

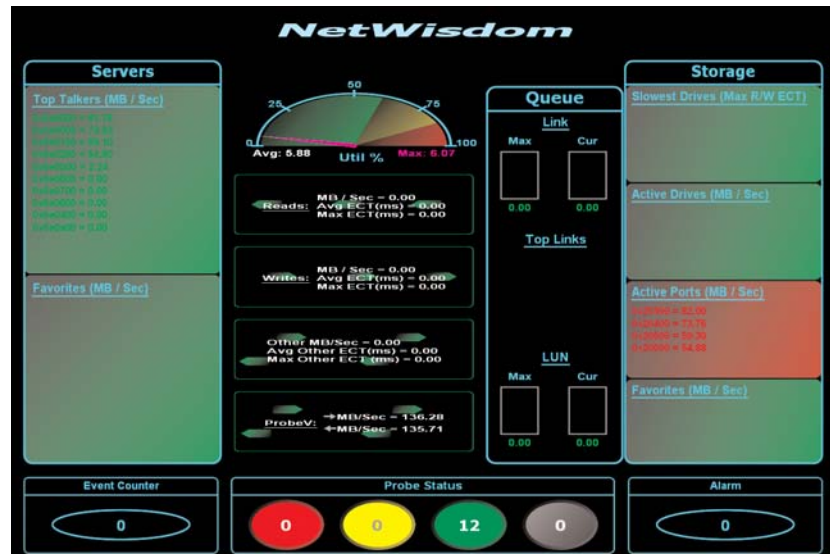
## FEATURES

- Software only NetWisdom SAN switch port monitoring
- Vendor-neutral, SAN fabric performance and utilization measurement
- Detects fabric link failures, hardware errors, and congested ISLs
- Easy upgrade to NetWisdom ProbeFCX and Xgig Analyzer functionality

Finisar's NetWisdom® family of products provides an unprecedented scope of diagnosis and prevention capabilities for complex, heterogeneous fibre channel SANs. SAN administrators can use the NetWisdom family of products to address specific issues, verify service levels, and provide deep monitoring and analysis well beyond the capacity of standard SRM tools.

NetWisdom Express is a software-only version of the powerful NetWisdom SAN monitoring and analysis tool. NetWisdom Express uses Virtual Probes (ProbeVs) to collect status from SAN switches to determine performance and detect faults. ProbeVs monitor SAN switches from all vendors through a standard interface. NetWisdom Express scales to over a hundred SAN switches, monitoring over ten thousand fabric ports.

The ProbeV detects fabric slowdowns by measuring the performance of every switch port. NetWisdom can use these measurements to proactively identify congested fabric ports by calculating percentage-of-utilization metrics. With these metrics, NetWisdom Express can be actively used in balancing network loads based on information gathered from ProbeVs in the system. For example, many network layouts have some links that are very busy while others are less so. Knowing how to better split the load can prevent an administrator from having to purchase additional controller cards, saving the organization money and downtime. By the same token, this historical knowledge can be invaluable in planning for future network bandwidth capacity by identifying which links are likely to become busy in the future.



NetWisdom can also detect when HBAs or storage ports have gone offline for an extended period of time by setting an alarm which initially triggers when the link has traffic, and then issuing an alert after a user-configurable time. This feature can be used to detect dead links, hardware issues that require a reboot, and, most importantly, can alert administrators to a lack of redundancy when it is needed, specifically targeting the problematic device.

NetWisdom Express software is easy to install and provides immediate knowledge about fabric performance, utilization, and status for local and remote SANs. NetWisdom Express can be upgraded at any time to add additional functionality using Finisar's ProbeFCX hardware probes and/or Finisar's Xgig protocol analyzer.

