

# Hyperconverged: New Edge-Optimized Technology

Nfina Technologies offers both the traditional hyperconverged infrastructure (HCI), and new Edge-Optimized hyperconverged solutions to best suit your storage needs. The question is, which solution is the most ideal option for your company? If you have a fixed-size infrastructure on premise, the new Edge-Optimized HCI solution is the most cost-effective choice when considering up-front costs. However, traditional HCI/legacy HCI technology, may provide both compute and storage simultaneous upgrades since they are tightly coupled.

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## Nfina's Edge-Optimized HCI Technology

Nfina's new Edge-Optimized technology, is superb for companies with a fixed-size infrastructure. Nfina's Edge-Optimized architecture has the most cost-effective option when considering up-front costs. For on-prem solutions, this type of infrastructure maximizes the value of your equipment, upgrades are fast, and you can easily manage your resources. True single and two-node HA switchless solutions are available.

With Nfina's Edge-Optimized Solutions, compute and storage are independent. This allows them to be scaled in the most cost-efficient manner. If you need more storage, just add drives or JBOD's. If you need more compute, add another compute node. The latest G3 technology from Intel® is fully supported, thus providing higher density cores (over 200VM's per node) which reduces rack-space and cost.

Nfina's Edge-Optimized architecture is significantly more economical when being compared to traditional HCI solutions, as energy consumption and licensing cost substantially less. Furthermore, operational costs such as cooling are less with Nfina's new Edge-Optimized technology, making it one of the most energy-efficient storage options for your company. As you can see in Figure 1, Nfina's Edge-Optimized technology only requires two nodes, whereas a traditional HCI infrastructure requires a minimum of three nodes. If a natural disaster or ransomware attack occurs, Nfina-View's software rollback function restores data to a safe point before the incident.

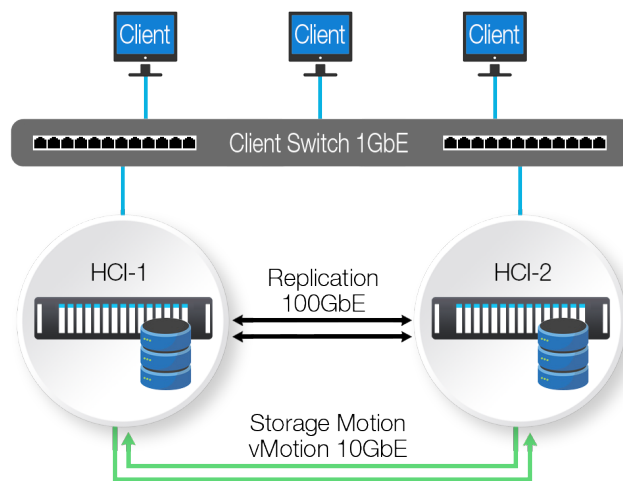


Figure 1

Nfina's Edge-Optimized Solutions support highly efficient snapshots for efficient Active-Active Disaster Recovery (DR). If you couple this with Nfina's Hybrid-Cloud Infrastructure, you can restore from any type of natural or man-made disaster in minutes as compared to traditional HCI backups which could take days.

Perhaps the most important issue addressed with Nfina's new Edge-Optimized technology is protecting your company's data. Data loss can be catastrophic to a company and can occur due to lack of true redundancy. For example, if your storage become corrupt by ransomware, your entire system's data will be in jeopardy. Additionally, if your company has a traditional HCI implementation, this will mean that if a node goes down, then you could be a single drive failure away from rebuilding the storage array. With a new Edge-Optimized strategy in place, which uses 4-way mirroring, this would not occur.

## New Edge-Optimized Technology Advantages

- **Green** | Less hardware needed – which means less energy consumption.
- **Cost-Effectiveness** | Nfina's Edge-Optimized architecture utilizes less hardware helping to reduce costs and dominate storage switches in a 2-node solution. Less hardware helps to lower your energy costs and reduces licensing costs.
- **Simplicity** | Nfina's Edge-Optimized HA solutions only requires two nodes, and allows for storage expansion without the need to add additional nodes.
- **Less Network Traffic** | Since a node with full compute capabilities is not needed when additional storage is added, the efficiency and complexity of your network will not be degraded.
- **Storage and Compute is De-coupled** | This means Nfina's Edge-Optimized solutions can be scaled more efficiently. Storage is independent of compute.
- **Higher MTBF** | The downtime between failures is substantially less than that of a traditional HCI architecture. Fewer components means less chances to fail, and reduced downtime.

