OpenView Operations Native Agent and Smart Plug-In for OpenVMS

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HP OpenView

- OpenView is the 15th largest software business in the world. 99% of fortune top100 companies use it.

- Portfolio of software solutions for managing and optimizing business services over IT, voice and data infrastructures.

- Better service with fewer resources and lower costs.

- Includes fault, performance, network, systems/servers, applications, web services and storage management across the enterprise.

- Enterprise management for heterogeneous environments.

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Large portfolio of products

Best known OpenView products:

- Network Node Manager (NNM):
  - SNMP-based network topology discovery and monitoring.
  - Allows to pinpoint quickly problems and network bottlenecks.
- OpenView Storage Area Manager (OVSAM):
  - Centralizes and simplifies storage area management across distributed, multi-vendor storage, and efficiently manages availability, performance and growth.
- Storage Data Protector
  - Provides centralized and automated data protection and recovery.
- OpenView Operations

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OpenView Operations (OVO)

- A.k.a: HP OpenView VantagePoint Operations.
- Centralized operations and problem management product for distributed multi-vendor systems.
- Monitors, controls and reports on the health of the enterprise across boundaries through a "single pane of glass".
- Consists of:
  - OVO server
  - OVO agents
  - Smart Plug-ins

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OVO Server

- Collects, correlates & responds to thousands of events from systems, network devices, databases and applications.
- Includes GUI and Message Browser.
- All configuration work is performed on the server.
- Runs on HP-UX, NT and Solaris.

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OVO Agents

- Native agents loaded onto systems for:
  - event and data filtering
  - forwarding messages to the OVO server
  - performing automatic actions
- OVO agents do not do any monitoring!
- A system can only be monitored natively by OVO if this agent technology is present.
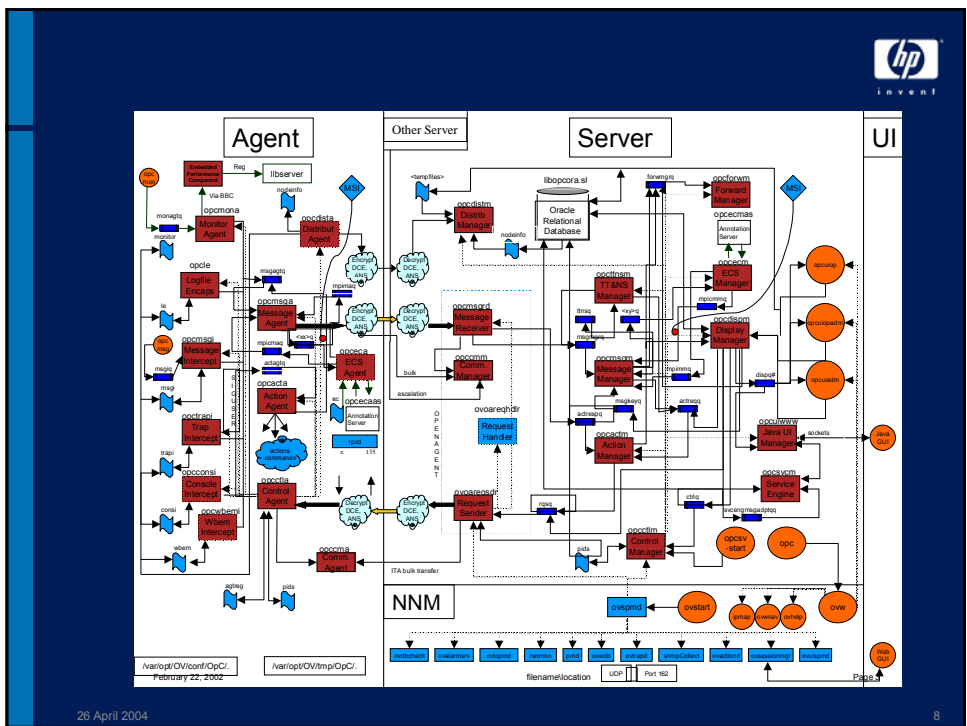
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OVO Smart Plug-ins (SPIs)

- Smart Plug-ins monitor operating systems, applications and databases.

- SPIs deliver messages and monitored values to the OVO agents. The agents will handle further.

- SPIs deal only with monitoring – getting the information to the server is the job of the agents.

- SPIs exist for e.g. Oracle, SAP, MS Exchange Server...

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OpenVMS Agent - Overview

- The agent is a port of the HP-UX 7.12 OVO agent.
- Works with OVO/U 7.10 and OVO/W 7.10, 7.20 and 7.21 management servers.
- Agent must be installed manually (FTP kit from management server, then use PRODUCT INSTALL).
- Provides an API for VMS engineering and third party vendors to write Smart Plug-Ins.
- Preserved the Unix path names and utilities so a seasoned OVO user can easily navigate on VMS.

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OpenVMS Agent – VMS Requirements

- OpenVMS Alpha 7.3-1 + following patches
  - VMS731_PCSI V1.0 or later
  - VMS731_UPDATE V2.0 or later
  - DCE_030SSRT3608 V1.0
- OpenVMS Alpha 7.3-2 (no patches required)
- Agent is not available on pre V7.3-1 versions, and not on VAX.
- Agent will be available on OpenVMS I64 V8.2

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VMS Agent – TCP/IP requirements

- HP TCP/IP Services for OpenVMS Alpha V5.3 or later, as supplied with the base OS.

