Using Hyperconverged Storage to Meet Cloud Growth

Zen uses Nutanix AOS software and relies on Intel® components to deliver scalable and easily manageable storage in the cloud

At a glance

- Hyperconverged infrastructure (HCI) simplifies the management and scalability of storage, compared to using a storage area network (SAN).

- The Acropolis (AOS) software from Nutanix enables a hyperconverged storage fabric to be created, based on industry-standard servers.

- Intel® technologies provide the compute, storage and networking performance required.

- Zen deployed AOS to meet the huge growth in demand its cloud business was experiencing.

Using the Acropolis hyperconverged infrastructure (HCI) solution from Nutanix, Zen was able to simplify its storage and infrastructure management and enable it to scale in line with demand. Whenever more resources (compute, storage) are required, Zen can add a new node. The hyperconverged solution works with industry-standard servers, and the 2nd generation Intel® Xeon® Scalable processor provides the performance required. Intel® solid state drives (Intel® SSDs) provide reliable, high-endurance storage.

Challenge

Zen's cloud business was growing by between 50 and 100 percent each year, so it needed a scalable storage solution that would be attractive to its midmarket business customers. Storage area networks (SANs) are difficult to scale and require a broad range of expertise to integrate and manage.

Solution

Nutanix HCI enables a hyperconverged solution, with storage and compute combined in server nodes. The storage is presented as a single distribution storage fabric to the hypervisor. Intel® components provide the performance and reliability required across compute, storage, and networking.

Result

The new web scale architecture is proving easier to scale and manage than a SAN and is enabling Zen to quickly onboard new customers. It works with VMware virtualization software, so Zen can offer its customers a familiar hosting environment.

Making Storage Scalable

Zen was founded as an internet service provider (ISP) in 1995 and rode the dot-com boom of the late nineties. After 25 years of growth and diversification, today Zen is also a leading cloud service provider (CSP) in the UK, and continues to grow fast. "Over the last five years, we've seen between 50 and 100 percent year-on-year revenue growth, across our cloud business," says John Lyons, Technology Director, Cloud & Hosting, Zen.

The company targets midmarket business customers, which it defines as having between 100 and 1000 employees. As well as offering infrastructure as a service (IaaS), Zen offers managed services for applications that customers want to bring into the cloud. These include Sage software for business management and accounts, Microsoft applications, open-source software, and any bespoke applications the customer might have. "Some of our customers are not ready to move to hyper-scale cloud providers, which introduce new complexities, new paradigms, and new ways of working," says Lyons. "They want out of their data center, though, and are looking for a simple migration plan that enables them to take big capital expenditures for IT off their books."

To ease the customer's path into the cloud, Zen offers a multitenant VMware hypervisor, which will be familiar to customers already using it in their on-premises data center.

Scalability is a pain point: Zen's challenge is to deploy an infrastructure for storage and compute that can match the rapid growth in business. At the same time, it needs to deliver high standards of reliability and make the cloud seem welcoming for newcomers.

Offering Hyperconverged Storage in the Cloud

Zen worked with Nutanix and Intel to deploy the Acropolis software-defined storage solution from Nutanix. Acropolis simplifies storage compared to traditional SANs, and lowers the cost of storage compared to using hyper-scale cloud providers. SANs require expertise in storage and storage networking to implement and manage, and also lack scalability. Using a SAN, Zen would need to estimate how much storage capacity it expected to use over the lifecycle of the hardware to right-size its investment. For a fast-growing business, that's hard to do.

The Acropolis software brings scalability to storage by enabling Zen to use a hyperconverged platform that includes compute and storage in each server node. Nutanix certifies compatible hardware for its Acropolis software, and Zen is free to source its hardware through Nutanix's channel or from anywhere else. Nutanix certifies storage-heavy nodes and compute-heavy nodes, and Zen can scale by adding more nodes as they are required. The nodes all connect to the top-of-rack switch without the need for a mid-tier storage network in-between. Certified hardware includes Intel® Data Center Blocks (Intel® DCB), which are fully validated server systems.

The Acropolis platform stitches the servers together and presents them as a distributed storage fabric. The hypervisor runs on top, with virtual workloads on top of that. Nutanix AHV is the hypervisor included with Acropolis, but VMware ESXi and Microsoft Hyper-V can also be used.

Zen is using VMware ESXi to help VMware customers to transition into the cloud by offering a familiar virtualization environment. "The move to Zen Cloud looks and feels like home for them," says Lyons. VMware vCloud Director is used for the public cloud multitenant portal. For IaaS customers, VMware vCloud Director exposes a version of VMware vSphere which customers can use to manage their virtual machines (VMs).

By offering a shared multitenant environment, Zen is also able to offer pay-as-you-go pricing, to help customers make best use of their budgets. Previously, Zen's customers might have made large hardware investments in their data centers based on usage projections. Working with Zen, they can make significant savings by only paying for the storage and memory they actually use.

Using a single point and click interface, Zen can use Acropolis to manage its storage, without having separate tools and islands of expertise for storage, virtualization, and networking.

