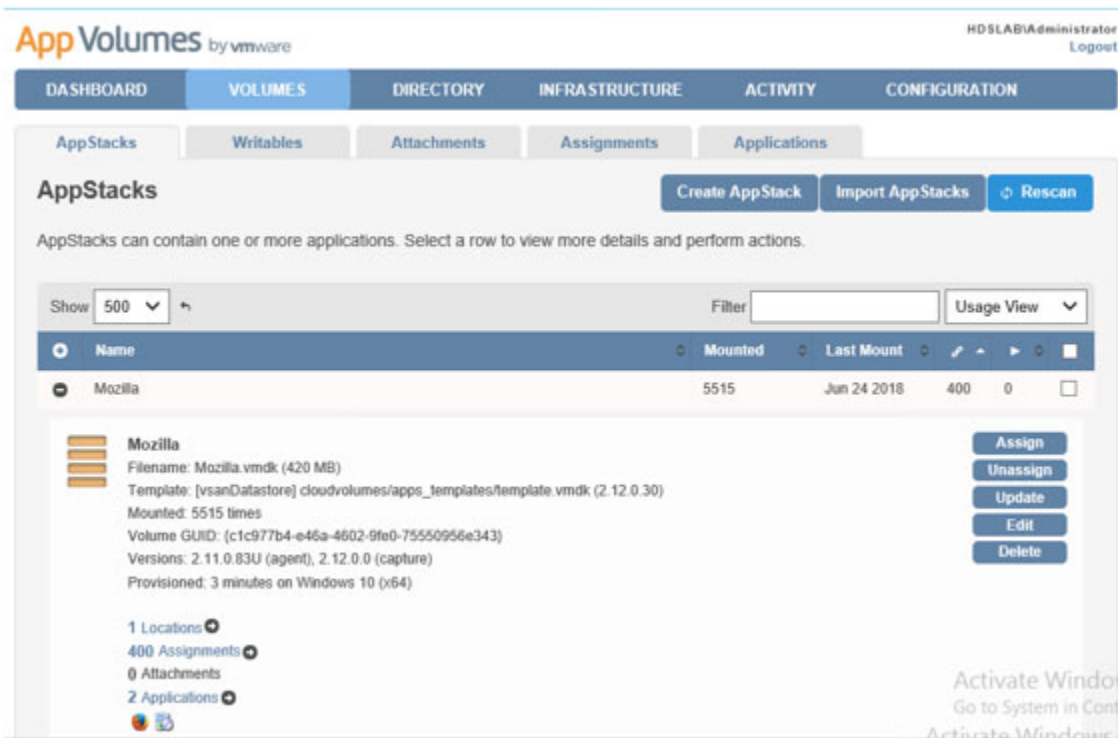
Login VSI Test Run for Windows 10 VDI with App Volumes 2.11

VDI pool name 'Instant' with 400 sessions by assigning AppVolumes 2.11 with single AppStack Volume (20GB) for each Virtual Desktop has been considered for test execution for this run. Figure 3 shows the AppVolumes dashboard used to assign AppStacks with Mozilla Firefox.

We tested with the following Application:

- Mozilla Firefox 50.0.2

Figure 3



Launch and configure the Management Console with Knowledge workload profile.

Execute test runs for Knowledge workload profiles with the following configuration:

- Assign AppStack Volume 20 GB with Firefox application for each virtual desktop
- Start the tests with 16 Launchers (25 Sessions per launcher) on the target desktop pool with the desired number of sessions for each test. Here we have launched 400 sessions for this certification in Login VSI in “Benchmarking mode”
- Allow the tests to run for 2880 seconds (48 minutes) and 2 minutes for logging off all sessions for each of the tests
- Collect and check the Login VSI logs for each of the tests under VSIShare folder

Test Methodology

Test Objectives

The series of tests that were run for this reference architecture are designed to capture the performance capabilities of Hitachi Unified Compute Platform HC for Windows 10 VDI users.

Test Case 1: Boot Storm Testing

Boot storms occur when all virtual desktops are powered on simultaneously. The boot storm puts a heavy load on the storage system because all of the virtual desktops are competing for the shared storage resources.

During boot storm testing, all 400 instant clone virtual desktops were powered on directly from vCenter to show overall response of the system simulating a worst-case power on scenario after a datacenter power outage.

- 400 Windows 10 Virtual Desktops were powered on and observed “Available” in View Administrator
- The system required 3:20 minutes to boot 400 desktops running on four Hitachi Unified Compute Platform HC DS120 nodes

Test Case 2: Login Storm, Steady State, and Logoff Testing

Login storms occur when users log in to the virtual desktops at the same time. Unlike boot storms, login storms cannot be avoided in an environment where end users start work at the same time.

