



ATS PSSC

IBM ATS PSSC Products & Solutions Support Center

Make the Best of your POWER5 Using APV

(Advanced POWER Virtualization)

Dedicated and Virtualized Environments Considerations

- **This demo is an example of how Virtualization and APV features allow you to optimize your POWER5 system resources usage**
- **It is based on a p570 system hosting an Oracle Application.**
 - How to optimize system resources usage?
 - Dedicated versus virtualized environment ?
 - What about High Availability ?
- **Using unused resources for another Partition**
 - We don't want any kernel dependancy
 - No performance interaction between applications
 - Separated downtime when lpar shutdown
 - Isolated software and Administration tasks

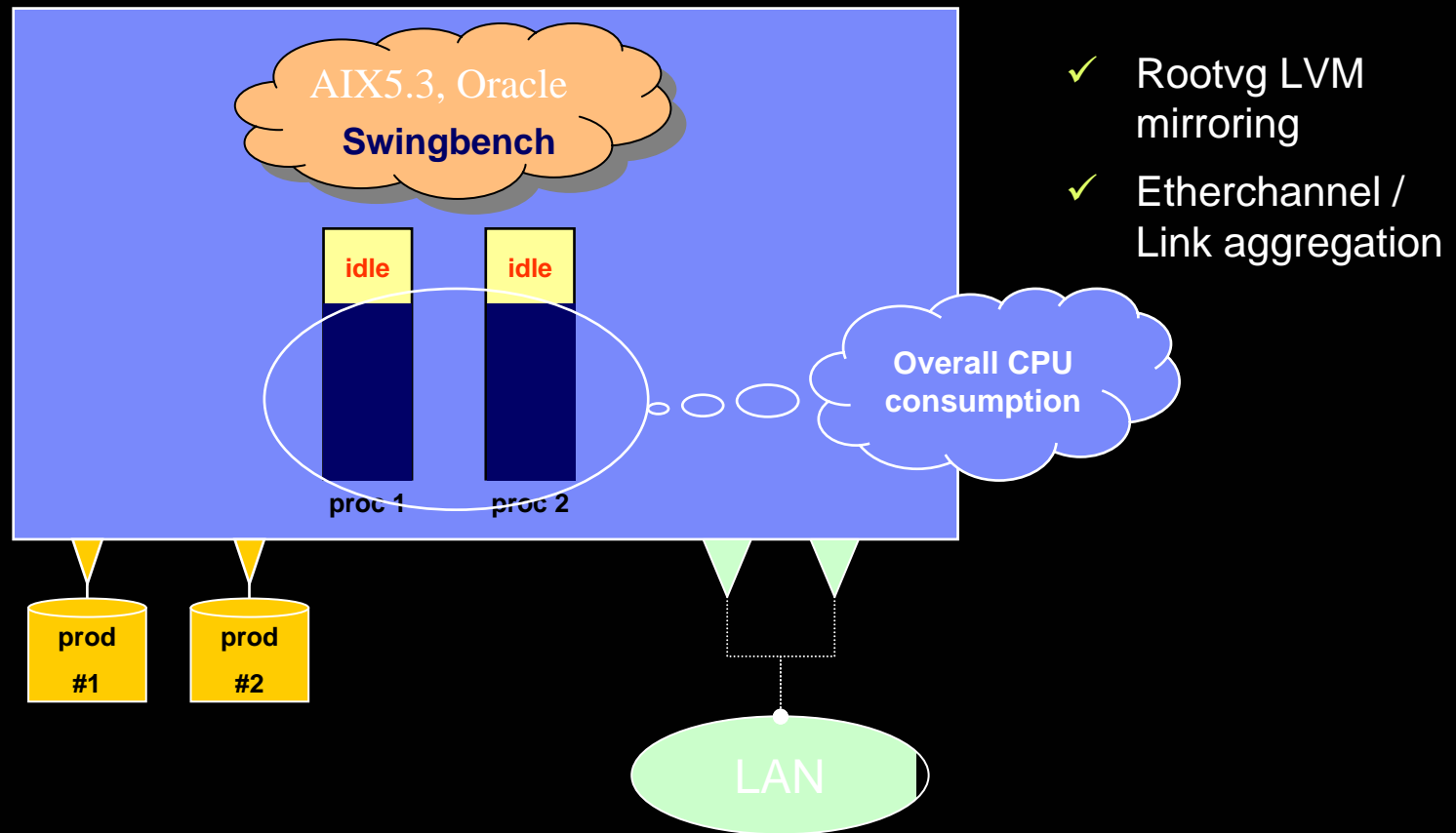
Demo Scenario

- Run Swingbench in the Dedicated environment, check CPU consumption and Application throughput (Number of Transactions per Minute)
- Run the same application in a virtualized infrastructure (Virtual SCSI and Virtual LAN), check CPU consumption and Application throughput
- Get unallocated CPU resources for a new Shared Processor type partition for running another application
- Show the virtualized resource implementation, and availability solutions for VSCSI and VLAN

Production running on dedicated environment

Step 1 : Dedicated Logical Partition : apv_dedprod

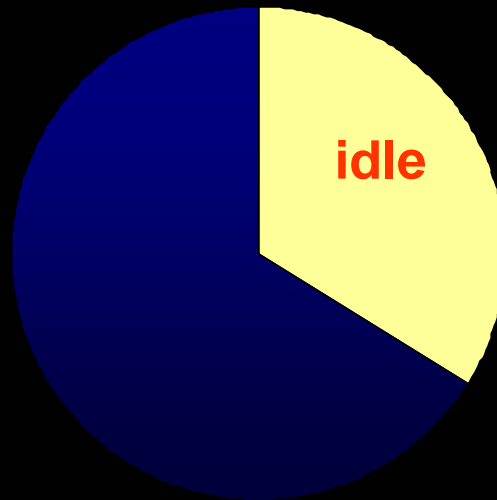
■ p570 hardware and Availability



What is idle CPU?

