

VirtualWisdom® Network Switch Probe Model: ProbeSW

Virtual Instruments products provide definitive diagnosis and prevention capabilities for complex, heterogeneous FC SANs

The Network Switch ProbeSW is an agentless software probe that utilizes storage and network information from SMI-S and SNMP MIB (management information base) to gather switch performance and link error statistics in a non-intrusive manner. These critical switch statistics are correlated with other system-wide metrics and presented within the intuitive VirtualWisdom interface as an entity.

Using VirtualWisdom's Network Switch ProbeSW provides comprehensive visibility, definitive insight, and optimal infrastructure utilization—helping administrators substantially improve data availability and application performance through correlation techniques that help quickly troubleshoot, and proactively avoid emergent problems.

The Network Switch ProbeSW supports Brocade and Cisco Fibre Channel switches, creating an unbiased view of switch port performance. VirtualWisdom utilizes data collected by the Network Switch ProbeSW to track switch performance, identify oversubscribed resources, conduct historical trending analysis, and quickly alert administrators of link error problems or performance bottlenecks.

Performance deviations, link errors, and improperly configured multi-pathing scenarios are quickly diagnosed utilizing realtime and historical trending and analysis reports. The number of problems and time spent resolving performance issues or network faults are systematically and dramatically reduced.

Product Benefits

- Reduces overall SAN-related costs by identifying over-provisioned links, helping avoid unnecessary future expenses
- Enables greater data availability by proactively finding multi-path failures before they affect end-users
- Dramatically reduces the time to identify and resolve SAN-related problems
- Reduce the number, frequency, and severity of infrastructure tickets through early detection of I/O performance bottlenecks and transmission faults
- Move beyond detecting flow control status in the environment and quickly determine causality as issues arise
- With Topology Views, determine actual connectivity of your complex solution components, all at-a-glance and with drill down capability

What VirtualWisdom Offers

Discovery: VirtualWisdom leverages the Storage Management Initiative Specification (SMI-S) and Simple Network Management Protocol (SNMP) to discover all storage networking components. This provides discovery of logical and physical fabrics, zoning information, and worldwide naming. The automated SMI-S discovery drastically streamlines the install and configuration process for VirtualWisdom.

Topology View: The fabric view is completely discovered by VirtualWisdom. This includes logical and physical fabrics, and the user has the option to switch between logical and physical fabric views.

Entity Model: ProbeSW will discover and present the following entities throughout the VirtualWisdom platform:

- Physical Fabric
- Logical Fabric
- SAN Switch
- Inter-Switch Link
- Port Channel
- Logical Switch
- Switch Blade
- Switch Port

Alarms: VirtualWisdom supplies the user with the following pre-configured alarms to help users proactively manage the network switch health and utilization:

- **Link Errors:** Provides alerts for link errors
 - Loss of Sync
 - Loss of Signal
 - Link Reset
 - Link Failure
- **Fabric Transmission Errors:** Provides alerts for transmission errors
 - CRC Errors
 - Class 3 discards
- **Lost Path:** Provides alerts for a link that used to have traffic but no longer does
- **Port Utilization:** Thresholds set on percent utilization of host, switch and storage ports

Network Switch Probe SW Key Features

- Provides a dedicated, real-time SAN monitoring solution with flexible thresholds and alerts
- Gathers switched fabric performance statistics with an agentless software probe
- Provides overall view of fabric health through centralized switch event monitoring
- Offers vendor-agnostic, unbiased view of Fibre Channel switch statistics with no impact on switch performance
- Identifies highly utilized and underutilized ports and links
 - Detects failed multi-pathing and sub-optimized links (passive vs. active multi-pathing)
- Support for monitoring and measuring virtual fabrics from Cisco: VSAN, NPV, FlexAttach and from Brocade: Virtual Fabric, Access Gateway
- Measures exhaustion of buffer to buffer credit to help identify and avoid potential bottlenecks
- Provides historical performance trending over time and detects degraded Inter-Switch Links

Network Switch ProbeSW Compared

Compared to the most common switch fabric management tools, the Network Switch ProbeSW provides more complete trend analysis for capacity planning and presentation of unlimited persisted metrics to pinpoint intermittent issues. It also supports a wider range of vendor devices. More significantly, along with VirtualWisdom's SAN Performance ProbeFC8 family and Virtual Server ProbeVM family—it provides more robust instrumentation, monitoring, measurement, root cause analysis/correction and optimization of the system-wide infrastructure—from the host server and/or virtual machine, to switch fabric, to the LUNs on the storage arrays.

Technical Specifications

Metrics collected or generated by the Network Switch ProbeSW include:

- Analytic (Calculated) Metrics: VirtualWisdom Network Switch ProbeSW uses several key metrics to calculate additional analytic metrics that give users greater insight into infrastructure performance. Many of the metrics provided by the switch vendor API are presented as simple counters, and are not useful when trying to pinpoint the root causes of a system outage or performance slow down. VirtualWisdom calculates these metrics and transforms them into valuable information by leveraging decades

of unique performance management and troubleshooting experience. VirtualWisdom converts raw counts into deltas over time, enabling the ability to accurately pinpoint and correlate events across the environment over time.

- Switch Port Information: Worldwide names of attached devices, link rate, port type, alias, FCID
- Switch Metrics: received/transmitted bytes and frames, CRC errors, link resets, link failures, loss of signal, loss of sync, Class3 Discards
- Exhaustion of buffer to buffer credit
- Standards: supports SNMP versions 1, 2c, and 3



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