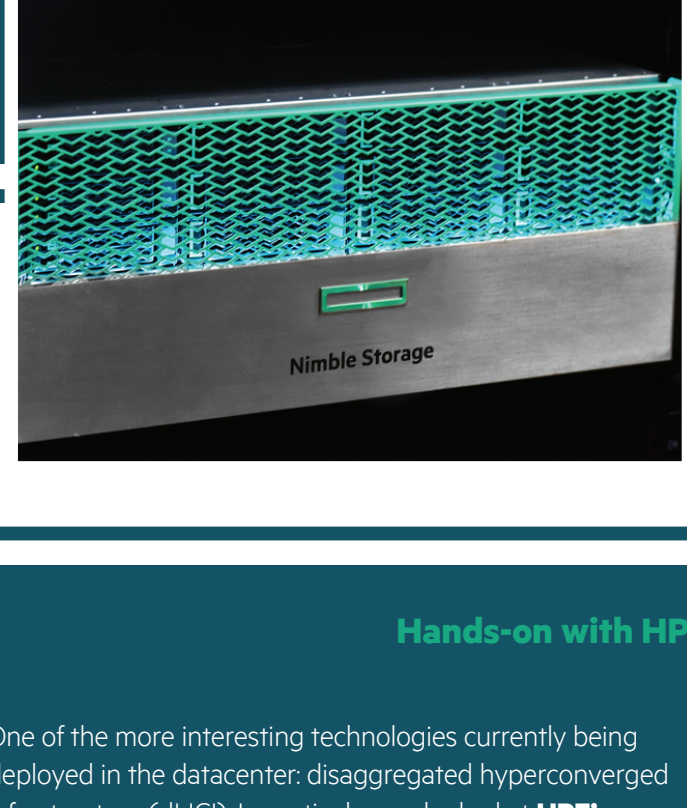


# REIMAGINING HCI TO TAKE IT FURTHER

## HPE Nimble Storage dHCI



**Accelerate time to market, end firefighting, and optimize everything with an intelligent platform designed for business-critical applications and mixed workloads.**

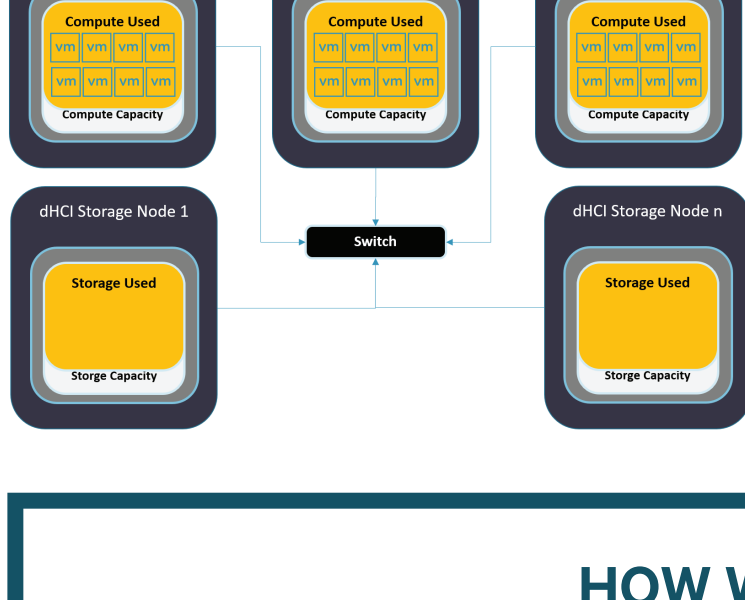
**HPE Nimble Storage dHCI** radically simplifies infrastructure for applications by reimagining HCI without limitations.

