

z/VM Dirmaint De-mystified

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Agenda

What is Dirmaint?

Dirmaint Advantages

Installation and Configuration

Command Handling

Integration with RACF

How Dirmaint works in an SSI cluster

What is Dirmaint?

Pre-installed, priced, optional feature of z/VM

CMS application that manages the directory

Provides multiple interfaces

Primarily a command interface

Full screen – field entry

Program driven

- REXX (DVHSAPI)
- SMAPI

Dirmaint advantages

Installed and Maintained with z/VM

RSU service delivered and installed with service stream

Most commands to maintain the directory mimic regular directory statements

Completing the install is simple and well documented

Automated disk allocation eliminates costly mistakes

Not using a current diskmap +

Allocating a minidisk = potential disaster

Dirmaint installation

A few steps remaining before full use

Chapter 4 in

“z/VM: Getting Started With Linux on System z”

Enable Dirmaint

Change service machine passwords

Create/Modify configuration files *

Import current user directory

Put Dirmaint into production

Start Dirmaint

Installation Tips

An SSI installation of z/VM will create the service machines and the CONFIGSS DATADVH and EXTENT CONTROL configuration file statements necessary to run DirMaint in the cluster

The enable function of the SERVICE command (to enable the product to VMSES/E and to CP in SYSTEM CONFIG), only has to be run on one member

PUT2PROD needs to be run on every member

DirMaint configuration files are shared; they are only created once from any member of the cluster

Change DIRMAINT's default password from AUTOONLY to some other password prior to installation

- It can be changed back after you've successfully tested DirMaint

Set up Configuration Files

Three types of primary configuration files

CONFIGxx DATADVH

Configuration control keyword parameters

AUTHFOR CONTROL

User command authorization

EXTENT CONTROL

Minidisk allocation/boundaries

Set up Configuration Files

CONFIG_{xx} DATADVH

Dirmaint configuration override file(s)

xx=one or two EBCDIC characters

Processed in reverse EBCDIC sequence

- Numbers before letters, 99-0 (zero-blank), Z9-AA
- Standard CMS filemode search used across minidisks

CONFIG DATADVH is processed last

- The default list of all keyword values
- Should not ever be modified, always use an override

Contains keyword values controlling the function of Dirmaint

Set up Configuration Files

CONFIGSS DATADVH

Contains DirMaint configuration statements which override default statements contained in the primary configuration file CONFIG DATADVH

These statements will define the Satellite and Datamove servers for the cluster

```
SATELLITE_SERVER= DIRMSAT   VM01
SATELLITE_SERVER= DIRMSAT2  VM02
SATELLITE_SERVER= DIRMSAT3  VM03
DATAMOVE_MACHINE= DATAMOVE  VM01   *
DATAMOVE_MACHINE= DATAMOV2  VM02   *
DATAMOVE_MACHINE= DATAMOV3  VM03   *
```

Set up Configuration Files

AUTHFOR CONTROL

Contains a list of IDs that can issue Dirmaint commands for other IDs and the privileges available to them

- EG: USERA can issue commands against the directory of USERB

Resides as a file under Dirmaint's control

Maintained by AUTHFOR and DROPFOR commands

*TARGETI	ORIGUSER	ORIGNODE	CMDL	CMDSETS
ALL	MAINT	*	140A	ADGHMOPS
ALL	MAINT	*	150A	ADGHMOPS

Set up Configuration Files

AUTHFOR/DROPFOR Command

Command interface for adding/removing user authorizations

Editing the file

Get a copy from Dirmaint

Use XEDIT to modify the file

Send it back to Dirmaint

Load the new version of the file into memory

“Directory Maintenance Facility Tailoring and Administration Guide”, Chapter 8

“Delegating Administrative Authority”

Set up Configuration Files

EXTENT CONTROL

Controls minidisk allocations

Sections of interest

- REGIONS
- GROUPS
- EXCLUDE
- DEFAULTS
- SSI_Volume

Set up Configuration Files

EXTENT CONTROL - REGIONS

Defines an area on a disk device that is used for minidisk allocation

Can be one or more parts of a volume

Typically a full volume

```
:REGIONS.
```

*RegionId	VolSer	RegStart	RegEnd	Dev-Type	Comments
VM5RES	VM5RES	1	END	3390-03	
VM5W01	VM5W01	1	END	3390-03	
VM5W02	VM5W02	1	END	3390-03	
VM5WK1	VM5WK1	1	END	3390-03	
VM5WK2	VM5WK2	1	END	3390-03	

```
:END.
```

Set up Configuration Files

EXTENT CONTROL - GROUPS

Collection of one or more regions

Forms a pool of disk space from which to allocate

Allocations can be first to last or rotating

```
:GROUPS.  
  *GroupName RegionList  
  VMSYSTEM   (ALLOCATE ROTATING)  
  VMSYSTEM   VM5RES VM5W01 VM5W02  
  LNXDSK1    (ALLOCATE ROTATING)  
  LNXDSK1    VM5WK1 VM5WK2  
:END.
```

Set up Configuration Files

EXTENT CONTROL - EXCLUDE

Overlapping minidisks are commonly defined in the User Directory

MAINT has full-pack minidisks covering many system volumes for writing to the directory area of the system residence pack, volume backup and restore, etc.

MAINTvrm has full-pack minidisks covering the release volumes.

PMAINT has full-pack minidisks covering the common volumes.

Other virtual machines, such as those that perform system backups, may also have overlapping extents

Set up Configuration Files

EXTENT CONTROL - EXCLUDE

Tip: You must specify subconfig ids for identity users in the EXCLUDE SECTION. Wildcards can be used to identify multiple minidisks in the same statement

```
:EXCLUDE.  
* entry_name Address  
MAINT* 012*  
MAINT620 013*  
SYSDMP* 012*  
PMAINT 014*  
:END.
```

MAINT SUBCONFIGs MAINT-1 and MAINT-2 each have overlapping minidisks at addresses 0122, 0123, and 0124.