## New Edge-Optimized Disadvantages

- **Updating Constraints** | It is more technically challenging to update storage licenses live.

## Traditional HCI Technology

As stated previously, it is important in most circumstances to retain the same device versus dividing up critical operations and data over multiple storage devices. In some cases, however, the management of your company may decide that they need additional storage with full compute, and the distinct demands will require specialized pieces of hardware, such as SSDs or more HDDs. Traditional HCI technology has a 3-node minimum requirement.

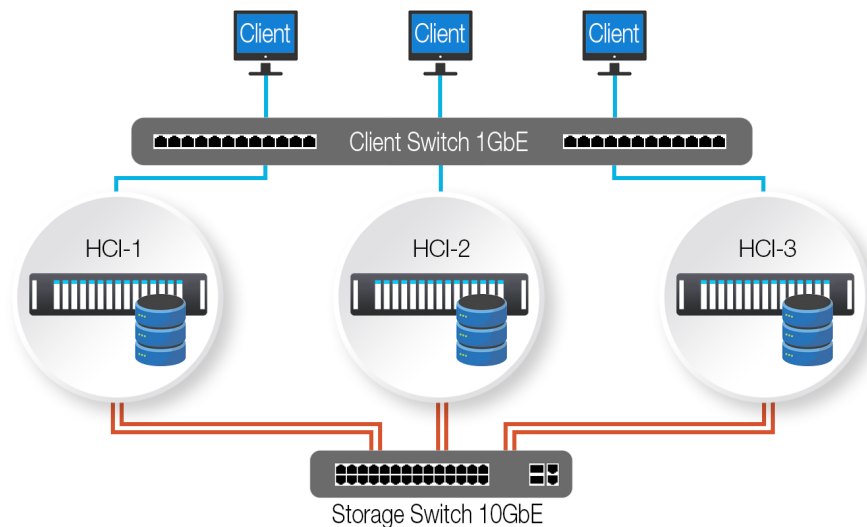


Figure 2

To expand a traditional HCI architecture, new nodes compute & storage must be added simultaneously during the expansion. This means that you will need to add new nodes to the system to upgrade or expand which will increase cost and power consumption. Infrastructure management can present real challenges as well because of the differences in models and firmware levels.

Traditional HCI technology has the potential to take up a significant amount of rack space due to the need to add a full node if new storage is needed. Figure 3 illustrates how the architecture appears once a node has been added. Adding an additional node will be a larger investment when compared with upgrade options with Nfina's Edge-Optimized solution.

Another downside to the traditional HCI approach is that it is not the most eco-friendly solution. Attaching an entire new node will drive up energy consumption costs significantly more than the new Edge-Optimized architecture. This is because you are adding compute and storage when perhaps you only need storage, and the traditional HCI solution requires a high-speed Ethernet switch due to the 3-node requirement.

At Nfina, our eco-friendly solutions make it simple for our customers to achieve a lower carbon footprint and play a positive role in bringing about a sustainable future. We design technologies and products to help people understand their impact and actions better.

