



**Inside Track**  
Executive Brief



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# Modern Data Protection for HCI

HCI has moved on, and data  
protection for HCI has to  
catch up

## Introduction

Key elements of essential IT infrastructure are evolving with unprecedented speed. One area where the advance from “new technology” to “ready for mainstream use” has been especially quick is hyper-converged infrastructure, now widely referred to as HCI. Indeed, HCI has grown-up so rapidly that enterprises large and small are adopting the platform to support an expanding range of workloads.

But no IT system exists in isolation, which raises the question of whether HCI’s evolution has outstripped other essential parts of the IT ecosystem. In particular, how well has data protection (DP) kept up with the growth of HCI?

## State of HCI adoption today

There is no doubt that HCI has moved from pilot projects to supporting many important business workloads. For example, in addition to the workloads it was first deployed for, such as virtual desktop infrastructure (VDI) and general-purpose virtualization, many organizations also now use HCI for production database systems and cloud-native apps. Other infrastructure uses include supporting high-availability applications and disaster recovery, while some organizations are deploying HCI systems to support SAP HANA.

This broad spread of business-critical applications and services makes data protection for HCI more important than ever. This almost makes it essential to investigate the data management capabilities of your HCI platform: are they sufficient to protect your business requirements, or will additional tools be required?

## Data protection needs are changing

HCI is now firmly in the mainstream and, as mentioned above, its use is broadening and it supports a growing diversity of business systems. However, HCI usage cannot be considered on its own, because there are other factors that are also stressing data protection in enterprises large and small.

### Speed of protection, frequency of protection

We all know that, for almost every organization, the amount of data they hold is expanding at an accelerating rate. However, it is not simply the volume of data that is stressing data protection systems. That data is also copied, edited and modified more often – and the rate of change is accelerating. For many data sets, weekly or even daily backups are no longer adequate.

Traditional data protection tools, including the likes of snapshots, are good for certain scenarios and data sets, but are not a complete solution for all business and regulatory requirements and every data set. More importantly, recovery needs have changed: some data cannot wait days, or even hours for restoration.

## Data can be anywhere

It is not simply the volume of data and its velocity of change that is stressing data protection systems. As hybrid IT becomes an everyday reality, it is also the wide range of physical locations where data is now routinely created and stored (Figure 1).

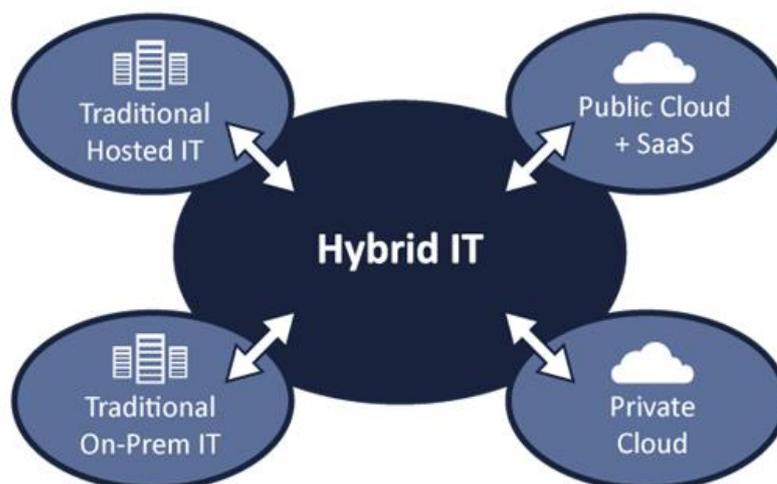


Figure 1: Hybrid IT aims to converge and integrate multiple IT delivery models

## Are HCI's native DP capabilities incomplete?

HCI systems are designed, as far as possible, to be self-managing black boxes. Most solutions therefore include functionality such as automated data replication and snapshots. While this functionality is useful, it is rarely sufficient to meet enterprise data protection needs. Let's consider this in a little more detail.

**Replication is useful, but it isn't enough:** Replication can inadvertently propagate corrupt data, mistaken deletions, and so on, and local replication does not provide a logical 'air-gap'. With ransomware still a major threat, it is essential to have copies of data separated by an access cut-off, or air-gap. One proven method to implement an air-gap solution is to integrate suitable tape technology into your data protection solution.

