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International Informix Users Group

Running Informix in a Monster Virtual Machine

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Outline

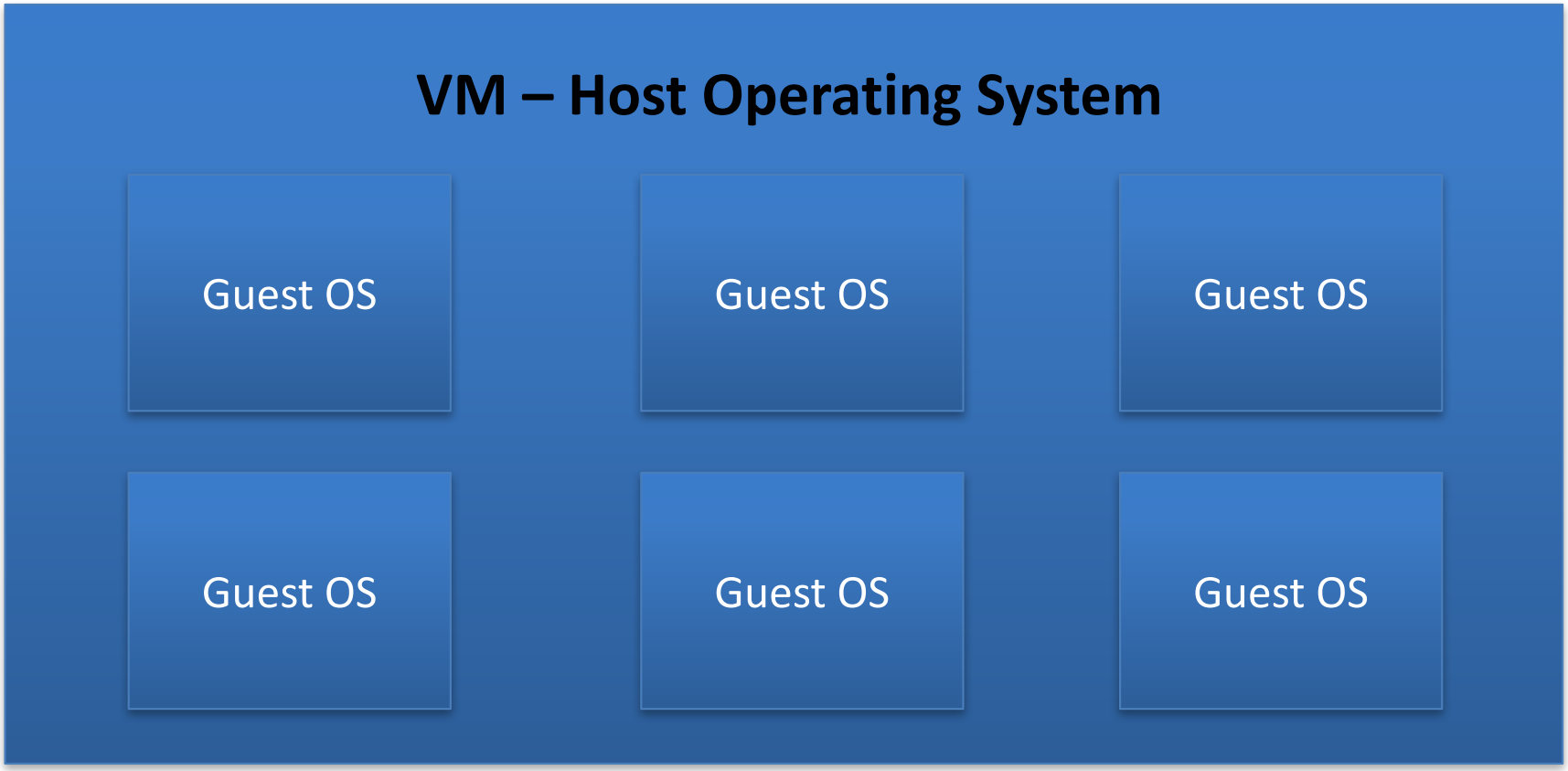
- What is a VM
- Benefits of running Informix in a VM
- Problems with running Informix in a VM
- Benchmark and Testing
- Recommendations and Best Practices for Informix in a VM
- Poll – How many of you use VM?

