



IBM Software Group

New z/VM Systems and Storage Management Products from IBM

Part 2

Session V67

IBM zSeries Expo

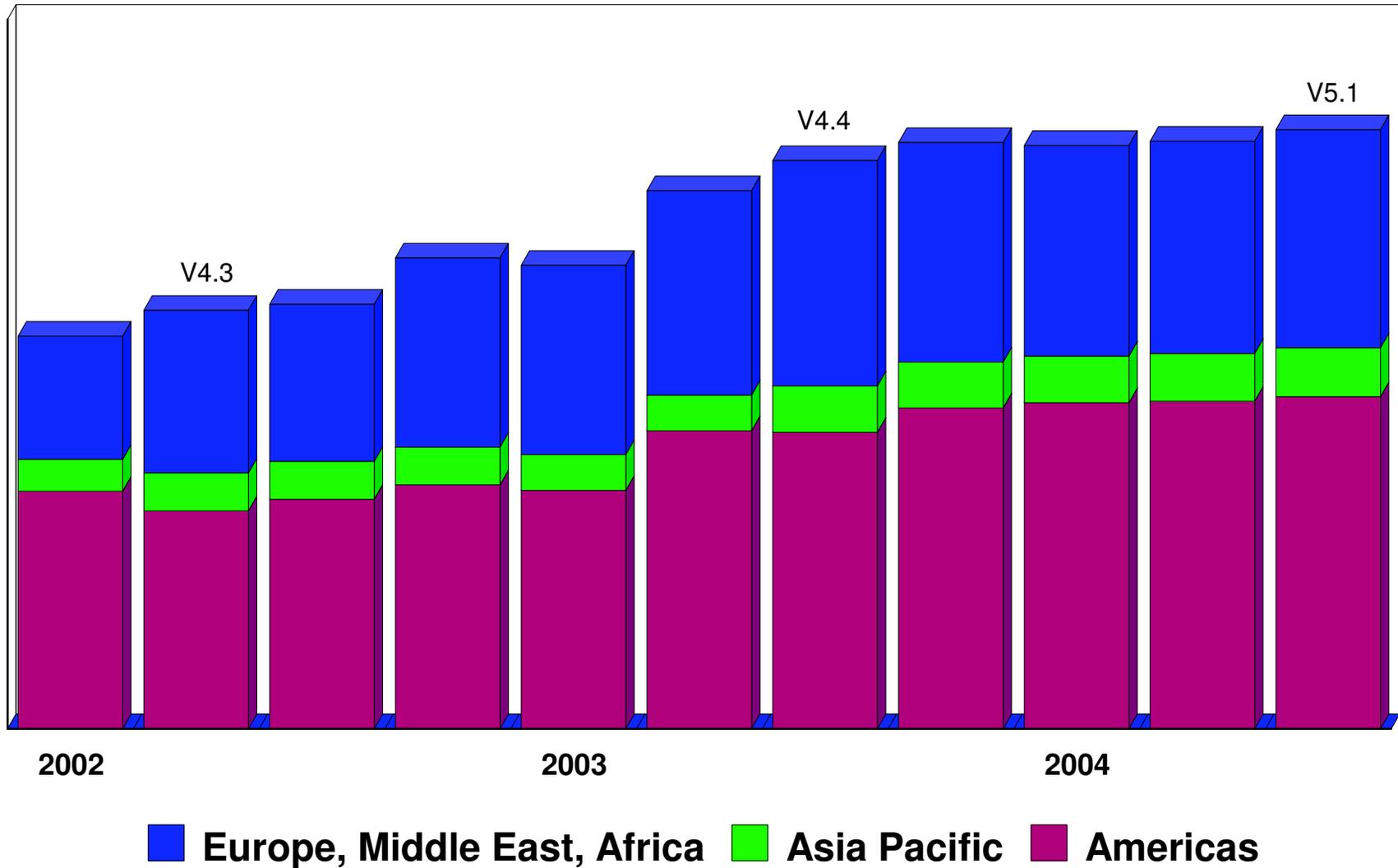
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Agenda

