system management solutions

an overview from hp

system management solutions for NonStop servers

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Overall reduction in system cost of ownership depends greatly on how easily that system is managed. The availability of powerful system management products can reduce the requirement for specialized staff and training. System management products from HP's NonStop Enterprise Division (NED) and its partners give flexibility and choice to tailor specific system management environments to specific business needs.

This overview outlines the alternative system management solutions available for HP NonStop™ servers. Although it provides a comprehensive outline, it is only an introduction to the system management alternatives available to HP customers. No representation is made regarding completeness.

NonStop system management products

event monitoring

The foundation for managing a NonStop server is the Distributed System Management (DSM) architecture, which provides a messaging environment called Event Management Service (EMS). EMS event messages allow NonStop subsystems, devices, and applications to communicate with each other and the system management staff.

NonStop system management products rely on DSM architecture. HP ViewPoint software provides the system event monitoring that operators require by displaying EMS messages. This product also provides performance status monitoring and command and control. HP Web ViewPoint software offers event viewing and command and control from a standard Web browser. It is designed to conform to Web-Based Enterprise Management (WBEM) standards. Web ViewPoint software extracts, delivers, displays, and analyzes events, enabling rapid problem resolution.

Also leveraging the DSM architecture is the NonStop NET/MASTER network management tool, which allows operators to monitor and manage NonStop systems and networks of heterogeneous NonStop and IBM supported systems. NonStop NET/MASTER software provides event monitoring, command and control, logging, and automation of operator tasks.

batch processing

HP NetBatch software provides a batch job scheduling and control system. It allows you to execute scheduled jobs on a periodic or ad hoc basis. This product also monitors and logs job activity for visibility. The NetBatch-Plus product offers a Pathway environment screen-driven interface to NetBatch software.

software management and configuration

Part of HP's comprehensive set of services and applications for software management and configuration, Distributed System Management/Software Configuration Manager (DSM/SCM) software allows planners at a central site to install and manage software on distributed NonStop servers. This product simplifies and automates time-consuming tasks, centralizing all software configuration planning activities.

With DSM/SCM software, you can install and manage software developed internally or by third-party vendors, site update tapes (SUTs), and interim product modifications (IPMs). At the central site, DSM/SCM software receives, archives, configures, and packages software for the target sites. Part of this software runs on the server in each remote location, where its primary function is to load the new software received from the central site.

DSM/SCM software has a graphical user interface (GUI) with point-and-click menus and online help to simplify operation and expedite installation tasks. Many installation and management tasks can be performed without disrupting other activities on the server. To help analyze software and resources managed by DSM/SCM software, you can generate a variety of formatted reports as well as design custom reports.

capacity planning

HP Tandem Capacity Model (TCM) software is a modeling tool that utilizes data gathered with HP Measure software to do "what-if" analysis. TCM software allows you to estimate response times and predict hardware required to meet various user-defined scenarios.

open network management functions

The Simple Network Management Protocol (SNMP) is the industry-leading standards-based method for managing all devices in a network—including hubs, routers, workstations, and servers. SNMP also provides management information for managing networks and servers. Today, many vendors offer SNMP-compliant applications that run on market-leading open network management platforms. These applications can manage devices attached to various kinds of networks when the devices are instrumented with SNMP-compliant software known as SNMP agents. Management of the NonStop server with Compaq Insight Manager XE, HP OpenView, and Tivoli TME 10 products is made possible by SNMP.

HP provides robust manageability offerings that feature existing and new SNMP functionality.

- An extensible SNMP agent takes advantage of the strengths of NonStop servers (continuous availability, online configuration, scalability, and so on).
- The EMS-to-SNMP trap distributor allows any NonStop event message to be forwarded and displayed by an open network management platform.
- The Host Resources Management Information Base (MIB) is based on the open Internet specification and provides additional server management attributes such as processor utilization, devices attached, and processes running.
- MIB-II, the second version of MIB, can be used with network management protocols in TCP/IP-based networks.
- SNMP Trap Multiplexor allows SNMP traps on a TCP/IP network to be converted to an EMS event message.
- SNMP Manager Services provides a set of libraries for developing SNMP manager functions and applications on a NonStop server.

service management

NonStop S-series systems feature HP ServerNet technology. They are network-centric and require a new basic operations and service management interface based on open systems standards and protocols. The interface conforms to the NonStop Enterprise Division strategy of open rather than proprietary systems.