### Hands-on with HPE Nimble Storage dHCI

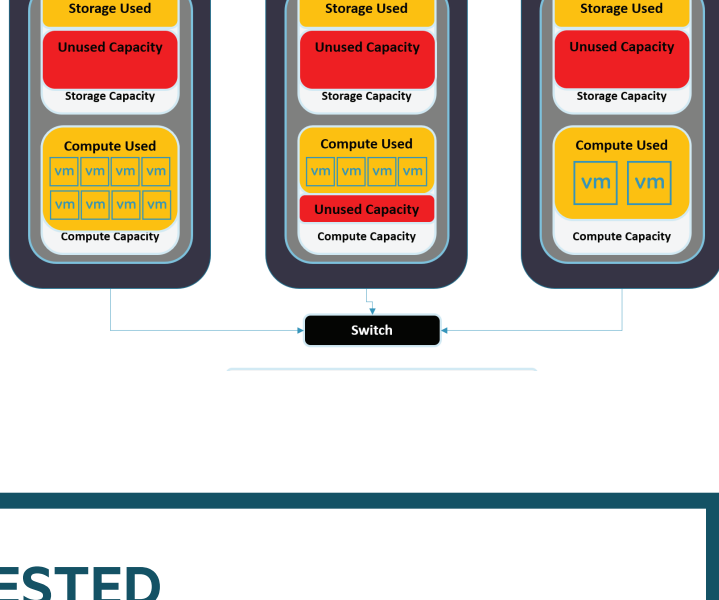
One of the more interesting technologies currently being deployed in the datacenter: disaggregated hyperconverged infrastructure (dHCI). In particular, we looked at **HPE's** implementation of dHCI as they are a leader in this technology. dHCI is similar to hyperconverged infrastructure (HCI) in the sense that it allows storage, compute, and networking to all be managed from a single management plane (in HPE's case, from vCenter Server); however, unlike HCI, dHCI does not need to deploy storage in lockstep with compute.

dHCI vendors have consciously uncoupled the storage from the compute to provide datacenters the freedom to grow their deployments holistically, thereby preventing the stranded resource problem that is prevalent with HCI deployments. This imbalance with HCI deployments is due to very few applications growing compute needs at the same velocity as storage.

### Full Resource Utilization Using dHCI



### Stranded Resources Using HCI



## HOW WE TESTED

To get a better understanding of storage in a dHCI environment and how HPE's dHCI solution has automated and simplified the process of setting up and managing dHCI, we deployed it in an environment that had existing vCenter Servers. We felt that this would replicate the experiences users would have when doing an initial dHCI deployment. Our initial dHCI cluster will be comprised of two compute nodes connected to an HPE Nimble Storage array and managed using vSphere with the HPE dHCI plugin.

To connect all the systems, we used an HPE FF570 32XGT. This switch has 32 10Gb Base-T, eight 10Gb SFP+, and two 40 Gb QSFP+ ports.

### Compute nodes:

- HPE DL360 Gen10 servers
- Dual Intel Xeon 6130 procs, 128GB of RAM
- Redundant drives for the OS
- VMware ESXi 6.7u1 & Nimble toolkit pre-installed

### Storage:

- HPE Nimble AF20Q array
- 12 960GB SSD drives
- 5.8 TiB of usable storage
- 10Gb ports
  - 2 used as iSCSI targets
  - 2 used for management