- Overview
- Archive Manager for z/VM
 - Key features
 - Product architecture
 - Configuration
- Operations Manager for z/VM
 - Key features
 - Product architecture
 - Configuration
- Session V66: Monday, 4:10pm
 - Tape Manager for z/VM
 - Backup and Restore Manager for z/VM

z/VM Market - Licenses and Releases/Versions



Overall z/VM Marketplace

- **Traditional z/VM customers**
 - Longtime z/VM (VM/ESA, VM/SP) customers
 - Running business applications on z/VM
 - Also installing and using Linux on zSeries
 - Require full set of systems management solutions for z/VM and the Linux guests

- **Customers using z/VM to host Linux only**
 - New to z/VM
 - Understand the benefits of using z/VM to host Linux guests
 - Prefer Linux-based tools for systems management of Linux guests
 - Also need basic systems management tools for z/VM host

- **Total cost of ownership being scrutinized**
 - Automation
 - Efficiency and productivity
 - Software costs

Archive Manager for z/VM

- **Archive** - designed for users and administrators
 - Manage disk space by moving infrequently used or accessed files to tape or other disk
 - Source data on CMS minidisk, SFS, ECKD images
 - Select files by filename filetype filemode
 - Wildcard support for filename filetype, SFS directory (including all subdirectories, or not)
 - Target output (a parcel) to tape or disk
 - Always copied to staging disk first
- **Recall**
 - Source data on tape or disk
 - Target output to CMS minidisk, SFS, ECKD DASD, virtual reader
 - User or administrator requested
 - Search for file(s) to recall
 - Wildcard support for filename and filetype
 - Selection by date
 - Can include other files in that archive parcel
- **Catalog**
 - Contains all metadata for archive jobs and files
- **Product information**
 - Announced August 23, 2005
 - GA August 26, 2005

Operations Manager for z/VM

- **Monitor service machines**
 - Take predefined actions based on message text matching
 - Suppress messages
 - Highlight messages with color, blinking, etc.
- **Schedule events/actions**
- **Automate tasks with Terminal Device Manager**
- **Supports multiple installations of Operations Manager on one z/VM system**
 - Performance (monitoring a large number of consoles)
 - Separation of access control
- **Product information**
 - Announced August 23, 2005
 - GA August 26, 2005



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Archive Manager for z/VM

Efficiency

Productivity

Control

Key Features

- **Based on design of Backup and Restore Manager**
 - Modular data handlers and media drivers
 - Catalog housed as a hierarchical structure in SFS
 - Standard CMS interfaces
 - Recalls with original date
 - Expiration processing
- **Asynchronous user interface**
 - Immediate (synchronous) notification if no files found to archive
 - User warned not to modify files until archive complete
 - User notified when archive or recall is complete
- **Concurrent processing available when tapes are involved**
 - Multiple service machines available
 - 1 job assigned to 1 service machine
 - Assigned by master server
- **Automatic aging and pruning of the archive catalog and data**
 - Tape consolidation available to remove gaps created by expired archives

Access Control

■ Administrators

- Submit archive and recall requests for any data
- Archive and recall from anywhere to anywhere
- Manipulate contents of archive catalog
- Receive all service machine consoles
- Full screen interface for navigating the catalog and requesting recalls

■ Users

- Archive and recall files they own
- Archive to any authorized storage class
- Full screen interface to find files available for recall

■ Groups

- Can recall files belonging to any storage group to which they are a member

Storage Groups and Storage Classes

AMVSRVR CONFIG

```

Begin_Groups
ALLUSERS
DSKUSERS
End_Groups
Begin_Classes
Define_Class DEFAULT TAPE SIMPLEX 1 365 365 SCRATCH ALLUSERS - N Y Y N N N N
Define_Class ADMINDSK EDF SIMPLEX 1 365 2555 E00 DSKUSERS - Y Y Y Y Y N N
End_Classes
    
```

