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THREE ROUTES TO HYPERCONVERGENCE

Dell EMC white paper

Transforming your infrastructure

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THREE ROUTES TO HYPERCONVERGENCE

The rise of the digital economy is forcing organisations to rethink how they interact with customers, become more competitive and capture new opportunities. New pressures like big data, social and mobile are shaping how business will be done in this new era. Rightfully, technology is spurring the innovation and hyperconvergence is at the heart of a new wave of solutions that will help organisations transform their IT. This paper provides an opinion and insight into the options you'll be confronted with should you embark on this journey.

Why the need to transform?

Increasingly, traditional 3-tier infrastructures are not up to new fast-moving business demands or the evolving workloads expected of them. Tiers create siloes that are rigid, complex to manage and uneconomical to scale. In unison IT budgets are shrinking, so IT teams are under pressure to achieve agility, lower the cost of operation and play a bigger part in value-adding initiatives. In essence, IT infrastructure needs to be more cloud-like. Truly achieving this means building a Software-defined Datacentre (SDDC) where infrastructure is driven by next-generation applications, is service-based and highly autonomous - no small undertaking. It's why Hyperconverged Infrastructure (HCI) is proving so attractive, as whilst it isn't a fully-fledged SDDC it certainly puts you well on the way to achieving one. Coupled with the growth and market presence of HCI, it's easy to see why infrastructure decisions should be more carefully scrutinised.

What is HCI?

HCI combines all of the same architectural elements of a traditional infrastructure. Instead, compute, storage, virtualisation and connectivity are distributed across individual nodes such that the entire system is built from a series of building blocks. It's a scale-out approach where resources are pooled across the nodes and can be scaled on-demand by simply adding more building blocks. Importantly, the time-consuming and risky task of data migration is eliminated. Likewise, HCI plugs into existing network fabric and does not interfere with other infrastructure resources already deployed. Accordingly, HCI offers a radically simplified method to build and manage a sophisticated infrastructure and is a big step towards a SDDC.

The benefits of HCI

Flexibility

HCI nodes are built on industry-standard hardware, however you choose to implement them. Naturally, this opens up lots of freedom and lowers upfront costs. As your needs change, scaling-out is achieved in a non-disruptive manner, typically with options to add storage or compute-focussed nodes depending on your requirement.

Ease of use

The beauty of HCI is that a modern scale-out infrastructure can be built without the costly expertise of IT specialists. With scope to deploy validated appliances or pre-tested nodes, challenges that would typically be confronted over interoperability or configuration of array-based storage disappear. Likewise, routine tasks like provisioning and management become highly automated. Collectively, the time and resource this liberates within IT teams can be deployed on more valuable tasks.

Bridge into Hybrid

Most organisations recognise their future lies in operating a hybrid infrastructure. Many HCI solutions will seamlessly integrate with public cloud providers offering burst capacity beyond the on-premise infrastructure, or the means to backup to an alternative location – all achieved through one management interface.

Save money

HCI delivers cloud-scale economics on-premise. It's down to a host of factors from lower capital expenditure costs, more predictability when scaling, reduced infrastructure footprint (the devices themselves are typically much smaller in size) and associated environmental factors like power and cooling, ongoing management and maintenance costs, and the absence of overprovisioned infrastructure in anticipation of future needs. According to IDC the total cost of ownership (TCO) models made possible by HCI will typically deliver a 3-year payback.

Greater velocity

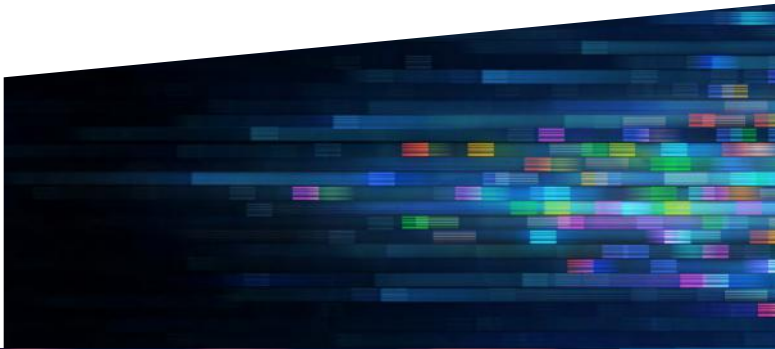
The ease of use directly impacts how quickly new services can be put into production. This enables IT teams to be more responsive to the needs of business.

