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Centralizing Console and Log Management Across the zEnterprise

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Agenda

- Introduction
  - Centralized vs Distributed Management
  - Hybrid or Combining the Methodologies
    - Central Area
    - Central Collection
- Where to start?
  - Model z/OS mature practices
  - z/VM tools functionality (SCIF)
    - Console Management
    - Syslog Management
- Enterprise event management

Central vs Distributed Management

- PROs of Central
  - One place to look for messages
  - One system to maintain, simplify maintenance, rules, alerts, etc
- CONs of Central
  - Shipping large number of messages across network
  - UDP reliability
- PROs of Distributed
  - Less Network traffic
- CONs of Distributed
  - Multiple systems to maintain
  - Multiple sources for support of business applications across the enterprise

Hybrid or Combining Methodologies

- The best of both worlds

  It may not be possible technically, politically, or cost effective to completely centralize console and log management. However, organizations who consolidate where appropriate/possible can realize the benefits of centralized management at some level.

zEnterprise makes it easier

- Powerful Hypervisor (Full OS with tools and applications)
- Central Area: Tightly Integrated Network(s)
  - The reliability of log messages improves the closer the syslog server is to the source generating the messages.
- Central Collection: Centralized Operations and Network Centers

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Where to Start

- z/OS has a mature management structure around the system console
  - NetView or equivalent enhancements to message attributes
  - System Automation in response to specific messages
  - Integration to Enterprise level event monitoring
- z/VM
  - Someone needs to be watching the house (operations)
  - Focus often on distributed solutions for Linux on System z
  - z/VM and CMS guests often ignored
  - z/VM as a central base for Linux management often missed
- zBX
  - Introduces additional virtual and physical servers
  - Focus often on distributed solutions for Linux on System z
  - Geographical and architecture advantages present the opportunity to include in Enterprise Management structure.

Where to Start

- z/VM
  - Provide z/OS style console management practices to the z/VM system and its service machines
  - Centralize Linux on System z with z/VM Tools
- zBX
  - Centralize blade physical and virtual server logs with z/VM Tools
- Enterprise Management
  - Roll up appropriate console and log events to Enterprise Manager.

Where to Start: z/VM

Virtual Server sprawl has increased distributed management structures in the traditionally centralized mainframe arena.

- z/VM SCIF
  - PROP (customers can code features similar to vendor features)
  - Vendor solution(s)
- z/VM
  - Console Management
  - Syslog Management
- Linux on System z
  - Console Management
  - Syslog Management
- zBX
  - Syslog Management

z/VM Tooling

- z/VM SCIF (Single Console Image Facility)

  By means of SCIF, a user logged on to a single virtual machine can control one or more disconnected virtual machines. The controlling virtual machine is called the ***secondary user.*** A disconnected virtual machine being controlled is called a ***primary user.***
- Operations Manager for z/VM will be an example SCIF base tool for this presentation.

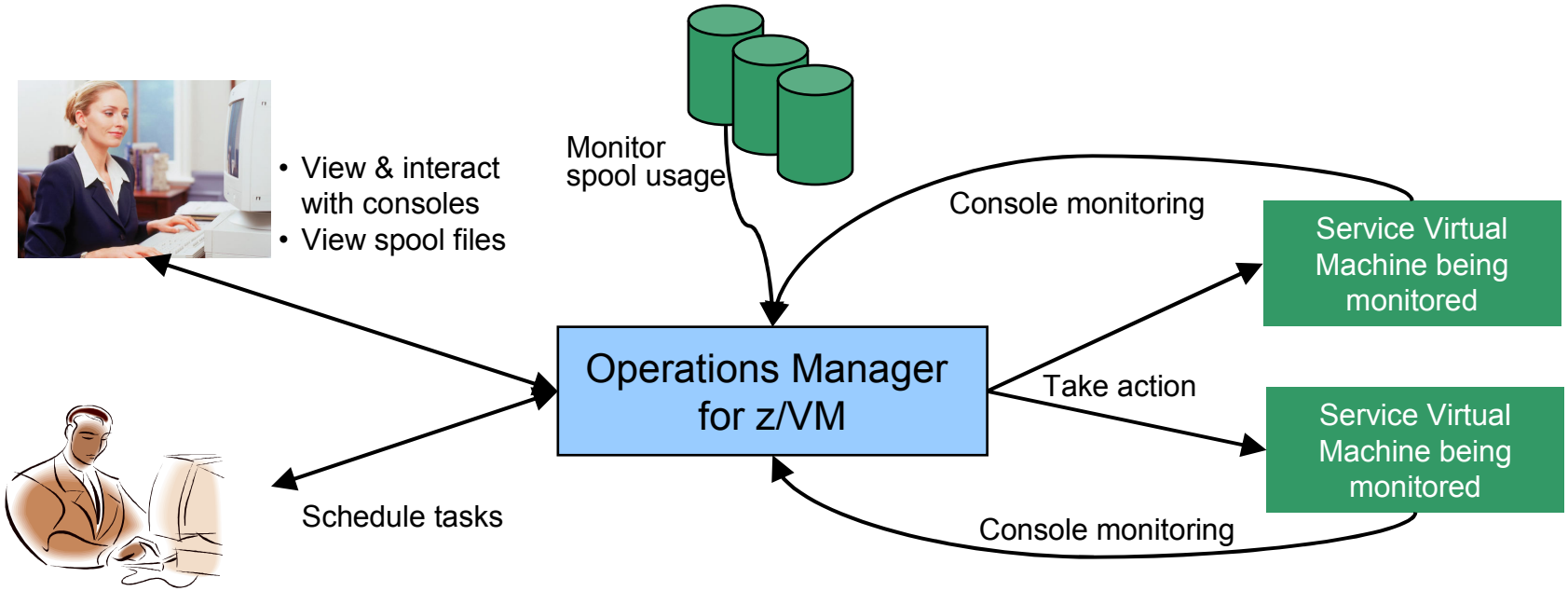
Operations Manager for z/VM

Increase productivity

- Authorized users view and interact with monitored virtual machines without logging onto them
- Multiple users view/interact with a virtual machine simultaneously

Improve system availability

- Monitor virtual machines and processes
- Take automated actions based on console messages
- Reduce problems due to operator error



Automation

- Routine activities done more effectively with minimal operations staff
- Schedule tasks to occur on a regular basis

