

#pw2025

# Power Week 2025

18 - 19 - 20 novembre 2025

IBM Innovation Studio Paris

**S101 – Comment protéger simplement l'ensemble de vos VM sur Power avec VM Recovery Manager**

Jeudi 20 novembre  
09:45 - 10:45

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**IBM**

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Power Week

18 -19 - 20 novembre  
2025



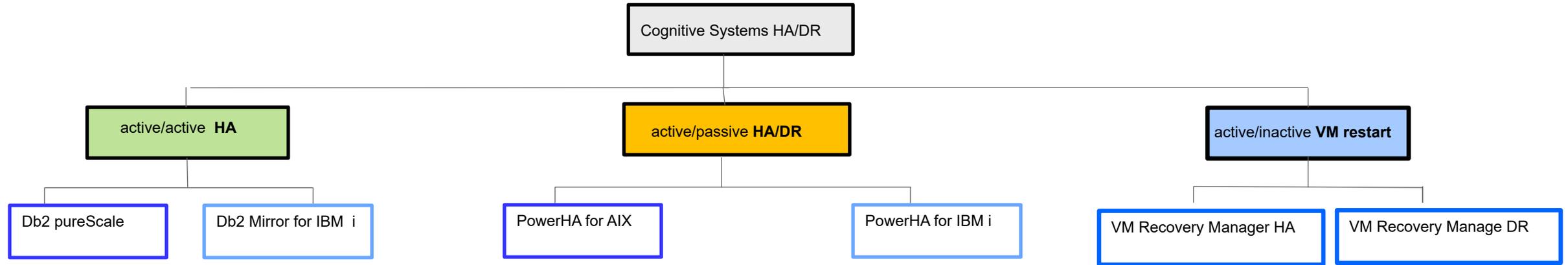
# VM Recovery Manager

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# Power Systems HA/DR solution family



## Db2 pureScale & Db2 Mirror & Oracle RAC

- Active/active at the application level
- Covers HA servers in near proximity. DR will be addressed separately as an add-on.
- Covers planned and unplanned outages for both software and hardware with automation
- Db2 Mirror active/active via synchronous replication at the OS level
- RTO & RPO = zero
- N+N licensing

## PowerHA SystemMirror

- Active/passive at the production data level however, active/active at the OS level
- Covers planned and unplanned outages for both software and hardware with automation
- Provides solutions for both HA & DR with a single point of control
- Operating system based technology
- RTO application restart
- RPO sync or async mode replication
- N+1 licensing,

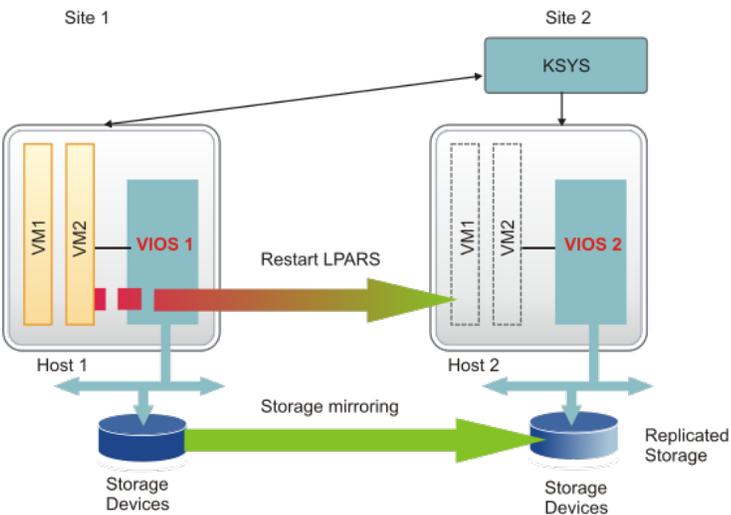
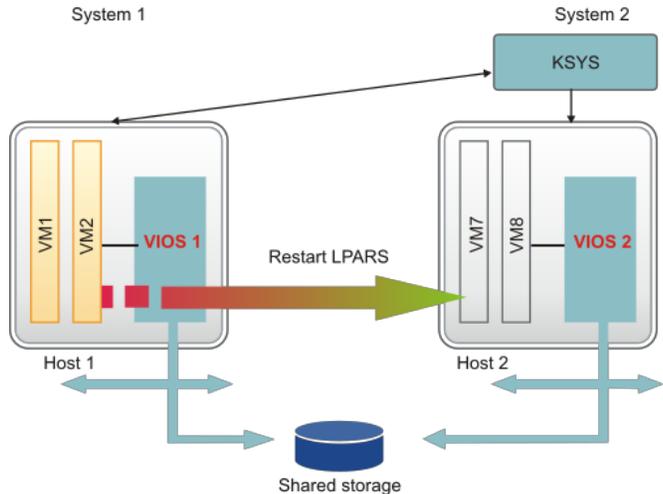
## VM Recovery Manager (VMR)

- Primarily for planned and unplanned hardware outages
- Monitors and manages large numbers of VMs (LPARS)
- Relatively easy to implement and manage
- Operating system independent (supports AIX, i and Linux)
- RTO via reboot (IPL)
- RPO sync or async mode
- N+0 licensing