Fiscal responsibility

HCI delivers many of the same characteristics of a public cloud by offering private clouds' similar economic outcomes, especially when chargeback processes are implemented. It means infrastructure usage can be billed or at least shown to the highest consumers of your platform.

Performance

Applications access local storage, which combined with typically flash-optimised media affords incredible IOPs performance, catering for both local network traffic and networked storage demand. This presents incredible opportunities to deliver significant performance boosts to all sorts of applications including those considered business-critical.



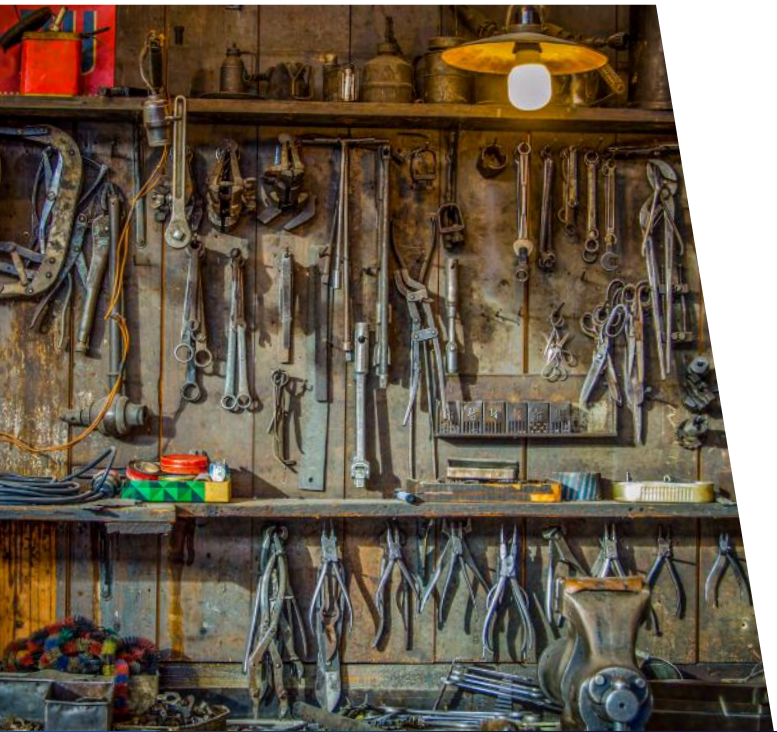
Three modes of deployment

Choosing to deploy a HCI will mean you travel one of three paths. The first question to ask yourself is whether you want to build or buy. It's an important one as whilst doing things differently in the future is always possible, there are considerations over which approach offers the best short and long-term efficiencies and benefits. Your chosen solution may not even be universal, as your needs may be different by project, location, department or even workload.

Here's a simple run down of your options:

1 Do-it-Yourself

There's a strong DIY movement around HCI. The bottom line is you don't need to buy an appliance to stand-up your own HCI. Using familiar hypervisors from VMware or Microsoft and brand name servers acting as hosts alongside networked storage, architected properly many attributes of HCI can be achieved through tightly integrated virtualised pools. Arguably, many organisations are already doing this to great effect and may feel they have little need to change what is possibly already working.



2 Appliance

At the other end of the spectrum are HCI appliances. Incredibly simple, aligned to any existing preferences you have on hypervisor, they literally plug into existing networks. Appliances can be purchased according to the intended use including general purpose nodes, high performance, even nodes optimised for key services like VDI or enterprise applications.

3 Ready nodes

Ready Nodes take the guesswork out of building a HCI because they are pre-configured with approved components and are tested and certified by the vendors involved. Accordingly, they reduce administrative work with fewer interfaces, fewer steps and less need for specialised knowledge to run them. The primary difference between a Ready Node and an appliance however is the degree of freedom afforded for customising the operation of the infrastructure to work in line with your existing policies and practices.

Of course, each approach offers pros and cons, some of which are outlined in the table opposite.