- Non-HP TCP/IP protocol stacks should work but have not been tested.

- SNMP should be enabled if automatic discovery is desired.

- FTP must be enabled to copy the PCSI kits from the management server to the OpenVMS system.

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OpenVMS Agent - Components

- Control Agent   opcctla
- Distribution Agent   opcdista
- Message Agent   opcmsga
- Message Interceptor   opcmsgi
- Monitor Agent   opcmona
- Log File encapsulator   opcle
- Action Agent   opcacta

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OpenVMS Agent Processes

- Control Agent (OVO$OPCCTLA)
  - RPC server process.
  - Handles all inbound communications between OVO server and managed node.
  - Enables remote start and stop of agents.
  - Monitors all other agents and reports status to OVO server.

- Distribution agent (OVO$OPCDISTA)
  - Downloads new configuration data (templates or policies) from the server to proper directories.
  - Started by the control agent, and runs only during the duration of the configuration download.

OpenVMS Agent Processes (cont.)

- Message Agent (OVO$OPCMSGA)
  - Central process for message delivery on the managed node.
  - Handles all message traffic between agents and the OVO server.
  - Buffers messages when communication with the OVO server is down.

- Message interceptor (OVO$OPCMSGI)
  - Intercepts messages created by multiple SPIs, using the OPCMSG program or API.
  - Performs condition testing.
  - If the message matches the defined conditions, it forwards the message to the Message Agent.

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OpenVMS Agent Processes (cont.)

- Monitor Agent (OVO$OPCMONA)
  - Receives monitored/calculated values from SPIs.
  - Checks the values against thresholds, defined in templates received from the OVO server.
  - Sends messages to the Message Agent.

- Log file encapsulator (OVO$OPCLE)
  - Reads log files and searches for some specific strings.
  - Special support for the Operator log file is supplied in the base kit.

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OpenVMS Agent Processes (cont.)

- Action Agent (OVO$OPCACTA)
  - Executes commands procedures and binaries on demand from the other agents.
    - Automatic actions
    - Operator initiated actions: started by the operator directly from the message browser.

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OpenVMS Smart Plug-In (SPI)

- Allows VMS to be managed directly by an OVO server.
- Communicates directly with the Message Interceptor and Monitor Agent.
- Runs out of the box, but better results are obtained by editing configuration files on the VMS system.
- Cluster aware. Suppresses duplicate messages. Can take a cluster wide view of shared resources.
- Monitoring can be restricted to specified time intervals.
- Thresholds and time periods are all configurable.

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OpenVMS Smart Plug-In (SPI)

- Comes as a separate PCSI kit.
- OVO VMS agents must be installed before installing the SPI.
- 2 processes:
  - System SPI
  - Performance SPI

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System SPI

- Changes in the hardware error count of devices, CPU and memory.
- Process availability.
- Disk states.
- Disk free space.
- Shadow sets.
- Batch and print queue states.
- Batch job availability.
- Cluster transitions (add and remove of cluster members).

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System SPI configuration file (sample)

hp invent

```
CLUSTERNAME ZKOCLUSTER
INTERVAL 60
PERIOD WORKHOURS /WORKDAYS=(BEGIN=08:00,END=12:00) –
                 /WORKDAYS=(BEGIN=13:00,END=17:00) –
                 /SATURDAY=(BEGIN=08:30,END=12:30)
PROCESS "ERRFMT" /UIC="[1,6]"
PROCESS "DB_server" /UIC=DBMAN /PERIOD=WORKHOURS
PROCESS ORA* /UIC=ORACLE8 /OCCURRENCES=10
PROCESS QUEUE_MANAGER /UIC=SYSTEM /CLUSTER_WIDE
DISK DISK$USER_1 /PERIOD=WORKDAYS/CRI=5/MAJ=10/MIN=12/WAR=15
DISK DISK$SYSTEM_1 /NODE=(SWELL,WBEM1) /CR=10 /MAJ=20
BATCHQUEUE SYS$BATCH /STARTED_PERIOD=NIGHT
  /STOPPED_PERIOD=DAY
PRINTQUEUE SYS$LTA1 /PERIOD=WEEKDAYS
JOB DAILY_CLEANUP /USERNAME=SYSTEM /QUEUE=SYS$BATCH
```

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Performance SPI

hp invent

- CPU utilization.
- Memory utilization.
- Page and Swap file utilization.
- Throughput on LAN devices.
- Direct I/O and queue lengths on disks.
- Looping processes.
- Processes in various wait states (i.e.not LEF, LEFO, CEF, HIB, HIBO, COM, CUR).

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Messages from the OpenVMS SPI to the OVO console.

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OpenVMS agents and SPI status and futures

- V1 shipped January 2004.
- V2 planned mid 2004
  - Also available on OpenVMS I64
  - Enhancements to SPIs and additional features.

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OpenView Information Sources

OpenView general information:
http://www.openview.hp.com

OpenView native agent and smart plug-in for OpenVMS:
http://h71000.www7.hp.com/openvms/products
/openvms_ovo_agent/index.html

Send mail to: OVO4.VMS@hp.com

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