Modern OpenVMS Systems Management

Johan Michiels

CockpitMgr

Johan

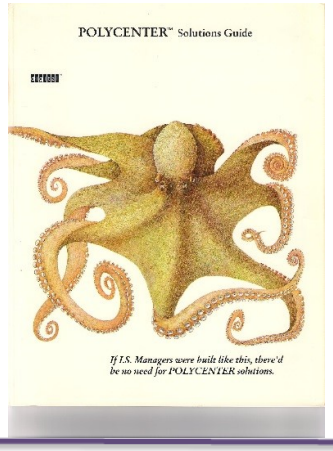
- Independent OpenVMS Consultant since 2018
- 42 years of experience with OpenVMS
- 32 years at Digital/Compaq/HP
- OpenVMS Ambassador since 1997
- Member of OpenVMS Engineering (2003-2004)
- Areas of expertise include:
  - OpenVMS systems management
  - Disaster-tolerant VMSclusters
  - Centralized monitoring
  - Automated operations
  - Platform migrations
- Launched CockpitMgr in the early 90s

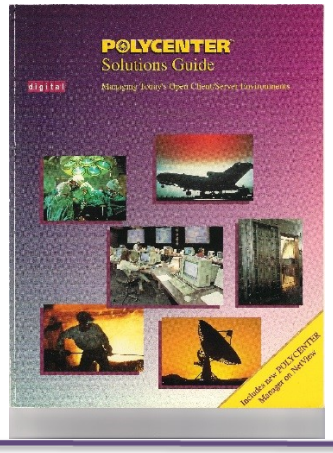
EuroVMS

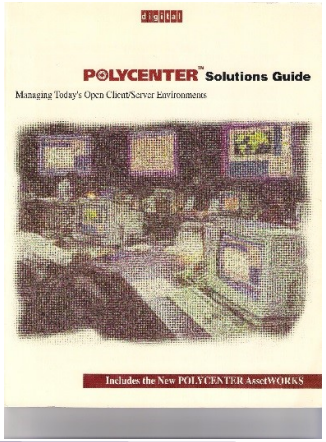
History

1993: Digital launches Polycenter

- A marketing term that covers multiple point solutions
- Includes problem management, performance management, storage management, automation, network management, security management, ...
- Previously existing management products have been rebranded
- “Assists network and system managers in planning and managing an open and integrated distributed environment”







What can we say?

- Excellent point solutions
- Ideal for managing VMS environments in the early nineties
  - Standalone systems, along with CI and DSSI clusters situated in a single datacenter
  - Storage that is either locally attached or connected through HSC/HSJ/HSD controllers
- The marketing strategy did not inspire any integration of products
  - Each product is equipped with its own configuration utility, notification systems...
- First versions of CockpitMgr featured configuration utilities and some integration of Polycenter products

Technology and customer demands evolve…

- Multi-site disaster-tolerant VMSclusters
  - The network is now integrated in the cluster
- Internet technologies
  - Web browser for event alerts and reporting
  - XML for data storage, XSLT for transforming XML to HTTP
- Cell phones
  - Text messaging is ideal for urgent or significant event notifications
- SAN
  - Storage is becoming more detached from the systems
- Increased security demands
  - SSH

Let’s build a cockpit

- In 1996, CA acquired Polycenter, but we did not foresee a bright future for its products.
- Consequently, we opted to develop a fully integrated solution from the ground up, incorporating the latest technologies to address real customer needs.
- Our aim was to develop a dedicated system to monitor and manage the entire OpenVMS production environment, which includes systems, consoles, network, storage, security, log files, performance, and configuration changes.
- This system, known as "the cockpit," operates on an OpenVMS platform and consolidates information from many sources.

Today

- CockpitMgr evolved to the most comprehensive toolset available in the industry, assisting VMS system managers with their daily tasks.
- Created by VMS system managers, for VMS system managers.
- A single product that consolidates the expertise of numerous system managers.
- Continuously enhancing its features with regular updates.
- Utilized globally by major OpenVMS customers.

Introduction to CockpitMgr

- Monitoring
  - Console Manager
  - System Monitor & Extensions
  - Network & Storage monitoring with SNMP
  - More utilities that generate events
- Event Engine
- Notification
- Integration with the enterprise
- Utilities
  - Job Scheduler
  - Census
  - NETDCL
  - Backup

Monitoring

Console Manager

System Monitor

Network & Storage Monitor

EuroVMS

Monitoring

- Monitoring is the continuous and systematic observation of the health and performance of IT services and their underlying infrastructure.
- It aims to identify potential issues, trends, and opportunities for improvement, ensuring that services operate as defined by the business.
- Monitoring can be either:
  - Active: make regular checks and poll services.
  - Passive: receive alerts generated by the services themselves.

Event

- Any piece of information received by a monitor will be categorized as an event.
- An event has multiple attributes:

Sequence Number	Unique number
System	Node or cluster name
Subsystem	The item to which the event relates
Name	A meaningful name
Class	System, Network, Storage, Security…
Text	The message text
Priority	Critical, Major, Minor, Warning, Clear
Time stamp	Date and time the event occurred
Source	Application that generated the event
Owner	Assigned owner
Solution	A solution description

E.g. Process ABC is missing on node PROD1

Sequence Number	3753
System	PROD1
Subsystem	ABC
Name	ProcessMissing
Class	System
Text	Process ABC is missing
Priority	Critical
Time stamp	14-JAN-2025 12:35:20.44
Source	CockpitMgr System Monitor (PRODUCTION)
Owner	
Solution	

EuroVMS

Monitoring

Console Manager

EuroVMS

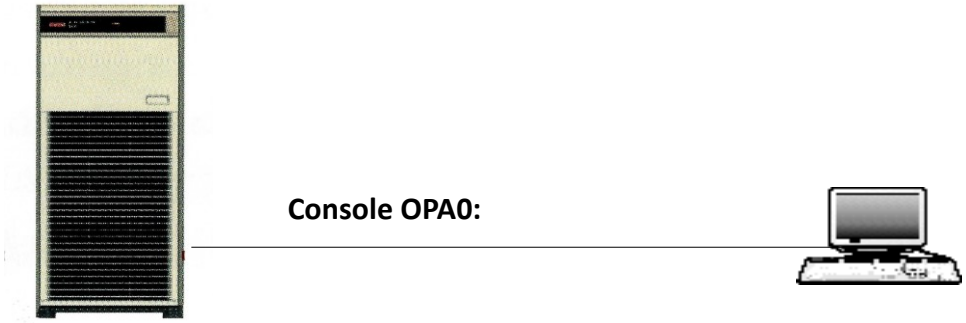
Consoles – the very early days

VT-100 terminal

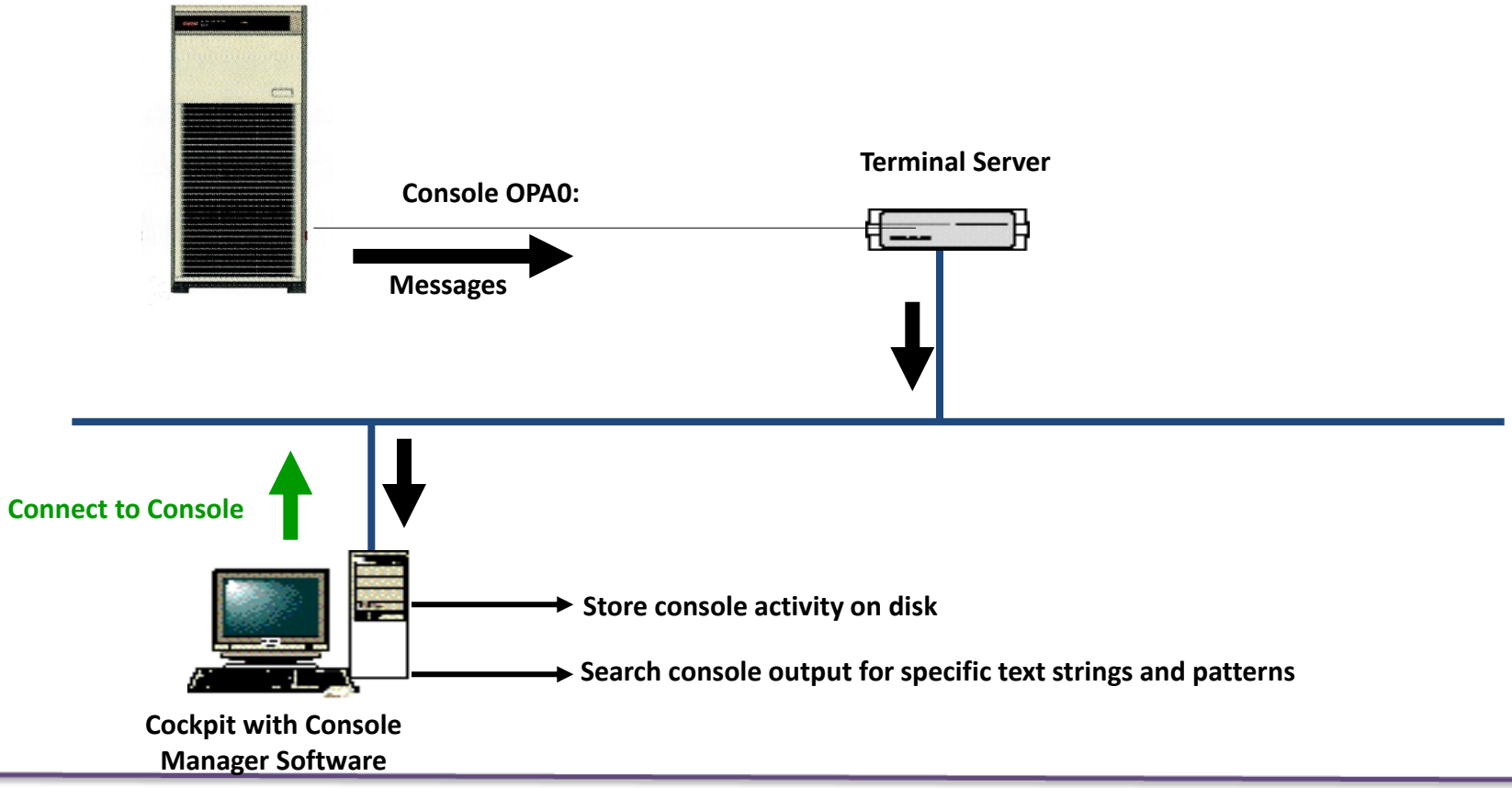
Serial Cable

VAX-11 computer

Console Manager



Console Manager



Console Manager

- CockpitMgr provides complete console management:
  - Connect to remote system console
  - Log console activity for further reference
  - Search console output for specific text strings or patterns
- Comes with many up-to-date scan profiles (set of text patterns to search for)
  - OpenVMS, VMScluster, Shadowing, LAN failover, TCP/IP ....
  - VAX, AlphaServer, Integrity and x86 messages
  - Layered products such as SLS, ABS, MDMS, Rdb, DCPS ...

Terminal Servers

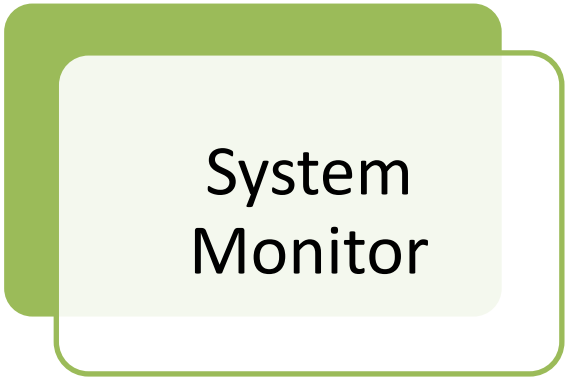
- Enables access to remote serial console ports of servers, network & storage equipment…
- Classic DECserver
  - End of life
  - 10Mb network connections
  - No SSH
- CockpitMgr now supports 2 new terminal servers (telnet and SSH)
  - Perle IOLAN
  - Digi Connect IT
- No terminal server needed for consoles of:
  - Integrity servers via MP
  - Emulated VAX & Alpha's
  - OpenVMS on x86

www.digi.com

www.perle.com

CockpitMgr

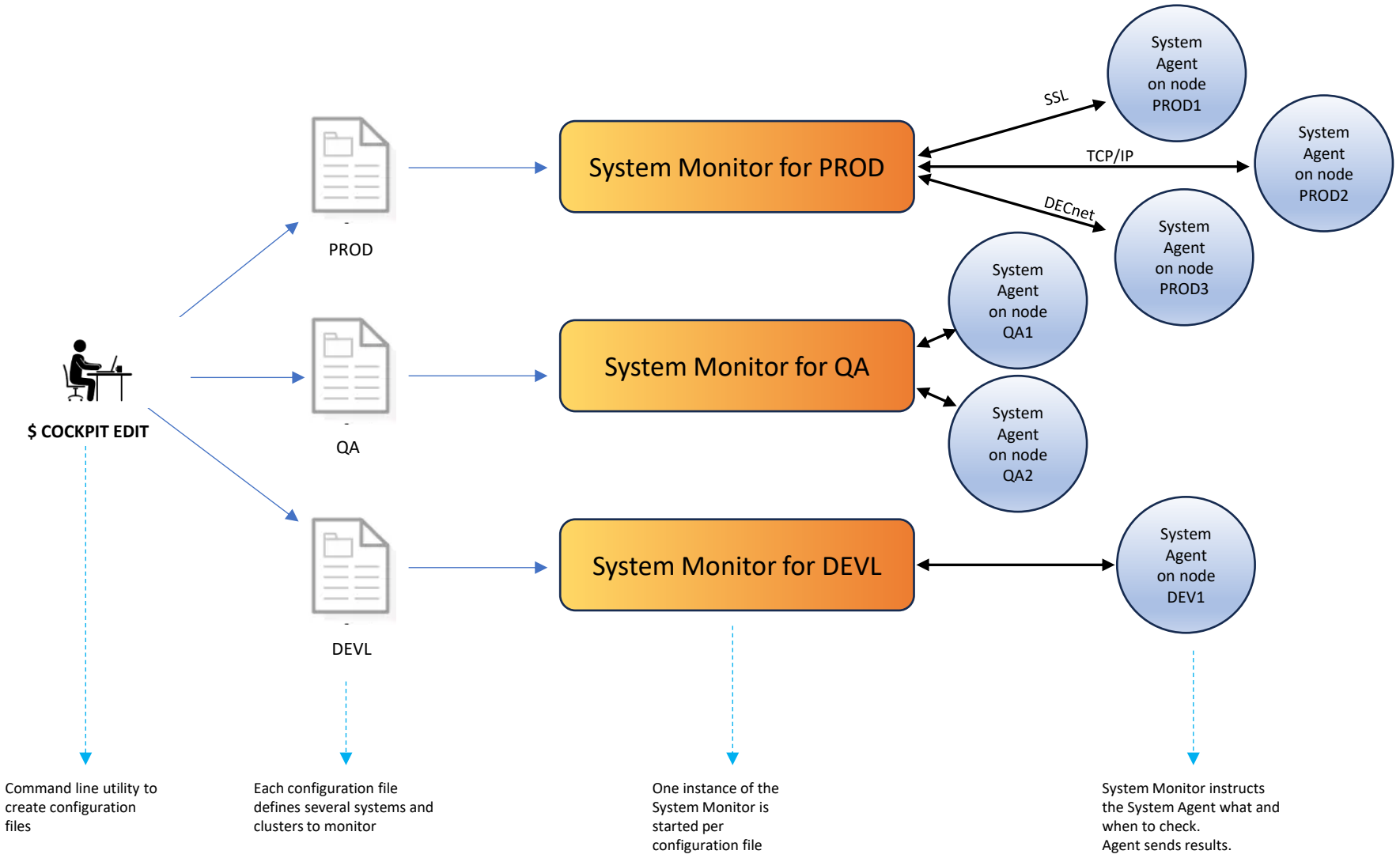
Monitoring



EuroVMS

System Monitor

- The System Monitor operates from the cockpit and interacts with an Agent located on each VMS production system.
- The monitoring requirements are established centrally within the cockpit.
- Connections occur at set time intervals.
- Only connections from a “trusted” cockpit are permitted.
- This system is implemented using non-transparent DECnet task-to-task communication, TCP/IP socket programming and SSL programming.
- A single configuration file manages the monitoring of multiple nodes and starts one instance of the System Monitor.


System Agent on node PROD1
SSL
System Agent on node PROD2
TCP/IP
DECnet
System Agent on node PROD3
System Monitor for PROD
PROD
System Agent on node QA1
System Monitor for QA
System Agent on node QA2
QA
$ COCKPIT EDIT
System Agent on node DEV1
System Monitor for DEVL
DEVL
Command line utility to create configuration files
Each configuration file defines several systems and clusters to monitor
One instance of the System Monitor is started per configuration file
System Monitor instructs the System Agent what and when to check.
Agent sends results.

What is monitored?

- System accessibility
- Changes in hardware error counters
- Time difference (considering time zones)
- Processes
  - Is a process present on a node or cluster-wide?
  - UIC specification is optional
  - Wildcards can be used in the process name (including check on minimal number of occurrences)
- Disk
  - Available free space
  - Disk state (mount verification, not mounted, write-locked…)
  - High-water marking
  - Erase-on-delete

What is monitored? (cont.)