What is a VM?

- Virtualization software allows a single host computer to create and run one or more virtual environments

- Virtualization software is most often used to emulate a complete computer system in order to allow a guest operating system to be run, for example allowing Linux to run as a guest on top of a PC that is natively running a Microsoft Windows operating system (or the inverse, running Windows as a guest on Linux).

What is a VM?


VM – Host Operating System
Guest OS
Guest OS
Guest OS
Guest OS
Guest OS
Guest OS

What is a Monster VM?

- Monster VM = more then 8 vCPUs and 256 GB RAM
- Focus of this presentation is VMware vSphere software for virtualization
- Other virtualization software

Benefits of a VM

- Partitioning
  - Run multiple operating systems on one physical machine
  - Divide system resources between virtual machines
- Isolation
  - Provide fault and security isolation at the hardware level
  - Preserve performance with advanced resource controls
- Encapsulation
  - Save the entire state of a virtual machine to files
  - Move and copy virtual machines as easily as moving and copying files
- Hardware Independence
  - Provision or migrate any virtual machine to any physical server

Benefits of running Informix in a VM

- Shared Resources
- Make use of ideal computer power
- Snapshots
- Flexible Management
- Flexible Allocation of Resources

Cost of Running a Database in a VM

- ESXi 6.0 Performance Relative to Native
  - "For example, with a 64-vCPU virtual machine running on a 72-pCPU ESXi host, throughput is 90% of native throughput on the same hardware platform."
  - Source Vmware white paper "Virtualizing Performance- Critical Database Applications in VMware vSphere 6.0"

