

## Case Study

### Loro Piana deploys 10 GbE



*“When we were running Exchange with just the 1-Gig card, we were getting a lot of delays. When I put in the 10 Gigabit cards from Neterion, the delays virtually disappeared. Obviously, the problem was the Gigabit network.”*

*—Aaron Martin, IT Manager, Loro Piana*

## Luxury Fashion a Model of Virtualization Efficiency

Fashion leader Loro Piana uses virtualization, a 10 Gigabit Ethernet network, Neterion® adapters and Nimbus storage to run a 350-person organization on just four servers.

Luxury clothing manufacturer Loro Piana needed to support growth yet run as cost-efficient an infrastructure as possible. It turned to virtualization and a 10 Gigabit Ethernet network—supported by solutions from VMware®, Neterion, Nimbus Data Systems, and Fujitsu. Results include elimination of latency in key applications, a projected 99 percent reduction in disaster recovery and server provisioning times, tenfold greater server utilization, and a move toward desktop virtualization with the potential to yield hundreds of thousands of dollars in savings.



#### Organization Profile

##### Loro Piana S.P.A.

Based in Italy, Loro Piana ([www.loropiana.com](http://www.loropiana.com)) uses cashmere and fine wool to manufacture a line of luxury goods for men, women and children. With 350 employees, Loro Piana U.S.A. is based in New York and Connecticut and operates 20 stores nationwide and a mill in Connecticut.

##### Industry

Manufacturing (Clothing)





## Business Results

- Latency virtually eliminated for Microsoft Exchange, VoIP, RetailPro applications
- \$32,000 in server hardware cost avoidance from 10 GbE
- Six-figure cost avoidance by not building out data centers
- Tenfold greater server utilization (33% vs. 3% to 5%)
- 99% reduction in disaster recovery time (hours vs. weeks)
- 50% reduction in storage costs by combining protocols
- 25% projected annual budget savings
- \$210,000 in one time savings from desktop virtualization
  - \$150,000 cost avoidance by virtualizing desktops instead of refreshing them
  - \$60,000 cost avoidance eliminating NAS devices for backup in 20 stores
  - 99% reduction in desktop provisioning time (1 hour instead of 2 weeks)

## Inside a leader

On the outside, Loro Piana is soft and fuzzy—about as soft and fuzzy as you can get. The privately-held company, based near Milan, Italy, gathers some of the finest natural fiber on earth—such as cashmere from goats in Outer Mongolia or soft fleece from vicuñas (Llamas) in the Peruvian Andes—and weaves it into suits and other clothing destined for the world’s wealthiest people, a fraction of the top one percent of consumers.

On the inside—in its IT infrastructure—Loro Piana is lean and mean—about as lean and mean as you can get. “We operate in a fickle market,” says Aaron Martin, IT manager at Loro Piana U.S.A. “We have to be prepared if the market turns down. And we operate on a small business budget, with 350 employees and just four people in IT. Everything in our IT infrastructure has to be cost efficient and pay back in a year and a half. We refresh technology every five years instead of every three. At the same time, we need to support growth. We’ve gone from 12 to 20 stores in 2 years.”

## Looking five years out

Because he can replace technology only every five years, Martin plans well ahead. So in 2003, before most of the IT world was aware of virtualization, Loro Piana U.S.A. was hosting 8 virtual machines on two physical servers. Now it has 18 virtual machines running on two IBM System x servers at its Connecticut data center and eight virtual machines running on two matching servers at its New York City corporate headquarters. The two data centers run U.S. operations and back each other up in case of a disaster.

“Virtualization with VMware lets us run 26 servers on four boxes,” Martin says. “That lowers our server hardware costs significantly and saves us the six-figure expense of building out our data centers to accommodate the extra servers.”

Virtualization is succeeding for Loro Piana. But as virtual servers multiplied, the company needed storage and a network that could keep up and deliver the performance expected by some of the world’s most demanding customers.

