

INFINIDAT

STORING THE FUTURE

# An Introduction to INFINIDAT InfiniBox<sup>®</sup> and VMware Integration

White Paper

- Capacity 2500 to 5000 kg
- Leaning Post 1500 to 1800 kg
- Warning symbols: fire, no open flames, no smoking, no food/drink, no liquids, no sharp objects.

NODE

2

NODE

3

ENCLOSURE

1

ENCLOSURE

2

# Table of Contents

---

- Introduction ..... 3
- INFINIDAT Terminology ..... 4
- VMware Terminology ..... 4
- INFINIDAT InfiniBox and WMware Integration ..... 6
  - Integration Concepts ..... 6
  - Host PowerTools for VMware ..... 7
  - Installing INFIDAT Host PowerTools for VMware ..... 8
  - Best Practices madeSimple with Host PowerTools for VMware ..... 9
  - Self-Service Provisioning via Host PowerTools for VMware ..... 10
  - Individual VM Snapshot via Host PowerTools for VMware ..... 11
  - Individual VM Restore via Host PowerTools for VMware ..... 13
  - VASA provider ..... 14
- vSphere Site Recovery Manager ..... 16
  - InfiniBox Storage Replication Adapter SRA ..... 17
- Host Connectivity Best Practices ..... 19
  - Fiber Channel Zoning Best Practices ..... 19
  - ISCSI Considerations ..... 19
  - Virtual Machine Considerations ..... 20
- vRealize Log Insight ..... 20
  - InfiniBox Content Pack ..... 20
- Additional Resources ..... 21
  - INFINIDAT White Papers ..... 21
  - Other Publications ..... 21
- Trademarks ..... 22

# Introduction

---

Virtualization is the standard in enterprise IT environments for consolidating servers, enhancing business processes that reduces their Total Cost of Ownership (TCO) and helps speed the application development process. However, as improvements have been made with server technology, storage technology, and improving business agility, VMware provides an architecture for server administration that has become the bottleneck. Legacy storage solutions can't keep pace with thousands of virtual machines demanding maximum IOPS along with high bandwidth at the lowest latency.

INFINIDAT's InfiniBox® removes the storage bottleneck for VMware environments. The InfiniBox® enterprise storage array delivers faster-than-all-flash performance, high availability, and capacity density at petabyte scale.

This INFINIDAT white paper is written for VMware and storage administrators to introduce them to the integration capabilities of the InfiniBox for VMware.

# INFINIDAT Terminology

**InfiniRAID®:** a proprietary data layout strategy that provides a unique dual parity protection with 100X better reliability than common RAID 6 strategies. InfiniRAID allows for all drives to participate in all I/O activity, accelerating all write and read operations.

**InfiniSnap®:** high-speed storage-based snapshot technology that allows for thousands of snapshots of with no performance impact.

# VMware Terminology

**VMware ESX and ESXi server:** the virtualization layer (i.e. hypervisor) that runs on physical servers. It allows processor, memory, storage, and networking resources to be provisioned to multiple virtual machines.

**VMware Virtual Machine file system (VMFS):** the abstraction layer that acts as a medium between the storage and the hypervisor layers. The current generation of VMFS evolved to include the following distinguishing attributes, among others:

- ◆ **Clustered file system:** Purpose-built, high performance clustered file system for storing virtual machine files on shared storage (Fibre Channel and iSCSI). The primary goal of VMFS's design consists of functioning as an abstraction layer between the VMs and the storage to efficiently pool and manage storage as a unified, multi-tenant resource.
- ◆ **Shared data file system:** Enables multiple vSphere hosts to read and write from the same datastore concurrently.
- ◆ **Online insertion or deletion of hosts:** Adds or removes vSphere hosts from VMFS volume with no impact to adjacent hosts or VMs.
- ◆ **On-disk disk file locking:** Ensure that the same virtual machine is not accessed by multiple vSphere hosts concurrently.

**VMware Virtual Machine (VM):** a representation of a physical system by software. A virtual machine has its own set of virtual hardware on which an operating system and applications are loaded. The operating system sees a consistent, normalized set of hardware regardless of the actual physical hardware components. VMware virtual machines contain advanced hardware features, such as 64-bit computing and virtual symmetric multiprocessing.

**VMware vCenter Server:** centrally manages VMware vSphere environments from a Windows-based server (either physical or its own VM). Formerly called VMware VirtualCenter.

**VMware vCenter Server Virtual Appliance (vCSA):** provides an alternative option for organizations that chose not to run the Windows vCenter Server by packaging in a Linux distribution.

**vSphere C# Client:** an interface allowing administrators and users to connect remotely to the VirtualCenter (vCenter) Management Server or individual ESX installations from any Windows PC.

**vSphere Web Client:** vSphere Web Client presents a graphical user interface (GUI), with which, the vSphere administrator can manage and supervise the objects listed in the virtualized data center.

**vSphere HTML5 Client:** vSphere 6.5 brings with it significant changes to the vCenter Server management clients, including the vSphere Web Client and new HTML5 based vSphere Client.

**VMware Site Recovery Manager (SRM):** A business continuity and disaster recovery solution for VMware ESX servers providing VM-aware automation of emergency and planned failover/failback scenarios between data centers incorporating either server or storage-based datastore replication.

**vStorage APIs for Storage Awareness (VASA):** a set of APIs that enable vSphere vCenter to recognize the capabilities of storage arrays.

**vSphere APIs for Array Integration (VAAI):** APIs that include the following components:

- ◆ **Hardware Acceleration APIs.** Allow VMs to offload certain storage operations to the array. This integration significantly reduces CPU overhead on the host.
- ◆ **Array Thin Provisioning APIs.** Helps monitor capacity on thin-provisioned storage arrays to perform space reclamation, enabling:
  - ◆ thin-provisioned storage arrays with ESXi.
  - ◆ ESXi host integrates with block-based storage and performs space reclamation. The host can automatically issue the T10 unmap command from VMFS6 and VM guest operating systems to reclaim unused space from the array. VMFS5 supports manual space reclamation.
- ◆ **ATS:** For storage devices that support T10 standard-based VAAI specifications, VMFS provides ATS locking, also called hardware-assisted locking. The ATS algorithm supports discrete locking per disk sector. All newly formatted VMFS5 and VMFS6 datastores use the ATS-only mechanism if the underlying storage supports it, and never use SCSI reservations. When you create a multi-extent datastore where ATS is used, vCenter Server filters out non-ATS devices. This filtering allows you to use only those devices that support the ATS primitive.

# INFINIDAT InfiniBox and VMware Integration

## Integration Concepts

The primary goals for the integration between the INFINIDAT InfiniBox and VMware are:

- ◆ High performance
- ◆ Low latency
- ◆ Seven nines (99.99999%) availability
- ◆ Simple management

The underlying strategies devised within the vSphere storage framework to insulate administrators from complex storage management tasks, non-optimal performance, and capacity resource utilization, include:

- ◆ Enable storage resource-awareness by attaching features and profiling attributes to the storage objects
- ◆ Help administrators make the correct storage provisioning decision for each Virtual Machine or even fully automate the intelligent deployment of Virtual Machine storage
- ◆ Remove many time-consuming and repetitive storage-related tasks, including the need for repetitive physical capacity provisioning

vCenter relies on storage systems like the InfiniBox to fully support several key integration features, effectively implementing these strategies.