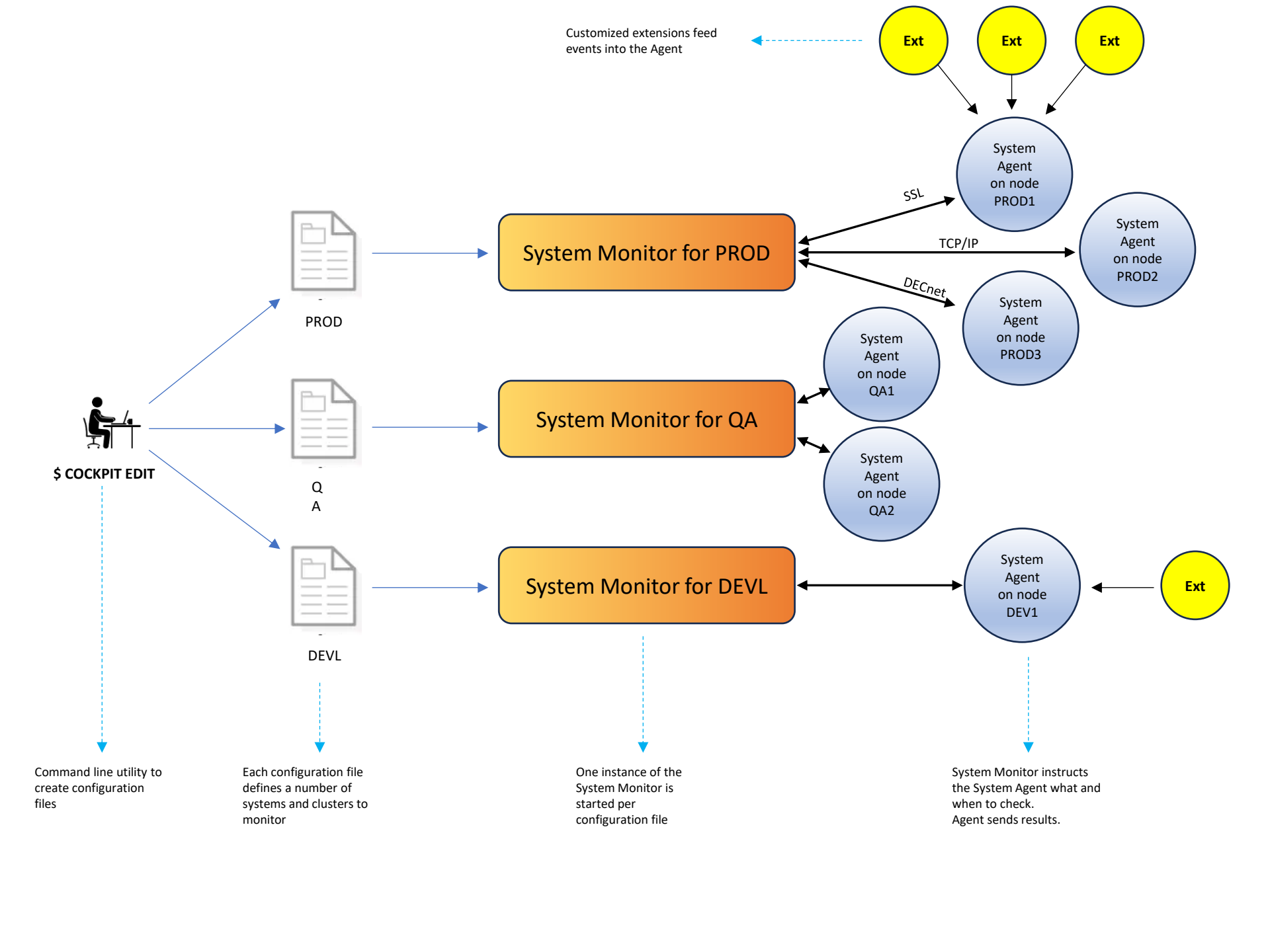
- Shadow sets
  - Is a disk missing as shadow set member?
  - Are the shadow set members doing copy and merge operations?
  - Is a disk an unexpected member of a shadow set?
- Queues
  - Status of queue manager
  - Status of batch and print queues
  - The number of pending jobs on a batch queue
- Checks presence of batch jobs (specified by name, user, queue, parameters…)
  - Supports generic queues

System Monitor key features

- Monitoring of each item can be limited to specific times during the week
- Items can be checked per node or per cluster
- Wildcards are applicable
- A quick configuration tool is provided
- Automatic repair actions can be set up
- The System Agent allows for straightforward expansion with custom monitoring modules

Extensions

- You have the option to create your own extensions
  - API
  - DCL
- Maintain your custom monitoring software modules and integrate them smoothly into the cockpit
- Input events into the System Agent, which will relay them to the cockpit
- There is functionality to add, update, and clear events
- CockpitMgr includes 7 extensions that can be activated for each system


Customized extensions feed events into the Agent
Ext
Ext
Ext
System Agent on node PROD1
SSL
TCP/IP
DECnet
System Agent on node PROD2
System Agent on node PROD3
System Monitor for PROD
PROD
$ COCKPIT EDIT
System Agent on node QA1
System Monitor for QA
System Agent on node QA2
Q A
System Agent on node DEV1
Ext
System Monitor for DEVL
DEVL
Command line utility to create configuration files
Each configuration file defines a number of systems and clusters to monitor
One instance of the System Monitor is started per configuration file
System Monitor instructs the System Agent what and when to check.
Agent sends results.

1. Integrity Hardware Checks

- Developed utilizing the IPMI API

  Intel's Intelligent Platform Management Interface comprises a collection of standardized guidelines for managing hardware platforms
- Monitors whether temperatures are within acceptable limit

  Includes ambient, internal, processor, DIMMs, I/O riser boards, and Power Supplies
- Evaluates fan conditions and verifies if fan tach readings are within appropriate ranges
- Identifies power supply failures
- Monitors battery status
- Detects if the chassis has been opened and hardware has been taken out

2. Smart Array Controllers

Monitors StorageWorks Modular Smart Arrays (MSA) and Controllers

- Controller status
- Cache status, battery status, parity errors
- Physical disks status and predictive errors
- Status of logical units
- Reporting on failed drives and spare disk activation
- Progress of recovery of logical unit
- SSD errors
- Configuration changes

3. Volume Checker

- Looks for selected files that became large
- Searches for files that have a high version number
- Checks directories that contain a large number of files
- Compares the overall file count on the disk with the maximum files allowed
- If disk quotas are active, identifies accounts nearing their quota limit or those that have exceeded it

4. ACMS Monitor

- The System Agent Extension verifies the availability, features, and pool utilization of ACMS applications running on a system.

- It requires a configuration file that enumerates ACMS applications to monitor, along with their associated server processes and defined min/max thresholds.

- Checks occur every minute based on the results of ACMS/SHOW SYSTEM and ACMS/SHOW APPLICATION

  - Is ACMS properly initiated?
  - Is each ACMS application in the “Started” state?
  - Is the available pool above the specified threshold?
  - Are all server processes present?
  - Are the minimum and maximum numbers of server processes accurate?
  - Has any server process reached the maximum number of active processes?
  - Is the count of active and free processes below the minimum threshold?
  - Are there waiting tasks?

5. LAN device monitor

- Ensures that the current LAN device settings comply with the desired ones.
- Validates that all components of a LAN failover device are in an "Up" link status.
- Checks performed every minute.

```
DEVICE _EIA0: /SPEED=1000 /AUTONEGOTIATE /FULL_DUPLEX /NOJUMBO /LINK_STATE=UP
DEVICE _EIB0: /SPEED=1000 /AUTONEGOTIATE /FULL_DUPLEX /NOJUMBO /LINK_STATE=UP
DEVICE _EIC0: /SPEED=1000 /AUTONEGOTIATE /FULL_DUPLEX /NOJUMBO /LINK_STATE=UP
DEVICE _EID0: /SPEED=1000 /AUTONEGOTIATE /FULL_DUPLEX /NOJUMBO /LINK_STATE=UP
DEVICE _LLA0: /LINK_STATE=UP /DEVICES=(EIB,EID)
```

6. FC path monitor

It is a good practice to choose at system startup time a dedicated path for each disk.

The FC path monitor checks every minute:

- Are all paths to a disk available?
- Is the current path the preferred one?
- Are there time-outs on certain paths?
- It also uses the SDA FC extension to detect disks with slow I/Os and gather DIOrate performance data for graphing.

7. SCA monitor

- Packet Retransmits
  - According to the SCA specification, there should be no more than 1 packet retransmission for every 1000 transmissions among any two members of a cluster.
  - The SCACP utility offers these metrics. Values are calculated hourly.
- Cluster Credit Waits
  - CLUSTER_CREDITS specifies the number of per-connection buffers a node allocates to receiving cluster communications. A shortage of credits causes delays in message transmissions.
  - Number of credit waits should not be more than 1 per minute.

Monitoring

Network & Storage Monitor

EuroVMS

Storage & Network

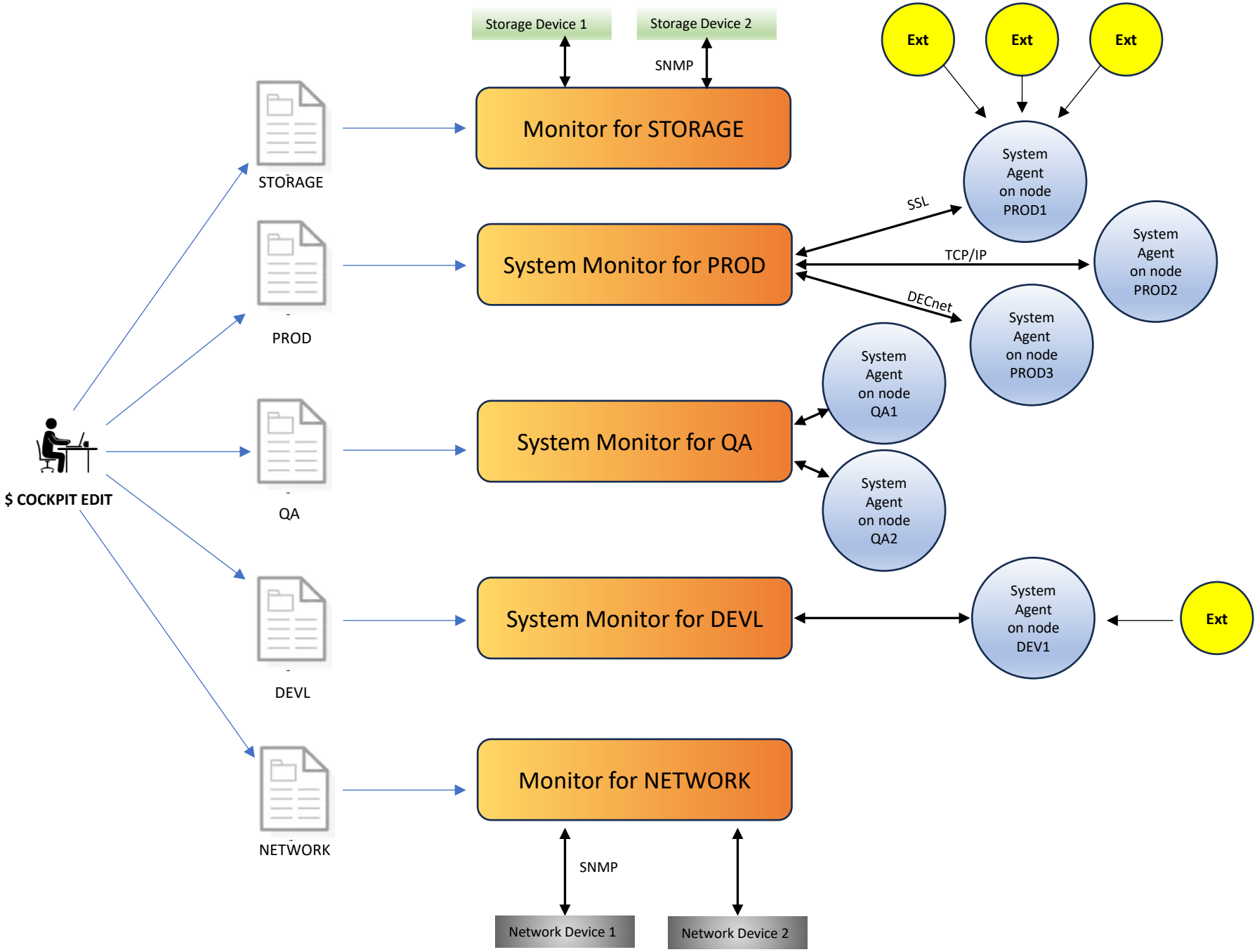
- Storage
  - Storage is located within a SAN
  - Local storage is configured behind a RAID controller
  - Redundant storage configurations are built, ensuring operations to continue following a single failure
- Network
  - Serves as the cluster interconnect
  - Any network issue can directly impact the VMS cluster
  - Systems become unusable in the event of network complications
- The System Agent and Extensions function at the VMS level
  - What can we do beyond the server?

SNMPtrap Listener

- An SNMPtrap is a notification sent from a network device, storage system, or application to the cockpit, alerting system managers about important events or changes
- It consists of a UDP packet sent to port 161, with its binary data defined by associated MIB files for the specific device or application
- The SNMPtrap Listener captures and processes these traps, converting the binary data into an event
- It is advisable to set up all your devices to send SNMPtraps to the cockpit
- CockpitMgr offers many pre-configured SNMPtraps from various device types, simplifying the setup without requiring extensive MIB knowledge
- Supported device types include:
  - 3PAR, Primera, Alletra, EVA, and HDS storage systems
  - Brocade and Cisco SAN switches and routers
  - Cisco Catalyst and Nexus switches

Monitoring with SNMPgets

- The System Monitor has been extended, and next to the monitoring of OpenVMS systems it is also capable of monitoring selected device types.
- Use SNMPgets to query the SNMP agents on selected devices.
- No MIB expertise required: configuration requires only hostname, device type, credentials, and list of ports to check.
- Typically, we monitor port states, error counters and device-specific diagnostic information. In some cases, we also collect performance data.
- Examples:
  - Blade enclosures and Virtual Connect modules
  - Cisco Catalyst and Nexus (including trunks, VLANs, and etherchannels).
  - Fibre Channel Switches, routers and access gateways


Storage Device 1
Storage Device 2
SNMP
Ext
Ext
Ext
Monitor for STORAGE
STORAGE
System Agent on node PROD1
SSL
System Monitor for PROD
TCP/IP
System Agent on node PROD2
DECnet
System Agent on node PROD3
PROD
System Agent on node QA1
System Monitor for QA
System Agent on node QA2
$ COCKPIT EDIT
QA
System Monitor for DEVL
System Agent on node DEV1
Ext
DEVL
Monitor for NETWORK
NETWORK
SNMP
Network Device 1
Network Device 2

SNMP-based monitoring

- Development is driven by customer demands.
- Support for SNMP versions 1, 2c, and 3, including authentication and privacy features.
- CockpitMgr offers the following DCL commands:
  - SNMPGET
  - SNMPWALK
  - SNMPSET
  - SNMPTRAP
- This is not a port of open-source software. All SNMP utilities are developed in-house.

Beyond SNMP

- cURL (client URL) is a command-line utility designed for transferring data between servers and devices, supporting protocols such as HTTP and HTTPS
- CockpitMgr utilizes cURL to query devices for status updates and configuration information
- Responses usually come in JSON format, allowing structured data retrieval. CockpitMgr developed its own JSON parser.
- Examples include:
  - 3PAR / Primera / Alletra (using Web Services API)
  - Hitachi VSP
  - Synergy

More utilities that generate events

- Performance Watcher
- Real-Time Security Event Monitor
- Logfile Browser
- Environmental Monitoring
- Non-OpenVMS systems

EuroVMS

Performance Watcher

- The Performance Watcher identifies potential signs of system performance degradation.
  - CPU utilization (also categorized per mode)
  - Memory usage
  - Utilization of page and swap files
  - Looping processes
  - Idle processes
  - Processes in special wait state (RWAST, RWMBX…)
  - Utilization of process quota's
- CockpitMgr gathers certain performance metrics and presents the data in graphical form in a web browser.
  - This is not intended to be an alternative for utilities like T4 or Perfdat.

Real-time security monitoring

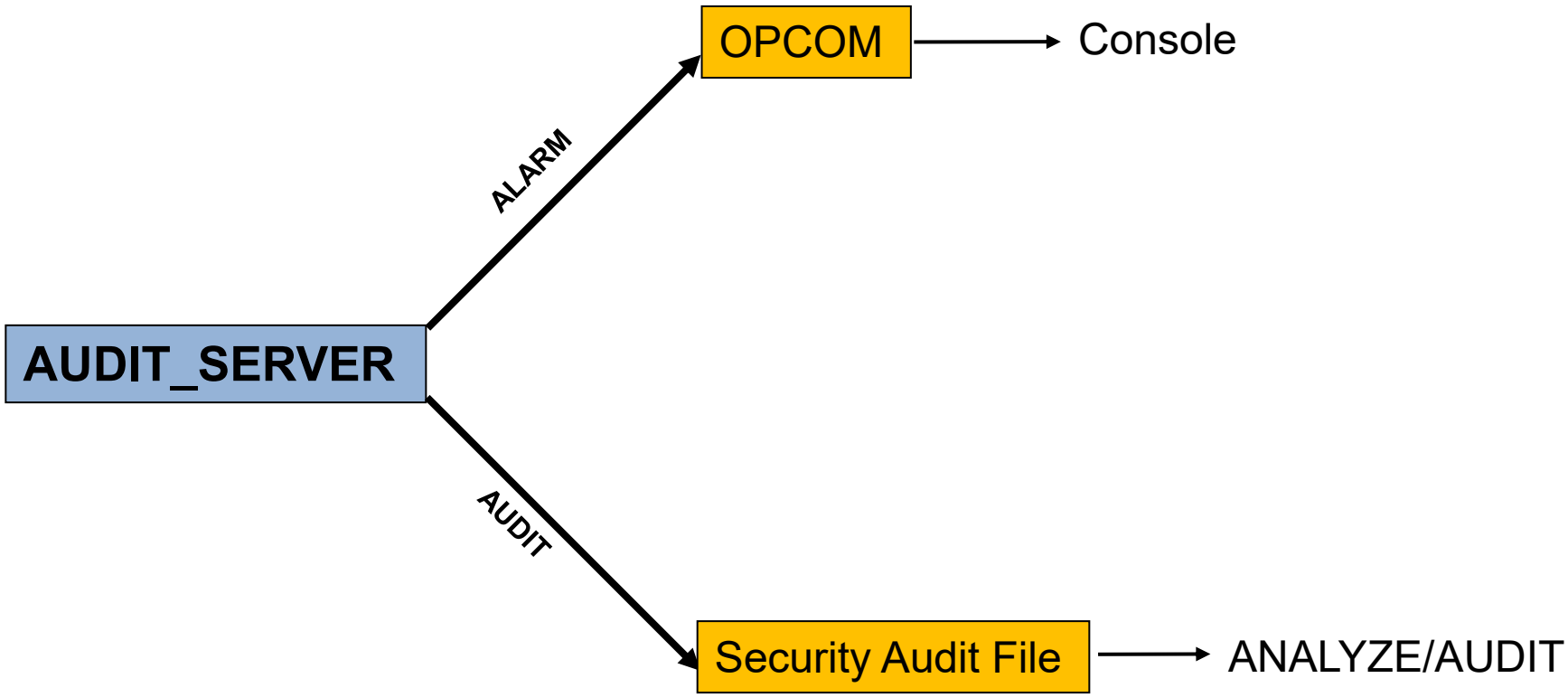
- The AUDIT_SERVER is a system process that manages security auditing. Its responsibilities include:
  - Alarms and notifications: logs messages to OPCOM and sends security alerts to operator terminals
  - Audit logging: maintains a security audit log file SECURITY.AUDIT$JOURNAL
  - It tracks and records security events based on site-defined settings.

