



Using HCI to Provide Intelligent Infrastructure for Better VDI Performance



The Challenge

When multiple VDI workloads compete for IO capacity on a traditional three-tier hosting infrastructure, it produces a condition known as “resource contention.” This increases latency on the VDI system, which slows down virtual desktop productivity.



The Solution

Using an intelligent Hyperconverged Infrastructure (HCI) platform with policy-based management tools allows companies to better manage infrastructure resources for IO-intensive VDI workloads.



Key Benefits

A more robust architecture for VDI hosting

Simplified management for IO resources, security, and data protection

Optimized VDI system performance

Easy SLA and security compliance

For many companies, Virtual Desktop Infrastructure (VDI) has become the solution of choice for distributing high-density workloads to employees throughout their organization. Using VDI, companies can consolidate applications and data in a centralized data center, which employees in multiple locations can access on any type of device using virtual desktops. But often, companies must overcome key challenges related to the hosting infrastructure in order to realize the full potential of VDI and take advantage of its benefits.

A primary challenge for many organizations is managing VDI’s IO-intensive workloads during episodes of resource contention. In periods of high IO activity, multiple desktops and workloads must compete for IO capacity on the underlying infrastructure. Mission-critical workloads must compete with non-critical workloads, which can take away IO resources that the mission-critical workloads need. If the infrastructure is unable to keep up with IO demand, end users will experience latency on the VDI system, and slow performance of virtual desktops, which can decrease employee productivity.

The Limits of Traditional Infrastructure

Resource contention problems are common on traditional three-tier infrastructure that is often used to host VDI. A traditional three-tier architecture includes separate silos of servers, storage, and networking, which are complex to deploy and difficult to manage. Also, SAN or NAS storage technologies used in traditional architecture typically introduce IO bottlenecks that slow down IO processing times during high activity periods. Organizations often try to address latency and user experience issues on their VDI system by overprovisioning storage resources to meet increased IO demand, but this drives up hardware costs and reduces their Return on Investment (ROI).

Additionally, since there is no way to prioritize one type of user pool over another, organizations may create physically-separated silos for different VDI user groups in order to isolate high-priority users from low-priority users. This can also add to the hardware footprint and increase the complexity of infrastructure for VDI.

Intelligent HCI Infrastructure

Hyperconverged Infrastructure (HCI) offers a more efficient architecture for hosting VDI. HCI collapses servers, storage, networking, and virtualization into modular, software-based building blocks built on industry-standard X86 hardware. This architecture eliminates the bottlenecks of traditional three-tier infrastructure and provides faster IO processing times for virtual applications.

To optimize their VDI system for high-density, IO-intensive workloads, organizations should choose an intelligent HCI infrastructure with policy-based management capabilities that allow the company's IT administrators to do the following:

Manage User Performance

Managing storage IO performance is the key to a productive user experience in VDI. The HCI management tools should provide user performance management with policy-based resource prioritization, allowing VDI administrators to assign policies that prioritize one user group over others.

For example, the administrator can provision different user pools based on their requirements and use the policy-based management tools to prioritize them as "Mission Critical" (high priority), "Business Critical" (medium priority), or "Non-Critical" (low priority). In this way, the administrator can create user groups to consolidate disparate users on a common infrastructure.

An intelligent HCI platform will automatically prioritize resources for "Mission Critical" user pools. If there is resource contention, the HCI platform will take IO and storage capacity from "Business Critical" or "Non-critical" user groups and redistribute it to "Mission Critical" user groups. This ensures that the "Mission Critical" user groups get the IO resources they need to execute, without experiencing latency or slow performance of virtual desktops.

Manage Security Policies

The HCI policy-based management tools should allow IT administrators to set up security policies to protect critical data. For example, IT administrators can apply encryption policies to certain data sets, so that only "Mission Critical" user groups can access them, while "Business Critical" or

"Non-critical" groups are excluded. The encryption policies will also protect the data from being compromised by outside hackers. Additionally, the HCI solution should provide data encryption that utilizes open standards and has minimal performance overhead.