HP TSM software has been designed from the ground up to accommodate these new requirements. The TSM design is modeled on the NonStop Enterprise Division's field service requirements for serviceability and basic operations requirements for down-system support as well as up-system support. The design incorporates object-oriented technology, is LAN-centric, and utilizes both SNMP and remote procedure call (RPC) standards for management interfaces to both the NonStop S-series service processor and NonStop service management functions.

TSM software includes the following key features:

- A PC-driven GUI interface to physical and logical components

- Dynamic system hardware discovery
- Hardware inventory management
- Down-system startup and shutdown control
- Remote systems operations
- Firmware loading
- Problem event management and analysis
- Down-system alarm reporting
- Incident report generation

performance and availability management

availability stats and performance software

HP Availability Stats and Performance (ASAP) software is a management solution that monitors the status and performance of a network of NonStop servers. It increases operator productivity by presenting a consolidated picture of both application and system object status and performance data in easy-to-read graphics.

With ASAP software, you can monitor both object status and performance of all key system resources on a networkwide basis. The ASAP client is designed to operate on workstations running Microsoft® Windows NT, Windows 98, or Windows 2000 operating systems. The ASAP server runs on NonStop servers.

ASAP software provides basic object state reporting as well as detailed performance information for critical resources such as applications, processors, disks, HP Expand line handlers, processes, and systems. The ASAP client displays statistics for all of these key NonStop server resources in your network, enabling you to identify and monitor critical conditions before they affect user levels.

The product also alerts you visually to degraded state and performance utilization levels throughout your network when conditions exceed user-defined thresholds. The graphical interface, pull-down menus, and context-sensitive help text make ASAP software easy to use.

availability stats and performance extension software

A powerful option to ASAP software, Availability Stats and Performance Extension (ASAPX) software provides an interface so NonStop server applications can participate in the ASAP object-based architecture. Applications use the ASAPX application program interface (API) to update counters and other data values directly in memory. At predetermined intervals, ASAPX software samples the application data to produce productivity and quality metrics that show how the application is performing against service-level objectives. The API allows application domain statistics to become fully integrated with ASAP client/server functions.

performance management bundle

The management of NonStop servers is an important component to application availability. Poor system tuning not only wastes resources but also could lead to system downtime. To assure maximum system performance and availability, operations management functions include a wide variety of performance monitoring and tuning tasks. These tasks are automated and simplified by specialized performance products.

The performance management package for NonStop servers is a suite of integrated operations management software products that put you in control. Implementing these software products provides proactive system management, improves response time, and assures continuous operations for your NonStop system. The sidebar summarizes the components of this software package.

components of the performance management bundle

- Measure software for measuring server performance
- ViewSys real-time system resource monitoring software
- GPA server-tuning software
- TPDC software for collecting and storing performance data
- ODB performance database
- data browser performance data review and analysis software
- Insight software for analyzing complex performance problems
- DiskPro software for analyzing disk and file usage

Measure software provides services to collect and examine the statistics needed to optimize the performance of online transaction processing (OLTP) applications for NonStop servers. With Measure software, you can gather information from applications as well as servers and network components. You can run this software continuously with low server overhead.

HP ViewSys software, an interactive online monitoring program, allows you to track system resource usage on a running system. Select from multiple screens to display the usage of one resource across all processors in a system or all resources within a set of processors. You can monitor processor usage, page fault, disk I/O, Link Control Blocks (LCBs), and other resources.

HP Guardian Performance Analyzer (GPA) software optimizes the performance of NonStop servers. It analyzes performance data, makes recommendations, and helps implement those recommendations to balance resources for a single server or for several servers in a network. GPA software supplies operations managers with vital information and saves performance specialists' time and effort.

HP Tandem Performance Data Collector (TPDC) software provides an efficient, cost-effective way to collect and store performance information generated by NonStop servers. It gathers data from the NonStop Kernel operating system, the file system, and Measure software. As the single source for collecting performance data, TPDC software reduces the human and computer resources needed for a comprehensive analysis of NonStop subsystems and applications.