Traditional storage provisioning in vSphere typically tasks the vSphere administrator with storage-centric responsibilities such as:

- ◆ Determine the correct datastore on which to initially place a VM's virtual disk
- ◆ Continuously monitor datastores for capacity consumption and performance/latency
- ◆ Ensuring that a VM remains backed by a suitable storage resource throughout its lifecycle



## Host PowerTools for VMware

INFINIDAT Host PowerTools for VMware is a virtual appliance that provides VMware administrators with provisioning capabilities and a simplified process for VM backup and recovery.

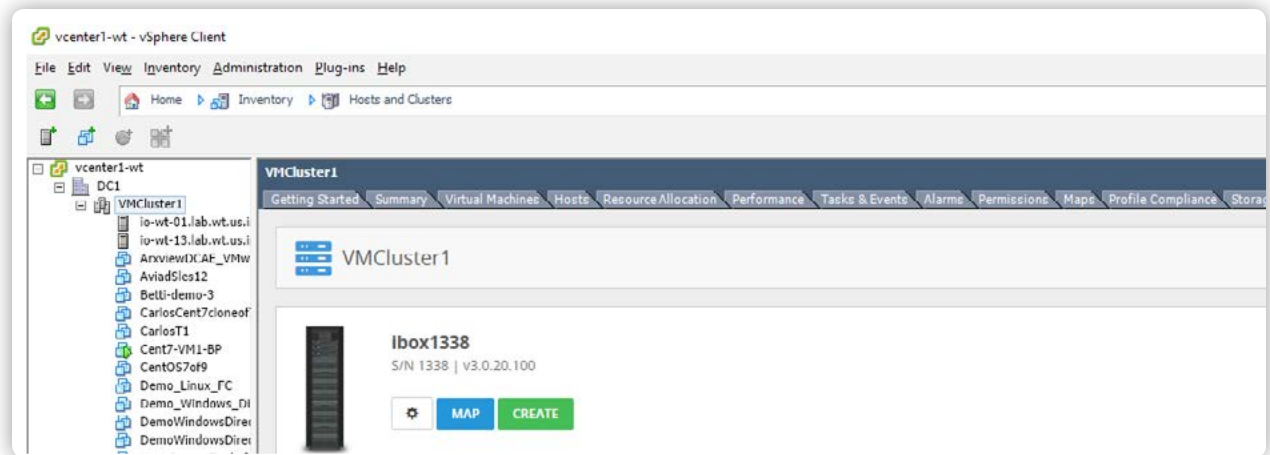


FIGURE 1 INFINIDAT Tab provided in VMware vCenter C# interface

With Host PowerTools, organizations could choose to maintain storage administration within the storage team and/or provide self-service capabilities to the VMware/Server teams. Host PowerTools can also be configured to provide a read-only mode for VMware Administrators.

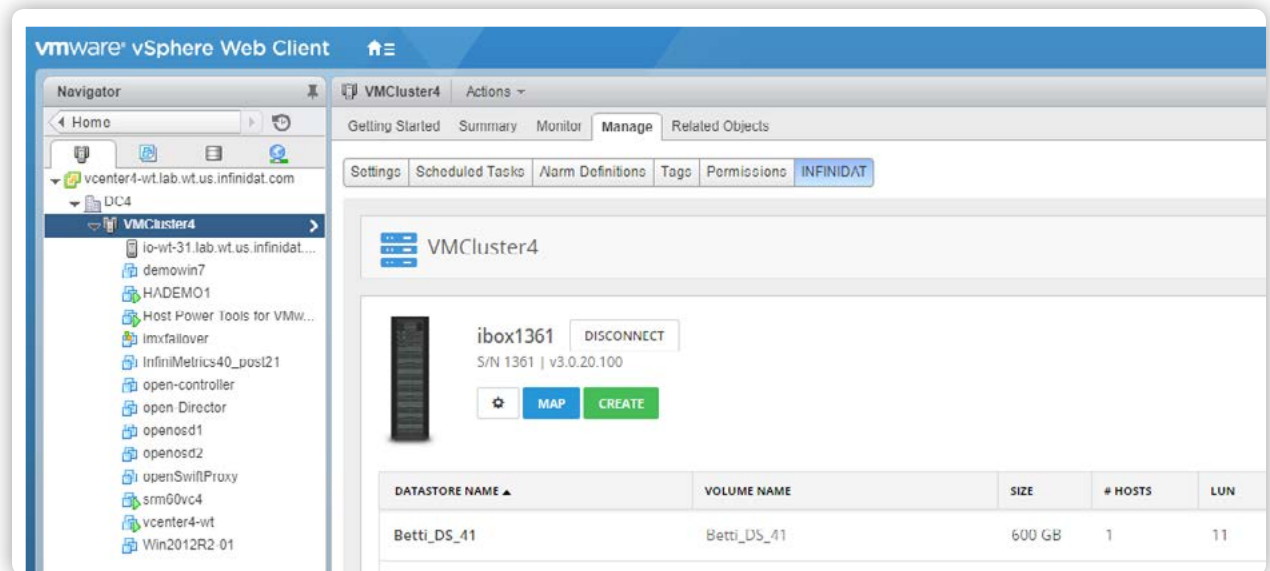


FIGURE 2 INFINIDAT Tab with vSphere Web Client

Host PowerTools for VMware supports both Fibre Channel (FC) and iSCSI protocols for a unified experience.