# VM Recovery Manager : VMR HA / VMR DR

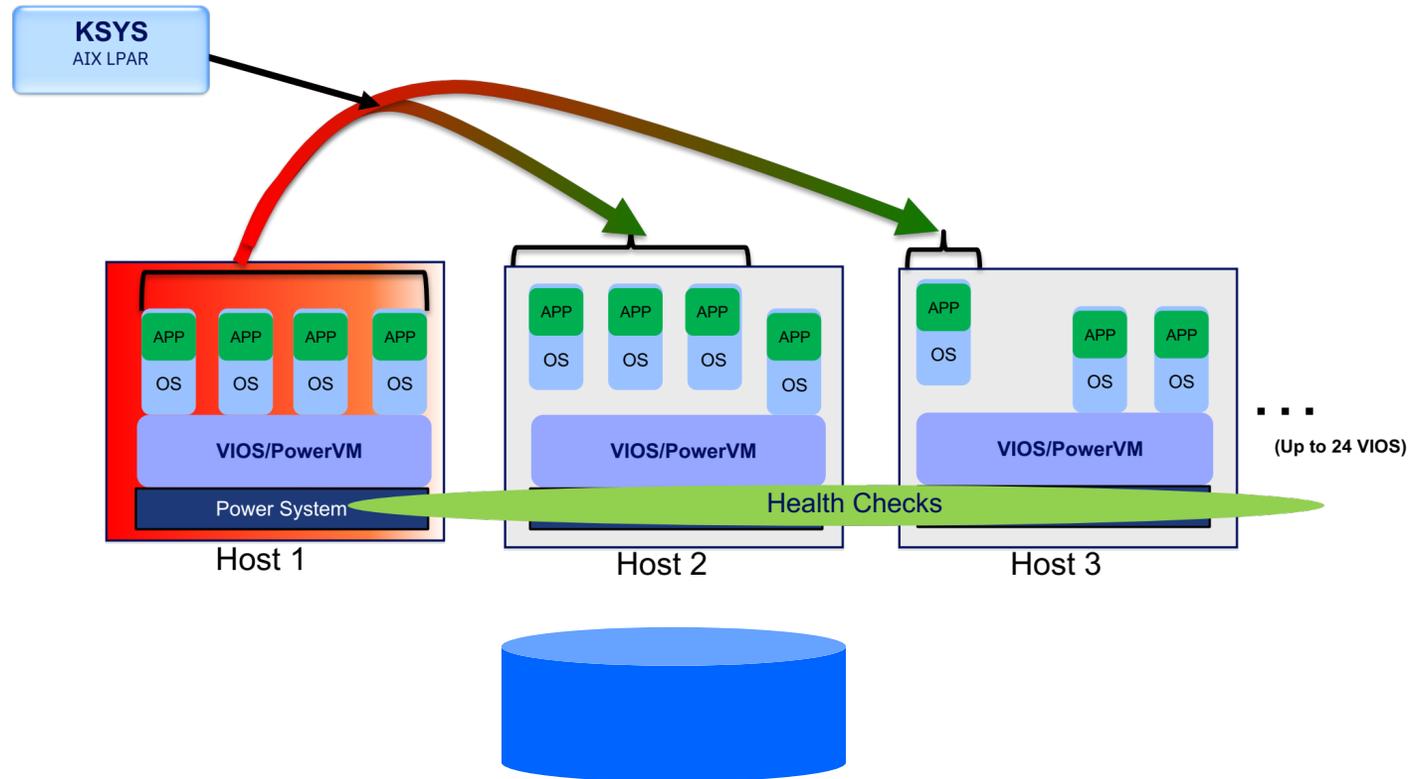
# VM Recovery Manager 1.9

- **VM Recovery Manager for HA (VMR HA)** The failed VMs are restarted on an adjacent server. This is a shared storage topology which is used in conjunction with LPM.
- Secondary server/partition is inactive until VMs are restarted (booted up) on it or if LPM is used for a planned outage event.
- There is one physical copy and one logical copy (unless deployed in a HyperSwap type of configuration in which case two physical copies of the data)
- **VM Recovery Manager for DR (VMR DR)** is based on the replication of the VMs to a remote location.
- The disaster recovery server is inactive until the replicated VMs are restarted on it.
- If the production system fails (or is to be tested for DR compliance), the VMs are restarted on a secondary system in the cluster.
- There are two physical copies of the VMs and one logical copy in this particular configuration



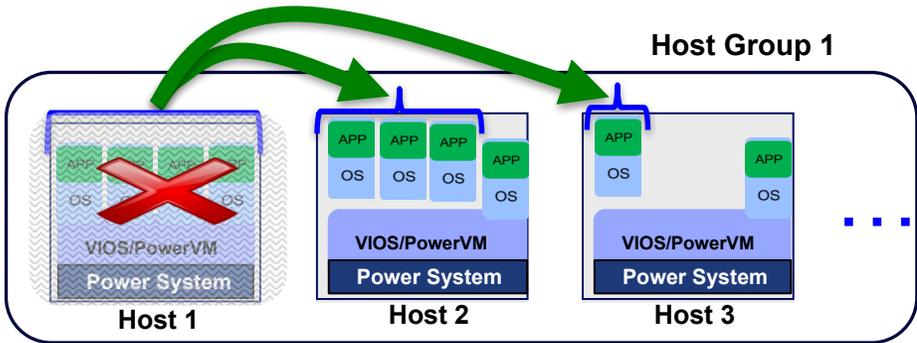
# VM Recovery Manager HA (VMR HA)

# VM Recovery Manager HA

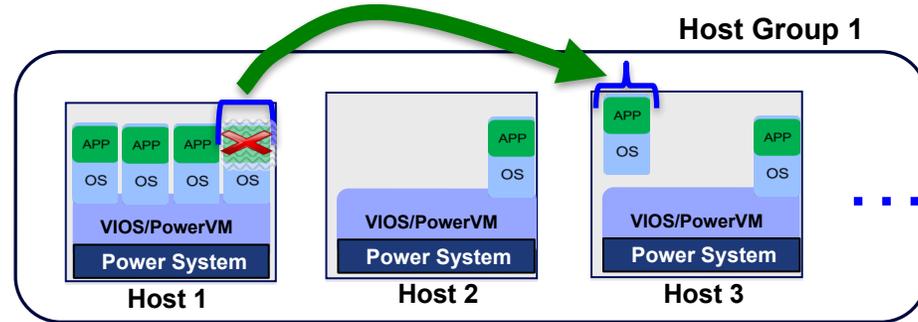


- VM Recovery Manager is a VM (LPAR) restart based High Availability solution
- Host Group: Group of hosts with uniform network and storage connectivity.
- Planned moves via LPM and unplanned outages via restart management
- Host, VM or Application level HA monitoring and management for AIX and Linux (DB2, SAP and Oracle)