SYSDUMP1 has SUBCONFIGs SYSDMP-1 and SYSDMP-2 with fullpack 0123 minidisks overlapping the system residence pack.

Set up Configuration Files

EXTENT CONTROL – DEFAULTS

Device capacity table

- Taken from DEFAULTS DATADVH

```
:DEFAULTS.
```

```
* IBM supplied defaults are contained
```

```
* The following are customer overrides
```

```
*
```

```
*DASDType Max-Size
```

```
:END.
```

```
:DEFAULTS.
```

```
3390-01          1113
```

```
3390-02          2226
```

```
3390-03          3339
```

```
3390-09          10017
```

```
3390-084         1084
```

```
3390-151         2226
```

```
3390-153         4365
```

```
3390-455         455
```

```
3390-568         1568
```

```
3390-32K         32760
```

```
3390-64K         65520
```

```
3390             1113
```

Set up Configuration Files

EXTENT CONTROL – SSI_Volume

Used for cloning an SSI member to a new member and
DirMaint is used to create the new subconfig entries

```
: SSI_VOLUMES.
```

```
*VolumeFamily
```

```
SHARED
```

```
SHARED
```

```
SYS_LOCAL
```

```
SYS_LOCAL
```

```
: END.
```

```
Member
```

```
VM01
```

```
VM02
```

```
VM01
```

```
VM02
```

```
VolSer
```

```
M01RES
```

```
M02RES
```

```
M01W01
```

```
M02W01
```



Inserted during a
two member
installation by the
installation tool.

Set up Configuration Files

EXTENT CONTROL – SSI_Volume (example)

A two-member SSI cluster was installed

Now, a third member is being added

Identity users like TCPIP may need a subconfig for the new member added to their directory entries based on the existing subconfigs for other members

Set up Configuration Files

EXTENT CONTROL – SSI_Volume (example)

```
IDENTITY TCPIP      TCPIP      128M  256M ABG
INCLUDE TCPCMSU
BUILD ON VM01 USING SUBCONFIG TCPIP-1
BUILD ON VM02 USING SUBCONFIG TCPIP-2
OPTION QUICKDSP SVMSTAT MAXCONN 1024 DIAG98 APPLMON
SHARE RELATIVE 3000
IUCV ALLOW
IUCV ANY PRIORITY
IUCV *CCS PRIORITY MSGLIMIT 255
IUCV *VSWITCH MSGLIMIT 65535
```

← Existing directory entry for TCPIP for 2-member SSI cluster.

SUBCONFIG TCPIP-1

```
LINK TCPMAINT 491 491 RR
LINK TCPMAINT 492 492 RR
LINK TCPMAINT 591 591 RR
LINK TCPMAINT 592 592 RR
LINK TCPMAINT 198 198 RR
MDISK 191 3390 2627 005 M01W01 MR RTCPIP  WTCPIP  MTCPIP
```

↙ TCPIP on member VM03 needs a non-shared 191 minidisk.

SUBCONFIG TCPIP-2

```
LINK TCPMAINT 491 491 RR
LINK TCPMAINT 492 492 RR
LINK TCPMAINT 591 591 RR
LINK TCPMAINT 592 592 RR
LINK TCPMAINT 198 198 RR
MDISK 191 3390 2627 005 M02W01 MR RTCPIP  WTCPIP  MTCPIP
```

Set up Configuration Files

EXTENT CONTROL – SSI_Volume (example)

The SSI_Volume section has been updated to include these statements

```
:SSI_VOLUMES.  
*VolumeFamily      Member      VolSer  
SYSRES              VM01       M01RES  
SYSRES              VM02       M02RES  
SYSRES              VM03       M03RES  
SYS_LOCAL           VM01       M01W01  
SYS_LOCAL           VM02       M02W01  
SYS_LOCAL           VM03       M03W01  
:END.
```

The system residence volumes for each member and the local W01 volumes for each member have been associated with a volume family.

When a subconfiguration is cloned from an existing subconfiguration, DirMaint refers to the volume family of the original system to determine the VolSer to be used to create minidisks on the target system.

DIRM ADD TCPIP-3 LIKE TCPIP-1 BUILD ON VM03 IN TCPIP

Set up Configuration Files

EXTENT CONTROL – SSI_Volume (example)

DIRM ADD TCPIP-3 LIKE TCPIP-1 BUILD ON VM03 IN TCPIP

SUBCONFIG TCPIP-1

```
LINK TCPMAINT 491 491 RR  
LINK TCPMAINT 492 492 RR  
LINK TCPMAINT 591 591 RR  
LINK TCPMAINT 592 592 RR  
LINK TCPMAINT 198 198 RR
```

```
MDISK 191 3390 2627 005 M01W01 MR RTCPIP WTCPIP MTCPIP
```

M01W01 on VM01 is associated with volume family SYS_LOCAL.

SUBCONFIG TCPIP-3

```
LINK TCPMAINT 491 491 RR  
LINK TCPMAINT 492 492 RR  
LINK TCPMAINT 591 591 RR  
LINK TCPMAINT 592 592 RR  
LINK TCPMAINT 198 198 RR
```

```
MDISK 0191 3390 2627 5 M03W01 MR RTCPIP WTCPIP MTCPIP
```

The SYS_LOCAL volume for member VM03 is M03W01.

Note: This will not copy the contents of the source minidisk to the target minidisk.

