



Virtual Instruments Professional Services Improves Storage Infrastructure at Leading American Retailer

Leading American Retailer offers high quality, on-trend clothing, accessories and personal care products at affordable prices in 1,000+ stores in the U.S. and Canada. The online store ships to more than 60 countries worldwide and is in constant growth mode with new products, new services, and new countries upon to transact business.

This leading Retailer was experiencing periodic application performance issues that were affecting both the retail stores as well as the online operations. It was not clear if the performance was originating from the application servers, SAN fabric, storage or a combination thereof but it was a chronic problem that was burning up IT staff time and cross IT group goodwill.

The inability to pinpoint the exact causes of application slow down led to 'finger-pointing' at the SAN infrastructure and particularly the storage virtualization solution brought in to simplify management and improve performance.

Virtual Instruments combined efforts with the storage vendor to analyze and identify areas of inefficiency within the SAN at their main data center. The analysis, using Virtual Instrument's VirtualWisdom SAN Availability & Optimization solution, monitored the storage virtualization as well as SNMP data from the 2 Fibre Channel switches associated with those links for performance and error conditions. VirtualWisdom's real-time and historical data path monitoring, trending, and reporting capabilities offer unique visibility into Fibre Channel SAN traffic and data flows to proactively ensure a continually balanced, optimized, and trouble-free SAN infrastructure, while proactively alerting SAN administrators to issues before application or user impact

Challenges

- Ensure all retail operations are able to complete application and database transactions in a timely fashion in order to continue growth and meet end-of-year sales expectations.
- Application performance issues were problematic and costly in terms of staff time to rectify
- IT application owners concerned about the value of the recently deployed storage virtualization solution.

Solution

- Virtual Instruments Professional Services SAN Availability & Optimization Services
 - Virtual Instruments VirtualWisdom®
 - SANInsight™ TAP
 - SANInsight™ ROVER
 - SANInsight™ ProbeFCX

Benefits

- SAN proven not the source of chronic application slowness
- Storage virtualization solution was shown to be cutting latencies in half
- Identified that 10% of application servers were at risk of an outage
- Customer's utilization of existing architecture could be improved through tuning and optimization



RETAILER CASE STUDY

Issues examined

- Latency and Responsiveness
- Application Performance issues (as caused by the SAN)
- Capacity Planning
- Configuration
- Events and Errors

Latency and Responsiveness

Virtual Instruments' VirtualWisdom proved that the SAN was working correctly and that storage virtualization was clearly improving the performance of the environment. On average, the read response times through the virtualized storage were less than half what they would be if the requests were going directly to the storage arrays. Based on this analysis no corrective action was needed with regard to the storage virtualization. It was also proven that the SAN performance benefitted and that opportunity for further benefits existed.

An additional benefit of Virtual Instruments' analysis was that VirtualWisdom showed the possibility to further leverage the existing virtualization by using lower cost storage alternatives going forward.

Application Performance Issues

Several times during the course of the service, specific applications were reported to have experienced problems. The analysis of the monitoring data proved that none of the performance problems could be attributed to the SAN. Once the SAN was ruled out as a cause of performance issues, the focus of the investigation could be narrowed significantly. Issues with other applications, servers, associated databases and the operating system were also noted during the investigation. The Virtual Instruments Professional Services team recommended specific areas of focus to be examined including:

- Continuous monitoring and trending of application bandwidth demands ensuring that optimal Fabric utilization is maintained.
- Balancing the I/O load across all storage ports to help maximize the storage utilization.
- Long-term trending will help determine how applications can be more evenly distributed across the initiators and ensure a more fully utilized infrastructure.
- Based on the bandwidth and performance information collected during the service; Virtual Instruments determined that the existing SAN infrastructure could support conservatively 20% more servers.

Capacity Planning

Using VirtualWisdom, the analysis showed that nearly 20% of SAN traffic was coming from 2 servers, that 66% of SAN traffic was coming from 10 HBA's, and that less than 20% of the HBA's were responsible for 80% of the traffic.

This insight enabled the storage administrators to plan, design and manage their environment much more effectively. By tuning the SAN for the actual demand, significant savings and efficiencies could be achieved.



RETAILER CASE STUDY

Configuration

VirtualWisdom quickly discovered that several servers did not have redundant HBA's or the load balancing software was not working adequately. Virtual Instruments recommended that the non-redundant HBA's needed to be brought online and that on-going monitoring be continued to ensure that the SAN continues to have all of its fail-safe measures in place.

Events and Errors

The Virtual Instruments professional services team was able to determine that servers were being rebooted and transactions were cancelled even while the SAN is performing well. These activities occurred with much greater frequency than other SANs of this size, resulting in a likely inefficient use of application and server team's time and resources.

Virtual Instruments' recommendation was that application and server logs should be examined to determine the root cause of these problems. Continued monitoring of the SAN environment can help the application, server and SAN teams to work together to resolve and prevent these types of issues.

Summary

Virtual Instruments Professional Services SAN Availability & Optimization Services based on VirtualWisdom was able to help Leading American Retailer to narrow down the source of performance issues to the servers and eliminate the 'finger-pointing' at the SAN, its administrators and storage vendor.

Other benefits from the service were validation that the storage virtualization was reducing latency and improving application performance; quick identification of application servers at risk for outage due to issues with FC HBAs; determine that existing SAN infrastructure had room for improvement and could support more servers.



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