

# STORAGE SWITZERLAND BRIEFING REPORT

## SOLARWINDS STORAGE PROFILER



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The Storage Resource Manager (SRM) market has consolidated more quickly than the storage market itself, and in most cases the companies are acquired by an array manufacturer. This has created a quandary for users as the acquired products have become focused on their new companies hardware, often at the expense of multi-vendor storage support or visibility into the complete infrastructure. One of the lone remaining independent storage resource management tools is [SolarWinds Storage Profiler](#).

### Ready For The Real World

The reality for today's storage administrator is that a storage analysis tool is often an afterthought, occurring after a majority of the storage hardware is already on-site, installed and in use. Commonly the need for a storage analysis tool is driven by a specific storage capacity or performance problem requiring immediate attention that cannot be addressed by the vendor's tool. In short, something is on fire and speed is of the essence - there is no time for an elaborate two week long storage assessment, as the problem needs to be identified and addressed as quickly as possible.

This is where Storage Profiler's ability to be installed quickly and easily by the end-user is very valuable. Profiler will automatically discover many of the storage assets and the virtual infrastructure and begin collecting data within minutes of implementation without interruption to the environment. Storage Profiler also includes pre-designed views, alerts and reports for near instant assessment of the current situation.

### Know Your Enemy (End to End Visibility)

The first step to understanding the environment is to provide visibility into both the storage infrastructure and the connected hosts, servers and applications, and how they are interrelated (end to end mapping). When a user logs into Profiler, they start with a summary of all the storage arrays in the environment. The user can drill down to the details about how the array is configured, starting with RAID groups, then how the LUNs are carved from those RAID groups, and finally, which hosts and VM are attached to each LUN. Even further granularity can be shown if needed, like which specific drives are storing a connecting host's data.

This initial end-to-end map may show immediate problems in the environment, such as LUNs that have been defined but not allocated to hosts or servers, wasting capacity, or ranking the performance of RAID groups to identify which is overloaded with LUNs, causing performance issues.

From this point actual performance data of particular hosts, host bus adaptors, LUNs, RAID groups and storage controllers can all be monitored to show performance statistics. Once identified, fixing a performance problem may be as simple as moving some LUNs to a different controller, RAID group or set of disks to provide better load balancing and reduce contention and hard disk thrashing.

This mapping also allows the storage administrators to intelligently upgrade their storage infrastructure by addressing the identified performance bottlenecks or capacity limitations. For example, upgrading to 8Gb Fibre Channel (FC) for storage interconnect is only going to improve performance if the current FC adapters are actually being used to their maximum and have pending queues of storage requests that would justify an investment in more bandwidth. Storage Profiler can not only show how much data per second is moving through a particular storage component but also what the pending queues are for that environment.

With this kind of information, the storage administrator may occasionally determine that there is nothing wrong with the storage infrastructure, and the problem must lie elsewhere, either with the server or the application. Without this visibility, the storage administrator would have difficulty proving his case, but Storage Profiler can provide the evidence to the IT team when storage is not the source of a performance problem.

## Monitoring

Once the initial capacity or performance problems are in check, Storage Profiler can be used to keep a watchful eye

on the capacity and usage of the storage infrastructure continuously. Thresholds can be set to trigger alerts if performance or capacity usage reach a certain level. Also, storage managers can use several pre-defined views and reports to review the environment throughout the day. Metrics are collected in intervals defined by the user and stored in Profiler for immediate analysis and reporting. Finally, custom reports can be created to manage unique conditions in each particular environment. This includes the creation of reporting groups so that an entire application's or business unit's storage assets can be monitored as they interact, even if these data are on separate storage systems.

An important aspect of Storage Profiler's monitoring capabilities is to show how storage is actually being used by providing file level summaries by age, type and users. These views, also unique in storage monitoring tools, provides a file by file analysis of how capacity is being consumed. This capability allows Storage Profiler to play a role in the storage tiering strategy of an organization by helping to identify data sets that should be moved to disk or tape archive storage.

## Reporting and Planning

With the map of the storage infrastructure complete and a mechanism to monitor that environment in place, this data can now be retained, reported and used for trending and forecasting. Reporting can be used to provide a situation analysis for IT department meetings. As stated earlier capacity utilization and performance metrics can be collected and stored for not only storage systems, but the complete environment including the fabric, virtual and physical servers and the application.

One of Storage Profiler's most important capabilities is its ability to trend capacity utilization and forecast consumption, helping storage managers plan for short and long term changes to the storage infrastructure. In the short term, users can use Storage Profiler to identify which storage system, storage controller and RAID group the storage for a new application should be placed on. It can look for the least busy combination of those components allowing users to decide where the application can be placed to minimize disruption to other applications while still meeting the performance and protection requirements of the new application.

Storage Profiler's trending capabilities are also valuable for budget planning, always a challenge with storage's unpredictable nature. By looking at the storage performance and capacity utilization over time, a forecast can be made to predict the requirements of those resources in the near future. This allows for better and more accurate budgeting for both future capacity growth while meeting and maintaining future performance requirements.

## Summary

Without a tool to monitor and analyze their infrastructure, storage managers are forced to fly blind. While the software offered by storage manufacturers offers some visibility, it's usually focused on their storage systems, leaving the storage managers flying with only one eye open, blind to the interrelation of the storage components with the infrastructure and application. To fly with their eyes wide open and gain a holistic view of the environment requires an independent storage tool that not only reports on the storage, but provides visibility into the entire infrastructure. It also needs to include real time monitoring and alerting, long term trending and forecast future growth.

## About Storage Switzerland

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