

	<p>AM / DECamds für OpenVMS 2A02</p> <p>9.4.2003</p> <p>DECUS Bonn</p> <p>Günter Kriebel Senior Techn. Consultant guenter.kriebel@hp.com</p>
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26. DECUS Symposium	<h2>Übersicht</h2>	07.04.2003 
<ul style="list-style-type: none">• Begriffe• AMDS / AM Gemeinsamkeiten• AMDS• AM• Ausblick		
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Begriffe

- AMDS „Availability Manager for distributed systems“
- AM „Availability Manager“
- Data Collector
- Data Analyzer

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AMDS / AM Gemeinsamkeiten (1)

- Aufgabe : Überwachung und, wenn erforderlich, Korrektur wichtiger Kenngrößen in verteilten VMS Systemen
- Kit und Doku sind in VMS Distribution CDs dabei
- keine extra Lizenz erforderlich
- wird nicht automatisch mit VMS mit-installiert

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AMDS / AM Gemeinsamkeiten (2)

- Prinzip: Datencollector <-> Analyzer (multiple)
- unabhängig von DECNET / TCPIP
- eigenens LAN Protokoll, nicht route-able
(Protocol ID = 08-00-2b-80-48-nn
multicast adress =09-00-2B-02-01-09
- Data Collector implementiert als Pseudo-Driver (RMA0:)
- läuft auf höherer Prio !

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AMDS

- Seit 1992
- für VAX und Alpha
- benötigt VMS - Motif als GUI
(d.h. VMS Workstation)
- seit 1999 in „maintenance mode“

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AM (1)

- Seit 1999
- benutzt den gleichen Collector wie AMDS
- für VAX VMS und Alpha VMS 6.2 - 7.3-1
- Analyzer in Java, für VMS und WINDOWS2000 / XP
- Aktuelle Infos und Kits downloadable von www.openvms.compaq.com/products/availman
- Folgeprodukt für AMDS
- AMDS und AM können parallel laufen !

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AM - Installation

- Auf VMS : PCSI KIT
- auf Windows: normale InstallShield Inst.
- Java Kit ist auf Distribution mit dabei
- für NT ältere Version des Analyzers verfügbar

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Post - Installation

Collector:

- Setzen eines AM Group - Namen
fasst verschiedene Systeme zusammen
in `SYS$MANAGER:AMDS$LOGICALS.COM`
- Setzen eines Passwords
`SYS$MANAGER:AMDS$DRIVER_ACCESS.DAT`
- Einfügen von
`@AMDS$SYSTEM:AMDS$STARTUP.COM`
in `SYSTARTUP_VMS.COM`

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Post - Installation (2)

Analyzer:

- Setzen des Passwords

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AM: System-Übersicht

Node Name	CPU	MEM	BIO	DIO	CPU_Qs	OS Version
CMOVEQ	2	71	6	3	0	Open VMS X922-FT1
DBGAVC	1	18	4	9	0	Open VMS V7.2-1
DRINKS	0	38	0	0	0	Open VMS V7.1
LOWFAT	0	37	0	0	0	Open VMS V6.2-1H3
MAWK	2	55	0	0	0	Open VMS V7.1
PEROIT	1	27	1	0	0	Open VMS V7.1
REDSQL	2	49	17	11	0	Open VMS V7.2-1

Node	Group	Date & Time	Severity	Event
IPL31	EVMS	15-Aug-2001 10:06:12.07	99	NOPRIV Not allowed to monitor
B14AXP	SECURE_PAUL	15-Aug-2001 10:06:12.23	99	NOPRIV Not allowed to monitor
AXIOM	OSSG_STUFF	15-Aug-2001 10:06:12.42	99	NOPRIV Not allowed to monitor
FV1201	SYSMGT	15-Aug-2001 10:06:12.43	99	NOPRIV Not allowed to monitor
MSCP	WILD2SMP	15-Aug-2001 10:06:13.19	99	NOPRIV Not allowed to monitor
SPARTA	OSSG_STUFF	15-Aug-2001 10:06:13.65	99	NOPRIV Not allowed to monitor

