



At a Glance

Customer

Sheraton Old San Juan Hotel & Casino

Industry

Hospitality

Solution

Virtual Fabric for IBM BladeCenter

Products

- IBM BladeCenter H Chassis and HS22 Blade Servers
- Emulex Virtual Fabric Adapter for IBM BladeCenter, based on the Emulex OneConnect™ Universal Converged Network Adapter (UCNA) architecture
- BLADE Network Technologies (BNT) Virtual Fabric 10Gb Switch Module for IBM BladeCenter

Key Benefits

- Consolidated from 18 servers to four servers
- Significantly increased I/O bandwidth to support additional applications
- Increased server utilization with decrease in footprint
- Utilized 10Gb Ethernet (10GbE) between servers, while maintaining existing external 1GbE infrastructure with ability to upgrade to 10GbE, Fibre Channel over Ethernet (FCoE) or Hardware iSCSI when ready

Virtual Fabric for IBM BladeCenter Increases Server Bandwidth, Reduces Footprint and Enables Virtualization for High-performance Casino Applications

The Customer

With a blend of old world charm and new world elegance, captivating Spanish-colonial architecture, spectacular views of the bay and a location just cobblestones away from 16th-century Spanish fortresses, the Sheraton Old San Juan Hotel & Casino in Puerto Rico is one of the busiest destinations on the island. The data center at the Sheraton in Old San Juan is just as busy with a lean team—two to be exact—running a robust and efficient operation. Victor Libran, IT specialist at the Sheraton Old San Juan, is committed to maintaining a leading-edge IT operation to keep the hotel and casino a leader in the tourist-packed capital city.

“We cannot afford to have any downtime in our business,” said Libran as he explained why his number one priority has always been to establish a reliable, redundant infrastructure. “Our second priority is speed. The front desk applications and casino operations depend on immediate transactions and access to data, so we require the highest performing solution that’s available.”

Today, Libran’s team manages over 400 slot machines, 200 workstations and a virtualized IBM BladeCenter environment with four servers—all connected via Emulex 10GbE Virtual Fabric Adapters and BNT Virtual Fabric 10GbE Switches. The next-generation solution ensures the Sheraton Old San Juan Hotel & Casino property runs 24/7 with the highest reliability, scalability and performance expected by hotel management, employees and, more importantly, hotel and casino guests.



Sheraton®

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The Challenge

Before deploying the IBM Virtual Fabric solution, the Sheraton Hotel & Casino worked closely with its reseller, Computer Paradise, in Caguas, Puerto Rico, to map out a future-ready technology plan. “Our biggest concern was hardware, because our current servers were unable to virtualize, scale, or support 300 new slot machines with high-performance applications. We were at a crossroads—needing more capacity but without enough floor space,” Libran said. “The expense to upgrade the servers and increase the bandwidth and hardware redundancy was not only cost-prohibitive, it was increasing our footprint. That’s when we knew we had to virtualize.”

The previous environment consisted of 18 non-virtualized rack servers running on a gigabit Ethernet (1GbE) network. The servers did not have enough Input/Output (I/O) ports for a virtualized environment running the new casino software. And, as Libran had begun to realize, the fixed 1GbE bandwidth was underutilized in some cases and oversubscribed in others.

To upgrade all of its software and workstations corporate-wide, the data center team faced complex challenges, including how to:

- Purchase new hardware within capital expense (CapEx) budgets
- Expand to six to eight ports per server for a virtualized environment
- Enhance bandwidth to support new casino applications, while staying within finite real estate
- Gain more than 1GbE bandwidth per port, but not requiring full 10GbE per port

The Solution

The Sheraton Hotel & Casino chose to implement the IBM BladeCenter solution and consolidate from 18 servers to just four IBM HS22 blade servers housed inside a single chassis, with room to grow to 30 virtual servers with a physical footprint of 14 servers—ensuring future growth without impacting the bottom line or floor space. With the Virtual Fabric solution, the Sheraton was able to leverage faster 10GbE communications between all the servers inside the chassis, while also maintaining their existing upstream 1Gb infrastructure using 1Gb/s SFPs to get to the external infrastructure. This also provided them with a future-ready deployment when 10GbE bandwidth is required throughout the network. Additionally, because Virtual Fabric offers up to eight ports from a single adapter, the VMware conversion was quickly deployed.

“Because we already have 10GbE in the chassis with the flexibility to upgrade to 10GbE throughout the network, it will be easy to increase bandwidth by adding more virtual machines when we’re ready,” Libran said.

The Emulex Virtual Fabric Adapter has two physical 10GbE ports and with virtual network interface card (vNIC) capabilities, can present anywhere from two to eight virtual Ethernet ports (one to four virtual ports per physical port). The number of ports and the bandwidth of each are configurable based on the needs of the blade in increments ranging from 100Mb up to the maximum 10Gb bandwidth of the physical ports. The virtual ports on a given physical port share the 10GbE bandwidth of that port.

The IBM solution increased Sheraton’s bandwidth between the servers by enabling the data center to carve up two 10GbE pipes into eight vNICs. vNIC refers to the capability of a NIC to present itself to an operating system or hypervisor as multiple NICs and provide up to eight vNICs using industry standards.

