

SHARE

Technology • Connections • Results

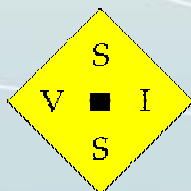
VPARS

Virtual Software Systems, Inc.

<http://www.vsoftsys.com/>

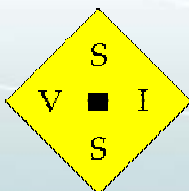
Session 9155

SHARE in Orlando - February 2008



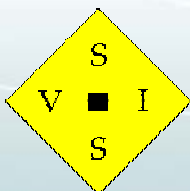
VPARS Introduction

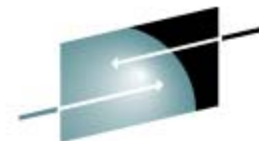
- VPARS: Virtual Private Active Record Shadowing
- VPARS was developed in 1979-80 to provide a virtual test platform for the IBM TPF (Transaction Processing Facility) environment
- VPARS is a software extension to VM that allows multiple guests to transparently share disks in a R/W mode



VPARS DataBase

- Records modified by each guest are maintained on its own private (or shared) VPARS database
- Provides record isolation between guests that are sharing the disks



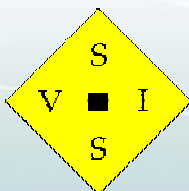


S H A R E

Technology · Connections · Results

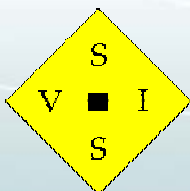
VPARS Concepts (1 of 3)

- Requires read-only links to the shared disks and read-write links to the VPARS database disk(s)
- A write request is intercepted and the updated record is written to the user's VPARS database.
- Original record in the TPF base remains unchanged.
- A different virtual machine can retrieve the original record from the TPF base, update it, and write it to its own VPARS database.



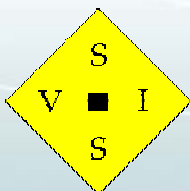
VPARS Concepts (2 of 3)

- When a read is issued for a record, VPARS searches its database directory.
- If found, the record is returned from the VPARS database. Otherwise it is retrieved from the TPF base.
- Whenever a record is modified and filed, it is written to the VPARS database.
- A subsequent request for the same record will result in the record being retrieved from the VPARS database.



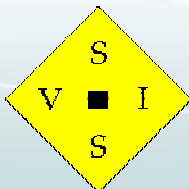
VPARS Concepts (3 of 3)

- The TPF system is not aware that VPARS is intercepting and handling its I/O requests.
- Complete integrity of the TPF system is maintained because the records on the TPF base are never altered.
- Therefore, several virtual machines can share a common TPF database under VPARS.
- Each virtual machine will have its own VPARS database.
- The number of virtual machines sharing a TPF database using VPARS is theoretically unlimited.



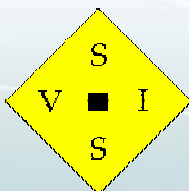
VPARS Backups & Restores

- Various functions of VPARS provide the ability to resume testing from any point, or to start with a clean VPARS database without affecting the shared TPF base.
 - Backup / Restore
 - Checkpoint
 - Clear (all or to a checkpoint)

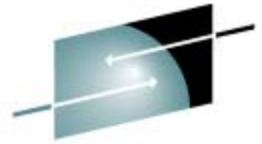


Benefits of VPARS

- VPARS reduces the amount of hardware required to run multiple TPF test virtual machines.
- Dedicated TPF disks are not required to run tests with different testing requirements.
- The time required to refresh or restore a damaged TPF database is eliminated.

