



# StoneFly USS vs Dell vs HPE SimpliVity vs Cisco HyperFlex vs NetApp

Comparing the data security, ransomware protection, performance, storage capabilities of enterprise hyperconverged appliances

## Scope of the Document

The hyperconverged infrastructure (HCI) market is riddled with buzzword-based marketing. The corporate hype machine powered by millions of dollars-worth of marketing creates a lot of noise and dilutes the real message and purpose of an HCI appliance. For instance, the mainstream use of the word “hybrid cloud” by most HCI appliance vendors is baffling, even though the primary purpose is to provide high performance hosts for mid to large-scale virtual environments running on VMware, Hyper-V, KVM, Citrix, Nutanix, or StoneFly Persepolis hypervisors.

In this document, we list relevant and actual capabilities businesses should look for in an HCI appliance, and which vendors offer them.

## Data Security and Ransomware Protection Features

Hackers leverage vulnerabilities in mainstream hypervisors to gain access to corporate and government networks to distribute ransomware, steal information, and encrypt systems. This makes it necessary for a reliable HCI appliance to have integrated data security and ransomware protection features.

Here are the security and ransomware protection features you should look for in an HCI appliance and which vendors offer them:

	StoneFly USS	Dell	HPE SimpliVity	Cisco HyperFlex	NetApp
Software-Defined Network Isolation Zone	✓	✗	✗	✗	✗
Immutable File Storage Lockdown	✓	✓	✓	✓	✓
Immutable S3 Object Storage Lockdown	✓	✗	✗	✗	✗
Immutable Delta-based Snapshots	✓	✓	✓	✗	✓
Air-Gapped and Immutable Elastic ObjectLock	✓	✗	✗	✗	✗
Air-Gapped and Immutable FileLock	✓	✗	✗	✗	✗

	StoneFly USS	Dell	HPE SimpliVity	Cisco HyperFlex	NetApp
Air-Gapped and Immutable User-Defined WORM	✓	✗	✗	✗	✗
Air-Gapped Controller with Air-Gapped & Immutable Repositories	✓	✗	✗	✗	✗
End-to-End Encryption for Data in Transit/Rest	✓	✓	✓	✗	✓
Chain of Command Security in Multi-Controller(s)	✓	✗	✗	✗	✗
Multi-Factor Authentication (MFA)	✓	✓	✓	✓	✓
Anti-Ransomware/Malware/Virus Scanner	✓	✗	✗	✗	✗
Virtual Sandbox Environment for Testing/Spin Up	✓	✗	✗	✗	✗
Optional Direct VM Spin Up	✓	✓	✓	✓	✓
Cloud Connect to Public/Private Cloud	✓	✓	✓	✓	✓
Shared-Nothing High Availability Cluster	✓	✓	✓	✓	✓
Automated Failover/Failback	✓	✓	✓	✓	✓
Optional Backup and Restore Accelerator (BRA)	✓	✗	✗	✗	✗
Optional Integrated Hardened Veeam Engine	✓	✗	✗	✗	✗
Optional Secret Key Communication with Veeam-Storage	✓	✗	✗	✗	✗

## Data Storage and Optimization Features

HCI appliances are used for mid to large scale virtual environment deployment. In order to keep up with the required IOPS, the HCI appliances must come with features that facilitate read/writes, and optimize storage consumption.

Here's a list of storage features businesses should look for in HCI appliances, and which vendors offer them:

	StoneFly USS	Dell	HPE SimpliVity	Cisco HyperFlex	NetApp
SAN Block Storage (iSCSI and Fibre Channel)	✓	✓	✓	✓	✓
NAS (File-Based) CIFS/NFS	✓	✓	✓	✓	✓
S3 Object Storage	✓	✗	✗	✗	✗
Block-Mode Replication Sync/ Async	✓	✗	✓	✓	✓
Multi-Controller Support (Up to 4 per Node)	✓	✗	✗	✗	✗
Expansion – Scale Up Support	✓	✓	✓	✓	✓
Expansion – Scale Out Support	✓	✗	✗	✗	✗
Deduplication	✓	✓	✓	✓	✓
Thin Provisioning	✓	✗	✗	✗	✗
Space Reclamation Technology	✓	✗	✗	✗	✗
Frontend SSD Caching	✓	✓	✓	✓	✓
Automated Hot & Cold Tiering	✓	✗	✗	✗	✓
Scale Out to Unlimited Nodes	✓	✗	✗	✗	✗
Single Namespace Scale Out Support	✓	✓	✓	✓	✓
Load Balancing	✓	✓	✓	✓	✓

## Hyperconverged Infrastructure Management Features

With security, ransomware protection, and storage optimization covered, the next priority on the list should be management. That's because the easier it is to manage the infrastructure, the less time and money it takes, and the more efficient and reliable it is.