	Do-it-Yourself	Appliance Nodes	Ready Nodes
Pros	• Complete freedom of choice on every single component • Matches exactly to your requirements • Options to build memory-only nodes rather than integrated compute or storage variants • May save money in the long run versus the premium of pre-tested alternatives	• Out-of-the-box ready to work • Pre-tested to work in a variety of deployment scenarios • Slash deployment times and realise value faster • Meet future needs without over-provisioning • Appliances optimised for a host of workload types • Simplified administration – no specialist expertise required	• Pre-tested and validated configurations • Flexibility to accommodate unique requirements surrounding installation • Rapid deployment means faster time-to-value • Single point of contact for support and trouble-shooting
Cons	• Carries potential risks around interoperability • Not for IT generalists – this requires specialist skills to implement • Potentially 1000s of hours to successfully configure • Multiple layers to manage – with this comes need for support, maintenance and troubleshooting from multiple vendors	• You'll pay a premium for having everything validated • Limited freedom to modify workflows and processes • Single vendor dependence • Resources scale lock-step • Testing required, especially for emerging vendors	• Carries a premium for the value of integration confidence • Single vendor dependence • Resources scale lock-step

Where will you consider using HCI?

As well as the option to deploy as a generalist infrastructure that helps better consolidate and rationalise resources, HCI solutions can be designed and selected to tackle different workload demands. Depending on your requirements they may prove a helpful segue into the technology.

Enterprise Applications

Virtualise business-critical workloads and in doing so create predictable performance and scalability. It's easy to build a HCI that enables multiple tier-1 workloads to co-exist on your platform including Oracle DB, SAP, Exchange and Unified Communications.

Remote & Branch Office

HCI is ideal for distributed environments that are hard to reach or where expert IT staff are not present. It provides a means of simplification with the peace of mind that critical applications are delivered with enterprise-level availability, whilst data is protected centrally.

Desktop Virtualisation

Costs to implement Virtual Desktop Infrastructure (VDI) are traditionally high, so many organisations steer clear despite some of the potential benefits. Much of the resistance has centred around unpredictable performance and difficulties scaling the environment. HCI overcomes these issues, making VDI a much more realistic prospect for all sorts of organisations.

Data Protection

Protect applications with local, remote or cloud-based backups, eliminating the need for a secondary solution. With the option to choose specific storage-dense nodes, there is scope to support practically limitless snapshots in order to meet your recovery point objectives (RPO) and recovery time objectives (RTO). The commercial and operational model of HCI also dramatically reduces overheads without compromising on protection – everything from minor failure to full-scale outage.

GOING HYPERCONVERGED WITH DELL EMC

Rightfully, there's a lot of hype around hyperconvergence. It's a market that's witnessing rapid growth and is impacting for the better many infrastructure decisions. While the market is still changing it makes good sense to at least consult with established providers. Dell EMC is the largest vendor by shipments in the hyperconverged space and for this reason they are a mature player in an immature market. Understandably, there are emerging technologies you may wish to explore, but working with Dell EMC goes a long way into insulating you from roadmap changes, mergers and acquisitions and the risks this may bring to successfully deploy HCI.

The performance and reliability of the software that makes HCI possible depends heavily on the performance and reliability of the hardware. And not all hardware is created equal. Dell EMC can be trusted to deliver reliable infrastructure in easily purchased and deployed building blocks with a customer support experience that keeps you up and running. All of Dell EMC's solutions are underpinned by the world-class, industry standard PowerEdge Server platform and the support for the latest innovation this brings. Through close collaboration with other players in the HCI space, Dell EMC offers a comprehensive line-up of solutions based upon scale, deployment type and application.

HCI Appliances

VxRail

Optimised for your VMware environment with multiple node configurations including those created for performance, capacity and graphics. Harnessing VMware Virtual SAN technology, it fits neatly into the wider VMware ecosystem to streamline deployment and ongoing management.

XC Series

Powered by Nutanix software, this is a web-scale converged appliance that can be scoped to your preferred hypervisor. It can be deployed for multiple virtualised workloads including desktop virtualisation, database and private clouds. It's easy to deploy, support and expand.

