

NotesBench Disclosure Report
for
IBM Netfinity 5600
using
Lotus Domino Server 5.01
and
Windows NT Server 4.0

Certified December 22, 1999

IBM Corporation



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Edition Notice

Executive Summary

The IBM Netfinity* 5600 server demonstrated leadership performance running Lotus** Domino** Server Release 5.01 on Microsoft** Windows** NT Server 4.0 (with Service Pack 5). The results detailed in this report were obtained using the NotesBench R5Mail-Only workload.

Test Script	Maximum Users	NotesMark (tpm)	Ave. Response Time (sec)	\$/User	\$/NotesMark
R5Mail-Only	7,200	10,375	0.205	\$6.29	\$4.36

The IBM Netfinity 5600 server was configured with two 600EB MHz¹ Intel** Pentium** III processors, 2.125GB² of memory, and 23 hard disk drives. All configuration details are provided in Appendix A: Overall Test Setup and Software Versions.

The server under test supported an R5Mail-Only workload of 7,200 active mail users (see price/performance results³ above). The R5Mail workload is considerably more intense than that for R4Mail. For example, R5Mail message size is 10 times larger than that of R4Mail. Meeting invitations have been added, and the Name and Address Book is required to hold twice as many names as the number of concurrent users. In addition to routing the mail, the server now must resolve every address lookup and deliver locally all mail generated. Because of these significant differences in workload, R5Mail-Only benchmark results should not be compared with R4Mail-Only results.

IBM's Netfinity Server Performance Laboratory in Research Triangle Park, NC, conducted the benchmark in November, and KMDS Technical Associates, Inc., audited the results in December 1999.

NotesBench provides an objective method for evaluating the performance of different platforms running Lotus Domino Server. NotesBench generates a transactions-per-minute (tpm) throughput metric, called a NotesMark, for each test, along with a value for the maximum capacity (number of users) supported, and the average response time.

Benchmarking Objectives

The benchmark objective was to provide customers with information on how to fully utilize the capability of the IBM Netfinity 5600 system as a Domino Server 5.0 mail server configured with the Netfinity ServeRAID Ultra2 SCSI Adapter for RAID-1 data redundancy.

¹ MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.

² When referring to hard drive capacity, GB stands for one thousand million bytes. Total user-accessible capacity may vary depending on operating environments.

³ The price/performance results are based on IBM estimated reseller pricing. IBM resellers set their own prices, and actual prices may vary.

Test Methodologies

Test Setup and Hardware/Software Configuration

The IBM Netfinity 5600 system under test (SUT) was configured with two 600EB MHz Pentium III processors (256KB of ECC full-speed L2 write-back cache and 133MHz frontside bus per processor), 2.125GB of memory, three 18.2GB 10K rpm hard disk drives, twenty 9.1GB 10K rpm hard disk drives, and one Netfinity 10/100 Ethernet Adapter. Each of four RAID-1 arrays, which contained the mail files, was connected to a channel on a Netfinity ServeRAID-3HB Ultra2 SCSI Adapter. Three drives, two of which were contained in a RAID-1 array, and one of which was used as the boot disk, were connected to a ServeRAID-3L Ultra2 SCSI Adapter. A more detailed description of the configuration of the RAID-1 arrays is provided in Appendix A.

The network consisted of a CISCO** Catalyst 5505 switch with two 24-port 10/100 modules. All child drivers, parent and SUT were connected to a port on the switch. The IBM Netfinity 5600 system under test ran Microsoft Windows NT Server 4.0 with Service Pack 5 and Domino Server 5.01.

The RAID controller configuration value for Stripe Unit Size was set at 16KB. Write-back cache was enabled for all RAID-1 arrays.

The following NOTES.INI parameters were modified as recommended in the NotesBench operator's manual.

