

# Scale Computing's HC3®

## Frequently Asked Questions



### General

#### **Q:** *What is HC3 and why do I need it?*

**A:** HC3 is an appliance-based hyperconverged infrastructure solution. HC3 combines servers, storage, virtualization, and backup/disaster recovery into a single appliance. This hyperconvergence of technologies radically simplifies IT infrastructure making it easier to implement and manage and significantly reduces the total cost of ownership of infrastructure. The HC3 hyperconverged appliance approach allows seamless, non-disruptive infrastructure scale out and automated, non-disruptive software and firmware updates. Our customers choose HC3 to reduce complexity and cost from IT infrastructure so they can focus their IT administration on improving applications and process rather than managing and maintaining complex infrastructure.

#### **Q:** *Who is Scale Computing?*

**A:** For better or worse, we get this question a lot. Scale Computing launched HC3 in 2012 and we've steadily been growing our customer base and business. We are well-funded and well known with many awards under our belt. We are headquartered in Indianapolis, IN with our primary development office located in San Francisco, CA. Our goal has been to alleviate complexity and cost from IT shops where we've felt the cost of VMware has been too high. We've gained a very loyal following in the SMB market where complexity and cost are more acute problems, but also in the distributed enterprise market where simplicity and affordability are a huge benefit to our customers.

#### **Q:** *Does HC3 run VMware?*

**A:** This may be our most frequently asked question! The answer is No. HC3 was designed as an alternative to VMware. HC3 uses our own HyperCore operating system and KVM-based hypervisor which does not require any additional licensing costs. Including our own hypervisor rather than supporting VMware allows us to deliver a simpler, more efficient, and most importantly, more cost-effective solution than VMware. Many of our customers choose HC3 to specifically move away from using VMware. So no, there is no VMware on HC3, but we believe you'll be better off without it, just ask our customers.

#### **Q:** *How does HC3 stack up against other hyperconverged solutions?*

**A:** Compared to other HCI solutions, HC3 is by far the easiest to manage. Taking into account the ease of implementation, the unified web-based management, the automatic storage pooling, the non-disruptive updates, and the seamless scale-out, HC3 has the most efficient architectural design for ease of use and management. Unlike other solutions that use virtual SAN storage architectures, HC3 uses hypervisor embedded storage which is not only easy to use, but eliminates the extra layers of storage protocols and file systems that exist in other architectures. All of that ease of use and efficiency in HC3 adds up to a lower cost of ownership. This makes HC3 the popular choice for organizations that want to reduce IT costs.

More information can be found in our [HC3 Storage Advantage Guide](#).

### Implementation

#### **Q:** *Do I need or can I use a separate storage appliance (SAN/NAS) with HC3?*

**A:** You don't need to use external storage appliances with HC3, but you can use them. HC3 has storage built into each appliance so it is unlikely to require any external storage appliances. How much storage is based on the appliance models, the number of appliances and how they are configured and our newer HC5150D appliance models can be configured with up to 77TB of raw storage each. Users who have existing storage appliances that they want to continue using with HC3 have done so either as storage for individual VMs or as storage for backup/DR.

## General

### **Q:** *How many HC3 appliances do I need?*

**A:** There are a number of different HC3 models featuring different configuration options and resource capacities. Our users generally use a cluster of 3 or more appliances for VM high availability for primary production. Some users deploy single appliances for DR sites or for remote offices or branch offices. The number of HC3 appliances you need will be determined by the size and configuration of the appliance models you choose and how you need to support backup/DR and remote/branch offices.

More information on appliance specifications can be found in our [HC3 Product Specification Guide](#).

### **Q:** *How much rack space do I need for my HC3 appliances.*

**A:** HC3 appliances vary in size between 1U and 2U sizes. Even with a battery backup and network switches, your HC3 systems should only fill a fraction of your existing server rack space. Scale Computing sales engineers have experience and expertise in recommending cluster and appliance sizes for any environment.

More information on appliance sizes can be found in our [HC3 Product Specification Guide](#).