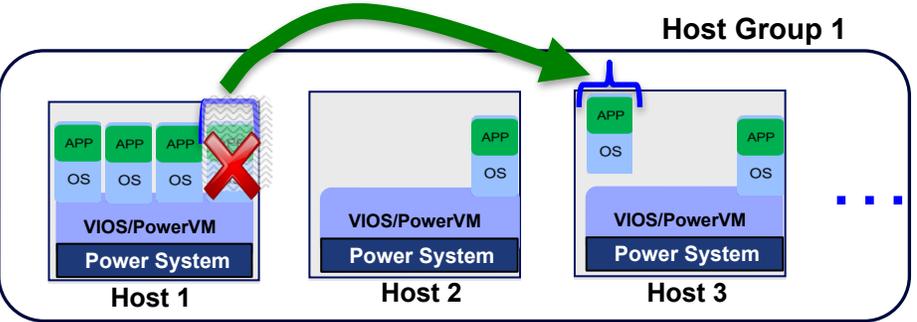
# VMR HA unplanned outage management



Host Failure handling



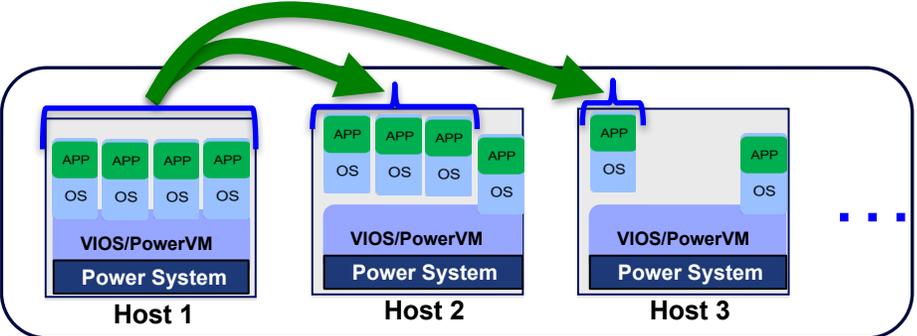
Application Failure handling



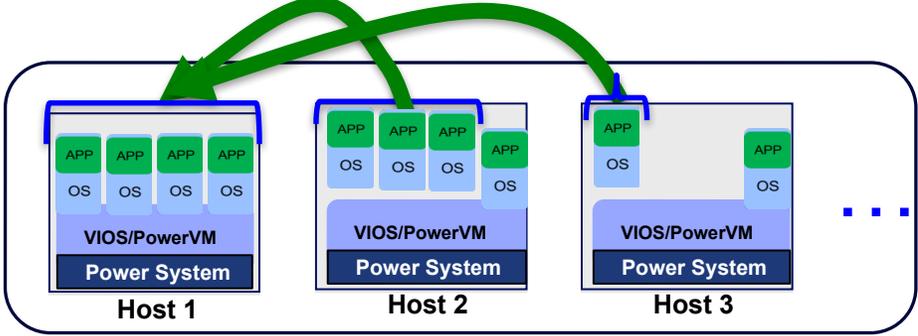
VM Failure handling

- HA management/automation for AIX and Linux
- Host and VM Health monitoring
- Application monitoring agents available for DB2, SAP and Oracle
- Capacity based VM placement
- Advisor mode – alerts only option (no auto failover)
- IBM i requires manual operations (no VM agents)

# VMR HA planned outage management



VMR HA vacates host 1 via LPM



VMR HA restores Host 1 via LPM

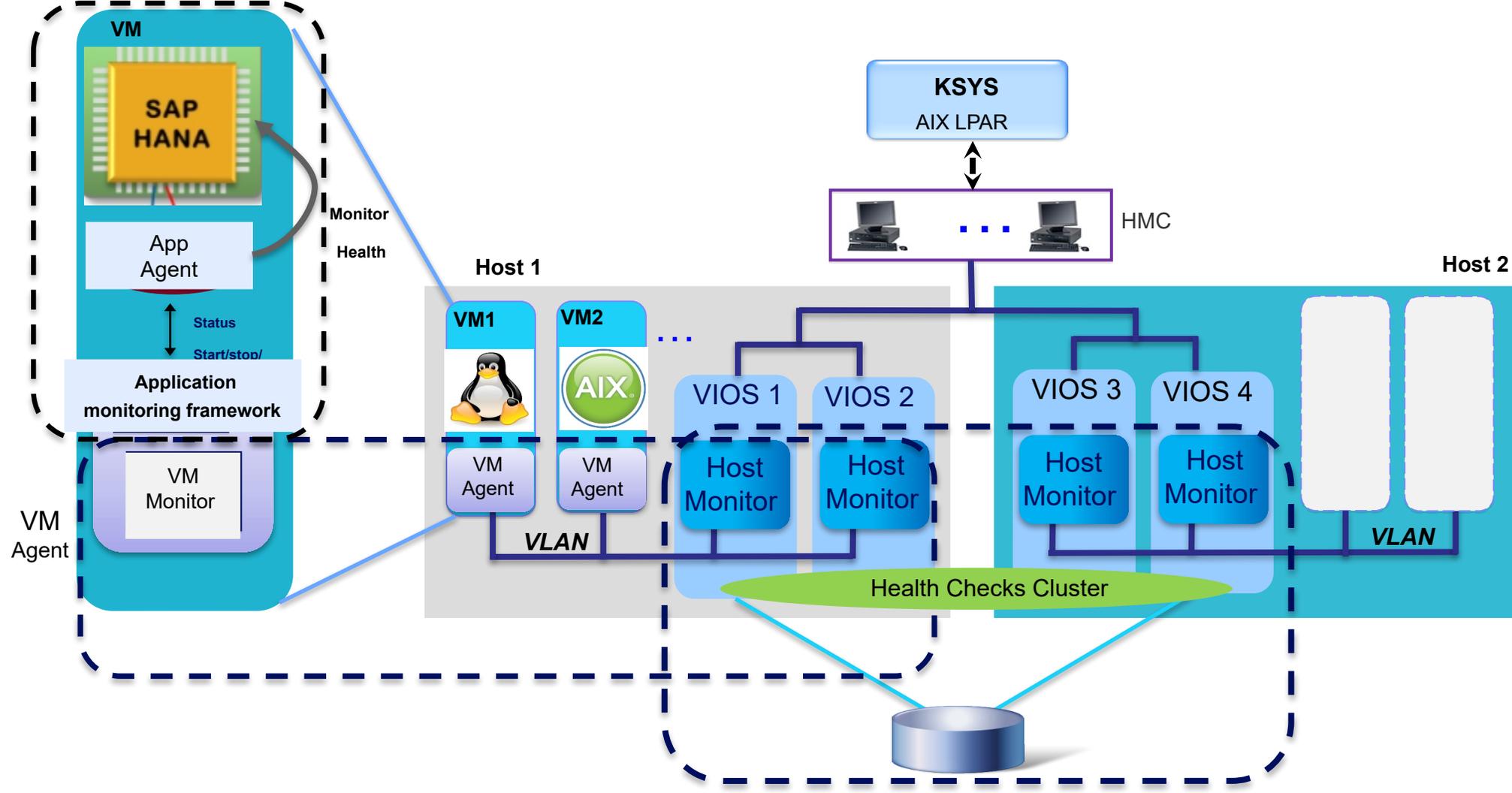
- Vacate Host: VMs in Host 1 are migrated Hosts 2 and 3 in the Host group
- Best fit capacity analysis based moves