- CockpitMgr security event monitor
  - Based on events detected by the Audit Server.
  - Converts a security event into a CockpitMgr event.
  - It enables system managers to monitor the security of system and data in real-time.
  - It may help in troubleshooting some application problems

```
$ SHOW AUDIT
System security alarms currently enabled for:
  ACL
  Authorization
  Breakin:        dialup,local,remote,network,detached,server
  Logfailure:     batch,dialup,local,remote,network,subprocess,detached,server
  FILE access:
    Failure:      read,write,execute,delete,control
    BYPASS:       delete

System security audits currently enabled for:
  ACL
  Authorization
  Breakin:        dialup,local,remote,network,detached,server
  Logfailure:     batch,dialup,local,remote,network,subprocess,detached,server
  FILE access:
    Failure:      read,write,execute,delete,control
    BYPASS:       delete
```

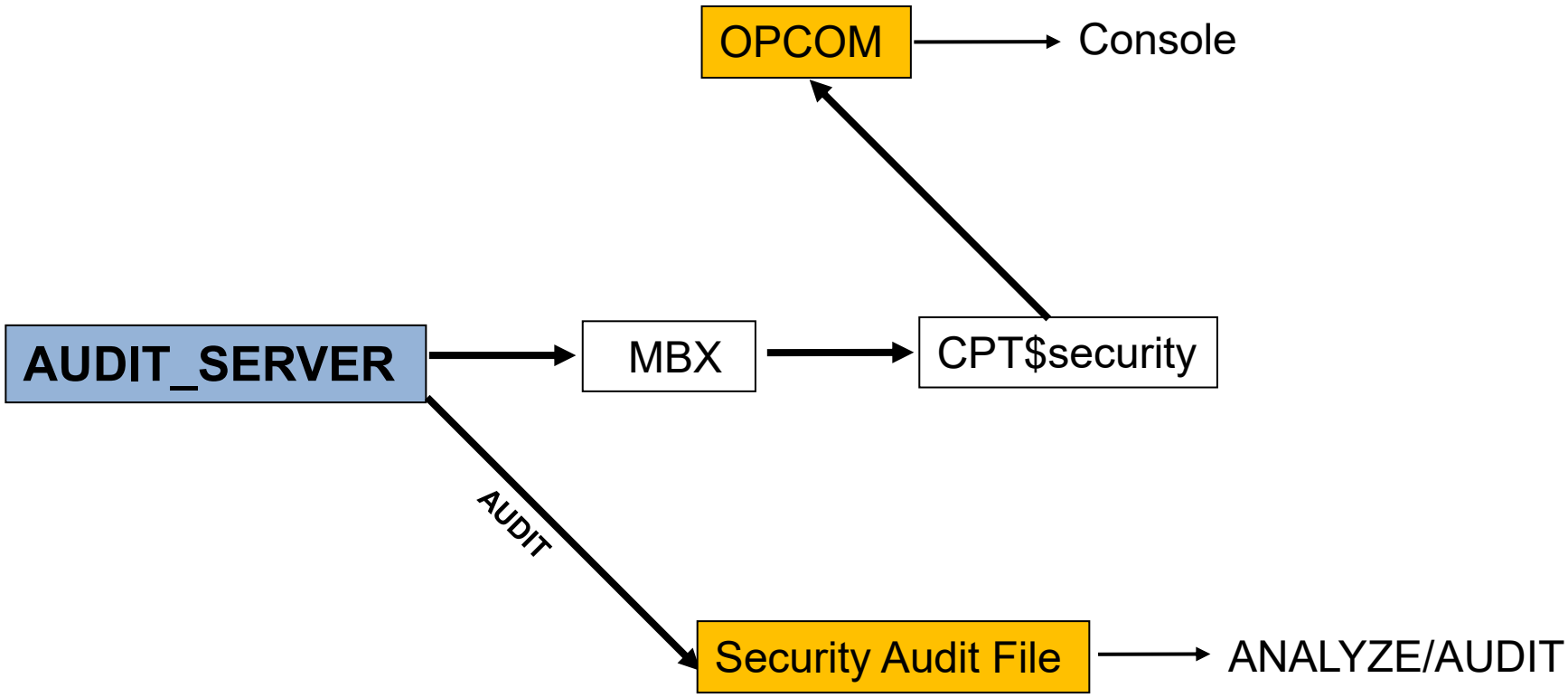
```
%%%%%%%%%%  OPCOM   1-APR-2025 11:01:37.20  %%%%%%%%%%
Message from user AUDIT$SERVER on L15S36
Security alarm (SECURITY) and security audit (SECURITY) on L1
Auditable event:          Remote interactive login failure
Event time:                1-APR-2025 11:01:37.20
PID:                      000950A5
Process name:             _RTA1:
Username:                 <login>
Terminal name:            RTA1:, _RTA1:, X01S03::MICHIELS
Remote node fullname:     LOCAL:.X01S03
Remote username:          MICHIELS
Status:                   %LOGIN-F-NOSUCHUSER, no such user
```



```
$ SHOW AUDIT
System security alarms currently disabled

System security audits currently enabled for:
  ACL
  Authorization
  Breakin:        dialup,local,remote,network,detached,server
  Logfailure:     batch,dialup,local,remote,network,subprocess,detached,server
  FILE access:
    Failure:      read,write,execute,delete,control
    BYPASS:       delete
```

```
%%%%%%%%%%%  OPCOM   1-APR-2025 11:01:37.20  %%%%%%%%%%%
Message from user SYSTEM on L15S36
%SECURITY_LOGFAI, Remote login failure detected, initiated by LOCAL:.X01S03::MICHIELS (no such user)
```



Log File Browser

- Review batch and application logs for errors.
- Create a list of text strings or patterns to look for in each file.
- Can be utilized with open files.

Environmental monitoring

- SNMP-based monitoring of:
  - Temperature & Humidity sensors
  - Power Distribution Units
  - Door sensors
  - UPS

Monitoring Linux and Windows systems

- Linux System Agent
  - Monitors processes and file system free space
  - Monitoring scripts can be used as Agent Extension
- Windows
  - Monitoring by querying the SNMP Agent
  - Processes, services, disk space, CPU and memory utilization
- Linux Syslog and Windows Event Log can be sent to cockpit
  - Use Syslog format
  - CockpitMgr includes a Syslog Server
  - Syslog messages are searched for text strings or patterns

Event

Engine

Event Engine

- The Event Engine centralizes all events and prepares them for notification.
- Prior to sending out notifications, additional processing may occur on events:
  - Modifying specific attributes
  - Correlation: if both the system and subsystem match, one event can clear another, thereby combining two events into one
  - Transforming event text: for example, an error code can be translated into a more understandable message
  - Preventing duplicates
  - Initiating an automatic repair process
- The processing is governed by a rule-based framework.

Example

- Scan the console output for “Device * is offline.”

```
%%%%%%%%%%  OPCOM  10-FEB-2025 11:24:45.08  %%%%%%%%%%
Device DSA1: is offline.
Mount verification is in progress.
```

- Scan the console output for “Mount verification has completed for device *”

```
%%%%%%%%%%  OPCOM  10-FEB-2025 11:24:45.09  %%%%%%%%%%
Mount verification has completed for device DSA1:
```

- It is obvious that when the same device name appears in both messages, the second message indicates that the device has returned to normal functionality.
- The objective is now to resolve the first event using the second one and combine both events into one.
- This can be achieved by implementing three rules within the Event Engine.

```
%%%%%%%%%%  OPCOM  10-FEB-2025 11:24:45.08  %%%%%%%%%%
Device DSA1: is offline.
Mount verification is in progress.
```

Rule1: PREPROCESS /NAME="OpenVMS_DEVICE_OFFLINE“ /NEWSUBSYSTEM=("Device",2)

Start counting at “Device” in the event text and take the second word to replace the subsystem.

Sequence Number	44729
System	L15S50
Subsystem	DSA1:
Name	OpenVMS_DEVICE_OFFLINE
Class	OpenVMS
Text	Device DSA1: is offline.
Priority	Critical
Time stamp	10-FEB-2025 11:24:45.28
Source	CockpitMgr Console Manager
Owner	
Solution	

```
%%%%%%%%%%  OPCOM  10-FEB-2025 11:24:45.09  %%%%%%%%%%
Mount verification has completed for device DSA1:
```

Rule 2: PREPROCESS /NAME="OpenVMS_MOUNT_VERIFICATION_COMPLETED“ /NEWSUBSYSTEM=("device",2)

Start counting at “device” in the event text and take the second word to replace the subsystem.

Sequence Number	
System	L15S50
Subsystem	DSA1:
Name	OpenVMS_MOUNT_VERIFICATION_COMPLETED
Class	OpenVMS
Text	Mount verification has completed for device DSA1:
Priority	Warning
Time stamp	10-FEB-2025 11:24:45.30
Source	CockpitMgr Console Manager
Owner	
Solution	

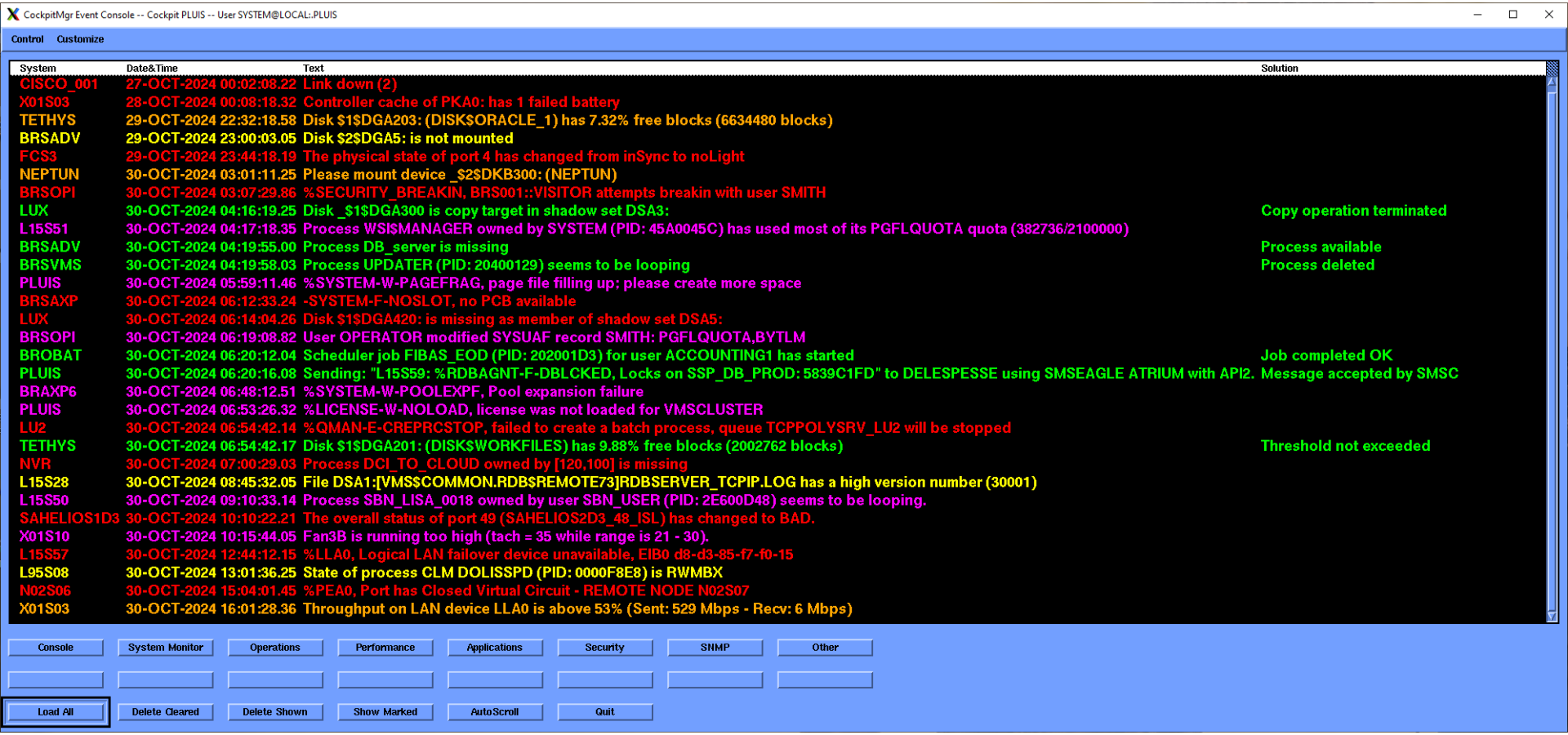
Rule 3: CORRELATE /NAME="OpenVMS_DEVICE_OFFLINE" -
/CLEAR="OpenVMS_MOUNT_VERIFICATION_COMPLETED" -
/SOLUTION="Mount verification completed.“

Sequence Number	44729
System	L15S50
Subsystem	DSA1:
Name	OpenVMS_DEVICE_OFFLINE
Class	OpenVMS
Text	Device DSA1: is offline.
Priority	Clear
Time stamp	10-FEB-2025 11:24:45.28
Source	CockpitMgr Console Manager
Owner	
Solution	Mount verification completed.

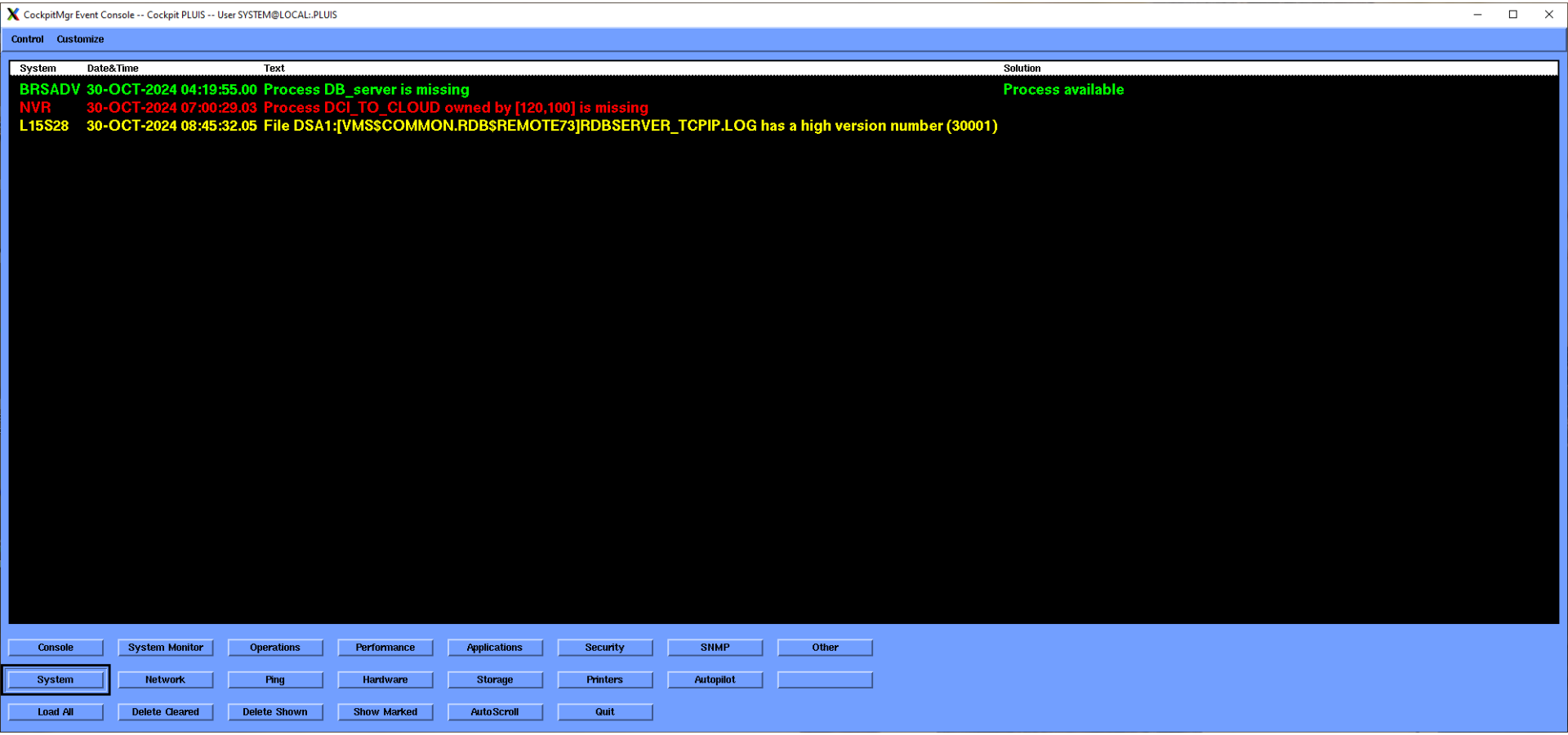
Event notification

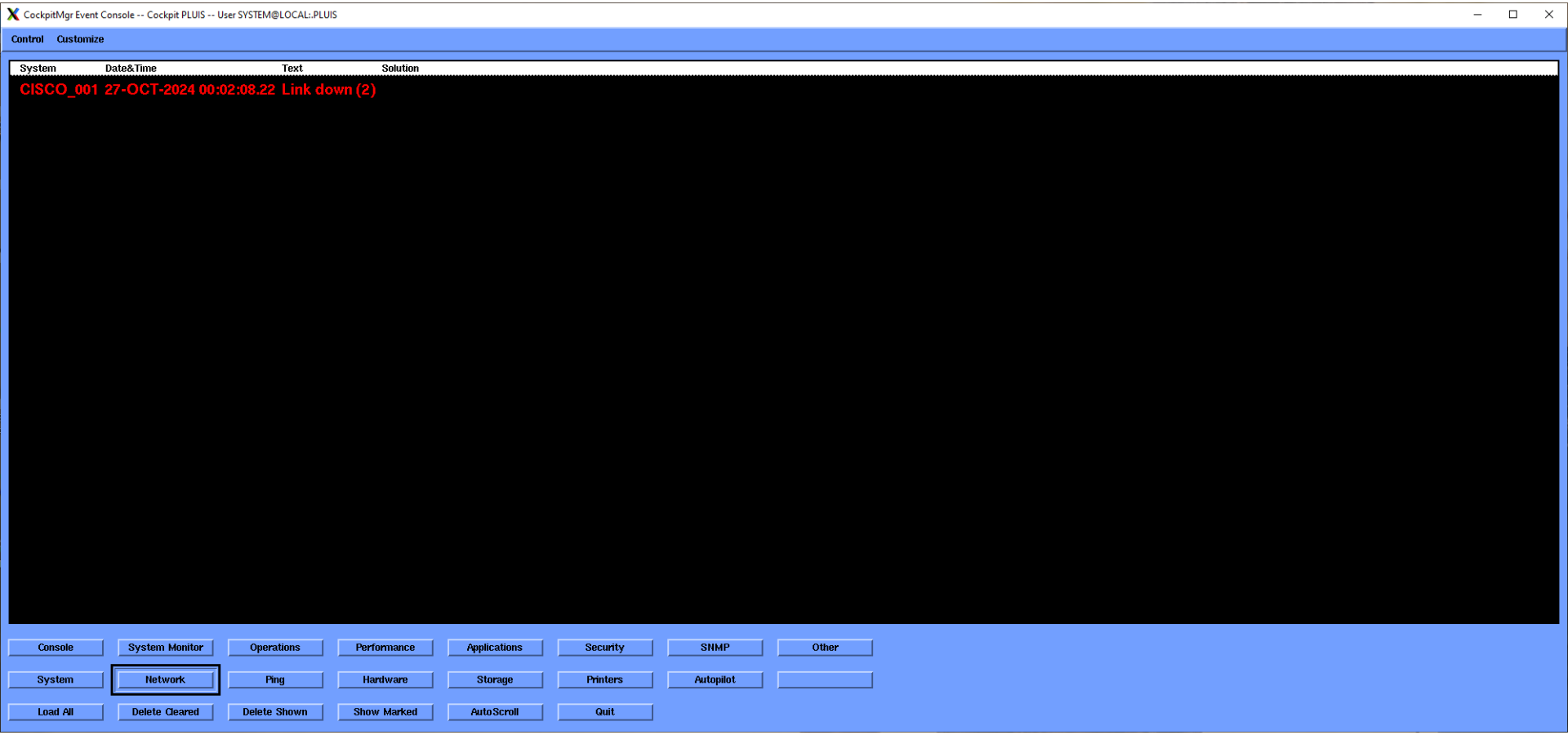
- Event console
- GUI
- Web browser
- Text message to cell phone