R5Mail-Only Workload
Server_Max_Concurrent_Trans=1000
MailMaxThreads=2
NSF_DBCache_MaxEntries=10000
SetMailLogToEventsOnly=1
Log_MailRouting=10
Log_Sessions=0
Mail_Number_Of_MailBoxes=2
Server_Pool_Tasks=100
Max_Users=10000
DBMaxEntries=10000

The following parameters were added to suppress database activity logging after long runs and to capture server console output:

```
No_Force_Activity_Logging=1
Server_Show_Performance=1
Debug_Outfile=\\Parent1\Results\SUTINFO.TXT
```

All Notes server tasks were disabled except Router.

All Domino data files were located on the D:, E:, F:, G: and J: RAID-1 arrays. The Domino executable codes and data link files were located on the J: RAID-1 array.

Test Procedures

Several trial runs were conducted starting with a single Domino server to attempt to exhaust at least one of the system resources: processor, memory or disk subsystem. When average user response time reached an unacceptable level before any one of these resources had been fully utilized, an additional resource was installed. System resource utilization was monitored using Windows NT Performance Monitor (PERFMON), which enabled the system configuration to be optimized while balancing system resources.

The 7,200 users were distributed over 13 clients. Each client added 400 to 600 users to the system under test. The test ran for 8 hours and 40 minutes, including ramp-up. Child 1 through child 9 simulated 600 users each; child 10 through child 11 simulated 500 users; and child 12 through child 13 simulated 400 users. The actual ramp-up period from startup of child 1 to the point when all 7,200 users were shown on the server console was approximately 2 hours. The test ran for more than 6 hours after ramp-up. During the test runs, the tools used to determine steady state included the child driver RES files, Notesizer command outputs, and Domino Server statistics output to the server console on a minute-by-minute basis.

To confirm steady state, we verified the number of users at the server and its logs. We confirmed steady state when the number of users on the SUT Domino Server console reached the intended number of users. We also used the Show Stat Mail command on the server to verify that at least 90 percent of the mail generated during the test period was delivered to the local mail databases during the test period. In fact, during the test period, the SUT Domino Server delivered more than 99.9 percent of the mail generated to the local mail databases.

To ensure that the test results were reproducible, all tests were repeated, and the results were compared and were found to be consistent.

ChildStagger in Minutes

Child 1 = 6
Child 2 = 9
Child 3 = 6
Child 4 = 9
Child 5 = 6
Child 6 = 12
Child 7 - 9 = 9
Child 10 - 13 = 12

ThreadStagger in Seconds

Child 1 - 5 = 0.6

Child 6 - 9 = 0.9

Child 10 - 11 = 1.2

Child 12 - 13 = 1.8

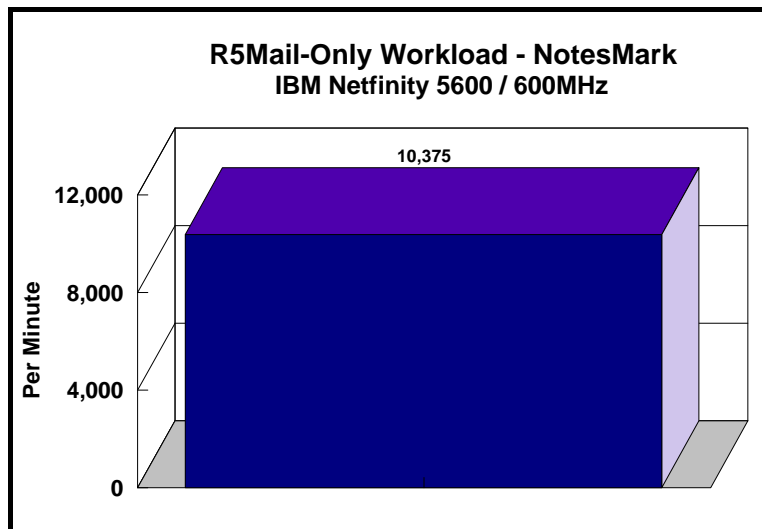
Other NotesBench Tests

IBM intends to continue conducting NotesBench measurements to further optimize and exploit the performance capability of the Netfinity product line running Domino Server 5.0.