Costs of Running Informix in a VM

- Informix requests action – CPU cycle to OS

- OS requests action – CPU cycle to VM

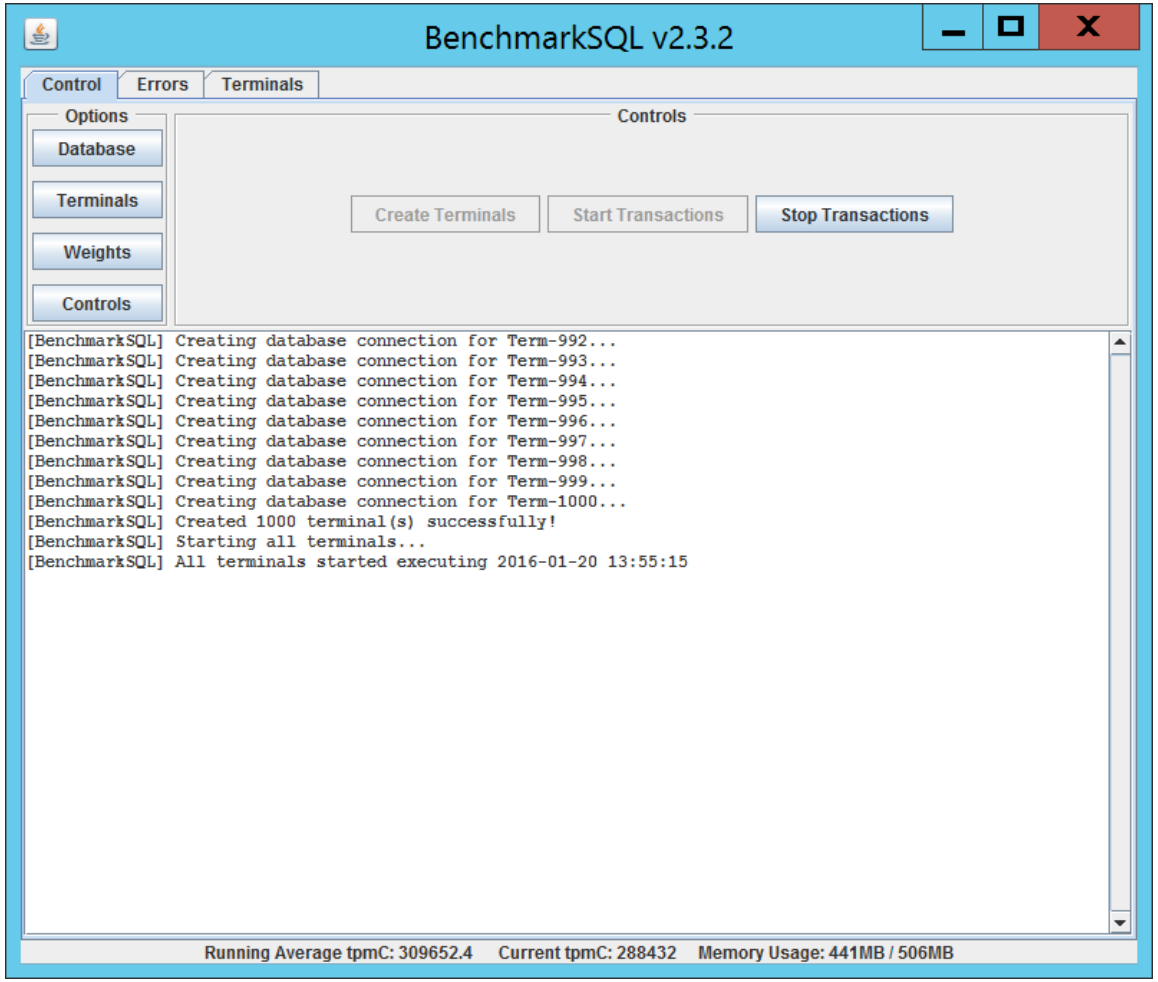
- VM runs action

Every CPU, IO, Memory request goes thought an extra layer

Problems of running Informix in a VM

- Overhead Costs- Memory and CPUs
- Disk performance
- Management and Monitoring
- Inconsistent results in benchmarks
- Snapshot corruption