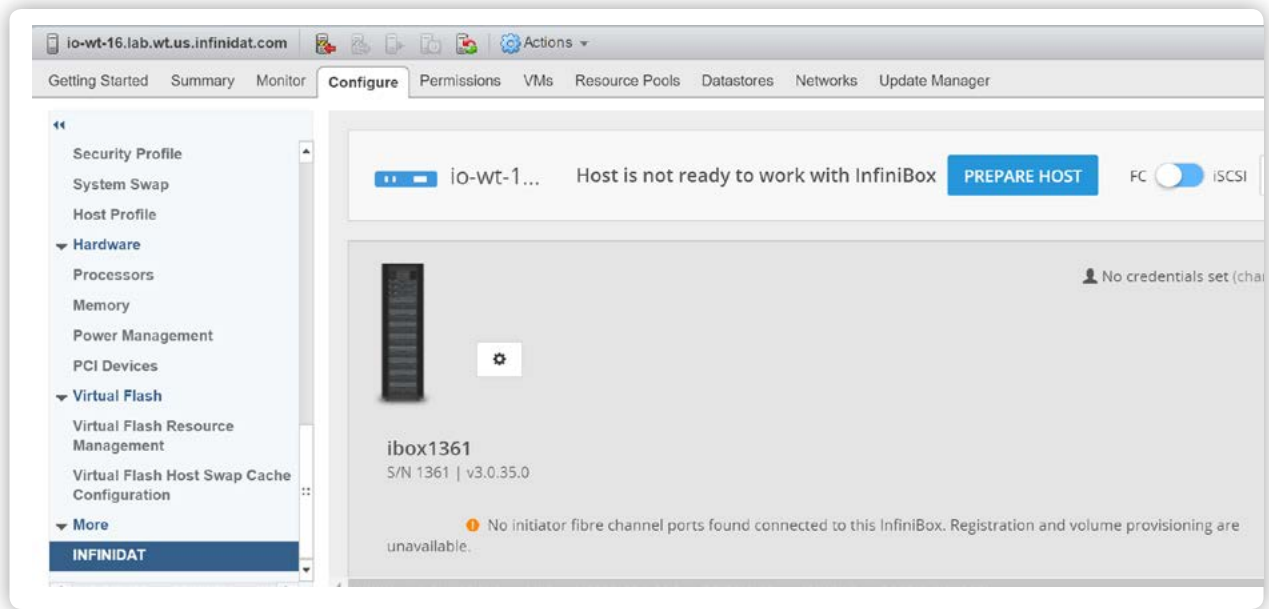


FIGURE 3 vSphere 6.5 web UI

## Installing INFINIDAT Host PowerTools for VMware

Go to the INFINIDAT Support Site (<https://support.infinidat.com/>) and download the OVF. You do not need a login in order to download the software

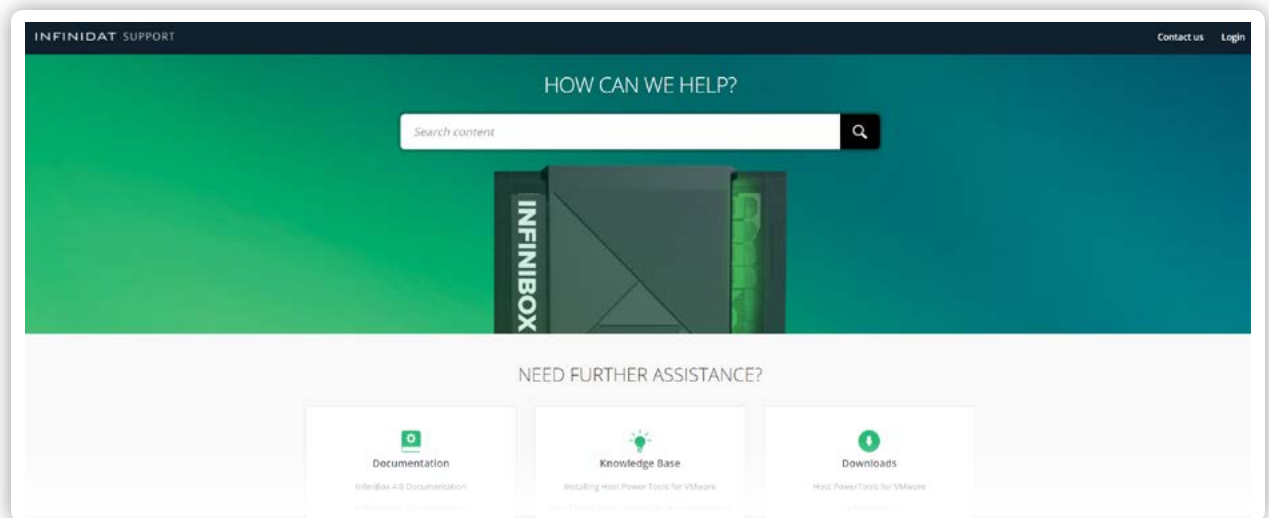


FIGURE 4 INFINIDAT Support site

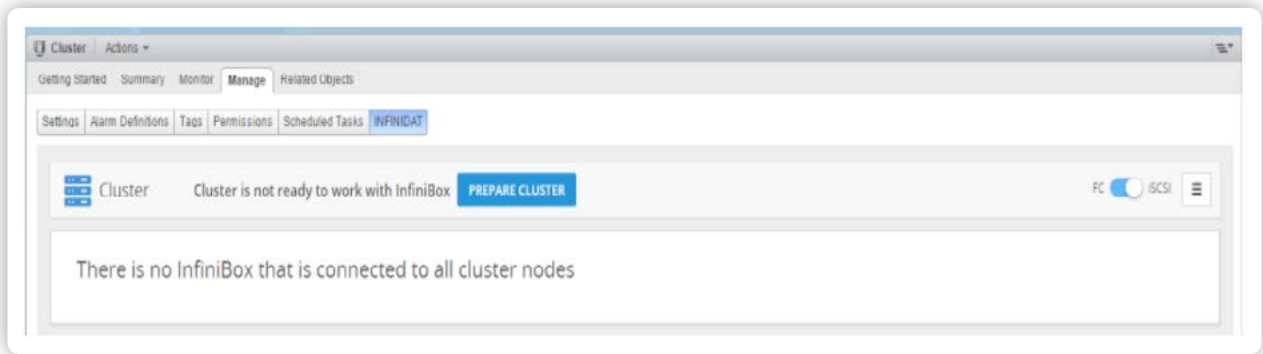
Deploy the Host PowerTools for VMware via the vSphere client for each instance of vCenter.

**Note:** It is recommended to register the cluster or datacenter via Host PowerTools for VMware. Using Host PowerTools will avoid manual registration, reducing errors and registering only those HBAs connected to InfiniBox.



## Best Practices Made Simple with Host PowerTools for VMware

Instead of reading endless pages of best practice documentation and then spending hours configuring vSphere Hosts, Host PowerTools for VMware handles setting up best practices by simply clicking “Prepare Cluster” or “Prepare Host”. A VMware Admin can choose the cluster View which has the “Prepare Cluster” option as seen below in *figure 5*. If the VM admin wishes to do this at the individual host view, they will receive the “Prepare Host” option.



**FIGURE 5** Prepare Host or Prepare Cluster

Prepare Cluster or Host will create a claiming rule for INFINIDAT.

InfiniBox leverages the native multipath I/O capabilities in VMware ESXi. Host PowerTools for VMware, as part of the “Prepare Cluster”, configures a failover-only path selection policy for InfiniBox instead of a round-robin policy.

See *figure 6* below for details of the claiming rule. With other vendors VMware Admins must run a VMware based cli command in order to setup similar rules.

Details of the claiming rule	
KEY	VALUE
Vendor	INFINIDAT
Product	InfiniBox
Storage Array Type	VMW_SATP_ALUA
Path Selection Policy	VMW_PSP_RR
Path Selection Policy options	icops=1

**FIGURE 6** Claiming Rules

Cluster or Host readiness will check if the InfiniBox claiming rule exists. If it does not exist, you will be prompted to create it. Once the claiming rule is created, Host PowerTools for VMware will review existing INFINIDAT volumes to see if they need to be added to

the claiming rule. This 2-click process will insure that your hosts or clusters are following INFINIDAT's VMware best practices and verify that any Infinidat volume possibly provision prior to creating the claiming policy will leverage the new rule.

