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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 the API's, SMI-S, and SNMP MIB (management information block) to gather switch performance and link error statistics in a non-intrusive manner. These critical switch statistics are collected by VirtualWisdom's platform software, correlated with other metrics, and presented to the user in an easy to use configurable, graphical user interface.

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

The Network Switch ProbeSW supports all Fibre Channel switch manufacturers, creating an unbiased, vendor-agnostic 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 are quickly diagnosed utilizing real-time and historical trending and analysis reports. The number of problems, and time spent resolving performance issues or network faults are systematically and dramatically reduced.

New VirtualWisdom4 Features

- Enhanced SMI-S-based network discovery
- Entity-based, Topology UI
- Preconfigured Alarms
- Enhanced reporting, and analytics enables proactive fault identification

Benefits

- Dramatically reduces the time to identify and resolve SAN-related problems
- 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

What's New in VirtualWisdom4?

SMI-S Discovery: VirtualWisdom4 leverages the Storage Management Initiative Specification (SMI-S) to discover the storage networking components. SMI-S 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 VirtualWisom4. SMI-S discovery is supported for Brocade and Cisco storage networking switches. VirtualWisdom4 requires Brocade Network Advisor's (BNA) SMI-S agent or Cisco's Data Center Network Management (DCNM) SMI-S agent to be in place in order discover the storage networking infrastructure.

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

New Entity Model: ProbeSW will discover and present the following entities in the VirtualWisdom4 topology:

- Physical fabric
- Logical fabric
- Physical switches
- Logical switches
- Blades
- Switch ports

Alarms: VirtualWisdom4 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 ProbeSW Key Features

- Provides a dedicated, real-time SAN monitoring solution with flexible thresholds and alerts
- Gathers Switched Fabric Performance Statistics with a non-agent based 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—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 over 50 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 can be almost useless 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 trouble-shooting experience. For example, the "StorageDeviceLinkReset" metric is calculated by VirtualWisdom on the fly to help users quickly understand how many storage-side port link resets have taken place for whatever time-frame the user cares about.
- **Switch Port Information:** Worldwide names of attached devices, manufacturers of attached devices, link rate, port type, nickname, FCID
- **Switch Metrics:** received/transmitted bytes and frames, CRC errors, link resets, link failures, loss of signal, loss of sync, Class3 Discards
- **Switch LED:** Error state, signal state. Exhaustion of Buffer to Buffer Credit
- **Standards:** supports SNMP versions 1, 2c, and 3

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