



BLUELOCK ELIMINATES COMPLEXITY, ADDS PERFORMANCE WITH XSIGO

Achieves 40X more usable bandwidth per server with 97.5% fewer networking devices

Bluelock is an enterprise cloud hosting provider and is one of only a handful of companies certified by VMware to offer VMware vCloud® Datacenter Services, a service that VMware calls an “IT revolution for millions of existing datacenter applications.”

With Bluelock, clients can fluidly migrate their VMware-based applications to Virtual Datacenters hosted in the public cloud, achieving the business agility and cost effectiveness of public clouds without compromising on the portability, compatibility, security and control that enterprise IT managers demand. Bluelock Virtual Datacenters help companies get started with projects quickly, while delivering the freedom to change their minds as IT needs evolve.

BUSINESS CHALLENGES

Bluelock’s rapidly growing business presented multiple challenges for the company’s IT organization. The first was to reduce infrastructure complexity. Aaron Branham, Bluelock’s director of IT commented, “To our clients, our

service is all about flexible capacity. It’s essential that we respond quickly to their changing needs, so our infrastructure must be adaptable and scalable.”

Traditional server I/O did not meet this goal. Every server needed ten physical I/O connections, and for every 500 virtual machines deployed there were 50 network devices. This resulted in complexity that reduced flexibility and increased cost. Furthermore, because it was hard to quickly find and fix trouble spots, it became increasingly difficult to meet their aggressive uptime objectives.

The second challenge was to decrease the time required to migrate a virtual machine from one host to another. With traditional I/O it took 60 to 120 seconds per VM, which meant that it could take hours just to evacuate all of the VMs from a host and to then move them back. In day-to-day operations, this duration limited the number of virtual machines that could reside on a single server, which in turn limited the efficiency of the overall environment.



OVERVIEW

INDUSTRY

Enterprise Cloud service provider

CHALLENGES

- Reduce infrastructure complexity
- Accelerate vMotion events
- Increase agility to help deliver more and better services

SOLUTION

- Two Xsigo VP780 I/O Directors, InfiniBand DDR 20Gb server fabric

BENEFITS

- 17X more virtual machines per hardware device
- 66% less I/O cabling
- 97.5% fewer network devices
- 8X greater virtual machine capacity
- 40X more usable bandwidth per server
- Improved power consumption and uptime

The third challenge was change management. Traditional I/O not only added cost and complexity but also made it very difficult to add I/O capability or new resources. Any modifications that required infrastructure changes were time consuming, thus increasing the total cost of adding new capacity or services.

SOLUTION

During an infrastructure expansion, Bluelock designed in two Xsigo VP780 I/O Directors to provide virtual I/O connectivity between the servers, the 10GE networks, and the Fibre Channel storage devices. Two 20Gb connections to each server carried both Fibre Channel and Ethernet traffic over a single cable. On each server, the physical NICs and HBAs previously used were replaced with virtual NICs and HBAs: three pairs of redundant 10G Ethernet virtual NICs and two pairs of redundant Fibre Channel virtual HBAs.

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- Aaron Branham
Bluelock's director of IT

80% SIMPLER INFRASTRUCTURE

The result was a significantly simplified infrastructure, requiring just two I/O cables per server rather than eight. The Xsigo solution also reduced the number of I/O cards per server from four to one, and slashed the number of network devices

needed. “The number of virtual machines we can host per network device has now increased from 10 per device to 400 per device,” Aaron continued. “Our availability metrics benefitted as well. In our testing, we intentionally failed every piece of gear and found that we could always recover gracefully. With Xsigo, a device failure became nothing more than a blip on the network.”

FASTER VMOTION AND BETTER OVERALL THROUGHPUT

Performance metrics improved as well. With Xsigo, a vMotion event now takes just 20 seconds per virtual machine, rather than 60 to 120 seconds, thanks to the high-throughput server-to-server communications that Xsigo enables. Fast migration allows Bluelock to evacuate servers far more quickly, which allows the company to run more VMs per server and still meet customer SLAs. The increased bandwidth also enhances the overall user experience. “We used to have 16 servers sharing just a few GigE network links. Now we have two 20G links to each server. That's a huge difference that lets applications run more quickly and allows management tasks to complete sooner,” Aaron commented. “Our clients are very pleased with the performance they see in the Xsigo environment.”

IMPROVED AGILITY

Xsigo's simplicity and agility also provides operational benefits for Bluelock. Because new servers can be added with just two cables, capacity expansion is accelerated, reducing the need to add capital equipment far in advance of demand. And because configuration changes can be accomplished entirely in software,

resources can now be re-assigned in minutes. “We've been able to quickly accommodate the needs of our largest customers, which delivers immediate business benefits for us and for our clients.”

Configuration agility has also allowed Bluelock to streamline services such as outsourced disaster recovery. With virtual I/O, it is possible to quickly replicate a customer's own environment for rapid failover. “We wanted a wire-once environment, and we got that with Xsigo,” Aaron continued.

“Our engineers thought this was crazy at first, but when they saw the simplicity and the possibilities that come with it, their light bulbs really went on,” Aaron concluded. “The only downside is that Xsigo was disappointingly simple to install and configure!”



The Xsigo VP780 I/O Director consolidates server I/O by replacing a server's multiple Ethernet and Fibre Channel interfaces with a single high-speed low-latency link.