Finish Install

Import USER DIRECT

Copy directory from MAINT

Put into production

Bring up Dirmaint

DVHBEGIN

Disconnect from Dirmaint

Logon to MAINT

Command Handling

All directory entries now managed by Dirmaint

Commands must be used to perform directory maintenance

Changes are put online immediately

Individual directory entries can be modified

- GET/REPLACE

Wildcards can be used to affect matching virtual machines

- MULTIUSER prefix option,
MULTIUSER_VERIFICATION_EXIT

Changes can be batched

- Multiple commands in a file, invoked with one execution

Command Handling

Commands invoked using the DIRM EXEC

First parameters can be a modifier

TOsys | TOnode – route command to another VM network node

ASuser – when used with TO, issue command AS this user

BYuser – issue command with auth of this user (like LOGONBY)

FORuser – command affects named user (most common)

ATsys | ATnode – route command to a node in a multi-system cluster

If no modifier is used, command is invoked for the current user at *

Remainder is a Dirmaint command

Command Handling

Dirmaint commands are similar to most directory equivalents

*DVHAMENG	CHVaddr	DLink	IOPriori	NOTAPE	Qry	SHUTDOWN
*DVHUCENG	CLAss	DMDisk	IPL	OFFline	QUery	SPEcial
*UDVH	CLEANUP	DROPBy	IUCV	ONline	REPlace	SPOOL
?	CLONEDisk	DROPFor	Link	OPTion	REVIEW	STAG
:ADVH	CMDisk	DROPScif	LOADDEV	PAValias	RLDCode	STATUs
:HELP	CMS	DSECuser	LOCK	POOL	RLDData	STDEvopt
ACCCount	COMMAND	DUMP	LOGmsg	POSIXFSRo	RLDextn	STorage
ACIgroup	CONsole	D8ONECMD	LOGONBY	POSIXGLIs	RMDisk	SUBscribe
ACNTAdd	CP	ELink	MACHine	POSIXGROu	SATellite	SUPGLIST
ACNTDel	CPU	ENable	MAIL	POSIXINFo	SCAN	SYSaffin
Add	CRYpto	EXECDrop	MAXSPool	POSIXIUPg	SCREen	Term
AMDisk	DASDOPT	EXECLoad	MAXstorag	POSIXIWDi	SECuser	TESTpw
APPCpass	DATAmove	EXTNchk	MAXstore	POSIXOPT	SEND	TMDisk
AUTHBy	DATEForma	FILE	MDAUDit	PRIORity	SETAcnt	UNLock
AUTHFor	DEDicate	FREEExt	MDisk	PRIOset	SETClass	USEDext
AUTHLink	DEFAULTs	Get	MDPW	PRIVclass	SETCPU	USER
AUTHScif	DEFINESTa	GETCONSol	MINIOPT	PURGE	SETMach	USERMAP
AUTOlog	DIRECT	GLOBALOpt	MMDisk	PW	SETOptn	USEROPTn
BACKUP	DIRECTORY	GLObalv	NAMEsave	PW?	SETPRIori	WORKUNIT
BATch	DIREDIT	HELP	NEEDPASS	PWGen	SETpw	XAUtolog
CHECK	DIRMAP	HISTory	NEWS	PWMON	SETSTAG	XCONfig
CHKsum	DISAbLe	INClude	NICDEF	QLog	SHARE	XSTORE
CHngid	DISTrib	INVen	NOPdata			

Command Handling

Command verification

dirm for zvps get nolock

DVHXMT1181R Enter the current logon password of RKSDEV at RKS2LV for DVHXMT1181R authentication. It will not be displayed on the DVHXMT1181R terminal. To exit without processing the command, just DVHXMT1181R press ENTER.

DVHXMT1191I Your GET request has been sent for processing.

If the user is not authorized to use Dirmaint

DVHREQ2283E Userid RKSDEV at RKS2LV is not authorized to issue the GET DVHREQ2283E command for ZVPS at *.

Command Handling

Password required for each Dirmaint command entered

Dirmaint commands now execute without intervention

dirm needpass no

```
DVHXMT1181R Enter the current logon password of RKSDEV at RKS2LV for  
DVHXMT1181R authentication. It will not be displayed on the  
DVHXMT1181R terminal. To exit without processing the command, just  
DVHXMT1181R press ENTER.
```

```
DVHXMT1191I Your NEEDPASS request has been sent for processing.  
Ready; T=0.04/0.05 13:08:57
```

```
DVHREQ2288I Your USEROPTN request for RKSDEV at * has been accepted.
```

```
DVHBIU3450I The source for directory entry RKSDEV has been updated.
```

```
DVHBIU3456I Object directory update is not required for this source  
DVHBIU3456I update.
```

```
DVHREQ2289I Your USEROPTN request for RKSDEV at * has completed;
```

```
DVHREQ2289I with RC = 0.
```

Command Handling

Commands typically return data in the RDR

```
dirm for zvps      0002      PEEK      A0  V 80  Trunc=80 Size=12 Line=0 Col=1 Alt=0
File ZVPS DIRECT from DIRMAINT at RKS2LV Format is NETDATA.
* * * Top of File * * *
USER ZVPS VELOCITY 64M 64M EG
INCLUDE VSIPROF
NAMESAVE ZMON ZVWS MONDCSS
OPTION LNKNOPAS
* INCLUDE FOLLOWING MDISK IF RUNNING IN SSI CLUSTER
MDISK 0192 3390 2841 100 VM5W02 MR READ
*DVHOPT LNK0 LOG1 RCM1 SMS0 NPW1 LNGAMENG PWC20110223 CRCç"
* * * End of File * * *
```

Use PEEK

```
1= Help      2= Add line  3= Quit      4= Tab      5= Clocate   6= ?/Change
7= Backward  8= Forward   9= Receive   10= Rgtright 11= Spltjoin 12= Cursor
```

