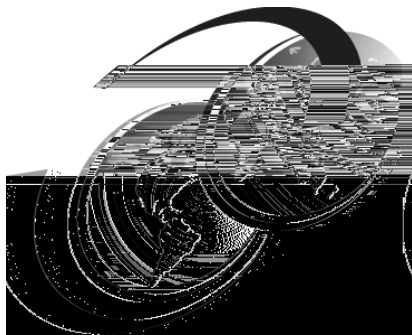


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## **What's New for Linux in z/VM 5.1**



# **Redbooks**

**International Technical Support Organization**

# Topics for z/VM 5.1

**Installing z/VM 5.1 from DVD**

**Native SCSI support**

**VSWITCH enhanced authorization**

**HyperSwap function**

**PCIX Crypto Support**

**Other Modifications / Enhancements**

# Related Publications

<b>Title</b>	<b>Publication Number</b>
Linux on IBM eServer and S/390: Performance Toolkit for VM	SG24-6059
Linux on IBM eServer and S/390: Performance Measurement and Tuning	SG24-6926
Accounting and Monitoring for z/VM Linux Guest Machines	REDP-3818
z/VM: Performance Toolkit	SC24-6062
z/VM: Performance	SC24-5999
Linux for zSeries: Fibre Channel Protocol Implementation Guide	SG24-6344
Getting Started With zSeries Fibre Channel Protocol	REDP-0205
Introduction to Storage Area Networks	SG24-5470

# Installing VM 5.1 From DVD

## **z/VM is now available on DVD!**

- Simplifies procedure
  - No tapes to mount
- Uses INSTDVD dialog

### **Requires:**

- Hardware Management Console V1.8 or higher

# Native SCSI Disk Support

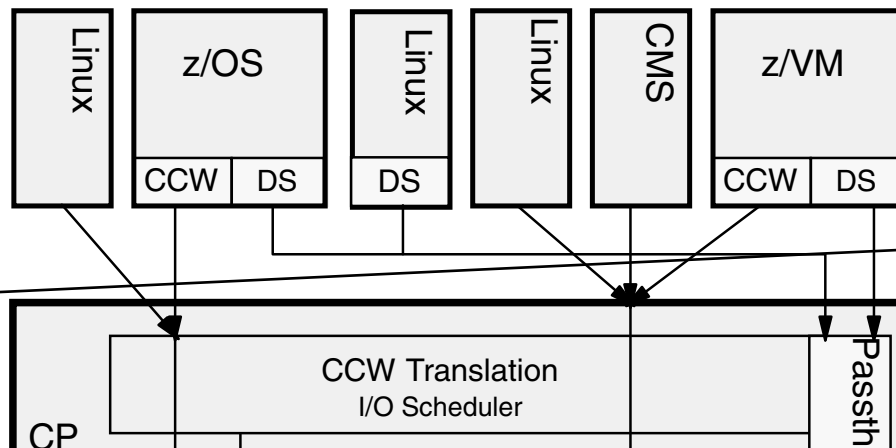
## SCSI disks used as emulated FBA disks

### Requires:

- FCP device number
- Target WWPN
- LUN

### z/VM supports:

- Individual disks up to 381GB in size
- Directory, paging, spooling must be in first 64GB