Manage Data Protection

HCI policy-based management should allow companies to set up automatic data backup and replication policies. For example, IT administrators can set up a schedule where data in "Mission Critical" workloads are replicated hourly to an on or off premises facility, whether in a datacenter or a public cloud, while data in "Business Critical" workloads is replicated daily, and data in "Non-critical" workloads are replicated weekly.

Prevent VDI Outages

The intelligent HCI platform should continuously monitor the health of the infrastructure, and provide the company with system performance analytics and automatic predictive maintenance notifications (for drive replacements, etc.). Proactive analytics can help to ensure that there are no unplanned outages on the VDI system. In the event of unfortunate node or component failures, the platform should offer fault tolerance that ensures system availability and minimal performance degradation.

Benefits of Intelligent HCI Infrastructure

An intelligent HCI infrastructure with policy-based management capabilities offers the following advantages:

Simplified Infrastructure Management

An intelligent HCI infrastructure platform automates complex, time-consuming administrative tasks. Administrators can manage infrastructure at scale from a "single pane of glass" user interface, providing resources to workloads across their organization, while minimizing risks of downtime, data loss, and security breaches.

Compliance with SLAs and Security Regulations

An intelligent HCI infrastructure makes it easy for IT administrators to meet Service Level Agreements (SLAs) for VDI. With policy-based management, administrators can provision the required infrastructure resources to each department or workgroup in their company. Also, by setting up security and data replication policies, administrators can ensure that the VDI system is in compliance with HIPAA, Sarbanes-Oxley, and other regulations.

Cost Savings

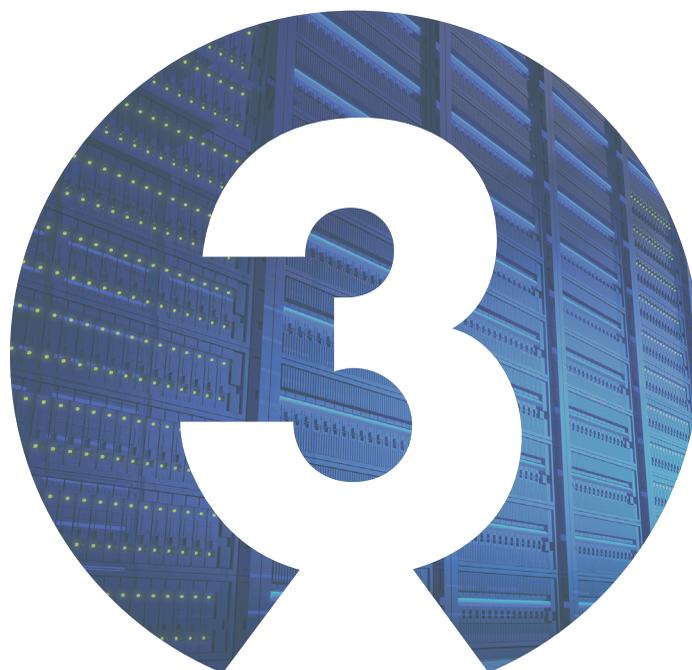
An HCI solution with policy-based management allows companies to make better use of their HCI infrastructure. This provides “Hardware Cost Avoidance Savings,” since organizations can do more with the infrastructure they have and don’t have to buy additional servers or storage units to eliminate bottlenecks. It also cuts down on operating costs, since a smaller IT footprint is easier and less expensive to maintain.

Better Productivity and an Improved ROI

Intelligent HCI with policy-based management ensures better VDI system performance and increases productivity among end-users. In turn, this provides an improved return on Investment for the VDI system, since more productive workers will increase the company’s profitability.

Conclusion

The software-defined nature of HCI offers far more flexibility than the traditional three-tier infrastructure. Using an HCI architecture with an intelligent software platform and policy-based management capabilities gives organizations additional agility in managing resources for IO-intensive VDI workloads, allowing them to increase the overall effectiveness of their VDI system and truly realize the benefits of virtual desktops.



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