

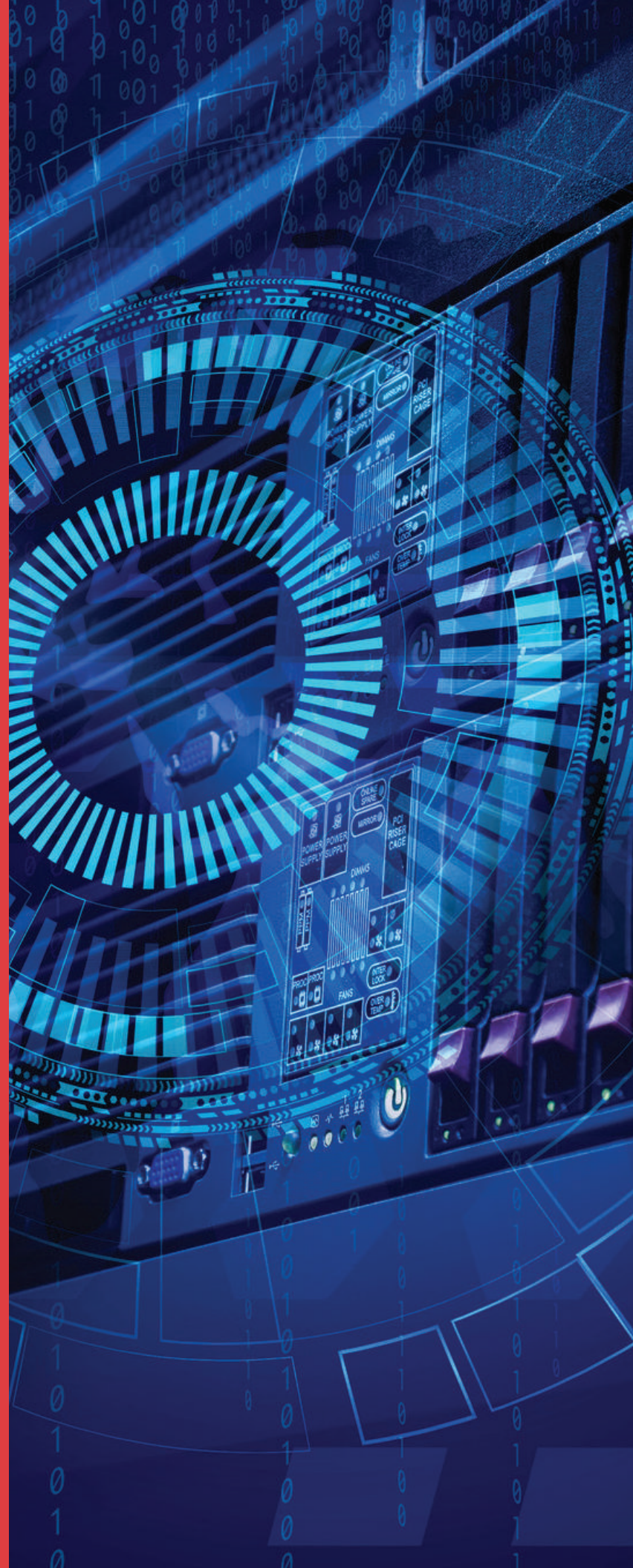
WHY BACKUP IS BREAKING HYPER-CONVERGED INFRASTRUCTURES AND HOW TO FIX IT

By George Crump



Why Backup is Breaking Hyper-Converged Infrastructures and How to Fix it

The goal of a hyperconverged infrastructure (HCI) is to simplify how to apply compute, network and storage resources to applications. Ideally, the data center's IT needs are consolidated down to a single architecture that automatically scales as the organization needs to deploy more applications or expand existing ones. The problem is that the backup process often breaks the consolidation effort by requiring additional independent architectures to create a complete solution.



How Backup Breaks Hyperconvergence

Backup creates several separate architectures outside of the HCI architecture. Each of these architectures need independent management. First, the backup process will often require a dedicated backup server. That server will run on a stand-alone system and then connect to the HCI solution to perform a backup. Second, the dedicated backup server will almost always have its own storage system to store data backed up from the HCI. Third, there are some features, like instant recovery and off-site replication, that require production quality storage to function effectively.

The answer for IT is to find a backup solution that fully integrates with the HCI solution, eliminating the need to create these additional silos.

