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DCi2

UK Service Provider Reduces Management Overhead Up to 75% for Edge Deployments

INDUSTRY

Technology/Service Provider

USE CASE
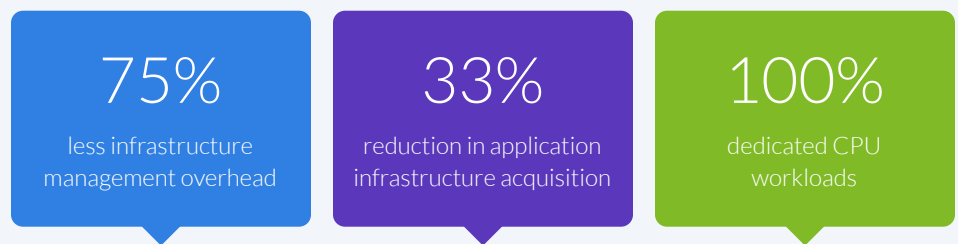
Distributed Edge

CHALLENGES

- Incumbent infrastructure was not compatible in a liquid-cooled environment

- Hyperconverged Infrastructure (HCI) requires server CPU/RAM, reducing the enterprise workload per server, negatively affecting density at each site

- Disaggregated (external) storage and compute would increase edge footprint

- Difficult to deploy IT staff at edge sites for a combination of economic reasons as well as geographic and political challenges in certain locales

- Even if IT staff were able to visit the site, access to equipment is limited given it is encased in a liquid-cooled container

- Managing large number of HCI deployments can create significant operational overhead

- Configuring and deploying applications from bare metal with HCI at remote edge sites is painful

SOLUTION

- Nebulon **smart**Edge™ with Supermicro servers for cloud management of on-premises architecture

- End point management from the cloud, including single-click, fleet-managed patching/updates of SSDs, SPUs, SAS expanders and server UEFI bios that completes in minutes

- Template based provisioning instantiates clusters consistently, including boot drive and boot image, across any/all sites in minutes

- Centralized alerts for issues and central reporting across entire edge deployment

- Consume less infrastructure because there is no HCI overhead

"Nebulon gives me a single pane of glass where I can see every single edge deployment and manage it all remotely, which reduces my overhead circa 75 percent."

- Chris Ward-Jones, CTO, DC Intelligence

75%	33%	100%
less infrastructure management overhead	reduction in application infrastructure acquisition	dedicated CPU workloads

Deploying a Distributed Cloud Anytime at the Edge

DC Intelligence (DCI), a data center colocation and cloud solutions provider, serves customers in some of the most demanding environments in the world, from agritech to manufacturing to others in remote locales and extreme climates. With growing demands in 5G and IoT at the edge, customers have turned to DCI's innovative edge solution, blocz®, which leverages liquid immersion technology to maintain moderate temperatures for their systems in temps from -25°C up to 60°C. With blocz cooling immersion technology, DCI can run a 5G enabled data center from a shipping container without the need for overhead infrastructure or cooling. This enables DCI to set up a distributed cloud anywhere, anytime and deliver significant energy savings to its customers.

The infrastructure DCI leveraged to enable blocz had to be equally robust. But the company's incumbent Hyperconverged Infrastructure (HCI) solution didn't work well in the liquid immersion environment. To add further complications, with several edge sites, DCI found that managing a large number of HCI deployments created significant operational overhead as there was no central management solution across their entire deployment. This is primarily because patching is completed site by site and even drive firmware updates are completed host by host. Furthermore, reporting was not easy to access deployment-wide as aggregate reporting was also only available by site.

"We have customers in very rural and remote areas where IT talent is not the most economical solution or readily available, and where the IT needs are very specific. Pushing out more edge sites to accommodate our customers on a daily basis means having more and more edge locations to manage," said Chris Ward-Jones, the firm's Chief Technology Officer. "With Hyperconverged Infrastructure, we would have been required to manage each location separately as we scale up and that would have very quickly become a management nightmare."

'The Sweet Spot between Cost and Density'

DCI considered alternative Hyperconverged Infrastructure solutions, but ultimately realized that regardless of the vendor, there would be an overhead tax since the solution consume up to 33% of server CPU, memory, and network resources to run enterprise data services.

"We wanted a solution viable for our liquid immersion cooled technology that would allow us to leverage 100% of our server for enterprise applications, and specifically give us the ability to simply

configure and deploy applications at the edge from bare metal," said Ward-Jones. "With all of the hyperconverged solutions we looked at, we would have been forced to compromise on density and buy additional servers to make up for it—a compromise we couldn't afford due to lack of space at the edge."

DCI found the answer in Nebulon **smart**Infrastructure, specifically with the Nebulon **smart**Edge™ solution with Supermicro servers. With the Nebulon cloud, Nebulon ON, DCI gains simplicity in remote site management and automation for their distributed edge deployments. DCI also found benefit in a server-embedded, infrastructure software solution which avoided any increases in footprint, to be a compelling value versus hyperconverged infrastructure.

"I can now dedicate my CPU to running workloads for my customers while Nebulon takes care of enterprise data services," said Ward-Jones. "It's cheaper than hyperconverged infrastructure since I no longer need to worry about server overhead and only have to buy the number of servers I need. It really hits the sweet spot between cost and compute/memory density."

Less Management, More Compute Power

With Nebulon **smart**Infrastructure, DCI can now benefit from a solution in which the control plane has been moved to the cloud, Nebulon ON. A cloud-based approach to managing DCI's remote sites has several advantages, including single click, central updates for the entire Nebulon estate across all remote sites that complete in minutes. Additionally, the Nebulon ON cloud control plane delivers centralized alerts and reporting which can be filtered by site, application, or client.

In selecting the Nebulon **smart**Edge solution with Supermicro, DCI can now reduce the cost of their edge deployments—up to 33% less. With all enterprise data services embedded in a PCIe-based IoT endpoint within each Supermicro server, the solution doesn't consume server CPU, memory, and network resources. An added advantage for DCI is that server rebuilds or patches can be done without taking storage offline, since the PCIe endpoint and connected SSDs operate in a separate fault domain from the rest of the server resources.

"Nebulon **smart**Infrastructure not only allows me to reduce my server footprint but it also gives me a single pane of glass where I can see all my storage and manage it all remotely, which reduces my overhead circa 75 percent," said Ward-Jones. "I get more density out of my blocz and reduce my management overhead. It's win-win."

About Nebulon

A group of ex-3PAR executives founded Nebulon to pioneer Nebulon **smart**Infrastructure, server-embedded infrastructure software delivered as-a-service. It delivers the benefits of the public cloud experience on-premises from core to edge for any application—containerized, virtualized, or bare metal. Nebulon **smart**Infrastructure provides self-service infrastructure provisioning, infrastructure management as-a-service and enterprise-class shared and local data services. Two solutions make up the Nebulon **smart**Infrastructure portfolio: the **smart**Edge and **smart**Core solutions, which deliver easily accessible AIOps, self-managed updates and powerful programmability at any scale. For more information, visit Nebulon.com.

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