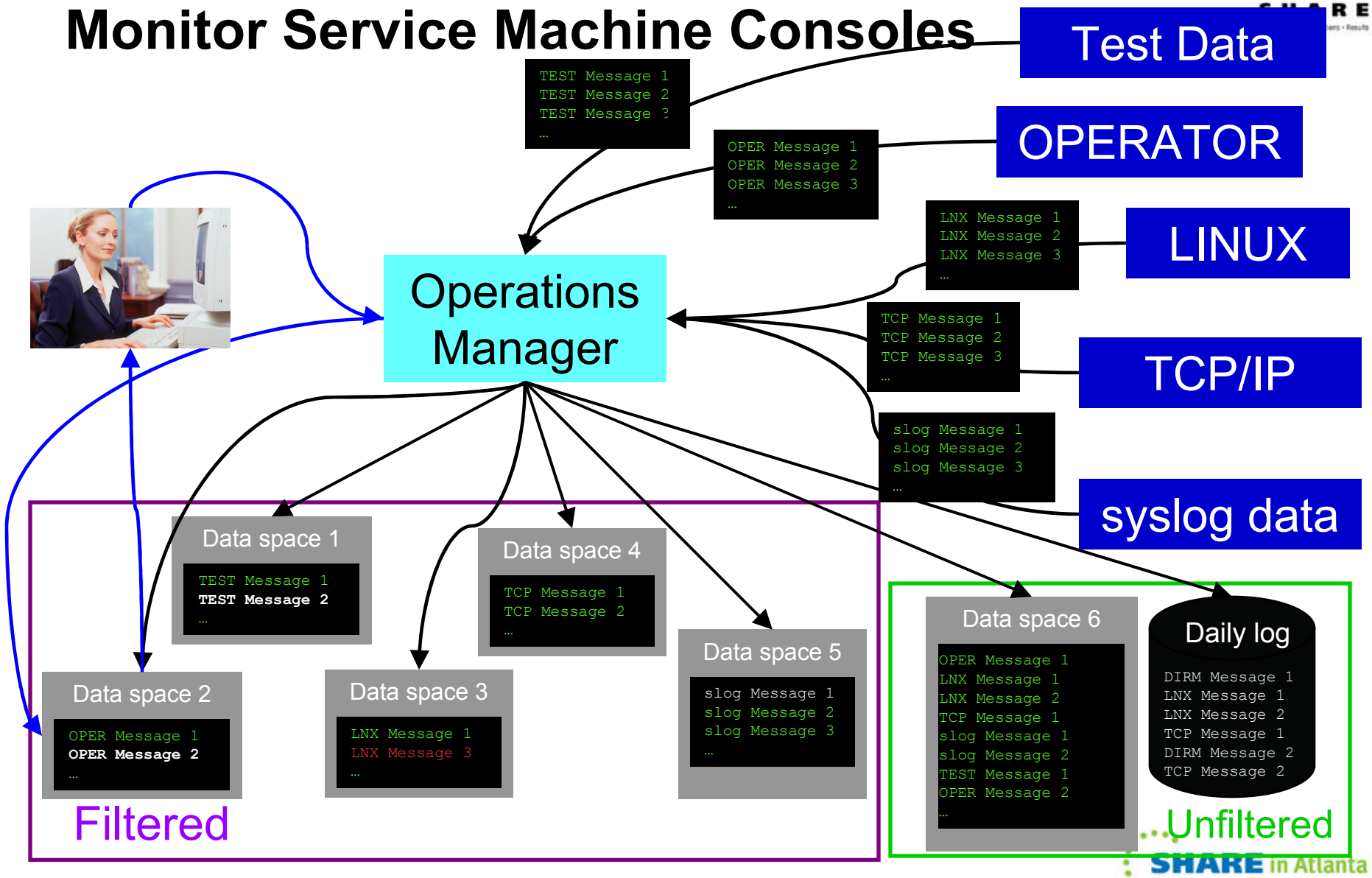
Integration

- Fulfill take action requests from OMEGAMON XE on z/VM and Linux
- Send alerts to Netcool/OMNIbus

Features and Functions

- Monitor service machine consoles
- Monitor spool usage
- Monitor system events
- View and interact with monitored consoles from authorized user IDs
- Find and view spool files
- Schedule events/actions
- Dynamic configuration
- Separation of access control

Monitor Service Machine Consoles



Monitor Service Machines

- Define rules to
  - Scan console messages for text matching
    - Includes column, wildcard, and exclusion support
    - Optionally restrict to specific user ID(s)
  - Take actions based on matches
- Multiple rules can apply to one message
  - Rules processed in order of definition in the configuration file
  - FINAL option available to indicate no additional rules should be evaluated