### **Q:** *How can I convert my existing workloads to run on HC3?*

**A:** There are several options for converting existing workloads to run on HC3. For Windows and Linux VMs, Scale has partnered with Carbonite and their Double-Take product to offer HC3 Move which can be used to migrate physical (P2V) and virtual (V2V) workloads onto HC3. It requires near zero downtime and gives the user ultimate control of deciding when to cut over from their source machine onto the HC3 platform.

In addition to HC3 Move, any backup solution that supports full system bare metal recovery can be used to transfer workloads onto HC3. In some cases virtual machine formats like VMDK can be directly imported to HC3 from other hypervisors.

For those users who would like assistance in the migration, Scale also offers services that can do everything from showing end users how to use the HC3 Move tool while performing a single migration (Quickstart service) to performing the entire migration in a full services engagement.

For more information on Migration to HC3, [click here](#).

### **Q:** *Can I scale storage separately from other resources?*

**A:** HC3 is an appliance-based solution that scales out by adding new appliances to existing HC3 clusters. Each appliance must have both CPU and RAM to operate so there is no purely storage appliance, but customers have a lot of options in configuring HC3 systems for build-to-order. A customer can configure a new appliance for maximum storage capacity and minimum CPU and RAM. This will add significantly more storage to the cluster while still providing necessary CPU and RAM to make that appliance a functioning member of the cluster.

Conversely, an HC3 node can be configured with maximum CPU and RAM and minimum storage capacity if a cluster has a priority for compute resources over storage. With the ability to mix and match HC3 appliances across our entire HC3 family, customers have many options for both building the initial system and scaling out an existing system.

## Management and Features

### **Q:** *How do I backup my VMs on HC3?*

**A:** There are several options available to HC3 users, including the native HC3 backup capabilities.

HC3 features a full set of native features to allow users to backup, replicate, failover, restore, and recover virtual machines. Snapshot-based, incremental backups can be performed between HC3 systems without any additional software or licensing. Many HC3 users implement a second HC3 cluster or a single node to serve as a backup location or failover site. The backup location can be as second HC3 system that is onsite or remote. The backup location can be used just to store backups, or to fail them over if the primary HC3 system fails. HC3 VM backups can be restored to the primary HC3 system sending only the data that is different. Backup scheduling and retention can be configured granularly for each VM to meet SLAs.

Scale Computing also offers the ScaleCare Remote Recovery Service as a cloud-based backup for HC3 systems supporting all of the native HC3 features. For users who lack a secondary backup site, the remote recovery service acts as a backup site for any VMs that need protection. VMs can be recovered instantly on remote recovery platform to run in production until they can be restored back to the primary site. The Remote Recovery Service also includes a runbook to assist in DR planning and execution from implementation to recovery. ScaleCare engineers assist in the Remote Recovery Service in planning, implementation, DR testing, and recovery.

HC3 VMs can also be backed up using virtually any third-party backup software that supports your guest operating system and applications. If you are migrating an existing physical machine to a VM, you likely don't need to change your backup at all. Backup solutions, including Veeam, that include backup agents can be used with the guest operating system allowing them to be backed up over the network to a backup server or other location depending on the solution.

Some HC3 users choose to use HC3 native export features to export VM snapshots or backups to store on third party backup servers or storage. This extra backup method can be useful for long-term storage of VM backups. These exported backups can be imported into any other HC3 system for recovery.

You can read more about HC3 backup and disaster recovery in our whitepaper, [Disaster Recovery Strategies with Scale Computing](#).

### **Q:** *Can I run virtual desktops (VDI) on HC3?*

**A:** Yes. Desktops run as just another VM on HC3. HC3 is not a native VDI solution, meaning there is no VDI specific software or architecture built into HC3, but HC3 can serve as the virtual infrastructure for a number of VDI solutions. HC3 has partnered with other solutions like NComputing and Workspot VDI 2.0, for example, to deliver simple and scalable VDI solutions to customers. Many customers use Windows Remote Desktop Session Host (aka Terminal Services) to provide users access to a managed, server based desktop running on HC3 to a variety of devices and clients. Alternately, other desktop management tools such as System Center Configuration Manager, XenApp, and others can be used on HC3 to provide desktop management tools and streaming capabilities to provide some of the same benefits associated with VDI.