HP Tandem Performance Management/Open Database (ODB) software is an ODBC-compliant SQL database implemented as a Microsoft Access database residing on a Windows workstation. ODB software contains detailed performance data collected by the TPDC on NonStop host systems from Measure software, the file system, and the NonStop Kernel operating system.

Tandem Performance Management/Data Browser (Data Browser) software shortens analysis time by helping you sort, view, and analyze raw data from the ODB product.

Using Data Browser software, you can easily navigate through the data, combine fields and performance entities into a single easy-to-understand view, find relationships between entities, apply multiple layers of filters to define new conditions, and automatically graph information in the data browser. You can also export Data Browser data to comma separated values (CSV) files, Microsoft Excel, and Microsoft Word for analysis or integration into presentations and reports.

Tandem Performance Management/Insight (Insight) software, together with ODB software, analyzes complex performance problems. Insight software helps performance analysts quickly and easily identify current or potential NonStop system problems. It shows the location and performance of key system components as easy-to-read graphs. System information is combined into integrated graphical displays that give analysts the information they need to assess server performance. Analysis features help you quickly and easily find performance anomalies related to poorly configured systems and stressed system components.

Tandem Performance Management/Disk Prospector (DiskPro) software improves productivity and reduces cost of ownership by providing Windows operating system–based graphic analysis and reporting of NonStop disk volumes and files. DiskPro software allows you to review disk and file usage and activity, produce graphs and reports, and perform what-if analysis. These functions are based on the ODB data for one or more collected samples. DiskPro software is able to open and view multiple samples simultaneously and perform all available functions in an interactive format. You can display many different disk and file metrics in both numerical and graphical formats. File I/O distributions are clearly displayed across multiple processors and disks. Using graphical tools, you can perform what-if analysis to determine how the system performance and load balancing may be affected if selected files are moved to other disk drives or are given new partition characteristics.

third-party solutions

A wide variety of third-party solutions are available from NonStop Enterprise Division partners. A complete overview of all available partner solutions is not possible within this document; however, this section lists several solutions.

third-party element management solutions

BMC Software offers PATROL, a powerful agent for the NonStop environment. Additionally, BMC Software offers a variety of integrated system management products, including products for real-time performance management and diagnosis, disk and tape management, SQL database management, and reporting for HP Safeguard transactions. BMC also offers Control, which provides automated batch processing in a cross-platform environment, including the NonStop environment.

BlackWood Systems offers the Multi-system Online Measure Interface (MOMI), a system management tool that provides an easy and accurate way to obtain useful system information. MOMI is an efficient and low-cost monitoring tool.

ComForte's J6530 and JPath allow rapid Web enabling of NonStop server applications to simplify deployment and increase user acceptance. J6530 provides "green screen" 6530 and 3270 host access from a standard browser. JPath allows users to create a browser-based GUI front end for Pathway applications within a few hours. Unlike other approaches that require customization of each individual screen, JPath recognizes

typical screen patterns and converts them on-the-fly into GUI forms, resulting in a very cost-effective, easily maintainable solution. Both JPath and J6530 are delivered with a Guardian Web server for easy deployment on the target NonStop system.

CTT Software from CAIL provides superior desktop-to-host connectivity with unsurpassed capability and flexibility. Yet, this software is designed to enable users to access information easily and quickly. With CTT Software, you receive the most extensive range of versions available to accommodate various desktop environments. This includes Web enabling and secure communications.

Computer Security Products offers two noteworthy products. Tracker is an integrated client/server application providing real-time performance monitoring, trend analysis, historical data analyzer, and capacity planning. Protect2000 uses sophisticated modeling techniques to define and manage a networkwide security policy.

The OpenNET product family from ESQ Business Services includes a variety of system management products that enhance the manageability of NonStop servers:

- OpenNET/AO for automated operations
- OpenNET/ITS for home terminal automation
- OpenNET/CONSOLE for event display
- OpenNET/INTER-VIEW for SNMP manageability
- OpenNET/GRAF for graphical system or network presentation
- OpenNET/T-ADAPTER for Tivoli TME 10 integration

E.T.I. offers Backhome, a high-performance applications link for NonStop systems, IBM systems, and Windows NT system–based servers. This product enhances operations management and distributed storage management.