Steady state occurs when users interact with the desktop. The IOPS for steady state varies because user activities differ. Login VSI medium workload was used to measure the IOPS during steady state.

Login VSI enabled testing of login storms and generated the workload for the steady state lab validation testing.

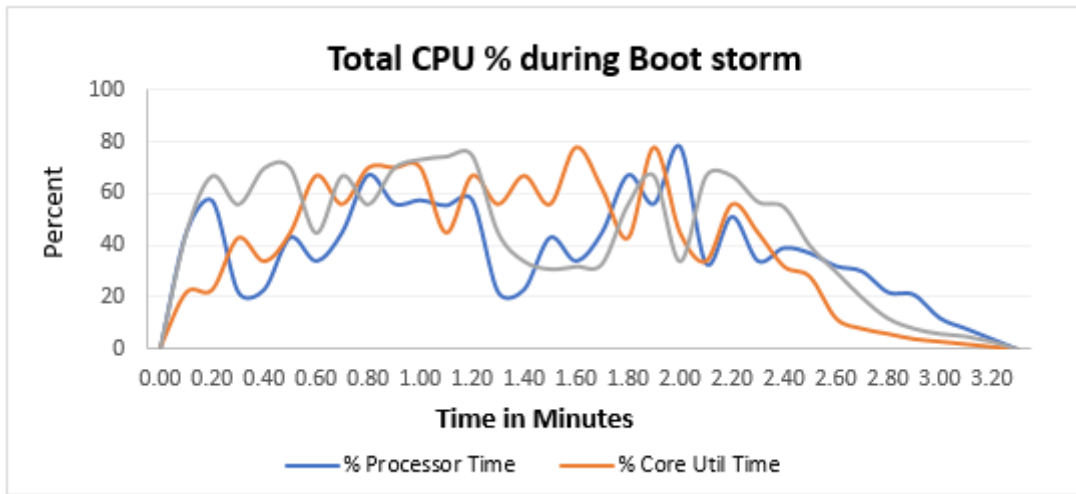
- Configuration — 400 Sessions were initiated from Login VSI along with AppVolumes; however, 399 sessions launched successfully.
- All 399 active sessions were logged on under Knowledge profile for 2880 seconds using Login VSI “benchmarking mode”
- One session failed to become active due to IE not responding on one of the Windows 10 Virtual Desktops

Test Results - Boot Storm

These are the test results for the environment operating during a boot storm. The 400 users boot storm took three minutes twelve seconds to complete. This time was measured from when the Windows 10 desktops were flagged available in Horizon View Administrator.

Multiple performance metrics were collected using the esxtop command. Figure 4 shows the performance data for the 400 user boot storm.

Figure 4



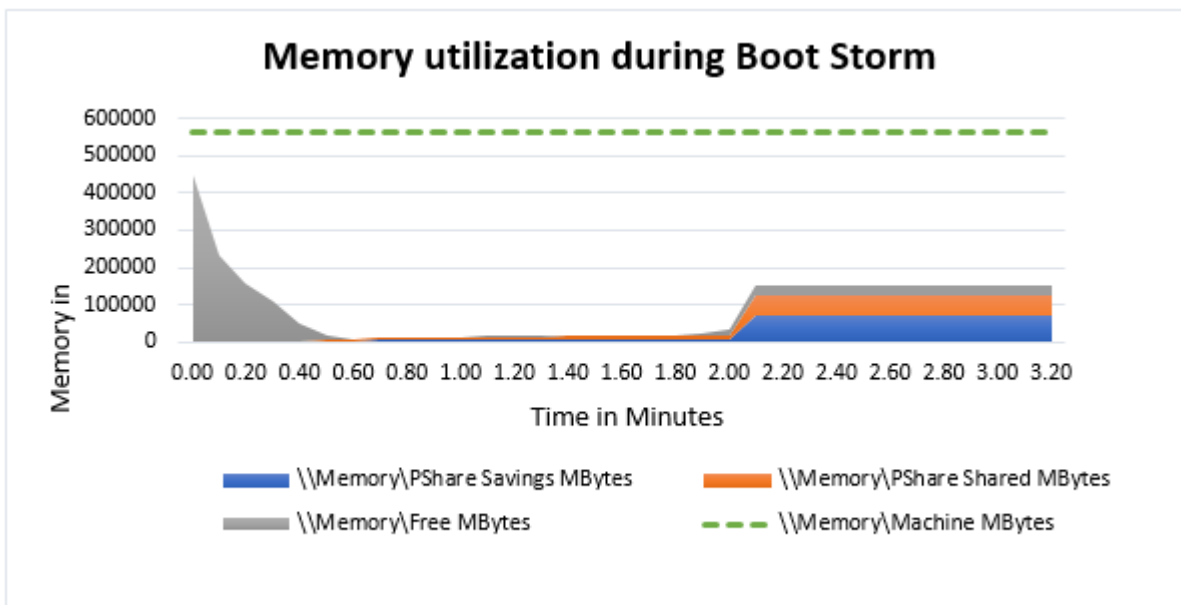
- The performance metrics show the following:
 - Percent utilization peaks at approximately 80% during boot storm.