Collection [Galaxy cluster] has 22 nodes 10:12:59

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AM: node summary

Node SPNKY3

File View Fix Customize Help

Node Summary CPU Memory I/O Disk Lock Contention Cluster Summary

Summary Information

Model: AlphaServer 4X00 5/600 8MB
 OS Version: OpenVMS V7.3
 Uptime: 1 01:33:04.34
 Memory: 1.97 GB
 Active CPUs: 3
 Configured CPUs: 3
 Max RADs: 1
 Serial Number: 00 00 00 00 00 38 32 35 36 30 36 33 38 49 4e
 Galaxy ID: 32 59 4b 4e 50 53 01 0f 11 0f 0f 0f 0f 3c 00

OpenVMS Alpha node SPNKY3 - Node Summary

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AM: Node Summary Modes

Node SPNKY3 File View Fix Customize Help

Node Summary | CPU | Memory | I/O | Disk | Lock Contention | Cluster Summary

CPU Modes

Kernel	0.00	0.05
Executive	0.00	0.00
Supervisor	0.00	0.00
User	0.00	0.00
Interrupt	0.19	0.25
Compatibility	0.00	0.00
MP synch	0.00	0.00
Null	99.76	99.74
COM	0	0
WAIT	0	0

CPU ID	State	Mode %	PID	Process Name	Capabilities	RAD
CPU #001	Run	25 50 75		*** None ***	PRIMARY RUN QUORUM	0
CPU #002	Run	25 50 75		*** None ***	RUN QUORUM	0
CPU #003	Run	25 50 75		*** None ***	RUN QUORUM	0

OpenVMS Alpha node SPNKY3 - CPU Summary - physical modes view: 3 physical cpus (3 listed, 0 filtered out)

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AM: Memory Summary

Node SPNKY3 File View Fix Customize Help

Node Summary | CPU | Memory | I/O | Disk | Lock Contention | Cluster Summary

Memory (2016 Megabytes)

Free	1911 MB	1911 MB
Used	101 MB	101 MB
Modified	4 MB	4 MB
Bad Pages	0	

PID	Process Name	Count	Size	Extent	Rate	I/O
29E0041B	DNS\$ADVER	12320	17856	778240	0.00	0.00
29E004C0	DECW\$TE_04C0	12128	17856	778240	0.00	0.00
29E00416	SECURITY_SERVER	7632	10656	778240	0.00	0.00
29E0041A	ACME_SERVER	7136	10656	778240	0.00	0.00
29E00484	TCP\$IP\$MOUNTD_1	5968	8256	778240	0.00	0.00
29E00483	TCP\$IP\$NFS_1	4992	8256	778240	0.00	0.00
29E0047D	TCP\$IP\$PORTM_1	3712	5856	778240	0.00	0.00
29E00420	DTSS\$CLERK	3072	5856	778240	0.00	0.00

OpenVMS Alpha node SPNKY3 - Memory Usage - process view: 30 processes (29 listed, 1 filtered out)

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IO Summary

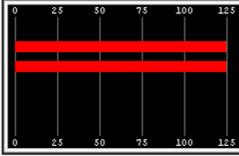
Node SPNKY3

File View Fix Customize Help

Node Summary CPU Memory I/O Disk Lock Contention Cluster Summary

Percent of Threshold

	Threshold	Current	Peak
Paging Write I/O Rate	10.00	0.00	0.00
Direct I/O Rate	10.00	4778.08	5249.44
Buffered I/O Rate	20.00	78.33	100.81
Total Page Faults	20.00	0.02	151.49
Hard Page Faults	5.00	0.00	14.37
System Page Faults	15.00	0.01	4.48



PID	Process Name	DIO Rate	BIO Rate	PIO Rate	Open Files	DIO Avail	BIO Avail	BYTLM Avail	Files Avail
29E00E97	SYSTEM_1	1574.93	78.88	0.00	3	32000	31999	94112	497
29E00E98	SYSTEM_2	1494.25	71.10	0.00	3	32000	31999	94112	497
29E00E99	SYSTEM_3	1423.06	71.10	0.00	3	32000	32000	94112	497
29E00410	JOB_CONTROL	0.26	0.17	0.00	3	600	599	1637696	197
29E0041B	DNS\$ADVER	0.00	0.10	0.00	3	100	136	36848	97

