hp availability stats and performance software	network and system monitoring for hp NonStop servers	a product description from hp

features at a glance

- Online monitoring of object status and performance

- Alerting of down objects and performance bottlenecks

- Historical reporting of system object status and performance

- Simplified monitoring using a graphical user interface

- Availability objectives monitoring

- Interfaces to Open Enterprise Management gateway

- Entity Definition Language

HP Availability Stats and Performance (ASAP) software monitors the status and performance of a whole network of HP NonStop™ servers. ASAP software was developed to provide a uniquely integrated, extensible infrastructure for monitoring the availability and performance of system and application objects. It integrates both availability and performance information to form normalized availability vectors for monitored domains and associated properties. Information integration includes operational status, performance, and availability objectives for NonStop systems, subsystems, and abstract application domains.

ASAP software includes a database that encapsulates both statistical and service-level objective information. Statistical information includes availability, statistics, and performance data. Objectives information includes user specifications about which objects should be monitored and the service-level objectives for monitored objects.

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 operating systems. The ASAP Server runs on NonStop servers. The companion product, HP Availability Stats and Performance Extension (ASAPX) software provides an application program interface (API) that allows you to monitor the availability and performance of your application domains. The API allows application domain statistics to become fully integrated with ASAP client/server functions.

ASAP software provides object state reporting as well as detailed performance information for critical resources such as applications, CPUs, disks, HP Expand line handlers, files, subvolumes, processes, HP NonStop Remote Database Facility (NonStop RDF) software, spoolers, systems, tape drives, and HP NonStop Transaction Management Facility (NonStop TMF) software.

The ASAP Client displays statistics about all of these key NonStop server resources in your network, enabling you to identify and monitor critical conditions before they affect

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user levels. In addition to online displays, information is written automatically to a database for historic archival, analysis, and report generation.

The ASAP 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. It increases operator productivity by presenting a consolidated picture of both application and system object status and performance data in easy-to-read graphics.

online monitoring of object status and performance

Consistent with continuous availability requirements, ASAP software allows dynamic selection of monitored objects. Monitored objects can be added or removed while the ASAP system is running. If no objects are selected for an entity class, the Statistics Gathering Process (SGP) for that entity will automatically configure a set of objects. For example, if you do not specify a CPU to be monitored, then all CPUs will be monitored. ASAP software displays up-to-the-minute object state and performance information for the following kinds of statistics and data:

- *Application statistics* are provided by ASAPX software. The application extension enhances the ASAP product suite by providing an interface for applications to participate in ASAP software's object-based architecture.
- *CPU statistics* give you detailed information about CPU status, utilization, queues, disk I/O, cache hit rates, memory usage, page fault rates, process control blocks, and other important performance characteristics.
- *Disk statistics* provide detailed information about all of your disk volumes, including status of mirrored volumes and controllers, and metrics such as disk space and capacity utilization, disk queues, cache hits and misses, disk request rates, total busy, seek busy, read busy, write busy, and input/output kilobytes per second.
- *Process busy* statistics help you quickly identify which processes are consuming the most resources, including overall rank, CPU utilization, messages sent and received, request queue length, group, user ID, priority, process name, average memory pages used, and the program object file name of each process.
- *User Selected Process* statistics include process availability information such as process status, CPU number, process identification number, priority, busy, request queue length, process state, wait state, and pages used.
- *Expand line-handler and end-to-end node statistics* are provided by ASAP software, including the status of line handlers and paths, as well as the number of packets sent, received, and passed through the network. ASAP software also provides error-rate statistics such as buffer failures, transmission block character check (BCC) errors, and negative acknowledgment (NAK) rates.
- *Selected file availability information* such as the status of files and subvolumes, as well as percent full, security, ownership, end of file, file code, and file format are also provided.
- *NonStop RDF statistics* include the status of the NonStop RDF subsystem components such as Extractors and Updaters, as well as relative delay times, relative byte address of the record being processed, and sequence number of the audit or image file.
- *NonStop TMF statistics* include the status of the NonStop TMF subsystem, as well as transactions per second, catalog status, and the percentage of the audit trail used.