Hypervisor Memory Performance

Four vSAN cluster nodes were tested, each containing 256 GB of RAM. A 400 Windows 10 user desktop pool was split between 4 nodes (100 Virtual desktops per node), allowing commitment of 2 GB for Knowledge users respectively.

Total memory utilization is approximately 562038 MB (562 GB).

Figure 5



The performance metrics show the following:

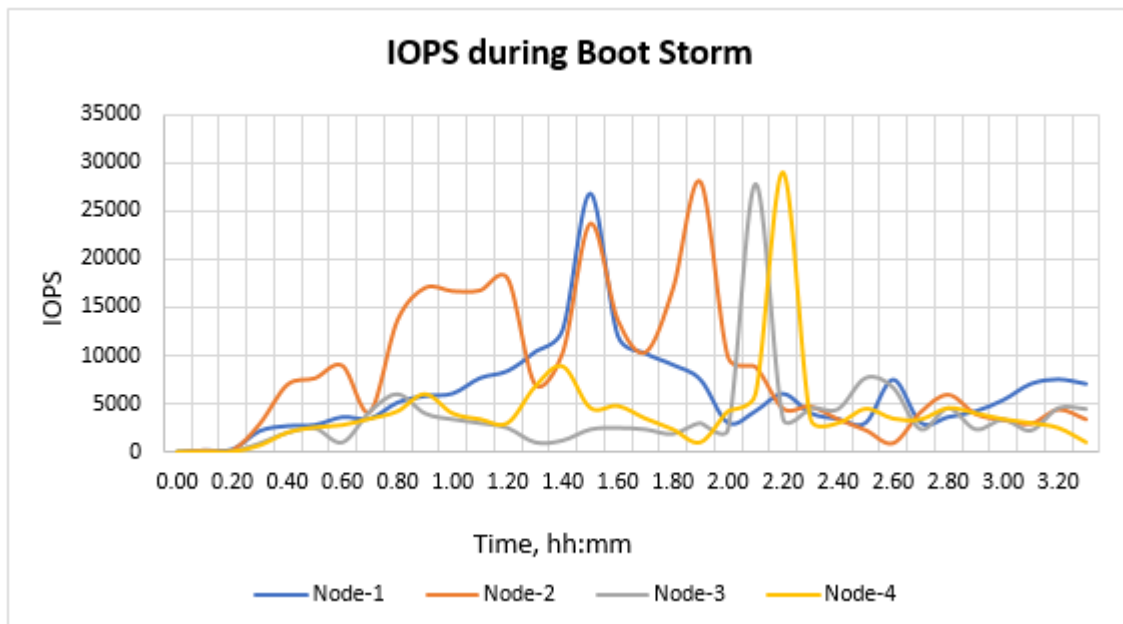
- During a boot storm, shared virtual machine memory reached approximately 100GB. This shows memory utilization during a boot storm can vary.
- PSshare saving memory reached 52 GB peaks during a boot storm.

The shared memory and PSshare memory values shows that boot storm memory utilization is at expectable level

Boot Storm IOPS

To simulate a boot storm, the 400 virtual desktops were powered on simultaneously from vCenter. Please refer to Figure 6.