OpenVMS Alpha node SPNKY3 - IO Summary - process view: 34 processes (5 listed, 29 filtered out)

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AM: Disk Summary

Node SPNKY3

File View Fix Customize Help

Node Summary CPU Memory I/O Disk Lock Contention Cluster Summary

Device Name	Host Path	Volume Name	% Used	Free	Queue	OpRate
\$14\$DKA0	FREVAX	\$14\$DKA0	25 50 75	12	0.00	0.00
\$14\$DKA100	FREVAX	\$14\$DKA100	25 50 75	504	0.00	0.00
\$254\$DUA110	SABL2	\$254\$DUA110	25 50 75	1079604	0.00	0.00
\$254\$DUA320	SABL2	\$254\$DUA320	25 50 75	2305026	0.00	0.00
\$4\$DUA28	LOVE	\$4\$DUA28	25 50 75	754773	0.00	0.00
\$4\$DUA700	HSJ002	\$4\$DUA700	25 50 75	816096	0.00	0.00
\$1\$DGA190	ANDA3A	BIG_MAMA	25 50 75	537280560	0.00	0.00
DSA2	SPNKY3	COBRA3_SYS	25 50 75	1776024	0.00	0.00
DSA4	SPNKY3	DISK\$REGRES	25 50 75	1551056	0.00	0.00
\$254\$DUA14	SABL2	DUMPS	25 50 75	210018	0.00	0.00
\$1\$DGA191	ANDA3A	NCC_001	25 50 75	275533744	0.00	0.00
\$4\$DUA444	HSJ002	OLD\$REGRES	25 50 75	1843680	0.00	0.00
\$2222\$DKA400	SPNKY3	SPNKY3_20244	25 50 75	2999538	0.00	0.00
\$142\$DKA200	SPNKY3	SPNKY3_DMP	25 50 75	3506400	0.00	0.00
\$4\$DUA333	HSJ002	SPNKY3_SYS	25 50 75	3384927	0.00	0.71

OpenVMS Alpha node SPNKY3 - Disk Survey - Volumes: 304 volumes (15 listed, 289 filtered out)

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AM Cluster Summary

Node SPNKY3

File View Fix Customize Help

Node Summary CPU Memory I/O Disk Lock Contention Cluster Summary

Summary

Formed: 13-Aug-2001 14:40 **Members In:** 22
Last Trans: 15-Aug-2001 13:14 **Members Out:** 0
Votes: 15 **Quorum:** 9
Expected Votes: 16 **OD Votes:** 1
Fallover Step: 58 **Fallover ID:** 1089

SCS Name	SCSID	CSID	Votes	Expect	Quorum	LckDirWt	Status	Transition Time	
COBRA3	4E79	1004A	1	16	9	1	MEMBER	14-Aug-2001 10:05	
NodeName	LPortNam	RPortType	State	MsnSent	MsaRcvd	KB Mapped	BlkDataSent	BlkDataReqd	BlkTranSent
ADEBUG	PEAO:	(LAN)	OPEN	0.01	0.01	890699	440768	449416	440376

• SCS Connections

Local SYSAP	Remote SYSAP	State	MsnSent	MsaRcvd	KB Mapped	BlkDataSent	BlkDataReqd	BlkTran
HSCP\$DISK	VMS\$DISK_CL_DVR	OPEN	0.08	0.08	890164	440758	449405	0
HSCP\$TAPE	VMS\$TAPE_CL_DVR	OPEN	0.00	0.00	0	0	0	0
VMS\$DISK_CL_DVR	HSCP\$DISK	OPEN	0.00	0.00	490	0	0	0
VMS\$TAPE_CL_DVR	HSCP\$TAPE	OPEN	0.00	0.00	0	0	0	0
VMS\$VAXcluster	VMS\$VAXcluster	OPEN	0.00	0.00	45	10	11	

• LAN Virtual Circuit Summary

VC State	Total Errors	ReXmt Ratio	Channels Open	Max ECS PktSiz	ECS Priority	ReXmt TMO (uSec)	XrmtWindow Cur	XrmtWindow Max	Options	Packets Sent	Packets Received	
OPEN	62	∞	6	n/a	4396	n/a	713573.3	16	16	n/a	1403733	1785691

