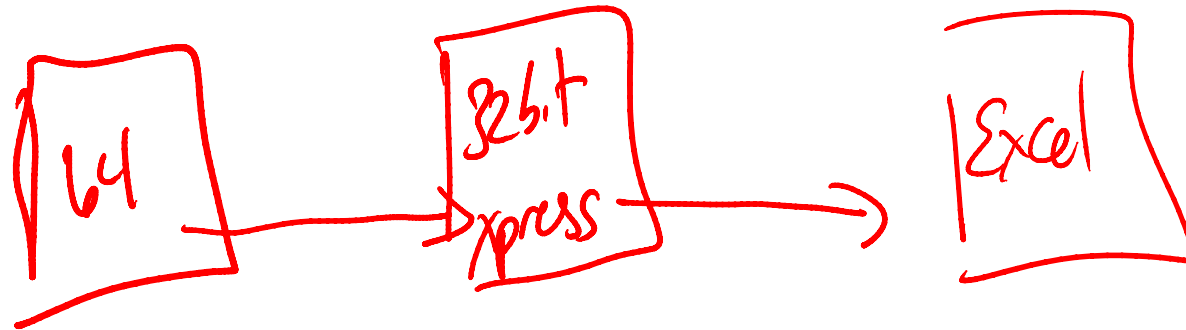
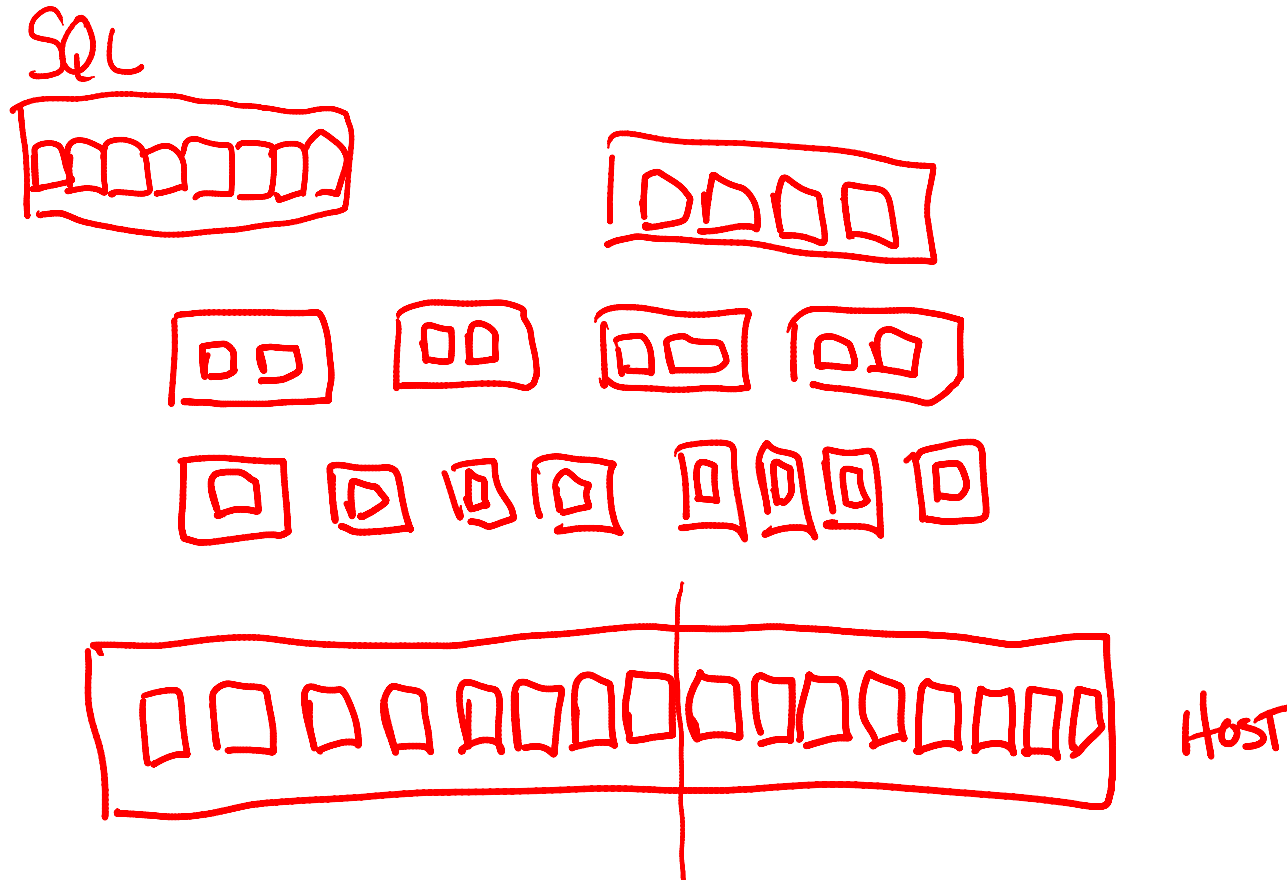