Figure 6

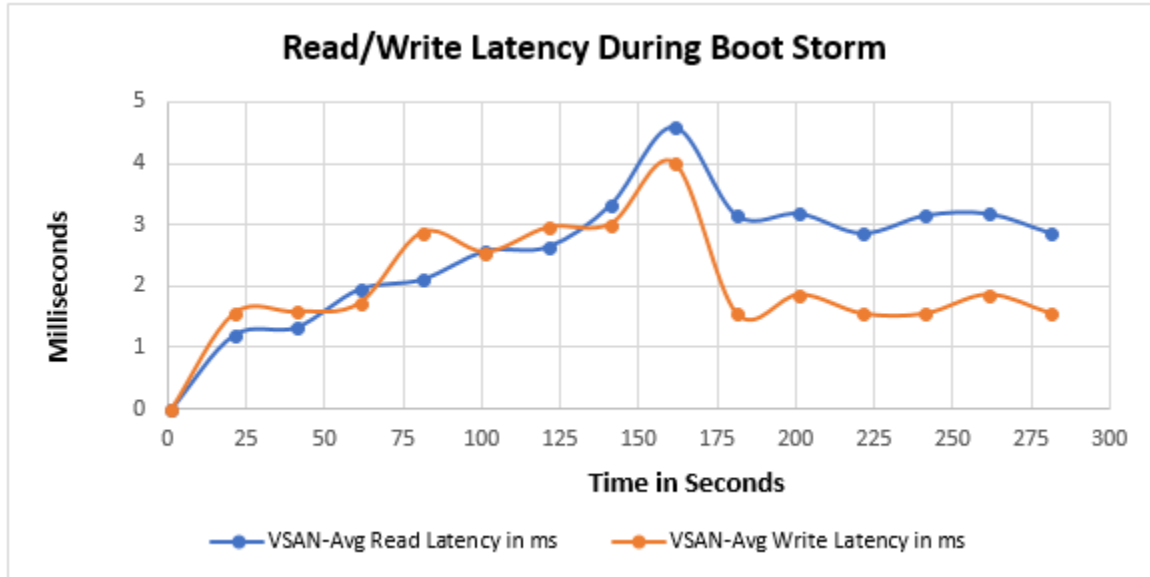


vSAN Storage Performance

Figure 7 shows the storage latency statistics. The performance metrics show the following:

- During boot storm, average read latency increases to 4.6ms
- During boot storm, average write latency increases to 4 ms

Figure 7



Test Results - Login and Steady State (Benchmarking Mode)

These are the test results for the environment operating during login storm and steady state operations.

Compute Infrastructure

Multiple performance metrics were collected from the ESXi hypervisors during the test operations. Figure 8 shows the performance data for the 400 user test operations.

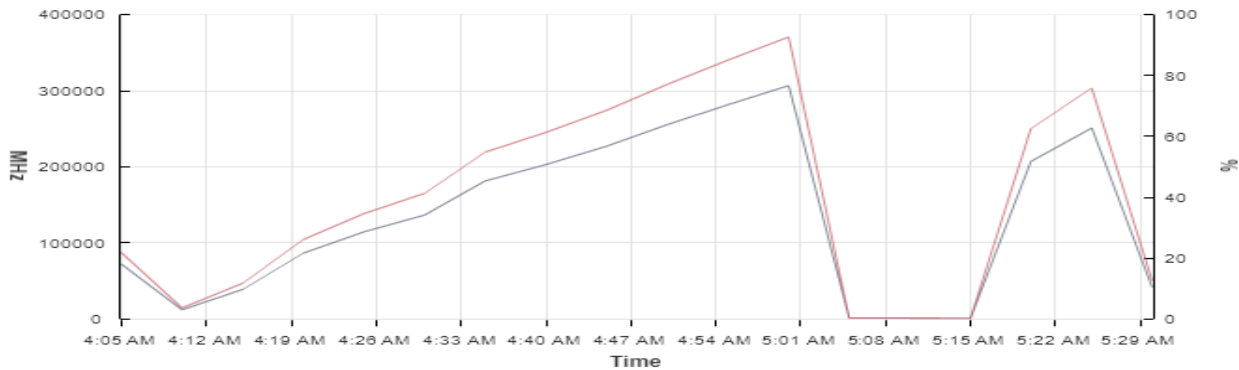
Hypervisor CPU Performance

Figure 8 shows the physical CPU metrics collected on the ESXi hypervisors while running test operations for 400 Login VSI users.

- There are two operations that occur during this test executed by Login VSI:
 - Login storm (minutes 1-48)
 - Steady state (minutes 48-50)
- The performance metrics show the following:
 - Percent utilization peaks at approximately 92.66 % during login storm.
 - Percent utilization peaks at approximately 75.87% during steady state.

This shows that there is still headroom on the UCP HC DS120 vSAN to support bursts in workloads while maintaining acceptable end user performance.

Figure 8



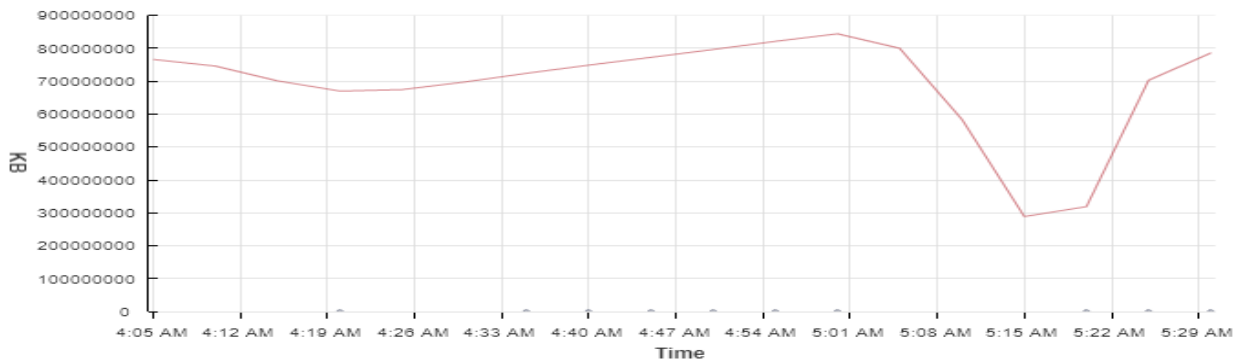
K...	Object	Measurement	Rollup	Units	Latest	Maxi...	Mini...
■	HFT-Cluster	Usage in MHz	Average	MHz	41...	30...	772
■	HFT-Cluster	Usage	Average	%	12...	92...	0.23