- Restore Host: VMs are moved back to Home Host.
- Home Host is where the VMs were moved from admin can modify as needed

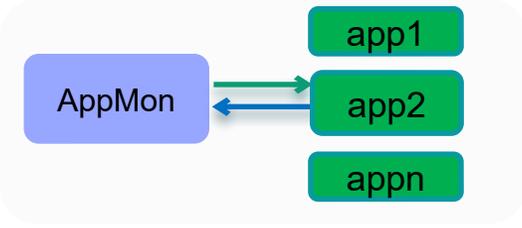
# VM Recovery Manager Monitoring

*Host, VM, & Application monitoring*

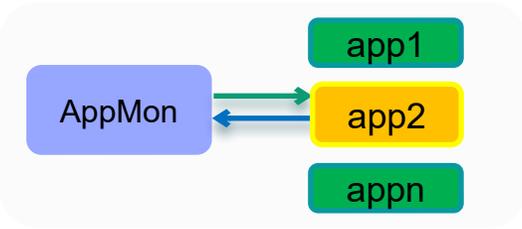
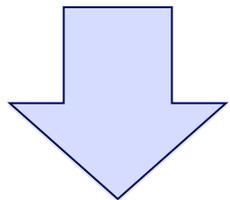
- Monitoring Capability:
- 1. Host Level
  - 2. VM Level
  - 3. Application Level



# Application HA management

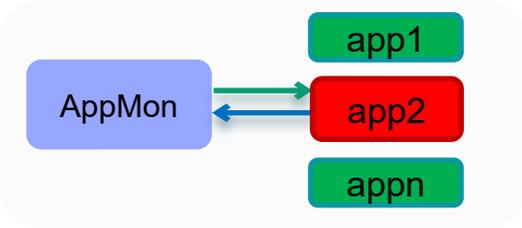


All applications are running good.



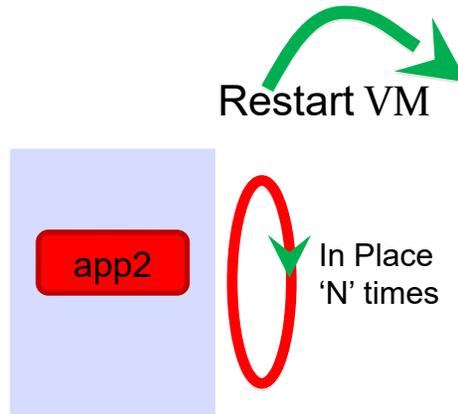
Application app2 monitor method fails (threshold number of times).

- Stop and restart the app2
- Try N times



Application app2 does not start after N retries.

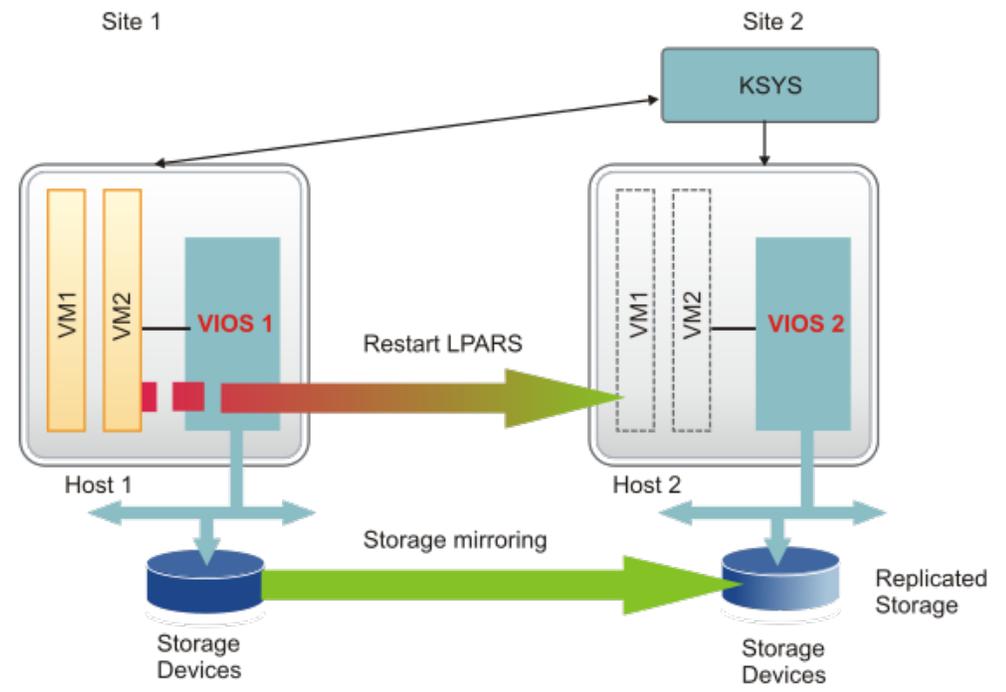
- Stop app2
- Alert KSYS
- KSYS will restart the VM based on policy