## Key Challenges

- Develop a cost-efficient infrastructure that can scale in a fluctuating market
- Enhance network performance and reduce latency
- Improve ability to recover from disruption
- Reduce IT overhead

## Solution

VMware virtualization on 10 Gigabit Ethernet network with IBM servers, Nimbus storage, Neterion adapters and Fujitsu switches

## Neterion Products

- Neterion® Xframe® II CX4

## Nimbus Products

- Nimbus Breeze storage array

## Fujitsu Products

- Fujitsu XG700

## Neterion Partners

- Fujitsu (<http://us.fujitsu.com/ethernet>)
- IBM ([www.ibm.com](http://www.ibm.com))
- Nimbus Data Systems ([www.nimbusdata.com](http://www.nimbusdata.com))
- VMware ([www.vmware.com](http://www.vmware.com))

## Technology Environment

- Applications: Microsoft Exchange Server 2003, RetailPro, Cisco VoIP
- Databases: Exchange and SQL
- Server platform: IBM System x running VMware ESX 3.5
- Storage: Nimbus Breeze 10G
- Switches: Fujitsu XG700, Cisco 4948-10ge



**Leapfrogging Fibre Channel**

In late 2006, Loro Piana needed new storage, and Martin evaluated iSCSI and Fibre Channel storage options. “I came to realize that with Fibre Channel, I’d need a new, dedicated Fibre Channel switch and special cards and connections for each server,” he says. iSCSI storage would be much more cost-efficient, his review showed. Martin decided to find a storage system that could take advantage of 10 Gigabit Ethernet (10 GbE) speeds. Most storage systems at the time supported only 1 Gigabit Ethernet.

**Getting nimble with Nimbus**

In early 2007, he found what he needed with a Nimbus Breeze storage array from Nimbus Data Systems. Not only did it support 10 GbE, “the Nimbus storage system combines block and file storage on one network,” Martin observes. “That’s what I wanted: SAN and NAS support in one box. Nimbus stood out in providing that. I get higher utilization

and I don’t have to buy two boxes. This reduces storage hardware costs by 50 percent and simplifies administration.”

Another feature of the Nimbus Breeze is box-to-box asynchronous replication, so Martin put a system in Connecticut and one in the company’s New York

The result was a bottleneck. “I was going to be tagging the Nimbus device from five physical servers,” Martin recalls. “Gigabit connections weren’t going to be enough.”

**Blowing away bottlenecks with Neterion**

In December 2007, VMware ESX 3.5

*“Using the Nimbus Breeze unified IP storage systems as the SAN and NAS foundation for our VMware ESX v3.5 environment, our IT operations run smoothly, efficiently, and virtually administration-free.”*

*—Aron Martin, IT Manager, Loro Piana*

headquarters, replicating data between them to enhance disaster recovery.

He also upgraded the company’s existing Cisco Systems Gigabit Ethernet switch to get two 10 GbE connections, and used one to connect with the Nimbus Breeze. However, the VMware ESX servers he had at the time could only connect with the Nimbus system at 1Gbit speeds.

was released with support for 10 Gigabit Ethernet. This gave Martin the opportunity to equip his ESX servers with network interface cards that would support the 10 GbE network. He chose Neterion® Xframe® II adapters.

The problem solved by Neterion adapters is this: On a single server in a virtualized environment, there are