## Self-Service Provisioning via Host PowerTools for VMware

Storage Administrators can assign a Pool Administrator role to an individual user or group on the InfiniBox. The Storage Admin will create a pool on the InfiniBox and assigns the VMware Admins as Pool Admins. The VMware admins can now provision storage to clusters/hosts as required from that pool.

Host PowerTools for VMware adds an INFINIDAT tab to VMware Center Client as seen in *figure 7* below. The INFINIDAT tab is also available at the cluster, server, and VM level for the Hosts and Cluster view, the Datastores View, and in the VM folders view.

If the Admin is working at the cluster level, they can provision storage to the entire cluster. If the Admin is working at the server level, then storage will only be provisioned to that server.

At the VM level, the options for an individual VM changes.

Options for an individual VM include:

- ◆ Enabling VM snapshots
- ◆ Restoring a VM from a snapshot
- ◆ Exposing a VM
- ◆ And providing information on which array the VM resides, volume name and datastore name.

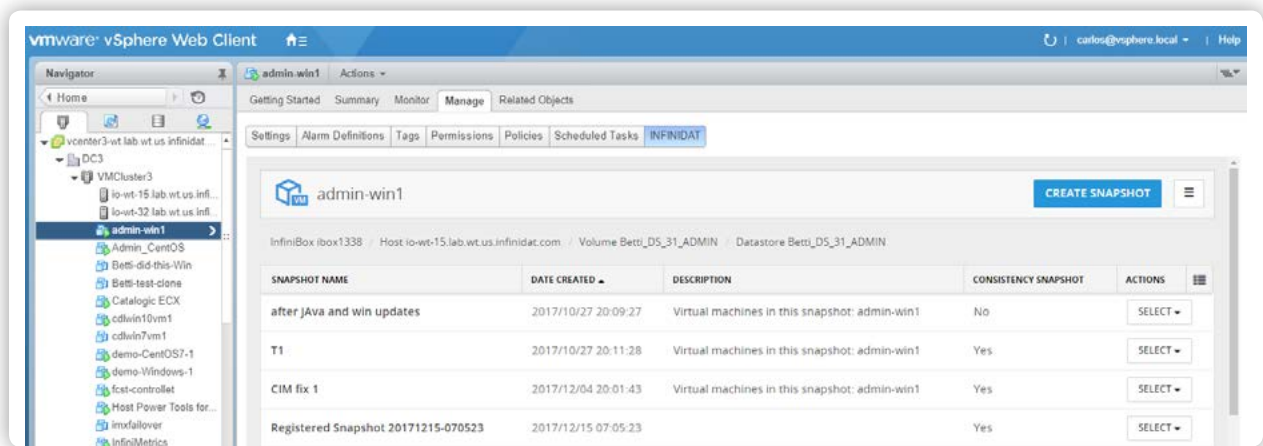


FIGURE 7 INFINIDAT Tab in vSphere Web Client

## Individual VM Snapshot via Host PowerTools for VMware

INFINIDAT InfiniSnap® is a storage system-based snapshot that can be leveraged to create a backup of a Virtual Machine. InfiniSnap is extremely scalable and has no performance penalty. This Snapshot reflects the content of the volume and the datastore the chosen certain point-in-time. InfiniSnap also know a Hardware based snapshots use time stamps as part of the redirect on write snapshots. VMware’s snapshots leverage a copy-on-write mechanism, that causes more IO when the snapshot that contains many changes is deleted.

By leveraging both technologies customers can get a consistent snapshot and maintain snapshots for an unlimited amount of time without performance penalty.

Traditional Storage arrays provide a VMware plugin that normally allows to create crash consistent snapshot on all the VM’s on a datastore.

Host PowerTools for VMware enables granular snapshots and provides the ability to restore a single VM directly from the Host PowerTools for VMware INFINIDAT tab for the VM.

Click on “Create Snapshot” on the INFINIDAT tab on vCenter GUI at the VM level. This will prompt with some simple options.

“SNAPSHOT NAME” and “DESCRIPTION” are free text fields, typically filled-in according to a standard operating procedure.

The “**Perform VMware consistency snapshot**” option enables Host PowerTools for VMware to orchestrate with vCenter to create a VMware-based snapshot, at that moment create an array-based snapshot, and delete the VMware-based snapshot.

The InfiniBox array-based snapshot is synced with the VMware based snapshot to ensure the snapshot has a VMware-consistent state for the VM – *see figure 9*. VMware’s best practice states that the VMware snapshots should only exists for a maximum of 72 hours.

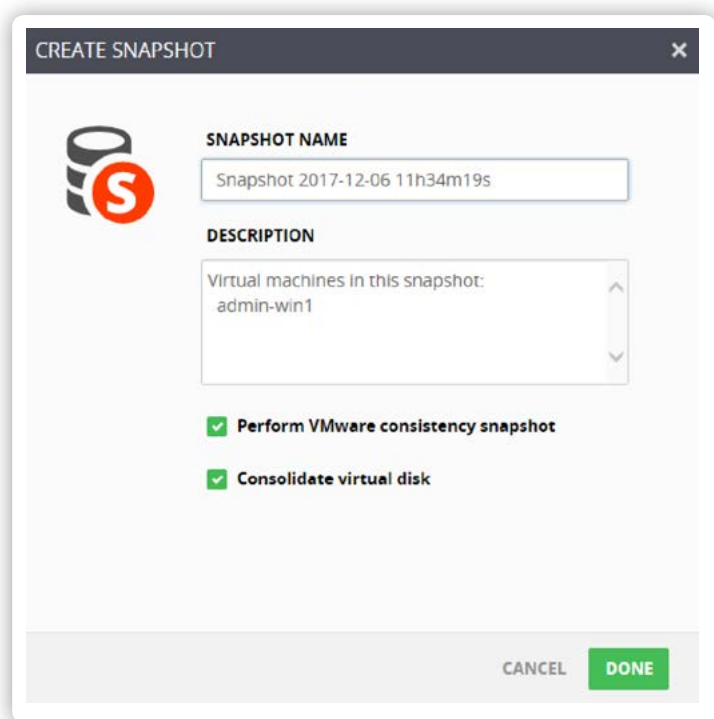
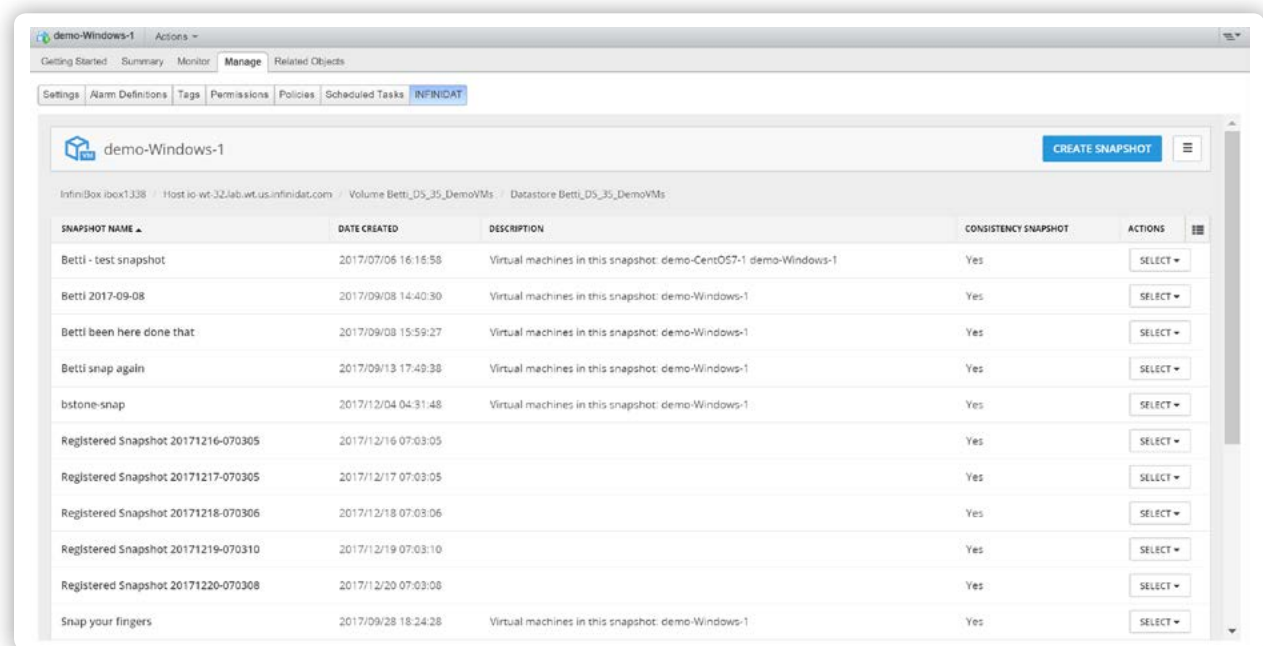