# VM Recovery Manager for DR (VMR DR)

# VMR Recovery Manager DR V1.9 for Power Systems

- VM Recovery Manager (formerly GDR) provides the disaster recovery solution in the VMR Recovery Manager product suite.
- KSYS is the orchestration controller
- manages the real-time replication of the VMs between storage servers
- manages the VM restart operations between source and target systems
- installed on an AIX partition



VMR DR supports PowerVM for Power 7+, 8, 9, 10, 11

- Supports AIX, i and Linux
- DS8000, Storwize, EMC and Hitachi

- VMs are replicated real-time via SAN storage
  - synchronous mode replication: RPO of 0
  - asynchronous mode: RPO seconds/minutes

# Disaster recovery operations made easy & economical

### Automation

- Administrator initiated end to end automation
- Eliminates human intervention and error
- Reliable consistent recovery time
- Non disruptive disaster recovery testing
- Adapts to configuration changes (eg: VMs or disks added)

### Single point of control

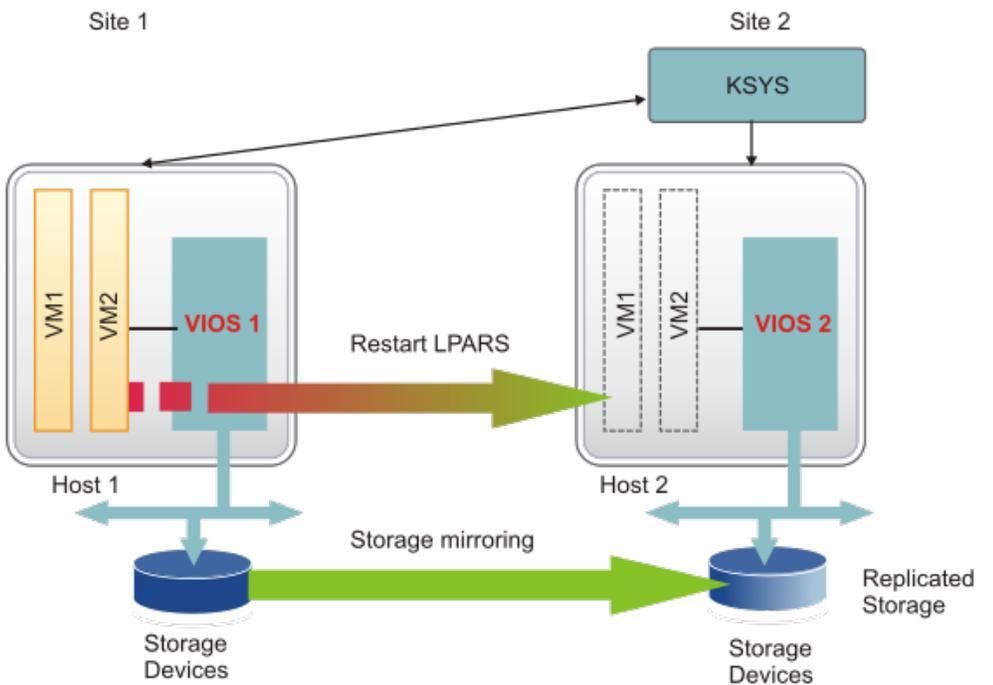
- Centralized status reporting
- Simple uni-command administration

### Validation

- Auto discovery of changes to environment
- Daily verification testing (light weight hourly)
- Email & SMS alerts sent to admin
- Scripting support