## PROBEV

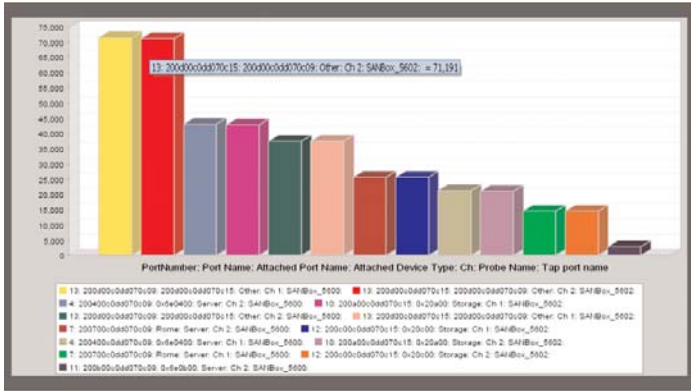
NetWisdom Virtual Probes (ProbeVs) consists of software that communicates with one or more SAN switches via SNMP. Each ProbeV monitors all the ports of a switch and collects metrics for each port such as the number of number of frames and bytes, as well as key faults such as loss of synchronization, link resets, link failures, discards and CRC errors. The ProbeV calculates the throughput (in MB per second) for each port and the percentage of utilization based on link speed. A summary of these metrics are reported to the NetWisdom portal from each ProbeV every five minutes. ProbeVs can collect data from local or remote SAN switches, and a single NetWisdom portal can support up to 120 switches.

Probe Name	PortNumber	Port Name	AttachedPortName	Attached Device Type	Ch	Attached Port Mtu	FramesSec	MB/Sec	Link rate	LOS	LOGS	Ln
SAN01_5602	12	200000000070c15	200000000070c09	Other	Ch 2E	Quicge	69,571	57.117	40pps	0	0	
SAN01_5600	13	200000000070c09	200000000070c15	Other	Ch 1E	Quicge	70,997	57.016	40pps	0	0	
SAN01_5600	13	200000000070c09	200000000070c15	Other	Ch 2E	Quicge	37,355	55.406	40pps	0	0	
SAN01_5602	13	200000000070c15	200000000070c09	Other	Ch 1E	Quicge	37,271	55.317	40pps	0	0	
SAN01_5600	4	200400000070c09	0166400	Server	Ch 2F	Quicge	42,793	40.637	30pps	0	0	
SAN01_5602	10	200000000070c15	0120000	Storage	Ch 1F	Hba3h	42,000	40.000	20pps	0	0	
SAN01_5600	4	200400000070c09	0166400	Server	Ch 1F	Quicge	21,444	39.965	30pps	0	0	
SAN01_5602	10	200000000070c15	0120000	Storage	Ch 2F	Hba3h	21,308	39.776	20pps	0	0	
SAN01_5602	12	200000000070c15	0120000	Storage	Ch 1F	Hba3h	24,748	35.005	30pps	0	0	
SAN01_5600	7	200700000070c09	0166000	Server	Ch 2F	Emulac	25,327	35.015	30pps	0	0	
SAN01_5602	12	200000000070c15	0120000	Storage	Ch 2F	Hba3h	34,177	34.708	20pps	0	0	
SAN01_5600	7	200700000070c09	0166000	Server	Ch 1F	Emulac	34,480	34.687	30pps	0	0	
SAN01_5600	11	200600000070c09	0166000	Server	Ch 2F	Emulac	2,052	1.474	30pps	0	0	
SAN01_5602	8	200000000070c15	0120000	Storage	Ch 1F	EMC	2,048	1.468	20pps	0	0	
SAN01_5600	11	200600000070c09	0166000	Server	Ch 1F	Emulac	1,420	0.752	30pps	0	0	
SAN01_5602	8	200000000070c15	0120000	Storage	Ch 2F	EMC	1,419	0.749	20pps	0	0	