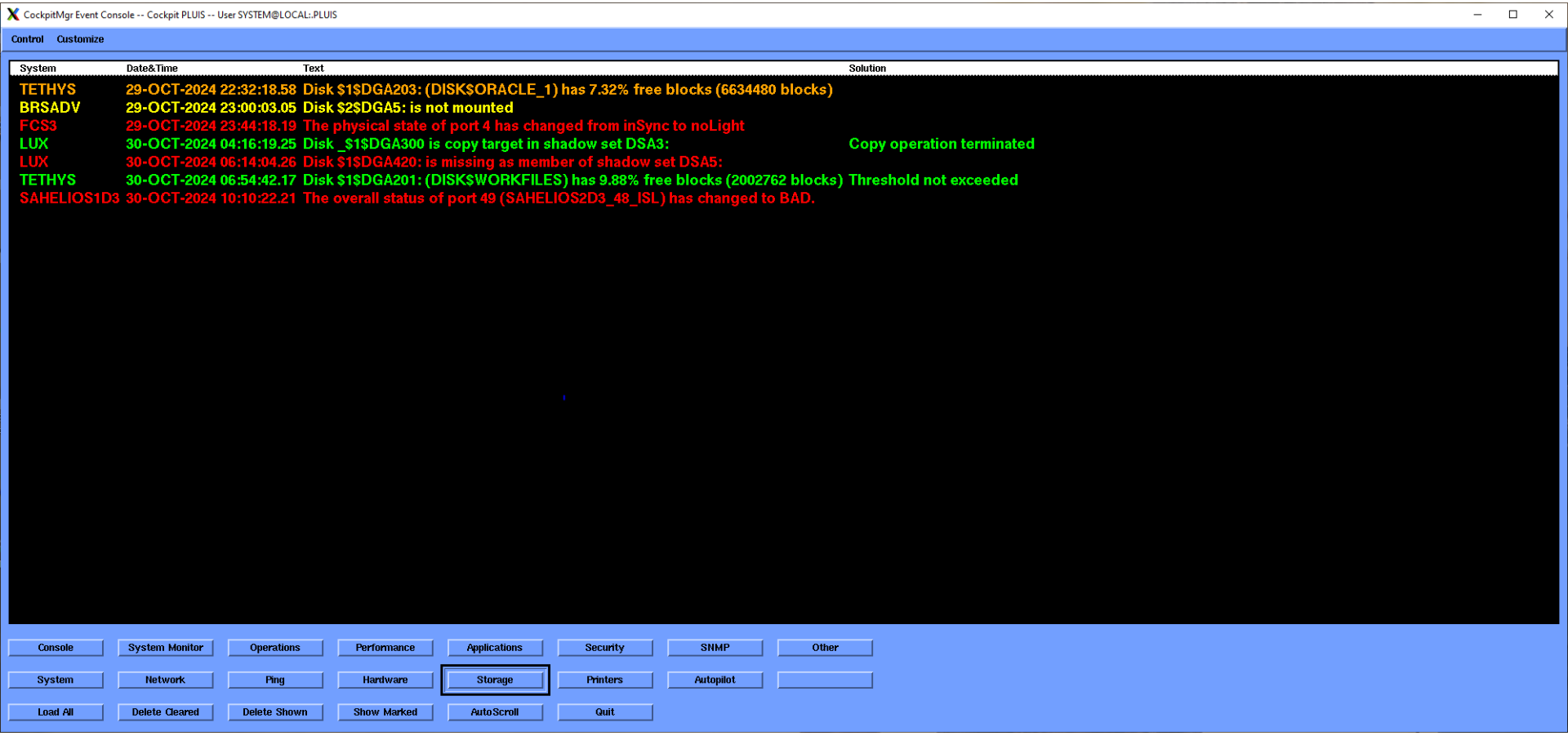
EuroVMS

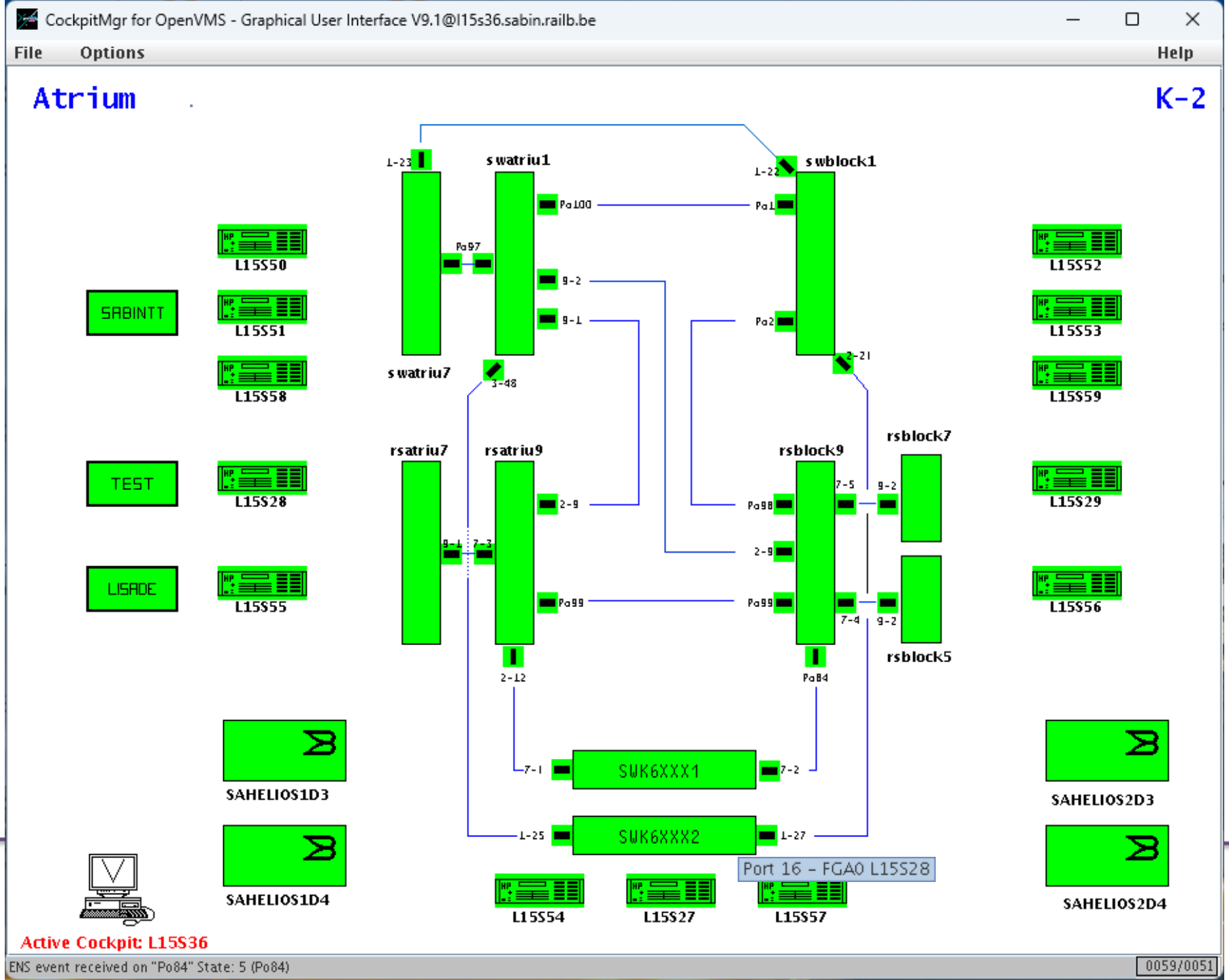

CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:.PLUIS
Control
Customize
System
Date&Time
Text
Solution
CISCO_001 27-OCT-2024 00:02:08.22 Link down (2)
X01S03 28-OCT-2024 00:08:18.32 Controller cache of PKA0: has 1 failed battery
TETHYS 29-OCT-2024 22:32:18.58 Disk 1DGA203: (DISK$ORACLE_1) has 7.32% free blocks (6634480 blocks)
BRSADV 29-OCT-2024 23:00:03.05 Disk 2DGA5: is not mounted
FCS3 29-OCT-2024 23:44:18.19 The physical state of port 4 has changed from inSync to noLight
NEPTUN 30-OCT-2024 03:01:11.25 Please mount device _2DKB300: (NEPTUN)
BRSOPI 30-OCT-2024 03:07:29.86 %SECURITY_BREAKIN, BRS001::VISITOR attempts breakin with user SMITH
LUX 30-OCT-2024 04:16:19.25 Disk _1DGA300 is copy target in shadow set DSA3: Copy operation terminated
L15S51 30-OCT-2024 04:17:18.35 Process WSI$MANAGER owned by SYSTEM (PID: 45A0045C) has used most of its PGFLQUOTA quota (382736/2100000)
BRSADV 30-OCT-2024 04:19:55.00 Process DB_server is missing Process available
BRSVMS 30-OCT-2024 04:19:58.03 Process UPDATER (PID: 20400129) seems to be looping Process deleted
PLUIS 30-OCT-2024 05:59:11.46 %SYSTEM-W-PAGEFRAG, page file filling up: please create more space
BRSAXP 30-OCT-2024 06:12:33.24 -SYSTEM-F-NOSLOT, no PCB available
LUX 30-OCT-2024 06:14:04.26 Disk 1DGA420: is missing as member of shadow set DSA5:
BRSOPI 30-OCT-2024 06:19:08.82 User OPERATOR modified SYSUAF record SMITH: PGFLQUOTA,BYTLM
BROBAT 30-OCT-2024 06:20:12.04 Scheduler job FIBAS_EOD (PID: 202001D3) for user ACCOUNTING1 has started Job completed OK
PLUIS 30-OCT-2024 06:20:16.08 Sending: "L15S59: %RDBAGNT-F-DBLCKED, Locks on SSP_DB_PROD: 5839C1FD" to DELESPESSE using SMSEAGLE ATRIUM with API2. Message accepted by SMSC
BRAXP6 30-OCT-2024 06:48:12.51 %SYSTEM-W-POOLEXPF, Pool expansion failure
PLUIS 30-OCT-2024 06:53:26.32 %LICENSE-W-NOLOAD, license was not loaded for VMSCLUSTER
LU2 30-OCT-2024 06:54:42.14 %QMAN-E-CREPRCSTOP, failed to create a batch process, queue TCPPOLYSRV_LU2 will be stopped
TETHYS 30-OCT-2024 06:54:42.17 Disk 1DGA201: (DISK$WORKFILES) has 9.88% free blocks (2002762 blocks) Threshold not exceeded
NVR 30-OCT-2024 07:00:29.03 Process DCI_TO_CLOUD owned by [120,100] is missing
L15S28 30-OCT-2024 08:45:32.05 File DSA1:[VMS$COMMON.RDB$REMOTE73]RDBSERVER_TCPIP.LOG has a high version number (30001)
L15S50 30-OCT-2024 09:10:33.14 Process SBN_LISA_0018 owned by user SBN_USER (PID: 2E600D48) seems to be looping.
SAHELIOS1D3 30-OCT-2024 10:10:22.21 The overall status of port 49 (SAHELIOS2D3_48_ISL) has changed to BAD.
X01S10 30-OCT-2024 10:15:44.05 Fan3B is running too high (tach = 35 while range is 21 - 30).
L15S57 30-OCT-2024 12:44:12.15 %LLA0, Logical LAN failover device unavailable, EIB0 d8-d3-85-f7-f0-15
L95S08 30-OCT-2024 13:01:36.25 State of process CLM DOLISSPD (PID: 0000F8E8) is RWMBX
N02S06 30-OCT-2024 15:04:01.45 %PEA0, Port has Closed Virtual Circuit - REMOTE NODE N02S07
X01S03 30-OCT-2024 16:01:28.36 Throughput on LAN device LLA0 is above 53% (Sent: 529 Mbps - Recv: 6 Mbps)
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit

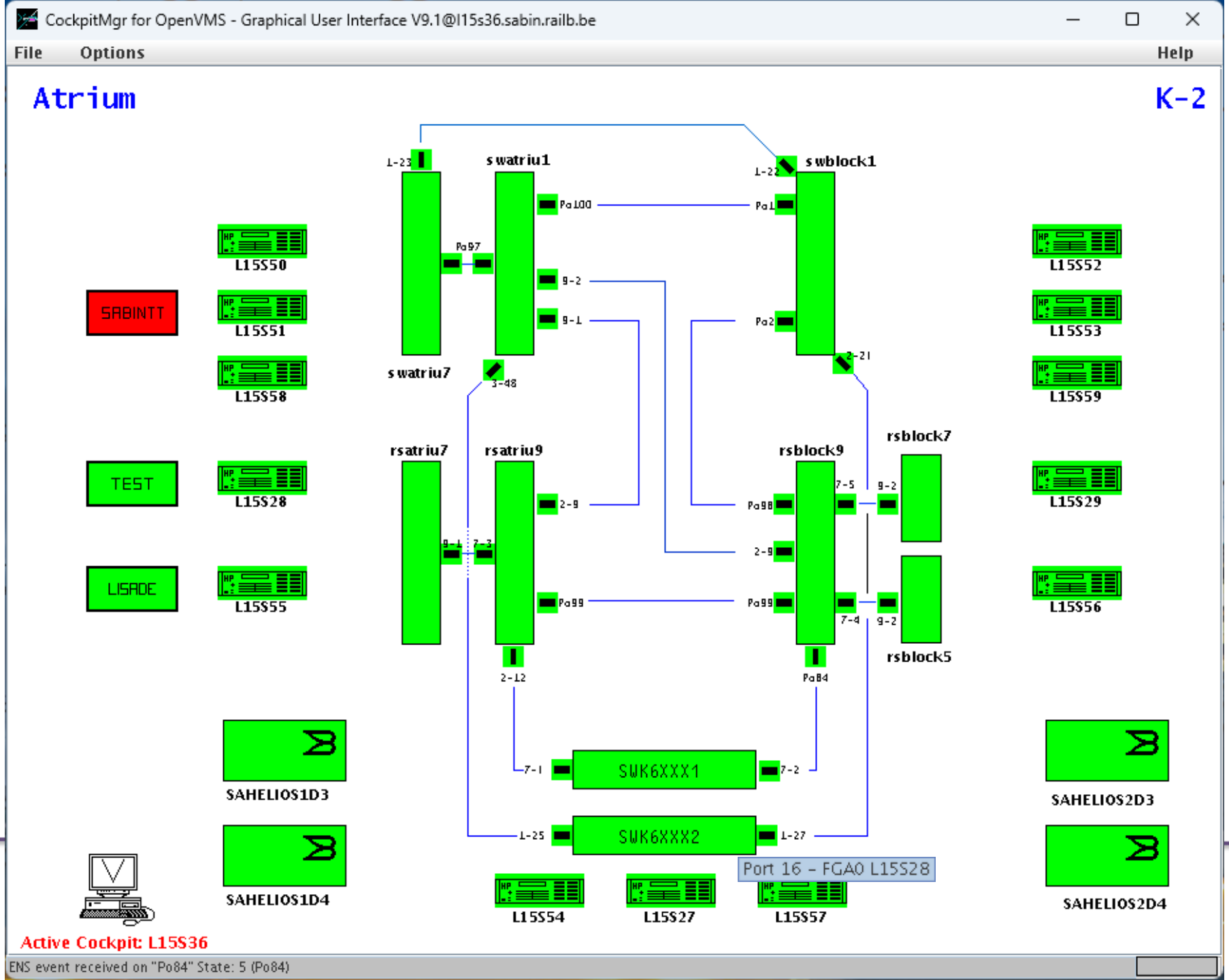

CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:PLUIS
Control
Customize
System
Date&Time
Text
Solution
CISCO_001 27-OCT-2024 00:02:08.22 Link down (2)
X01S03 28-OCT-2024 00:08:18.32 Controller cache of PKA0: has 1 failed battery
TETHYS 29-OCT-2024 22:32:18.58 Disk 1DGA203: (DISK$ORACLE_1) has 7.32% free blocks (6634480 blocks)
BRSADV 29-OCT-2024 23:00:03.05 Disk 2DGA5: is not mounted
FCS3 29-OCT-2024 23:44:18.19 The physical state of port 4 has changed from inSync to noLight
LUX 30-OCT-2024 04:16:19.25 Disk _1DGA300 is copy target in shadow set DSA3: Copy operation terminated
BRSADV 30-OCT-2024 04:19:55.00 Process DB_server is missing Process available
LUX 30-OCT-2024 06:14:04.26 Disk 1DGA420: is missing as member of shadow set DSA5:
TETHYS 30-OCT-2024 06:54:42.17 Disk 1DGA201: (DISK$WORKFILES) has 9.88% free blocks (2002762 blocks) Threshold not exceeded
NVR 30-OCT-2024 07:00:29.03 Process DCI_TO_CLOUD owned by [120,100] is missing
L15S28 30-OCT-2024 08:45:32.05 File DSA1:[VMS$COMMON.RDB$REMOTE73]RDBSERVER_TCPIP.LOG has a high version number (30001)
SAHELIOS1D3 30-OCT-2024 10:10:22.21 The overall status of port 49 (SAHELIOS2D3_48_ISL) has changed to BAD.
X01S10 30-OCT-2024 10:15:44.05 Fan3B is running too high (tach = 35 while range is 21 - 30).
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
System
Network
Ping
Hardware
Storage
Printers
Autopilot
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit

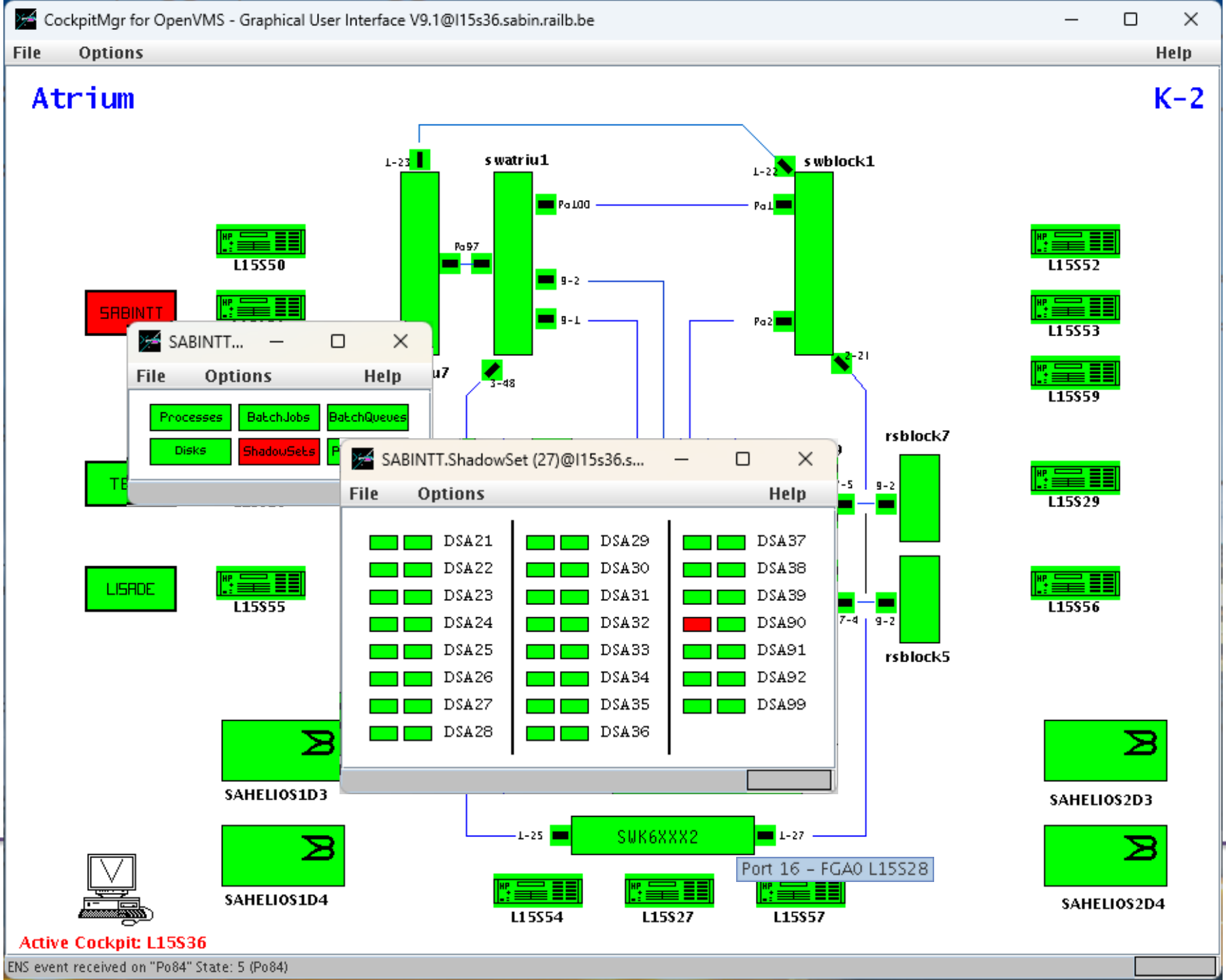

CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:.PLUIS
Control
Customize
System
Date&Time
Text
Solution
BRSADV 30-OCT-2024 04:19:55.00 Process DB_server is missing
Process available
NVR 30-OCT-2024 07:00:29.03 Process DCI_TO_CLOUD owned by [120,100] is missing
L15S28 30-OCT-2024 08:45:32.05 File DSA1:[VMS$COMMON.RDB$REMOTE73]RDBSERVER_TCPIP.LOG has a high version number (30001)
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
System
Network
Ping
Hardware
Storage
Printers
Autopilot
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit

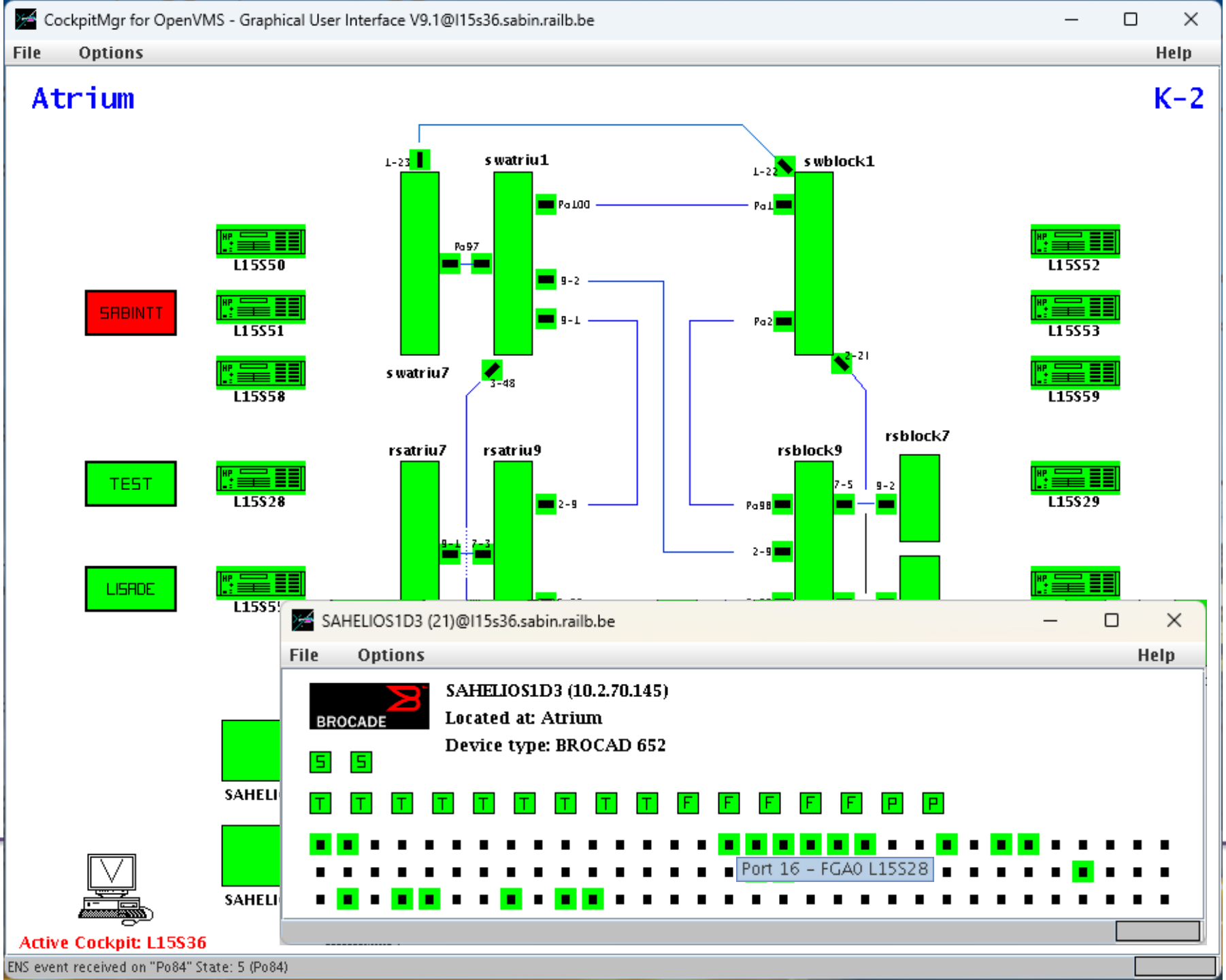

CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:.PLUIS
Control
Customize
System
Date&Time
Text
Solution
CISCO_001 27-OCT-2024 00:02:08.22 Link down (2)
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
System
Network
Ping
Hardware
Storage
Printers
Autopilot
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit

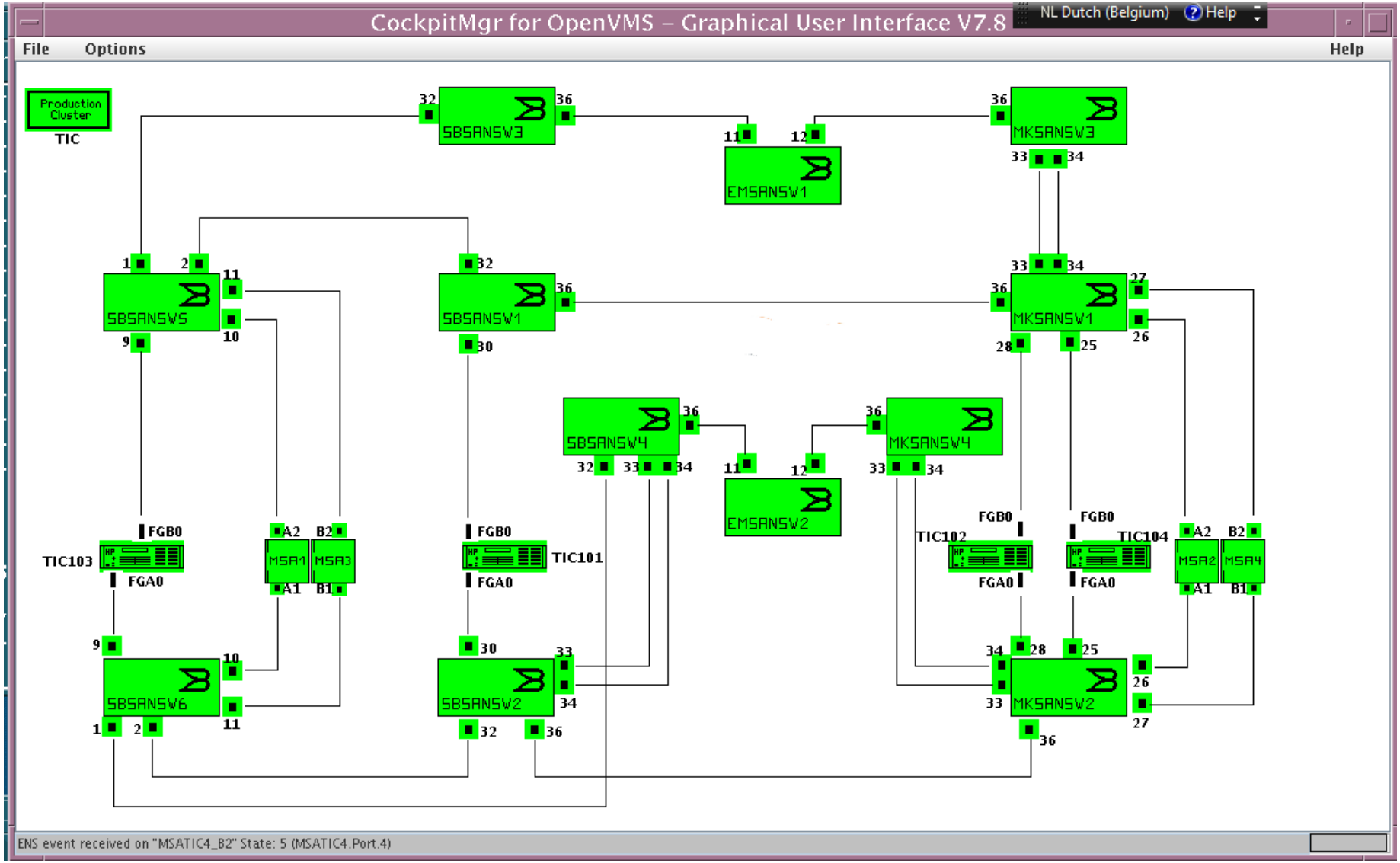

CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:.PLUIS
Control
Customize
System
Date&Time
Text
Solution
TETHYS 29-OCT-2024 22:32:18.58 Disk 1DGA203: (DISK$ORACLE_1) has 7.32% free blocks (6634480 blocks)
BRSADV 29-OCT-2024 23:00:03.05 Disk 2DGA5: is not mounted
FCS3 29-OCT-2024 23:44:18.19 The physical state of port 4 has changed from inSync to noLight
LUX 30-OCT-2024 04:16:19.25 Disk _1DGA300 is copy target in shadow set DSA3: Copy operation terminated
LUX 30-OCT-2024 06:14:04.26 Disk 1DGA420: is missing as member of shadow set DSA5:
TETHYS 30-OCT-2024 06:54:42.17 Disk 1DGA201: (DISK$WORKFILES) has 9.88% free blocks (2002762 blocks) Threshold not exceeded
SAHELIOS1D3 30-OCT-2024 10:10:22.21 The overall status of port 49 (SAHELIOS2D3_48_ISL) has changed to BAD.
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
System
Network
Ping
Hardware
Storage
Printers
Autopilot
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit


CockpitMgr for OpenVMS - Graphical User Interface V9.1@l15s36.sabin.railb.be
File
Options
Help
Atrium
K-2
swatriu1
swblock1
swatriu7
rsatriu7
rsatriu9
rsblock9
rsblock7
rsblock5
L15S50
L15S51
L15S58
L15S52
L15S53
L15S59
L15S28
L15S29
L15S55
L15S56
SABINTT
TEST
LISADE
SAHELIOS1D3
SAHELIOS1D4
SAHELIOS2D3
SAHELIOS2D4
SWK6XXX1
SWK6XXX2
L15S54
L15S27
L15S57
Port 16 - FGA0 L15S28
Active Cockpit: L15S36
ENS event received on "Po84" State: 5 (Po84)
0059/0051


CockpitMgr for OpenVMS - Graphical User Interface V9.1@l15s36.sabin.railb.be
File
Options
Help
Atrium
K-2
swatriu1
swblock1
swatriu7
rsatriu7
rsatriu9
rsblock9
rsblock7
rsblock5
L15S50
L15S51
L15S58
L15S52
L15S53
L15S59
L15S28
L15S29
L15S55
L15S56
SABINTT
TEST
LISADE
SAHELIOS1D3
SAHELIOS1D4
SAHELIOS2D3
SAHELIOS2D4
SWK6XXX1
SWK6XXX2
L15S54
L15S27
L15S57
Port 16 - FGA0 L15S28
Active Cockpit: L15S36
ENS event received on "Po84" State: 5 (Po84)


CockpitMgr for OpenVMS - Graphical User Interface V9.1@I15s36.sabin.railb.be
File
Options
Help
Atrium
K-2
swatriu1
swblock1
L-23
L-22
Pa100
Pa1
Pa97
Pa2
g-2
g-1
3-48
2-21
L15S50
L15S52
L15S53
L15S59
L15S29
L15S56
L15S55
SABINTT
LISADE
SABINTT...
File
Options
Help
Processes
BatchJobs
BatchQueues
Disks
ShadowSets
SABINTT.ShadowSet (27)@I15s36.s...
File
Options
Help
DSA21
DSA22
DSA23
DSA24
DSA25
DSA26
DSA27
DSA28
DSA29
DSA30
DSA31
DSA32
DSA33
DSA34
DSA35
DSA36
DSA37
DSA38
DSA39
DSA90
DSA91
DSA92
DSA99
rsblock7
rsblock5
g-2
g-2
7-4
SAHELIOS1D3
SAHELIOS1D4
SAHELIOS2D3
SAHELIOS2D4
L-25
SWK6XXX2
L-27
Port 16 - FGA0 L15S28
L15S54
L15S27
L15S57
Active Cockpit: L15S36
ENS event received on "Po84" State: 5 (Po84)


CockpitMgr for OpenVMS - Graphical User Interface V9.1@l15s36.sabin.railb.be
File
Options
Help
Atrium
K-2
swatriu1
swblock1
swatriu7
rsatriu7
rsatriu9
rsblock9
rsblock7
L15S50
L15S51
L15S58
L15S52
L15S53
L15S59
L15S28
L15S29
SABINTT
TEST
LISADE
SAHELIOS1D3 (21)@l15s36.sabin.railb.be
File
Options
Help
BROCADE
SAHELIOS1D3 (10.2.70.145)
Located at: Atrium
Device type: BROCAD 652
Port 16 - FGA0 L15S28
Active Cockpit: L15S36
ENS event received on "Po84" State: 5 (Po84)


CockpitMgr for OpenVMS – Graphical User Interface V7.8
NL Dutch (Belgium)
Help
File
Options
Help
Production Cluster
TIC
SBSANSW3
EMSANSW1
MKSANSW3
SBSANSW5
SBSANSW1
MKSANSW1
SBSANSW4
MKSANSW4
EMSANSW2
TIC103
TIC101
TIC102
TIC104
FGB0
FGA0
MSA1
MSA3
MSA2
MSA4
SBSANSW6
SBSANSW2
MKSANSW2
ENS event received on "MSATIC4_B2" State: 5 (MSATIC4.Port.4)

Notification of events via text messaging

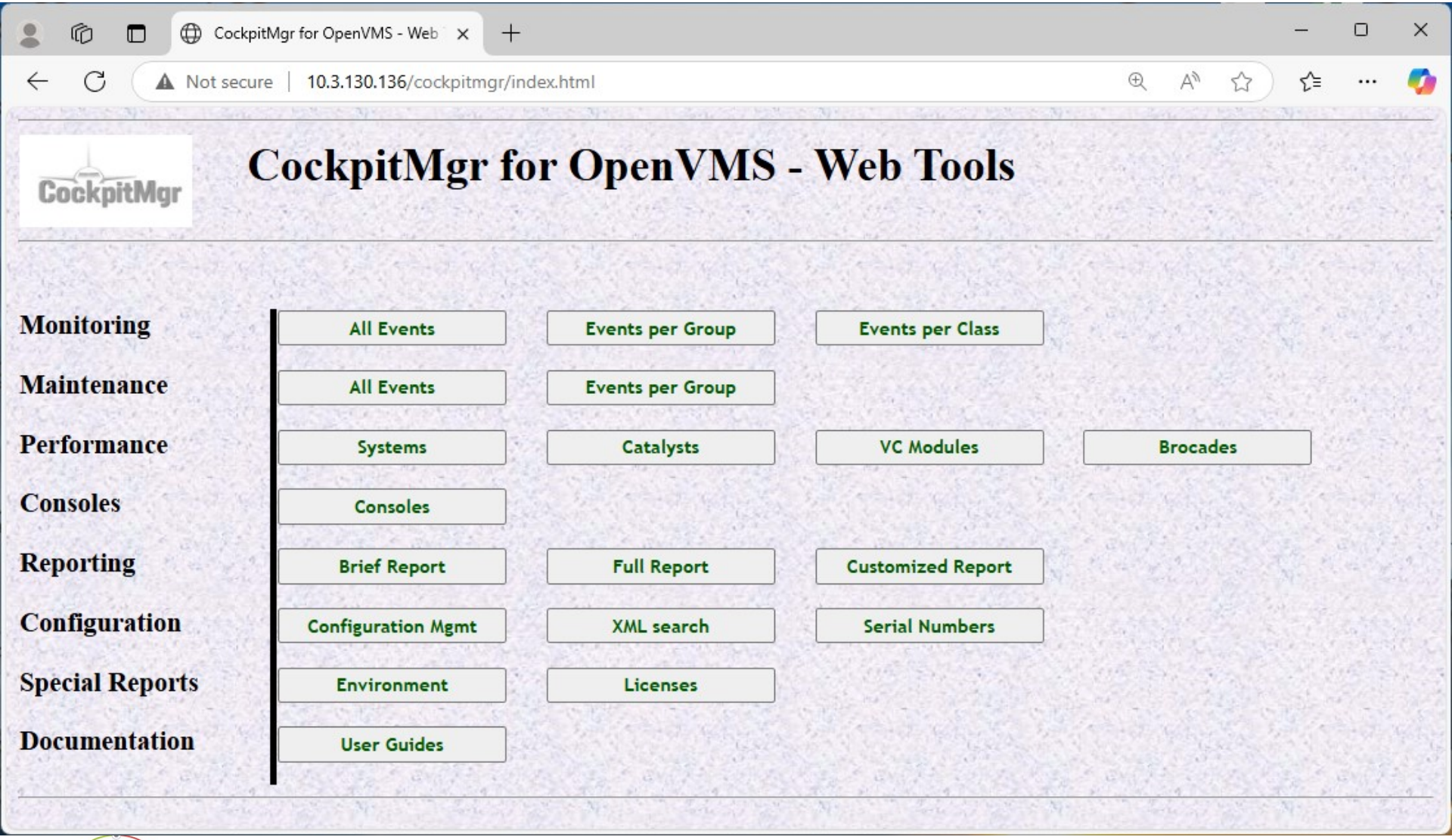
- Various methods include:
  - Sending an e-mail to your telecom service provider
  - Utilizing the WCTP protocol to transmit an XML file to the telecom provider's URL
  - Employing SNPP to relay information to the provider through socket programming
  - Using a cellular engine
- CockpitMgr makes it easy to define which events should be sent to who and when.
- It's feasible to establish a DUTY schedule.

Notification of events via text messaging

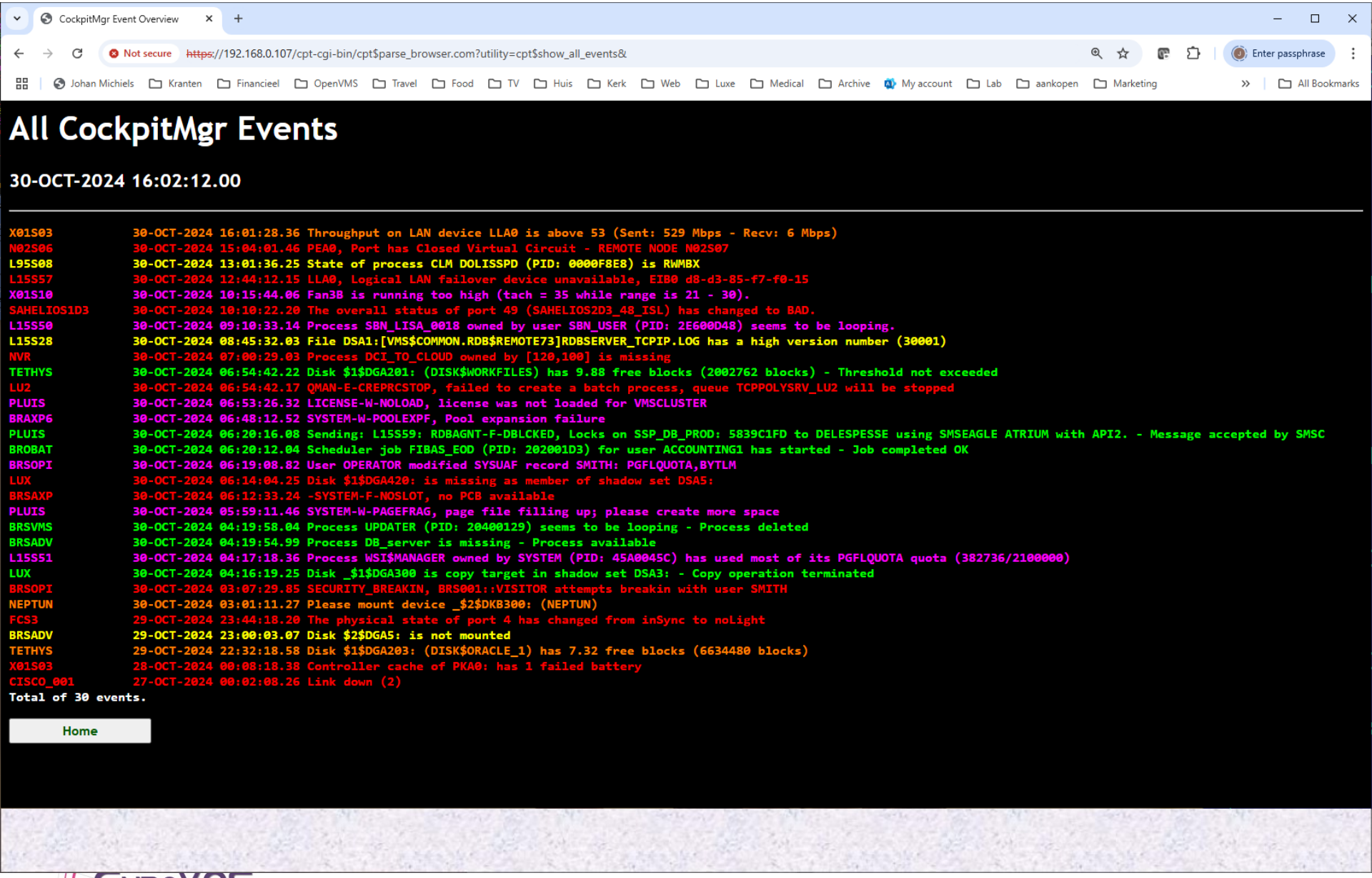
- Siemens M20 cellular engine
- Connects to serial port of OpenVMS server or DECserver
- Reliable, but rather slow.