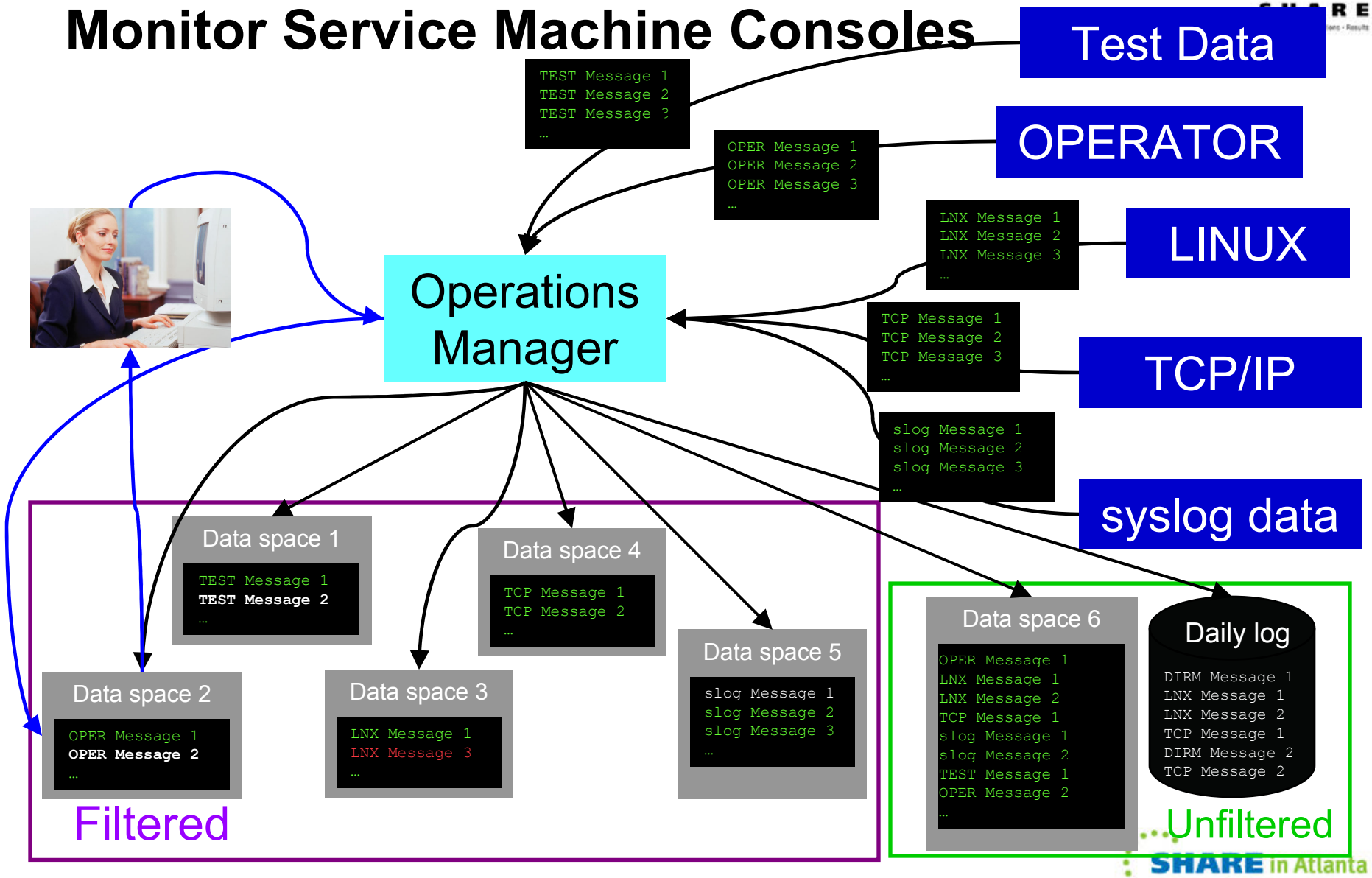
View and Interact with Consoles

- Authorized users can view live consoles of monitored service machines and guests
  - Multiple users can view the same console simultaneously
  - No need to logon to the service machine to see its console
  - Test data and Linux syslog data treated as a “console”
  - Views can be defined to look at a group of consoles in one view
- Full screen mode
  - Scroll up and down to view and search historical data
  - Auto scroll (on or off) as new output is displayed on the console
  - From command line, issue commands back to the monitored console
- Amount of data that is visible depends on specified or default data space size
- Rules/actions may modify the view
  - Suppress messages from the console
  - Hold or highlight messages with color, blinking, etc.
- Authorized users can view the log file
  - Can also request a copy of the log file from today or a previous day

View and Automate with Syslogs Messages

- Authorized users can view syslog messages as if they were live consoles of monitored service machines
  - Multiple users can view the same syslog “console” simultaneously
  - No need to logon to the service machine to see its messages
  - Views can be defined to look at a group of syslog “consoles” in one view
- Full screen mode
  - Scroll up and down to view and search historical data
  - Auto scroll (on or off) as new output is displayed on the console
  - ~~From command line, issue commands back to the monitored console~~
- Amount of data that is visible depends on specified or default data space size
- Rules/actions may modify the view
  - Suppress messages from the console
  - Hold or highlight messages with color, blinking, etc.
- Authorized users can view the log file
  - Can also request a copy of the log file from today or a previous day

Monitor Service Machine Consoles



Monitor and View Spool Files

- Create spool monitors to trigger actions when
  - Percent of spool usage falls within a specified range
  - Percent of spool usage increases at a specified rate
- Actions triggered can be the same actions used by console monitoring
- Authorized users can
  - Display a list of spool files based on one or more attributes
    - Owner
    - Size
    - Date created
  - From the list the user can
    - View the contents of an individual spool file
    - Transfer, change, or purge a spool file

Schedule Events and Actions

- Define schedules
  - Hourly, daily, weekly, monthly, or yearly, nth weekday of the month
  - Once on specified month, day, year, and time
  - At regular intervals
    - Every x hours and y minutes
  - Within a specified window of time
    - Specify start time
    - Specify conflicting schedules
    - Specify maximum time to defer this schedule
  - Within limits
    - Restrict to specific days of the week: Monday through Sunday plus holidays
    - Restrict to certain hours of the day
- Specify the action associated with the schedule
  - Actions specified are the same as those for console and spool monitoring

Respond to System Events

- Create monitors for z/VM system events (*VMEVENT) related to user IDs
  - Logon
  - Logoff
  - Failure condition (typically CP READ)
  - Logoff timeout started
  - Forced sleep started
  - Runnable state entered (VM READ)
  - Free storage limit exceeded
- Optionally restrict to specific user ID(s)
- Specify the action associated with the event
  - Actions specified are the same as those for schedules and console and spool monitors

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Console Management

- Most z/OS customers provide a centralized management console in their operations center. This is often the system console enhanced with products like IBM Tivoli NetView for z/OS to:
  - highlight messages,
  - automate actions associated with known messages,
  - and suppress messages.
- Highlighted and held messages are designed to grab the operator's attention
- Most operations staff is accustomed to this type of message monitoring and quickly adapts to the look and feel.

Console Management

- z/VM OPERATOR user ID is similar to a systems console.
  - May not be appropriate to suppress messages on the OPERATOR user ID.
  - Providing direct access to the OPERATOR console for those other than system support is often not desired.
- Creating a custom console for the operations staff with:
  - appropriate authorization,
  - message attributes,
  - and automation

  often provides the perfect console for operations staff in a manner that they find very familiar.
- Re-introduce z/VM to the Operations Staff

Console Management

Create a new CMS guest as the Operation's Console.

- The console for the z/VM and Linux messages will be a standard z/VM CMS guest user ID.
- This CMS user ID will only get the permissions appropriate for the operations staff (in our example privilege class G).
- The user ID will be named OPER8.

Operations Manager for z/VM rules can be defined

- Look for critical messages to be forwarded to OPER8 (filter stage),
- and have attributes applied to them for viewing by operations staff (attribute stage).

Console Management: Filter Stage

- The first stage of processing is to determine if the console message received is one appropriate for forwarding to OPER8.
- Once a message meets the filter criteria via an Operations Manager for z/VM rule:
  - An action will be defined to send the message to OPER8.
  - The message can be sent in its original or modified form.