Table View

## NETWISDOM PORTAL

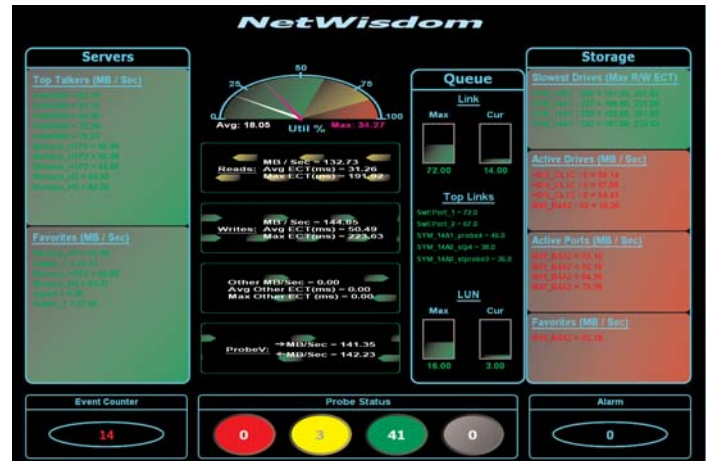
NetWisdom Portal software resides on a Windows platform, collecting metrics from each ProbeV at five-minute intervals. Metrics are stored in a local database. Metric summaries are coalesced periodically based on user-defined policies. Detailed metrics can be saved and replayed later. The Portal manages data collection and summary creation so that graphs, reports, and tables of current and historical data can be viewed when desired. Portal alarms enable actions in response to detecting specific protocol faults or breaches of pre-defined thresholds. Programmable alarms can result in SNMP traps, email notification, or script execution, or can automatically point a ProbeFCX probe or Xgig analyzer at the identified fibre channel link, if the Xgig or ProbeFCX hardware has connectivity to the link. The Portal allows users to configure ProbeVs and monitor the overall health of the SAN.



Views Software

## NETWISDOM VIEWS

NetWisdom Views software provides a rich set of real-time tables, graphs and charts for users to summarize, analyze, and compare SAN performance. The data can positively indicate the causes of problems and slowdowns, whether the issue is within the SAN or elsewhere. Table views provide real-time, configurable SCSI metrics and fault data. Reports provide current or historical trend analysis using summarized metrics. The Views software can access data from the NetWisdom database remotely or locally.



Dashboard

## NETWISDOM DASHBOARD

NetWisdom Dashboard software is a real-time summary display that provides an overview of the SAN's performance and faults. NetWisdom Dashboard allows administrators and Network Operations Center staff to quickly determine the health of the SAN at a glance, and identify the top ten servers/applications and view their SAN performance.

## NETWISDOM 2.2 PORTAL SYSTEM REQUIREMENTS

- CPU: 2 CPU, Intel Xeon 2.4 GHz with HyperThreading
- Memory: 4 GB of RAM
- Hard Drive: 250GB SATA2, SCSI U320, or SAN Attached storage
- OS: Windows XP or 2003 Server.
- Media: DVD/CD-ROM Drive
- Other: 1024x768 SVGA, and Serial data port

## NETWISDOM 2.2 VIEWS SYSTEM REQUIREMENTS

- CPU: 1 CPU, Intel Xeon 2.4 GHz
- Memory: 2 GB of RAM
- Hard Drive: 120GB SATA2
- OS: Windows XP or 2003 Server
- Media: DVD/CD-ROM Drive
- Other: 1024x768 SVGA, and Serial data port

## SPECIFICATIONS

- Up to 120 ProbeVs (Monitored switches) supported by a NetWisdom portal
- up to 50 ProbeVs (monitored switches) supported by a NetWisdom portal in conjunction with Finisar NetWisdom ProbeFCX
- Switches that do not support standard SNMP FA MIB 3.0 or greater or equivalent enterprise MIB are not supported, such as EMC branded McData switches which have a proprietary switch operating system

## CONFIGURATIONS

NetWisdom Express can be ordered in the following configurations:

**E-10NWExpress** – 10 SAN Switches supported

**E-UNLNWExpress** – Unlimited SAN Switches supported

- A ProbeV (Virtual software Probe) collects statistics on all the ports of a single switch or director
- ProbeVs communicate with SAN switches via an Ethernet connection and poll based on a user set polling value. The recommended poll value is 5 minutes in order to not impact the switch
- ProbeV software is co-located on the platform with the NetWisdom portal

## LIMITATIONS

- Up to 120 ProbeV's (monitored switches) are supported by one NetWisdom portal
- Up to 50 ProbeV's (monitored switches) are supported by one NetWisdom portal when in combination with NetWisdom ProbeFCX probes.
- ProbeV's require that the SAN switch support the FiberAlliance SNMP MIB or equivalent

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