### The Process

We followed the **HPE Nimble Storage dHCI and VMware vSphere Deployment Guide**

1

**Install & configure  
HPE Nimble Storage**

2

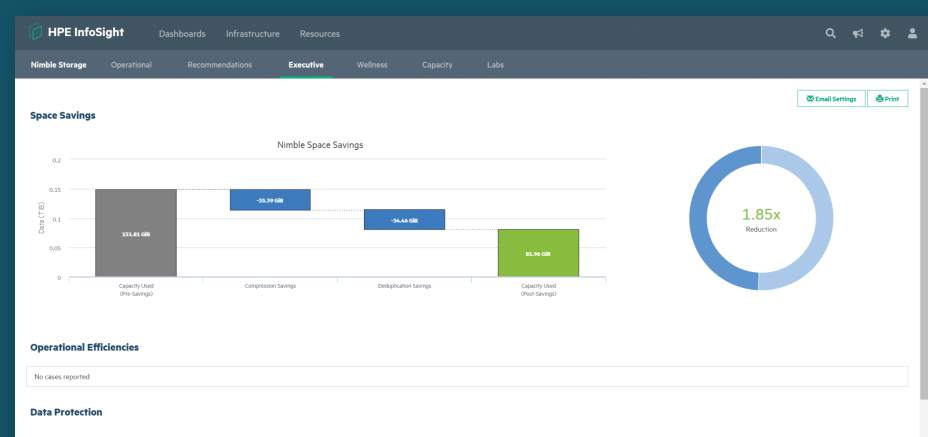
**Create & added  
compute nodes**

3

**Create  
Cluster**

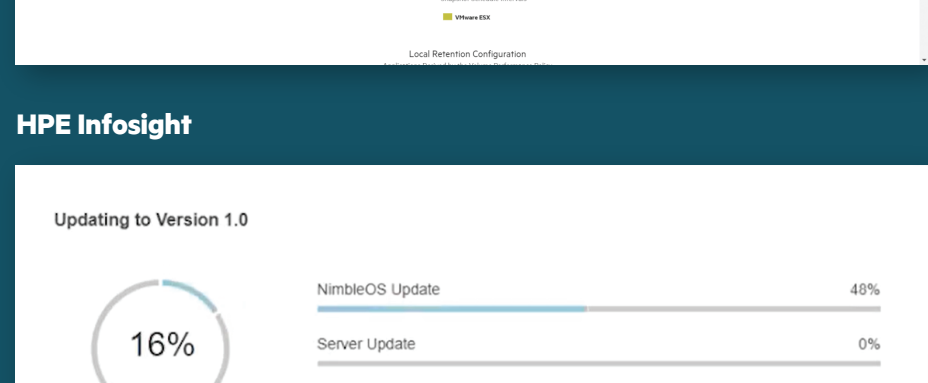
## INNOVATION

### HPE Nimble dHCI Configuration Checker



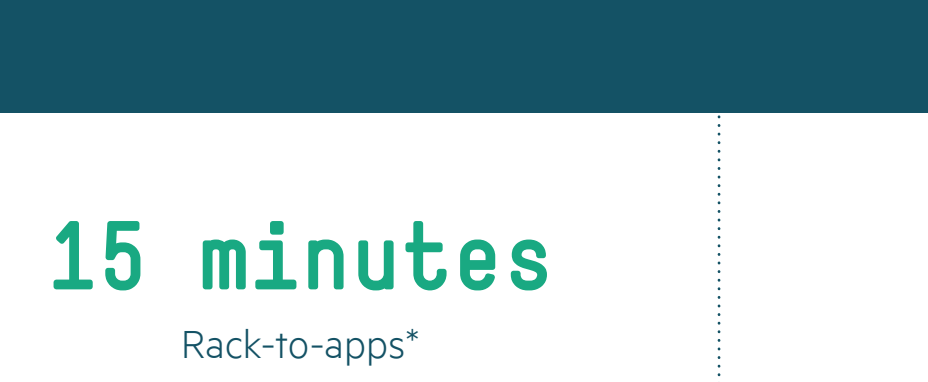
Another innovative feature in the plugin is the dHCI Configuration Checker. Running the configuration checker will verify that your dHCI deployment is set up correctly. The checks it does range from somewhat common, to very in-depth checks. Our system indicated that 66 rules were checked, and we had 2 Errors. These checks ranged from checking storage paths to checking iLO admin privilege rules.

### HPE InfoSight



HPE InfoSight is composed of the HPE InfoSight Engine which collects data and analyzes it using data analytics, system modeling and predictive algorithms. The engine runs in the cloud and is accessed via the HPE InfoSight Portal which displays information about your systems. Finally, the Proactive Wellness feature sends preemptive alerts for systems as well as monitors their overall health.

### HPE InfoSight



Upgrades can be one of the most painful operations that an administrator performs. Making sure that everything is compatible, and all the necessary components are upgraded in the right sequence, can make even the most fastidious administrator nervous. Luckily, the dHCI plugin does this for you and will upgrade the array firmware, HPE Nimble Storage Connection Service (NCS), and the ESXi nodes in a cluster.