- *Spooler information* such as the status of collectors, print processes, and supervisors, as well as jobs, open, hold, and printing is provided.
- *Tape availability information* such as tape status, mounts, opening process, and tape label are provided.
- *System-level availability information* is automatically rolled up into a standard Microsoft Explorer TreeView of your overall network. The software's Object Integration Layer (OIL) TreeView allows you to be aware of which nodes, entities, and objects are unavailable or consuming the most resources (see figure 1).
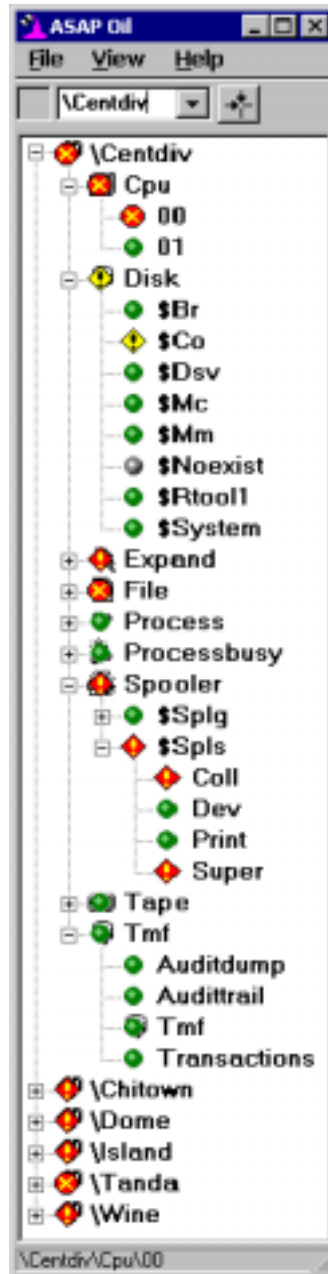

Figure 1. The ASAP OIL.

The ASAP OIL is a state propagating TreeView that displays the state of applications, CPUs, disks, Expand software, files, processes, NonStop RDF software, spoolers, tapes,

and NonStop TMF objects. For example, in figure 1, the green icons indicate that an object is "up"; the red "X" icon indicates \Centdiv\Cpu\00 is "down"; and the yellow "!" indicates \Centdiv\Disk\$Co has a path that does not meet user-specified objectives.

alerting of down objects and performance bottlenecks

ASAP software state and performance icons guide you through detailed data about your system and application entities so you can quickly identify critical service level and performance conditions.

ASAP software increases operator productivity by presenting a consolidated picture of object states and performance in easy-to-read graphics. It can highlight information that has exceeded thresholds, so operators can quickly identify and correct possible problems. Because the statistics displayed by the ASAP product are updated continuously and automatically, you always get the most current view of object states and network performance.

historical reporting of system object status and performance

ASAP software creates a centralized HP Enscribe database of resources monitored in your network. This database contains current and historical normalized statistics about applications, CPUs, disks, files, Expand line handlers, processes, NonStop RDF software, spoolers, systems, tape drives, and NonStop TMF software, which can be queried for historical trending of availability and performance data. For example, based on the data collected by ASAP software, you can determine the five busiest processes in any processor during any predefined interval.

simplified monitoring using a graphical user interface

Both real-time and historic performance views can be displayed using the ASAP graphical user interface (GUI). The ASAP Client allows you to create multiple graphical views on various nodes, entities, and objects in your network so that you can customize your monitoring environment.

When conditions exceed user-defined thresholds, ASAP software alerts you visually by displaying state and performance icons. When you select an alerted entity, ASAP software provides a real-time view of the entity. This view updates in real time, and three-dimensional hot-spot graphics allow you to drill down to obtain detailed reports on the selected entity (see figure 2).

For example, clicking on the red graph element shown in figure 2 indicates that \Chicago\Cpu\01 status is "down." Note that ASAP graphs can be customized to display various types of status and performance information.

ASAP software requires no special training or complex commands. A context-sensitive help function makes it easy to use. All you need to do is point to an object and press the help function key or pull down the Help menu.
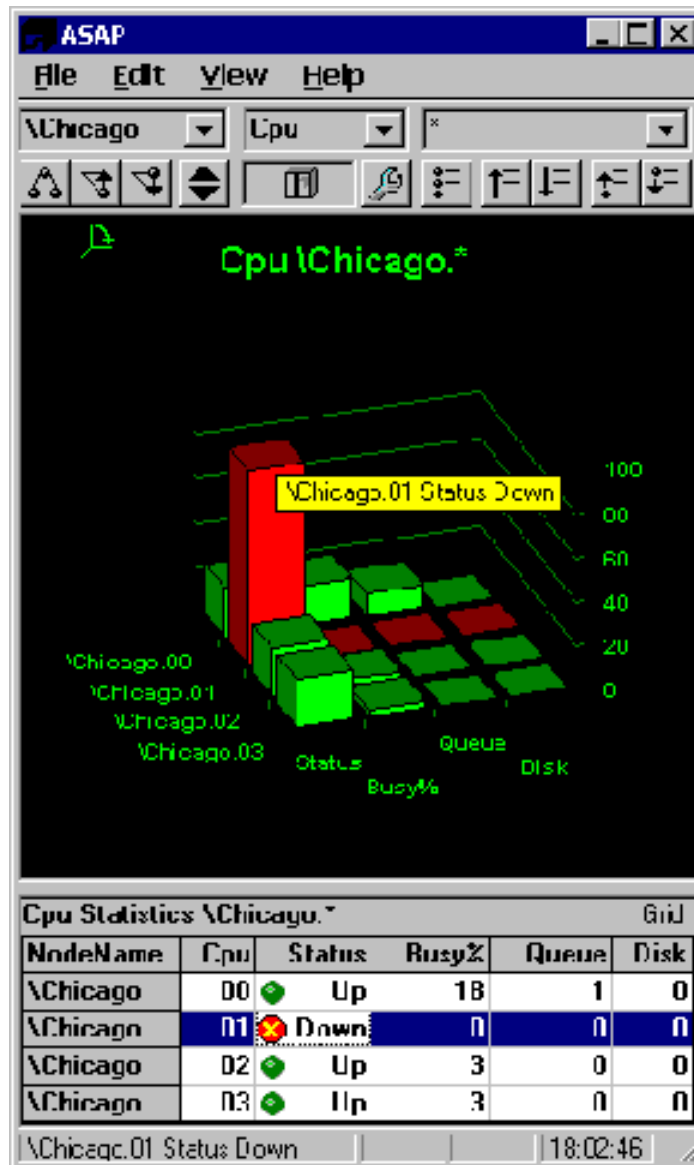
Figure 2. ASAP window displaying detailed information about objects in the form of 3-D graphs with hot-spot drill down.