DEFAULT Storage Class

- Archives to single tape
- Default retention 365 days
- Min retention 1, max 365 days
- All users on system can archive here
- Users can remove and transfer archives
- Users can not extend expiration, move parcels to another storage class, create image parcels

ALLUSERS GROUPLST

EVERYONE

DSKUSERS GROUPLST

ADMINS
DEPTABC

EVERYONE ROSTER

*

ADMINS ROSTER

OPS*

DEPTABC ROSTER

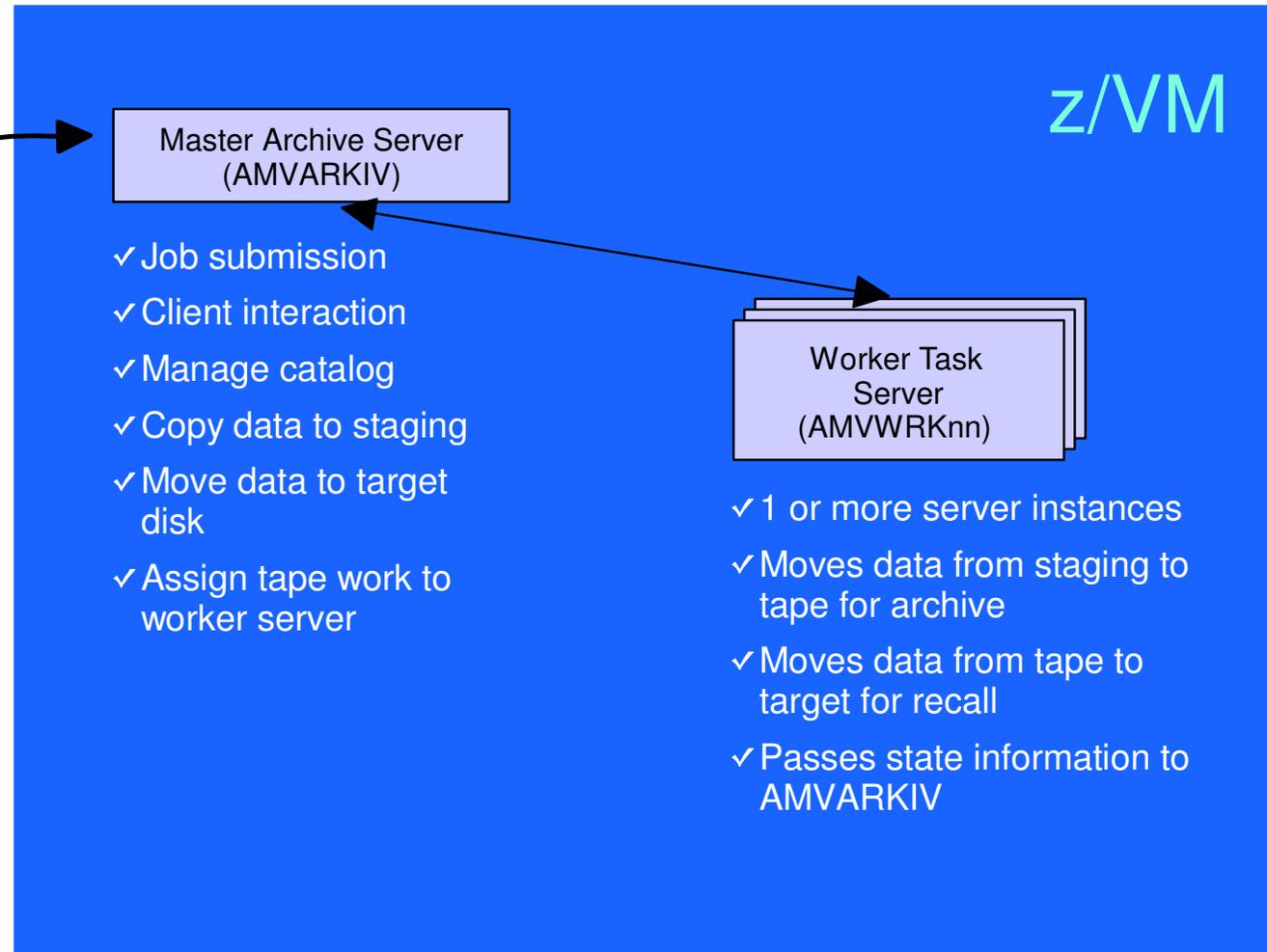
USERA
USERB
USERC

ADMINDSK Storage Class

- Archive to AMVARKIV's E00 mdisk
- Default retention 365 days
- Min retention 1 day, max 7 years
- USERA, USERB, USERC, and OPS* userids can archive here
- Users can extend expiration, remove and transfer archives, move parcels to another storage class, create image parcels

Archive Manager - Architecture

→ Communication via
MSG/IUCV



System Configuration Information

```
* Identify administrative user and top-level service virtual machines:
*
Local_Archive_Admin_ID   = AMVADMIN
Local_Archive_Server_ID  = AMVARKIV
Local_Archive_Catalog_ID = AMVCATLG
*
* Control archivist use of DEFINE MDISK versus LINK for minidisk access
*
* Valid settings are: "LINK"      - use CP LINK (requires OPTION LNKNOPAS)
*                      "DEFMDISK" - use CP DEFINE MDISK (requires OPTION DEVMAINT)
*
* Note: Use of "DEFMDISK" allows archive processing of T-Disk contents. This
*       feature is unavailable if the "LINK" is specified.
*
* Archive_Minidisk_Via = LINK
Archive_Minidisk_Via   = DEFMDISK
*
* "Drop Dead" idle timer for worker task virtual machines
*
Worker_Idle_Timeout = +00:01:00
*
*
