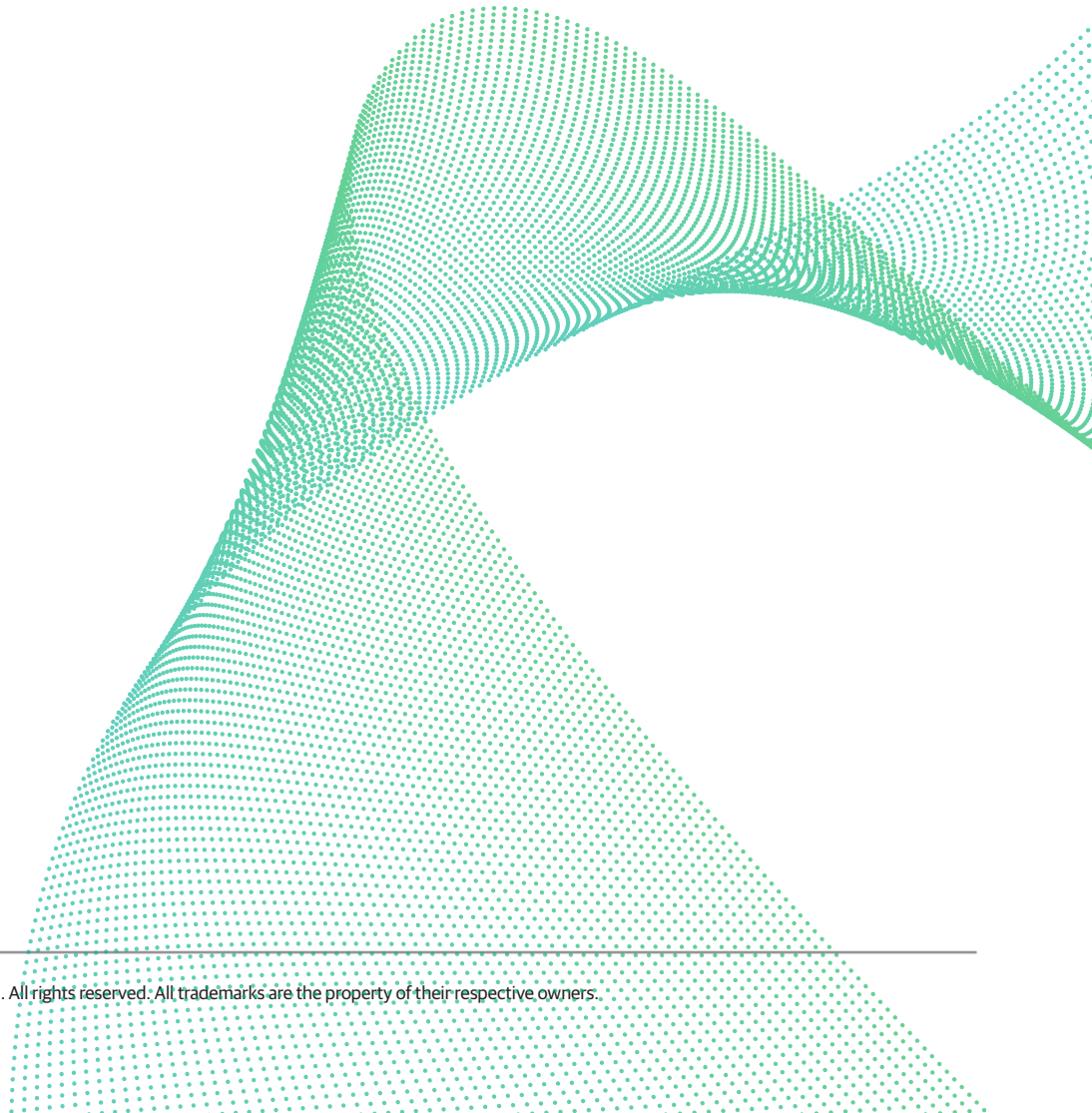




The Changing Role of Backup and Secondary Storage



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As IT infrastructure is commoditizing, hyperconverged architectures bring cloud-like management experience, better scalability, simpler software and increased integration. Customers are relying on hyperconverged vendors to architect systems that balance computing power, storage and networking resources. These solutions liberate IT from the grunt work of knowing all the details that impact design and knowing the locations of bottlenecks.