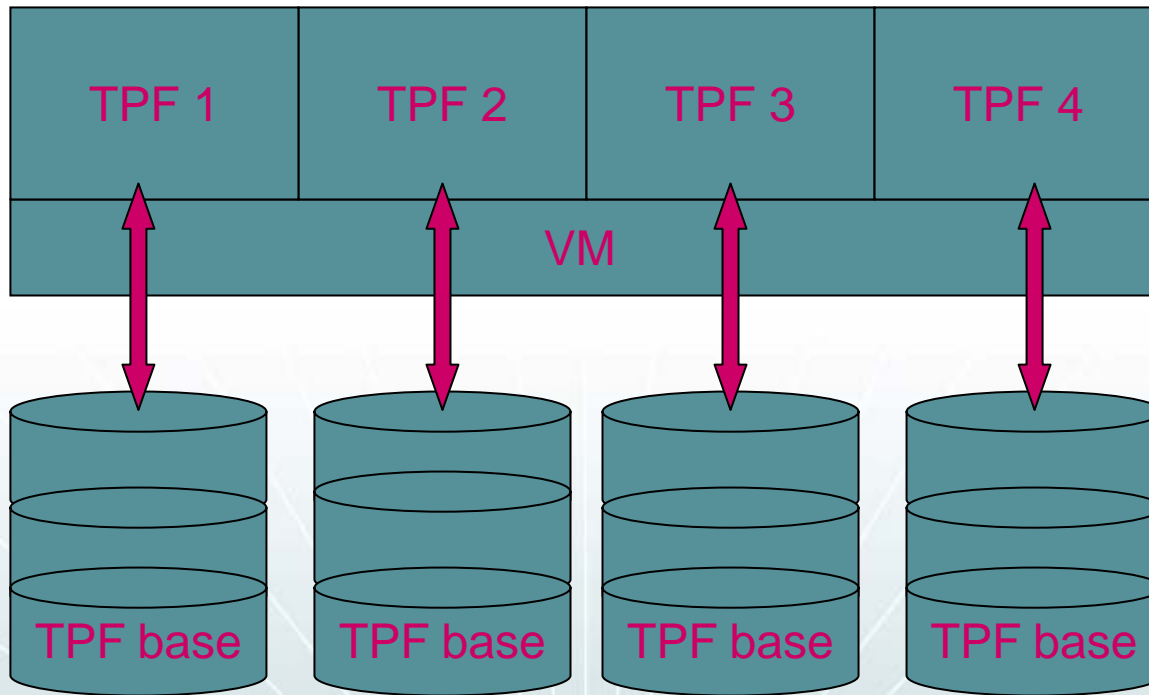


TPF under z/VM without VPARS

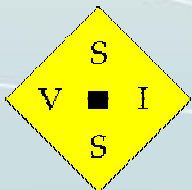


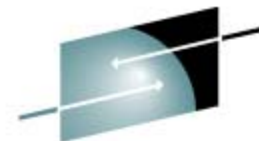
SHARE

Technology · Connections · Results



TPF database 100 – 2000 disks each

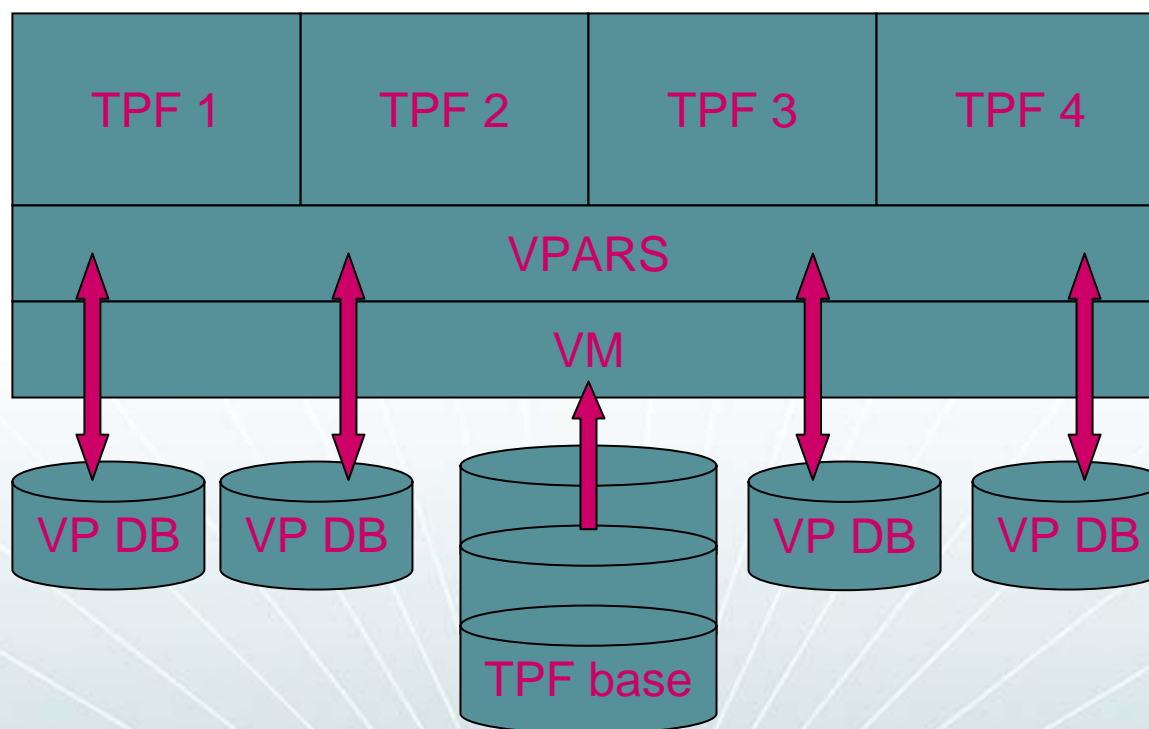




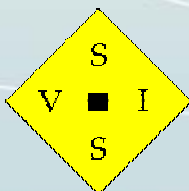
SHARE

Technology · Connections · Results

TPF under z/VM with VPARS

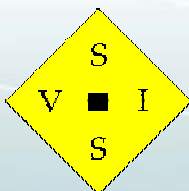


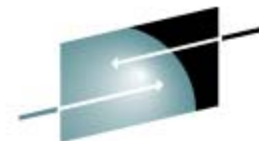
VPARS database 50 cyl - 256 disks each /
TPF base 100 - 2000 disks



Loosely-Coupled VPARS

- All participating loosely-coupled TPF virtual machines write to the same VPARS database.
- Each virtual machine must have write links to all disks in the database.
- VPARS provides only the multi-write capability; record locking is the responsibility of the application.
- IBM provides several facilities which can be used to provide record locking.



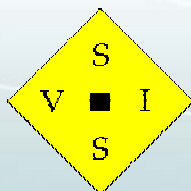


S H A R E

Technology · Connections · Results

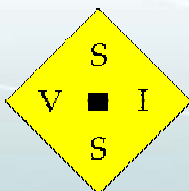
Versatility of VPARS

- In addition to TPF, VPARS can also service other operating systems such as Linux, running as guests under VM.



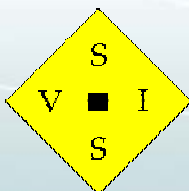
Multi-level VPARS

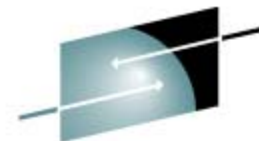
- Multi-level VPARS (or "concatenated") VPARS databases allow several databases to be searched for TPF input records.
- The primary VPARS database is normally a read-write database. The rest are always read-only. Several users can share a read-only VPARS database. This may reduce the number of records required on each user's read-write VPARS database.
- The primary database can also be a read-only database.



VPARS Without a TPF Base

- VPARS NOBASE provides an environment which requires significant space savings. No TPF base is required.
- Accomplished by restoring only active TPF records to a VPARS database. Short term and unused long term pool records are not restored.
- VPARS database can be shared by multilevel VPARS.
- VPARS will not issue I/O requests against the TPF base except to retrieve IPL text.
- A read of a record not found in the VPARS database will result in a zero record (binary zeroes) to be returned.