Console Management: Filter Stage

```
*
DEFRULE NAME(ABEND),+
  MATCH(*abend*),+
  EXCLUDE(*remote*),+
  EXUSER(OPER8),+
  ACTION(MSGOPER8)
*
DEFACTN NAME(MSGOPER8),+
  COMMAND(CP MSGNOH OPER8 &U : &T),+
  OUTPUT(LOG),+
  ENV(LVM)
*
```

Console Management: Attribute Stage

The second phase of processing is to apply input actions to the messages to draw attention to the operations staff indicating the severity of the alert.

```
DEFRULE NAME(ABENDHLT),+
  MATCH(*abend*),+
  USER(OPER8),+
  ACTION(HLTHOLD)
*
DEFACTN NAME(HLTHOLD),+
  INPUT(AHI,HLD)
*
```

Console Management: Attribute Stage

The well-known input actions are:

- AAL. Activates an audible alarm when the message is displayed.
- ABL. Sets the extended display attribute to blink.
- AHI. Sets the display attribute to high intensity.
- ARV. Sets the extended display attribute to reverse video.
- AUL. Sets the extended display attribute to underline.
- CBL. Sets the extended display color to blue.
- CCY. Sets the extended display color to cyan.
- CGR. Sets the extended display color to green.
- CPI. Sets the extended display color to pink.
- CRE. Sets the extended display color to red.
- CWH. Sets the extended display color to white.
- CYE. Sets the extended display color to yellow.
- HLD. Holds the message on the user's console until it is removed.

Console Management: Attribute Stage

```
LOGON TSTADMN1
z/VM Version 5 Release 4.0, Service Level 0902 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES:   NO RDR,   NO PRT,   NO PUN
LOGON AT 11:54:39 CDT THURSDAY 10/13/11
z/VM V5.4.0    2009-09-23 15:29
DMSACP723I G (592) R/O
DMSACP723I H (593) R/O
DMSACP723I I (198) R/O
DMSACP723I J (692) R/O
DMSACP723I N (498) R/O
DMSACP723I O (293) R/O
Ready; T=0.01/0.01 11:54:39

msgnoh dirmaint this is a test abend message_
                                          RUNNING    DEM1ZVM
MA    a                                                23/045
```

Console Management: Attribute Stage

```
Session A - [24 x 80]
File Edit View Communication Actions Window Help
10:16:53 OPERATOR :  * MSG FROM TSTADMN1: TEST ABEND
10:18:37 OPERATOR :  * MSG FROM TSTADMN1: REMOTE TEST ABEND
11:57:06 DIRMAINT : THIS IS A TEST ABEND MESSAGE
12:01:01 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:01:01
12:01:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.02 12:01:02
12:05:21 BKRCATLG : OUTPUT LINE 1 : CATALOG  GRANULE  D1
12:05:21 BKRCATLG : RETURN CODE: 0
12:06:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:06:02
12:11:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:11:02
12:16:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:16:02
12:21:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:21:02
12:26:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:26:02
12:31:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:31:02
12:36:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:36:02
12:41:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:41:02
12:46:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:46:02
12:51:02 DIRMAINT : DIRMAINT DEM1ZVM. - 2011/10/13; T=0.01/0.01 12:51:02
12:51:36 * -- Operations Manager VIEWCON session from TSTADMN1 entered the foll
12:51:36 altrcon
12:51:36 Unknown CP/CMS command
 PF01= SCROLL PF02= VIEWPF PF03= END    PF04= HELP   PF05= HOLD   PF06= FORMAT
 PF07= UP     PF08= DOWN   PF09= CMS CO PF10= LEFT   PF11= RIGHT  PF12= RECALL

_                                                    OPER8     (Scroll)
MA      a                                                          23/001
Connected to remote server/host 9.39.68.141 using port 23
```

Console Management: Attribute Stage

```
Session A - [24 x 80]
File Edit View Communication Actions Window Help
13:45:53 A FAKE ABEND HAS OCCURRED
13:48:20 A fake abend has occurred
13:48:36 This is standard non scary message 17
13:48:37 This is standard non scary message 18
13:48:38 This is standard non scary message 19
13:48:39 This is standard non scary message 20
13:48:40 This is standard non scary message 21
13:48:41 This is standard non scary message 22
13:48:42 This is standard non scary message 23
13:48:43 This is standard non scary message 24
13:48:44 This is standard non scary message 25
13:48:45 A fake fatal message
13:48:46 This is standard non scary message 1
13:48:47 This is standard non scary message 2
13:48:48 This is standard non scary message 3
13:48:49 This is standard non scary message 4
13:48:50 This is standard non scary message 5
13:48:51 This is standard non scary message 6
13:48:52 This is standard non scary message 7
13:48:53 This is standard non scary message 8
PF01= SCROLL PF02= VIEWPF PF03= END    PF04= HELP   PF05= HOLD   PF06= FORMAT
PF07= UP     PF08= DOWN   PF09= CMS CO PF10= LEFT   PF11= RIGHT  PF12= RECALL

                                                    OPER8     (Scroll)
A    a                                                          23/001
Connected to remote server/host 9.39.68.141 using port 23
```

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Syslog Management

Why consider Syslog Management?

- Linux on System z
- zBX: The zEnterprise BladeCenter Extension (zBX) is the new infrastructure for extending System z qualities of service and management capabilities.
- Business or Application level monitoring of remote systems.

Syslog Management

- The ability to collect data across the zEnterprise and beyond in a central location, across platforms, and manage them in a manner consistent with the console management and across the platforms provides a comprehensive management solution consistent with qualities of service and capabilities of the mainframe.

Syslog Management

- Loghost: Is an alias defined to a system's /etc/hosts file defining a central destination for syslog messages.
- Defining z/VM as the Loghost defines a z/VM application as the central host for the zEnterprise syslog's.
- Example: Operations Manager for z/VM provides the **DEFTCPA** configuration statement to allow Operations Manager to be a loghost. When Operations Manager receives syslog data, it is treated in the same manner as console data.