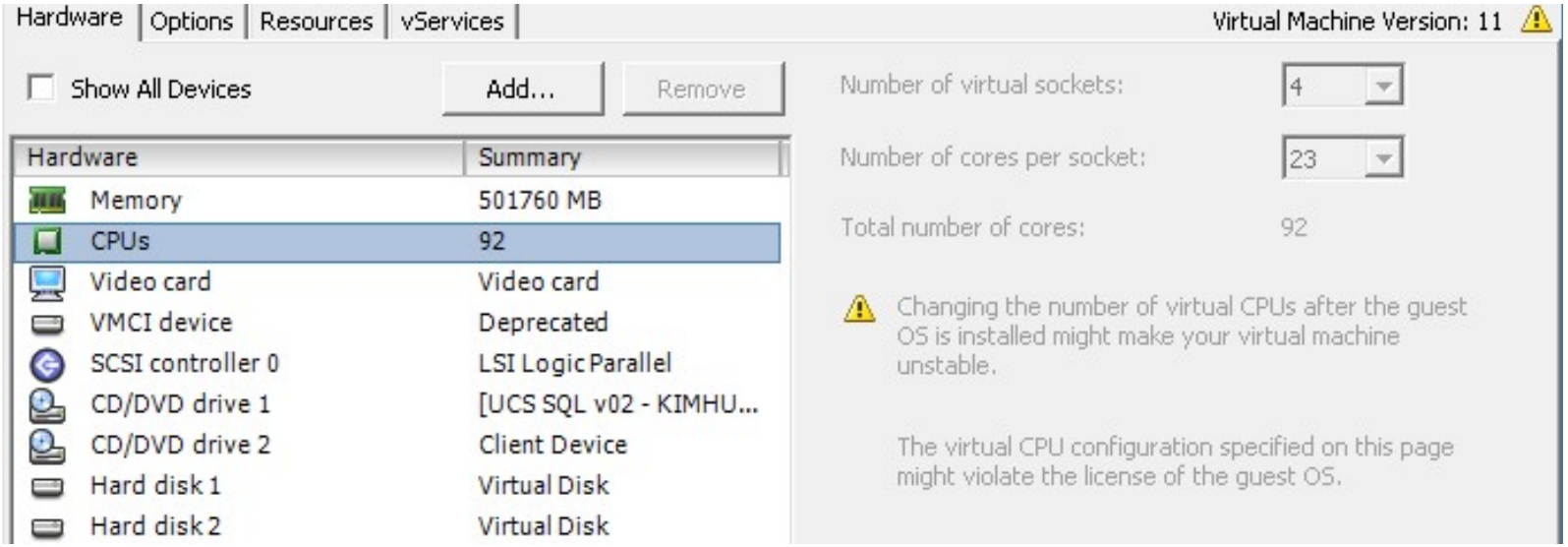
Benchmark and Testing



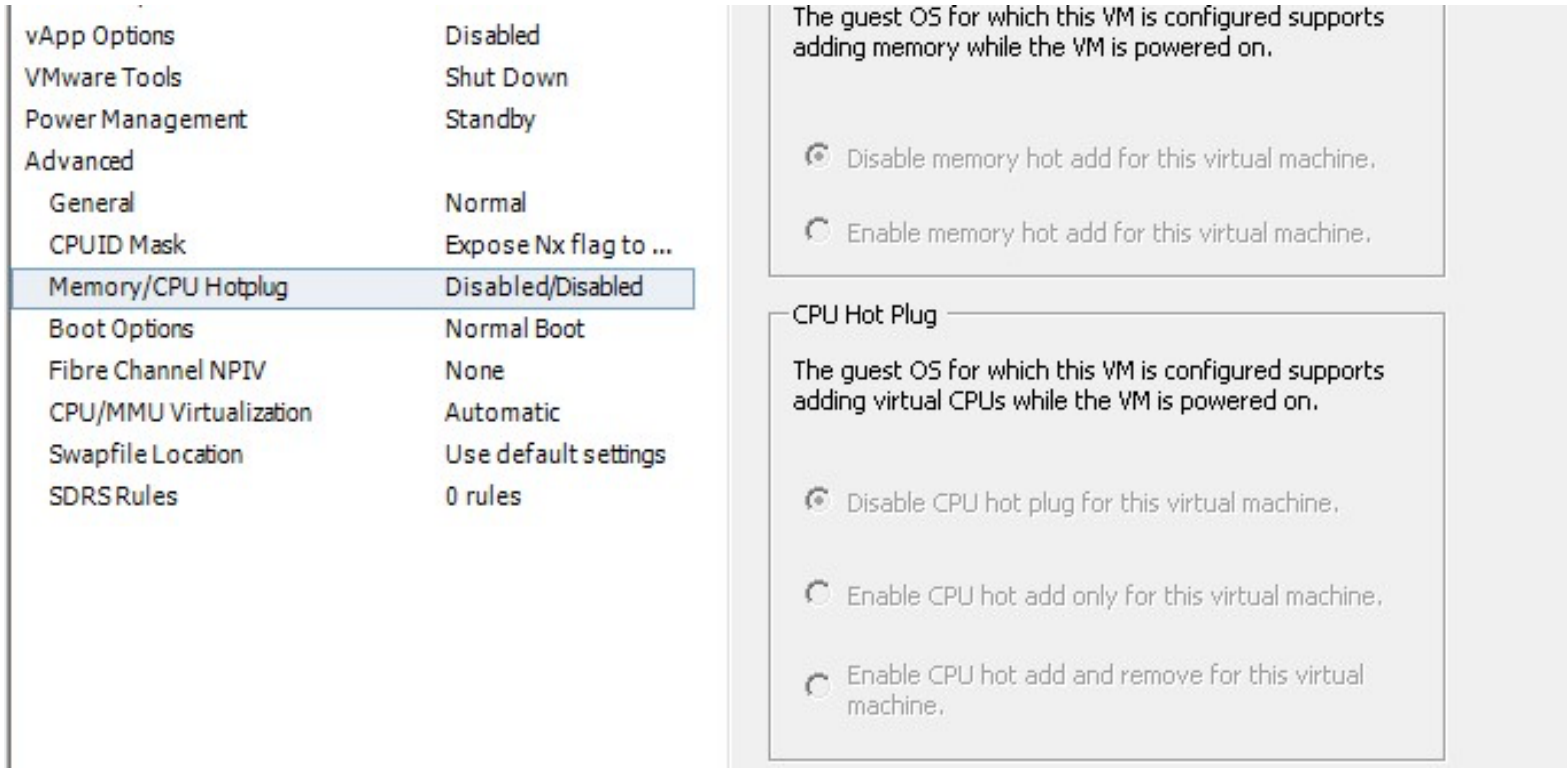
Benchmark and Testing

- OLTP using Benchmark SQL
- Data Warehouse ETL Process
