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Software

# SANscreen Application Insight

Maximize application performance and lower capital costs

## KEY BENEFITS

### Improve Service Quality

Understand performance impact on applications through Application Insight's automatic discovery, collection, and maintenance of critical SAN performance metrics.

### Lower TCO

Reduce operating expenditures by reducing time and effort required for troubleshooting.

### Reduce Storage Costs

Shift application load to lower cost tiers by easily identifying low-traffic applications that are attached to tier 1 storage.

### Improve Storage Utilization

Validate multipath operations, analyze congestions, balance host traffic across multiple ports, and identify and troubleshoot excessive fabric utilization caused by transient errors.

## MAXIMIZE RESOURCE UTILIZATION

Complex and dynamic, SANs are among the most critical networks in the enterprise. However, without being able to see and evaluate SAN performance within the storage environment, your storage administrators cannot perform a variety of important tasks needed to keep your SANs running at peak efficiency. These tasks include:

- Increasing array, switch, and fabric utilization without compromising performance
- Correlating traffic problems to application performance and multipath configuration errors
- Identifying the best array and switch resources to allocate to a new application
- Optimizing storage allocation to accelerate application performance
- Identifying critical performance bottlenecks
- Understanding historical traffic usage across the SAN
- Identifying optimized IT investment to best improve overall performance

## Maximize application performance

To help you optimally align SANs for maximum application performance at the lowest possible cost, SANscreen® Application Insight leverages information discovered by SANscreen Service Insight software and combines it with real-time performance data. By mapping this information to applications, hosts, and access paths, SANscreen Application Insight enables your storage administrators to validate that applications are receiving the right performance from networked storage resources.

## EVALUATE PERFORMANCE ACROSS YOUR ENVIRONMENT

Storage administrators can save time and reduce labor costs by proactively discovering critical performance metrics across ports. Application Insight software discovers, collects, and maintains performance information measured by the switch ports throughout the SAN. Without using agents, it automatically collects this information in real time, across all the switch ports, and maintains it for seven days in raw format and for up to one year within a histogram.

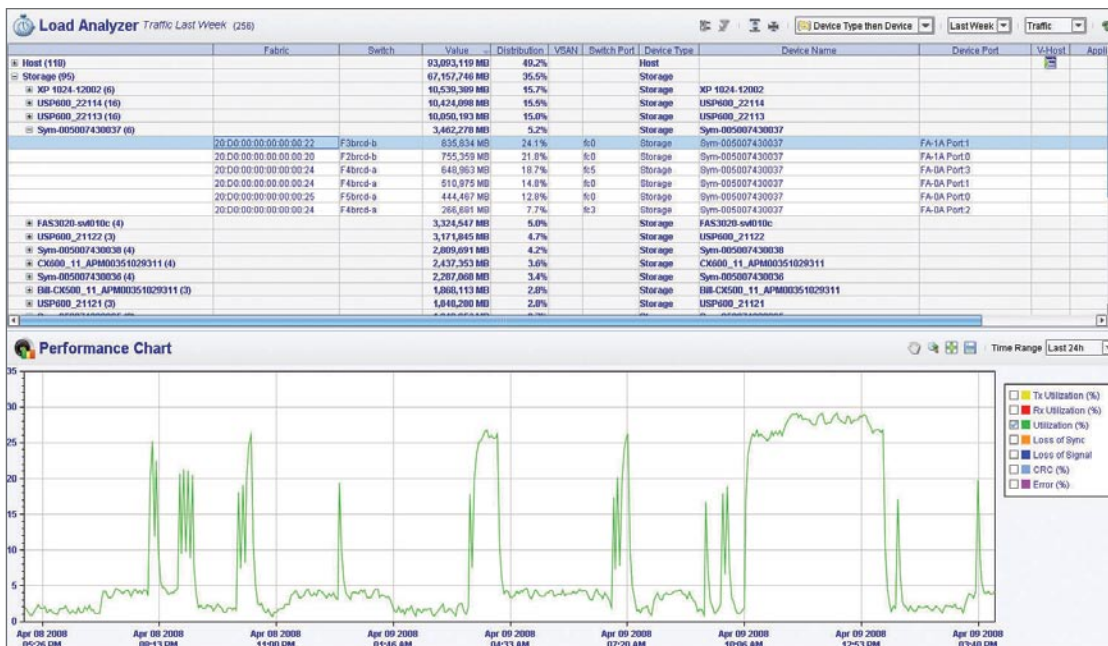


Figure 1) Traffic distribution.

### Measure SAN performance by switch ports

Using Application Insight, your IT team can gain visibility into your entire SAN environment in a single view. Application Insight enables continuous, proactive discovery of all traffic, so you can troubleshoot without the need for device tools.