Hypervisor Memory Performance

During Login storm and steady state, memory utilization is captured with esxstop for all 400 Windows 10 Virtual Desktops:

- 400 Knowledge VMs with 2GB Memory for each virtual desktop

Figure 9



K...	Object	Measurement	Rollup	Units	Latest	Maxi...	Mini...
■	HFT-Cluster	Ballooned memory	Average	KB	0	0	0
■	HFT-Cluster	Consumed	Average	KB	78...	84...	28...

Figure 9 shows the memory utilization within the environment during the test operations.

This corresponds to 843881344 KB approximately **843 GB** during Login storm.

Hypervisor IOPS Performance

- Login Storm IOPS: IOPS during the Login storm is 7032 for 400 desktops, per desktop IOPS during is Login is 17
- Steady state IOPS: IOPS during the steady state is 4569 for 400 desktops, per desktop IOPS during is steady state is 11

Login VSI - Test Results

Login VSI tests were executed on 400 instant-clone desktop VMs hosted on four node vSAN cluster configured on UCP HC DS120. The Knowledge users performance is represented by the Login VSI Analyzer score and latency values are shown in the following Login VSI graph. Please refer to Figure 10.

Login VSI Response – Knowledge Worker Workload

Figure 10

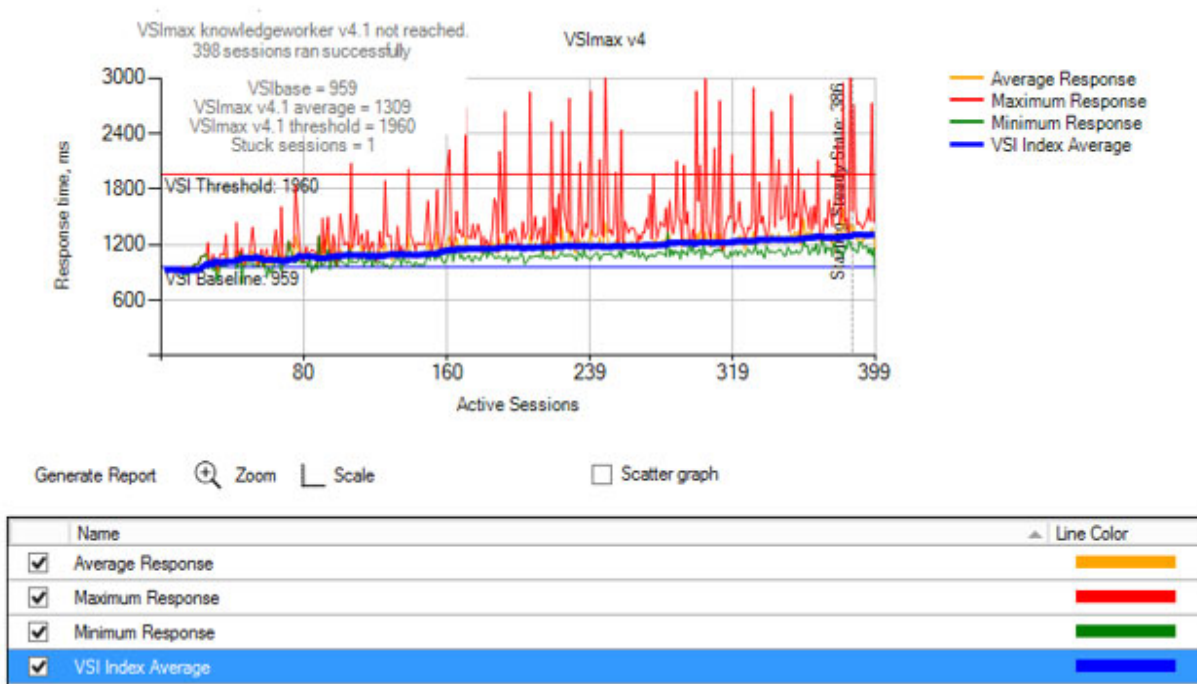


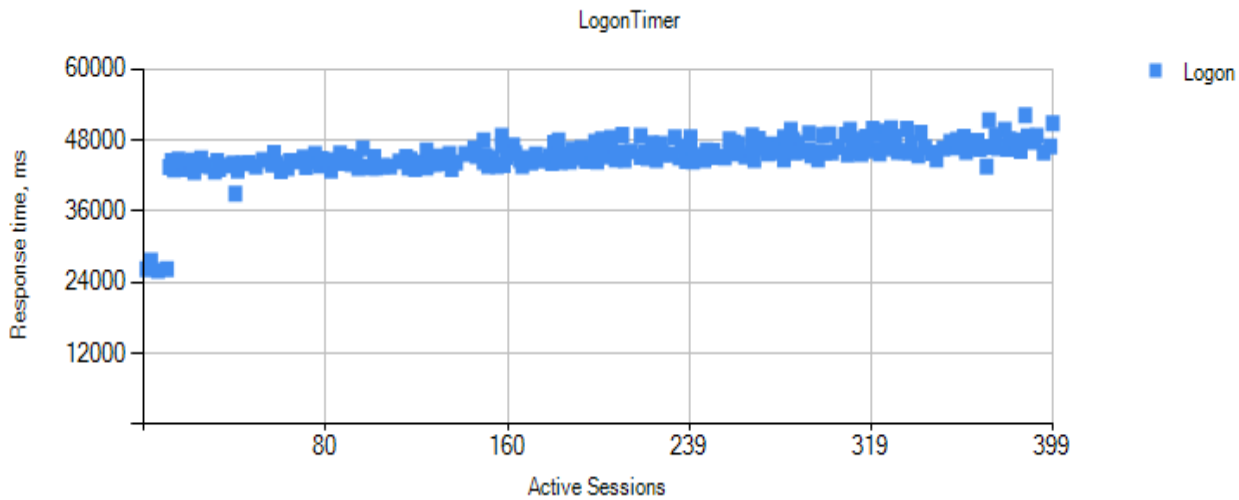
Figure 10 shows the Task Workload Login VSI test results:

- VSI baseline performance was 959
- The Login VSI index average score is 1309 lower than the threshold. It is possible to launch more sessions in this configuration
- 339 sessions ran successfully out of 400, and VSImax was not reached
- During steady state the VSImax is 389

Logon Metrics – Knowledge Worker Workload

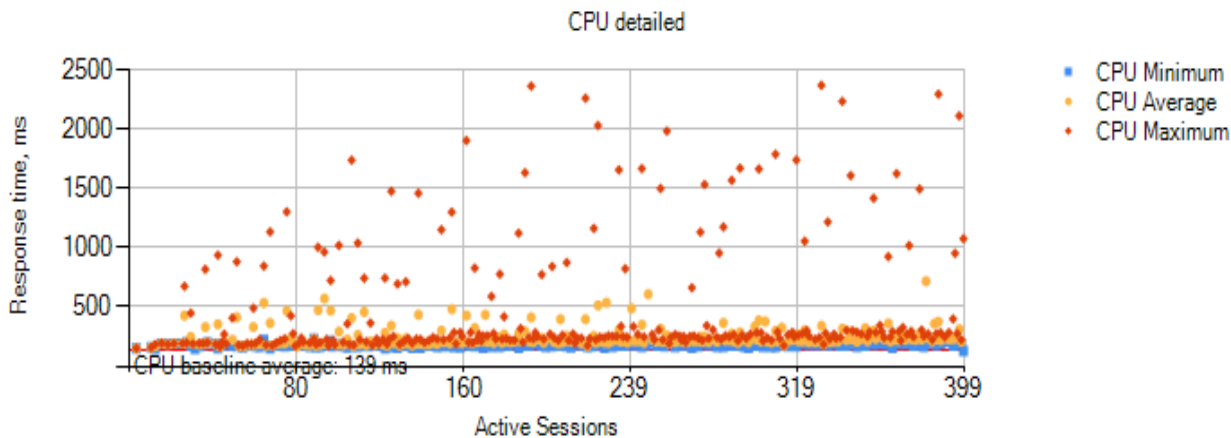
Logon times were between 25 s and 42 s, with an average 32 s approximately. In general, a logon time is the time between entering Windows account credentials and the Windows desktop, shell, or startup programs being fully loaded and operational. User experience is generally faster than the times listed here. Figure 11 shows Logon metrics for all 400 users.

Figure 11



CPU Baseline during test – Knowledge Worker Workload

Figure 12



During the Login VSI test CPU details have been captured for all 399 sessions. Refer to Figure 12.

- CPU Minimum is 110 ms response time approximately
- CPU Average is 139 ms response time
- CPU Maximum – 2400 ms response time

This shows that Login storm CPU and Memory utilization is very good.