- Data Warehouse Reports
- The following Recommendations are based on our testing and benchmarks

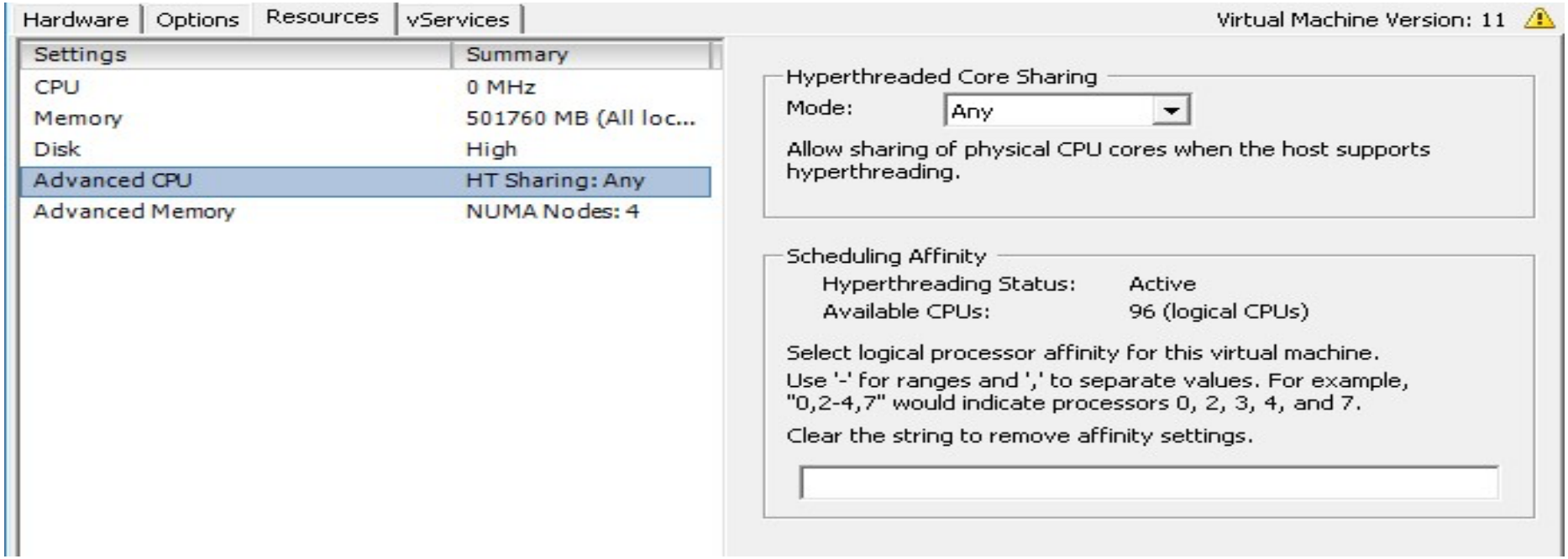
Recommendations – Save 1 vCPU per Socket for VM (Used 92 of 96)