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IT Specialist,
Sheraton Old San Juan Hotel & Casino

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The IBM Virtual Fabric solution was able to provide Sheraton's IT operation the flexibility to:

- Dynamically allocate a total bandwidth of 20Gb of Ethernet per blade server, in addition to being able to modify that bandwidth on the fly with no downtime for maximum performance per vNIC. Sheraton decided to carve up the adapters into eight 2.5GbE virtual NICs, which provided them with 150% more bandwidth per port compared to their previous 1GbE infrastructure and up to 10 times more bandwidth per server.
- Physically isolate vNICs for advanced levels of security and to also provide higher levels of availability in the unlikely event of a vNIC failure or external networking problem
- Assign virtual groups to vNICs with similar functions, helping to reduce the amount of time managing ports

The Results

With a significant increase in server bandwidth, Libran said everything is just working faster: "The biggest advantage we noticed immediately was the speed. It used to take about five hours to do a simple database backup. Now, we're backing up the whole server and it's only taking one hour. We're doing more, in less time."

Libran is also enjoying the gift of real estate he found through server virtualization and consolidation to the IBM BladeCenter H. "By consolidating from three racks to just one chassis, we recaptured nearly 65% of our floor space," he said. "I was excited to find my workbench space again and no longer have to fix hardware in the end user work space!"

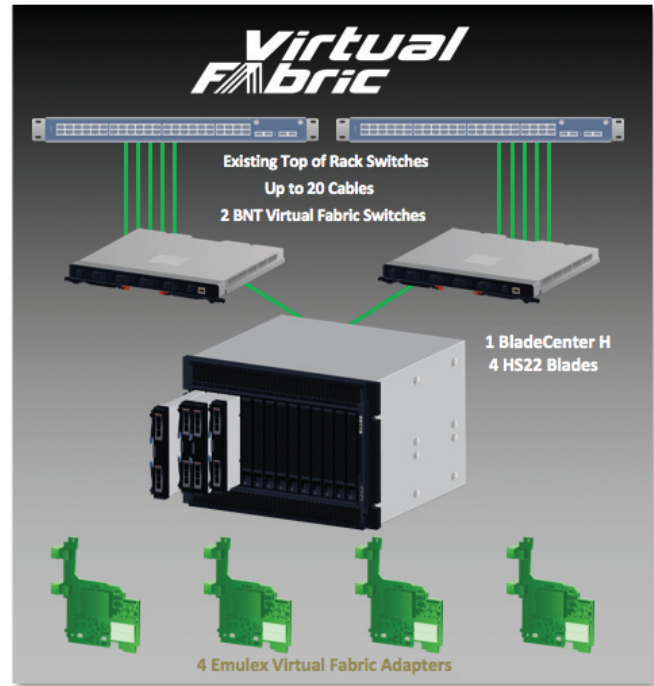
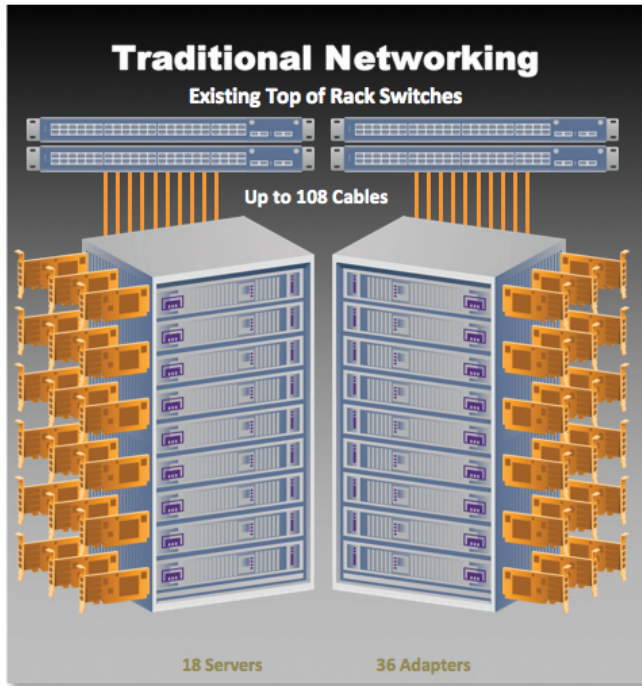
Server consolidation also resulted in immediate hard cost savings to Sheraton's CapEx and operational expense (OpEx), creating a more streamlined operation overall. According to Libran, the benefits of the IBM Virtual Fabric solution have stretched company-wide, from the data center to finance to the end users: "With fewer servers in a smaller footprint, our utility bills have decreased, cable complexities have been eliminated and efficiencies have increased. And because our system is more reliable and runs faster with Virtual Fabric, our users actually tell us 'thank you' for making their job easier."

Benefits of the IBM Virtual Fabric Solution to Sheraton Old San Juan Hotel & Casino:

Reduce Costs	<ul style="list-style-type: none"> · Consolidated from 18 to four servers · Up to 70% reduction in network hardware · Able to scale to up to eight ports per server from a single adapter and two switch modules—lowers CapEx and OpEx
Reduce Complexity	<ul style="list-style-type: none"> · Works with existing 1Gb ToR switch while operating at up to 10Gb within the chassis · Fits into existing virtualized or non-virtualized setup · Decrease in footprint · Able to upgrade to FCoE or Hardware iSCSI when ready or even 10Gb upstream—no rip and replace
Improve Performance	<ul style="list-style-type: none"> · 10x increase in bandwidth per virtual server to support new casino applications · More virtual machines per server · Increase in server utilization

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Sheraton Hotel Deploys Virtual Fabric



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