In contrast, designing an enterprise backup system is still a highly complex process where customers need to gather requirements, evaluate multiple solutions and do their homework to acquire the expertise to deploy it themselves, with all potential hidden performance and scalability bottlenecks. No wonder backup and recovery continue to be a top concern for IT departments.

In this white paper, we'll talk about the changing role of backup and secondary storage in the data center, how hyperconverged infrastructure influences secondary storage and how integration of the **scale-out aspects of hyperconverged with the power of backup and recovery software delivers increased business results.**

Hyperconverged infrastructure changed how enterprises consume infrastructure

The goal of hyperconverged infrastructure is to eliminate complexity in the data center by collapsing compute, storage, networking and virtualization into a simple to manage scale-out building block replacing separate servers, storage networks and storage arrays.



Figure 1 Hyperconverged architecture
(from <https://www.nutanix.com/hyperconverged-infrastructure>)

While vertically integrating physical silos into a single, simple, scale-out architecture has operational benefits, the success of hyperconverged infrastructure comes from its simplified, integrated management and application awareness; what previously was three silos of resources and a hypervisor on top is now federated, distributed and integrated into a single management and data plane across all physical nodes. The management software aggregates all resources into a single pool and eliminates separate management solutions for servers, storage, storage networks and virtualization.

There are many advantages of using hyperconverged infrastructure, but organizations tend to go with hyperconverged infrastructure for these specific reasons. All-in-all, **customers cite¹ improved operational efficiency (27%), reduced cost (26%) and improved scalability (24%) as expected results from hyperconverged infrastructure.**

¹ <https://www.nutanix.com/go/state-of-the-enterprise-datacenter>

Designing, sizing and ordering made simple

Hyperconverged infrastructure systems come pre-integrated and fully supported; unlike traditional three-tier infrastructure where the customer is responsible for the integration points between silos and working across silos to identify issues, hyperconverged infrastructure comes in pre-built packages, which make design, sizing and procurement easy.

Turnkey deployment and small physical footprint

These turnkey appliances make data center deployment easy to deploy and use less rack space, taking all the complexity out of installing and configuring and reducing the time-to-value.

Simplicity of management, operational efficiency and support

Hyperconverged infrastructure massively simplifies operational tasks, increases efficiency and frees up time. Automation and policy-based management effectively make the infrastructure invisible. This allows IT to focus on changing business requirements instead of keeping the infrastructure running.

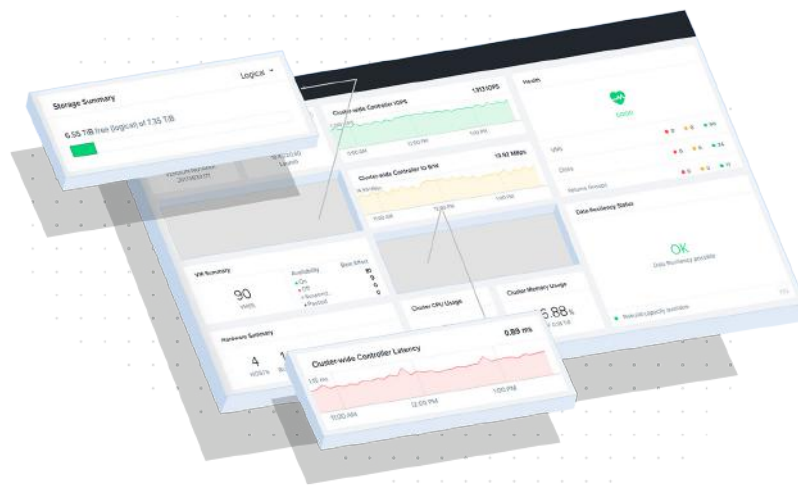


Figure 2 Nutanix Prism is an example of great user experience of infrastructure management (source <https://www.nutanix.com/hyperconverged-infrastructure>)

Predictable scalability

Hyperconverged infrastructure systems take the guesswork out of scalability. With proven and tested scale-out options, scalability is linear. While scaling happens on a per-physical-node basis, there's no hidden bottlenecks or limitations like the traditional three-tier approach.