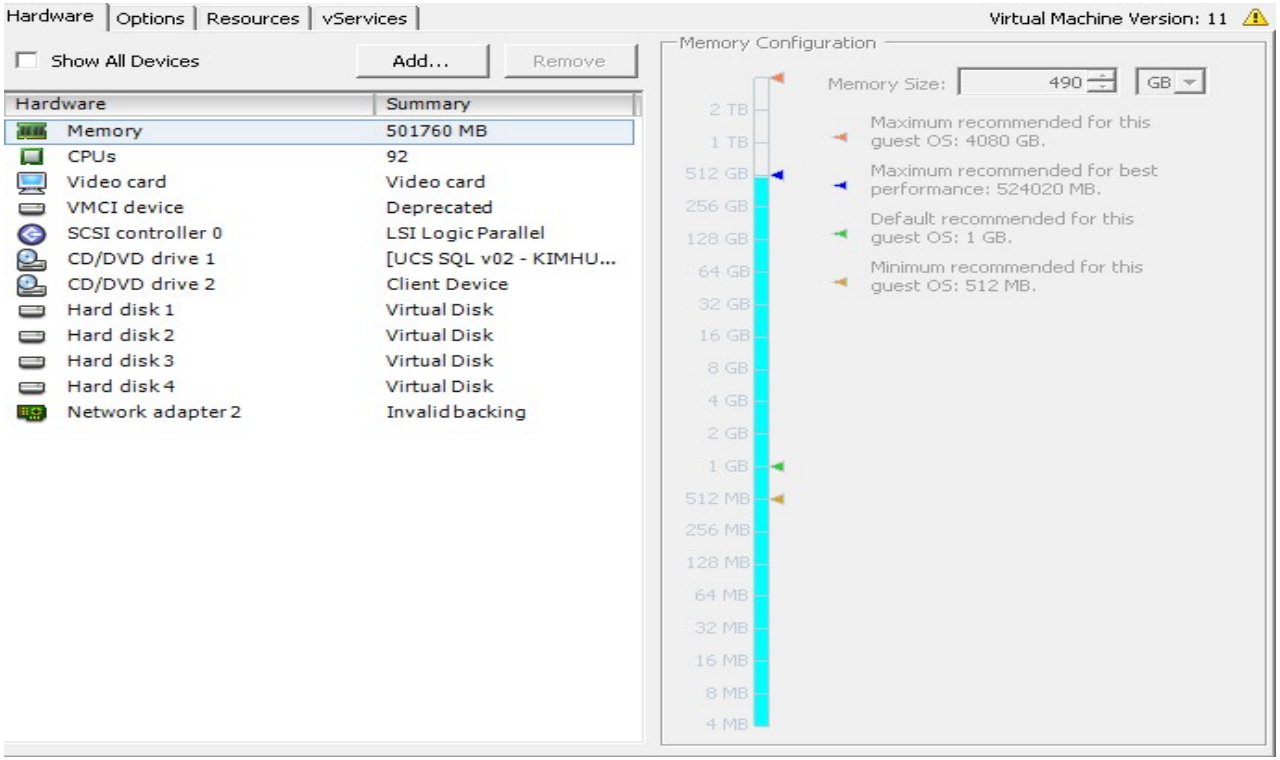
Recommendations – Disable Hot Swap Memory/CPU