Storage Utilization – Knowledge Worker Workload during Login VSI

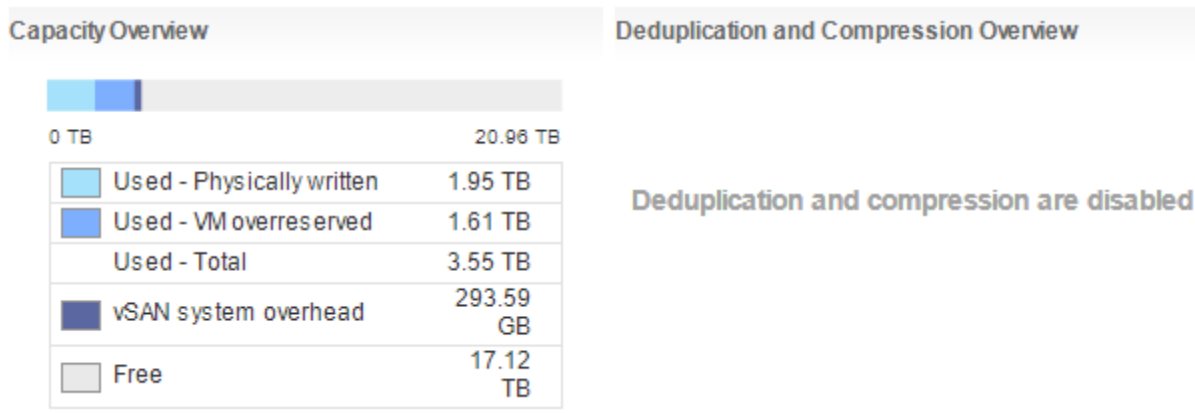
- 400 virtual desktops were deployed on vSAN 6.6 with RAID 5 and FTT=1. Each Windows 10 desktop was assigned with 32 GB thick provisioning disk; however, after instant clone creation on RAID 5 and FTT=1 every VM was assigned with 42.67 GB of storage on vSAN datastore. All 400 virtual desktops utilized 3.55 TB of space out of 20.96 TB with Deduplication and Compression “Disabled”. Figure 13 shows Windows 10 Virtual desktop configuration with RAID 5 storage policy, and Figure 13 shows total storage utilization.

Figure 13

The screenshot shows the 'Edit Settings' window for a 'New Virtual Machine-Win10'. The 'Virtual Hardware' tab is selected, and the 'Hard disk 1' configuration is expanded. The settings are as follows:

Setting	Value
CPU	2
Memory	2048 MB
Hard disk 1 (Size)	32 GB
Maximum Size	19.00 TB
vSAN storage consumption	42.67 GB disk size on datastore 30.46 GB (↓ 12.21 GB) used storage space 0.00 B reserved flash space
VM storage policy	RAID-5
Type	As defined in the VM storage policy
Sharing	No sharing
Disk File	[vsanDatastore] cbfc305b-64b7-0b41-2d11-ec0d9ac5bd54/New Virtual Machine-Win10.vmdk
Shares	Normal, 1,000
Limit - IOPs	Unlimited
Virtual flash read cache	0 GB, Advanced
Disk Mode	Dependent
Virtual Device Node	SCSI controller 0, SCSI(0:0)

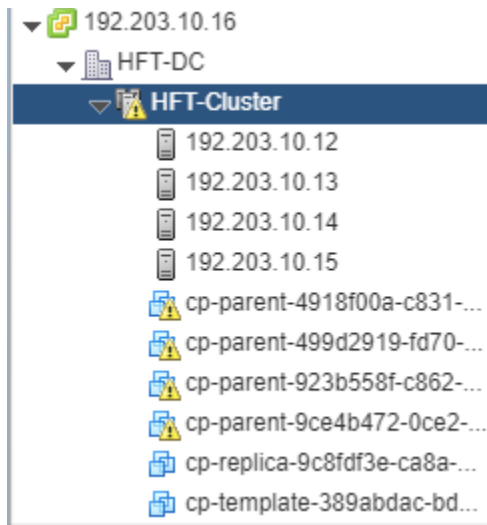
Figure 14



Storage Utilization – Replica, Templates and Parent VMs

Instant clone creation, replica, templates and parent VMs deployment is initiated by view administrator once the desktop pool is enabled for provisioning and it starts creating three parent VMs, one replica and a template VM that are 42 GB each which totally utilized around 252 GB of storage space. Please refer to Figure 15.

Figure 15



Recompose – Instant clone

Once Replicas are prepared for Instant Clones, each machine is rebooted once while with Composer, each virtual machine is rebooted three times, which can be time consuming. Composer consumes considerable IOPS and time during the Recompose operation. To speed up Recompose, switch to Instant Clones. Instant clone has a Push Image option to recompose the Parent Image from the desired Snapshot, which is reflected on all virtual desktops in the pool.

