NEW GENERATION OF DATA CENTER COMPUTING

HYPER CONVERGED INFRASTRUCTURE ("HCI") FOR THE ENTERPRISE IS HERE

NODE 1 **NODE 2** **NODE N**

VIRTUAL MACHINE / VIRTUAL DISK

CONTROLLER VM | CONTROLLER VM | CONTROLLER VM

SSDs HDDs
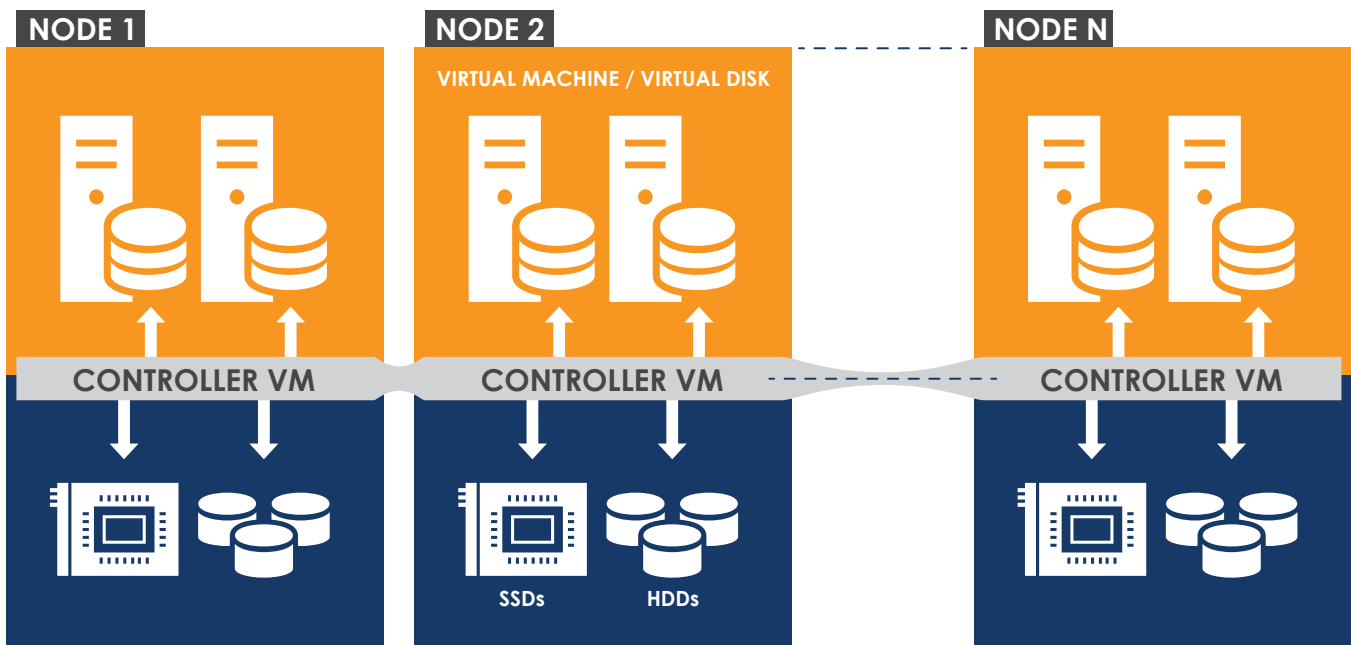
Hyper Converged Infrastructure ("HCI") for the Enterprise is here today thanks to Tier 1 hypervisors, virtualized storage and 10 Gigabit networks. The ability to share memory and storage across the LAN has provided us with products like the Nutanix™ hyperconverged solution and now VMware EVO: RAIL™ all-in-one solution. So what is a Hyper Converged Infrastructure? Essentially, it is combining the precepts of Blade Computing, Virtual Storage and High Speed LAN's (referred to as "nodes") into a "block." The block turns 3 or more blade servers (for high availability) into what is effectively a single compute and storage infrastructure.

Nutanix™ (www.Nutanix.com) was the first to enter this HCI space in 2011 with their Nutanix™ hyperconverged solution. They built the market and proved the viability of the design in a manner that VMware joined in 2014 with the VMware EVO: RAIL™ all-in-one solution. (https://www.vmware.com/ products/evorail/ features.html #simplicity)

THE ADVANTAGES:

- **Greatly Reduced Data Center Foot Print**
  - » Lower Power Costs
  - » Less Space Required

- **Elimination of External Storage Area Networks**
  - » Reduces Bottlenecks and performance variability
  - » Leverages a mix of Solid Sate and Low Cost SATA Drives

- **Increased Service Availability**
  - » Compute, Storage and Network Redundancy shared across all nodes

- **Scalability**
  - » Near Linear Scaling

As an early adopter, Enterprise Integration ("EI") implemented the HCI into our Private Cloud service offering, through the procurement of three (3) Nutanix™ Blocks. In this particular scenario, the HCI hosted the virtualization of end user computing through the delivery of Citrix XenApp® and Citrix XenDesktop®.

In another case, HCI was used to consolidate and collapse all servers within a client's infrastructure to a foot print the size of a single server saving costs, reducing clutter and increasing system availability. Due to this being a virtual server technology, maintenance, including complete node replacement can occur without impacting the application delivery to the client.