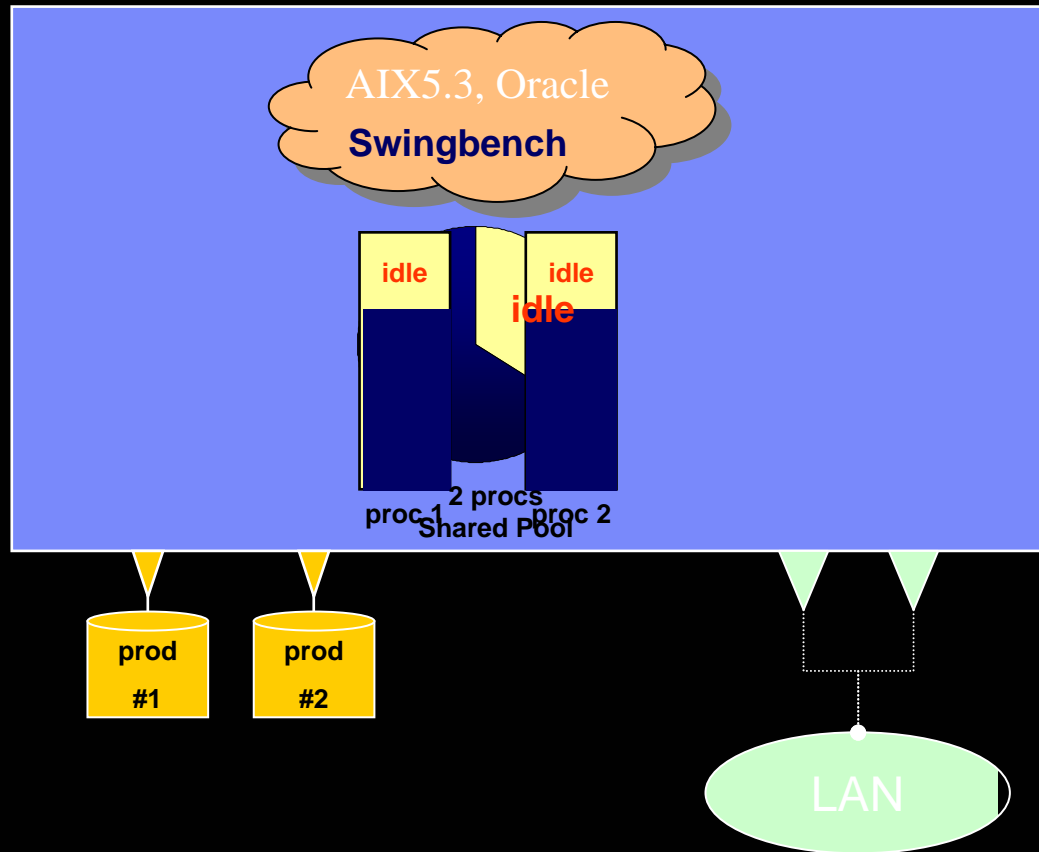
- Unused CPU Capacity is :