Paging using the SMSEagle

- A small networking device that delivers important events via SMS.
- Can send 30 SMS messages each minute.
- Needs a SIM card to function.
- Easy setup using a web browser.


CockpitMgr for OpenVMS - Web
Not secure | 10.3.130.136/cockpitmgr/index.html
CockpitMgr
CockpitMgr for OpenVMS - Web Tools
Monitoring
All Events
Events per Group
Events per Class
Maintenance
All Events
Events per Group
Performance
Systems
Catalysts
VC Modules
Brocades
Consoles
Consoles
Reporting
Brief Report
Full Report
Customized Report
Configuration
Configuration Mgmt
XML search
Serial Numbers
Special Reports
Environment
Licenses
Documentation
User Guides

EuroVMS


CockpitMgr Event Overview
Not secure
https://192.168.0.107/cpt-cgi-bin/cpt$parse_browser.com?utility=cpt$show_all_events&
Enter passphrase
Johan Michiels
Kranten
Financieel
OpenVMS
Travel
Food
TV
Huis
Kerk
Web
Luxe
Medical
Archive
My account
Lab
aankopen
Marketing
All Bookmarks
All CockpitMgr Events
30-OCT-2024 16:02:12.00
X01S03 30-OCT-2024 16:01:28.36 Throughput on LAN device LLA0 is above 53 (Sent: 529 Mbps - Recv: 6 Mbps)
N02S06 30-OCT-2024 15:04:01.46 PEA0, Port has Closed Virtual Circuit - REMOTE NODE N02S07
L95S08 30-OCT-2024 13:01:36.25 State of process CLM DOLISSPD (PID: 0000F8E8) is RWMBX
L15S57 30-OCT-2024 12:44:12.15 LLA0, Logical LAN failover device unavailable, EIB0 d8-d3-85-f7-f0-15
X01S10 30-OCT-2024 10:15:44.06 Fan3B is running too high (tach = 35 while range is 21 - 30).
SAHELIOS1D3 30-OCT-2024 10:10:22.20 The overall status of port 49 (SAHELIOS2D3_48_ISL) has changed to BAD.
L15S50 30-OCT-2024 09:10:33.14 Process SBN_LISA_0018 owned by user SBN_USER (PID: 2E600D48) seems to be looping.
L15S28 30-OCT-2024 08:45:32.03 File DSA1:[VMS$COMMON.RDB$REMOTE73]RDBSERVER_TCPIP.LOG has a high version number (30001)
NVR 30-OCT-2024 07:00:29.03 Process DCI_TO_CLOUD owned by [120,100] is missing
TETHYS 30-OCT-2024 06:54:42.22 Disk 1DGA201: (DISK$WORKFILES) has 9.88 free blocks (2002762 blocks) - Threshold not exceeded
LU2 30-OCT-2024 06:54:42.17 QMAN-E-CREPRCSTOP, failed to create a batch process, queue TCPPOLYSRV_LU2 will be stopped
PLUIS 30-OCT-2024 06:53:26.32 LICENSE-W-NOLOAD, license was not loaded for VMSCLUSTER
BRAXP6 30-OCT-2024 06:48:12.52 SYSTEM-W-POOLEXPF, Pool expansion failure
PLUIS 30-OCT-2024 06:20:16.08 Sending: L15S59: RDBAGNT-F-DBLCKED, Locks on SSP_DB_PROD: 5839C1FD to DELESPESSE using SMSEAGLE ATRIUM with API2. - Message accepted by SMSC
BROBAT 30-OCT-2024 06:20:12.04 Scheduler job FIBAS_EOD (PID: 202001D3) for user ACCOUNTING1 has started - Job completed OK
BRSOPI 30-OCT-2024 06:19:08.82 User OPERATOR modified SYSUAF record SMITH: PGFLQUOTA,BYTLM
LUX 30-OCT-2024 06:14:04.25 Disk 1DGA420: is missing as member of shadow set DSA5:
BRSAXP 30-OCT-2024 06:12:33.24 -SYSTEM-F-NOSLOT, no PCB available
PLUIS 30-OCT-2024 05:59:11.46 SYSTEM-W-PAGEFRAG, page file filling up; please create more space
BRSVMS 30-OCT-2024 04:19:58.04 Process UPDATER (PID: 20400129) seems to be looping - Process deleted
BRSADV 30-OCT-2024 04:19:54.99 Process DB_server is missing - Process available
L15S51 30-OCT-2024 04:17:18.36 Process WSI$MANAGER owned by SYSTEM (PID: 45A0045C) has used most of its PGFLQUOTA quota (382736/2100000)
LUX 30-OCT-2024 04:16:19.25 Disk _1DGA300 is copy target in shadow set DSA3: - Copy operation terminated
BRSOPI 30-OCT-2024 03:07:29.85 SECURITY_BREAKIN, BRS001::VISITOR attempts breakin with user SMITH
NEPTUN 30-OCT-2024 03:01:11.27 Please mount device _2DKB300: (NEPTUN)
FCS3 29-OCT-2024 23:44:18.20 The physical state of port 4 has changed from inSync to noLight
BRSADV 29-OCT-2024 23:00:03.07 Disk 2DGA5: is not mounted
TETHYS 29-OCT-2024 22:32:18.58 Disk 1DGA203: (DISK$ORACLE_1) has 7.32 free blocks (6634480 blocks)
X01S03 28-OCT-2024 00:08:18.38 Controller cache of PKA0: has 1 failed battery
CISCO_001 27-OCT-2024 00:02:08.26 Link down (2)
Total of 30 events.
Home

Standby cockpit

- In a disaster-tolerant environment, reliance on resources located at just one site is not acceptable.
- The cockpit plays a crucial role in operations. If the cockpit is lost, it is essential to activate the cockpit in the alternate site.
- The standby cockpit will automatically activate under the following conditions:
  - If the primary cockpit fails.
  - If the network connection between the two sites is interrupted.
- It is possible to manually switch between the active and standby cockpits.
- Events identified by the active cockpit are sent to the standby cockpit.
- All historical event data is accessible at both sites.

Perf Agent

HW monitor

Logfile Browser

LAN Monitor

FC Monitor

Proliants

Alpha Servers

Integrity Servers

Security Agent

System Agent

Network switches

Storage

IP port

Terminal server

MP

Blades

DECnet
TCP/IP
SSL

SNMPget

SNMPtrap

System Monitor

SNMPtrap Listener

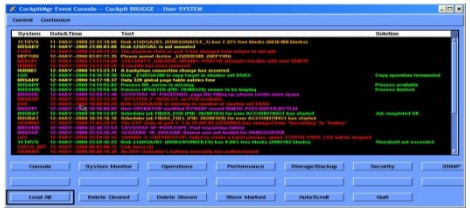
SNMPtrap

SNMPget

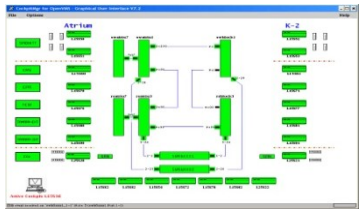
Console Manager

Cockpit

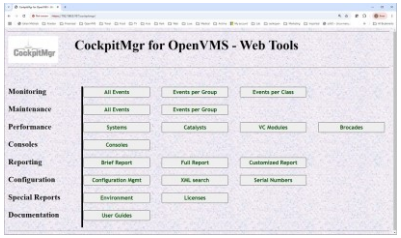
OpenVMS



Event Console



GUI



Web browser

Cell Phone

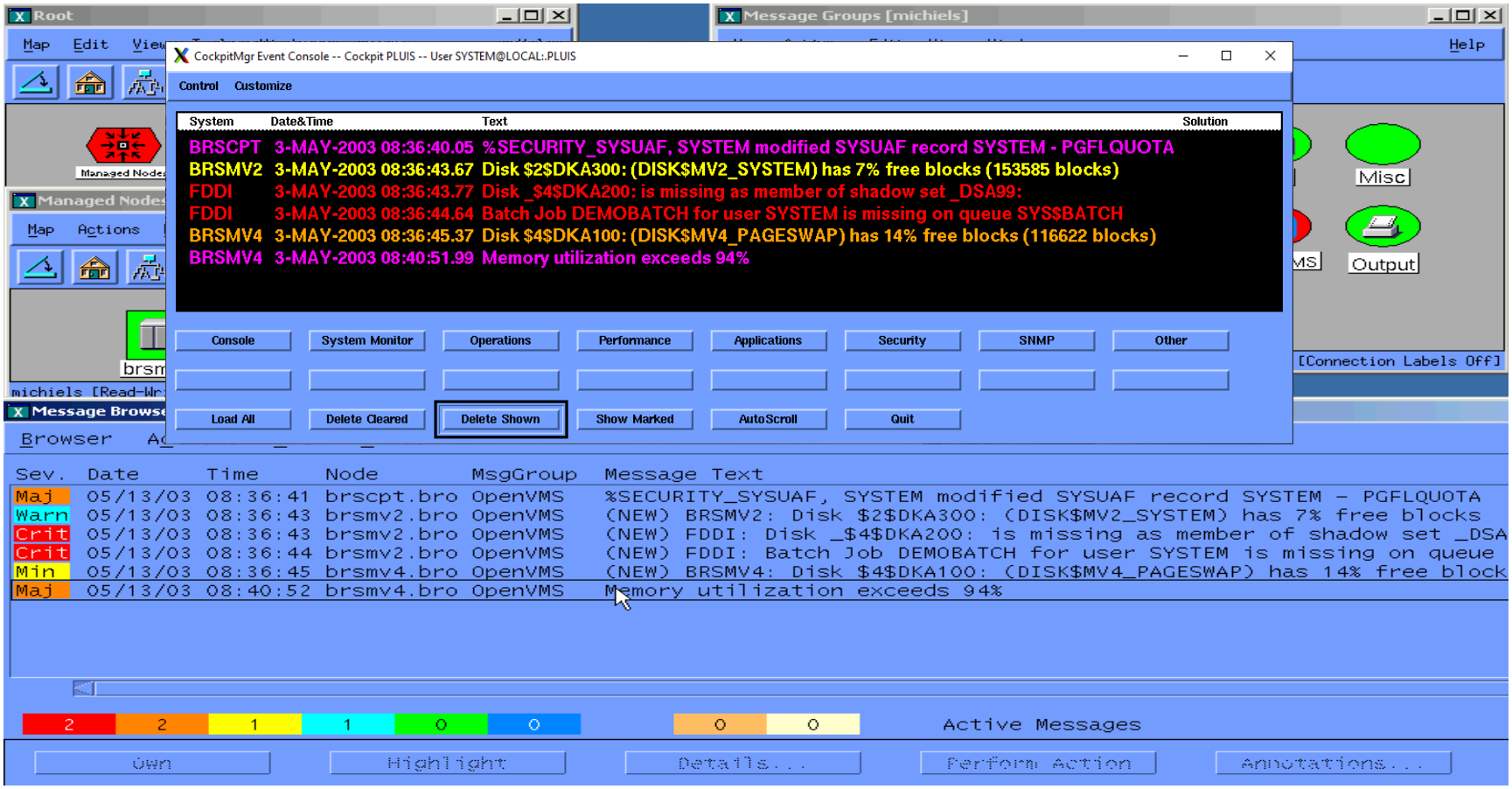
EuroVMS

CockpitMgr

Integration

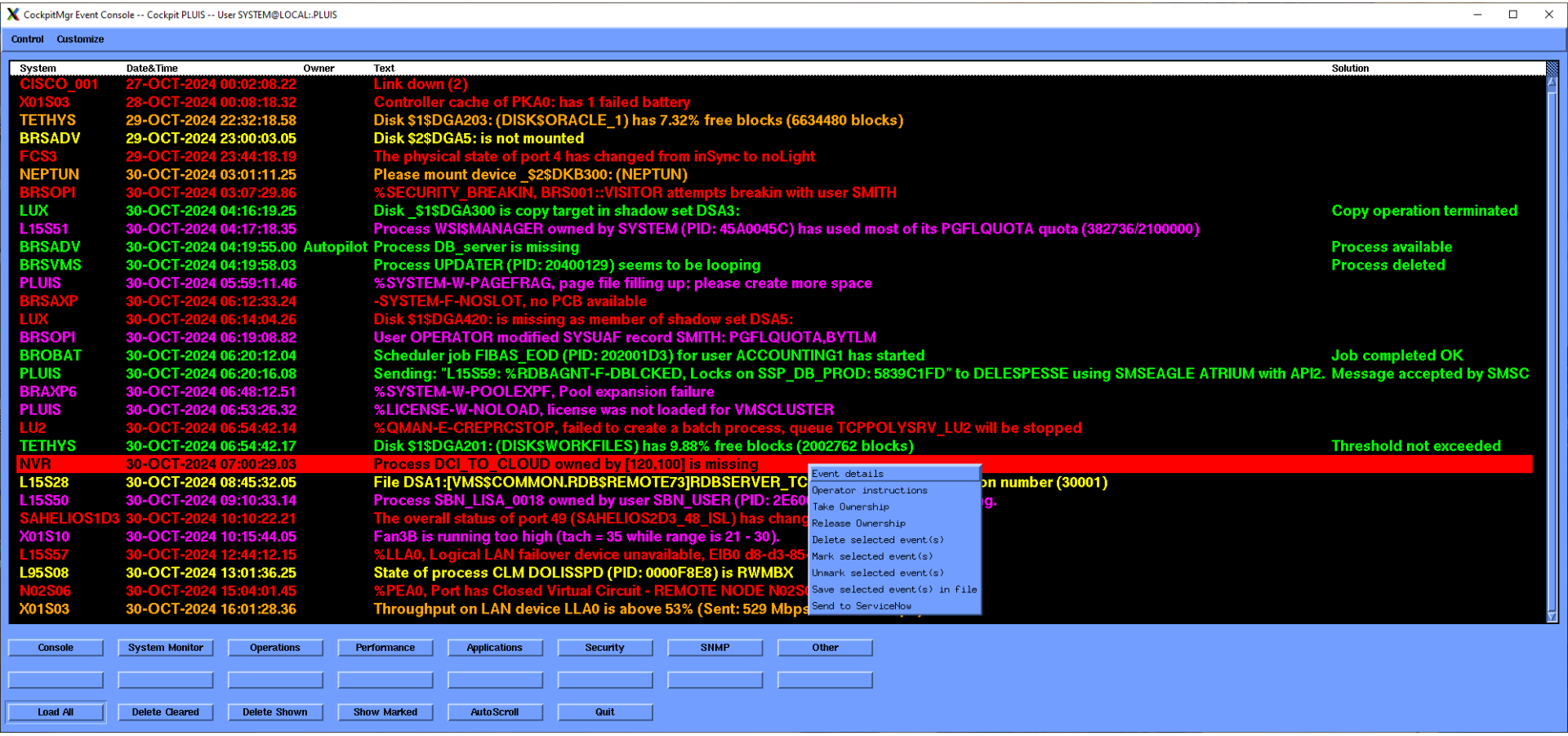
- SNMPtraps
- ServiceNow
- Zabbix

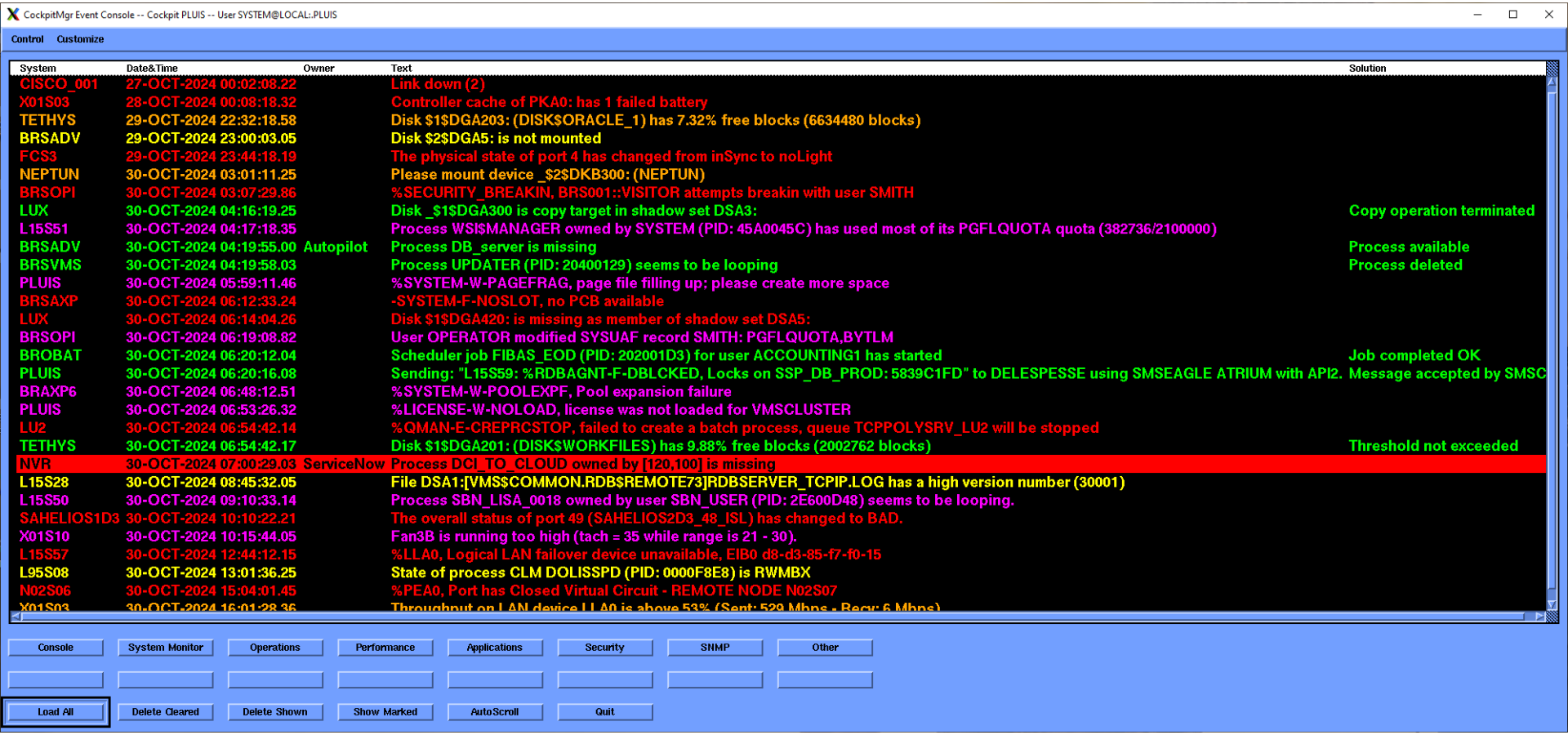
EuroVMS


Root
Map Edit
Message Groups [michiels]
Help
CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:PLUIS
Control Customize
System Date&Time Text Solution
BRSCPT 3-MAY-2003 08:36:40.05 %SECURITY_SYSUAF, SYSTEM modified SYSUAF record SYSTEM - PGFLQUOTA
BRSMV2 3-MAY-2003 08:36:43.67 Disk 2DKA300: (DISK$MV2_SYSTEM) has 7% free blocks (153585 blocks)
FDDI 3-MAY-2003 08:36:43.77 Disk _4DKA200: is missing as member of shadow set _DSA99:
FDDI 3-MAY-2003 08:36:44.64 Batch Job DEMOBATCH for user SYSTEM is missing on queue SYS$BATCH
BRSMV4 3-MAY-2003 08:36:45.37 Disk 4DKA100: (DISK$MV4_PAGESWAP) has 14% free blocks (116622 blocks)
BRSMV4 3-MAY-2003 08:40:51.99 Memory utilization exceeds 94%
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit
Managed Nodes
Map Actions
Misc
Output
[Connection Labels Off]
Message Browse
Browser
Sev. Date Time Node MsgGroup Message Text
Maj 05/13/03 08:36:41 brscpt.bro OpenVMS %SECURITY_SYSUAF, SYSTEM modified SYSUAF record SYSTEM - PGFLQUOTA
Warn 05/13/03 08:36:43 brsmv2.bro OpenVMS (NEW) BRSMV2: Disk 2DKA300: (DISK$MV2_SYSTEM) has 7% free blocks
Crit 05/13/03 08:36:43 brsmv2.bro OpenVMS (NEW) FDDI: Disk _4DKA200: is missing as member of shadow set _DSA
Crit 05/13/03 08:36:44 brsmv2.bro OpenVMS (NEW) FDDI: Batch Job DEMOBATCH for user SYSTEM is missing on queue
Min 05/13/03 08:36:45 brsmv4.bro OpenVMS (NEW) BRSMV4: Disk 4DKA100: (DISK$MV4_PAGESWAP) has 14% free block
Maj 05/13/03 08:40:52 brsmv4.bro OpenVMS Memory utilization exceeds 94%
2 2 1 1 0 0 0 0
Active Messages
Own
Highlight
Details...
Perform Action
Annotations...