The Dedicated Backup Server Problem

For an HCI committed data center, a dedicated backup server forces the need for a separate silo of compute outside of the HCI environment. It will also require the organization create some form of high

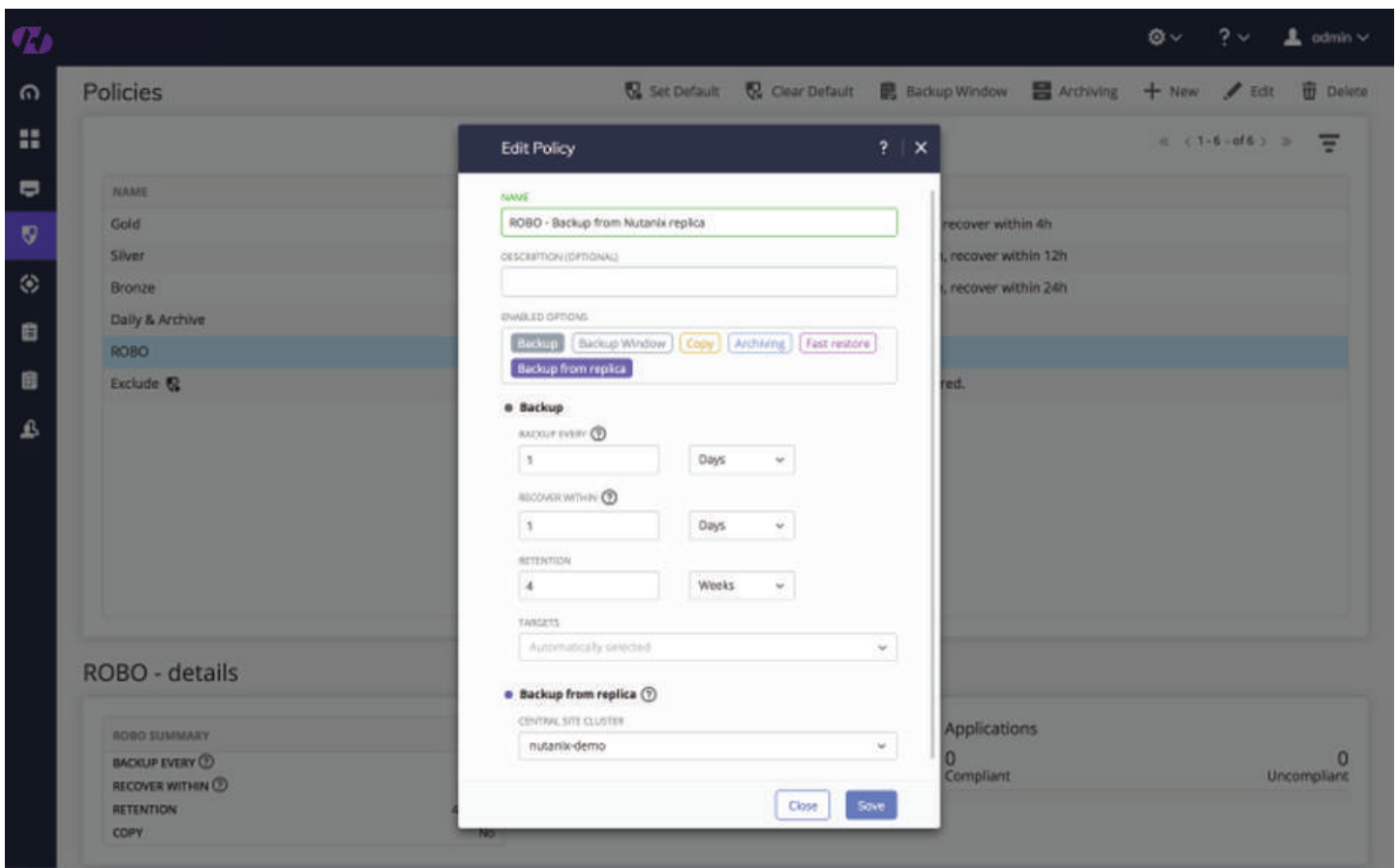
availability for the backup server, so backups, and more importantly restores, don't grind to a halt if the backup server fails. Also, as the environment scales the backup server may need to be upgraded to keep pace.

If, instead, the backup software integrates into the HCI environment, it can run within that environment and not have to require separate resources. Doing so addresses availability and eliminates upgrades because the backup application will now be portable across the various nodes within the HCI cluster.

The Backup Storage Silo Problem

The next challenge for the HCI committed data center is dealing with backup storage. Since most backup solutions require their own stand-alone backup storage, HCI organizations tend to buy dedicated backup appliances, creating yet another layer in the once consolidated infrastructure.