### Identify port performance patterns

With Application Insight, you have the critical data needed to understand and solve port performance problems. Application Insight enables selection of any fabric port, such as ISL, host port, or storage port. It locates the ISL with the highest throughput throughout the week and provides a detailed histogram to show how much time a port spent at a particular percentage utilization level and above. This allows you to solve performance problems by adding ISLs or moving a host to a different fabric.

### IMPROVE SERVICE QUALITY

You can improve service quality by preventing application failures and improving recovery time using our proactive discovery. Application Insight uses key information from SANscreen Service Insight to be path-aware, enabling validation of multipath configurations, performing root cause analyses of host congestion issues, and providing visibility into host port balance.

### Reduce outage risk and imbalance in multipath configurations

Hosts that use multipath software for redundancy and load balancing are often configured incorrectly, increasing the risk of outages and imbalance. Validating multipath configuration manually is cumbersome and ineffective. Application Insight software automatically and reliably validates host multipath configurations by analyzing traffic patterns. It identifies hosts and shows multipath risk indicators, enabling you to locate critical hosts or applications without working multipath configurations. You can easily view the detailed host port characteristics and a performance chart for each port. Because you'll know when hosts have exceeded a balance index threshold (the load balance between the ports on the host), you can take immediate action to prevent an outage or imbalance.

### Reduce host port congestion

Hosts sharing a storage port with the busiest host will often have increased latency and poor application performance. Application Insight identifies hosts that contribute to the most traffic load on a storage port. It spots host performance problems, such as host ports that are I/O bound, and determines the root cause, enabling you to quickly reduce port congestion and improve utilization.

### Improve host port performance

Application Insight enables you to increase port performance by identifying hosts where the traffic is unequally distributed among ports so you can rebalance them. You can easily view the performance of selected host ports, the storage array that the host reaches, and all hosts sharing the same storage ports.

### Reduce operational costs

With our automated performance monitoring and alerts, you can greatly reduce the operational costs associated with troubleshooting. Application Insight notifies administrators of issues that may indicate a hardware problem or that an array or host is slowing traffic (such as those identified by a BB\_CREDIT counter), including loss of sync, signal, or other errors that occur outside predetermined frequency. In addition, Application Insight helps you locate bottlenecks by identifying when the transmit or receive utilization rates exceed a specified threshold over a predefined period of time.

### MANAGE CAPACITY EFFECTIVELY

SANscreen Application Insight helps save capital expenditures by increasing fabric and array utilization and enabling correct tiering. You can greatly reduce labor costs by enabling managers to institute a proactive capacity planning strategy that prevents bottlenecks. Application Insight contains

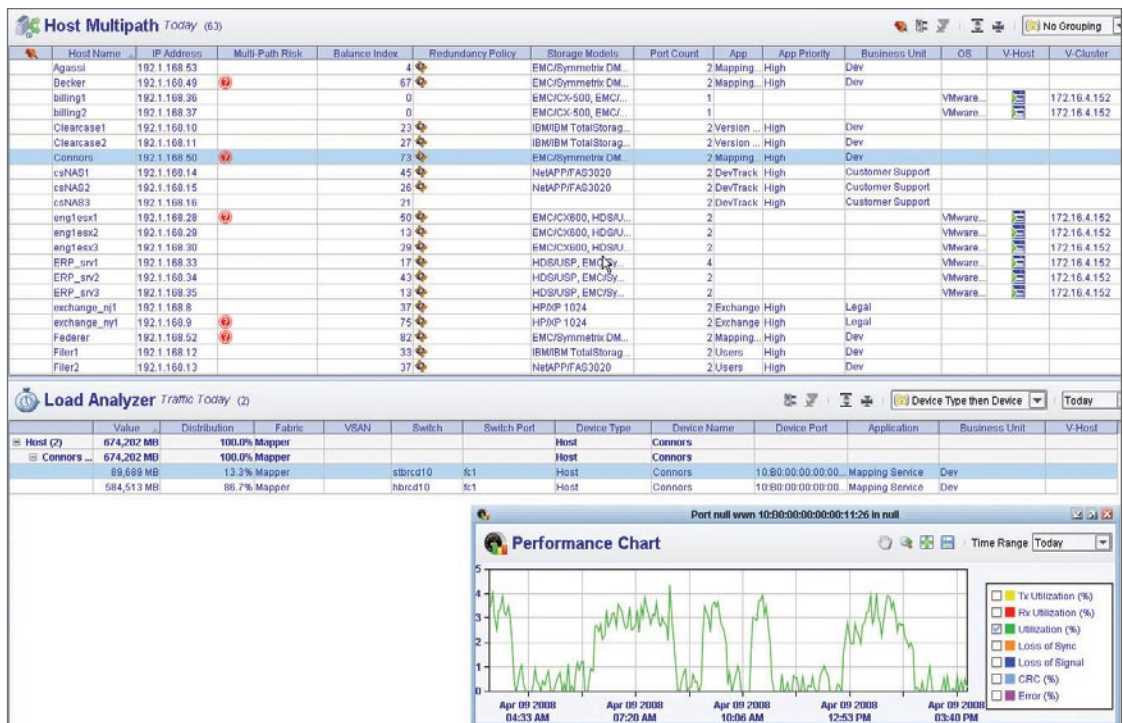


Figure 2) Multi path risk.

sophisticated capacity management functionality that performs load balancing by array and switch ports, migration planning, tiering by traffic, and orphan resource identification.