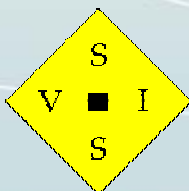
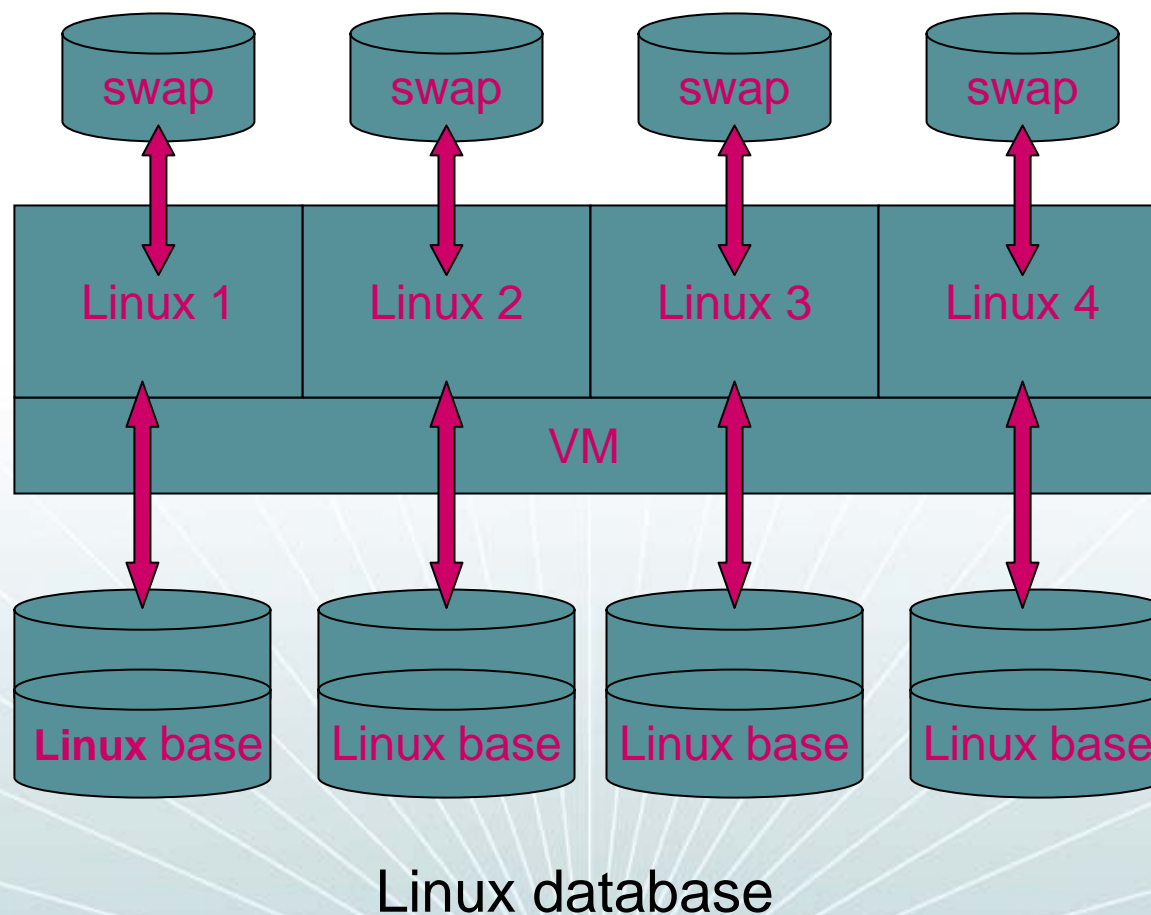


