Industrial^{IT} System 800xA
Asset Optimization
PC, Network and Software Monitoring

Data Sheet

The flexibility and extendability of ABB's 800xA process automation system enables users to build a strategy to achieve their enterprise of the future.

But every good strategy relies on several well thought out steps to achieving the final goal. So while building a system of assets is part of the goal, ensuring that the system assets are always available and used to their maximum efficiency is equally important.

This is where *PC, Network and Software Monitoring* (PNSM) fits into the plans. Standard PC, network and software equipment is used extensively in automation systems. The optimal behavior of these systems has significant impact on the performance, reliability and ultimate cost of the system and the process being controlled.

Continuous monitoring of this equipment and the indication of approaching conditions has a significant impact on the control system. Companies are realizing the inherent value of having access to real time data and how the smallest of unexpected failures are detrimental to profit goals.

Well known solutions available on the market today are very costly or offer limited monitoring of hardware only. ABB's *PC, Network and Software Monitoring* provides a cost effective solution with a far broader range of monitored components. It is also delivered complete with pre-configured libraries of IT Assets (Figure 1) representing devices and system processes widely used within industrial businesses today.

Functions

The software is comprised of 4 seamless components:

- An OPC server that supplies the IT Asset data to the system
- A set of IT Aspect types that access the IT status data making it available to any client application within the system
- An interface to Asset Optimization that generates alarms based on the state of the asset and
- The Network Device and Scanning Tool (NDST) that enables users to scan the network for SNMP enabled devices and compile MIBs (Management Information Base) files

Together they create a comprehensive package providing a wide range of IT Assets within the automation area to monitor.

There are three levels of monitoring:

- IT Assets which are defined as such items as computers, printers and switches
- A Device is characterized as the finer details of an asset. For example, within computers there are many devices; a hard drive, ports, the processes running within the computer
- For each of these devices granular details or Properties can be uncovered. The hard drive has status and alarm types providing specifics, on the amount of free disk space, or the health of the drive; is it functioning normally, or not available to the system at all. For processes running within the computer *PC, Network and Software Monitoring* looks at the virtual memory, handles and threads of the system and also the various software components of the 800xA servers and clients

The monitoring of network traffic is accomplished through the Network Monitoring IT Assets. Information is provided in bytes per second or the percentage of band-width used for the network segment, a given node or between nodes.

IT Assets can be monitored by using standard *PC, Network and Software Monitoring* faceplates, the Industrial IT 800xA System Viewer, and the Asset Optimization Asset Reporter and Viewer.

Faceplates

There are two types of faceplates: IT Faceplates that provide information on the printer and the Hirschmann RS2 switch; and the Auto-Populate Faceplate for all other IT Assets (Figure 2). The Hirschmann faceplate features the display of such elements as the time since the device was last re-initialized, power supply status, interface index – physical connections on the device and operating state of the interfaces, as well as others.

Within the Auto-Populate Faceplate an embedded component searches the IT Asset for information. For example up to sixteen fields containing information on the 800xA Aspect Server can be displayed. The colors of the values within the faceplate will change depending on the status.

Network Assets	Computer Assets	Software Assets
Generic Network Interfaces	Generic Network Interfaces	Inform IT Performance Monitors
Hirschmann Switch (Mach 3000, RS2)	PPB Nodes	Generic Computer Processes
Cisco Switch (12, 24 and 48 port)	Inform IT Nodes	
Generic Printer	Generic Computer Node	
Network Monitor		

Figure 1: The pre-configured library of IT Assets

The System Status Viewer lists the components within the system (Figure 3). The Viewer provides instantaneous access to IT Assets presenting status information, descriptions, and timestamps. By right clicking the mouse users have detailed access to all aspects of the IT Asset drilling down to finer details of information.

Additional benefits are realized when connecting *PC, Network and Software Monitoring* to a system utilizing Asset Optimization. Alarm conditions generate alarm messages back to the Operator Workplace where they are fully and transparently integrated into the alarm stream. The Asset Reporter displays a detailed view of the IT Assets being monitored and each conditions current sub-condition, timestamp, and quality status.

The Network and Device Scanning tool is comprised of two components; Net Scan and Compilation Wizard (Figure 4). The Net Scan component is an IP/SNMP discovery tool that scans the network for available IT Assets, determines if they are SNMP enabled and reads the SNMP data. The Compilation Wizard component is used to load, compile and translate MIB (Management Information Base) Files.

Network and Device Scanning helps in the reduction of engineering efforts, improves the quality of configuration data and provides faster integration of new Assets into the PNSM library.