BEFORE   **AFTER**

For the Enterprise environment, the appeal of HCI is the scalability of the technology and to the Strategic Mid-Tier client it is the simplified management.

For the Enterprise, there is an almost near linear performance line, which leads to a very predictable performance to cost model. From our experience in the area of Virtual Desktop Infrastructure, that is critically important.
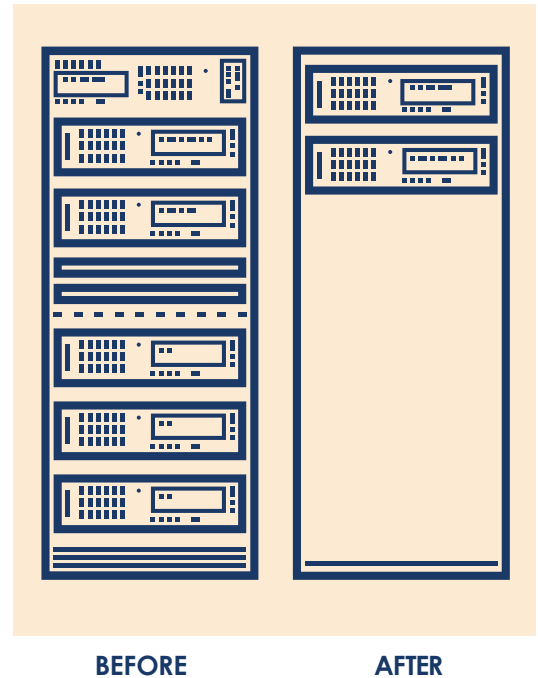
True Linear Scale-out Performance

Block = 4 Nodes

Virtual Desktops

Number of Nodes (4 Nodes per Block)
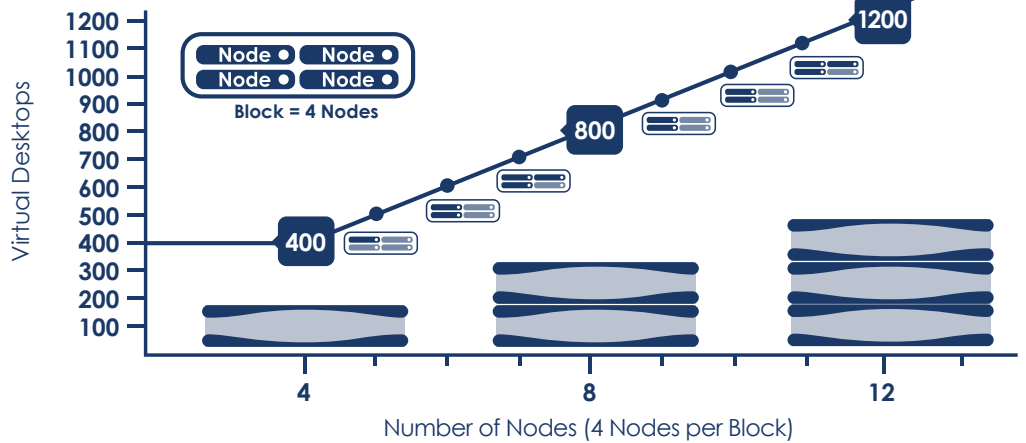
However, in the Strategic Mid-Tier class, simplicity is a significant factor. Having to support a complex LAN, Storage Area Network ("SAN") and Server Infrastructure, can become costly in maintaining the talent for integration and support. The HCI is delivering simplicity of management, so a single skill set can manage all three (3) components through a simplified management interface.

VMGuru.com States:

"VMware EVO: RAIL™ will redefine the way datacenters are deployed. As JP Morgan stated "This could be an iPhone moment for enterprise use of cloud computing". That is a big deal. For every greenfield deployment in SMB and small enterprises, this could become the defacto standard for running a local infrastructure. No more tiresome building of local compute, storage and networking. No more worrying about picking the right licenses for the job, everything is integrated. No more expensive specialists sitting around keeping lights burning for a company who's core business isn't IT at all.

Then again, there are some things to consider. Choosing your vendor wisely should be your first step, as you will be even more dependent on their services to patch your problems and replace your hardware than you already are right now. Central management over several locations would be a huge benefit. This is not here yet and there is no definitive timeframe publicly available when it will be. That could break your case. Also, your workload has to fit the box. If you need any additional hardware like flashcards or graphics cards, you have to build your own solution. And last but not least, the storage profile for VMware EVO: RAIL™ is described as a Tier 2 storage. If your workload needs more, you need to build that "more" yourself.

We think VMware EVO: RAIL™ will permanently change the way we look at datacenter deployments. It's a very big first step into automating tasks that were never properly automated and sold as a full service solution before. But we also think that it will take a bit more time for VMware EVO: RAIL™ to mature and, more importantly, for the market to get used to the idea of this level of automation."

SUMMARY

For 3 years we have leveraged the Nutanix™ hyperconverged solution and have found it to be a very strong approach to simplify the computing environment. Management time has been reduced and overall performance of the systems have exceeded expectations.

ENTERPRISE INTEGRATION

NEW GENERATION OF DATACENTER COMPUTING

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