$$= \text{Number of physical Processors} * (\text{idle} + \text{wait})$$



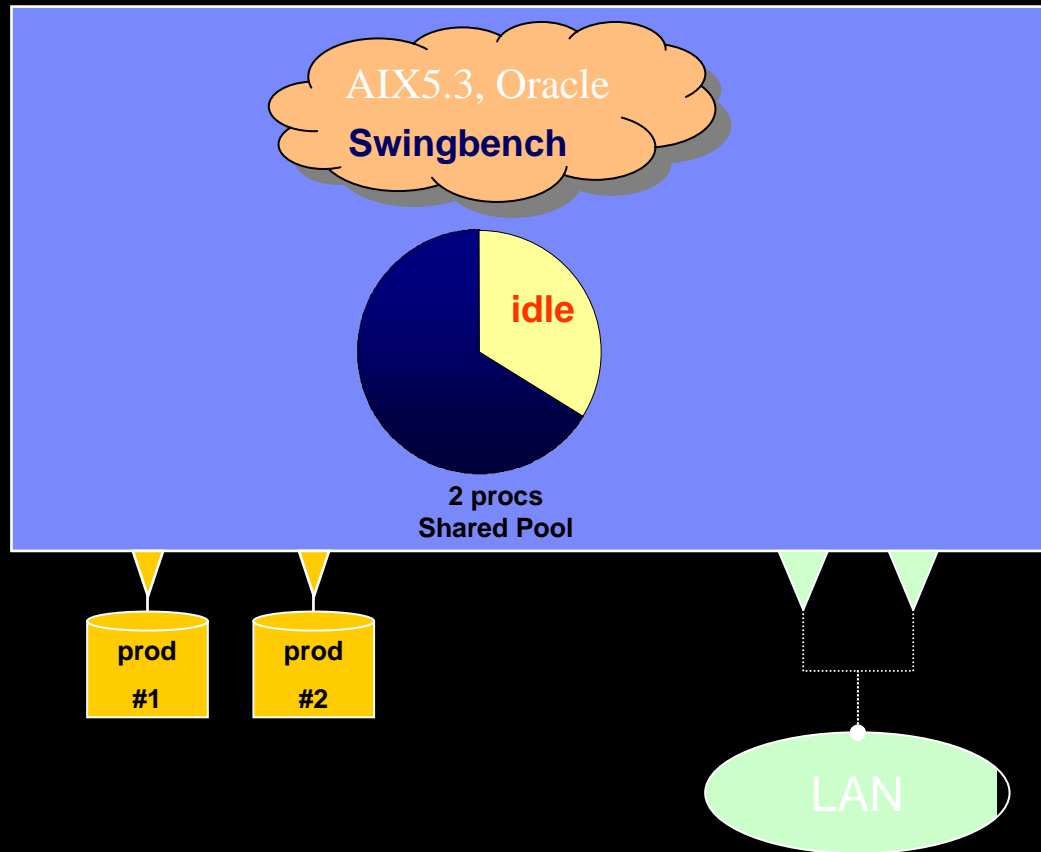
Shared Processor Pool

APV



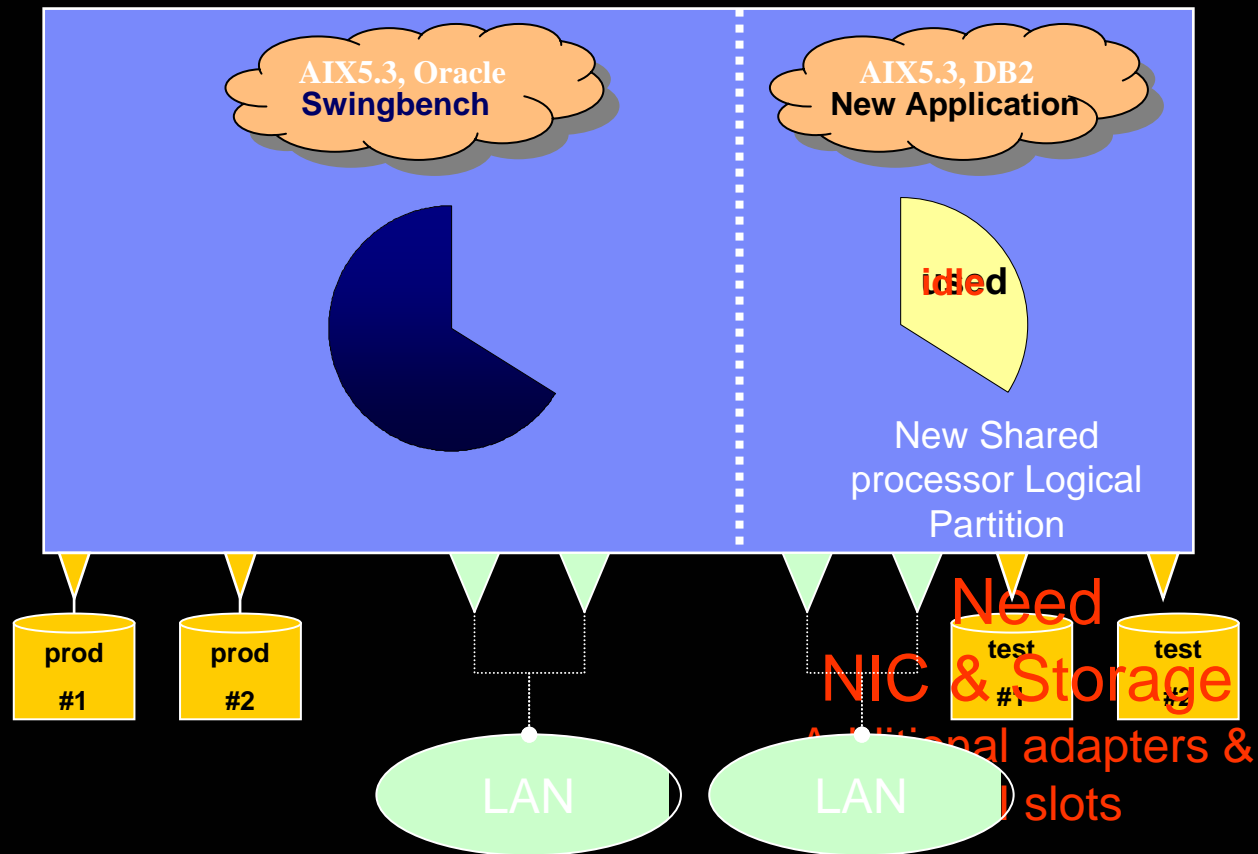
CPU Virtualization

SPLPAR

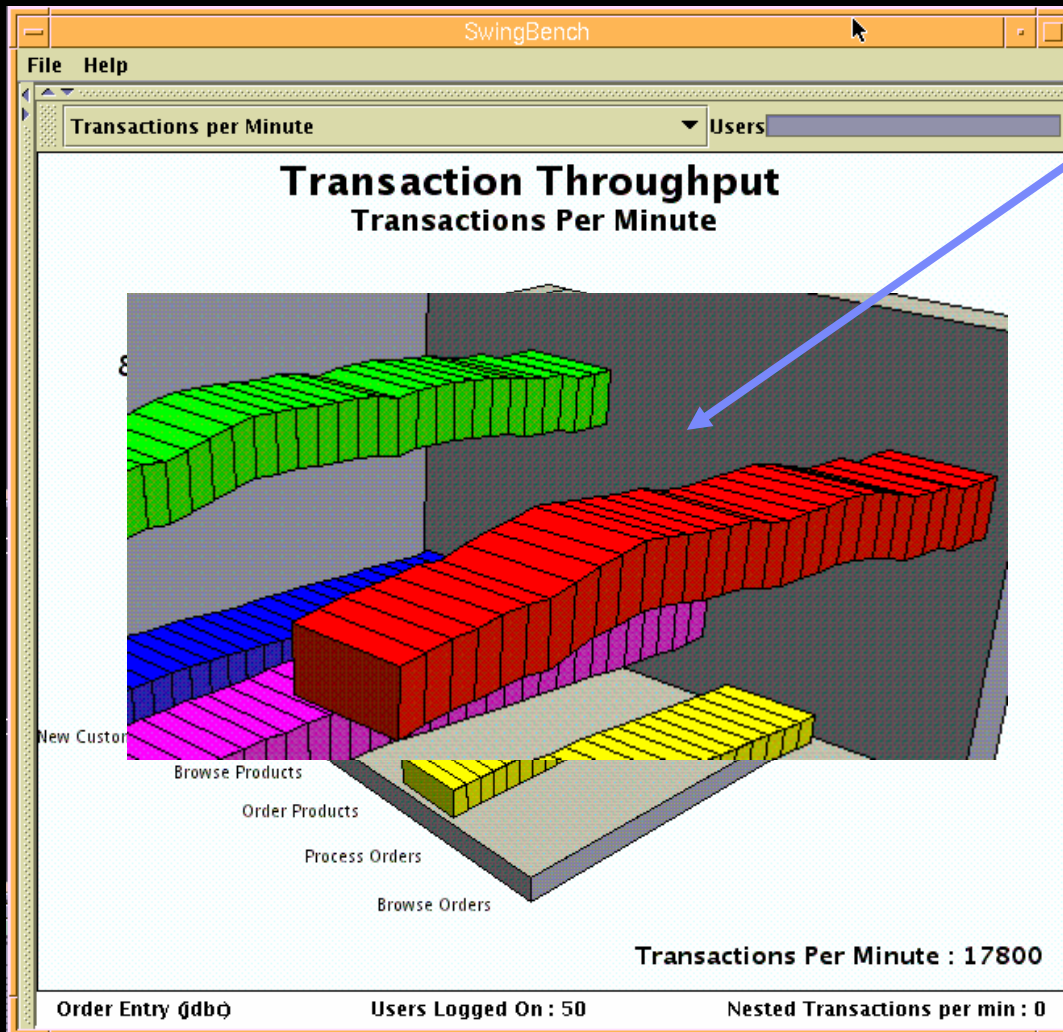


Solution 1: CPU Virtualization

Shared Processor Logical Partition