Syslog Management: z/VM Tasks

Specifying the DEFTCPA configuration statement

In your Operations Manager configuration file (OPMGRM1 CONFIG, by default), add the following statement:

```
DEFTCPA NAME(LXSYSLOG),+
  TCPUSER(TCPIP),+
  TCPAPPL(GOMRSYL),+
  TCPADDR(000.000.000.000),+
  TCPPORT(00514),+
  PARM(LXSYSLOG03330417UTF8)
```

Syslog Management: z/VM Tasks

Authorizing Operations Manager to listen on the TCPIP port

Add the following line to the file PROFILE TCPIP (on TCPMAINT's 198 disk on the authors' system):

```
514  UDP OPMGRM1          ; OPERATION MANAGER SYSLOG PORT
```

For this port change to take affect, recycle TCPIP. To dynamically activate these changes without restarting the TCPIP server, use the NETSTAT OBEY command.

```
netstat obey port 514 udp opmgrm1 noautolog
```

Syslog Management: Linux tasks

Several syslog daemons exist for Linux, Unix, and Windows platforms. Three popular ones are:

1. syslogd
   - Original Syslog Daemon
2. syslog-ng
   - content-based filtering,
   - rich filtering capabilities,
   - flexible configuration options (ex: port flexibility)
   - and adds TCP for transport.
3. rsyslog
   - features of syslog-ng…plus
   - on-demand disk buffering,
   - reliable syslog over TCP, **SSL**, TLS and RELP,
   - writing to **databases**,
   - **email** alerting.

Syslog Management: Linux tasks

Linux syslogd configuration

- Update /etc/hosts

9.39.68.141 dem1zvm.demopkg.ibm.com dem1zvm loghost

- Configure /etc/syslog.conf

. @loghost

*.debug @loghost

- Restart syslogd

/etc/init.d/syslog restart

Syslog Management: Linux tasks

AIX syslogd configuration

- Update /etc/hosts

9.39.68.141 dem1zvm.demopkg.ibm.com dem1zvm loghost

- Configure /etc/syslog.conf

. @loghost

*.debug @loghost

- Restart syslogd

refresh –s syslogd

Syslog Management: Linux tasks

syslog-ng configuration

- Configure /etc/syslog-ng/syslog-ng.conf

The syntax for the destination statement is as follows:

destination <destname> { destdriver params; destdriver params; ... ; };

destination loghost { udp("9.39.68.141" port(515));};

The syntax for the log statement is as follows:

log { source S1; source S2; ... filter F1; filter F2; ... destination D1; destination D2; ... };

log { source(src); filter(f_messages); destination(loghost); };

- Restart syslogd

/etc/init.d/syslog restart

Syslog Management: Linux tasks

rsyslog configuration

- Configure /etc/rsyslog.conf

The syntax for rsyslog is very simple:

Name/ip:port (port optional)

**.* @9.39.68.141:514*

Note: @ = UPD protocol, @@ = TCP protocol

*TCP example: *.* @@9.39.68.141:516*

Restart syslogd

/etc/init.d/service rsyslog restart

Syslog Management: Test Scenario

Testing the syslog route to Operations Manager

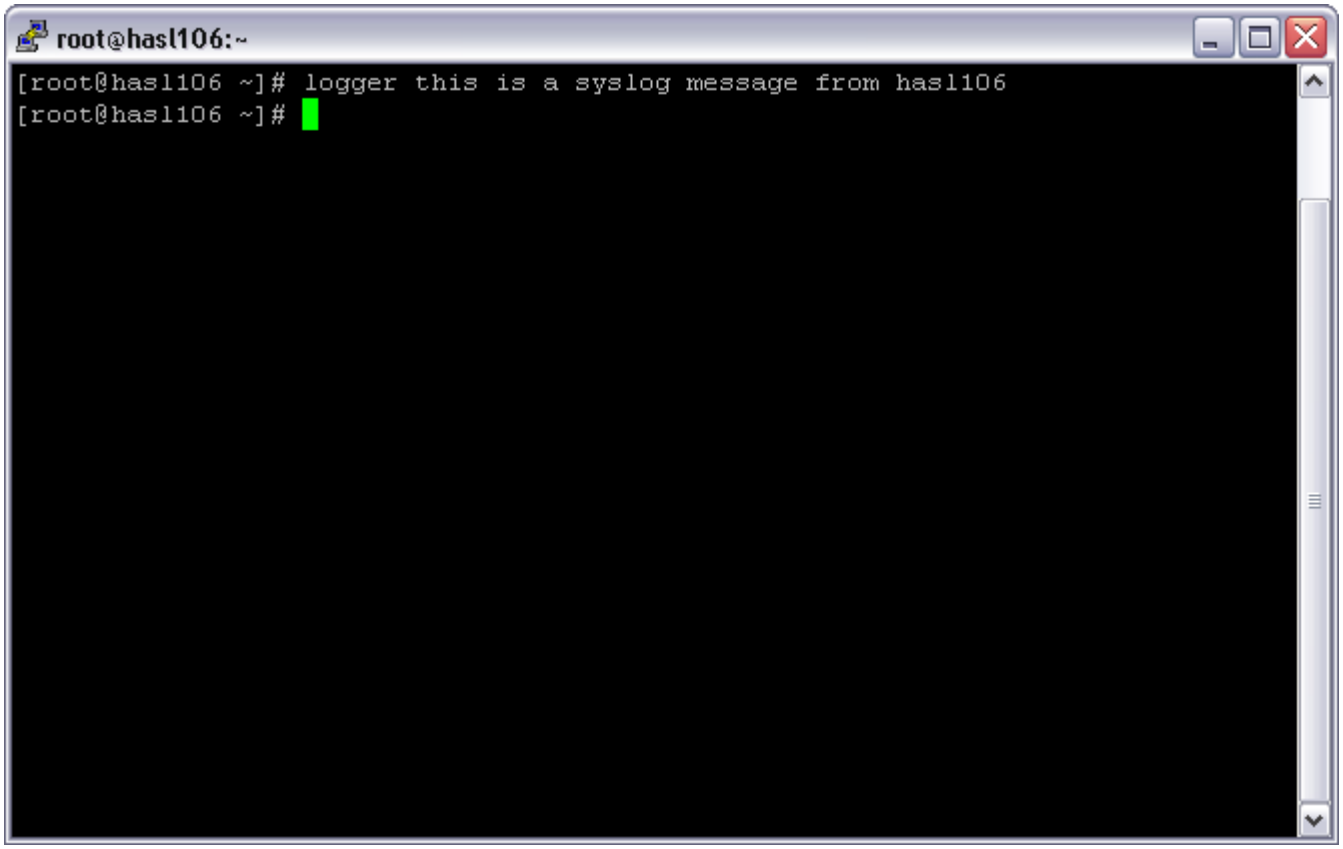
A simple way to test your configuration changes in Operations Manager, TCP/IP, and Linux is to use the Linux “logger” command.