For more information on VDI with HC3, [click here](#).

**Q: What are the networking requirements for HC3?**

**A:** HC3 appliances require either 10Gbe or 1Gbe networking, depending on the configuration and storage. When clustered, HC3 appliances use ethernet for storage across cluster nodes. This storage networking is handled on a private network layer and 10Gbe switching is recommended when flash storage is included. 1Gbe switching may be used with all spinning disk (SATA, SAS, NL-SAS) clusters. Single node appliance configurations may also use 1Gbe switching, even if they include flash storage, as there is no need for storage networking with a single appliance.

Switches are not included with HC3 systems, although supported switches are available for resale through Scale Computing and Scale Computing partners. Users may use existing switches or provide other switches that meet the requirements outlined in the [Networking Guidelines and Recommendations](#).

**Q: What happens to my VMs if a drive or a cluster node fails?**

**A:** An HC3 cluster consisting of 3 or more nodes is both resilient and highly available. A drive failure on a cluster will not cause any disruption and VMs will continue to run normally, even when the drive is replaced. If an entire HC3 cluster node (appliance) fails, VMs that were running on that appliance will be restarted automatically on other cluster nodes. When planning an HC3 cluster, it is important to anticipate the required resource capacity to allow VMs to fail over from a failed node as a precaution. On a single node appliance configuration, like on a cluster, a drive failure on a single node configuration does not affect running VMs. If the entire appliance fails in a single node configuration, there are no other nodes to failover VMs to, unless you have enabled replication to a second node or cluster. With replication, VMs can be failed over to another HC3 system.

**Q: Does HC3 require a management solution like vCenter or System Center?**

**A:** Not at all. HC3 has web-based management built into each appliance. You can begin managing your HC3 system without any additional software or servers. Just connect to any one of your appliances and you'll be able to use the HC3 Web Interface to manage that system as well as remote HC3 clusters and single appliances.

## Support and Maintenance

**Q: Why is it important to renew HC3 Maintenance and Support Agreements?**

**A:** HC3 Maintenance and Support includes three vital elements: 24/7 phone and email support, HyperCore software updates, and hardware replacement (depending on the age of the hardware).

Our expert ScaleCare Support Engineers are on-call 24/7 with help for any support issue. We believe support is as important as the solutions we provide. We know the whole system inside and out because we designed it, and that helps our engineers troubleshoot and resolve issues quickly.

Scale Computing provides vital updates to the HyperCore operating system and hypervisor for both security enhancements and new features and functionality. All updates and new software features and functionality in HC3 are available at no extra cost to HC3 systems under active Maintenance and Support Agreements.

Customers under active Maintenance and Support Agreements have access to hardware replacements that are shipped next business day. Our customers who value their investment in HC3 and want to keep scaling it out for the future get the full value from the Maintenance and Support Agreement.

**Q: What level of support is included with HC3?**

**A:** HC3 appliances come with the first year of support and maintenance included. With HC3 there is only one level of support for each and every customer: ScaleCare Support. Our premium ScaleCare support includes 24/7 phone and email support provided from our expert support engineers out of our headquarters in Indianapolis. Support and maintenance also includes all software and firmware updates and hardware replacement. Additional years of support and maintenance can be added to the initial purchase or support and maintenance can be renewed at a later date. Providing the best support is a key part of the HC3 solution.

## For More Information

If you have more questions about HC3 or Scale Computing, we are here to help. You can find many helpful documents on our website at [scalecomputing.com](http://scalecomputing.com) under the Resources section. You can contact us by sending an email to [info@scalecomputing.com](mailto:info@scalecomputing.com), or by calling 877-SCALE-59. Some additional resources that may be of interest are listed below.

- [HC3, SCRIBE, and HyperCore Theory of Operations](#)
- [HC3 Feature Guide](#)
- [The HC3 Storage Advantage](#)
- [HC3 Common Configurations](#)
- [What's New in HC3](#)



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