Uncap is better if OLTP load



Averaged output

- OLTP is not a constant load
- Uncapped mode absorbs CPU peaks

Solution 2 : Advanced Power Virtualization is...

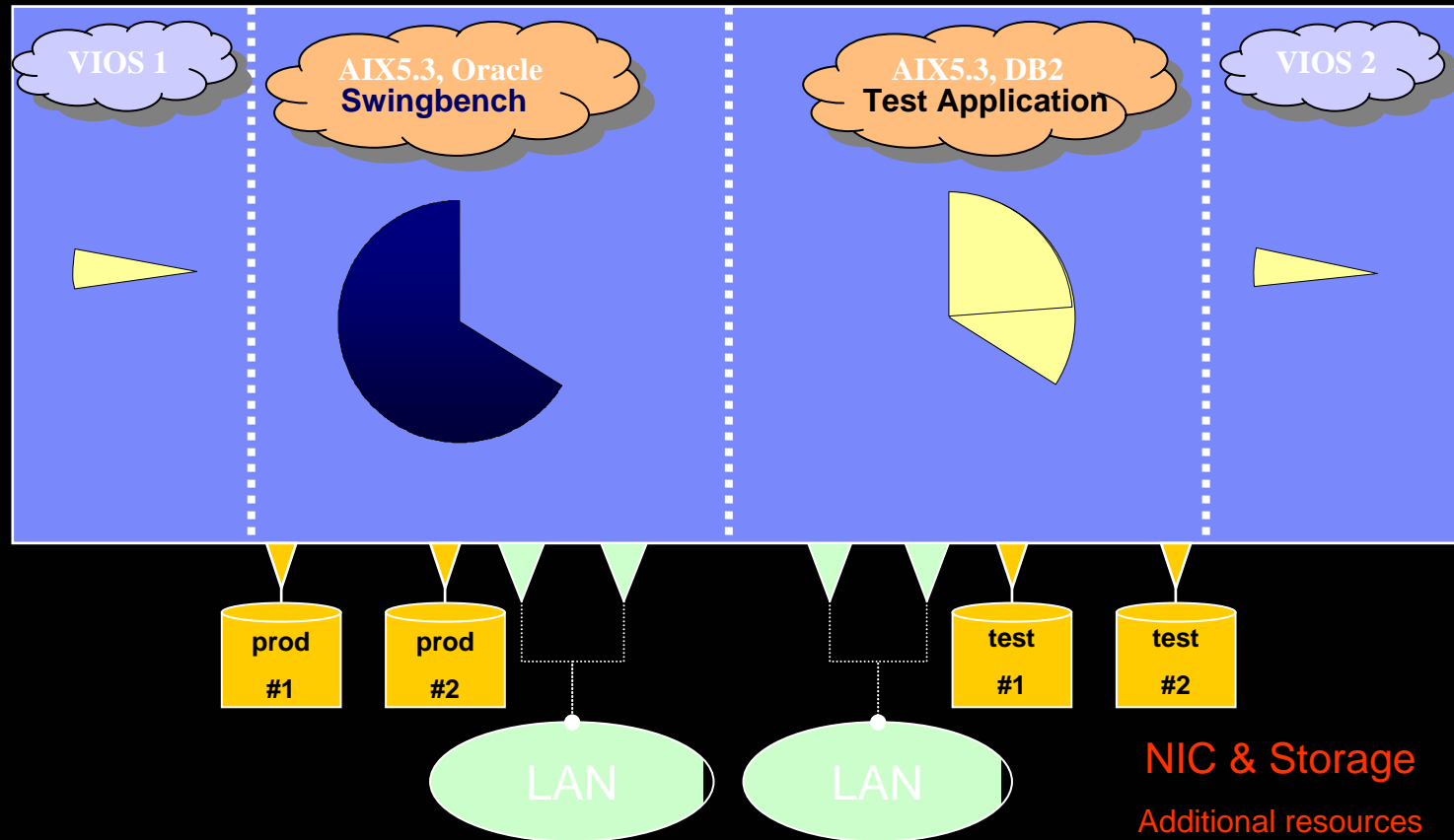
- Shared Processor Partition (Micro Partition)
 - > New micro-partition requires additional adapters and PCI slots