The per-node scalability has benefits for fractional consumption too. Instead of the big, capital-intensive investments every few years, nodes can be purchased as needed, adding capacity or replacing older and out-of-support nodes at a steady interval on an operational budget.

But something is missing from hyperconverged infrastructure

There are still parts of the data center that have not converged into this platform, such as backup and recovery functionality and secondary storage for a backup target. Even as customers embrace HCI, secondary storage and backup silos persist.

What if we could leverage the advantages of hyperconverged infrastructure for both secondary storage and backup?

Secondary storage is hard

Secondary storage is hard to get right in many ways. Let's look at some of the real-life challenges of secondary storage to see where current architectures fall short.

Hard to size, order and deploy

Designing and sizing secondary storage requires deep domain knowledge and experience, which is expensive and not always available within an organization.

Hardware requirements change not only depending on the use case, but also depending on the chosen software solution. Keeping that knowledge up-to-date is expensive and keeps admins from doing more important work.

Hard to manage, operate, scale and support

There is a lack of operational integration between multi-label IT components, so IT has no common view to coordinate all aspects of the infrastructure to simplify management.

In the day-to-day work, a large portion of time spent on operational tasks goes into managing the complexity of secondary storage environments, or in other words, keeping the lights on. Similarly, support for a multi-vendor solution is overly complex, which does not improve the support experience when they need it the most.

Legacy backup and recovery are challenging

Common issues with legacy backup and recovery solutions

Many IT teams have worked with legacy vendors for years with a "if it's not broken, don't fix it" approach to legacy backup and recovery solutions. Most of the legacy solutions were built for the physical world way before the advent of virtualization or the cloud as an option.

Here are a few issues that arise from a failure to update backup and disaster recovery solutions:

Built for the past, not for the future

Highly virtualized hybrid cloud worlds need to meet aggressive SLAs for IT service recovery that can be measured in seconds and minutes, versus the hours and days often required by legacy technologies.

According to [IDC](#), Veeam® customers meet their recovery time and point objective (RTO/RPO) SLAs 91% of the time compared to only 69% with other legacy providers.

Customer satisfaction vs. frustration

Veeam's customers are overwhelmingly satisfied with Nutanix hyperconverged infrastructure solution for its functionality, ease of use, technical support and sales effectiveness. With a [Net Promoter Score \(NPS\)](#) of 73, three and a half times the industry average, nine out of 10 Veeam customers WOULD recommend Veeam to their peers.

Leveraging the power of hyperconverged infrastructure for backup and secondary storage

So how do you actively make the most of both your secondary storage platform and backup? Given the topic of this paper, the easy answer would be: "combine backup and secondary storage into the hyperconverged infrastructure," but the reality is a little more complex.

Let's try to unravel that complexity to understand how to make the most out of your secondary storage platform. We'll talk about two important pillars:

1. Hyperconverged secondary storage
2. Best-in-class backup and recovery software

Integration turns scale-out storage into hyperconverged secondary storage

A scale-out architecture on its own does not solve issues around integration of all the components that make up such a system. As discussed, a major benefit of hyperconverged infrastructure is the level of integration to create a turnkey solution. This integration turns a collection of adjacent technologies into a single, engineered solution that makes designing and sizing, ordering, deployment, managing, scaling and support easy. Horizontal integration expands the data primary fabric to secondary storage and even to public cloud, eliminating the need for traditional archival devices.

Best-in-class backup software creates a true hyperconverged, integrated backup solution

A hyperconverged stack fixes many issues with designing, sizing, ordering and deploying secondary storage, as it's still just the storage part of the equation. It needs best-in-class backup software to make the most of it and become hyperconverged backup. Instead of manually bolting on products from different vendors on top of secondary storage to create hyperconverged backup, the keyword, again, is integration.

These integrated, single-click workflows automate and execute tasks from start to finish instead of having to switch across scattered across interfaces to complete a task. Many workflows are included out-of-the-box, reducing the amount of customization and automation needed in each customer environment, while retaining the advanced functionalities and features, from granular backup and restores of many application types, to re-using backup data for quick restores, disaster recovery and dev/test environments.