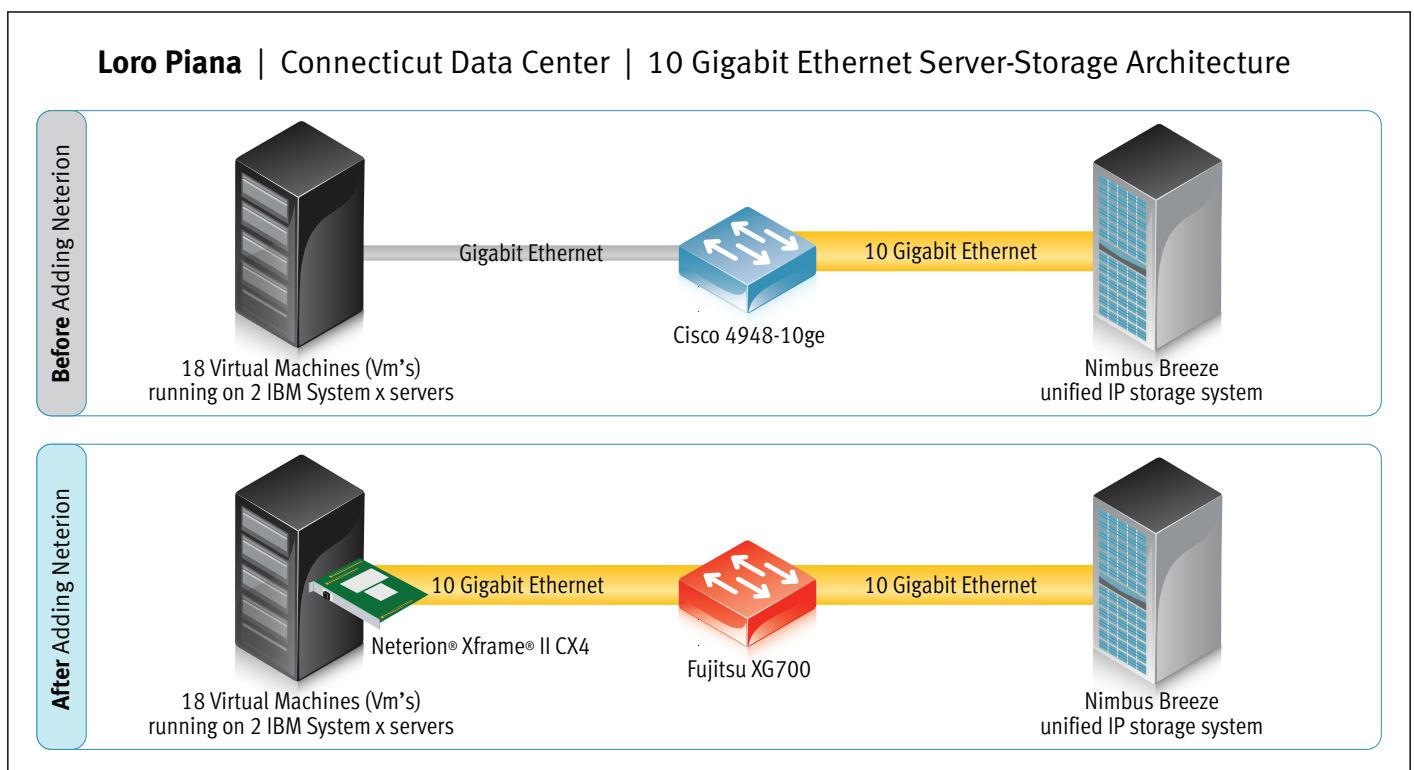


Figure 1: Example of Target Markets



multiple virtual machines seeking multiple channels of I/O access to the network. An adapter card can simulate these channels in software, but the software channels end up feeding into one hardware channel, creating a server I/O bottleneck.

In contrast, Neterion's 10 GbE adapters have multiple channels built directly in the silicon. This eliminates server I/O bottlenecks. The Neterion adapters work with the NetQueue feature of VMware and the ten-fold greater bandwidth of 10 Gigabit Ethernet networks to enable more virtual machines to be hosted on a single system. Even the most demanding I/O intensive

#### Just say no to latency

The effect of the new components was immediate. "Right away I noticed the increase in speed with which my ESX box was talking to my iSCSI box," Martin says. Email performance improved. "When we were running Exchange with just the 1-Gig card, we were getting a lot of delays," he observes. "About two or three times a day, a user would get a message that there was a 'delay in getting information from Exchange server' and the wait would last as long as 15 seconds. That's intolerable. When I put in the 10 Gigabit cards from Neterion, the delays virtually

like going from squinting to opening your eyes up and seeing everything," Martin adds. "And I could easily see that I need the I/O-optimized solid state drives."

#### Reducing cost and complexity

Virtualization on 10 GbE is delivering many other benefits at Loro Piana.

One is in reduced total cost of ownership for servers. "With a 10 GbE connection, I can have four IBM system x servers at \$10,000 apiece," Martin says. "That's \$40,000. If I only had a 1 GbE connection, I'd need 12 servers—six at each site—at \$6,000 apiece for \$72,000. 10 GbE saves me \$32,000 or 80 percent on servers."

His two ESX servers are far better utilized. "With virtualization, my servers are 60 percent utilized. That's tenfold higher than the three to five percent utilization common in one application-per-box servers."

In the event of disruption, Martin can move all virtual machines (VMs) from one server to another or one site to another. This reduces disaster recovery time by a projected 99 percent. "I should be able to recover in hours instead of the weeks it would take to restore a site from tape," he says.