### Increase resource utilization

Application Insight identifies the most and least utilized resources. You can review traffic distribution by hosts, arrays, ISLs, and tapes, and even expand the view to switch, array, and host ports. Additionally, you can open a performance chart to visually view trends in your environment.

### Identify the best resources to allocate

By aggregating performance data across all fabrics, switch, and array ports, storage teams can make the best decisions about which resources to allocate for maximum resource utilization without compromising performance. You can use this information to determine the least-utilized fabric, switch, array, and array port to be used for routine storage capacity allocation. You can also use the information to identify the busiest SAN component that if upgraded, will provide the highest performance.

### Reduce server and storage costs

Using Application Insight, storage teams can determine which volumes and servers have not received significant traffic and are candidates for reclamation.

To help you develop an efficient and effective migration plan, Application Insight identifies applications that have minimal traffic but use expensive tier 1 storage, allowing you to migrate the applications to less expensive tier 2 storage. Using the same information, you can also increase performance by migrating a busy application to another resource to reduce the impact it has on other applications.

### HETEROGENEOUS SWITCH SUPPORT

Application Insight provides support for the following switches:

- Cisco
- Brocade
- McData
- Inrange
- Qlogic

### PARTNER FOR SUCCESS

When you partner with our Professional Services and Global Support teams, you gain access to our extensive storage expertise, innovative technologies, and best practices. You can accelerate the return on your infrastructure investments and get the most business benefit from them. We respond quickly to your problems, no matter where in the world they occur, and with one of the most flexible support programs in the industry, you always get just the support

you need for your unique IT and business requirements.

### TAKE THE NEXT STEP

For more information on how Application Insight can benefit your business, contact your NetApp SANscreen representative or visit our Web site at [www.netapp.com/us/products/management-software](http://www.netapp.com/us/products/management-software).

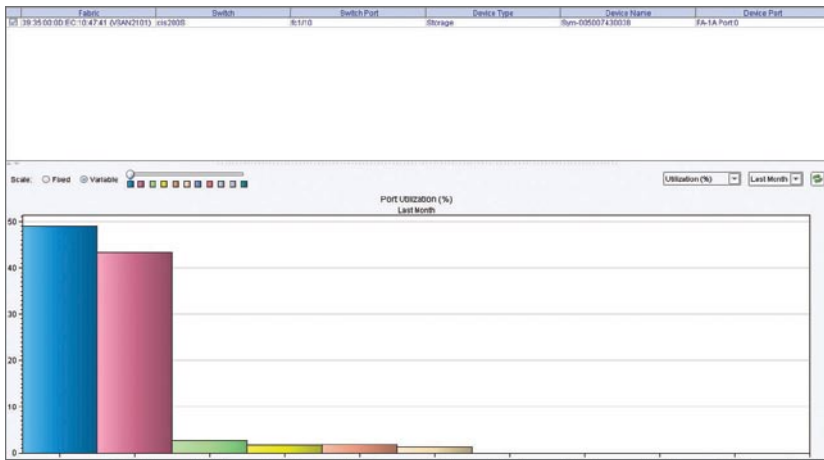


Figure 3) Histogram of annualized storage port utilization.

Table 1) SANscreen server requirements.

REQUIREMENTS	UP TO 5,000 PORTS	5,000+ PORTS
<b>Operating System</b>	Microsoft® Windows® Server 2000 or 2003 with the latest SP	Microsoft Windows Server 2000 or 2003 x64 version with the latest SP
<b>CPU</b>	Dual Pentium® processors or equivalent (2.4GHz+ recommended)	Quad CPUs highly recommended
<b>Memory</b>	4GB RAM	8GB+ expandable RAM highly recommended
<b>Disk Space</b>	20GB available hard-disk space	
<b>Network</b>	100Mb per second/1Gb per second Ethernet connection with dedicated IP address with IP access to all of the SAN devices in the environment	
<b>Permissions</b>	A minimum of local administrator permissions required	
<b>Remote Connectivity</b>	Internet connectivity to allow WebEx access and/or a remote desktop connection to facilitate installation and post-install support	

NetApp creates innovative storage and data management solutions that accelerate business breakthroughs and deliver outstanding cost efficiency. Discover our passion for helping companies around the world go further, faster at [www.netapp.com](http://www.netapp.com).

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