OpenVMS Alpha node SPNKY3 - Cluster Summary

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AM: FIX option

Availability Manager Fixes

Node

Node Name: DBGAVC

Fix Type

Adjust Quorum

Crash Node

Adjust Quorum

Explanation

Adjusts cluster quorum

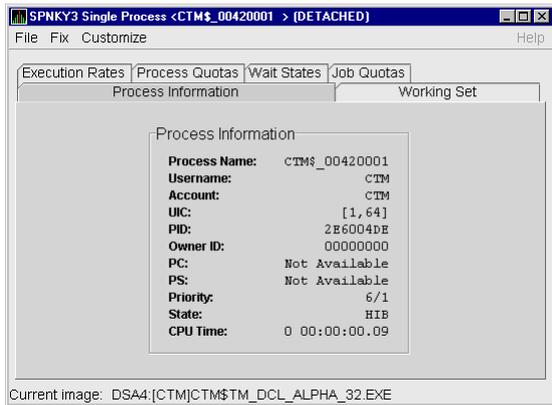
This fix will cause the cluster to recalculate the cluster quorum. This fix will allow a cluster that is hung because it has lost quorum to regain quorum and resume operation.

Return Status

OK Cancel Apply Help

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AM: Single Process info



Current image: DSA4:[CTM]CTM\$TM_DCL_ALPHA_32.EXE

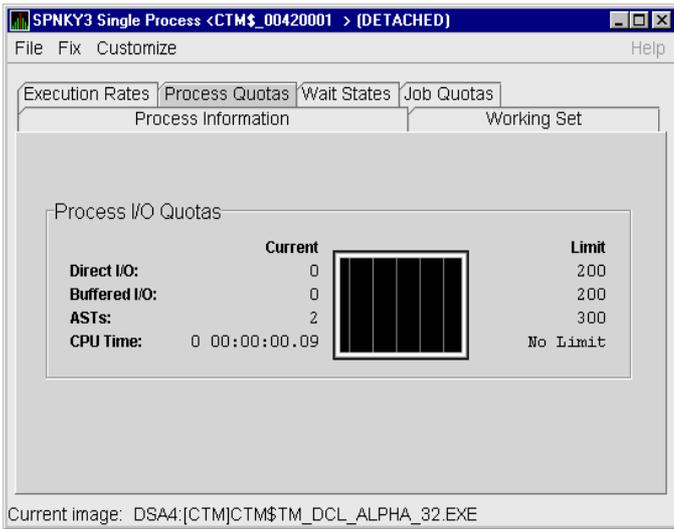
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Detailed description: This screenshot shows the 'Process Information' tab of the 'SPNKY3 Single Process <CTM\$.00420001 > [DETACHED]' window. The window has a menu bar with 'File', 'Fix', 'Customize', and 'Help'. Below the menu bar are tabs for 'Execution Rates', 'Process Quotas', 'Wait States', and 'Job Quotas'. The 'Process Information' tab is active, showing a sub-tabbed view with 'Process Information' and 'Working Set'. The 'Process Information' sub-tab displays the following data:

Process Name:	CTM\$.00420001
Username:	CTM
Account:	CTM
UIC:	[1,64]
PID:	2E6004DE
Owner ID:	00000000
PC:	Not Available
PS:	Not Available
Priority:	6/1
State:	HIB
CPU Time:	0 00:00:00.09

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AM: Single Process Quotas



Current image: DSA4:[CTM]CTM\$TM_DCL_ALPHA_32.EXE

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Detailed description: This screenshot shows the 'Process I/O Quotas' tab of the 'SPNKY3 Single Process <CTM\$.00420001 > [DETACHED]' window. The window has a menu bar with 'File', 'Fix', 'Customize', and 'Help'. Below the menu bar are tabs for 'Execution Rates', 'Process Quotas', 'Wait States', and 'Job Quotas'. The 'Process I/O Quotas' tab is active, showing a sub-tabbed view with 'Process Information' and 'Working Set'. The 'Process I/O Quotas' sub-tab displays the following data:

	Current	Limit
Direct I/O:	0	200
Buffered I/O:	0	200
ASTs:	2	300
CPU Time:	0 00:00:00.09	No Limit

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AM: Single Process - Quotas

	Current	Limit
File Count:	2	300
Page File Count:	4032	110000
Enqueue Count:	0	2000
TQE Count:	2	200
Process Count:	0	20
Byte Count:	576	100000

Current image: DSA4:[CTM]CTM\$TM_DCL_ALPHA_32.EXE

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AM: Single Process FIX

Node Name: SPNKY3 Process: CTM\$_00420001 (2E6004DE)

Fix Type: Process Priority

Explanation: Changes the base priority of the process

Return Status:

OK Cancel Apply Help

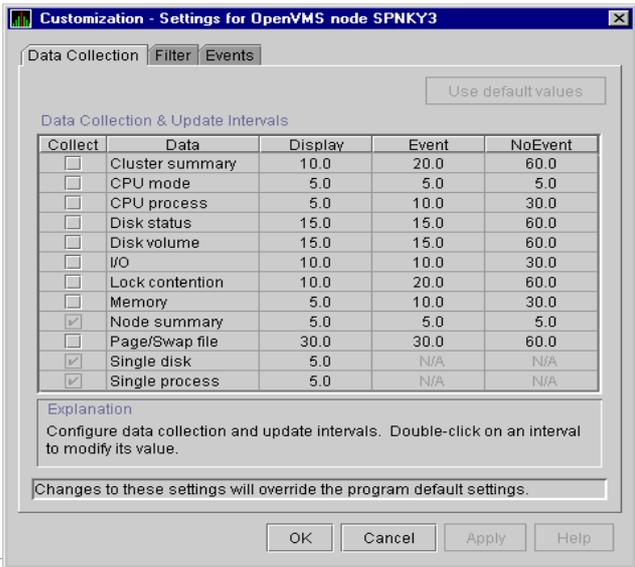
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26. DECUS Symposium 07.04.2003 **AM: Customization** 

- AM funktioniert mit Standardeinstellungen
- es lassen sich darüber hinaus einstellen
 - welche Daten
 - im welchen Intervallen vom Collector aufgenommen werden
 - in welchen Intervallen welche Daten angezeigt werden
 - welche Rechner sichtbar sind

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26. DECUS Symposium 07.04.2003 **AM: Customization** 



Collect	Data	Display	Event	NoEvent
<input type="checkbox"/>	Cluster summary	10.0	20.0	60.0
<input type="checkbox"/>	CPU mode	5.0	5.0	5.0
<input type="checkbox"/>	CPU process	5.0	10.0	30.0
<input type="checkbox"/>	Disk status	15.0	15.0	60.0
<input type="checkbox"/>	Disk volume	15.0	15.0	60.0
<input type="checkbox"/>	I/O	10.0	10.0	30.0
<input type="checkbox"/>	Lock contention	10.0	20.0	60.0
<input type="checkbox"/>	Memory	5.0	10.0	30.0
<input checked="" type="checkbox"/>	Node summary	5.0	5.0	5.0
<input type="checkbox"/>	Page/Swap file	30.0	30.0	60.0
<input checked="" type="checkbox"/>	Single disk	5.0	N/A	N/A
<input checked="" type="checkbox"/>	Single process	5.0	N/A	N/A

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AM – Stand heute

V 2.3 ante portas

- entspricht funktional AMDS
- Java RJE 1.3.1 -> performance !
- New display details
- Process watch implemented
- Lock Display improved
- Various Problems fixed

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AM - Ausblick

Data collection über TCP/IP
Portierung auf Itanium
? ? ?
Datum = ? ? ?

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Zusammenfassung:

- ähnlich wie MONITOR - jedoch :
- belastet Zielsystem sehr wenig
- mehrere gleichzeitig möglich
- Zugriff auf „blockierte“ Systeme möglich
- korrektive Eingriffe möglich
(z.B. Quorum re-adjust)

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Availability Manager

Fragen ?

Kommentare ?

Anregungen ??

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hp
invent



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