SPECweb99 Result

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Dell: PowerEdge 2650
Red Hat: Red Hat Content Accelerator 3.2

SPECweb99 = 7219

Test Date: Oct-2003
Tester: Dell

Hardware Avail:	Oct-2003	OS Avail:	Oct-2003	HTTP Software Avail:	Oct-2003	Sup. Software Avail:	Oct-2003	SPEC license #:	55

Hardware

Vendor:	Dell
Model:	PowerEdge 2650
Processor:	3.20GHz Intel Xeon Processor DP
# Processors:	2 cores, 2 chips, 1 core/chip (Hyper-Threading enabled)
Primary Cache:	12KBI+8KBD on chip
Secondary Cache:	512KB
Other Cache:	1MB L3
Memory:	12 GB
Disk Subsystem:	2 36GB, 14 18GB 15KRPM U320 drives
Disk Controllers:	Onboard Adaptec SCSI, LSI 21320-IS
Other Hardware:	Dell PowerConnect 5224 Dell PowerVault 220S

Software

Operating System:	Red Hat Enterprise Linux AS 3
File System:	ext2
Other Software:	None

HTTP Software

Vendor:	Red Hat
HTTP Software:	Red Hat Content Accelerator 3.2
API:	RHCA API
Server Cache:	None
Log Mode:	Binary CLF

Test Sponsor

Test Date:	Oct-2003
Tested By:	Dell
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Network

# of Controllers:	2
Network Controllers:	Intel PRO/1000 MT Dual Port Server Adapters
# of Nets:	4
Type of Nets:	Gigabit Ethernet
Network Speed:	1 Gb/s
MSL (sec):	30 (Non RFC1122)
Time-Wait (sec):	60 (Non RFC1122)
MTU:	1500

Clients

# of Clients:	16
Model:	Dell PowerEdge 1650
Processor:	1.4GHz Pentium III
# of Processors:	2
Memory:	256MB
Network Controller:	Onboard Intel 82544EI
Operating System:	Microsoft Windows XP
Compiler:	Microsoft Visual C++ 6.0

Notes/Tuning Information

SUT Notes

1 disk for OS, 1 disk logs; attached to onboard SCSI
14-disk SW RAID-0 stripe for file set; attached to LSI adapter
Hyper-Threading enabled, Sequential Memory Access disabled

Operating System Notes

ulimit -n 10000, sets number of open files, default 1024
One NIC IRQ bound per logical CPU; timer and LSI (file set) IRQs bound to CPU 1, default 0
Each NIC's TX queue length set to 20000 via ifconfig, default 100
File systems mounted with "noatime,nodiratime", no inode access time updating
net.ipv4.nonlocal_bind = 1, allows processes to bind to non-local IP adresses
net.ipv4.tcp_timestamps = 0, turns TCP timestamp support off, default on
net.ipv4.tcp_max_tw_buckets = 1500000, sets TCP time-wait buckets pool size, default 180000
net.ipv4.tcp_rmem = 30000000 30000000 30000000, sets min/default/max TCP read buffer, default 4096 87380 174760
net.ipv4.tcp_wmem = 30000000 30000000 30000000, sets min/pressure/max TCP write buffer, default 4096 16384 131072
net.ipv4.tcp_mem = 30000000 30000000 30000000, sets min/pressure/max TCP buffer space, default 31744 32256 32768

net.ipv4.tcp_window_scaling = 0, turn TCP window scaling support off, default on
net.core.hot_list_length = 5000, maximum number of skb-heads to be cached, default 128
net.core.optmem_max = 10000000, maximum amount of option memory buffers, default 10240
net.core.rmem_max = 10000000, maximum receive socket buffer size, default 131071
net.core.wmem_max = 10000000, maximum send socket buffer size, default 131071
net.core.rmem_default = 10000000, default receive socket buffer size, default 65535
net.core.wmem_default = 10000000, default send socket buffer size, default 65535
net.core.netdev_max_backlog = 300000, number of unprocessed input packets before kernel starts dropping them, default 300
sys.vm.dcache_priority = 1000000, lowers # entries zapped from dcache each iteration, default 0

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

Kernel parameters:
idle=poll, idle threads poll reschedule flag, default is to use HLT instruction

HTTP Software Notes

One network bound per TUX thread
net.tux.logging = 1, turns on logging of requests, default 0
net.tux.cgiroot = /, cgi root check, default /var/www/tux/cgiroot/
net.tux.cgi_uid = 99, uid 'nobody' for cgi scripts; default -1
net.tux.cgi_gid = 99, gid 'nobody' for cgi scripts; default -1
net.tux.max_backlog = 3000, maximum per-listening-socket TCP backlog size, default 2048
net.tux.generate_etags = 0, don't generate ETag header, default 1
net.tux.generate_last_mod = 0, don't generate Last-Modified header, default 0
net.tux.noid = 1, suppress the Server id string, default 0
net.tux.max_connect = 50000, maximum # simultanoue connections, default 1000
net.tux.cgi_inherit_cpu = 1, CGIs inherit CPU binding, default 0

Client Notes

Registry tunes:
- TcpipParametersMaxUserPort=0xfffe, sets maximum open ports to 65534
- TcpipParametersTcpTimedWaitDelay=60, sets TIME_WAIT parameter to 60 seconds (non-RFC 1122), default 240
- TcpipParametersMaxFreeTWTcbs=100000, sets maximum number of TIME_WAIT tcbs to 100,000
- TcpipParametersTcpWindowSize=65535, sets TCP send eceive window size, default 8192

Other Notes

Tuning Disclosure: See above.
Dynamic API, flag descriptions, kernel config: Dell-20031027-RHCA.tgz