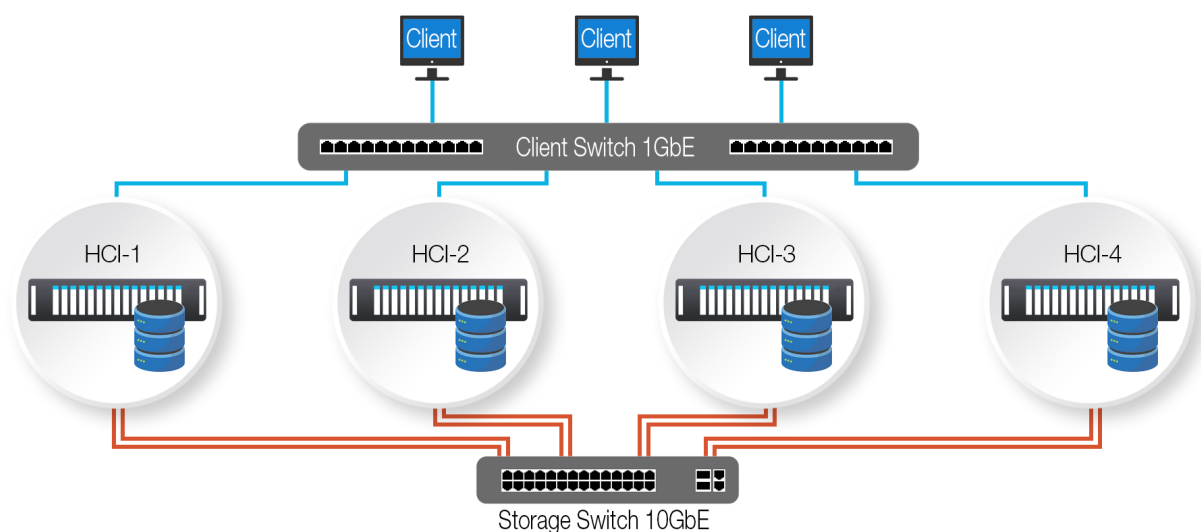


Figure 3

## Traditional HCI Technology Advantages

- **Accessibility** | Storage assets can be found essentially everywhere within the architecture.
- **Welcomes Newer Server Technologies** | Due to the architecture not being constrained by aging machinery, a traditional HCI infrastructure is not impacted by storage and performance problems often.
- **Storage Additions** | Adding storage to a pre-existing traditional HCI infrastructure is less technically challenging live than that of a new Edge-Optimized infrastructure.

## Traditional HCI Technology Disadvantages

- **Data Loss** | If a node goes down, and an additional drive also goes down while you are rebuilding, your data will be in serious jeopardy if running RAID 10 software.
- **Costs** | Traditional HCI technology can have extensive overhead costs and other associated costs. It also needs more disks which also make it costlier. The intrinsic costs will also be extraordinarily high.
- **Not as Eco-Friendly** | Demands more energy consumption due to the need of a full node to be added when additional storage is needed.
- **Requires a Minimum of Three Nodes** | Traditional HCI technology must start with a minimum of three nodes. Traditional HCI needs a more complex switch network and high-speed switches.
- **Potential Facility Changes** | Facility upgrades may be necessary to house new storage devices.
- **Lower MTBF** | The elapsed time between failure is going to be significantly longer than that of a new Edge-Optimized architecture.
- **Storage and Compute are Tightly Coupled** | This is inefficient from a network perspective. Storage upgrades are inefficient because you must add compute along with storage.

## Conclusion

Which option is the best approach to meet your storage management needs? It may come down to how much are you willing to spend on the system. If you are looking to save money or just don't have the budget to spend, and if you have a fixed size infrastructure as most small and mid-size businesses have, Nfina's new Edge-Optimized HCI solutions are clearly the best solution. If you do have a considerable amount of money to invest and if you predict rapid growth for your data and compute, you may want to consider traditional HCI technology.

Previously stated, traditional HCI technology is a node-based architecture. This requires you to add entire clusters with full compute capabilities to the system to upgrade. Since updating requires new hardware to operate, you can easily upgrade the new hardware which may offer more modern features. The up-front costs are significantly more due to the three node requirement.

Nfina offers new Edge-Optimized and traditional HCI solutions. Our experience leads us to believe that new Edge-Optimized technology is excellent for organizations with fixed-sized infrastructures. A new Edge-Optimized architecture provides the most cost-effective choice when considering up-front costs. For on-prem solutions, this system maximizes the value of your hardware, upgrades are quick, and you can easily manage the resources. There is less physical equipment needed which aids in reducing overall energy costs — making new Edge-Optimized one of the most eco-friendly solutions we offer at Nfina Technologies.