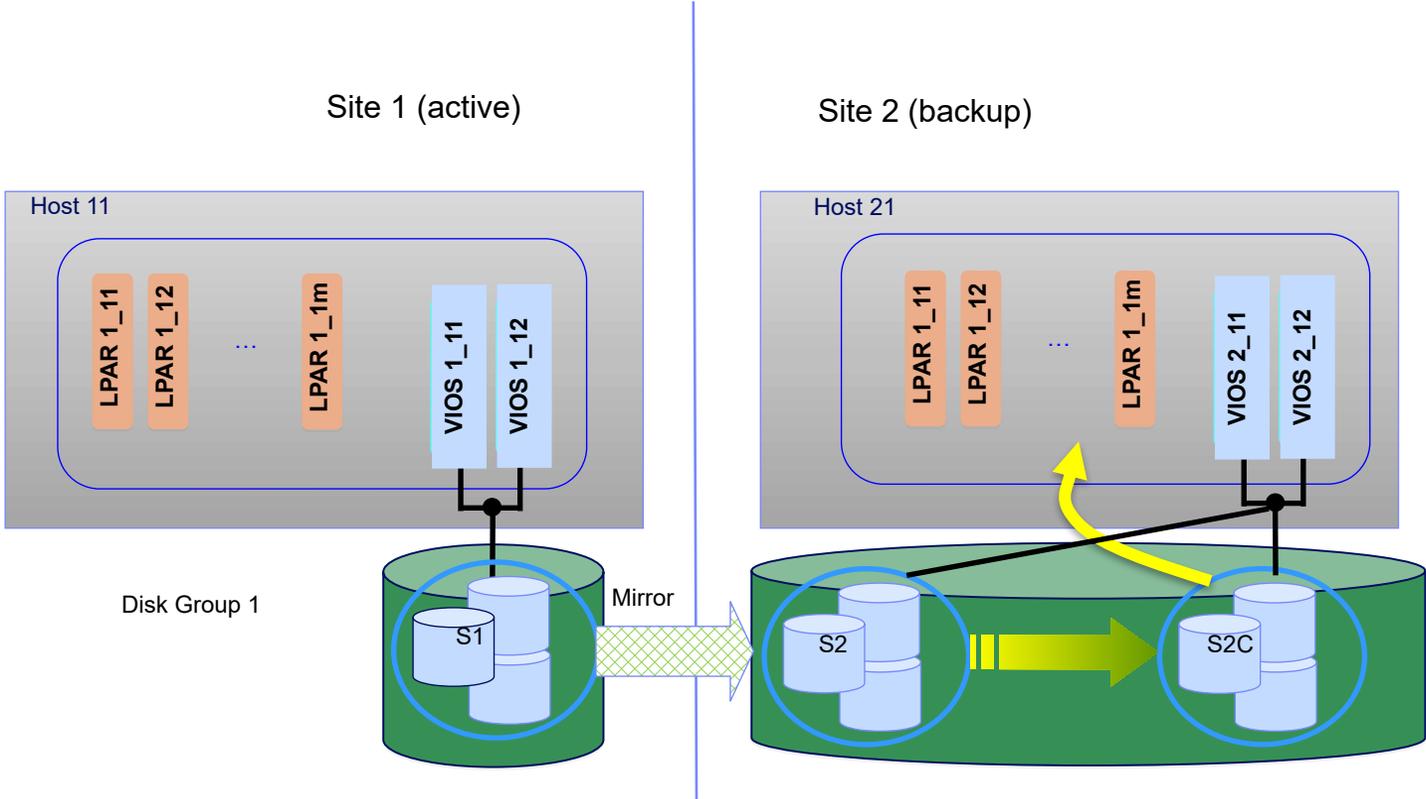
### Capacity management

- Enterprise pool & ECU for scale-up systems
- Flex capacity: increase or reduce memory/CPU on target side



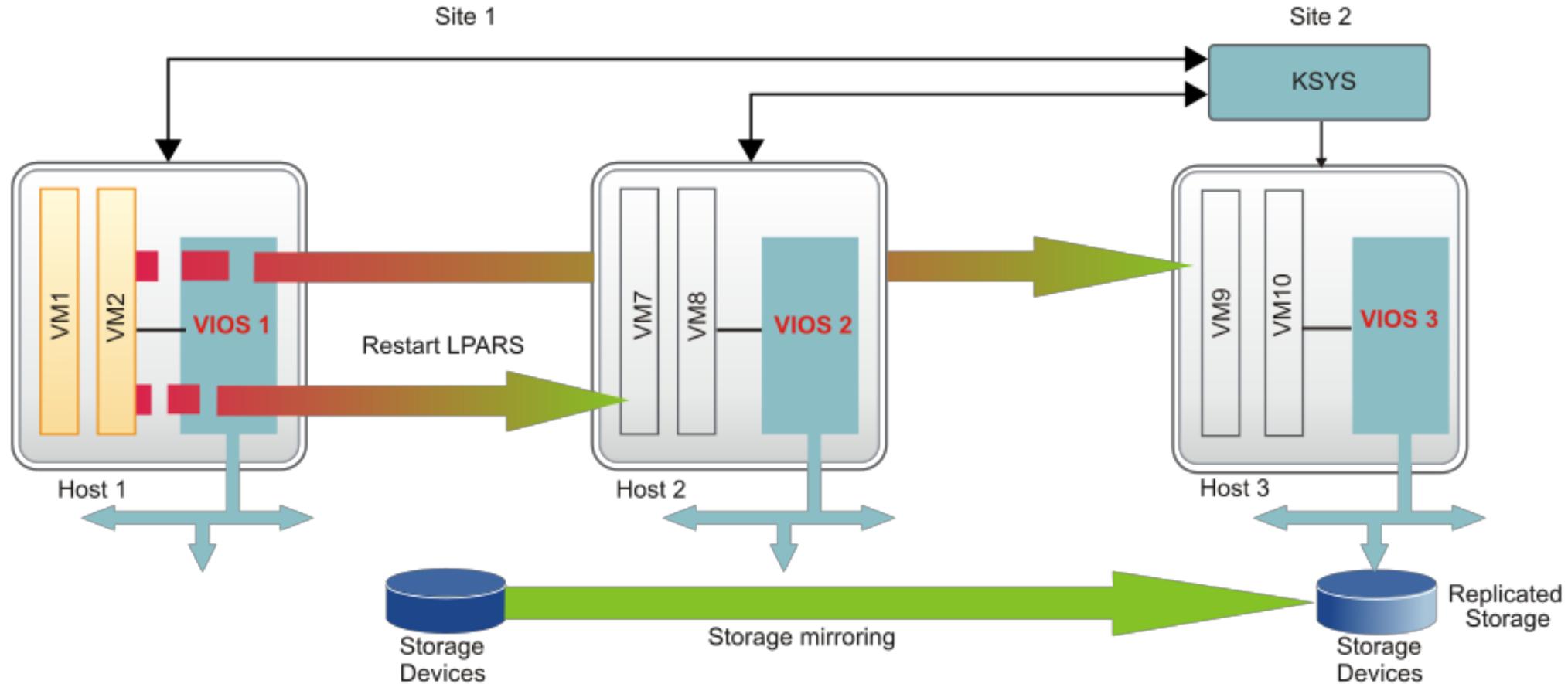
- Active/Inactive (cold standby) topology therefore target DR server requires no licensing (IBM LPPs)
- VMR DR licenses are installed in an AIX partition on a server in the secondary site and enables the KSYS function.

# Failover Rehearsal: non disruptive disaster recovery testing



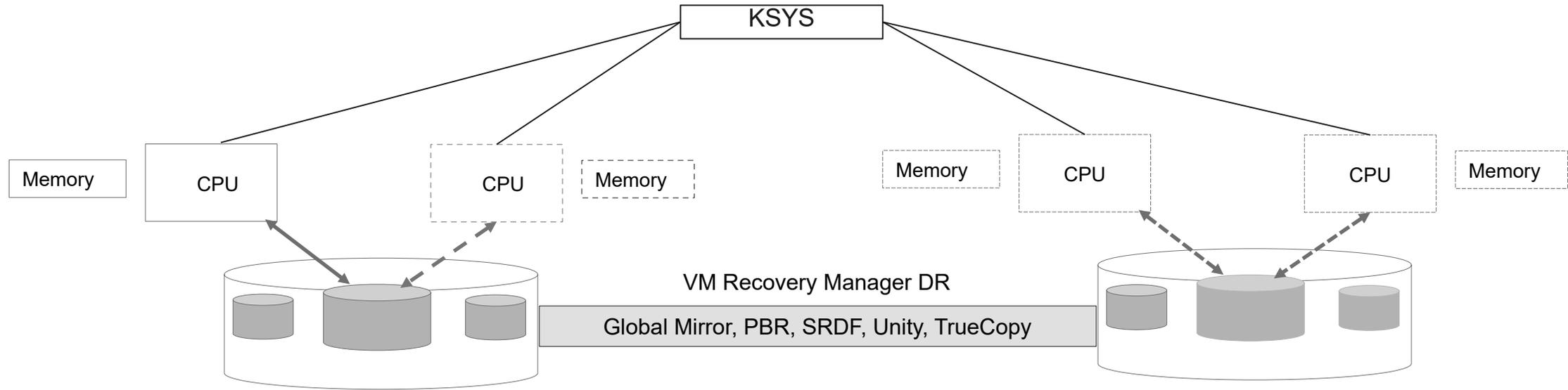
- A point in time copy (i.e. Flash Copy) is created to start VMs on the back up system for DR testing or backup operations
- Enables IT operations to validate disaster recovery compliance without disrupting production
- Network isolation needs to be established by the administrator (admin can design and use the test VLANs for test VMs)