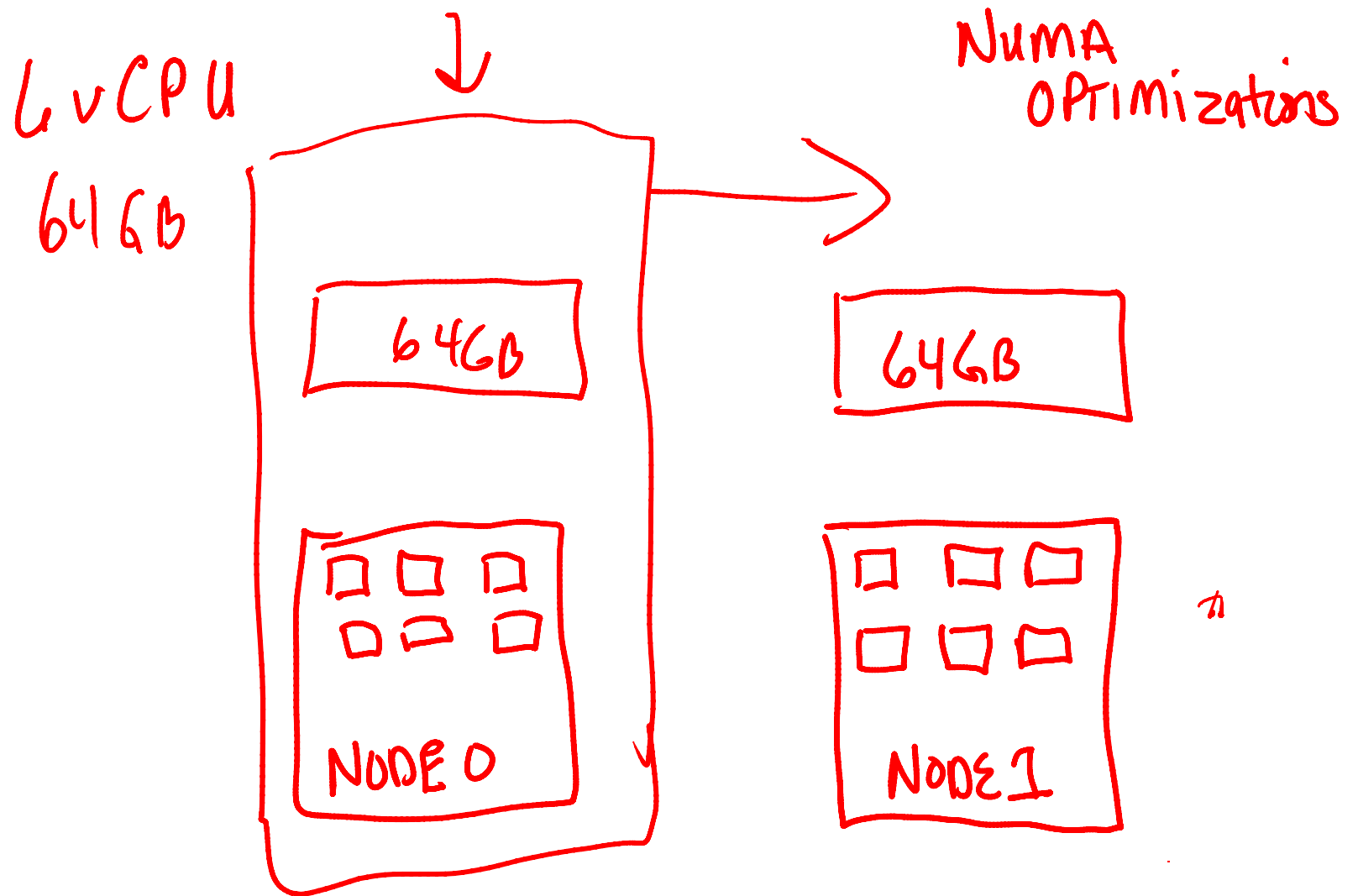


This slide does not tie to any specific slide from the week 3 training. It was drawn to show how a 64 bit SQL Server could use a linked server connection to a 32 bit SQL Express install to access Excel files over linked servers since there is no 64 bit JET support. This was traditionally the work around used to be able to link to Excel spreadsheets prior to the 64 bit ACE drivers being released with Office 2010 x64 that provide support to directly link to Excel spreadsheets from x64 installations of SQL Server again.