====>

Complete your session evaluation

Command Handling

Another way to

dirm for zvps review

DVHXMT1191I Your REVIEW

Ready; T=0.02/0.03 14

DVHREQ2288I Your REVIEW

RDR FILE 0004 SENT FROM

DVHREQ2289I Your REVIEW

DVHREQ2289I = 0.

```
IDENTITY ZVPS XXXXXXXX 64M 64M EG
```

```
DVHRXV3355I The following records are included from profile: VSIPROF
```

```
PROFILE VSIPROF
```

```
* Directory profile for Velocity Software service virtual machines
```

```
IPL CMS PARM AUTOOCR FILEPOOL VMSYSVPS:
```

```
MACHINE ESA
```

```
CONSOLE 0009 3215
```

```
SPOOL 000C 2540 READER *
```

```
SPOOL 000D 2540 PUNCH A
```

```
SPOOL 000E 1403 A
```

```
LINK MAINT 0190 0190 RR
```

```
LINK MAINT 019E 019E RR
```

```
LINK MAINT 019D 019D RR
```

```
*
```

```
*DVHOPT LNK0 LOG1 RCM1 SMS0 NPW1 LNGAMENG PWC20140324 CRC"
```

```
DVHRXV3355I The preceding records are included from profile: VSIPROF
```

```
NAMESAVE ZMON MONDCSS ZVWS
```

```
OPTION LNKNOPAS
```

```
MDISK 0192 3390 2841 100 VM5W02 MR XXXXXXXX
```

```
*DVHOPT LNK0 LOG1 RCM1 SMS0 NPW1 LNGAMENG PWC20140430 CRC"h
```

```
DVHREV3356I The following are your user option settings:
```

```
DVHREV3356I Links DISABLED Logging ON RcvMsg ON Smsg OFF NeedPW ON
```

```
DVHREV3356I Lang AMENG
```

PEEK the RDR

Complete your session evaluations online at

Integration with RACF

Dirmaint can call RACF for the following functions

User add or change

Password or passphrase change

LOGONBY change

POSIX parameter change

Minidisk commands (AMDISK, DMDISK, etc)

All are optional

Controlled by CONFIGRC SAMPDVH

Which must be copied to Dirmaint

Renamed CONFIGRC DATADVH

Integration with RACF

CONFIGRC SAMPDVH

```
USE_RACF= YES|NO ALL|exit_name  
PASSWORD_CHANGE_NOTIFICATION_EXIT= DVHXPXN EXEC  
POSIX_CHANGE_NOTIFICATION_EXIT= DVHXPESM EXEC  
LOGONBY_CHANGE_NOTIFICATION_EXIT= DVHXLB EXEC  
USER_CHANGE_NOTIFICATION_EXIT= DVHXUN EXEC  
DASD_OWNERSHIP_NOTIFICATION_EXIT= DVHXDN EXEC  
RACF_ADDUSER_DEFAULTS= UACC(NONE)  
RACF_RDEFINE_VMMDISK_DEFAULTS= UACC(NONE) AUDIT(FAILURES(READ))  
RACF_DISK_OWNER_ACCESS= ACC(ALTER)  
RACF_RDEFINE_VMPOIX_POSIXOPT.QUERYDB= UACC(READ)  
RACF_RDEFINE_VMPOIX_POSIXOPT.SETIDS= UACC(NONE)  
RACF_RDEFINE_SURROGAT_DEFAULTS= UACC(NONE) AUDIT(FAILURES(READ))  
RACF_RDEFINE_VMBATCH_DEFAULTS= UACC(NONE) AUDIT(FAILURES(READ))  
RACF_RDEFINE_VMRDR_DEFAULTS= UACC(NONE) AUDIT(FAILURES(READ))  
RACF_VMBATCH_DEFAULT_MACHINES= BATCH1 BATCH2  
TREAT_RAC_RC.4= 0 | 4 | 30  
ESM_PASSWORD_AUTHENTICATION_EXIT= DVHXPA EXEC
```


Integration with RACF

Start with RACF Program Directory

Chapter 5, Step 13

“Set Up the DirMaint-RACF Connector if DirMaint is Installed (Optional)”

CONFIGRC DATADVH values and additional steps

Chapter 3, Step 5 and Appendix A

Dirmaint Tailoring and Administration Guide

Note!

If you are also using RACF/VM and the exits for RACF in DirMaint, obtain and apply these DirMaint APARs:

- VM65494 – Handle 2 digit addresses
- VM65526 – Handle VMRDR/VMBATCH better

How Dirmaint works in a Cluster

In an SSI Cluster, the source user directory file is shared by all members of the cluster, but each member has its own object directory