Great user experience meets best-in-class backup: Nutanix Mine *with Veeam*

We've talked about the advantages of adding secondary storage into the hyperconverged storage fabric and integrating a modern, best-in-class backup software solution into the hyperconverged infrastructure. In the next chapters, we'll talk about Nutanix Mine *with Veeam* in-depth to dive into this concept.



Nutanix Mine *with Veeam* is a single hyperconverged backup product that leverages the advantages of Nutanix's hyperconverged infrastructure and applies it to both secondary storage and the backup software environment.

Nutanix Mine *with Veeam* enables business continuity without the friction of managing legacy secondary storage solutions. It is a turnkey solution that allows IT to spend time on business projects instead of keeping the backup infrastructure running.

Veeam Backup & Replication™ supports a magnitude of sources, targets and configurations. The broad support for multiple environments makes it a popular backup solution and it works in practically any environment. This award-winning software product is fully integrated in Nutanix Mine *with Veeam*, providing identical features and functionality in a right-sized hyperconverged form factor.

Streamlined sizing, designing and architecture

Hyperconverged backup takes the guesswork out of the architecture design.

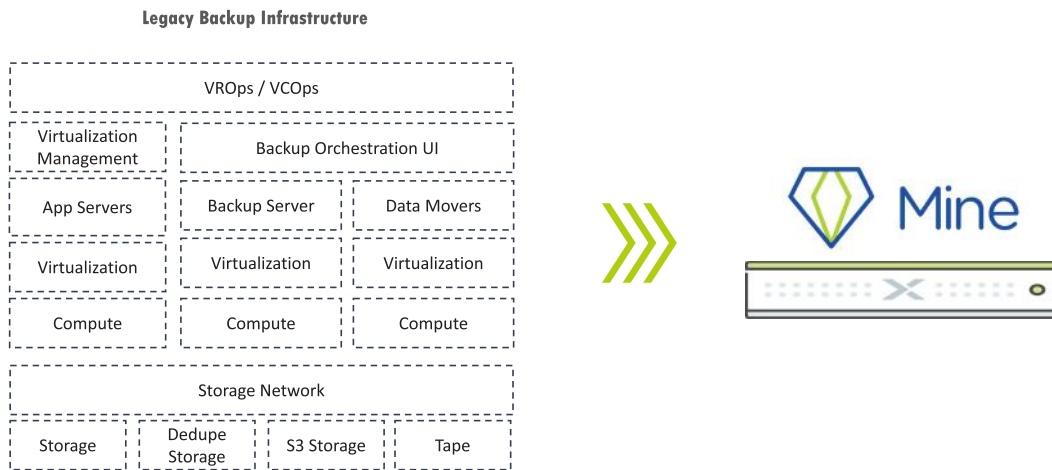


Figure 5 Hyperconverged backup simplifies architecture



Nutanix takes care of the architecture design of the solution. With Nutanix Sizer, sizing and designing secondary storage with Veeam software is easy. Sizing an environment is completely automated based on the primary environment; just add the sizing of the primary environment and the Nutanix Mine *with Veeam* footprint is sized accordingly.

This makes ordering much simpler too. A single SKU for your hyperconverged backup solution that includes the secondary storage environment and Veeam licenses (if needed). Existing Veeam customers can use their existing [VUL](#) licenses to Nutanix Mine *with Veeam* at no additional cost.

Deploy effortlessly

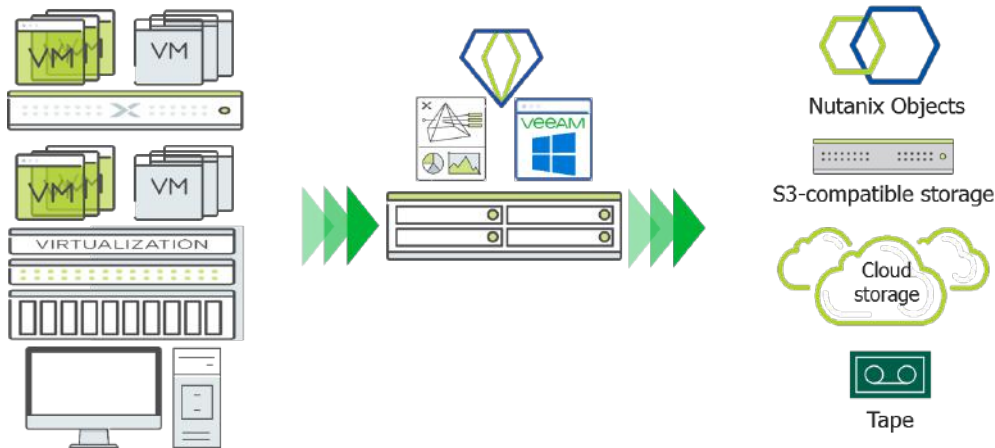
Nutanix Mine *with Veeam* is a true turnkey solution. Plug it in, run the Nutanix Foundation and Foundation for Mine software to install and it's ready to protect workloads. By optimizing configuration parameters specifically for the Nutanix secondary storage environment and AHV, ESXi or Hyper-V source environments, all the complexity that is required for regular backup infrastructure can be pre-configured for ultimate performance.