availability objectives monitoring

The definition of service-level availability is dependent on a user's point of view. Different users have different definitions of service-level availability. Also, a user's definition of availability can change many times during the day. As a result, ASAP software must provide customization of availability and state propagation algorithms. The ASAP Client, Server, and Extension architecture is designed to operate with these requirements in mind.

Because the definition of availability is not fixed, it follows that object state determination rules must be variable. Thus, ASAP software must be able to change its state determination rules instantly, based on a user's relative notion of availability at any given moment. For example, one instant it may mean using one set of attributes,

and at another instant it may mean including or excluding a different set of object attributes. These capabilities must be provided for both centrally administered policies, as well as for customized user availability definitions.

ASAP software analyzes each object's attributes, their state determination rules, and their metric values, and compares those values with upper- and lower-bound service-level objectives. As each attribute is analyzed, it is assigned an availability vector, or state. Examples of such vectors or states might include "OK" or "Warning." When all of the attributes for an object have been analyzed, ASAP software can make an overall statement about the state of the object. Once the state of an object is determined, object states are propagated upward through the object class hierarchy for that object.

ASAP software also allows customization of the presentation of an object's availability state. The user-defined icons and colors also address internationalization (see figure 3).

Figure 3. Window illustrating the customizable user-defined states that the ASAP analysis engine can assign to objects.

interfaces to open enterprise management gateway

The Open Enterprise Management (OEM) gateway provides the ASAP Client with an encapsulated interface layer to enterprise management frameworks. The OEM is installed automatically as an ActiveX component when the ASAP Client is installed.

OEM consists of an ActiveX server component and one or more optional OEM gateway components. Client applications communicate with the OEM ActiveX server component. The OEM server communicates with the OEM gateway on behalf of the clients, while the gateways handle communication to and from the enterprise management frameworks. The OEM layer handles all details of the interface. As a result, clients effectively communicate object-state information in a uniform and consistent manner with no impact to either client or host server code.

entity definition language

ASAP Client, Server, and Extension components incorporate an Entity Definition Language (EDL) that provides extensible definition of abstract entities and attributes as they relate to ASAP features and functions. EDL allows system entities, customer application domains, and third-party entities to be defined externally to the ASAP environment.

The notions of entity and attribute in ASAP software are somewhat synonymous with the notions of table and column in the SQL data model. An *entity* can be thought of as a table, and an *attribute* can be thought of as a column in a given table. ASAP software differs from the SQL model in that entities and attributes have intrinsic properties that relate specifically to ASAP software's features and functions. EDL also allows data to be included in an EDL file, so an EDL file can represent the encapsulation of entity-attribute schema, statistics, and state information for running systems.

The ASAP Client includes an Interactive Development Environment (IDE) that is used by software developers to interactively develop system and application entity definitions. The IDE includes context-sensitive interactive help for the EDL. The IDE includes functions that allow EDL environments to be edited, compiled, exported, and imported. The EDL IDE also allows data from live host sessions, along with entity definitions, to be interactively saved and mailed to other users.

All entities and attributes monitored by ASAP software are defined using the EDL. The EDL allows users to define business objects and attributes to be monitored, and to set Discrete Object Thresholds (DOTs) on specific object attributes. The DOTs provide discrete objectives against specific attributes for any ASAP entity. ASAP software includes an objectives database to store and retrieve domain names and objective values, as well as a user command interface, an Event Management Service (EMS) message generation service, and an API to calculate ASAP states and retrieve information from the database. Each entity that is defined to ASAP using EDL is an entity whose availability, stats, and performance can be monitored.

ordering information

product ID	description
SE30v2	Availability Stats and Performance (ASAP) software

specifications

ASAP server

hardware	Any NonStop server
software	NonStop Kernel operating system, any supported release

ASAP client

hardware	Any NonStop server
	IBM compatible computer (200-MHz Pentium® processor or higher) configured with a minimum of 64 MB of memory and 20 MB of disk space
software	NonStop Kernel operating system, any supported release
	Microsoft Windows 95, Windows 98, Windows Me, Windows NT 4.0, Windows 2000, and Windows XP