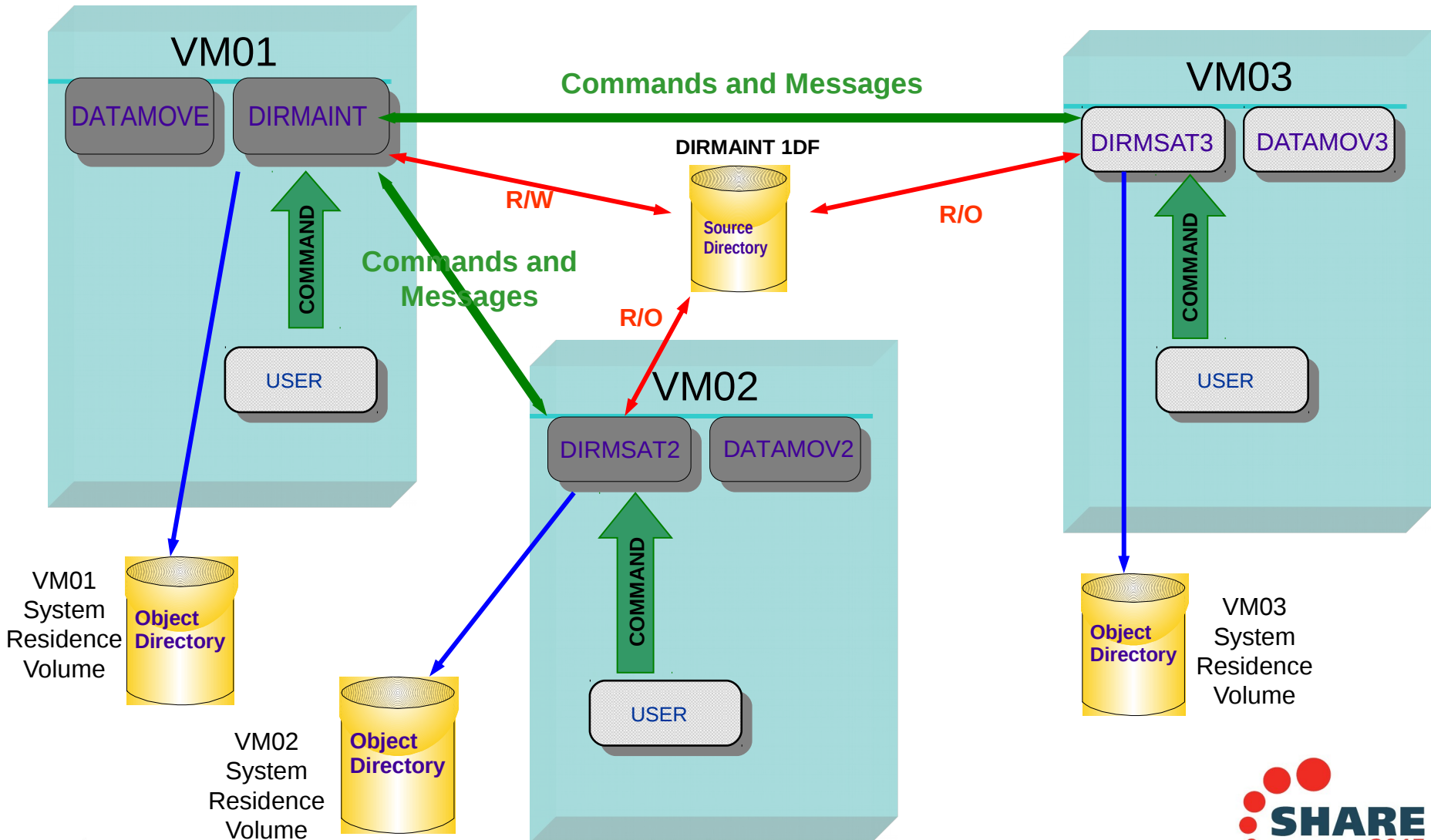
The DIRMAINT server, running on a single member of the cluster, controls the source directory files for the cluster

Satellite DirMaint servers, running on the other members of the cluster, provide an interface to users on their local system to the DIRMAINT server

DIRMAINT and Satellite servers control the object directory for their local member systems

DATAMOVE servers do not change. Every member must have one or more DATAMOVE servers to perform work for that member

How DirMaint Works in a Cluster



Complete your session evaluations online at www.SHARE.org/Seattle-Eval

Dirmaint Server Communications

In an SSI cluster, Dirmaint and the satellite servers communicate via spool files through the shared spool

At startup the Dirmaint server creates a control file, SATRELAY DATADVH, to identify the satellite servers for each member

```
SSI  
DIRMSAT   VM01  
DIRMSAT2  VM02
```

SATRELAY DATADVH is used by

The Dirmaint command, to determine which server to route commands through

Dirmaint to determine which satellite to send output to

Where servers can run in the cluster

The DIRMAINT server can run on any system in the cluster

DIRMAINT **must** run on one member to process commands

DIRMAINT is a single configuration virtual machine (USER)

- It can not run concurrently on multiple members

All minidisks are located on common disks

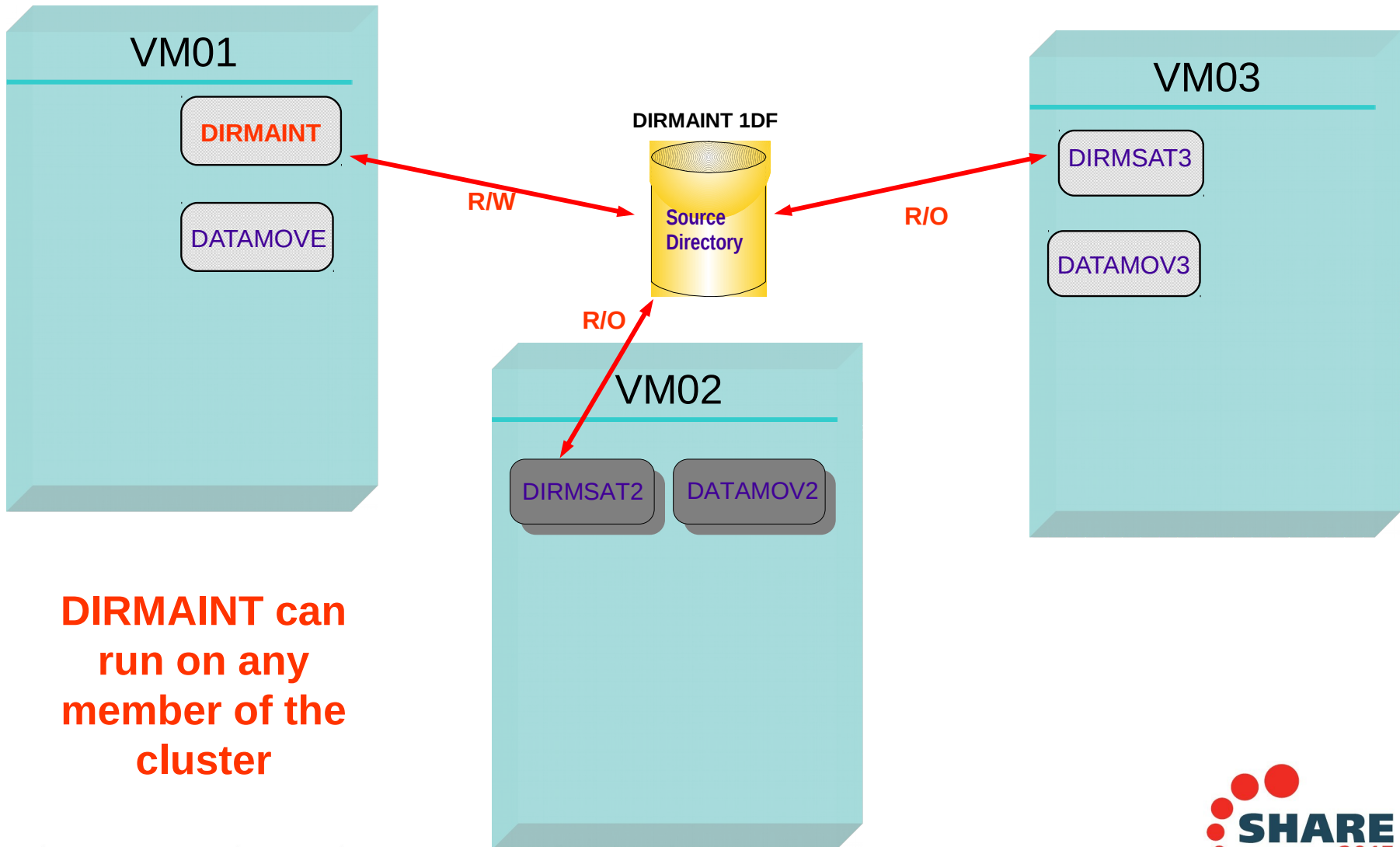
The Satellite servers (DIRMSATn) and Datamove servers (DATAMOVn) should only run on one member system