Integration with servicenow

- The primary focus of ServiceNow is the management of IT operational events, including incidents, problems, and changes.
- CockpitMgr can be configured to upload automatically events.
- System manager can manually upload by selecting an event in the Event Console


CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL::PLUIS
Control
Customize
System
Date&Time
Owner
Text
Solution
CISCO_001 27-OCT-2024 00:02:08.22 Link down (2)
X01S03 28-OCT-2024 00:08:18.32 Controller cache of PKA0: has 1 failed battery
TETHYS 29-OCT-2024 22:32:18.58 Disk 1DGA203: (DISK$ORACLE_1) has 7.32% free blocks (6634480 blocks)
BRSADV 29-OCT-2024 23:00:03.05 Disk 2DGA5: is not mounted
FCS3 29-OCT-2024 23:44:18.19 The physical state of port 4 has changed from inSync to noLight
NEPTUN 30-OCT-2024 03:01:11.25 Please mount device _2DKB300: (NEPTUN)
BRSOPI 30-OCT-2024 03:07:29.86 %SECURITY_BREAKIN, BRS001::VISITOR attempts breakin with user SMITH
LUX 30-OCT-2024 04:16:19.25 Disk _1DGA300 is copy target in shadow set DSA3: Copy operation terminated
L15S51 30-OCT-2024 04:17:18.35 Process WSI$MANAGER owned by SYSTEM (PID: 45A0045C) has used most of its PGFLQUOTA quota (382736/2100000)
BRSADV 30-OCT-2024 04:19:55.00 Autopilot Process DB_server is missing Process available
BRSVMS 30-OCT-2024 04:19:58.03 Process UPDATER (PID: 20400129) seems to be looping Process deleted
PLUIS 30-OCT-2024 05:59:11.46 %SYSTEM-W-PAGEFRAG, page file filling up; please create more space
BRSAXP 30-OCT-2024 06:12:33.24 -SYSTEM-F-NOSLOT, no PCB available
LUX 30-OCT-2024 06:14:04.26 Disk 1DGA420: is missing as member of shadow set DSA5:
BRSOPI 30-OCT-2024 06:19:08.82 User OPERATOR modified SYSUAF record SMITH: PGFLQUOTA,BYTLM
BROBAT 30-OCT-2024 06:20:12.04 Scheduler job FIBAS_EOD (PID: 202001D3) for user ACCOUNTING1 has started Job completed OK
PLUIS 30-OCT-2024 06:20:16.08 Sending: "L15S59: %RDBAGNT-F-DBLCKED, Locks on SSP_DB_PROD: 5839C1FD" to DELESPESSE using SMSEAGLE ATRIUM with API2. Message accepted by SMSC
BRAXP6 30-OCT-2024 06:48:12.51 %SYSTEM-W-POOLEXPF, Pool expansion failure
PLUIS 30-OCT-2024 06:53:26.32 %LICENSE-W-NOLOAD, license was not loaded for VMSCLUSTER
LU2 30-OCT-2024 06:54:42.14 %QMAN-E-CREPRCSTOP, failed to create a batch process, queue TCPPOLYSRV_LU2 will be stopped
TETHYS 30-OCT-2024 06:54:42.17 Disk 1DGA201: (DISK$WORKFILES) has 9.88% free blocks (2002762 blocks) Threshold not exceeded
NVR 30-OCT-2024 07:00:29.03 Process DCI_TO_CLOUD owned by [120,100] is missing
L15S28 30-OCT-2024 08:45:32.05 File DSA1:[VMS$COMMON.RDBSREMOTE73]RDBSERVER_TC on number (30001)
L15S50 30-OCT-2024 09:10:33.14 Process SBN_LISA_0018 owned by user SBN_USER (PID: 2E60 g.
SAHELIOS1D3 30-OCT-2024 10:10:22.21 The overall status of port 49 (SAHELIOS2D3_48_ISL) has chang
X01S10 30-OCT-2024 10:15:44.05 Fan3B is running too high (tach = 35 while range is 21 - 30).
L15S57 30-OCT-2024 12:44:12.15 %LLA0, Logical LAN failover device unavailable, EIB0 d8-d3-85-
L95S08 30-OCT-2024 13:01:36.25 State of process CLM DOLISSPD (PID: 0000F8E8) is RWMBX
N02S06 30-OCT-2024 15:04:01.45 %PEA0, Port has Closed Virtual Circuit - REMOTE NODE N02S
X01S03 30-OCT-2024 16:01:28.36 Throughput on LAN device LLA0 is above 53% (Sent: 529 Mbps
Event details
Operator instructions
Take Ownership
Release Ownership
Delete selected event(s)
Mark selected event(s)
Unmark selected event(s)
Save selected event(s) in file
Send to ServiceNow
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit

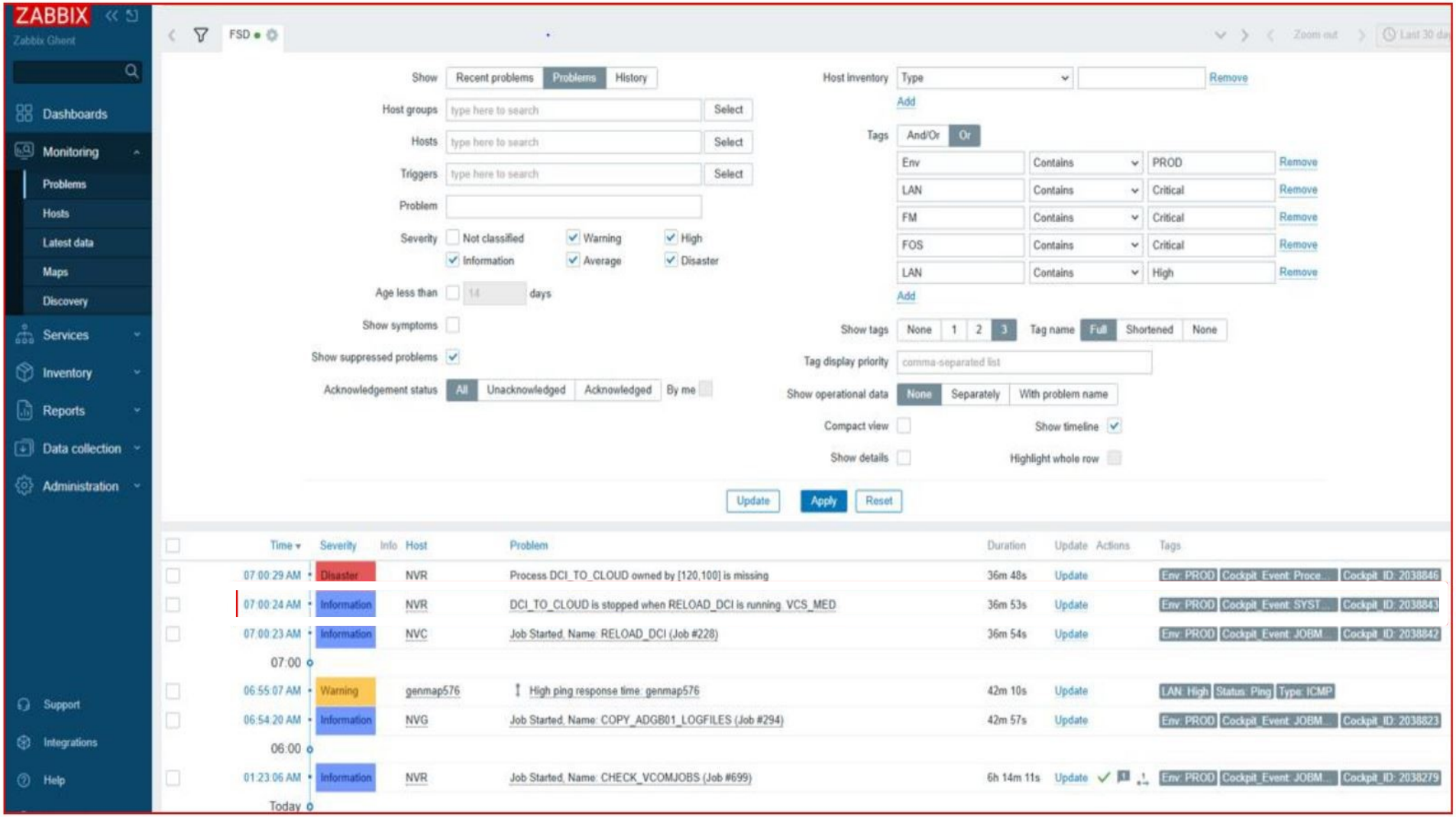

CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:.PLUIS
Control
Customize
System
Date&Time
Owner
Text
Solution
CISCO_001 27-OCT-2024 00:02:08.22 Link down (2)
X01S03 28-OCT-2024 00:08:18.32 Controller cache of PKA0: has 1 failed battery
TETHYS 29-OCT-2024 22:32:18.58 Disk 1DGA203: (DISK$ORACLE_1) has 7.32% free blocks (6634480 blocks)
BRSADV 29-OCT-2024 23:00:03.05 Disk 2DGA5: is not mounted
FCS3 29-OCT-2024 23:44:18.19 The physical state of port 4 has changed from inSync to noLight
NEPTUN 30-OCT-2024 03:01:11.25 Please mount device _2DKB300: (NEPTUN)
BRSOPI 30-OCT-2024 03:07:29.86 %SECURITY_BREAKIN, BRS001::VISITOR attempts breakin with user SMITH
LUX 30-OCT-2024 04:16:19.25 Disk _1DGA300 is copy target in shadow set DSA3: Copy operation terminated
L15S51 30-OCT-2024 04:17:18.35 Process WSI$MANAGER owned by SYSTEM (PID: 45A0045C) has used most of its PGFLQUOTA quota (382736/2100000)
BRSADV 30-OCT-2024 04:19:55.00 Autopilot Process DB_server is missing Process available
BRSVMS 30-OCT-2024 04:19:58.03 Process UPDATER (PID: 20400129) seems to be looping Process deleted
PLUIS 30-OCT-2024 05:59:11.46 %SYSTEM-W-PAGEFRAG, page file filling up; please create more space
BRSAXP 30-OCT-2024 06:12:33.24 -SYSTEM-F-NOSLOT, no PCB available
LUX 30-OCT-2024 06:14:04.26 Disk 1DGA420: is missing as member of shadow set DSA5:
BRSOPI 30-OCT-2024 06:19:08.82 User OPERATOR modified SYSUAF record SMITH: PGFLQUOTA,BYTLM
BROBAT 30-OCT-2024 06:20:12.04 Scheduler job FIBAS_EOD (PID: 202001D3) for user ACCOUNTING1 has started Job completed OK
PLUIS 30-OCT-2024 06:20:16.08 Sending: "L15S59: %RDBAGNT-F-DBLCKED, Locks on SSP_DB_PROD: 5839C1FD" to DELESPESSE using SMSEAGLE ATRIUM with API2. Message accepted by SMSC
BRAXP6 30-OCT-2024 06:48:12.51 %SYSTEM-W-POOLEXPF, Pool expansion failure
PLUIS 30-OCT-2024 06:53:26.32 %LICENSE-W-NOLOAD, license was not loaded for VMSCLUSTER
LU2 30-OCT-2024 06:54:42.14 %QMAN-E-CREPRCSTOP, failed to create a batch process, queue TCPPOLYSRV_LU2 will be stopped
TETHYS 30-OCT-2024 06:54:42.17 Disk 1DGA201: (DISK$WORKFILES) has 9.88% free blocks (2002762 blocks) Threshold not exceeded
NVR 30-OCT-2024 07:00:29.03 ServiceNow Process DCI_TO_CLOUD owned by [120,100] is missing
L15S28 30-OCT-2024 08:45:32.05 File DSA1:[VMS$COMMON.RDB$REMOTE73]RDBSERVER_TCPIP.LOG has a high version number (30001)
L15S50 30-OCT-2024 09:10:33.14 Process SBN_LISA_0018 owned by user SBN_USER (PID: 2E600D48) seems to be looping.
SAHELIOS1D3 30-OCT-2024 10:10:22.21 The overall status of port 49 (SAHELIOS2D3_48_ISL) has changed to BAD.
X01S10 30-OCT-2024 10:15:44.05 Fan3B is running too high (tach = 35 while range is 21 - 30).
L15S57 30-OCT-2024 12:44:12.15 %LLA0, Logical LAN failover device unavailable, EIB0 d8-d3-85-f7-f0-15
L95S08 30-OCT-2024 13:01:36.25 State of process CLM DOLISSPD (PID: 0000F8E8) is RWMBX
N02S06 30-OCT-2024 15:04:01.45 %PEA0, Port has Closed Virtual Circuit - REMOTE NODE N02S07
Console
System Monitor
Operations
Performance
Applications
Security
SNMP
Other
Load All
Delete Cleared
Delete Shown
Show Marked
AutoScroll
Quit

Alert5657855		Critical	Low	406 020	Open	CockpitMgr System Monitor (PRODUCTION)	Process DCI_TO_CLOUD owned by [120,100] ...	NVR	nvr	ProcessMissing	false
Alert5656034		Critical	Low	406 020	Open	CockpitMgr Console	Process AP_CWS_QUAINP3 owned by PVCCMGR ...	NCC	ncc	CPT$PERFORMANCE_PGFLQUOTA	false
Alert5322054	Rules-based	Warning	Low	106 040,02	Reopen	CockpitMgr Console	VCOM node VCCP8GW1 net VCCP8 : Link to ...	NCC	ncc	VCOM_EVENT5	false

Number	Alert5657855	Severity	Critical
Source	CockpitMgr System Monitor (PRODUCTION)	State	Open
Node	NVR	Acknowledged	
Type	ProcessMissing	Assignment group	OPENVMS
Resource	DCI_TO_CLOUD [120,100]	Assigned to	
Configuration item	nvr	Maintenance	
Task		Updated	2024-10-30 07:01:39
Metric Name	ProcessMissing	Updated by	system
		Closed	
		Closed by	
		Priority group	Low
		Parent	
		Knowledge article	
		Overall Event Count	1
Description	Process DCI_TO_CLOUD owned by [120,100] is missing		
Message key	CockpitMgr System Monitor (PRODUCTION)_NVR_ProcessMissing_DCI_TO_CLOUD [120,100]_ProcessMissing		

Integration with ZABBIX

- Zabbix is an open-source software tool to monitor IT infrastructure
- CockpitMgr can be configured to upload automatically selected events to Zabbix.


ZABBIX
Zabbix Ghent
Dashboards
Monitoring
Problems
Hosts
Latest data
Maps
Discovery
Services
Inventory
Reports
Data collection
Administration
Support
Integrations
Help
FSD
Show
Recent problems
Problems
History
Host groups
type here to search
Select
Hosts
Triggers
Problem
Severity
Not classified
Warning
High
Information
Average
Disaster
Age less than
14
days
Show symptoms
Show suppressed problems
Acknowledgement status
All
Unacknowledged
Acknowledged
By me
Host inventory
Type
Remove
Add
Tags
And/Or
Or
Env
Contains
PROD
LAN
Critical
FM
FOS
High
Show tags
None
1
2
3
Tag name
Full
Shortened
Tag display priority
comma-separated list
Show operational data
Separately
With problem name
Compact view
Show timeline
Show details
Highlight whole row
Update
Apply
Reset
Time
Severity
Info
Host
Problem
Duration
Update
Actions
Tags
07:00:29 AM
Disaster
NVR
Process DCI_TO_CLOUD owned by [120,100] is missing
36m 48s
Env: PROD
Cockpit_ID: 2038846
07:00:24 AM
Information
DCI_TO_CLOUD is stopped when RELOAD_DCI is running VCS_MED
36m 53s
Cockpit_ID: 2038843
07:00:23 AM
NVC
Job Started, Name: RELOAD_DCI (Job #228)
36m 54s
Cockpit_ID: 2038842
07:00
06:55:07 AM
Warning
genmap576
High ping response time: genmap576
42m 10s
LAN: High
Status: Ping
Type: ICMP
06:54:20 AM
NVG
Job Started, Name: COPY_ADGB01_LOGFILES (Job #294)
42m 57s
Cockpit_ID: 2038823
06:00
01:23:06 AM
Job Started, Name: CHECK_VCOMJOBS (Job #699)
6h 14m 11s
Cockpit_ID: 2038279
Today


07:00:29 AM
Disaster
NVR
Process DCI_TO_CLOUD owned by [120,100] is missing
5m 43s

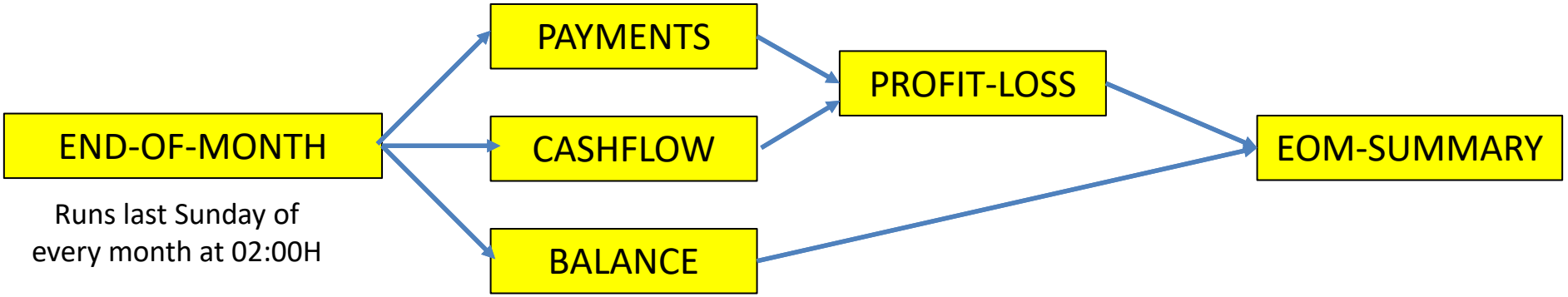
EuroVMS

Utilities

- Job Scheduler
- Census: configuration & change management
- NETDCL: remote command(s) execution
- Backup

Job Scheduler

- Designed to automate and manage repetitive tasks on a node or cluster.
- Separates scheduling details, notifications, and job dependencies from the main task.
- Jobs run in detached or batch mode.
- Enables command file editing without deleting and resubmitting jobs.
- Supports scheduling on hourly, daily, weekly, monthly, or interval bases.
- Sends job start and completion events to the cockpit.
- Allows the creation of job trees, where execution depends on the successful completion of other jobs.
- Not available on VAX and pre-V7.3 Alpha systems.