The logger command makes entries in the system log. It provides a shell command interface to the syslog(3) system log module. The syntax follows:

logger [**-isd**] [**-f** *file*] [**-p** *pri*] [**-t** *tag*] [**-u** *socket*] [*message ...*]

logger this is a syslog message from hasl106.

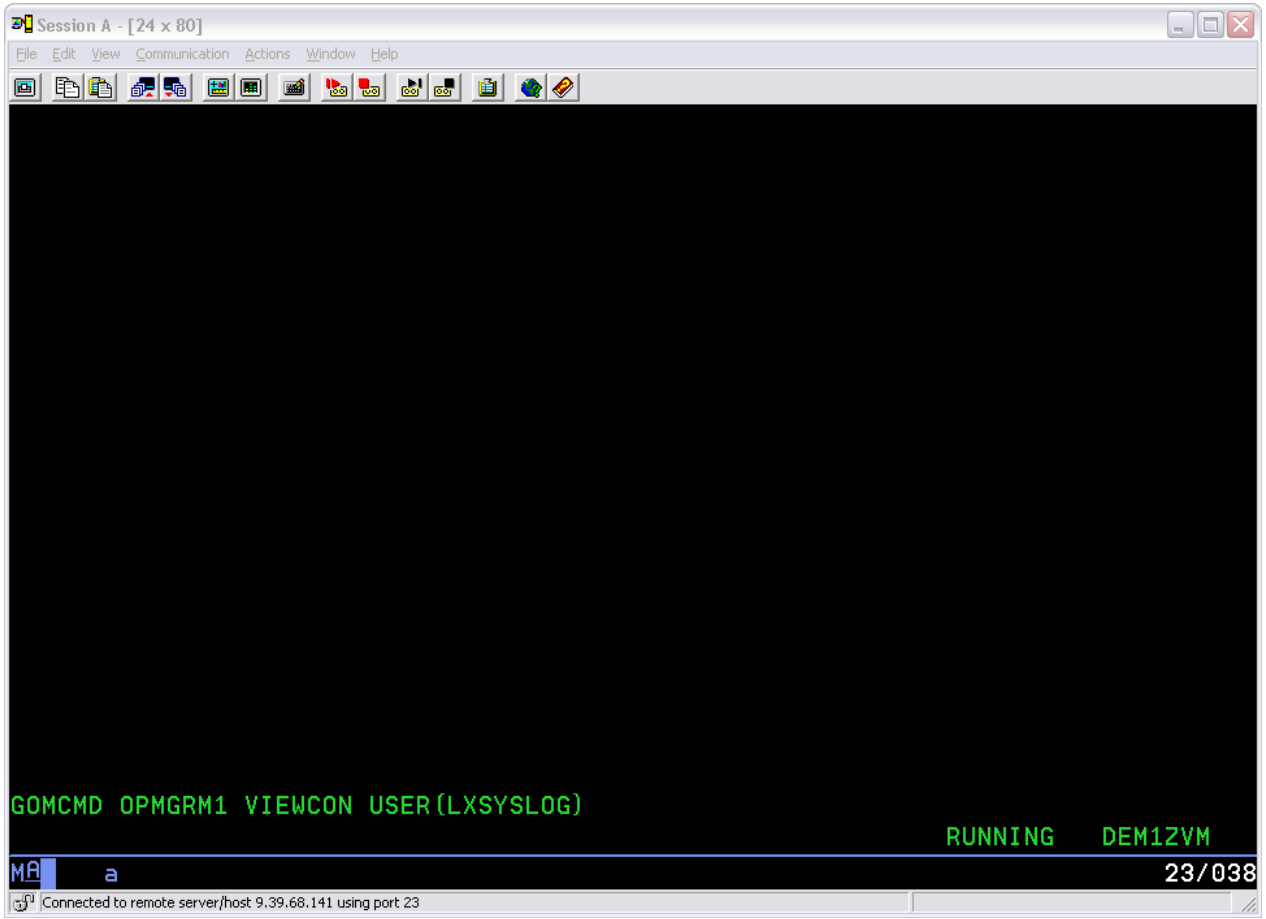
Syslog Management: Test Scenario



Syslog Management: Test Scenario

To view the syslog from Operations Manager, use the following command from an authorized user on z/VM:

gomcmd opmgrm1 viewcon user(lxsyslog)




```
DEFTCPA NAME(LXSYSLOG),+
 TCPUSER(TCPIP),+
 TCPAPPL(GOMRSYL),+
 TCPADDR(000.000.000.000),+
 TCPPORT(00514),+
 PARM(LXSYSLOG03330417UTF8)
```

Syslog Management: Test Scenario

```
Session A - [24 x 80]
File  Edit  View  Communication  Actions  Window  Help
<78>crondÝ24901": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ27121": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ29342": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ31617": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ1398": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ3637": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ5858": (root) CMD (run-parts /etc/cron.hourly).
<85>sshdÝ7049": pam_unix(sshd:auth): authentication failure; logname= uid=0 eui
<86>sshdÝ7049": Failed password for root from 9.65.168.28 port 4559 ssh2.
<86>sshdÝ7049": Accepted password for root from 9.65.168.28 port 4559 ssh2.
<86>sshdÝ7049": pam_unix(sshd:session): session opened for user root by (uid=0)
<13>root: test test.
<78>crondÝ8107": (root) CMD (run-parts /etc/cron.hourly).
<6>kernel: Kernel logging (proc) stopped..
<6>kernel: Kernel log daemon terminating..
<46>exiting on signal 15.
<46>syslogd 1.4.1: restart..
<6>kernel: klogd 1.4.1, log source = /proc/kmsg started..
<13>root: test test test.
<78>crondÝ10346": (root) CMD (run-parts /etc/cron.hourly).
<78>crondÝ12566": (root) CMD (run-parts /etc/cron.hourly).
<13>root: this is a syslog message from hasl106.

                                                  LXSYSLOG (Scroll)
MA    a                                                      23/001
Connected to remote server/host 9.39.68.141 using port 23
```

Logging Best Practices

Source: www.syslog.org

- Forward syslog messages from clients to a secure syslog server.
- Enable NTP clock synchronization on all clients and on the syslog server. It is very important for all systems reporting logs to be using the same time server, so that logs are all synchronized. Without doing this, it can be difficult or impossible to accurately determine the sequence of events across systems or applications.
- Group “like sources” into the same log file. (i.e. mail server, MTA, spamassassin and A/V scanner all report to one file)
- Use an automated tool to establish a baseline of your logs and escalate exceptions as appropriate.
- Review your records retention policy, if applicable, and determine if anything kept in logs falls under that policy. If so, establish retention periods based on the records policy. Legal requirements for keeping logs vary by jurisdiction and application.
- The “sweet spot” for log retention appears to be one year. Shorter than 1 year, and it is likely that key data would be unavailable in the wake of a long running attack, and longer than one year is most likely wasting disk space.
- Include logs and log archives in a standard backup process for disaster recovery.
- Change read/write permissions on logs files so they are not accessible to unprivileged user accounts.