* Temporary staging area info for worker virtual machines
* Worker_Stage_Type = Some valid argument for DEFINE Txxxx -or- DEFINE VFB-512
*                   command. Supported values are T3380, T3390, or VFB-512.
*
*
Worker_Stage_Type = T3380
```

System Configuration Information

```
* Configuration for tape handling exits (AMVMOUNT, AMVUMNT, AMVEOV):  
Tape_Exit_Context = AMV  
Tape_Operator = DMARTIN  
Tape_Request_Method = EXEC TELL  
Tape_Delay_Interval = +00:00:60  
Tape_Times_To_Poll = 5  
TAP1_Virtual_Address = 181  
TAP2_Virtual_Address = 182  
Tape_Retain_After_EOJ = 0  
Tape_Handled_Via_EUM = 0  
* EUM_Pool_Owner = AMVARKIV  
* EUM_Pool_Name = ARCHIVE  
*  
* Master Archivist Catalog configuration:  
*  
CatalogPool = AMVCPool  
CatalogSpace = AMVCATLG
```

Server Configuration Information

```

Staging_Area = 292      * We access this as our parcel creation area...
*
BEGIN_GROUPS
ALLUSERS * Simple wild-card, one-line '*' to fit any/all users...
BETA     * List of users in the "Beta" group
GAMMA    * List of users in group "Gamma"
END_GROUPS
*
*
BEGIN_CLASSES
*
Define_Class DEFAULT EDF SIMPLEX 1 365 365      E00          ALLUSERS -      Y Y Y Y N N N
*
Define_Class CUSTOM EDF DUPLEX 1 365 99999999 E10          ALLUSERS E11    Y Y Y Y N N N
*
Define_Class TAPE1 TAPE SIMPLEX 1 365 365      SCRATCH        ALLUSERS SCRATCH Y Y Y Y Y N N
*
Define_Class SFSSIMPL SFS SIMPLEX 1 365 365      ROCKSFS1:AMVARKIV.SIMPLEX ALLUSERS -      y y y y y n n
*
Define_Class SFSDUPL SFS Duplex 1 365 99999999 ROCKSFS1:AMVARKIV.DUPLEX.PRIMARY ALLUSERS
ROCKSFS2:AMVARKIV.DUPLEX.SECONDARY Y Y Y Y Y N N
*
END_CLASSES