# VM Recovery Manager for DR (supports both restart HA & DR)



VM Recovery Manager for DR enables the capability to manage both HA and DR from a single KSYS

# VM Recovery Manager: HA-DR-HA

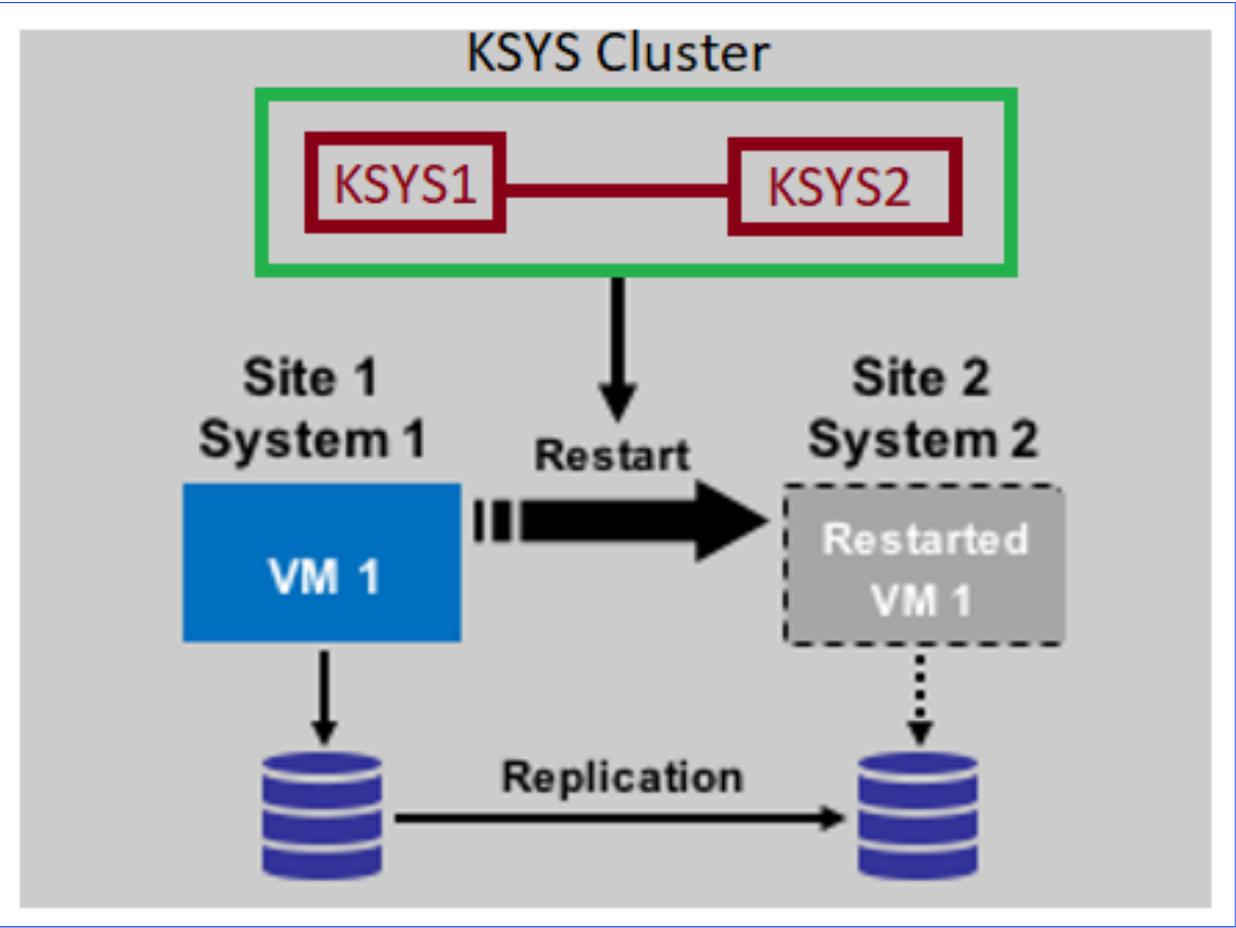


Site 1: VMRM HA shared storage configuration

Site 2: VMRM HA shared storage configuration

# KSYS High Availability

- KSYS multi node cluster for KSYS HA
- Dynamically handles master node down
- Support for HA, DR, HADR,HADRHA configs
- Support for snapshot and restore
- Critical actions are allowed from master node