FIGURE 8 Create Snapshot

This allows VMware admins to create a VMware consistent backup without the overhead of VMware snapshots.

**Note:** The “Consolidate virtual disk” option allows customers to skip the last step in deleting VMware based snapshots. Customers typically run a VMware script to clean up the VM's virtual disk when their vSphere business allows. Whenever the VM level snapshot is deleted, the delta file needs to be consolidated into the VMDK file, and set the VMDK back to R/W. As this consolidation takes time and might affect ESXi performance, Host PowerTools for VMware allows the user to skip this consolidation by deleting the VMware snapshot without consolidating the VMDK delta file. However, the user must consolidate the delta file at some point. The consolidation can be scheduled to be run later, when the system is less busy. VMware will remind the VMware admin that a consolidation needs to occur.



**FIGURE 9** VMware Snapshot Management

Empowering the VMware Admin with the flexibility of creating ad hoc snapshots/restore points before changes are made to the VM allows for better Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO).

For example, if an VMware Administrator wants to install a service pack. Take a snapshot before installing the service pack. If there are any issues with the installation or the operation of the service pack, The VMware Admin has a simple and easy ability to quickly restore the VM as it was when the snapshot was taken vs taken the time and loss of data from waiting for Tape Restore from nightly backup.

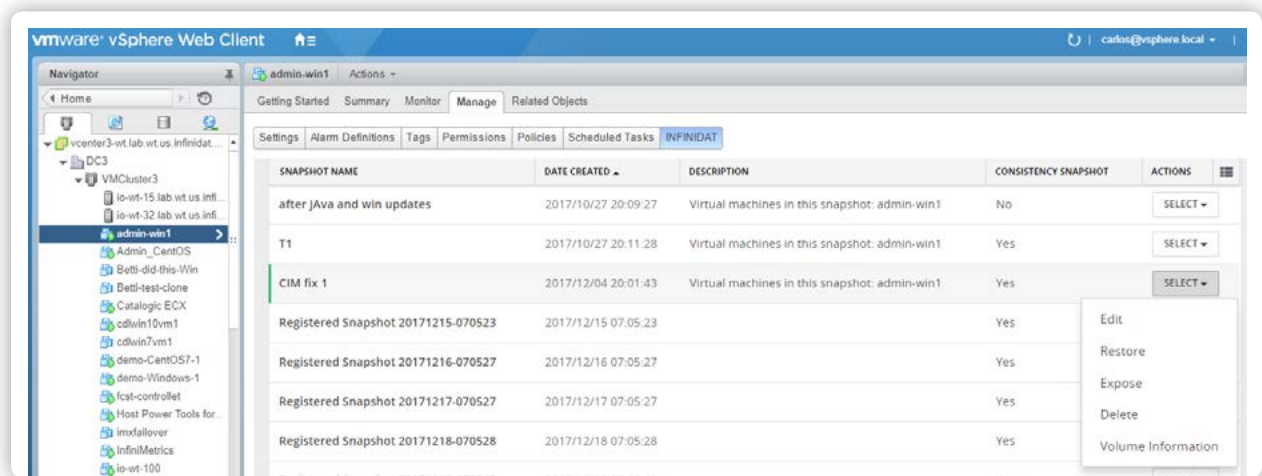
## Individual VM Restore via Host PowerTools for VMware

Single VM restore has been difficult to accomplish with traditional block storage arrays. Most traditional block storage arrays can only offer entire datacenter restore or require a purchase of other software. Host PowerTools for VMware provides this functionality as part of the InfiniBox solution without any additional software installation required. Host PowerTools for VMware provides two powerful ways to restore a virtual machine Restore and Expose. Restore allow VM admins to restore a VM to datastore by leveraging VAA Integration. RESTORE will copy the virtual machine to the designated target Datastore and add the VM to the inventory. This can take a considerable amount of time if the virtual machine is very large.

Expose Allows the VM admin to restore a VM in minutes regardless of the VM size. EXPOSE will mount a writable snapshot, as a new datastore, and add the VM to inventory. This process normally completes in minutes, regardless of the size of the VM.

At this point the customer can run the VM and choose a later time to migrate the exposed VM to a production datastore.

*Figure 10* shows a selected restore point, allowing the VMware Admin to choose to restore or expose the VM.