```



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Operations Manager for z/VM

Monitoring

Scheduling

Task automation

Monitor Service Machines

- **Capture console messages**
 - Must SECUSER to Operations Manager GOMMAIN server
 - Dataspaces used to hold the log of captured messages/console
 - Daily log includes captured message
 - Text, length, IUCV class, source
- **Define rules to**
 - Scan console messages for text matching
 - Includes wildcard support
 - Take actions based on matches
- **Multiple rules can apply to one message**
 - FINAL option available to indicate no additional rules should be evaluated
- **Predefined actions**
 - Suppress messages from the GOMMAIN console
 - Always sent to the log
 - Highlight messages with color, blinking, etc.
- **Customer defined actions**
 - CP or CMS command, or EXEC to be executed

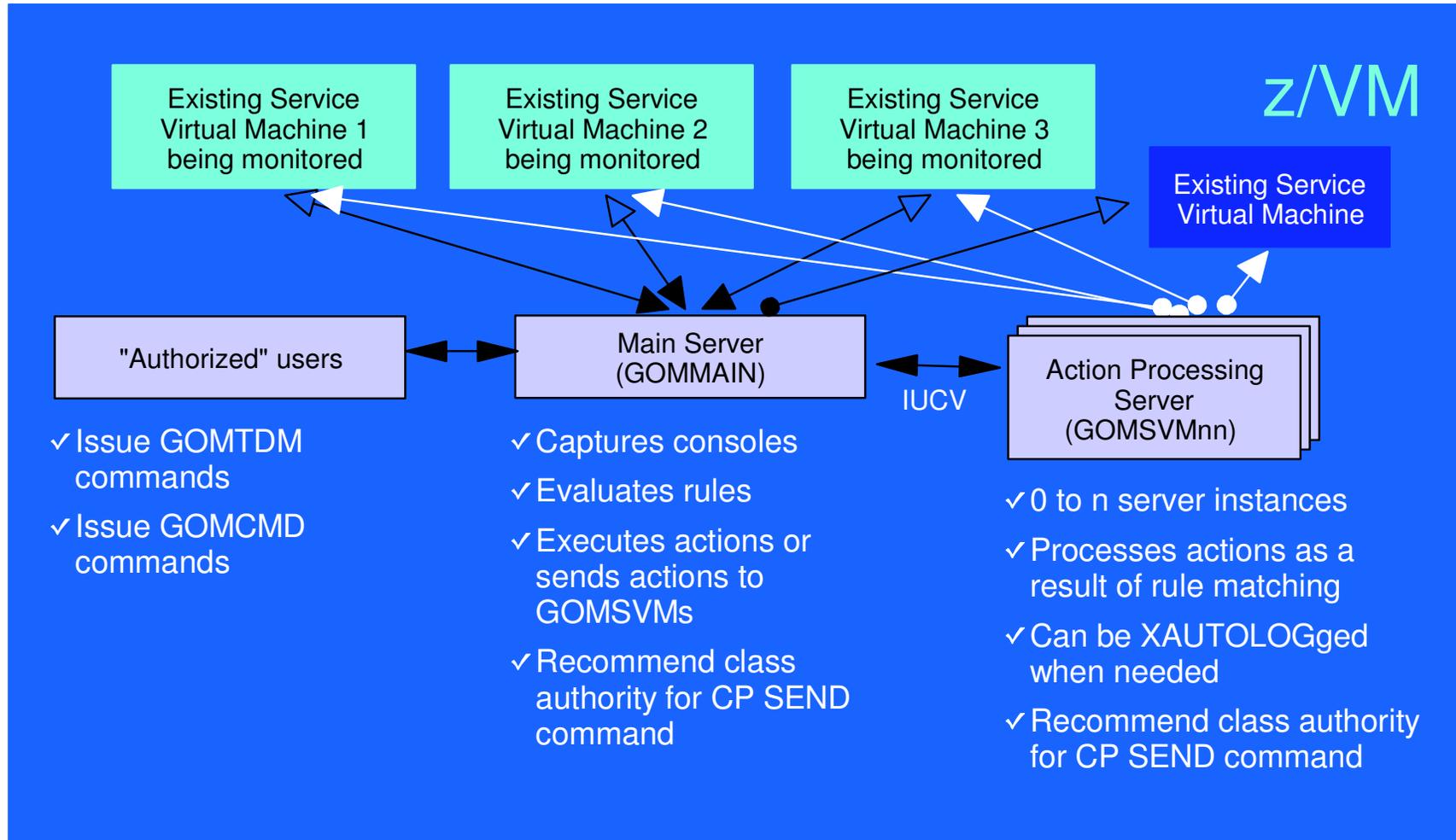
Schedule Events and Actions

- Define timers to occur
 - Hourly at a specified number of minutes past the hour
 - Daily at a specified time
 - Weekly on a specified day of the week and at a specified time
 - Monthly on a specified day of the month and at a specified time
 - Yearly on a specified month and day and at a specified time
 - Once on specified month, day, year, and time
- Time based on local time of system
 - Same as Query TIME
 - Picks up dynamic time zone changes
- Specify the action associated with the timer
 - Actions specified the same as those for console rules
- Only future timers are activated on startup
 - Won't execute a timer scheduled for earlier today
 - Will execute it at its next occurrence

Automate Multi-step Tasks

- **Using Terminal Device Management (TDM)**
 - Create scripts (REXX EXECs) to logon to a user and perform specific actions
 - EXEC contains special calls to Operations Manager GOMTDM functions