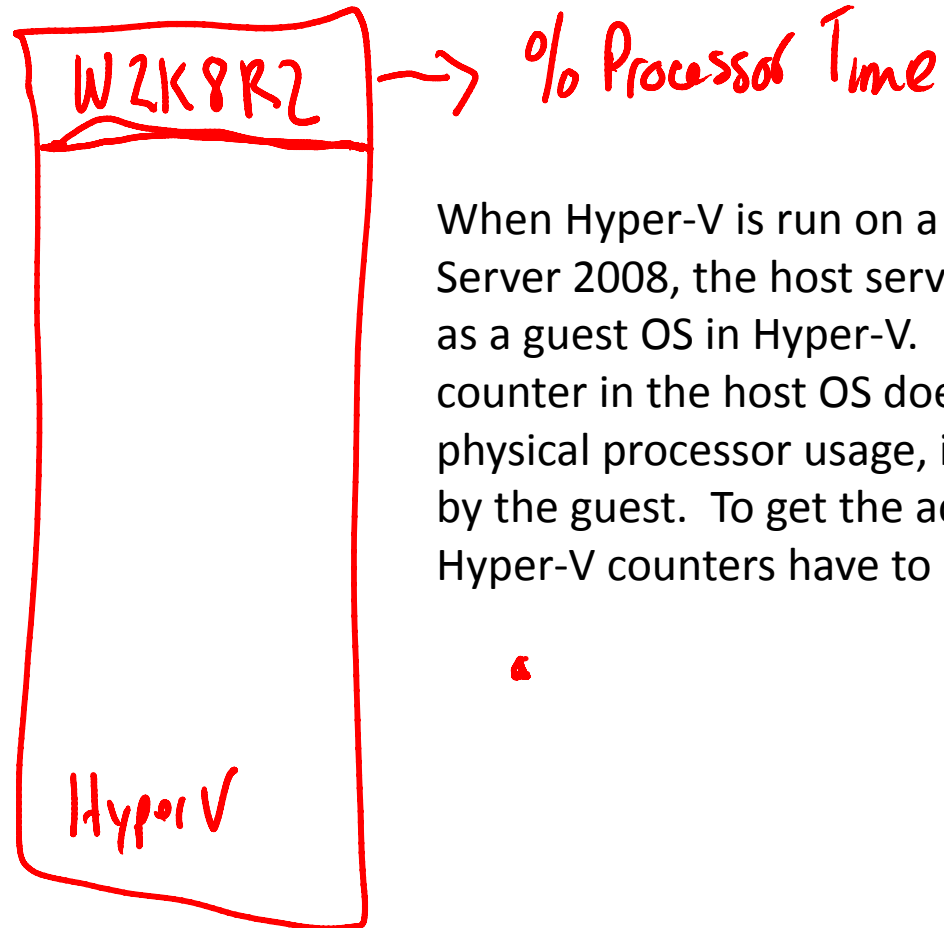
CPU Coscheduling



CPU Coscheduling, a process in virtualization where the same number of physical processors must be preempted as there are virtual processors for the VM, is one of the biggest problems for large SMP VMs in mixed environments with a large number of small 1-2 vCPU VMs in it. When working with VMs for SQL Server less CPUs may provide better performance as a result.



In order to take advantage of VMware NUMA optimizations, a VM can not be larger than the size of the physical resources available in a single hardware NUMA node. In the above example, a dual socket, hexacore system with 128GB RAM is shown. The largest VM that can be created that has NUMA optimizations is 6vCPU with 64GB RAM.



When Hyper-V is run on a standard OS installation of Windows Server 2008, the host servers OS environment is implemented as a guest OS in Hyper-V. For this reason, the % Processor Time counter in the host OS does not accurately reflect the actual physical processor usage, it instead reflects the processor usage by the guest. To get the actual physical processor usage, the Hyper-V counters have to be used.

All Hyper-V counters start with
Hyper-V