**Lack of separation:** While in-built data protection and management tools can be sophisticated, they typically replicate the data onto the same platform. This is fast, and is great if all you want is to use the original data for another purpose. In data protection terms it allows snapshots to be recovered very rapidly, for example.

However, with local replication there is still a significant risk of data loss if an entire rack, or possibly even a data center, should fail. Such problems do occur far more often than we like, even in the most highly available systems. Only replication to another physically separated solution at a second location can protect here.

**Granular Recovery:** Backup and DP solutions only exist in order to allow data to be recovered when and where it is needed. But in these times when fast recovery is vital, no one wants to restore gigabytes or terabytes of data when only a few hundred

megabytes are really needed. For example, it's a problem if an entire VM must be recovered in order to salvage just a small subset of its data.

## Added data protection functionality

The conclusion is that for most, if not nearly all, workloads, it will make sense to supplement the native facilities inherent in HCI systems with modern data protection, backup and archive functionality. There are several options here, including the idea of protecting the HCI system or appliance with another appliance.

A modern approach also allows data protection of HCI systems to be integrated with existing management tools to avoid creating another data protection silo. But what does such a system need to deliver? There are several requirements that are obvious.

**Protect all data:** The data accessed by your HCI systems could be anywhere – in your data center or computer room, at a hosting data center, or even in a public cloud. Most or all of this business information needs appropriate protection. Not every data set may have the same service requirements, so the data protection solution used needs to be flexible.

**Choice of recovery location:** Just as data may be stored anywhere, you are very likely to want to recover it to any physical or cloud location and platform, without having to run specialist conversion scripts or manual procedures.

**Regulatory compliance:** Many data sets, VMs included, must be secured for long periods of time, frequently between three to seven years. For some data it may be necessary to retain the information for even longer, perhaps even for decades.

Then there is the requirement for specific data sets to be permanently erased at different points in time. For most HCI platforms, these capabilities were not designed into the native data replication functionality.

**Management across all platforms:** In addition to working with existing management tools, the basic requirements – and these are very well understood – include the following capabilities:

- Fast replication of data sets
- Rapid recovery of entire data sets/VMs/VDI instances
- Short-term versioning
- Long-term versioning
- Granular recovery of individual data files/email
- Creation of data protection 'air gaps'
- Long-term archiving
- Audits/reporting

## Protection options

So how can data protection for HCI be delivered? Given that HCI is founded on the concept of simplicity, the challenge is to deliver data protection without adding

complexity. That means trying to design and build your own solution may not be an attractive, or even desirable, approach unless you really do have unique requirements.

### Protecting an appliance with another appliance

One option that has the backing of several established HCI platform providers working with data protection software vendors is the dedicated backup appliance. An outline of this approach can be found in the paper '[Data Protection and Management in a Box](#)'.

Such solutions can provide the latest data protection capabilities, including state-of-the-art backup, recovery and archiving. They can also include other information management capabilities and be delivered as pre-integrated hardware/software platforms, frequently with dedicated installation and operational support services available.

If simplicity and convenience are what you are looking for in your data protection measures combined with a desire to keep them up to date without dedicating significant ongoing operational resources, this could be the approach for you. In fact, using such appliances could also assist with the broader data protection needs in your IT environment.

## In summary

There is no doubt that the use of HCI systems is increasing, and that these systems are being used for an expanding range of enterprise applications, including mission-critical ERP systems. Data protection is therefore essential, not merely desirable. But the expanding range of workloads also means that the data protection solution must deliver a range of RPO (recovery point) and RTO (recovery time) objectives. This puts it firmly in the domain of established enterprise data protection software.

While data protection and recovery solutions have been around for decades, they have been challenging to set up and complex to manage. Fortunately, that is changing, and the "Black Box" simplicity message that kicked off HCI deployments can also be applied to data protection. Thus, there is a clear opportunity for data protection appliances offering sophisticated capabilities to play a big role in the future.

But don't forget the basics: ensure you know which applications you have deployed on HCI, or will move onto such systems, and establish exactly the service levels they demand in terms of RPO and RTO. And with regulation becoming ever-more important, spend some time establishing whole-life data management objectives. Remember too that, just like any critical system, data protection and recovery systems must be robust and be available when needed.

Take time to survey your business requirements and look for solutions and support services. After all, whatever you choose must be able to work with you in the years ahead, as IT continues to be at the heart of many business transformations.

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