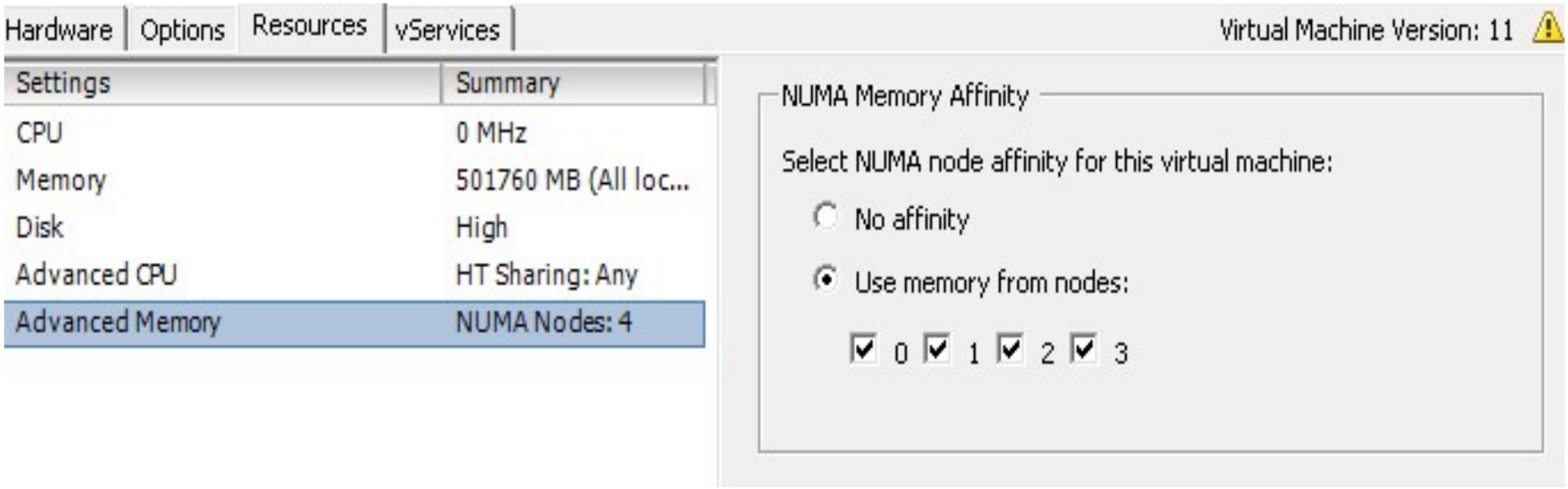
Recommendations – Turn on Hyperthreading ?



Recommendations – Save Memory for VM (Used 490 of 512)



Recommendations – Turn NUMA on and align VM to NUMA Nodes



Recommendations and Best Practices

- Setup Direct Disk Access
- Enabled Hyper threading ????(Maybe)
- Enabled NUMA Memory Affinity
- Disabled “Hot Swap” for CPU and RAM

Recommendations and Best Practices

- Informix External Backup Method for Snapshots
  - onmode –c block
  - Make Snapshot
  - onmode –c unblock

Questions?

Send follow-up questions to
lester@advancedatatools.com

Next Webcast
Informix Best Practices

- **Informix Configuration, ONCONFIG part 2 by Lester Knutsen**
  - Thursday, May 18, 2017 at 2:00pm EST
- **Informix Connection Manager by Thomas Beebe**
  - Thursday, June 29, 2017 at 2:00pm EST
- **Informix Auditing by Mike Walker**
  - Thursday, July 27, 2017 at 2:00pm EST

Please register for each webcast here at:
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Informix Training in 2017

- **Advanced Informix Performance Tuning**
  - July 10-13, 2017
- **Informix for Database Administrators**
  - September 18-21, 2017

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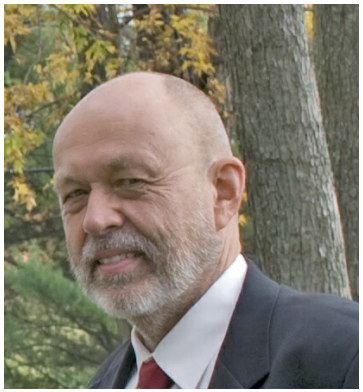

Thank You

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