Data

IBM Netfinity 5600 NotesMark Value for R5Mail-Only Test

The IBM Netfinity 5600 server demonstrated that it can support 7,200 concurrent active users with this workload. The NotesMark throughput value was 10,375. Average response time was 0.205 seconds. The test ran error-free for a period of 6 hours and 14 minutes.



The R5Mail workload executes Notes transactions that model a server for mail users at sites that rely only on mail for communication. The resulting capacity metric for a mail-only server is the maximum number of users that can be supported before the average user response time becomes unacceptable.

The Domino R5Mail-Only test script models an active user who is reading and sending mail. The script contains an average of 15 minutes of waiting; thus, the average user would execute this script a maximum of four times each hour. For each iteration of the test script, there are 5 documents read, 2 documents updated, 2 documents deleted, 2 documents added, 1 view scrolling operation, 1 database opened and closed, 1 view opened and closed, looking up of recipients and sending an invitation every 30 minutes, as well as some miscellaneous operations. In sending messages, each user creates and sends a mail message to NumMessageRecipients no more frequently than every 90 minutes. About every 90 minutes, each user creates a meeting invitation and responds to an invitation.

Compared with the previous Domino R4Mail-Only workload, the R5Mail-Only workload generates more data traffic at the system under test. All R5Mail users access the name and address book, which resides on the SUT. All mail is delivered locally. With R4Mail, all users access a local name and address book, and mail is routed to destination servers. R5Mail message size is 10 times larger than R4Mail message size, and the name and address directory contains twice as many entries as the number of concurrent users.

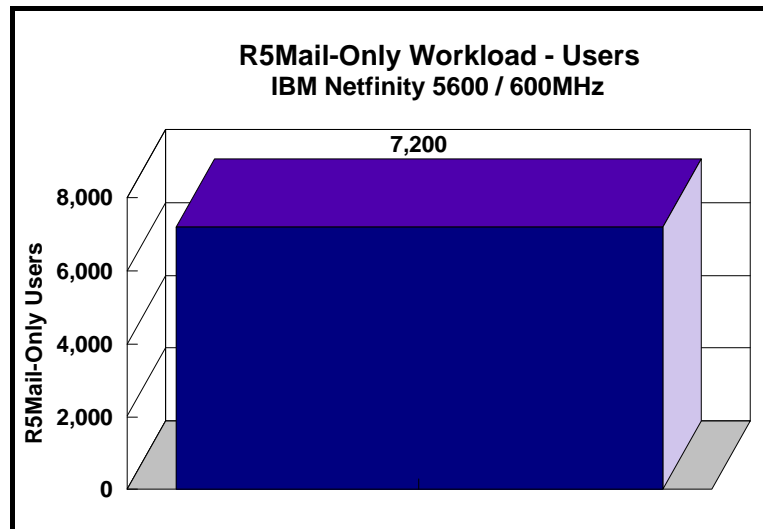
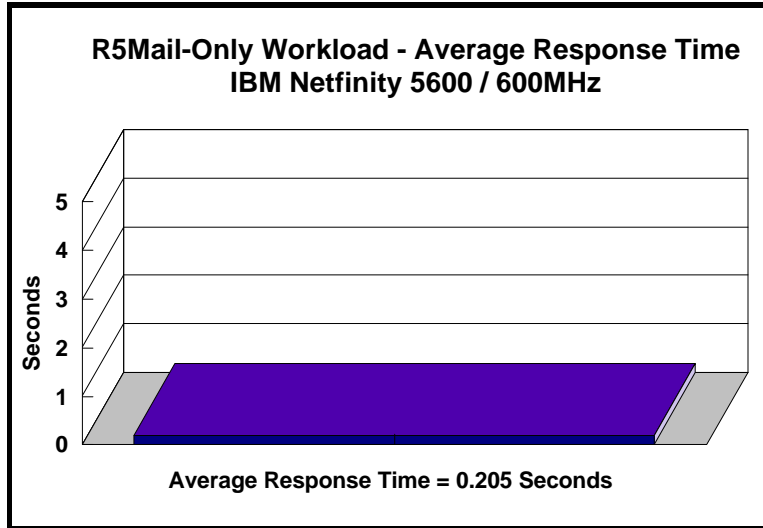
NotesNum Output for R5Mail-Only Test

