## Performance

### Performance Section

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### Notes Section

Notes for Workload:

- webserver
- javaserver
- mailserver
- fileserver
- database
Configuration

Server and Network

Server Manufacturer and Model: HP ProLiant DL385G5p
Processor Vendor and Model: Quad-Core AMD Opteron 2384
Processor Speed (GHz): 2.7GHz
Number of Sockets/Cores per Socket: 2 Sockets / 4 Cores per Socket (8 Cores Total)
Primary Cache: 64KB I + 64KB D on chip per core
Secondary Cache: 512KB I + D on chip per core
Other Cache: 6MB
Memory: 64GB (8x8GB 533MHz DDR2)
Disk Subsystem Type: Direct attach SAS for operating system, FC SAN for VMs
Number of Disk Controllers: 1 HP Smart Array P400 (OS controller)
Number of Host Bus Adapters: 1
Host Bus Adapter Vendors and Models: 1 QLogic QLE2462 dual-port fibre-channel HBA
Number of Network Controllers: 3
Network Controller Vendors and Models: 2 x embedded HP NC382i DP adapters, 1 x HP NC373T SP adapter
Network Switch Vendors and Models: HP ProCurve 3400
Network Speed: 1000BaseT
Other Hardware: None
Other Software: None
Hardware Availability Date: March 30, 2009
Software Availability Date: November 2008

Virtualization Software

Vendor, Product, Version, and Build: VMware ESX 3.5 Update 3, build 123630
Virtualization Type: Hardware Virtualization
Supplemental Software: None
Virtualization Software Availability Date: November 2008

Storage

Array Vendor, Model, and Firmware Version: HP StorageWorks MSA 1000, firmware version 4.48
### Fibre Channel Switch
- **Vendors and Models**: HP StorageWorks SAN Switch 4/32
- **Disk Space Used**: 548.75GB
- **Array Cache Size**: 256MB
- **Number and Size of LUNs**: 5 LUNs, 474.75GB each
- **RAID Type**: RAID 0
- **Number of Members per RAID Set**: 14 drives per RAID set
- **Disk Vendor, Model, and Speed**: HP 36GB Ultra320 SCSI drive

### Clients
- **Number of Clients**: 8
- **System Model(s)**: HP ProLiant DL360G5
- **Processor Vendor(s) and Model(s)**: Intel Xeon
- **Processor Speed(s) (GHz)**: 2.83GHz
- **Number of Sockets/Cores per Socket**: 1 Sockets / 4 Cores per Socket (4 Cores Total)
- **Memory**: 2GB
- **Network Controller Vendor and Model**: HP NC373i Gigabit adapter
- **Other Hardware**: None
- **Other Software**: None

### Notes for Workload

#### Server and Network Notes
- **Server BIOS settings**:
  - Power Regulator: Static High Performance (default Dynamic Power Savings Mode)
  - Ultra Low Power State: disabled (default enabled)
  - Independent Memory Mode Enabled (default Ganged Memory Mode)
- **QLogic HBA BIOS settings**:
  - Fibre Channel tape support disabled (default enabled)
  - Data rate option set to 1 (default 2)
  - Execution Throttle set to 64 (default 16)
- **vSwitch Configuration**:
  - vSwitch0 was the Service Console configured on vmnic0
  - vSwitch7 was for all file servers, database servers and mailservers configured with 120 ports (default 56) on vmnic4
  - vSwitch8 was for all web servers, javaservers and standby configured on vmnic1, vmnic2 & vmnic3
- **Storage Configuration**:
  - "Database Storage" configured to store all database VMs
  - "Storage_0" configured to store all VMs except database for tiles 0 & 1
  - "Storage_1" configured to store all VMs except database for tiles 2 & 3
  - "Storage_2" configured to store all VMs except database for tiles 4 & 5
  - "Storage_3" configured to store all VMs except database for tiles 6 & 7
Virtualization Software Notes

- vmfs2 was unloaded prior to run
- firewall and iptables services were stopped prior to the run
- pegasus CIMOM server was unloaded prior to run
- virtualized MMU was enabled for all VMs (default automatic)
- ethernet adapter type set to Enhanced vmxnet for all VMs
- logging was disabled for all VMs
- IDE & floppy devices were removed on all VMs except Standby2 (default enabled)
- Disk.Sched.NumRequestOutstanding set to 128 (default 32)
- VMFS3.MaxHeapSizeMB set to 64 (default 16)
- IRQ.RoutingPolicy was set to 0 (default 2)
- Qlogic queue depth set to 64

Operating System Notes

- Microsoft Windows Server 2003 virtual machines were updated to Service Pack 2
- All Linux-based virtual machines were updated to SLES 10 SP2

Software Notes

On the web servers, FastCGI version 2.4.6 was used.

Client Notes

- Microsoft Windows Server 2003 client machines were updated to Service Pack 2, as well as KB 933360
- TCP TOE chimney was disabled on all clients (default enabled)

Other Notes

None.

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