Through the use of standardized programming tools and features users are also able to create new IT Device types to be monitored.

Applications

Diagnosing the cause of a network failure can be extremely time consuming. Where to cable, switch port, computer hard drive or port, right down to a blown fuse within the network switch. With the monitoring software users have access to limitless data detail.

Diagnosis of the cause of a network failure can be extremely time consuming. Where to start, it can be anything from a network cable, switch port, computer hard drive or port, right down to a blown fuse within the network switch. With the monitoring software users have access to limitless data detail.

Disruptive to a day's workflow and possibly detrimental to production is the inability to receive scheduled reports. If the computer that provides the reports is locked up then pertinent information is not being received. With *PC, Network and Software Monitoring* running users would be able to detect that a memory leak is the source of the lock up as computer processes slowly stopped running. Another major cause of day to day profit loss is system bottlenecks. These can also

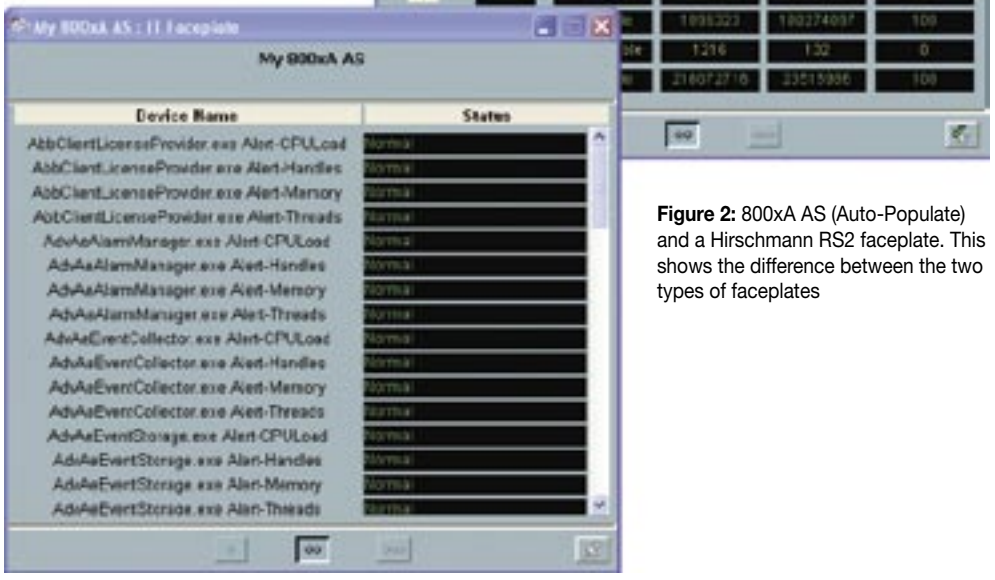

Figure 2: 800xA AS (Auto-Populate) and a Hirschmann RS2 faceplate. This shows the difference between the two types of faceplates

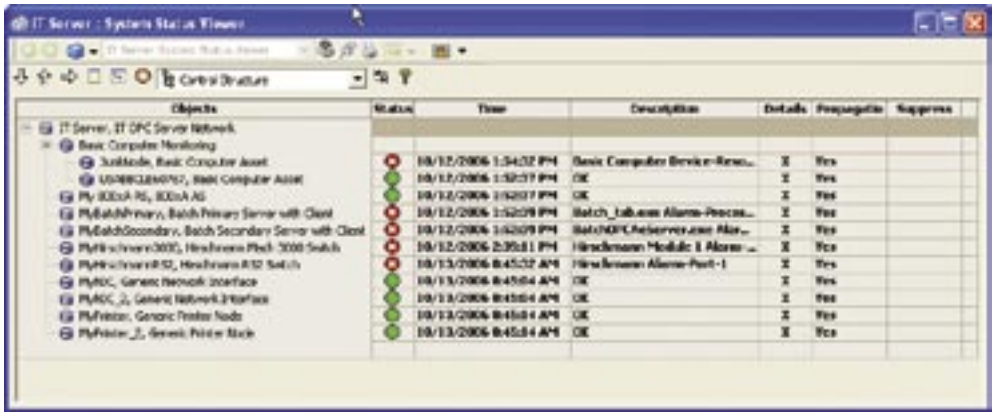

Figure 3: System Status Viewer with PNSM Assets. This shows several IT Assets in alarm

be the most difficult to troubleshoot. A typical scenario might be that an operator starts his shift and finds that the operator console is responding at a slow rate. Not knowing what might be the cause he contacts his colleague who replies that he is unsure but is unable to check at that moment since he has just run a report. They continue to chat for a few minutes then return to work. Later the operator informs his supervisor who then informs the department who is in charge of regular system maintenance, now all four people are looking at the problem.