Min Start Time = 12/12/99 11:22:17 AM Max Stop Time = 12/12/99 08:13:46 PM

Total Test Errors = 0

Total Test Time = 31860 sec

Test Run: Users = 7200 NotesMark = 10375 Response Time = 205 msec (12/12/99 01:34 PM to 12/12/99 07:46 PM)



Analysis

When configured optimally as described in this report, the IBM Netfinity 5600 server demonstrated that it can manage the intense resource usage during ramp-up to 7,200 concurrent R5Mail users with no errors at the clients. The performance statistics described below were taken from one of the successful 7,200-user runs.

Steady-State Performance Statistics

During steady state, the following PERFMON measurements were noted:

- Percentage of System Total Processor utilization
 - Average: 83%
 - Maximum: 89%
- Amount of Available Memory
 - Minimum: 0.340GB
 - Average: 0.383GB
- Disk Queue Length for Each Array (D, E, F, G, J)
 - Average: 4.3, 4.4, 4.4, 4.4, 2.3
 - Maximum: 4.8, 4.8, 4.8, 4.9, 2.7
- I/O Statistics for a Data Array
 - Average I/O rate: 260 I/Os per second
 - Average Transfer Size: 12KB

Domino 5.0 server allowed the use of multiple arrays to off-load user mail databases from the standard notes\data subdirectory. It provides load-balancing capability without using complicated partition servers. The transaction logging option was not enabled for this audit run. When this option is enabled, we recommend placing the transaction logging directory on a dedicated disk that is attached to a less-busy adapter on a less-busy PCI bus to improve response time.

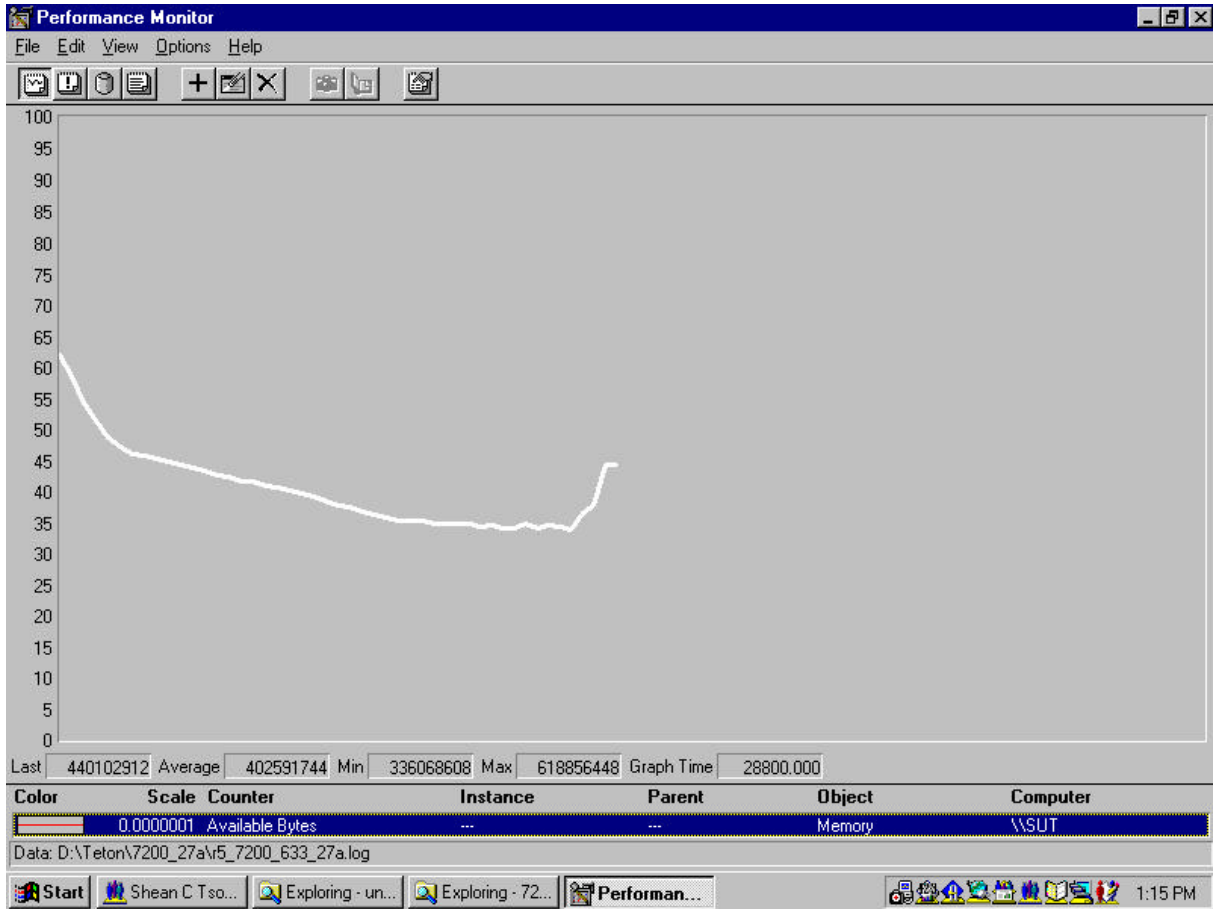
The PERFMON screen captures on the following pages show that:

- Average processor utilization increased during ramp up. It then decreased when steady was reached. The utilization increased again when disk queue lengths increased.
- Available memory continuously decreased during the test and increased during ramp-down.
- Average queue lengths for disk I/O has a pattern of increasing during test and decreasing during ramp-down.

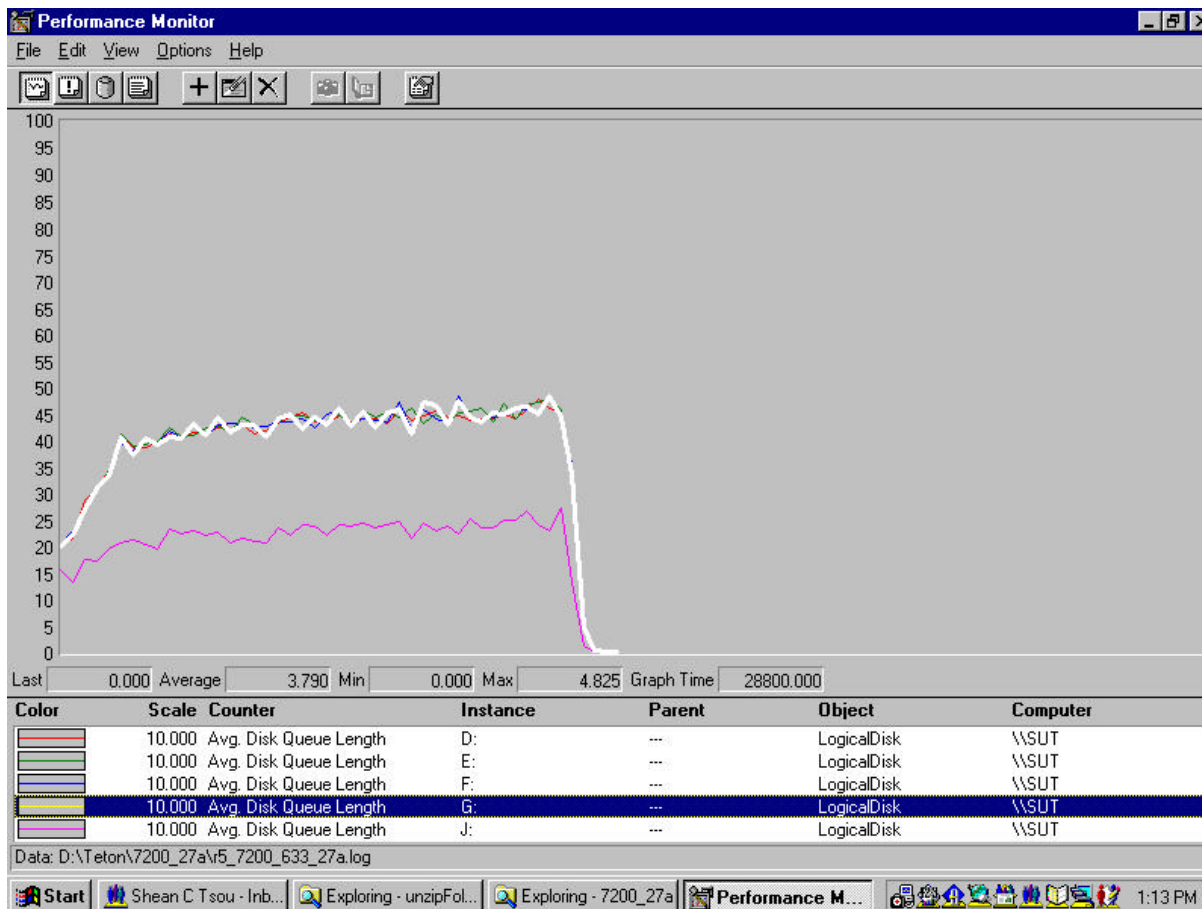
CPU Utilization



Memory Utilization



Queue Length for Disk I/O



Conclusions

The test results demonstrate that the IBM Netfinity 5600 configured as described in this report can support up to 7,200 concurrent, active R5Mail users with a response time well below that permitted by the test criteria. The server's architecture provides many options that can expand its capability. With upgradable memory and I/O subsystems, the system can be further expanded to accommodate an increased workload.

These results are based on running the IBM Netfinity 5600 as a dedicated Domino server. The addition of other application workloads will affect the number of users supported as well as the response time. Achieving optimum performance in a customer environment is highly dependent upon selecting adequate processor power, memory and disk storage as well as balancing the configuration of that hardware and appropriately tuning the operating system and Domino software.

These results represent leadership performance in a hardware platform for the Domino Server 5.0 environment.