Logging Best Practices

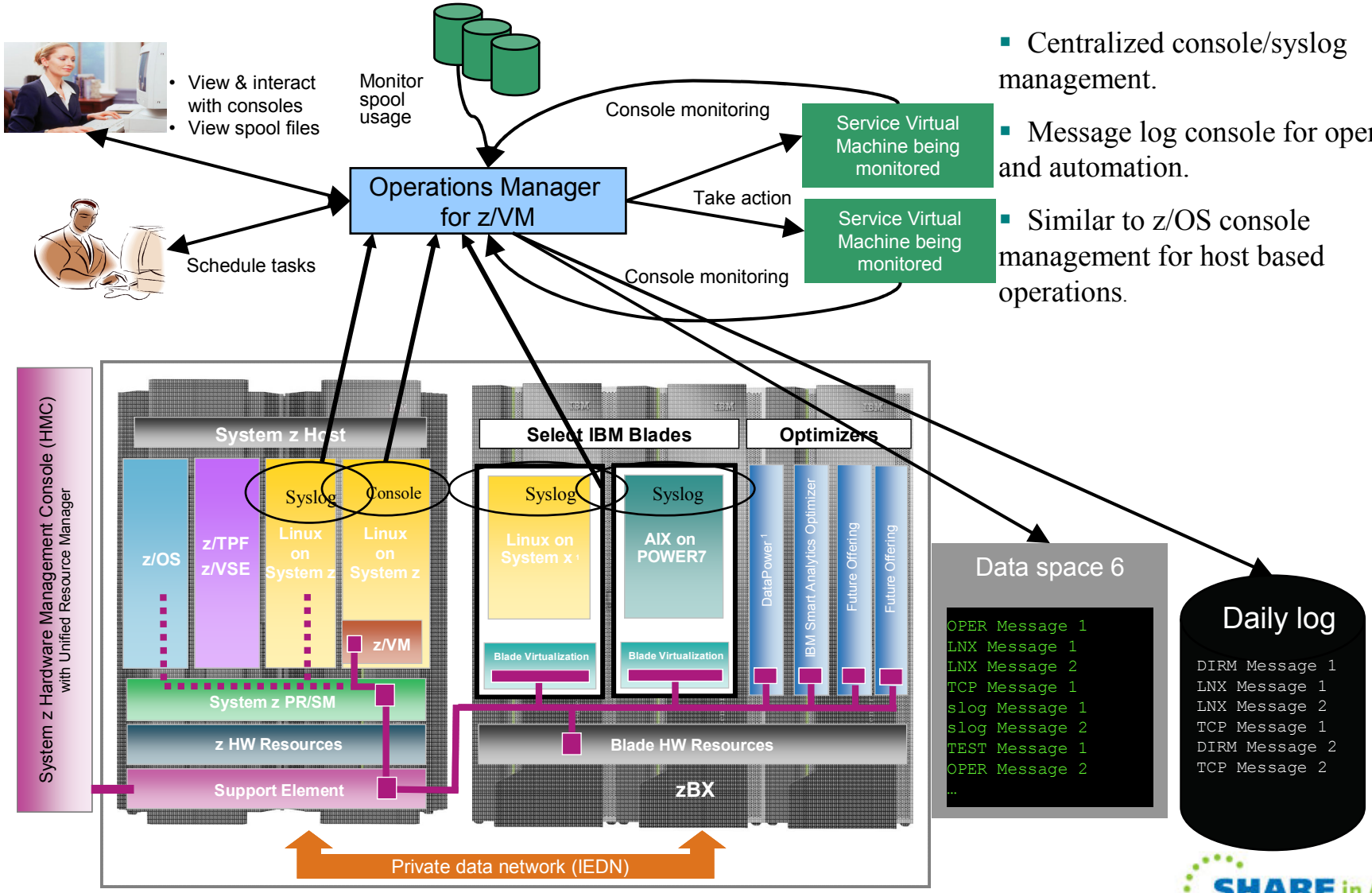
Source: www.syslog.org

Syslog is a simple protocol and is easy to wrap some very effective security around. The goal is remove as many opportunities for the central syslog server to be compromised as practical. There are 3 aspects to hardening a syslog server:

- The operating system
- The network
- The application
- The users and administrators

Centralizing with z/VM application on zEnterprise uniquely addresses these security recommendations of syslog.org.

Enterprise level console/syslog management:



- Centralized console/syslog management.
- Message log console for operations and automation.
- Similar to z/OS console management for host based operations.