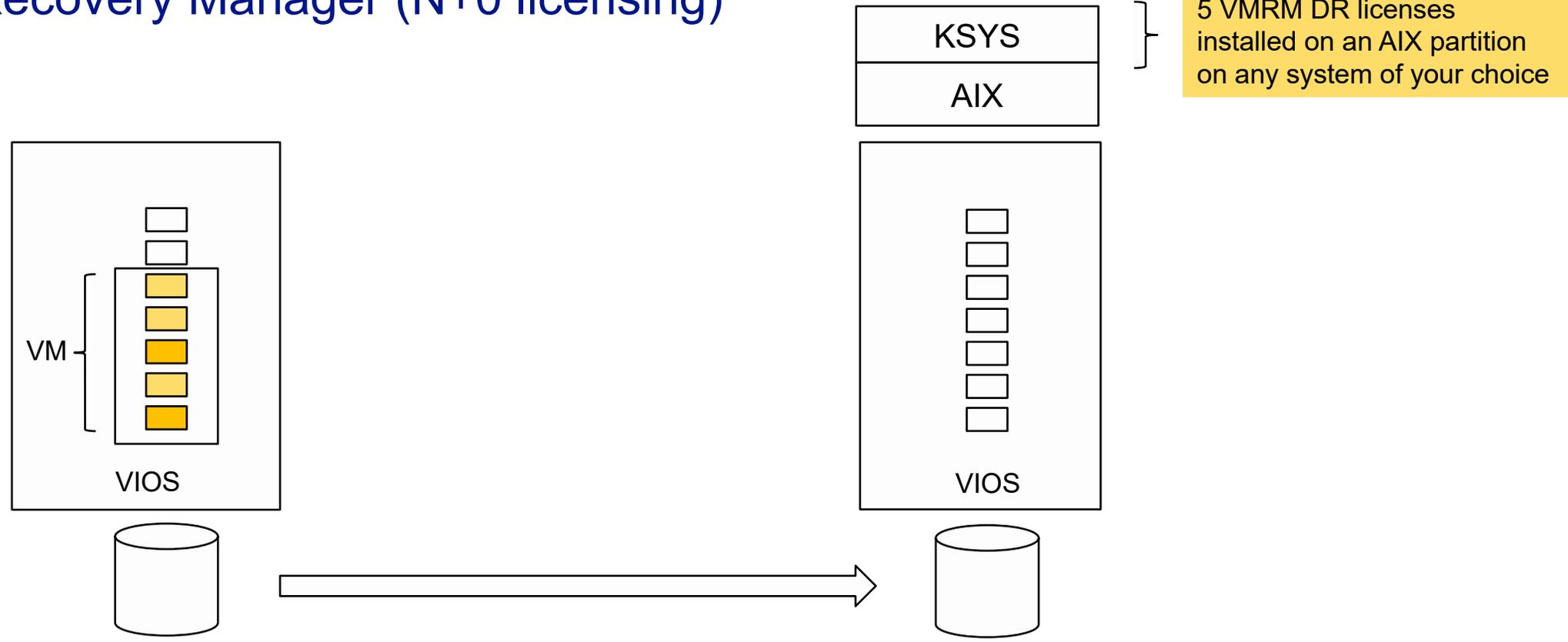
# VM Recovery Manager

VM Recovery Manager HA  
(VRM HA)  
PID: 5765 VRM

VM Recovery Manager DR  
(VMR DR)  
PID: 5765 DRG

- The licensing is done per “managed core”; that is, you count up the number of processor cores hosting VMs on the production system that you are going to support. This is the quantity of licenses that you will need. Regardless of the number of VMs you are managing, it the number of physical processor cores that are supporting those VMs that we count.
- ***You install those licenses on an AIX partition on a system (any system) that will host the KSYS, not necessarily either the source or target systems. If you are deploying DR, you might deploy KSYS on a separate 4 core system at the DR site.***

# Licensing VM Recovery Manager (N+0 licensing)



- N+0 licensing (except with IBM i, you may want a CBU or a DBM with 1 IBM i or return to home-base prior to 70 days)
- The VM Recovery Manager licenses are installed on an AIX partition, any AIX partition
- In this example the VM being managed/replicated is supported on 5 processor cores
- Therefore, you will acquire 5 VMRM DR licenses and install them on an AIX partition
- VMRM HA is included with AIX EE, VMRM DR is included with the private cloud bundle

# Per processor core licensing options VM Recovery Manager

| VMR HA | 1 Yr | 2 Yr | 3 Yr | 4 Yr | 5 Yr  |
|--------|------|------|------|------|-------|
| Med    | 274  | 476  | 715  | 953  | 1,191 |
| Small  | 274  | 476  | 715  | 953  | 1,191 |

| VMR DR | 1 Yr | 2 Yr | 3 Yr  | 4 Yr  | 5 Yr  |
|--------|------|------|-------|-------|-------|
| Med    | 548  | 953  | 1,429 | 1,906 | 2,382 |
| Small  | 548  | 953  | 1,429 | 1,906 | 2,382 |

These prices are U.S. only and subject to change, for rough estimating only

# VM Recovery Manager for Power Systems

## **VM Recovery Manager for HA (VMR HA)**

- Announce Oct 9, 2018, GA Nov 9, 2018
- New PID, 5765 VRM

## **VM Recovery Manager for DR (VMR DR)**

- Announce Oct 9, 2018, GA Dec 15, 2018
- Rename GDR (GDR 1.2 -> VMR DR 1.3)
- Same PID as GDR, 5765 DRG

## **VM Recovery Manager for DR (VMR DR) SP1**

- Announce April 23, 2020, GA June 21, 2020

## **VM Recovery Manager HA V1.4 for Power Systems**

Announce Oct 8, GA Nov 2019

### **VM Recovery Manager DR V1.4 announce**

Announce Oct 8, GA Nov 2019

**Supports HA,DR and HA/DR**

## **VM Recovery Manager V1.5 for Power Systems**

Announce Oct 6, GA Dec,13, 2020

## **VM Recovery Manager V1.6 for Power Systems**

Announce Oct 19, GA Dec,10, 2021

## **VM Recovery Manager V1.7 for Power Systems**

Announce Oct 11, GA Dec,02, 2022

## **VM Recovery Manager V1.8 for Power Systems**

Announce May 07, GA June,07, 2024

## **VM Recovery Manager V1.9 for Power Systems**

Announce July 07, GA July,25, 2025



W E R C

The image features the letters 'W', 'E', 'R', and 'C' in a large, bold, sans-serif font. Each letter is filled with a different photograph of a diverse group of business professionals. The 'W' shows a woman with long dark hair in a green top. The 'E' shows a man in a patterned green shirt smiling. The 'R' shows a woman in a light blue top with her hands clasped. The 'C' shows a man in a light blue suit and yellow tie. To the right of the 'C' is a vertical strip showing a man in a dark blue suit and glasses smiling. The letters have a slight drop shadow, giving them a 3D appearance against the white background.