...and Virtual I/O Server

- Virtual SCSI Protocol and Shared Ethernet Adapter (SEA)
 - > Share physical SCSI and Ethernet Adapters between Client partitions
 - > Use 2 VIO Servers for High Availability

Building Virtualization

APV

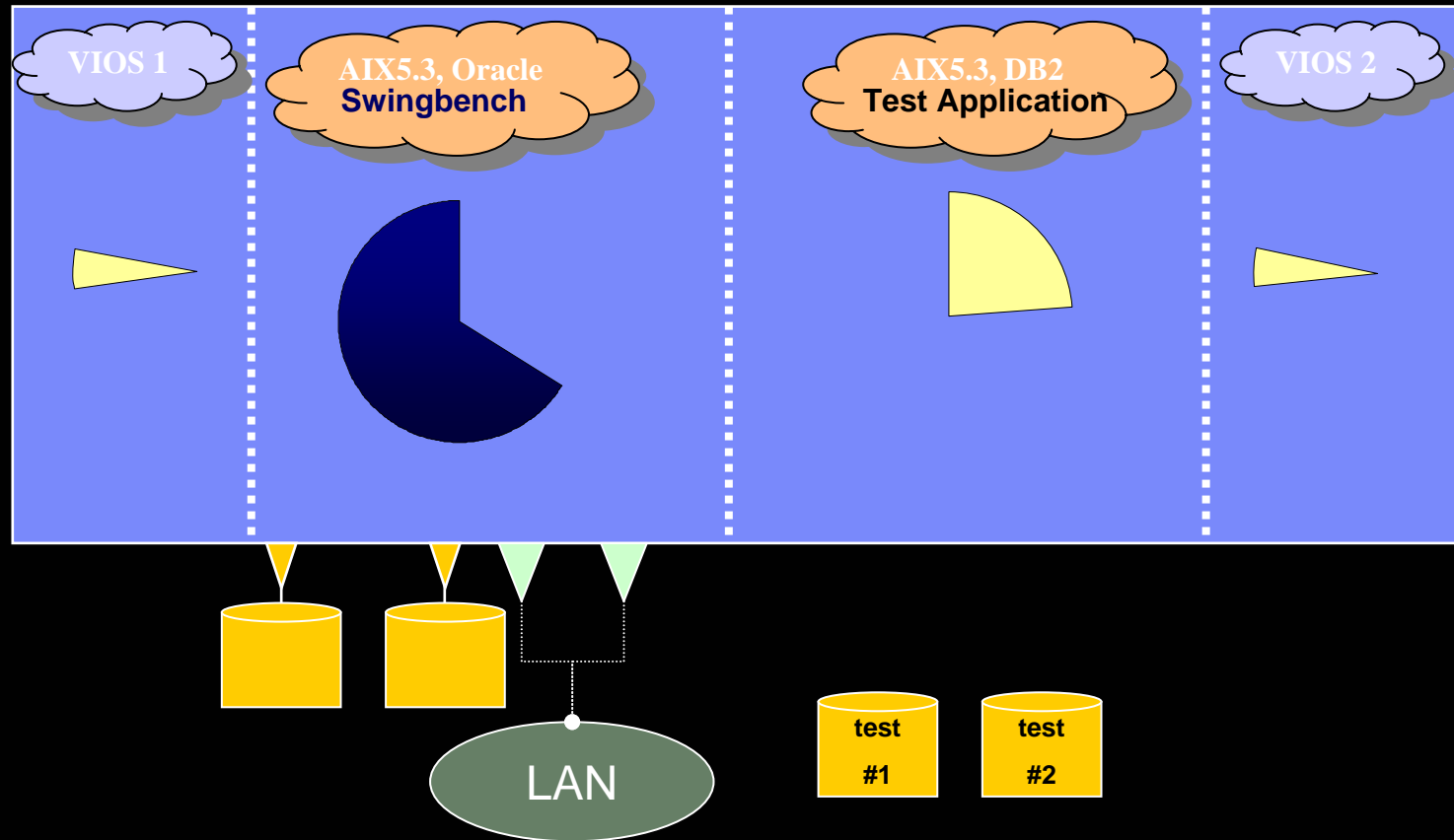


Virtual IO Server and High Availability

- Allocate existing I/O devices (SCSI and Ethernet adapters) to Virtual I/O Server partitions
- Share physical resources with client partitions.
 - > Define Virtual SCSI adapters
 - > Define Virtual Ethernet adapters
 - > Define Shared Ethernet adapter for external access
- Virtual SCSI availability
 - > with redundant Virtual I/O Servers and LVM mirroring at the Client partition
- VLAN high availability
 - > With redundant virtual I/O Servers and Shared Ethernet Adapter Failover feature
- Note : Migrating from a physical SCSI disk to a virtual SCSI device is not supported at that time.
 - > Virtual scsi devices are new devices when created.
 - > Backup/restore needed after creation