**FIGURE 10** Snapshots Available for Restore

Restore Snapshot will prompt Admin for the following information:

- ◆ **RESTORED VM NAME** – Host PowerTools for VMware will add “-revert” to the original VM name since VMware requires VM’s to have unique names in inventory
- ◆ **TARGET HOST** – where the restored virtual machine will get its CPU and RAM resources

- ◆ **TARGET DATASTORE** - where the VM will be copied to. Clicking “...” will let the admin pick any available datastore as the target that is on the same InfiniBox
- ◆ **TARGET FOLDER** – the folder where the VM will be deployed within the vSphere client Expose Snapshot will prompt Admin for the following information:
- ◆ **EXPOSED VM NAME** - Host PowerTools for VMware will add “-revert” to the original VM name since VMware requires VM’s to have unique names in inventory
- ◆ **TARGET HOST** - where will the restored VM’s will get their CPU and RAM resources
- ◆ **TARGET FOLDER** – the folder where the VM will be deployed within the vSphere client

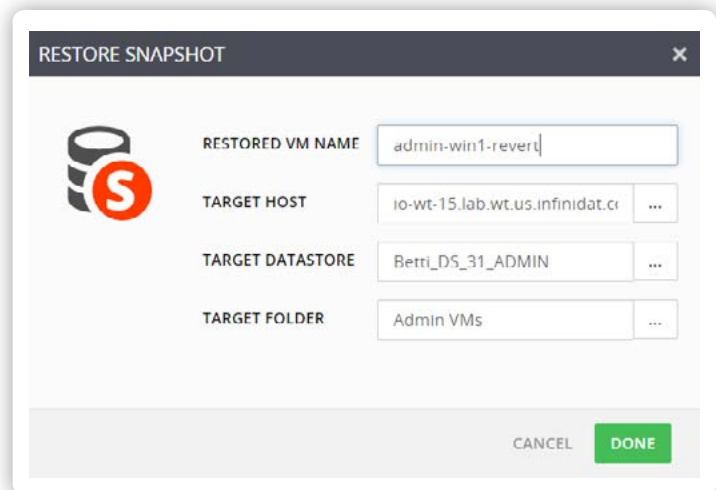


FIGURE 11 Restore Snapshot

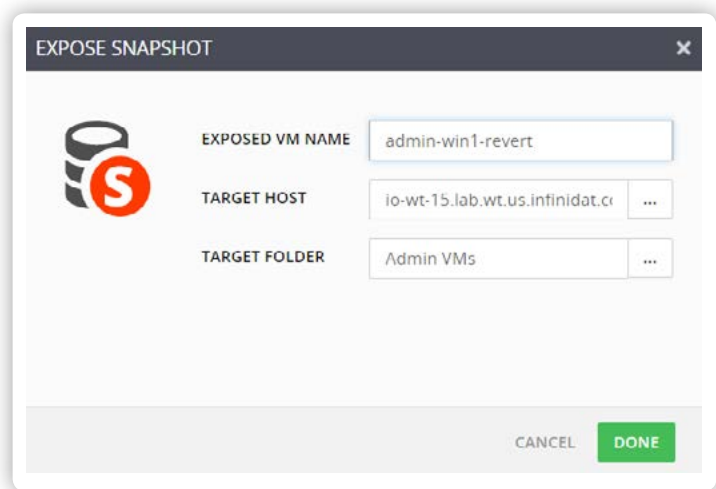


FIGURE 12 Expose Snapshot

## VASA Provider

The installation of Host PowerTools for VMware also installs a VASA (vStorage APIs for Storage Awareness) Provider.

The VASA Provider feeds information about the InfiniBox topology, capabilities and state, including events and alerts.

The VASA Provider can be verified as registered in vCenter (under Home > Storage Providers > Manage). *See figure 13.*



vcneter3-wt.lab.wt.us.infinidat.com Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Scheduled Tasks **Storage Providers** Alarm Definitions Tags Permissions Sessions INFINIDAT

Storage Providers

Group by: Storage system

Storage System/Storage Provider	Status	Active/Standby	Priority	URL	Last Rescan Time	VASA API Version	Certificate Expiry
▼ ibox1338 (1/1 online)		--	0				
com.infinidat.powertools	Online	--	--	https://172.31.84.226:8443/vasa	12/4/2017 12:...	1.0	18024 days

Storage System Details

Name	ibox1338
UUID	NFINIDAT:infinibox-1338
Vendor ID	NFINIDAT
Model ID	InfiniBox
Firmware	3.0.20.100
Alternative names	--
Supported block interfaces	FC, ISCSI
Supported file system interfaces	--
Supported profiles	BlockDeviceProfile, CapabilityProfile

FIGURE 13 Confirm Installation of the InfiniBox VASA Provider

# vSphere Site Recovery Manager

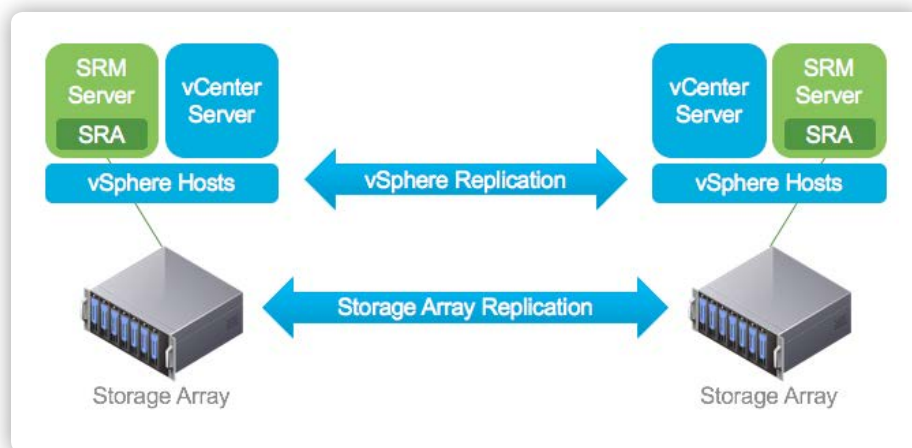
VMware Site Recovery Manager (SRM) is a disaster recovery and business continuity solution that automates the transfer of virtual machines to a local or remote recovery site. SRM works with the existing vSphere software and operates as an extension of vCenter server.

SRM automates the recovery or migration of virtual machines between a protected site and a recovery site. The protected site is your primary site, where active production workloads are running. The recovery site is the datacenter location where you want to move your production workloads in the event of a service impact or disaster in your primary datacenter.

Virtual machines are activated in the recovery site in the event of a disaster or as part of a planned migration. vSphere Site Recovery Manager facilitates the clean shutdown of virtual machines and syncing of changes to the recovery site from the protected site for a planned migration.

SRM Provides automated replication in two ways - vSphere Replication and Array Based Replication (ABR). vSphere Replication is done from ESX server to ESX server at the compute layer. Array Based Replication leverages storage array replication technology and integrates via SRM Storage Replication Adapter (SRA).

An SRA is a program that an array vendor provides that enables Site Recovery Manager to work with a specific kind of array. You must install an appropriate SRA on the Site Recovery Manager Server hosts at the protected and recovery sites.



**FIGURE 14** vSphere SRM Architecture

## InfiniBox Storage Replication Adapter SRA

VMware Site Recovery Manager integrates with third party storage arrays and replication appliances to provide a completely integrated Business Continuity solution. This integration is achieved through a unique Storage Replication Adapter (SRA), created by the storage array or replication vendors.

The INFINIDAT Storage Replication Adapter is a software add-on that integrates with the VMware vCenter Site Recovery Manager (SRM) platform, enabling site-to-site failovers over InfiniBox systems that are deployed on remote sites. The INFINIDAT SRA extends the VMware vCenter Site Recovery Manager capabilities by employing the INFINIDAT remote replication feature, assuring continuous InfiniBox storage availability at both the primary site and secondary site.