DIRMSAT servers are single configuration virtual machines (USER), but...

By default, minidisks are defined on non-shared volumes

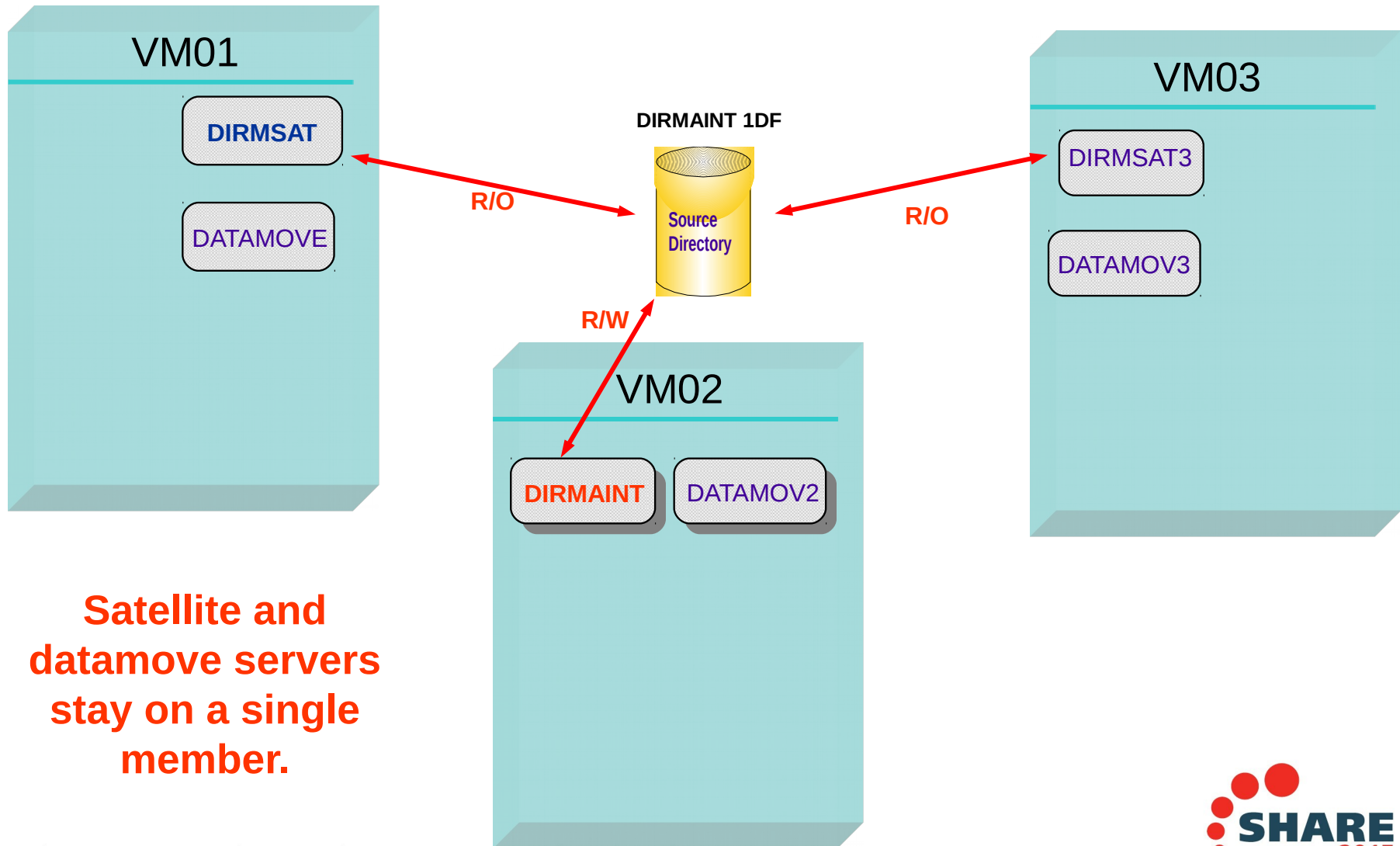
A Satellite and Datamove server should be defined on every member, even the member where DIRMAINT will run