In addition, the new Nimbus storage solution has streamlined overall performance and management. "Using the Nimbus Breeze unified IP storage systems as the SAN and NAS foundation for our VMware ESX v3.5 environment, our IT operations run smoothly, efficiently, and virtually administration-free," observes Martin.

#### Next step: virtualized desktops

The biggest payoff of Loro Piana's virtualized environment is still to come. "Our 10 GbE network makes possible

---

*"We're able to run a major organization on four servers with four people in IT. When others find out, it blows their minds. They say 'you're doing all that with four people?'"*

*—Aaron Martin, IT Manager, Loro Piana*

---

applications can now be fully virtualized. "I put a Neterion card in each of my two ESX servers," Martin says. "They were easy to install. It took 45 minutes. To get a similar effect I would have had to install three 4-port Gigabit cards per server consuming 4-6 hours of my time setting them all up".

#### Fujitsu switch is easy to use

Martin also connected a Fujitsu XG700 10 GbE switch to a port on his Cisco switch. The Fujitsu switch serves as the backbone for the two ESX servers and the Nimbus array.

"The Fujitsu switch is a pleasure to work with," Martin says. "We're a Cisco company, and anyone who's worked with Cisco switches knows it's not easy. But deploying the Fujitsu switch couldn't have been easier. It was more intuitive. I just plugged it in, and it worked. I was done in two hours instead of the day it would have taken to make all the changes a Cisco switch requires."

disappeared. Obviously, the problem was the Gigabit network."

Martin is also noticing little or no latency in the company's point-of-sale application, RetailPro, and Voice over Internet (VoIP) phone system. "Network latency in our stores has to be little to nothing," Martin says. "We watch our jitter rate and our millisecond ping times through our MPLS network quite extensively to make certain that when somebody picks up the phone and dials an extension, it goes through."

Another result of the new 10 GbE network is that Martin wants to upgrade the disk drives in his storage. "The disk drive light is on constantly now," he says. His next step is to receive the solid state, flash-based permanent storage that Nimbus Data Systems is releasing in its H class arrays, with 50 times the access performance of traditional hard drives. "Adding the Neterion cards was just



an upcoming desktop virtualization project,” Martin says. “Between all our locations, I anticipate virtualizing 150 desktops. Some of our desktops are six years old, but we can keep using them if they’re just running a Linux shell or terminal server session.”

Not having to refresh the desktops will save \$1,000 per desktop, or \$150,000. Desktop administration will be reduced by the cost of a full-time employee annually, or \$80,000. Virtualized desktops can be provisioned in an hour instead of the two weeks. Martin won’t have to back up desktops in his 20 stores, thereby avoiding the need to purchase 20 network-attached storage (NAS) devices at \$3,000 apiece, saving another \$60,000.

“I couldn’t have backed up remote locations over our current WAN,” Martin says. “It’s a 256K WAN that’s adequate for everything else except backing up a large file. By not having to upgrade the MPLS sites, I save \$3,000 a month or \$36,000 a year.”

Add up these figures, and “the desktop virtualization project is projected to deliver annual budgetary savings of about 25% and a one time savings of \$210,000,” Martin notes. But the company’s network upgrade to 10 GbE will have paid for itself off long before that. “The storage system, virtualization software and adapter cards are not significant expenses,” Martin says. “We realized 100 percent payback on our move to the 10 GbE network in just six months.”

#### The right connections pay off

“Our savings might be a rounding error to some large enterprises,” Martin says. “But our approach can scale to serve them in what they do—we’re able to run a major organization on four servers with four people in IT. When others find out, it blows their minds. They say ‘you’re doing all that with four people?’ We have fewer physical servers because we have 10 Gigabit Ethernet and VMware. We have fewer storage arrays because we have one from Nimbus that plays multiple roles. These are key components to our getting the job done with four people.”

#### To learn more:

Fujitsu switches (<http://us.fujitsu.com/ethernet>)

IBM servers ([www.ibm.com](http://www.ibm.com))

Neterion adapters ([www.neterion.com](http://www.neterion.com))

Nimbus Data Systems ([www.nimbusdata.com](http://www.nimbusdata.com))

VMware ESX virtualization ([www.vmware.com](http://www.vmware.com))