The INFINIDAT SRA can be downloaded from the VMware downloads site. Below is a link to Review the VMware Compatibility Guide for your SRM and InfiniBox Version. This Guide will provide the version of SRA that is supported for your environment along with a download link

<https://www.vmware.com/resources/compatibility/search.php?deviceCategory=sra>

**VMware Compatibility Guide**

← Back to Search Results Print

**SRA Detail**

Partner Name: Infinidat  
SRA Name: INFINIDAT InfiniBox Storage Replication Adapter  
SRA Version: 3.0.3

Notes:  
For further details about array firmware, storage product configurations and best practices, please contact the storage vendor.

[rss feed](#)

**SRA Release Details**

VMware Product Name:

---

Management Software Name/Version: Infishell CLI, InfiniBox GUI 2.x, 3.0  
Replication Software Name/Version: INFINIDAT Async Replication 2.x, 3.0  
SRA Download: N/A  
SRA MD5SUM: afc5634b7247b2bb318e56855c845624  
KB Articles: N/A  
Footnotes: N/A

Feature Category	Feature Name	Feature Value
SRA	Standard storage Dynamic Access Restriction (DAR)	

---

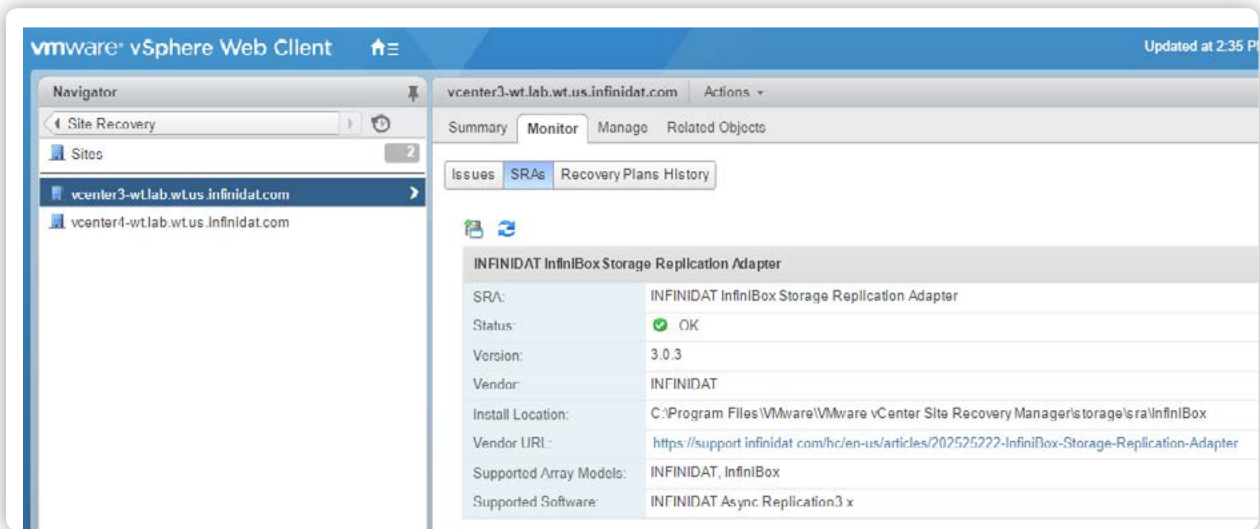
Array Model(s)	Firmware Name	Firmware Version	Array Type
F-Series		2.x, 3.0	FC
F-Series		3.0	iSCSI

← Back to Search Results Print

FIGURE 15 Example of SRA Search Results

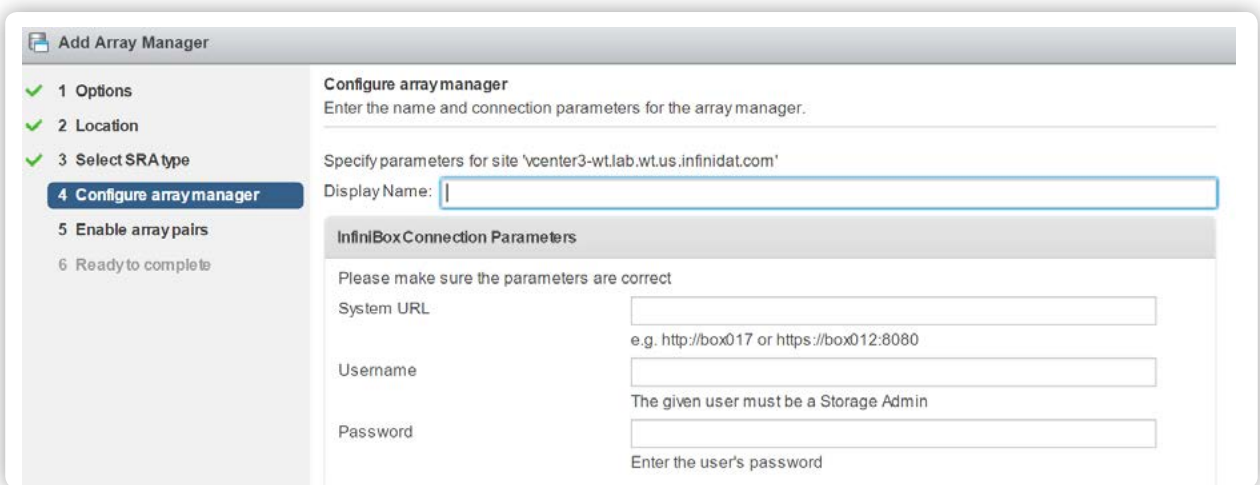
InfiniBox asynchronous replication is based on the innovative, high performance snapshot system using a specialized IP network based on native TCP/IP. The replicas provide the same granularity as the snapshots, in any location, helping IT meet all its geography-specific recovery needs. The asynchronous RPO interval can be as low as 4 seconds, supporting consistency groups across replicas. InfiniBox replication is included with every InfiniBox. SRM's INFINIDAT SRA will leverage InfiniBox replication

After SRA is installed, add Array Manager within SRM. The installed SRA's will be listed shown in *figure 16*.



**FIGURE 16** *InfiniBox Storage Replication Adapter*

The INFINIDAT SRA will only require a display name, and credentials to the InfiniBox (username and password) as shown in *figure 17*.