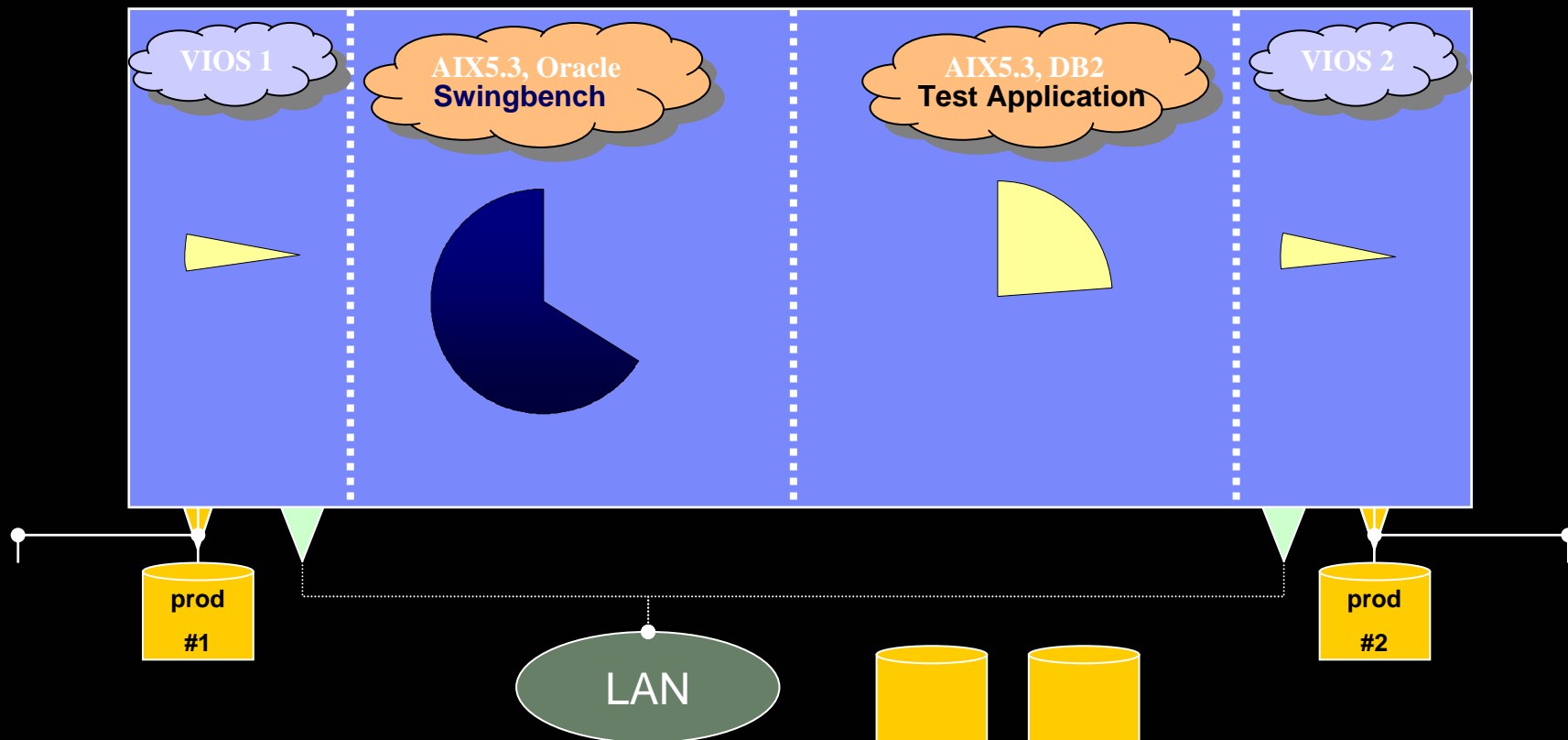
Sharing Resources

SPLPAR & VIOS



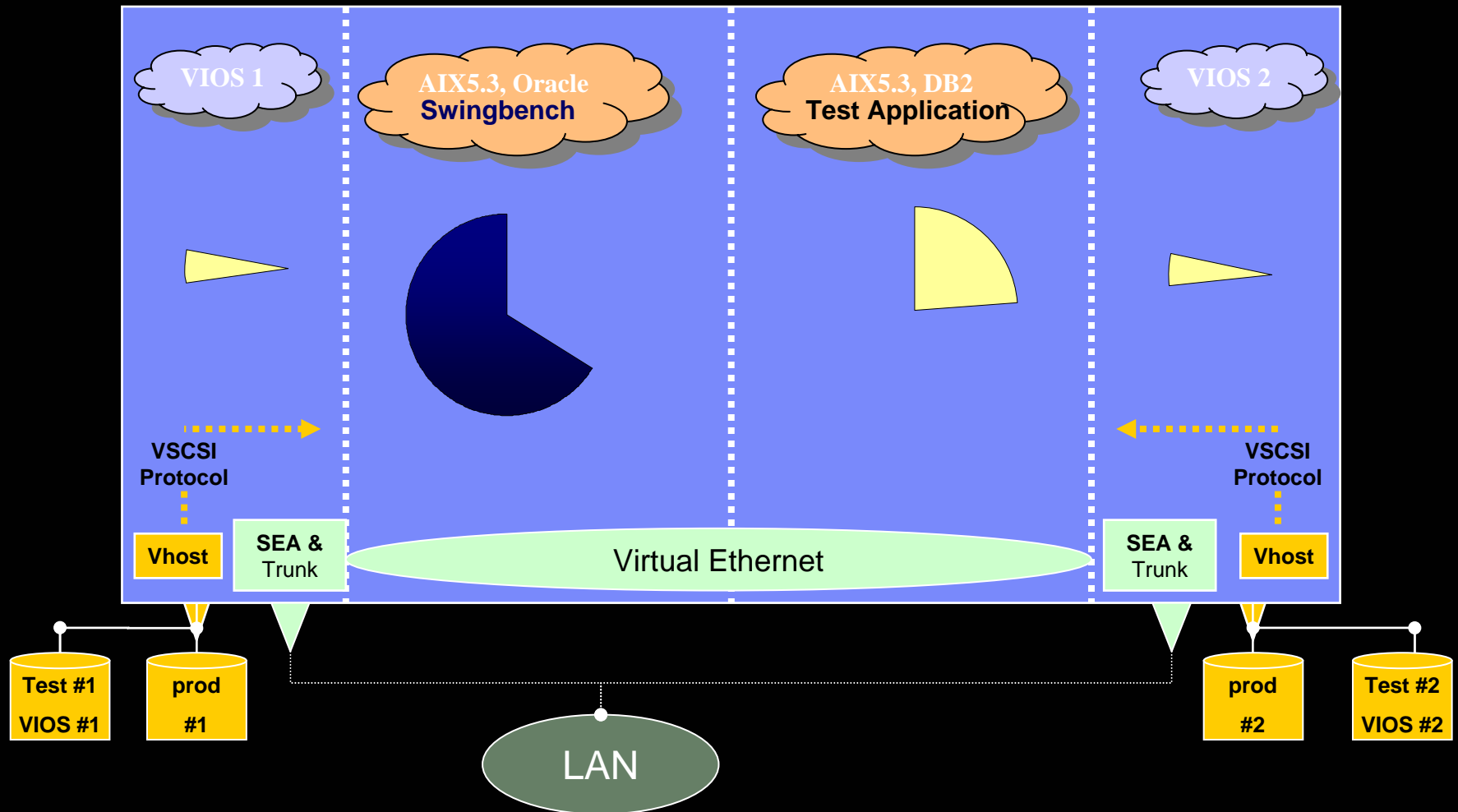
Virtualizing Partition

SPLPAR & VIOS