 - **OPTION:** set up the environment for this session
 - Suppressing or displaying messages
 - Imbedded delays after input or output displayed on console
 - Maximum wait for console response to a GOMTDM query
 - Stacking returned values LIFO vs. FIFO
 - Coded character set to use
 - Put all console output to a file or not
 - Wait for keyboard input lock to clear or not
 - **INIT:** start a new session at this z/VM system's logon screen and return session id (handle)
 - **INPUT:** enter data from session command line by specifying:
 - Handle
 - Data to enter
 - Cursor position
 - Key to simulate (Enter, Clear, PA1-PA3, PF1-PF24, Forward tab, Backward tab, Up, Down, Left, Right, Newline, Home, EraseEOF)
 - **QUERY:** get information about the session
 - Cursor position
 - Position of next occurrence of a specified string on the screen, based on cursor position
 - Put copy of the screen in a specified file
 - Version of Operations Manager code running
 - **TERM:** end a session specified by a handle
 - Using DIAG '7C' for logical device support

Operations Manager - Architecture



Monitoring GOMMAIN using the GOMCMD command

- Issued by users with access to the command
- Executes an Operations Manager command on GOMMAIN
 - User must have authorization to issue the command on GOMMAIN
 - Includes any valid Operations Manager control or configuration command
- Passes output back to user console
 - "Fullscreen mode" for log and console viewing
 - Scrolling up and down
 - Autoscrolling (on or off) as new output is displayed on the console
 - Can issue valid Operations Manager commands from fullscreen command line
 - "Linemode" for other commands
- Typically used to view a log or query status
 - Can be used to troubleshoot a service machine or user problem
 - Multiple administrators can view a console simultaneously