Where Servers Run



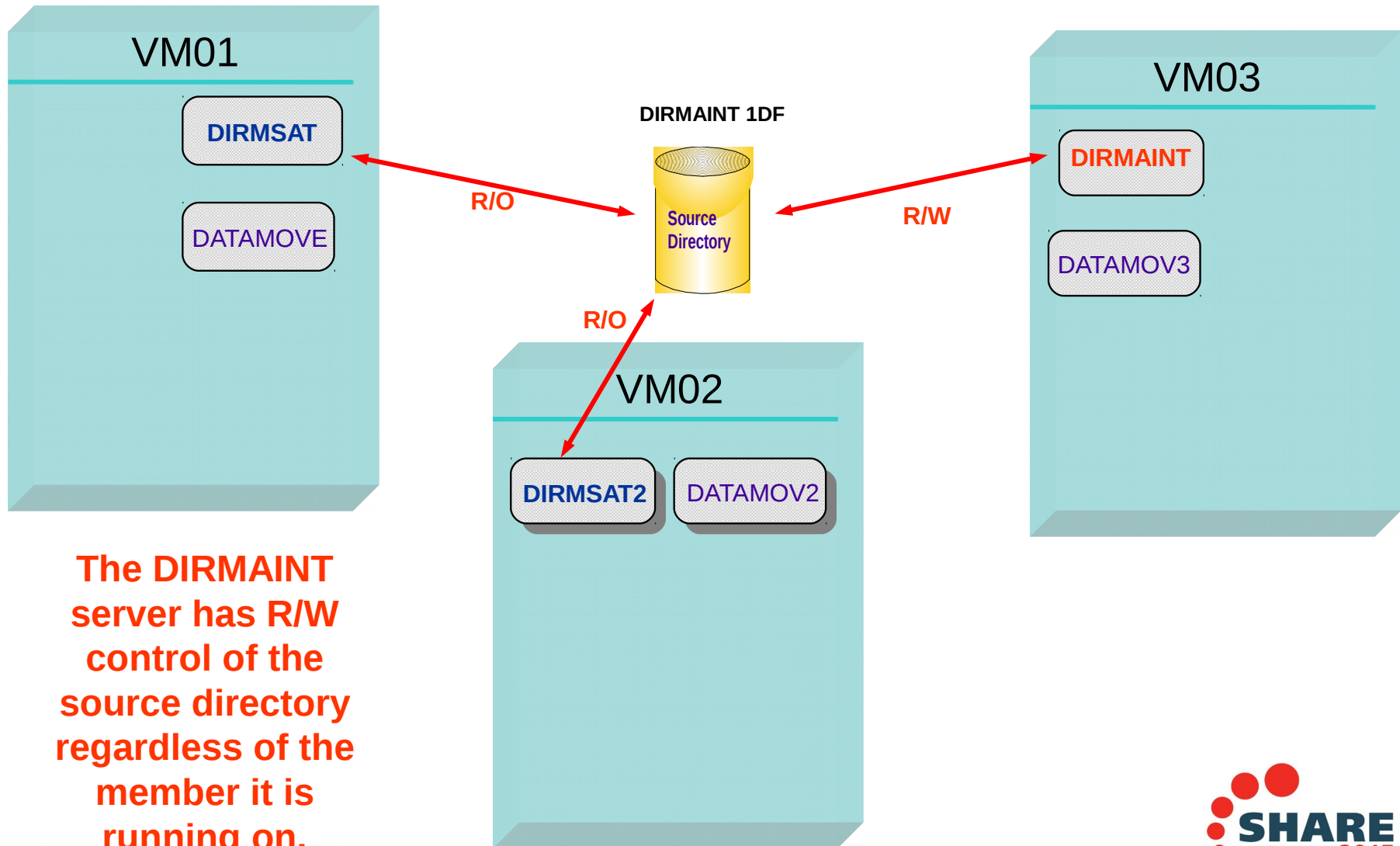
DIRMAINT can run on any member of the cluster

Where Servers Run (continued)



Satellite and datamove servers stay on a single member.

Where Servers Run (continued)



The DIRMAINT server has R/W control of the source directory regardless of the member it is running on.

If Dirmaint stops

If DIRMAINT is stopped for any reason on one member, it can be started on another member

No DIRMAINT commands can be processed until DIRMAINT is started somewhere in the cluster

When the member is ready to start using DIRMAINT again

It must run a satellite server or...

DIRMAINT on the secondary system is shut down and the server is re-started on the original system

The secondary system then starts it's satellite server

Dirmaint does not automate the process of starting or stopping servers when the DIRMAINT server stops or re-starts

If a Satellite server goes down

If a Satellite server running on a cluster member goes down while the member is still joined:

- Users on that system can not issue Dirmaint commands

- Changes made to the directory by Dirmaint will not be reflected in the Satellite system's object directory

When the satellite server is restarted, it will process updates made while it was out of service

If a SSI member is down

If an SSI member is down and directory updates are made:

Update requests will queue up in the spool for that system's Satellite server

When the member and it's Satellite server are restarted, it will process updates made while it was out of service

If service machine or multi-configuration virtual machine updates are made that effect the start up procedure of that member, some manual intervention during start up may be required

Dirmaint Commands

The DIRMAINT command has been updated to handle the new IDENTITY and SUBCONFIG entries in the directory

IDENTITYs and SUBCONFIGs are treated as separate entities by DirMaint

IDENTITY and SUBCONFIG entries use the same commands as PROFILE and USER entries – ADD, PURGE, GET, REVIEW, LOCK, and UNLOCK

Other new and updated directory statements are also supported

- For example, VMRELOCATE and CHPID virtualization options of OPTION and GLOBALOPTS statements

Dirmaint Commands

Adding a Multi-Configuration User

A multi-configuration virtual machine consists of a single **IDENTITY** entry, with one or more **SUBCONFIG** entries

Each **IDENTITY** and **SUBCONFIG** entry are created with separate **ADD** commands

Example: To create a new multi-configuration user on members **VM01** and **VM02**, you would need 3 DirMaint commands and 3 **DIRECT** files