**15 minutes**

Rack-to-apps\*

**Zero**

Wasted resources\*

**99.9999%**

Data availability\*

**Up to 5X**

Data reduction\*

### Intelligently simple:

Automated and on-demand with full-stack intelligence and policy-based automation for VM-centric management

### Absolutely resilient:

Designed for 99.9999% availability with all-flash speed and sub-ms latency for always-on apps

### Efficiently scalable:

Grow compute and storage independently, extended across a hybrid cloud, with industry-leading data efficiency

**10X**

lower latency\*

Accelerate every application

**4X**

more resilient\*

Maximum resiliency, zero tuning

**5X**

more efficient\*

No wasted resources

Rather than deal with HCI's inconsistent and growing latency across nodes, dHCI delivers consistent sub-ms latency at scale.

To optimize data storage with HCI, you're constantly tuning your balance between effective capacity and performance — for every VM. It's an endless, time-consuming series of trade-offs. With dHCI, data services are always-on and always-optimized, period.

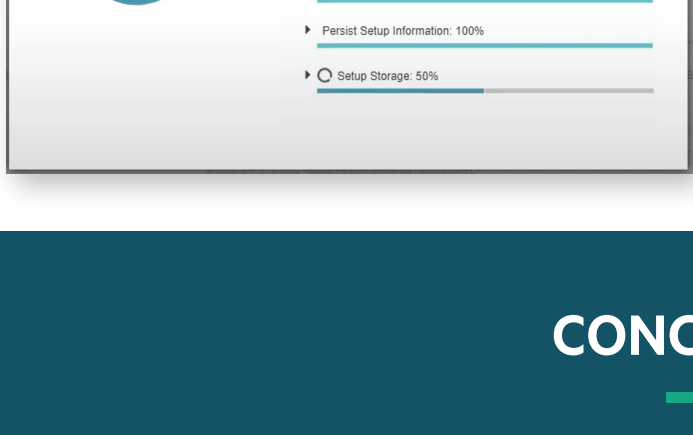
Under HCI, you're either locked into rigid scaling that invariably leaves resources idle, or buying specialized nodes for performance or capacity and having to manually assign drives. Why box yourself in? With dHCI, you waste zero resources and scale any way you want.

### Automation

To be honest, we were somewhat surprised at the depth of automation and integration HPE has put into this solution regardless if it is an existing deployment or a new deployment. It took HPE less time to set up an entire dHCI cluster, including setting up a vCenter Server, than it would have taken us to set up, configure, and integrate a vCenter Server with a SAN storage array.

### Benefit

The big draw of dHCI is that day-to-day operations — such as monitoring, maintaining, and upgrading the entire system were truly impressive. Even more, HPE has bundled in their vast knowledge of vVols and seamlessly integrated them into this solution. We also see HPE InfoSight as an invaluable tool to ensure that the system is, and will continue to be, unimpaired and encumbered by support issues. HPE InfoSight makes this possible with their AI's enhanced predictive support and preemptive recommendations, which allows for proactive — not reactive — system management. In short, HPE has done dHCI right.



Hosts	VMs	Inventory	Events	Configuration Checks	Updates
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10

## CONCLUSION

dHCI has the potential to be a game-changer in the datacenter as it blends the simplicity of HCI management with the flexibility of deploying storage and compute independently of each other as is done with a traditional datacenter. But dHCI can only be a game-changer if it is implemented correctly (i.e., not simply slapping together a storage array with servers). Instead, it involves engineering a hardware and software solution that can be fully managed, from deployment to day-to-day operations, in a holistic manner from a central management pane — and it looks like HPE has accomplished just that with HPE Nimble Storage dHCI.

The ease and simplicity of deploying the initial dHCI cluster, adding storage and compute, and upgrading the entire system were truly impressive. Even more, HPE has bundled in their vast knowledge of vVols and seamlessly integrated them into this solution. We also see HPE InfoSight as an invaluable tool to ensure that the system is, and will continue to be, unimpaired and encumbered by support issues. HPE InfoSight makes this possible with their AI's enhanced predictive support and preemptive recommendations, which allows for proactive — not reactive — system management. In short, HPE has done dHCI right.

**Learn More About the Test**