# Install z/VM on SCSI Disk

## Specify FBA emulated disks

- INSTPLAN FBA

## Define emulated device

- SET EDEVICE command

## Attach device

- VARY ON
- ATTACH

## Install from media

- INSTDVD

## IPL system from HMC

# SET EDEVICE

```
Integrated 3270 Console for SCZP901:A18
File  Keys  Help
set edevice 5302 type fba attr 2105 fcp_dev b002 WWPN 5005076300c19589 LUN 53020
000000000000
11:47:00 EDEV 5302 was created.
Ready; T=0.01/0.03 11:47:00
set edevice 5303 type fba attr 2105 fcp_dev b003 WWPN 5005076300c19589 LUN 53030
000000000000
11:47:14 EDEV 5303 was created.
Ready; T=0.01/0.03 11:47:14
set edevice 5304 type fba attr 2105 fcp_dev b004 WWPN 5005076300c19589 LUN 53040
000000000000
11:47:32 EDEV 5304 was created.
Ready; T=0.01/0.02 11:47:32
set edevice 5305 type fba attr 2105 fcp_dev b005 WWPN 5005076300c19589 LUN 53050
000000000000
11:47:46 EDEV 5305 was created.
Ready; T=0.01/0.03 11:47:46
set edevice 5306 type fba attr 2105 fcp_dev b006 WWPN 5005076300c19589 LUN 53060
000000000000
11:48:02 EDEV 5306 was created.
Ready; T=0.01/0.03 11:48:02
set edevice 5307 type fba attr 2105 fcp_dev b007 WWPN 5005076300c19589 LUN 53070