Fourth Dimension Software (FDS) products include SafePath for Pathway application management, and EasyPath and EasyClient for application development.

The Operations Pack (TOP) from Gresham is a new generation of graphical interface for operating NonStop systems. It provides a Windows Explorer interface to a NonStop system and/or network. TOP reduces complex tasks to simple point-and-click operations, empowering NonStop system users. Consequently, TOP reduces cost of ownership and the potential for errors and increases productivity.

Insession Technologies provides a comprehensive suite of software called ITware. This suite includes modules that address connectivity, e-business services, middleware, monitoring, replication, system management, Web services, and workflow.

Reflex 80:20 from Insider Technologies provides service object management, integrating monitoring and management of related system components. MultiBatch, also from Insider Technologies, provides distributed management of large batch environments with integration into enterprise management environments.

The Prognosis suite from Integrated Research consists of 15 integrated products that can be accessed through a GUI or the Internet. The suite includes offerings for performance, disk management, load balancing, automated operations, capacity planning, user accounting, and application integration with products such as ACI BASE24, Motorola IN2 Solutions, and LastWord from IDX. Integrated Research also provides Tivoli TME 10 administrators, which monitor Prognosis applications and permit the initiation of actions on a NonStop server prompted by Tivoli TME 10.

Merlon offers Discover, a comprehensive disk storage management tool for *NonStop* systems. Product features include continuous monitoring of disk utilization, file attribute

monitoring, comprehensive reporting, and backup and archive support. Discover reduces storage management costs and also reduces the risk of unplanned outages due to disk resource problems.

Quality Systems Associates offers QTOS, an automated tape operations and media management system. QTOS is a multi-threaded process that starts, manages, and monitors all processes that use tape resources. It catalogs and displays data-set information, tape media, execution commands, summary information, vault location, and file listings.

Sionet International provides a product suite called SIGMA-NSK. This product suite can present performance statistics in an easily understood graphical format. SIGMA-NSK prepares performance and capacity review reports and can predict the effects of various what-if scenarios.

Systar offers SystarVision, a leading performance and capacity management solution with a GUI or Web-browser interface. This product is integrated with Unicenter TNG through a development partnership with Computer Associates. SystarVision includes real-time monitoring, in-depth trend and historical analysis, after-the-fact replay, and thresholding. Interfaces include ACI BASE24, Logica Bess, ESQ PNA, and Tivoli TME 10, among others.

Systems Resource Technologies provides Spool Manager for NonStop Kernel and Windows NT operating systems. Spool Manager, a block mode replacement for Peruse and Spoolcom, is an online monitor that automatically forwards jobs to other spoolers, spools job files, archives files, and provides automated spooler clean-up, among other features.

TANDsoft offers BAM-AutoASAP, a value-add product for ASAP software that allows you to monitor Pathway, NetBatch, TCP/IP, HP SNAX, X.25, and ACI BASE24 transactions. Customer applications also can be monitored with no application code changes.

Unlimited Software Associates offers tools and services in the areas of NonStop system security, operational products, open access TCP/IP, version control tools, and EMS management. Products include eBOSS, which moves the access control, security management, and auditing of applications that once resided exclusively on NonStop systems into a more open architecture.

XYPRO Technology provides software tools that improve security in NonStop environments. The company features XYGATE, an information security infrastructure for heterogeneous environments, including the NonStop environment. Products include Security Policy Management GUI, Access and Process Control, Password Quality, Object Security, and a comprehensive audit reporting tool. Also available are utility products to streamline date-sensitive testing, simplify batch job stream management, and structure the application life cycle. XYPRO also offers a suite of lending and collection applications.

third-party enterprise management solutions

Unicenter TNG software from Computer Associates manages all aspects of the NonStop system in a heterogeneous environment. The Unicenter TNG GUI, running on a Windows NT client system, allows your operations staff to perform all management tasks in an easy-to-use environment. The management component of the software runs on the server, improving performance responsiveness and increasing the efficiency of both systems and software. Unicenter TNG functions can also be controlled by a server-

based command-line interface. Unicenter TNG software performs the following functions:

- Full-function security enforcement and management
- Enhanced batch scheduler and management
- Event management and automated operations
- Spooler management, including reports management
- Media management of tape and disk subsystems
- Problem management

SNMP makes it possible to manage NonStop servers using Tivoli software. Included with Tivoli Enterprise Console (TEC) is a Tandem Adapter software package, which provides event management support for the NonStop platform. Tasks include monitoring an event source and converting relevant events into a format that can be processed by the TEC event server. Tandem Adapter software consists of three major processes.