This takes the guesswork out of the equation and tunes the different components – Veeam proxies, repository roles, Nutanix storage configuration, visibility into primary storage for snapshotting – automatically. This results in a highly optimized integration between the various components, with no customer-specific customization required.

Not just Nutanix primary environments

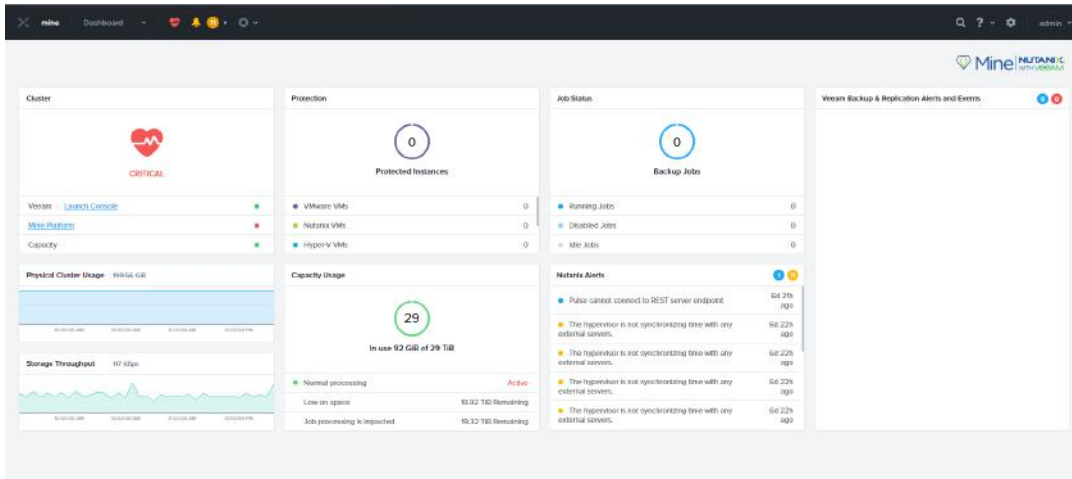
While integrated into the Nutanix secondary storage and Prism management layers, Nutanix Mine with Veeam is not restricted to just backing up workloads on the Nutanix AHV hypervisor. Naturally, VMware ESXi and Microsoft Hyper-V on Nutanix clusters are supported hypervisors.

In addition, workloads on non-Nutanix infrastructure as well as physical servers can be backed up to Nutanix Mine with Veeam for a complete backup and recovery solution for your whole IT environment.



Unify operations

With a scale-out storage system and policy-based backup management, managing the day-to-day becomes little more than watching for out-of-policy alerts and checking the capacity runway.



Even with the beta version of the dashboard, all valuable information is presented in a single view. The secondary storage cluster health status and capacity runway give admins the at-a-glance overview of current and future state of the storage, including alerts and recent events from the Nutanix cluster, and the backup and recovery status.

The Prism interface shows the number of physical and virtual machines under protection while showing which ones aren't currently protected. An overview of the backup job status informs admins to the current protection state. From this overview, admins can dive into the hyperconverged backup console for storage, source environment or backup infrastructure for more granular day-to-day operations.

Scaling with the business in simple steps

Instead of the plethora of options in the market, Nutanix and Veeam has boiled down the options for a secondary storage cluster to a few simple units of scale, which can be combined in a single cluster.