If the system had *PC, Network and Software Monitoring* the original operator would have been able to immediately discern that there was an issue with the port on the Hirschmann switch. At this point the appropriate personnel can take action to determine if it is the physical port or the cable connecting to the port.

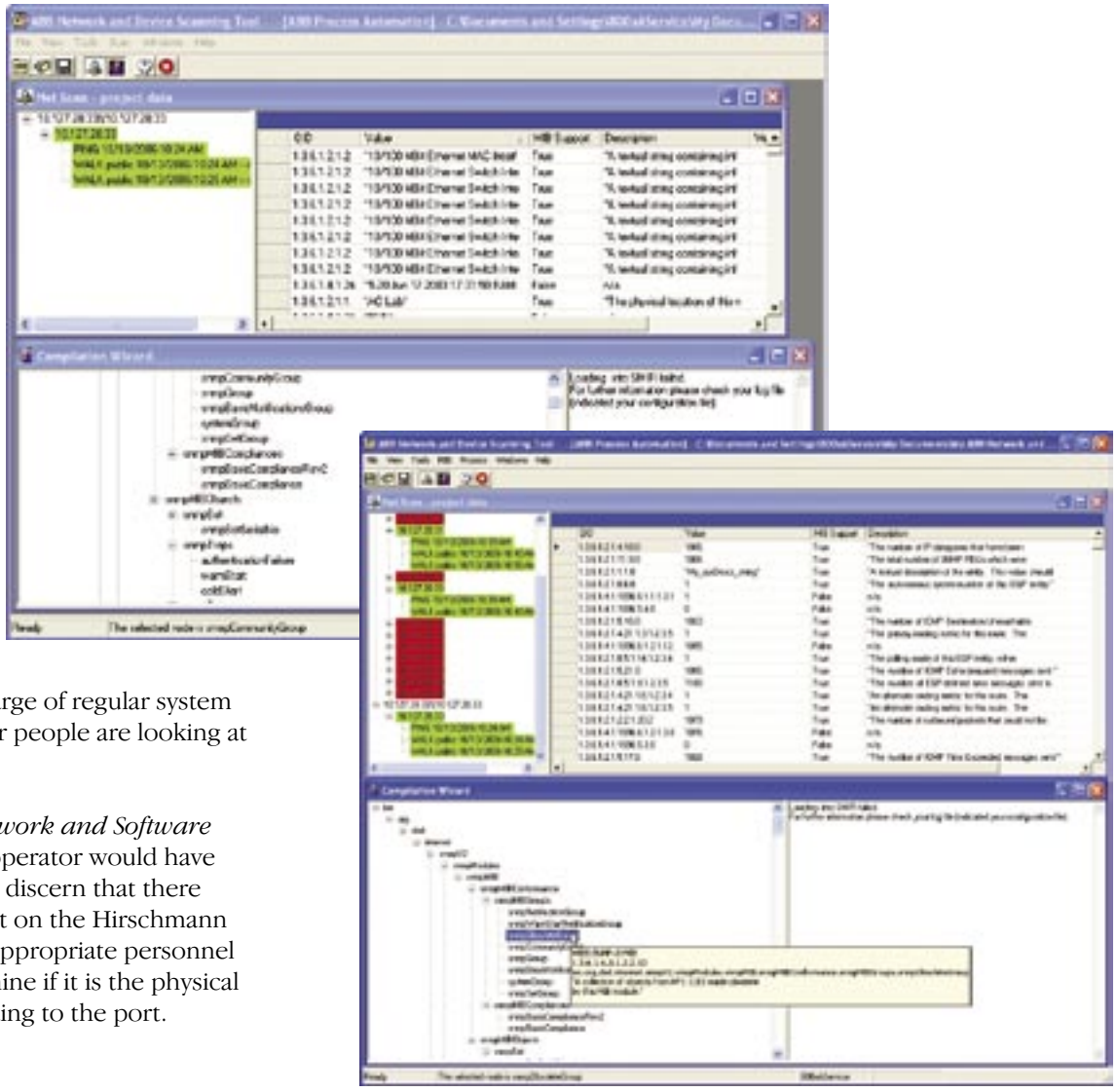

Figure 4: Network and Device Scanning Tool. This shows the NDST tool being used to scan for SNMP devices and displaying the details of one of those devices

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