**FIGURE 17**

**Note:** No other SRA configuration is required to leverage the INFINIDAT SRA.

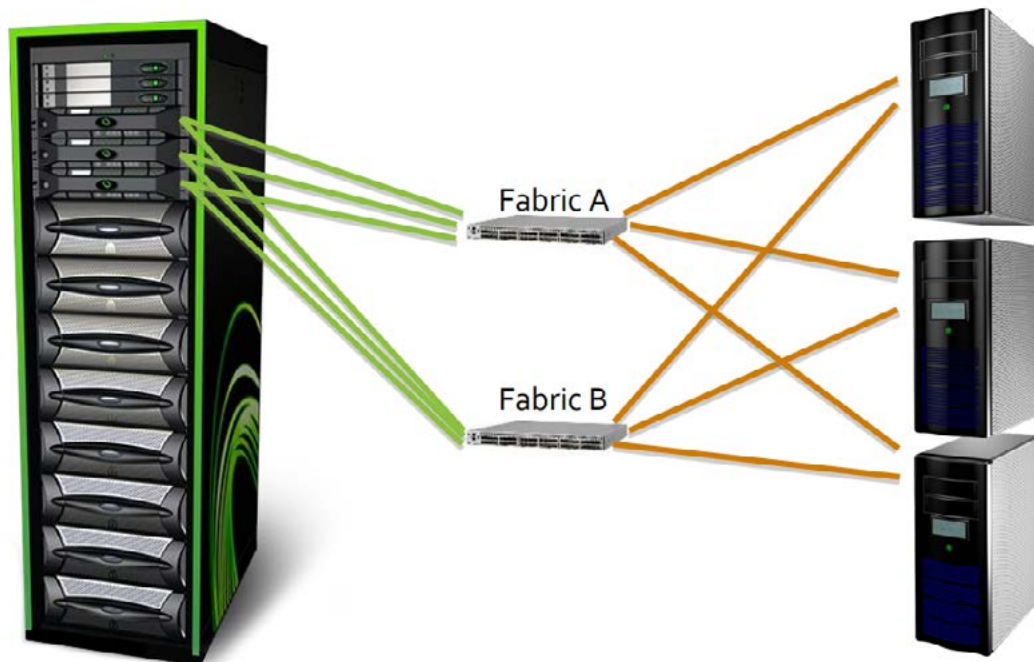
# Host Connectivity Best Practices

## Fiber Channel Zoning Best Practices

Every InfiniBox has three Nodes to ensure the highest performance, availability, and reliability.

Hosts should, at minimum have one path per node. For redundancy, hosts should have at least two paths to every node.

The total number of paths per host should not exceed 12.



**FIGURE 18** *Zoning Considerations*

## iSCSI Considerations

“Setup a Software iSCSI Adapter” is VMware code built into the VMkernel. It enables your host to connect to the iSCSI storage device through standard network adaptors.

The software iSCSI adapter handles iSCSI processing while communicating with the network adaptor. With the software iSCSI adapter, you can use iSCSI technology without purchasing specialized hardware.

After the Software iSCSI Adapter is installed, run “Cluster or Host Check” as described in previous section. Refer to [support.infinidat.com](http://support.infinidat.com) for more details.

## Virtual Machine Considerations

INFINIDAT recommends using lazy-zeroed thick provisioning for all hard disks, rather than thin. This provides the best sequential addressing and optimal read performance.

If conversion is necessary when migrating VMs from old storage to InfiniBox, it's recommended to perform the migration while the VMs are powered off and to convert the virtual disks to thick provisioned.

## vRealize Log Insight

vRealize Log Insight provides intelligent log management for infrastructure and applications in any environment. This highly scalable log management solution provides intuitive, actionable dashboards, sophisticated analytics, and broad third-party extensibility. It provides deep operational visibility and faster troubleshooting across physical, virtual, and cloud environments.

InfiniBox integration is done using a light weigh plugin, called Content Pack. Content Packs add additional awareness to vRealize Log Insight through pre-defined information related to a specific product or set of logs.

### InfiniBox Content Pack

The InfiniBox Content Pack for vRealize Log Insight provides customers with the capability to easily monitor and analyze InfiniBox storage arrays by converting InfiniBox syslog messages into helpful insights. The Content Pack aggregates valuable information and intelligently organizes the data in 10 convenient dashboards. Each dashboard contains several intuitive widgets and serves a different purpose. In addition, another strength of the Content Pack is that it can be easily customized. Customers are also able to modify any dashboard and create views with their specific interests.

**Overview dashboard** provides a high-level visibility across multiple InfiniBox systems in a single pane.

There are three **Activities dashboards**, each provides a centralized view for different system activities.

Six **Troubleshooting dashboards** provide comprehensive insights to quickly analyze problems, each focuses on different issues.



INFINIDAT InfiniBox, along with INFINIDAT Host PowerTools for VMware, and VMware's storage features, significantly reduce the complexity of deploying and managing storage resources. With the InfiniBox, storage administrators can provide consistent performance and quick change request turn around. It is now easier for VMware Admins to keep performance levels high and storage optimally-provisioned.

## ADDITIONAL RESOURCES

### INFINIDAT WHITE PAPERS

Links to at least three other white papers on the support site (speak to your account team for help obtaining these docs)

- ◆ **Best Practices for using VMware vSphere with InfiniBox**

<https://support.infinidat.com/hc/en-us/articles/202403861-Best-Practices-for-using-VMware-vSphere-with-InfiniBox>

- ◆ **InfiniBox 4.0 Documentation**

<https://support.infinidat.com/hc/en-us/categories/115000883205>

- ◆ **InfiniBox best practices guides**

<https://support.infinidat.com/hc/en-us/articles/207057109-InfiniBox-best-practices-guide>

### OTHER PUBLICATIONS

Links to at least three other white papers on the support site

- ◆ **vSphere 6.5 Documentation Center**

<https://docs.vmware.com/en/VMware-vSphere/index.html>

- ◆ **COMMVAULT IntelliSnap INFINIDAT Overview**

[http://documentation.commvault.com/commvault/v10/article?p=features/snap\\_backup/infinidat/overview.htm](http://documentation.commvault.com/commvault/v10/article?p=features/snap_backup/infinidat/overview.htm)

- ◆ **VMware Compatibility Guide**

<https://www.vmware.com/resources/compatibility/search>.

## TRADEMARKS

INFINIDAT and the INFINIDAT logo are registered trademarks of INFINIDAT Ltd. In the United States, and/or other countries.

These and other INFINIDAT trademarked terms are marked on their first occurrence in this information with the appropriate symbol (® or ™), indicating US registered or common law trademarks owned by INFINIDAT at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries.

The following terms are trademarks of INFINIDAT in the United States, other countries, or both:

INFINIDAT®, InfiniBox®, InfiniSnap®, InfiniRAID®, InfiniMetrics®, InfiniShell®, Storing the Future®

The following terms are trademarks of other companies:

VMware, ESX, and the vCenter are trademarks of VMware Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product, or service names may be trademarks or service marks of others.

The information in this document is confidential to the person to whom it is addressed and should not be disclosed to any other person. It may not be reproduced in whole, or in part, nor may any of the information contained therein be disclosed without the prior consent of the directors of INFINIDAT ('the Company'). A recipient may not solicit, directly or indirectly (whether through an agent or otherwise) the participation of another institution or person without the prior approval of the directors of the Company.

Any form of reproduction, dissemination, copying, disclosure, modification, distribution and or publication of this material is strictly prohibited.

INFINIDAT, The INFINIDAT logo, InfiniBox, InfiniRAID, InfiniSnap, Host PowerTools, and any other applicable product trademarks are registered trademarks or trademarks of INFINIDAT LTD in the United States and other countries.

Other product and service names might be trademarks of INFINIDAT or other companies. A current list of INFINIDAT trademarks is available online at <http://www.INFINIDAT.com/legal/trademarks/>

# INFINIDAT

[www.infinidat.com](http://www.infinidat.com) | [info@infinidat.com](mailto:info@infinidat.com)