These simple units of scale are pre-architected to scale with the business flexibly and quickly and come in three sizes: Small (96 TB raw storage), Medium (192 TB raw storage) and scale-out nodes for expansion (96 TB raw). Combined with the ease of procurement and deployment, business initiatives that require additional applications (and result in more backup infrastructure to support those primary applications) are not delayed by the backup infrastructure.

A common delay is licensing. Often, licenses are not considered during scaling events, resulting in unusable capacity or unprotected VMs. With Nutanix Mine *with Veeam*, licenses are part of the unit of scale, making sure that adding capacity adds the right number of supported VMs, physical servers or enterprise applications Plug-ins for Oracle RMAN & SAP HANA.

Each addition to the secondary storage cluster does not only expand capacity. It expands performance, networking, and backup and recovery performance. With every expansion, the Nutanix and Veeam backup infrastructure architecture are adjusted and optimized automatically.

Simple support

Nutanix Mine *with Veeam* has a joint support model, removing all of the friction of getting support. The single-vendor support model helps customers get the most out of their solution in the worst of times.

Application granularity

Backup is done for one single reason: being able to recover data in the case of an emergency. The emergency can be an incident impacting a single person or a company-wide disaster. Recovery of data has to handle single file and item recoveries from a breadth of different applications, along with entire virtual machines and data centers. Without these granular restore options, restoring is exorbitantly expensive and time-consuming. Nutanix Mine *with Veeam* supports granular restore for many applications, including Microsoft Active Directory, Exchange, SQL, virtual machine and file-based recovery, and soon file (NAS) support.

De-stage archive to cost-effective object storage

Backup is no longer just an on-premises only play. Most restores are done with the most recent backup; rarely are older backups used for restores. Similarly, disaster recovery only used the most recent copy of data.

That means that long-term retention is seldom touched. Secondary storage may be overkill for storage of colder data. Veeam provides a path to longer-term data retention solutions like Nutanix Objects, Veeam Cloud Tier, tape media and much more.

Veeam Cloud Tier – automatic tiering for object storage



Nutanix Object



Amazon S3 & S3-Compatible



Microsoft Azure Blob



IBM Cloud

Secondary backup copies to other devices or cloud



Backup Repository



Cloud Repository



Off-line Tape

Conclusion

Hyperconverged infrastructure brings a cloud-like experience to the data center. A superb management experience and easy scalability liberates IT from the grunt work of keeping the infrastructure lights on. **All parts of the backup infrastructure lifecycle are massively simplified, from design and sizing to ordering, deployment and management, and scaling and support.**

Hyperconverged backup solves these issues by

1. Extending the hyperconverged storage fabric into secondary storage, bringing the advantages of hyperconverged infrastructure to secondary storage.

2. Natively integrating best-in-class backup software.

Nutanix Mine *with Veeam* creates a true turnkey solution that is easy and quick to deploy, without any customer-specific customization required. When your business requires additional capacity, scaling out is as easy as adding additional nodes. Nutanix Mine *with Veeam* takes care of the auto-scaling of both the secondary storage and the Veeam architecture.

With Veeam Backup & Replication™ in the driver's seat of Nutanix Mine *with Veeam*, business continuity is guaranteed. Veeam's advanced features enables business to not just take out an insurance against data loss but gives them the practical tools to quickly and granularly restore any type of data.

For more information, visit: <https://www.veeam.com/nutanix-backup-solution.html>, and select the Nutanix Mine *with Veeam* product tab.

About Veeam Software

Veeam® is the leader in Backup solutions that deliver Cloud Data Management™. Veeam provides a single platform for modernizing backup, accelerating hybrid cloud and securing your data. With 365,000+ customers worldwide, including 81% of the Fortune 500 and 66% of the Global 2,000, Veeam customer-satisfaction scores are the highest in the industry at 3.5x the average. Veeam's global ecosystem includes 70,000+ partners, including HPE, NetApp, Cisco and Lenovo as exclusive resellers. Headquartered in Baar, Switzerland, Veeam has offices in more than 30 countries. To learn more, visit <https://www.veeam.com> or follow Veeam on Twitter [@veeam](https://twitter.com/veeam).

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