CockpitMgr Event Console -- Cockpit PLUIS -- User SYSTEM@LOCAL:.PLUIS

Control Customize

System	Date&Time	Text	Solution
PLUIS	27-APR-2025 02:00:01.35	Scheduler job END-OF-MONTH (PID: 20200544) for user ACCOUNTING has started on node PLUIS.	Job completed OK
PLUIS	27-APR-2025 02:00:25.45	Scheduler job BALANCE (PID: 20200545) for user ACCOUNTING has started on node PLUIS.	Job completed OK
PLUIS	27-APR-2025 02:00:25.72	Scheduler job CASHFLOW (PID: 20200546) for user ACCOUNTING has started on node PLUIS.	Job completed OK
PLUIS	27-APR-2025 02:00:25.85	Scheduler job PAYMENTS (PID: 20200547) for user ACCOUNTING has started on node PLUIS.	Job completed OK
PLUIS	27-APR-2025 02:08:37.08	Scheduler job PROFIT-LOSS (PID: 20200576) for user ACCOUNTING has started on node PLUIS.	Job completed OK
PLUIS	27-APR-2025 02:12:43.29	Scheduler job EOM-SUMMARY (PID: 20200590) for user ACCOUNTING has started on node PLUIS.	Job completed OK
PLUIS	27-APR-2025 07:00:01.65	Scheduler job CALCULATOR (PID: 2020061A) for user SYSTEM has started on node PLUIS.	Job restarted
PLUIS	27-APR-2025 07:00:22.65	Scheduler job CALCULATOR (PID: 2020061A) for user SYSTEM terminated with error.	Job restarted
PLUIS	27-APR-2025 07:01:05.77	Scheduler job CALCULATOR (PID: 20200621) for user SYSTEM has started on node PLUIS.	Job completed OK

Console | System Monitor | Operations | Performance | Applications | Security | SNMP | Other

Scheduler | ConsoleMgr | Pager | Environmental | DCPS | Rdb | LFB | DCPS

Load All | Delete Cleared | Delete Shown | Show Marked | AutoScroll | Quit

EuroVMS

Census: Configuration and Change Management

- Configuration information is gathered from various devices, such as:
  - OpenVMS systems
  - Brocade Fibre Channel switches and routers
  - Cisco Catalyst and Nexus switches
  - Storage arrays
  - Blade enclosures and VC modules
- This data is saved in XML files and compared to earlier versions to create a difference report
- The collected data is presented in a web browser utilizing XSLT
- The information can be correlated to identify:
  - The Fibre Channel switch port connected to an HBA
  - The Catalyst port linked to a NIC (CDP implementation on OpenVMS)

OpenVMS Information

Not secure | 10.3.130.136/cockpitmgr/xml/L15S50.xml

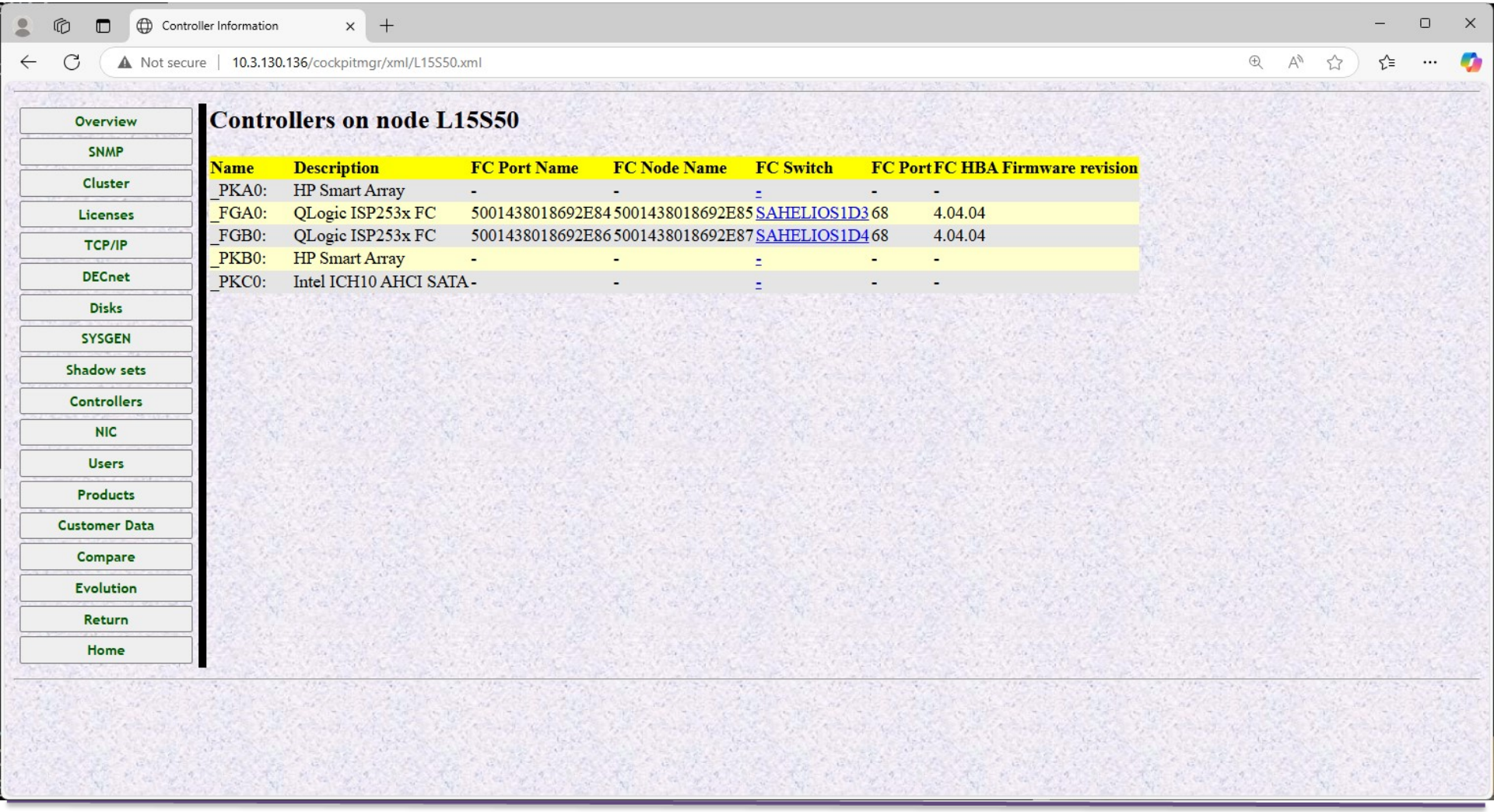
- Overview
- SNMP
- Cluster
- Licenses
- TCP/IP
- DECnet
- Disks
- SYSGEN
- Shadow sets
- Controllers
- NIC
- Users
- Products
- Customer Data
- Compare
- Evolution
- Return
- Home

OpenVMS Node L15S50

Configuration snapshot taken on: 11-MAR-2025 17:46:31.43

Item	Value
Nodename	L15S50
Hardware description	HP rx2800 i2 (1.60GHz/5.0MB)
Active/Available CPUs	2/2
Physical Sockets	1
Cores per socket	2
Hyperthreading	Disabled
Memory Size	8176 MB
Architecture	I64
Serial Number	CZ320261RE
Last boottime	10-NOV-2021 22:18:20.00
OpenVMS Version	V8.4-2L1
OpenVMS Brand	VMS Software, Inc.
CockpitMgr Version	V9.1-017
DECnet	Phase 5
System Root	SYS0
Cluster Member	Yes
Cluster members	L15S50 L15S51 L15S52 L15S53 L15S54 L15S58 L15S59

EuroVMS


Controller Information
Not secure
10.3.130.136/cockpitmgr/xml/L15S50.xml
Overview
SNMP
Cluster
Licenses
TCP/IP
DECnet
Disks
SYSGEN
Shadow sets
Controllers
NIC
Users
Products
Customer Data
Compare
Evolution
Return
Home
Controllers on node L15S50
Name Description FC Port Name FC Node Name FC Switch FC Port FC HBA Firmware revision
_PKA0: HP Smart Array - - - - -
_FGA0: QLogic ISP253x FC 5001438018692E84 5001438018692E85 SAHELIOS1D3 68 4.04.04
_FGB0: QLogic ISP253x FC 5001438018692E86 5001438018692E87 SAHELIOS1D4 68 4.04.04
_PKB0: HP Smart Array - - - - -
_PKC0: Intel ICH10 AHCI SATA - - - - -

NETDCL

Execute one or more DCL commands on a remote system, directing the output to the cockpit

```
$ NETDCL L15S50 SHOW SYSTEM
OpenVMS V8.4-2L1  on node L15S50   12-APR-2025 22:53:28.36 Uptime 1248 23:18:15
  Pid    Process Name    State  Pri      I/O       CPU        Page flts  Pages
2E600401 SWAPPER         HIB     16        0    0 05:47:48.87         0      4
2E604002 OCI_DISP200U74  HIB      6   827926    0 00:04:47.01      2922   2123
2E620C04 DECW$TE_0C04    LEF      6     1899    0 00:00:00.81      1242    981
2E7F6405 _FTA573:        LEF      4      403    0 00:00:00.51      1625    328
2E600407 CLUSTER_SERVER  HIB     12  4878487    0 00:36:57.79       166    195
2E600408 SHADOW_SERVER   HIB      6  6346204    0 00:11:09.85       154    195
```

….

NETDCL

Executing multiple commands is performed within the same process context

```
$ NETDCL L15S37
NETDCL L15S37> b=f$getsyi("boottime")
NETDCL L15S37> n=f$getsyi("nodename")
NETDCL L15S37> write sys$output "''n' ''b'"
L15S37 20-JAN-2025 12:18:37.00
NETDCL L15S37> exit
```

The last line of output is stored in a symbol

```
$  SHOW SYMBOL NETDCL$NETDCL
NETDCL$NETDCL = "L15S37 20-JAN-2025 12:18:37.00"
```

OpenVMS Backup challenges

- Use tape or tape library
- Utilize an enterprise client-server solution
  - STORServer Archive Backup Client
  - Dell EMC NetWorker (Legato)
  - Commvault
  - Veritas NetBackup
  - OpenText Data Protector

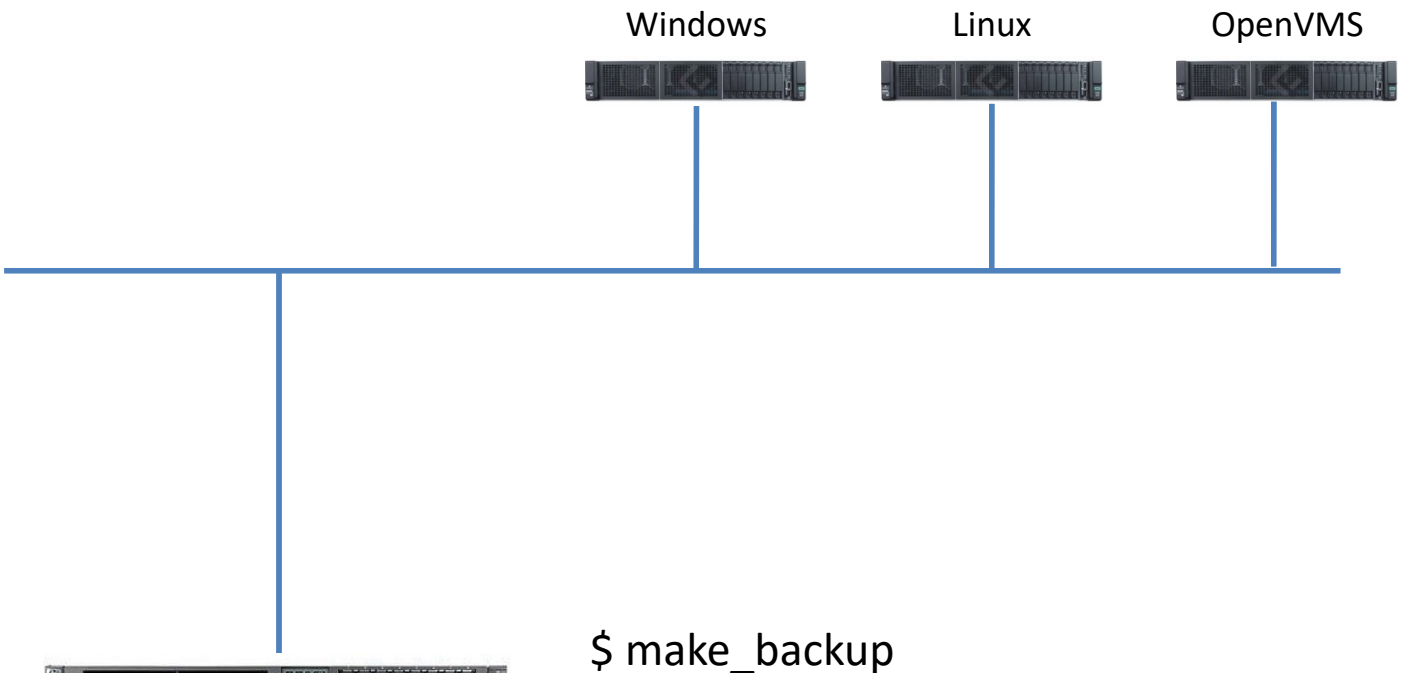
Actions taken by certain customers

- Create a VMS backup to store the save set on a disk.
- Move the save set to Windows or Linux via (S)FTP.
- Utilize the enterprise backup solution from that point.
- Drawbacks:
  - Involves several steps.
  - Can be time-consuming.
  - Requires temporary disk space for the save sets.
  - Restore is only feasible after the complete save set has been downloaded.

CockpitMgr Backup & Restore

- Skip the local save set and (S)FTP upload.
- Perform backups directly from OpenVMS to OpenVMS, Windows or Linux.
- Outcome is a genuine OpenVMS backup save set.
- Utilize the enterprise backup solution from that point.
- You can restore a single file from the remote save set without needing to download the whole save set.
- All operations are managed from OpenVMS.

Backup Servers



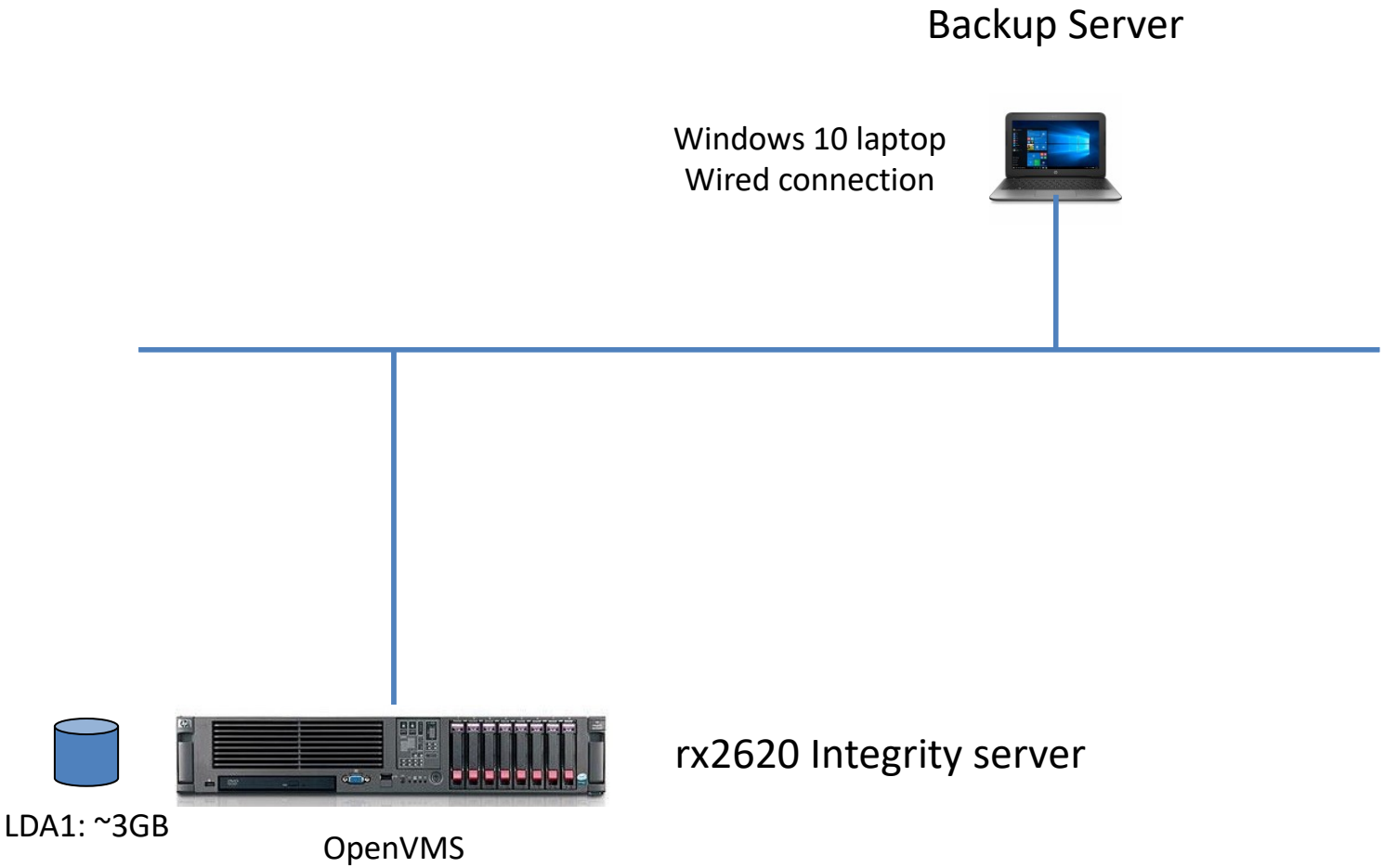
$ make_backup

- Image backup
- Incremental backup
- Directory tree backup

$ fetch_backup

- Restore of a file
- Selection of previous versions is possible

CockpitMgr Backup – The Movie



CockpitMgr V9.2 – Release June ’25

Cockpit requirements:

- VSI Alpha V8.4-2L1 or 2L2
- VSI Integrity V8.4-2L3
- X86 V9.2-3 or above
- All with VSI TCP/IP V6.0, SSL3 and OpenSSH

Managed systems:

- OpenVMS for VAX V5.5 and above
- OpenVMS for Alpha V6.2 and above
- OpenVMS for Integrity V8.3 and above
- OpenVMS for x86 V9.2-3
- Some limitations may apply on “very old” versions.

Johan Michiels, EuroVMS

johan.michiels@eurovms.com

Tel: +32-498.946.148

www.eurovms.com