Backup software that integrates with the HCI solution can use HCI capacity for backup storage. Most HCI solutions have high capacity nodes designed to store redundant data like backups. For increase resilience, the backup solution could backup data to a different HCI cluster.



The Feature Problem

Most backup applications have added features designed to make the day-to-day life of IT easier. The problem is most of these features create a conflict for the HCI committed data center. One example is Instant Recovery, also known as boot from backup. This feature enables IT, in the event of a problem, to create a virtual machine's volume on the backup device and point the virtual machine at it.

Instant recovery is a powerful and popular feature, but it creates a significant challenge in HCI environments. First, most HCI solutions will not support, easily, storage volumes from outside the HCI environment itself, so to rapidly restart an application they need to have a secondary compute cluster that can access the boot from backup recovery process. After resolving the original problem, IT then needs to figure out how to move the VM and its data back into the HCI cluster.

A backup solution integrated into the HCI environment can access storage accessible within the same cluster. So restarting a virtual machine and pointing it to a volume created by the backup application is seamless. Even if the backup application is sending backup data to another HCI cluster moving VMs between like clusters, from the same vendor, is straightforward.

Another challenge with stand-alone backup applications is they often can't take advantage of the unique capabilities of the HCI solution. Most HCI vendors have made a significant investment in their storage software and provide many advanced features. Supporting the capabilities of the storage component of the HCI solution means the ability to improve backup performance, snapshot retention and even eliminate common negative issues like the stuning of virtual machines prior to a snapshot.

A final area is replication, which protects the organization against a site disaster. Most of the aforementioned backup appliances can replicate software from the primary site to a secondary site. The problem is that these backup appliances don't coordinate that replication with the backup software. The backup software is unaware the replication has occurred. The result is IT needs to check the backup software to see if the backup completed successfully, and then check the backup appliance to see if the replication job completed successfully.

Some backup applications do have their own built-in replication, but these then lie in conflict with the backup appliance replication. In both cases, the replication process and the storage that is the target of the replication job are separate entities and must be managed as separate tasks.

Backup software that integrates with the HCI environment eliminates the disaster recovery concern. If data is protected on the first cluster and then replicated to the second cluster of the same HCI solution massive amounts of redundant backup and disaster recovery investments are eliminated. The solution can also leverage the HCI data efficiency techniques to make WAN transfer more efficient and accurate.

Simplicity Lost, Simplicity Returned

In addition to the additional costs associated with the extra layers that backup software places on the HCI solution, it also increases complexity. Each of these layers have their own management console, which is outside of the HCI management console. A backup software solution that integrates into the HCI solution will leverage the same console, making the implementation, management, and monitoring of HCI protection significantly easier.

StorageSwiss Take

Without backup software integration into the HCI environment the organization is left with an HCI strategy that started off with a goal consolidating and simplifying IT to a single platform but when the protection process is applied ends up with 3-4 unique and independently managed hardware and software layers. A better solution may be to find a backup solution that is integrated directly into HCI environment. Doing so eliminates redundancy while maintaining simplicity and improving data protection capabilities.



The Firm

Storage Switzerland is the leading storage analyst firm focused on the emerging storage categories of memory-based storage (Flash), Big Data, virtualization, and cloud computing. The firm is widely recognized for its blogs, white papers and videos on current approaches such as all-flash arrays, deduplication, SSD's, software-defined storage, backup appliances and storage networking. The name "Storage Switzerland" indicates a pledge to provide neutral analysis of the storage marketplace, rather than focusing on a single vendor approach.



About Our Partner

HYCU is a pioneering enterprise software company specializing in data backup, recovery and monitoring for hyperconverged infrastructures (HCI). HYCU harnesses 25 years of sophisticated IT outsourcing, insights from over one million users, and work experience with more than 25,000 customers, more than 10 ISVs and 350 employees to create a deep and unrivalled well of industry expertise. The result is unsurpassed build alignment with industry leaders and a formidable competitive advantage in the HCI space. HYCU's flagship product, a purpose-built backup and recovery solution for Nutanix, is acclaimed in the industry and features performance and value that are unmatched. Headquartered in Boston, HYCU makes it easy for customers to thrive in a hyperconverged world.

The Analyst

George Crump is the founder of Storage Switzerland, the leading storage analyst focused on the subjects of big data, solid state storage, virtualization, cloud computing and data protection. He is widely recognized for his articles, white papers, and videos on such current approaches as all-flash arrays, deduplication, SSDs, software-defined storage, backup appliances, and storage networking. He has over 25 years of experience designing storage solutions for data centers across the U.S.