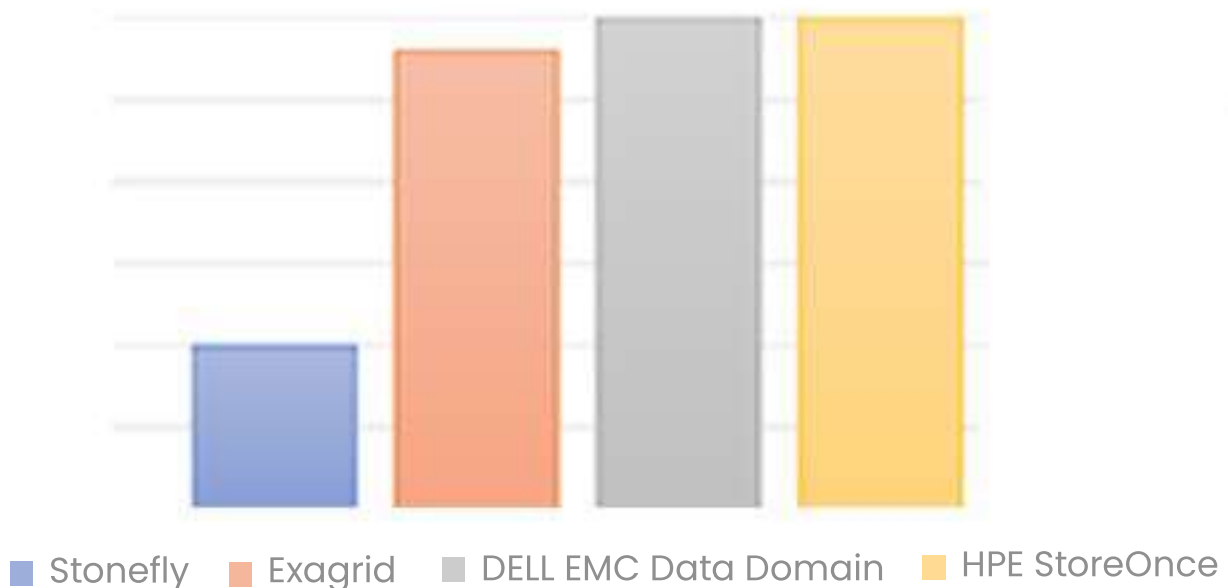
Here are the management features businesses should look for in HCI appliances and which vendors offer them:

	StoneFly USS	Dell	HPE SimpliVity	Cisco HyperFlex	NetApp
Single Pane of Management	✓	✓	✓	✓	✓
Ease-of-Deployment	✓	✓	✓	✓	✓
Real-Time Monitoring and Reporting	✓	✓	✓	✓	✓

## Pricing Comparison: StoneFly USS vs Dell vs HPE SimpliVity vs Cisco HyperFlex vs NetApp

The cost of a backup and DR solution depends on the hardware specifications, software features, and licenses – which makes it impossible to plot actual numbers.

Here's a graph to illustrate the price difference between different solutions:



Note: The graph is for illustrative purposes only.

# Pros and Cons of Dell vs HPE SimpliVity vs Cisco HyperFlex vs NetApp

The following information is a summary of authenticated user reviews from various tech review forums and websites.

## Pros and Cons of Dell HCI Appliances (VXRail, and PowerFlex)

Pros	Cons
Single pane of management makes it easy to manage the HCI appliance	No built-in ransomware protection using automated air-gapping, immutable S3 object lockdown, or anti-ransomware/malware scanner.
Scaling up (adding more storage) is easier.	Higher per TB costs than other solutions with the same storage, and compute capabilities, features, and warranty.
VXRail makes VMware integration easy as it's purpose-built for VMware.	Updates are time consuming, and disruptive.
	Initial installation services and support aren't as helpful and leave a lot to be desired.
	Tech support is unpredictable and a hit or miss when it comes to product knowledge.