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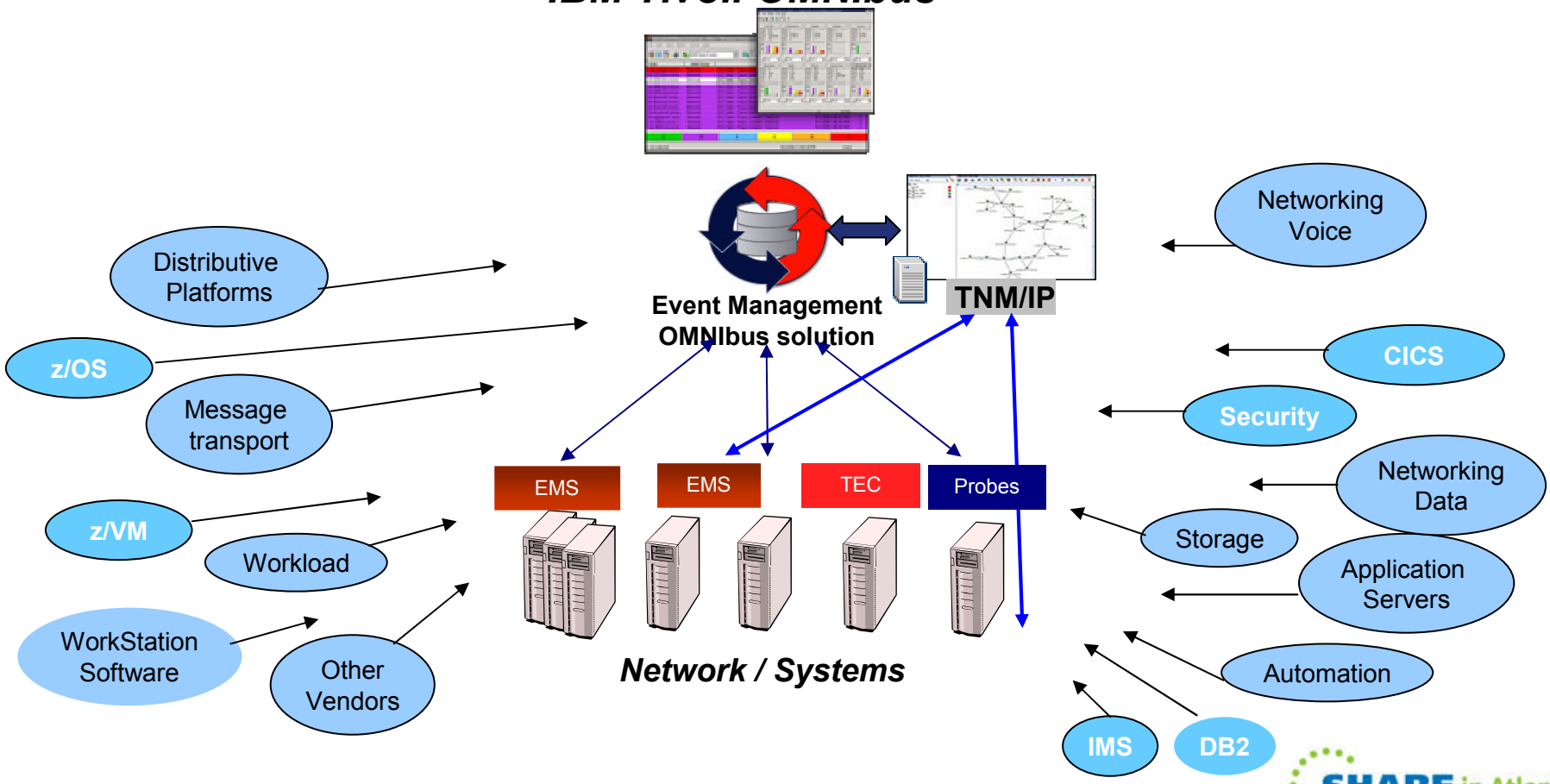
Enterprise Event Management

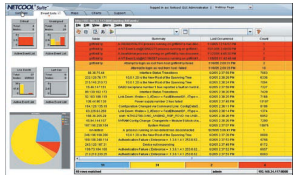
- z/OS tools today integrate with most Enterprise Management solutions
- z/VM Tools collecting z/VM, Linux, and syslog data often interface to Enterprise Management solutions
- Staging Collection at the console and syslog management level allows pre-filtering only forwarding appropriate events to the Enterprise Manager.

Tivoli z/OS Management
Integrated for end to end solutions

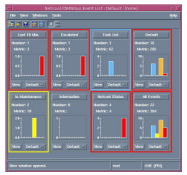
A Platform for Centralization of Events
IBM Tivoli OMNIbus



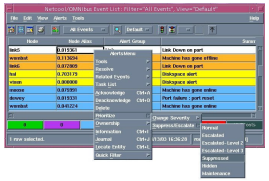
Tivoli Netcool/OMNIbus : Event Management



Combined Web Views



Business Views



Operator Views

Tivoli

- ITNM
- Netcool/Impact
- Business Service Manager
- *ITM*
- *Event Pump for z/OS*
- *OMEGAMON XE*
- *NetView for z/OS*
- *Operations Manager for z/VM*

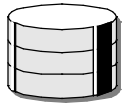
Information

Tivoli Integrations

Gateways

Trouble Ticketing

RDBMS

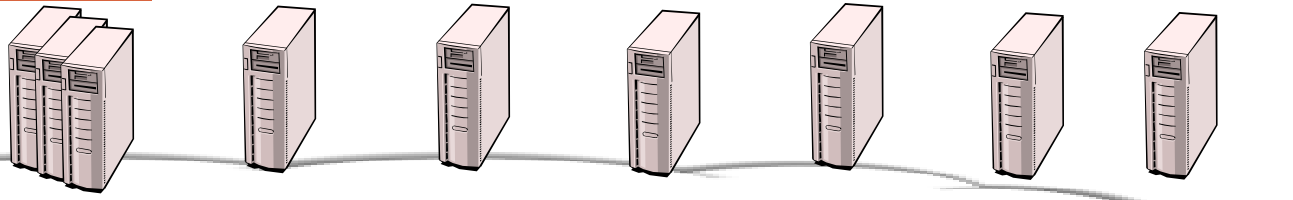


Customer Care

Events

EMS | OMEGAMON | Non-IBM | Non-IBM | ITM | TEC | MOM

Probes



Physical Plant

Transmission Layer

Network Layer

Application Layer

Summary

- z/OS Console and event management is a mature process in most datacenters
- z/VM tools can be used to bring z/VM and Linux consoles into the mature management process of the datacenter.
- Centralizing syslog management with z/VM Tools allows syslog data to:
  - Be included in the mature processes of the datacenter
  - Meet syslog best practice standards
- z/OS and z/VM tooling integrates well with Enterprise event management roll-up.

Resources

- Creating an Event Console with Automation for z/VM and Linux

http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102015

- Routing Linux and UNIX SYSLOG data to IBM Operations Manager for z/VM

http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101379

- Integrating IBM Operations Manager for z/VM with IBM Tivoli Netcool/OMNIbus

http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101492

- Automatically Logging on a User at Linux System Boot time for Console Management
- http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101634

धन्यवाद

Hindi

多謝

Traditional Chinese

감사합니다

Korean

Спасибо

Russian

Gracias

Spanish

Thank You

English

Obrigado

Brazilian Portuguese

شكراً

Arabic

Danke

German

多谢

Simplified Chinese

Grazie

Italian

Merci

French

நன்றி

Tamil

ありがとうございました

Japanese

ขอบคุณ

Thai

SHARE in Atlanta 2012