Access Control

- Users defined with access to one or more:
 - Control commands
 - Manage the Operations Manager infrastructure
 - Define additional service machines to do monitoring
 - Authorize users
 - Display status
 - Send commands to a monitored console
 - Configuration commands
 - Define rules
 - Define timers
 - Define actions
 - Consoles
 - Define user access to monitored consoles
- Additional access based on access to modules
 - GOMCMD: issue commands on GOMMAIN and return output
 - GOMTDM: terminal device management

Sample Configuration File

```
* Define users with control authority to Operations Manager
*
AUTH USER(USER1),CONTROL(Y)
AUTH USER(USER2),CONTROL(Y)
*
* Define users with config authority to Operations Manager
*
AUTH USER(USER1),CONFIG(Y)
AUTH USER(USER3),CONFIG(Y)
*
* Define users and the consoles they can access to Operations Manager
* Must have control authority
*
AUTH USER(USER1),CONSOLE(SFS)
AUTH USER(USER1),CONSOLE(RSCS)
AUTH USER(USER2),CONSOLE(*)
*
* Define service machines to Operations Manager
*
DEFSRVM USER(GOMSV01)
DEFSRVM USER(GOMSV02)
DEFSRVM USER(GOMSV03)
DEFSRVM USER(GOMSV04)
```

Sample Configuration File

```
* Define rules to Operations Manager
*
DEFRULE NAME (CPREAD),MATCH (*HCP*150A*CP*),ACTION (CPREAD)
DEFRULE NAME (VMREAD),MATCH (*HCP*150A*VM*),ACTION (VMREAD)
DEFRULE NAME (PSWAIT),MATCH (*HCP*450W*),ACTION (PSWAIT)
* Define timers to Operations Manager
*
DEFTIMR NAME (STATS),WHEN (00),ACTION (STATUS)
DEFTIMR NAME (H00),WHEN (00),ACTION (STORMAP)
DEFTIMR NAME (WMON),WHEN (MON-00:00),ACTION (ACCOUNTS),PARM (WEEKLY)
DEFTIMR NAME (FIRSTM),WHEN (01-00:00),ACTION (NEWMONTH),PARM (MONTHLY)
*
* Define actions to Operations Manager
*
DEFACTN NAME (CPREAD),COMMAND (CP SEND &2 BEGIN),
INPUT (LOG,CRE),OUTPUT (LOG),ENV (LVM)
DEFACTN NAME (VMREAD),COMMAND (CP SEND &2 BEGIN),
INPUT (LOG,CRE),OUTPUT (LOG),ENV (LVM)
DEFACTN NAME (PSWAIT),COMMAND (CP SEND &U IPL CMS),
INPUT (LOG,CBL),OUTPUT (LOG),ENV (LVM)
DEFACTN NAME (STATUS),COMMAND (STATUS),OUTPUT (LOG),ENV (GOM)
DEFACTN NAME (STORMAP),COMMAND (STORMAP),OUTPUT (LOG),ENV (LVM)
DEFACTN NAME (ACCOUNTS),COMMAND (EXEC DOACCTS &P),OUTPUT (LOG),ENV (SVM)
DEFACTN NAME (NEWMONTH),COMMAND (EXEC DOACCTS &P),OUTPUT (LOG),ENV (SVM)
```

Summary

- **New z/VM tools for systems and storage management**
 - Improved flexibility, productivity, and control of backup and restore operations
 - Automated, efficient, and productive tape management and operations
 - Improved user management of disk space with archive functions
 - Automated operations
- **April 29, 2005 (see session V66)**
 - GAed Tape Manager for z/VM V1.1
 - GAed Backup and Restore Manager for z/VM V1.1
- **August 26, 2005**
 - GA Archive Manager for z/VM V1.1
 - GA Operations Manager for z/VM V1.1
- **Gathering and prioritizing additional customer requirements**
- **Web site:**
 - <http://www.ibm.com/software/stormgmt/zvm/>