000000000000
11:48:15 EDEV 5307 was created.
Ready; T=0.01/0.03 11:48:15
set edevice 5308 type fba attr 2105 fcp_dev b008 WWPN 5005076300c19589 LUN 53080
000000000000
11:49:51 EDEV 5308 was created.
Ready; T=0.01/0.03 11:49:51
vary online 5300-5308
11:50:12 5300 varied online
11:50:14 5301 varied online
11:50:16 5302 varied online
11:50:18 5303 varied online
11:50:20 5304 varied online
11:50:22 5305 varied online
11:50:24 5306 varied online
11:50:26 5307 varied online
11:50:28 5308 varied online
11:50:28 9 device(s) specified; 9 device(s) successfully varied online
Ready; T=0.01/0.01 11:50:28

RUNNING  IBMUMRAM
42/001
```



# IPL z/VM From SCSI - HMC Display

**Load**

CPC: SCZP901

Image: A18

Load type:  Normal  Clear  SCSI  SCSI dump

Store status

Load address:

Load parameter:

Time-out value:  60 to 600 seconds

World wide port name:

Logical unit number:

Boot program selector:

Boot record logical block address:

OS specific load parameters:

OK Reset Cancel Help

# VSWITCH / Guest LAN Enhanced Authorization

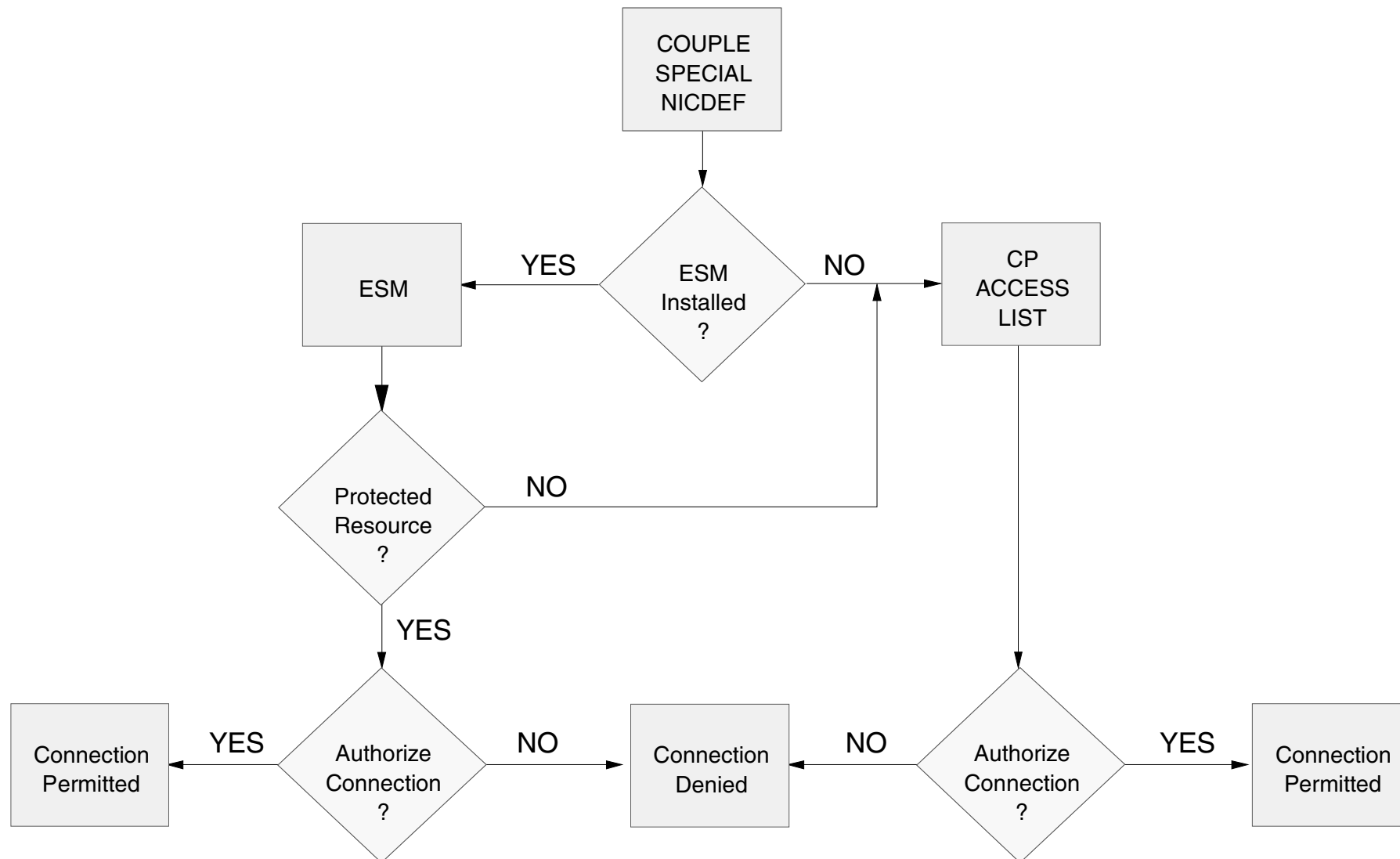
## Connecting to VSWITCH / Guest LAN requires authorization:

- Standard CP granted authority
  - SET VSWITCH command
  - MODIFY VSWITCH statement
- Authorization granted by ESM
  - RACF

## Using RACF:

- Define profile
- Grant / revoke access to switch
- Activate profile

# VSWITCH Authorization Logic



# HyperSwap Function

## Continuous availability and disaster recovery for Linux guests

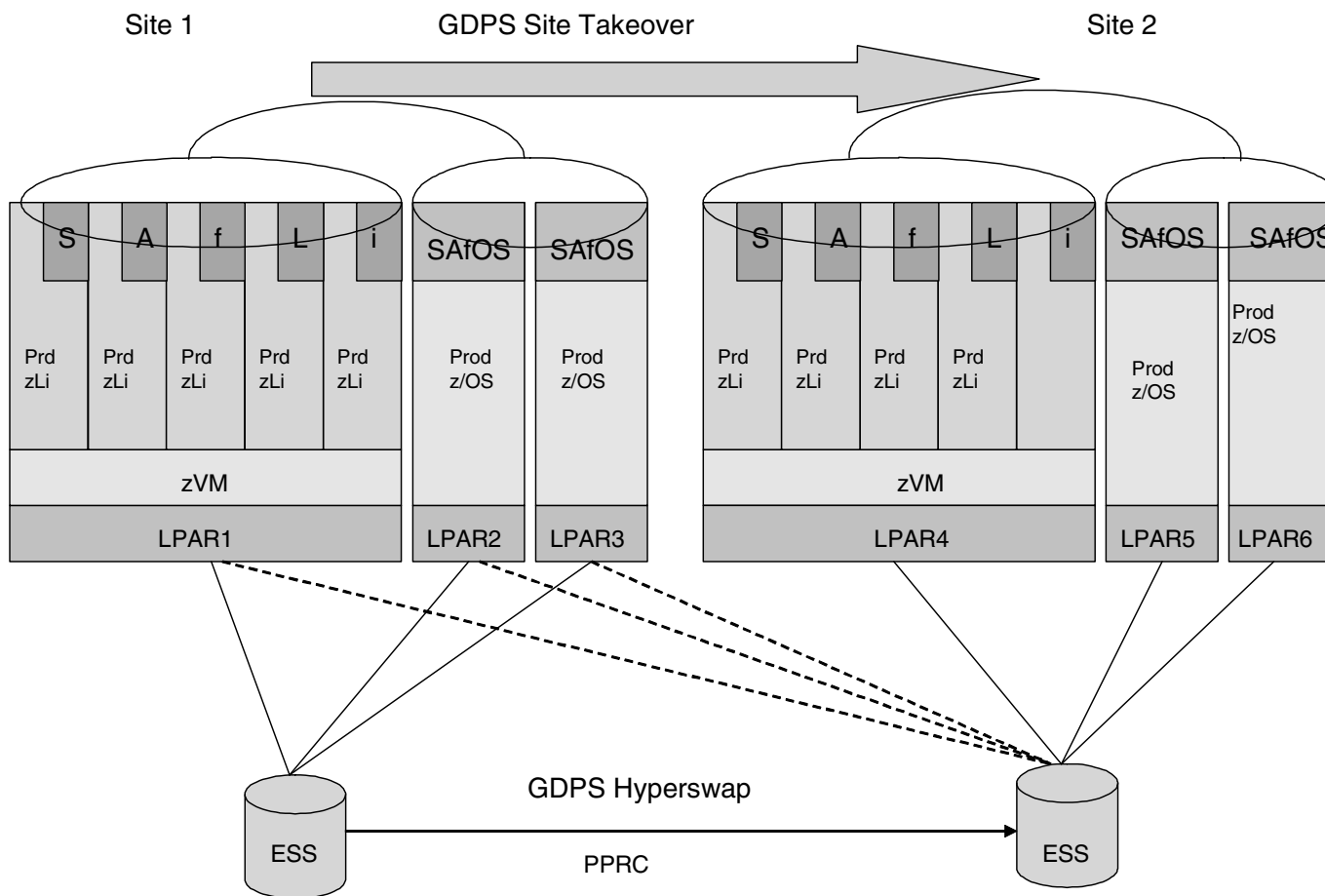
- Virtual devices associated to real disk can be swapped
- Relies on Peer-to-Peer Remote Copy (PPRC)
- GDPS intends to exploit HyperSwap

### Requires:

- GDPS
- IBM Tivoli System Automation for Linux
- PPRC

# Failover Scenario Using GDPS

Failover Scenario between two partitions using GDPS



# Crypto Support Enhancements

**Update the existing shared-queue PCI crypto support for Linux guests to include the new PCIX crypto cards.**

**z/VM currently supports shared use of the existing PCI crypto cards (PCICA and PCICC) by an unlimited number of Linux guests for clear-key operations only. This existing shared-queue support has been extended to include the new PCIX crypto cards.**

# Other Modifications / Enhancements

## **The 31-bit image of the CP nucleus has been removed**

- With the removal of the 31-bit CP nucleus, z/VM 5.1 is supported ONLY on z/Architecture processors
- Guests may still run in either ESA/390 or z/Architecture mode.

## **V=R and V=F guests can no longer be defined**

## **Performance Toolkit for VM Enhancements**

- VMPRF compatibility: provides batch mode support
- New report for SCSI is now provided based on the new MONITOR record for SCSI data
- Provides a new set of high level LINUX reports based on data provided by LINUX through MONITOR Application Data (Domain 10)
- Performance Toolkit replaces RTM and PRF in z/VM 5.1

# Other Modifications / Enhancements

## Dynamic Virtual Machine Time Bomb

- The Dynamic Virtual Machine Time Bomb is a new facility designed to provide a virtual machine the ability to cause a designated sequence of CP console functions to be executed after a specified interval, unless the guest sets a new interval or terminates or suspends the facility.
- This facility is intended specifically to support Linux virtual machines, though its use is not restricted to them, so that reliable high-availability and multi-server solutions can be constructed more easily.
- A guest may issue a new Diagnose instruction specifying a timeout interval and a string of one or more commands to be invoked if the timeout occurs.
- Thereafter, the guest may issue the Diagnose instruction periodically, before the current timeout interval elapses, specifying a new interval. If the timer expires, the command string is executed.