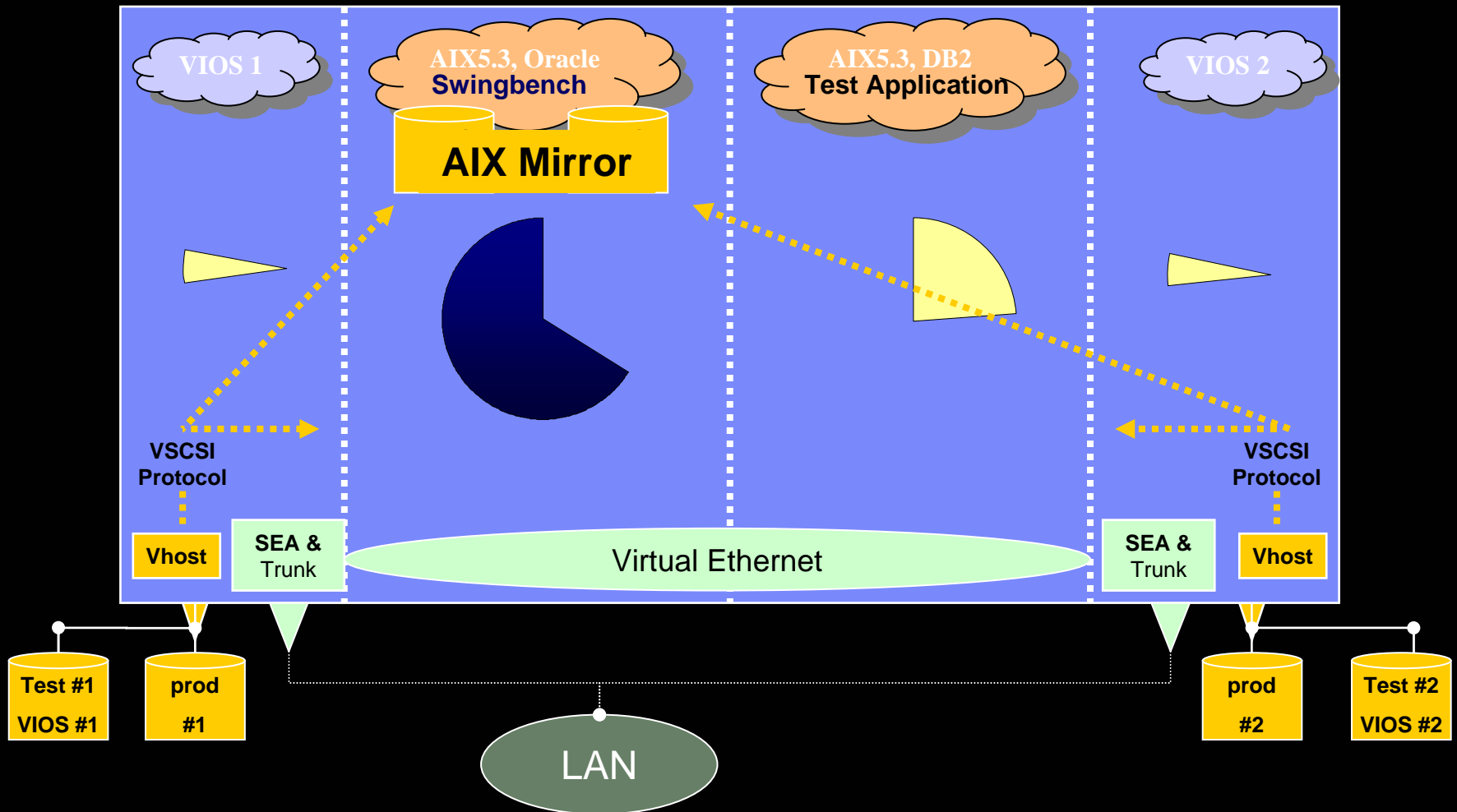


Virtualization and High Availability

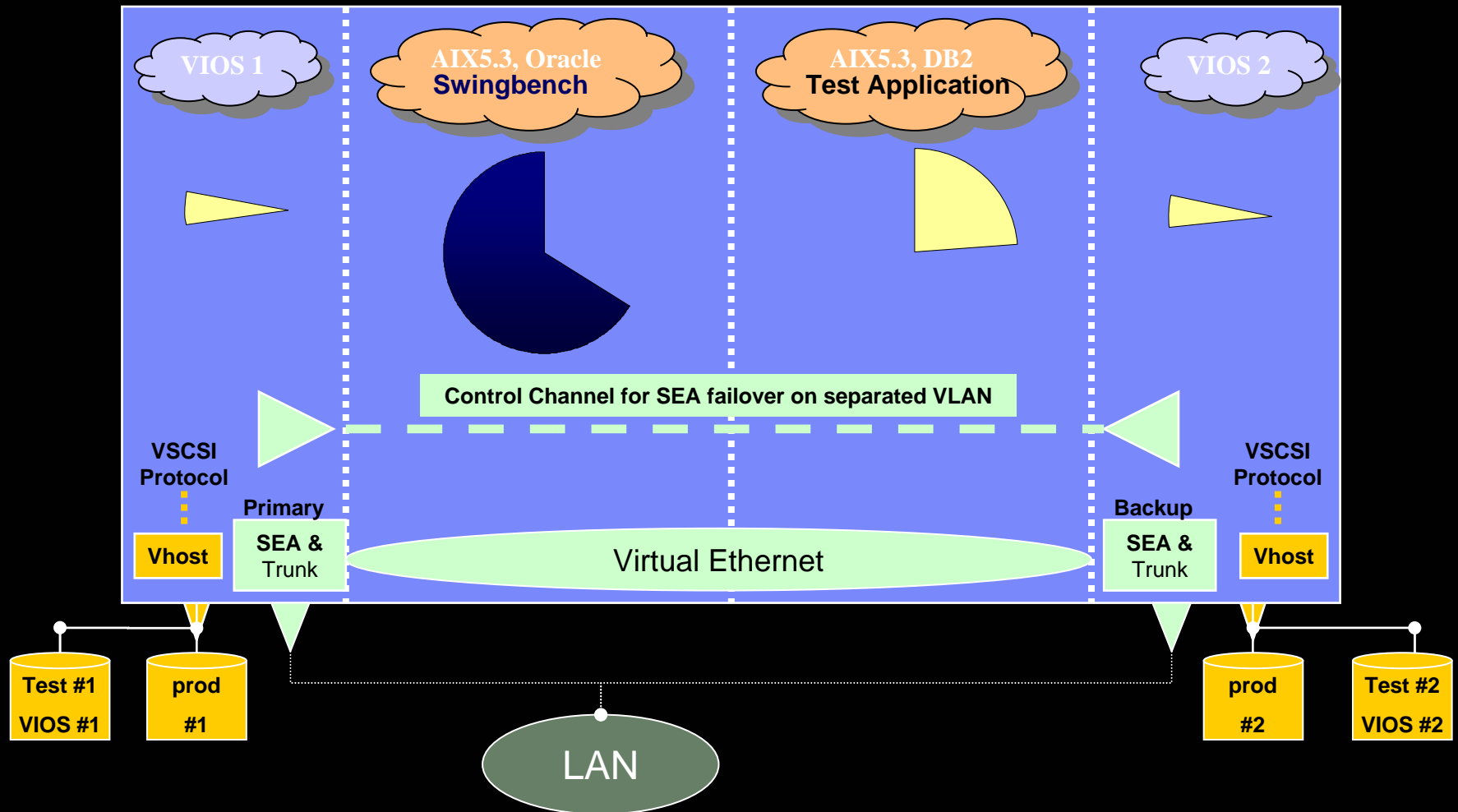
SPLPAR & VIOS



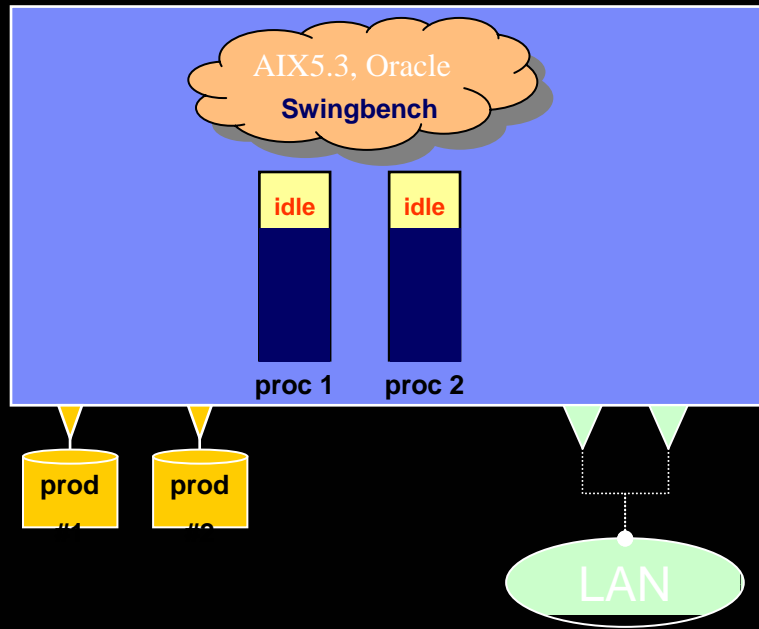
VSCSI Protocol and AIX Mirroring for disk redundancy



Basic SEA Failover Configuration



Dedicated



Let's perform the Demo

Virtualized and Optimized