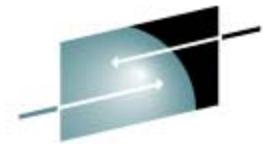


SHARE

Technology · Connections · Results

Linux under z/VM without VPARS

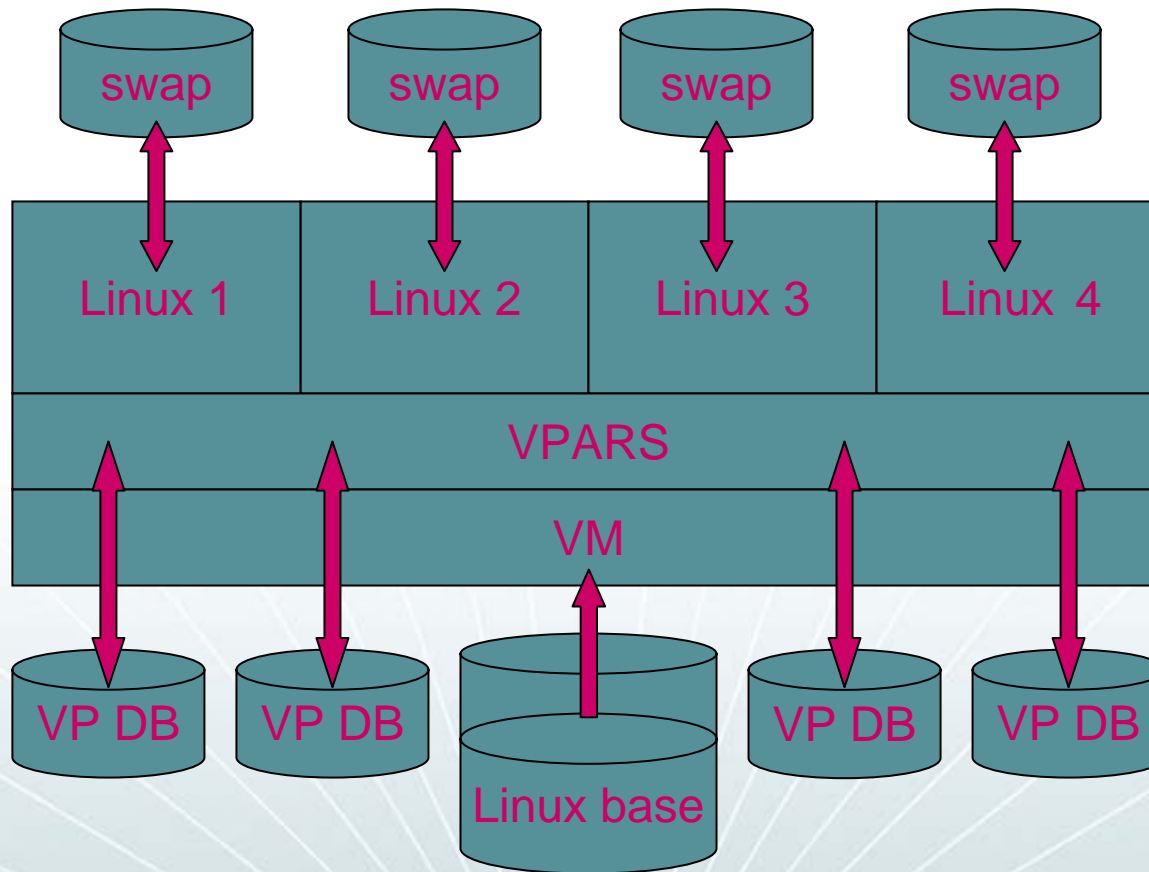




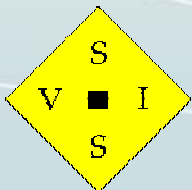
SHARE

Technology · Connections · Results

Linux under z/VM with VPARS



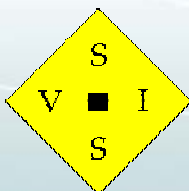
VPARS database 50 cyl - 256 disks each /
Linux database

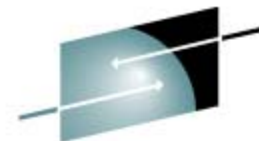


VPARS Internals

VPARS Internals include the following components:

- VM CP modules
- Modifications to IBM VM CP modules
- CMS modules
- Modifications to IBM CP commands
- CMS Execs for installation and maintenance
- Documentation: product installation and user reference





S H A R E

Technology • Connections • Results

VPARS

Virtual Software Systems, Inc.

<http://www.vsoftsys.com/>