Statement by Auditor

The original “Lotus NotesBench Test Results Report Certification Letter” was signed by Daryl K. Thompson, NotesBench Auditor for KMDS Technical Associates, Inc., and is on file at IBM.

Appendix A: Overall Test Setup and Software Versions

Number of Client Systems

For the R5Mail-Only test, 14 driver systems were used. Thirteen of those systems were configured as child drivers (child 1 through child 13). A parent system was used for debug_output data collection and to control the run.

The disk configuration used for the child systems is as follows:

- Child drivers 1-13
 - C: Partition (512MB - NTFS) - Windows NT 4.0.
 - D: Partition (1.5GB - NTFS) - Notes 5.01 code and data

Number of Server Platforms

One server platform, the IBM Netfinity 5600 with two 600EB MHz Pentium III processors and 2.125GB of memory was benchmarked.

The disk configuration used for the system under test is as follows:

- C: Single disk drive (18.2GB - NTFS) - Windows NT Server Version 4.0 (Boot Partition)
- D: Partition (22.5GB - NTFS) - Domino mail files
- E: Partition (22.5GB - NTFS) - Domino mail files
- F: Partition (22.5GB - NTFS) - Domino mail files
- G: Partition (22.5GB - NTFS) - Domino mail files
- J: Partition (18.2GB - NTFS) - Domino executables and Domino mail data subdirectory

Network

The network consisted of a single segment. All child drivers, parent and SUT were connected to one of 24 ports on a CISCO Catalyst 5505 switch.