VxRack

A rack-scale engineered system, built to achieve the scalability and management requirements of traditional and cloud native workloads. Using tightly integrated hardware, software, and management layers it accelerates the adoption of open, interoperable solutions that enable you to quickly deploy Infrastructure-as-a-Service and/or Private Cloud architectures.

HCI Ready Nodes

ScaleIO

An enterprise-grade scale-out appliance for all of your block storage needs. Create shared pools of storage for every workload – traditional, modern or cloud. Begin with as little as three nodes offered in different combinations of CPU, storage and memory to achieve supreme elasticity and incredible application performance.

MS Storage Spaces Direct

Dell EMC Microsoft Storage Spaces Direct Ready Nodes are pre-configured with certified components, tuned and optimised to run Storage Spaces Direct. They have been validated and tested to ensure that they deliver the right blend of performance and reliability.

VMware vSAN

Dell VMware vSAN Ready Nodes deliver rapid time-to-value for VMware environments. Ready-to-order options include value-optimised configurations for smaller projects, storage-dense configurations to maximise capacity and compute-dense configurations for intensive workloads. Other solutions are available for graphics-intensive environments and virtual desktop infrastructure (VDI). Together these solutions lower capital costs and decrease TCO when integrated into VMware infrastructures.

Dell EMC Financial Services

Beyond the technology, Dell EMC Financial Services Cloud Flex for HCI fundamentally changes how customers can acquire HCI on-premises with a cloud-like consumption model. DFS Cloud Flex for HCI offers a flexible, risk-free payment solution that eliminates initial capital costs and spreads payments over time with no obligation after the first year. It enables customers to pay per month, requires no lease terms, and permits return at any time after the first 12 months, without any penalty for return. It's a complete OPEX model—no CAPEX anywhere to be seen. They've even built in committed price declines over time, just like some of the most aggressive public cloud models.

Where to begin?

For the majority of organisations, adopting HCI is really a case of start small and grow. Such is the flexibility of HCI it's easily possible to start with a few small workloads and expand from there. In fact, in our experience this is where the majority of projects begin.

Because HCI is heavily geared around storage, refresh of this infrastructure tier also potentially presents a good time to trial a solution, especially as it offers a more economical and user-friendly alternative to conventional storage systems.

Finally, when embarking on a project it is wise to consider the number of potential nodes you may end up requiring. Although not a showstopper, as theoretically a number of the solutions you might go with are infinitely scalable, it may influence the base solution you start with and help you realise new opportunities faster.

CONCLUSION

HCI has the potential to empower the technology resources of your organisation, especially when compared to traditional 3-tier infrastructures. Whichever path you choose to travel to arrive at your HCI, unquestionably you will realise an infrastructure that is simpler to administer and offers more predictability when scaling and budgeting. This means IT teams get valuable time and money back and are more able to pursue innovation rather than maintain operations.

We stress again, hyperconvergence does not mean you have a Software-defined Datacentre, but implementing it puts you well on the way to achieving one. In the future adding policy-driven automation and management as an overarching layer to our hyperconverged infrastructure will achieve that and in fact, more solutions are coming to market to help make that possible, including Native Hybrid Cloud from Dell EMC.

Whilst there are a variety of vendors you can turn to for HCI, Dell EMC does represent a single reputed vendor for an end-to-end solution, assistance and troubleshooting. In embracing a dynamic technology like HCI, having the stability of a well-known and trusted brand could be the ultimate difference in realising the full potential of your solution.

THE NEXT STEP

We are a recognised leader in Dell EMC solutions. As a Gold Partner, we have an enviable track record in delivering sophisticated infrastructures including those involving hyperconverged technologies.
If you'd like to register for a trial, email us at **hello@servium.com** or call on **+44 (0)303 334 3000**.

ABOUT SERVIUM

Servium is dedicated to creating great IT experiences - we seek to win the hearts and minds of IT strategy-makers, professionals and users. Our attitude is that no challenge is too big, no detail too small. We tackle both the ordinary and the extraordinary with the same focus and originality of thought that ensures solutions make a difference. It means we're one partner ready to assemble all the technology and know-how every medium to large organisation relies on. Matched by straight-talking, real-world experience and amazing service, our customers enjoy exceptional value; the product of the best innovation, latest thinking and a thriving ecosystem of technical experts.

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