Dirmaint Commands

Adding a Multi-Configuration User

DIRM ADD TUSER

TUSER DIRECT A

IDENTITY TUSER APASSWD 128M 1000M ABCG

MACHINE ESA

IPL 190

CONSOLE 009 3215

SPOOL 00C 2540 READER *

SPOOL 00D 2540 PUNCH A

SPOOL 00E 1403 A

LINK MAINT 0190 0190 RR

LINK MAINT 019D 019D RR

LINK MAINT 019E 019E RR

Dirmaint Commands

Adding a Multi-Configuration User

DIRM ADD TUSER-1 BUILD ON VM01 IN TUSER

TUSER-1 DIRECT A

SUBCONFIG TUSER-1

AMDISK 191 3390 AUTOV 005 M01W01

Dirmaint Commands

Adding a Multi-Configuration User

DIRM ADD TUSER-2 BUILD ON VM02 IN TUSER

TUSER-2 DIRECT A

SUBCONFIG TUSER-2

AMDISK 191 3390 AUTOV 005 M02W01

Dirmaint Commands

Adding a Multi-Configuration User

Results in directory entries of...

```
IDENTITY TUSER APASSWD 128M 1000M ABCG
BUILD ON VM01 USING SUBCONFIG TUSER-1
BUILD ON VM02 USING SUBCONFIG TUSER-2
IPL 190
MACHINE ESA
CONSOLE 0009 3215
SPOOL 000C 2540 READER *
SPOOL 000D 2540 PUNCH A
SPOOL 000E 1403 A
LINK MAINT 0190 0190 RR
LINK MAINT 019D 019D RR
LINK MAINT 019E 019E RR
SUBCONFIG TUSER-1
MDISK 0191 3390 2733 5 M01W01
SUBCONFIG TUSER-2
MDISK 0191 3390 2728 5 M02W01
```



**Added by
DIRMAINT**

Dirmaint Commands

Adding a Multi-Configuration User

IDENTITY must be added before SUBCONFIGs

Using prototype directories works the same way

ADD TUSER LIKE MULTISRV

ADD TUSER-1 LIKE MULTIS-1 BUILD ON VM01 IN TUSER

ADD TUSER-2 LIKE MULTIS-2 BUILD ON VM02 IN TUSER

Where MULTISRV PROTODIR, MULTIS-1 PROTODIR,
and MULTIS-2 PROTODIR reside on DIRMAINT's A-disk

Creating a single-configuration virtual machine (USER)
has not changed

Dirmaint Commands

GET and REVIEW authorization

DIRM GET

- For an IDENTITY, DirMaint responds with the IDENTITY section of the directory entry, including BUILD statements
- If you specify AT member, DirMaint responds with the corresponding SUBCONFIG and not the IDENTITY section

DIRM REVIEW

- For an IDENTITY, DirMaint responds with the IDENTITY and associated SUBCONFIG sections of the directory entry

SUBCONFIGs can be the target of a GET or REVIEW. Only the SUBCONFIG section of the directory entry will be retrieved

DirMaint commands are authorized by USER id or IDENTITY id, not SUBCONFIG

- The IDENTITY is automatically given authority over its associated SUBCONFIGs
- Command authorization is defined in AUTHFOR CONTROL

Dirmaint Commands

REPLACE and PURGE

DIRM REPLACE

- Cannot change entry type using DIRM REPLACE
- Cannot have multiple entry types in one entry
- Cannot remove BUILD statement

DIRM PURGE

- When deleting a SUBCONFIG entry, DirMaint will remove associated BUILD statement from IDENTITY entry
- When deleting an IDENTITY entry, DirMaint will remove all related SUBCONFIG entries

Dirmaint Commands

AMDISK and DMDISK

DIRM AMDISK and DMDISK

- For single-configuration virtual machines, the prefix keywords refer to the USERid
- For multi-configuration virtual machines, the prefix keywords refer to the SUBCONFIG id
 - You can specify the IDENTITY and not the SUBCONFIG id on the AMDISK command, but the result will probably not be what you intended
- For operations that require a Datamove machine, the Datamove machine will be selected based on the system node associated with SUBCONFIG on BUILD statement

DIRM FOR TUSER-1 DMDISK 191 CLEAN

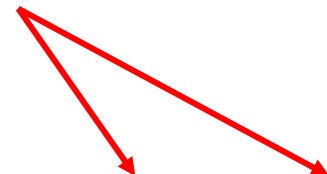
DATAMOVE is assigned the CLEAN task

DIRM FOR TUSER-2 DMDISK 191 CLEAN

DATAMOV2 is assigned the CLEAN task

Using Dirmap

The subconfig and the member associated with the minidisk has been added.



<u>USER</u>	<u>DIRECT</u>	<u>Map of</u>		<u>Minidisks</u>	<u>16:25:12</u>	<u>20120215</u>	<u>Flags</u>	<u>Subconfig</u>	<u>Member</u>
<u>Volser</u>	<u>Type</u>	<u>Ownerid</u>	<u>Addr</u>	<u>Start</u>	<u>End</u>	<u>Length</u>			
M01RES	3390	\$ALLOC\$	0A04	0	0	1	Overlap		
		MAINT	0123	0	1112	1113		MAINT-1	VM01
		SYSDUMP1	0123	0	1112	1113		SYSD	
		.DRCT.	0300	1	20	20	Overlap		
		\$DIRECT\$	0A01	1	20	20			
		\$SYSCKP\$	0A01	21	29	9			
		\$SYSWRM\$	0A01	30	38	9			
		MAINT	0CF1	39	158	120		MAINT-1	VM01
		MAINT	0CFD	159	159	1		MAINT-1	VM01
		MAINT	0CF3	160	279	120		MAINT-1	VM01
		MAINT	0190	280	493	214		MAINT-1	VM01
		MAINT	0191	494	668	175		MAINT-1	VM01
		MAINT	0193	669	1168	500		MAINT-1	VM01

Questions?

Thank You!

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