## Pros and Cons of HPE SimpliVity

Pros	Cons
Built-in VM backups and file recovery that facilitates quick recovery.	No built-in ransomware protection using automated air-gapping, immutable S3 object lockdown, or anti-ransomware/malware scanner.
Compression and dedup helps with storage consumption.	Higher per TB costs than other solutions with the same storage, and compute capabilities, features, and warranty.
Creating datastores is easier and does not require LUNS or iSCSI management. HPE SimpliVity simplifies it and allows the creation of datastores larger than 2TBs.	Difficult to move data to other storage media from HPE SimpliVity, for backup/storage/archiving.
	Backups are stored locally. Depending on retention schedules, this may create storage and compute issues.
	Since backups are stored locally, it makes the HCI appliance vulnerable to data loss and with no built-in ransomware protection features, mitigation requires additional third-party software and services.
	Adding more memory or storage is complex and requires expensive licensing.

## Pros and Cons of Cisco HyperFlex

Pros	Cons
Well suited for VMWare due to built-in integration with VMware ESXi.	No built-in ransomware protection using automated air-gapping, immutable S3 object lockdown, or anti-ransomware/malware scanner
Documentation makes installation and implementation easier.	Higher per TB costs than other solutions with the same storage, and compute capabilities, features, and warranty. Yearly subscription cost is too high for smaller organizations.
Support is knowledgeable and kb articles help with troubleshooting.	Expanding storage in a cluster is complex and disruptive because each cluster has dedicated storage. Capacity needs to be managed separately per cluster.
Centralized management for VMs, clusters, and HCI appliance nodes.	Barrier to entry for new users on account of the complexity of Cisco HyperFlex. Steep learning curve for inexperienced IT professionals without prior experience with the OS and HCI appliance.
	No option to create datastores using PowerShell scripts.
	Does not support multi-cloud deployment.

## Pros and Cons of NetApp HCI Appliances

Pros	Cons
Automated deployment for virtual machines.	No built-in ransomware protection using automated air-gapping, immutable S3 object lockdown, or anti-ransomware/malware scanner.
Centralized management makes it easier for IT admins to manage multiple VMs, nodes, clusters, and data stored in the cloud.	Higher per TB costs than other solutions with the same storage, and compute capabilities, features, and warranty. Yearly subscription cost is too high for smaller organizations.
It's easy to individually scale compute and storage resources for VMs.	Compute (processing) is not enough for the storage offered in most NetApp HCI appliances. Complex cabling issues, especially in 4U units.
Scale up (adding more storage capacity) is easier.	Multiple customers experienced their NetApp HCI appliances crash randomly. Often times, these crashes happened multiple times in a year.
	Installation is difficult and network configuration is tedious.
	It takes long to get a hold of tech support and resolve an issue.

# Build a High Performance, Scalable, Secure, and Affordable Hyperconverged Infrastructure

For VMware, Hyper-V, KVM, Citrix, and StoneFly Persepolis Hypervisors



Available in 4, 8, 12, 16, 24, 36-bay appliances, StoneFly Unified Storage and Server (USS™) HCI appliances provide a consolidated solution that combines compute, storage, and networking in a turnkey solution. The USS appliances come with built-in ransomware protection, security, and storage optimization features which provide the best value for money experience in the HCI market.

The StoneFly USS HCI appliances support most mainstream hypervisors including VMware, Microsoft Hyper-V, KVM, Citrix, and StoneFly Persepolis. Moreover, the appliances also come with StoneFly's patented and award-winning storage virtualization engine SCVM™ that integrates the security, storage, and optimization features, in addition to cloud-based storage.

## Ransomware Protection Features in StoneFly USS

- Automated air-gapped controller, and repositories locally and in the cloud.
- Immutable file and S3 object storage lockdown – on-premises and in the cloud.
- End-to-end encryption at rest and transit.
- Anti-ransomware/malware/virus scanner with automated threat scan for dormant malware.
- Multi-factor authentication for the controller(s), repositories, and HCI appliance nodes.
- Optional integrated hardened Veeam engine.

## Storage Features in StoneFly USS

- SAN (iSCSI and Fibre Channel), NAS (NFS or CIFS/SMB), and on-premises and cloud-based S3 object storage.
- Block-mode sync/async replication to local virtual controller/repository, secondary on-premises/offsite appliance, and target storage in the cloud.
- Multi-controller support (up to 4 per node).
- Seamless scale up and scale out to virtually unlimited number of HCI appliance nodes.

## Storage Optimization Features in StoneFly USS

- Deduplication with high compression ratio.
- Thin provisioning with idle space reclamation and repurposing technology.
- Automated hot/cold storage tiering.
- FlashCache™ frontend SSD caching for frequently accessed data.
- Automated load balancing to prevent bottlenecks.

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