- The Event Monitor (EMON) process runs on the NonStop system host. Configuration files and a rule database are associated with the EMON process.
- The tecad_TAdapter process runs on the node. A configuration file, an event class definition file, and a BAROC file are associated with this process.
- ELink, an independent communications process, runs on both the NonStop host and the node. It is the middleware between EMON and the node's tecad_TAdapter process.

BMC Software's PATROL for Tandem Knowledge Module (KM) is a proxy solution, used to monitor NonStop systems from a Windows NT or Windows 2000 system–based PATROL Agent. The KM can monitor multiple NonStop hosts from a single agent. It uses two technologies from BMC Software:

- Tandem Performance Monitor (TPM)
- Remote Command Facility (RCF)

TPM is a robust, highly efficient, real-time performance monitor for NonStop systems. It collects data on various aspects of the system, including status and activity of processors, disks, files, processes, communication lines, and the Transaction Management Facility (TMF) subsystem. The KM integrates the activity information collected by TPM in the PATROL environment. Specifically, the KM subscribes to the information distributed by TPM and communicates that information to PATROL Agent running on the Windows NT or UNIX® operating systems. You can then view that information and act on it through a PATROL console.

RCF is an efficient path into the TACL environment. It invokes utility programs (from BMC, HP, or your own) and then captures and delivers the output to the KM for analysis. The KM relies on RCF for collecting status data on the various objects it monitors. You can use examples provided by the KM to quickly adapt the information provided by homegrown utilities to PATROL.

summary

System management of NonStop servers is provided by a wide range of products from HP and third-party partners. The system management alternatives available to HP customers are broad and comprehensive. The wide range of alternative products allows

individual customers the freedom of choice to select a system management environment tailored to their specific requirements and needs.

system management products for NonStop servers*

function	*NED*	*third-party provider*
Event management	ViewPoint Web ViewPoint NonStop NET/MASTER	Integrated Research: Prognosis
Workload management	NetBatch NetBatch-Plus	Insider Technologies: MultiBatch BMC Software: Control
Operations and automation	NonStop NET/MASTER	ESQ: OpenNET/AO Integrated Research: Prognosis
Tivoli integration	SNMP messaging	ESQ: OpenNET/T-ADAPTER Integrated Research: Prognosis
Command and control	Web ViewPoint	Gresham: TOP
Storage management	DSM/Tape Catalog Silo Media Manager	Quality Systems Associates: QTOS Merlon: Discover E.T.I.: Backhome
Security management	Safeguard	XYPRO: XYGATE USA: eBOSS Computer Security Products: Protect2000 CAIL: CTT Software
Problem management		Insider Technologies: Reflex 80:20 Integrated Research: Prognosis
Object management	ASAP	Computer Security Products: Tracker Integrated Research: Prognosis Systar: SystarVision BMC Software: PATROL Agent Insession: ITware monitor
Performance management	Measure ViewSys GPA TPDC Open Database Data Browser Insight DiskPro ASAP ASAPX	Integrated Research: Prognosis Insider Technologies: Reflex 80:20 Systar: SystarVision BMC Software: PATROL Agent TANDsoft: BAM-AutoASAP Sionet: SIGMA-NSK BlackWood Systems: MOMI
Virtual hometerm	Virtual Hometerm Subsystem (VHS)	ESQ: OpenNET/ITS
Configuration management	DSM/SCM	

Capacity planning	Tandem Capacity Model	Computer Security Products: Tracker Integrated Research: Prognosis Systar: SystarVision
SNMP	SNMP agents	ESQ: OpenNET INTER_VIEW

* This list is for reference only and is not intended to be a complete summary.

For more information, go to www.hp.com/go/nonstop.

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