Zen uses Supermicro servers based on the 2nd generation Intel Xeon Scalable processor. The server also includes Intel SSDs and the Intel® Ethernet Converged Network Adapter X550. "Intel components work well with our solution because of the quality of build and the long life of the SSDs," says Marc Drinkwater, Senior Systems Engineer – Service Providers, Nutanix. "When you buy Intel, you know you're getting a brand and reliability you can trust. With the 2nd

generation Intel Xeon Scalable processor family, the core count and processor speed have been increased. That means we can offer a higher density of VMs. That helps to reduce not just the number of chassis required, but also the space, power and cooling costs in the data center."

Zen has established a cluster in Rochdale in the North West of England and another cluster in London (in the South East). Data is replicated between the locations in real time, so in the event of a disaster or outage, Zen can fail over between the environments. Zen is also able to offer disaster recovery solutions using the infrastructure. "For the size of customer we serve, it's often impossible to get budget signed off for disaster recovery," says Lyons. "It's double the spend for something they might never use, so it's always the last project to get any funding. If they get funding to replace kit, often the old kit is used for failover and when it's pressed into service, it doesn't have the power to run the business. With our infrastructure, we can replicate data into Zen Cloud and they can fail over to another location that has the same capabilities as their data center." For this service, customers pay for storage they consume, and pay a reduced cost for compute when they spin up the failover on Zen's servers.

As well as offering Nutanix capabilities to customers, Zen has used them internally for its line of business applications. The company's cPanel environment is used by 15,000 customers to manage their websites, and now runs on Acropolis. Zen wrote its own billing application called Zebra, which is also hosted on Nutanix's hyperconverged storage solution. "Over the years, we've accumulated a lot of technical debt," says Lyons. "Different platforms at different times serve different purposes. With Acropolis, we're able to move to a single vendor that we trust to deliver on all our application workloads, which makes operational maintenance considerably more straightforward."

Technical Components of Solution

- **Acropolis.** Nutanix's hyperconverged software eliminates the complexities of managing storage area networks (SANs) and brings cloud-like scalability to the data center. Acropolis combines server nodes, which can be compute or storage biased, into a single storage and compute resource. This can be accessed by the hypervisor and virtual machines (VMs). New nodes can be added to increase capacity.

- **VMware ESXi.** VMware's hypervisor provides a familiar environment for Zen Cloud's customers as they move their applications into the public cloud. VMware vCloud Director is used to provide self-service portals to customers for managing their virtual machines.

- **2nd generation Intel® Xeon® Scalable processor.** The latest generation processor delivers enhanced performance to improve virtual machine density, and enable improved consolidation in the data center.

- **Intel® Ethernet Converged Network Adapter X550.** This adapter provides low cost, low power 10 GbE performance for the entire data center.

- **Intel® Solid State Drives (Intel® SSDs).** Intel SSDs for the data center are optimized for performance, reliability, and endurance.

Close Cooperation

Intel, Zen and Nutanix work closely together. For example, Intel consultants helped Zen to work out the most suitable processors to meet the needs of remote desktop customers who were joining Zen Cloud, and Intel engineers help both Zen and Nutanix with technical challenges. "The technical help we get is really important," says Lyons. "Intel created the chipsets and is a significant vendor of storage and other technical capabilities. Their expertise really shines through. With both Nutanix and Intel, there is a genuine appetite to support us with the best solution for the particular challenge we are trying to solve. Both companies share their best practices without trying to upsell."

He adds: "Intel gives us an insight into what's coming next, and what opportunities that will represent for Zen and our customers. Intel works with us on marketing and go-to-market initiatives, too, including events and online lead generation."

Intel and Nutanix have worked closely together on validating Intel® technologies with Acropolis software. "For Nutanix, it's really important to provide an excellent customer experience, and availability and uptime are key," says Drinkwater. "The customer is king, and availability is king. That philosophy needs to be underpinned by components we can rely on, and that means the Intel platform."

Supporting Business Growth

The infrastructure is working reliably for Zen and has helped the company to support its growth in customers and data volumes. "We've used multiple cloud storage platforms before working with Nutanix," says Lyons. "We had a number of challenges with them and had to spend time troubleshooting and managing the impact of issues. It is no mean feat to go from that to a platform where we've doubled every year in capacity with virtually no operational issues. Nutanix gives us very high levels of uptime."

Spotlight on Zen

Over the last 25 years, Zen has grown from a pioneering internet service provider (ISP) into a company that provides the full range of connectivity, communications and cloud hosting services. It targets business and residential customers across the UK. Zen gives them the capabilities they need to communicate, collaborate and pursue their long-term goals.

www.zen.co.uk/business/cloud-hosting

Spotlight on Nutanix

Nutanix is a global leader in cloud software and a pioneer in hyperconverged infrastructure solutions, making computing invisible anywhere. Organizations around the world use Nutanix software to leverage a single platform to manage any app at any location for their private, hybrid and multi-cloud environments.

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