Please refer to Figure 16 to push image to desktop pool VMs.

Figure 16

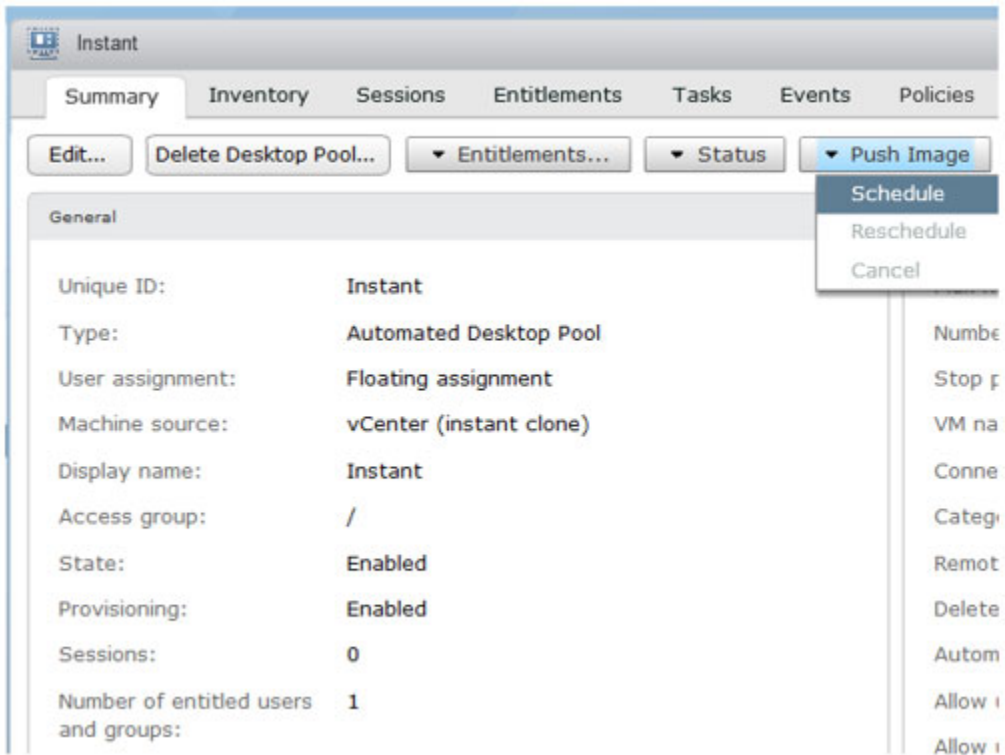


Figure 17

Schedule Push Image


Image

Select the snapshot that will be used as the image. This snapshot can be on the current parent VM or a different one.

The machines created in this desktop pool will use the information in the image as their baseline system configuration.

Parent VM in vCenter:

Snapshot:



Snapshot	Time created	Description	Path
Instant-snap	6/29/2018 6:41:04 AM		/Instant-snap
Instant-Push Image	6/29/2018 8:42:05 AM		/Instant-snap/Instant-Push Image

SVGA settings for Instant Clone Pool (Inherited from Master VM)

Number of monitors: 1 VRAM Size: 8.0 MB Resolution: 1600x1200

Figure 18

Schedule Push Image

Scheduling

Specify when you want this task to start

Start at: Web browser local time

Wait for users to log off

Wait for connected users to disconnect before the task starts. The task starts immediately on machines without active sessions.

Force users to log off

Users will be forced to log off when the system is ready to operate on their virtual machines. Before being forcibly logged off, users may have a grace period in which to save their work (Global Settings).

Stop at first error

The warning and grace period can be edited in global settings:

Display warning before forced logoff:

Log off time: minutes

Log off message:

- Time taken to recompose 400 desktop pool VMs is 7 minutes 10 seconds.

Conclusion

This architecture provides guidance to organizations implementing VMware Horizon 7 on a UCP HC infrastructure, and describes tests performed by Hitachi Vantara to validate and measure the operation and performance of the recommended solution, including third-party validated performance testing from Login VSI, the industry standard benchmarking tool for virtualized workloads.

Organizations are looking to VDI solutions like VMware Horizon to reduce software licensing, distribution, and administration expenses, and to improve security and compliance. Hitachi Vantara's market-leading hyperconverged infrastructure platform helps to deliver the promised benefits of VDI, while overcoming many common challenges.

UCP HC for VDI provides:

- Simplified deployment with hyperconverged Infrastructure.
- Ability to start small and scale out in affordable increments—from pilot to production.
- Highest density of desktops per node in the hyperconverged infrastructure category.
- Independently validated, unmatched VDI performance for a superb end user experience.
- Deployment of Instant-clone desktops with the same data efficiency as linked clones.
- Enterprise-class data protection and resiliency

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