Software Versions

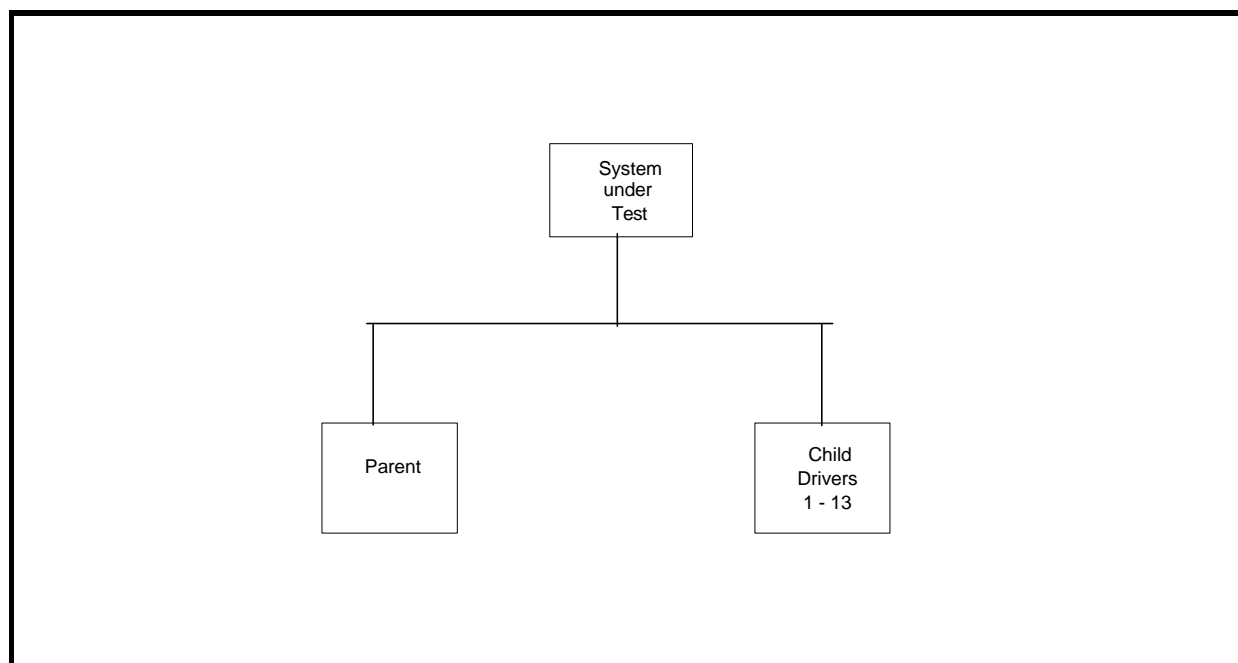
Software versions used on the system under test were as follows:

- Microsoft Windows NT Server 4.0 and Service Pack 5
- Lotus Domino Server Release 5.01
- NotesBench Version 5.0 - Windows/32, released March 12, 1999

Software versions used on the child and parent drivers were as follows:

- Microsoft Windows NT Workstation 4.0 and Service Pack 5
- Lotus Domino Client Release 5.01 for Windows NT
- NotesBench Version 5.0 - Windows/32, released March 12, 1999

Test Setup Diagram



Details of Configuration

System Under Test	Child Drivers 1-13	Parent Source Driver
IBM Netfinity 5600	IBM PC 365	IBM PC Server 325
2 x 600MHz Pentium III Processor	1 x 200MHz Pentium Pro Processor	1 x 200MHz Pentium Pro Processor
2.125GB Memory	128MB Memory	128MB Memory
3 x 18.2GB Drives (1 RAID-1 array and 1 boot drive) 20 x 9.1GB Drives (4 RAID-1 arrays)	1 x 2GB Drive	1 x 4.5GB Drive
1 x ServeRAID-3L Ultra2 SCSI Adapter 2 x ServeRAID-3HB Ultra2 SCSI Adapter		
1 x Netfinity 10/100 Ethernet Adapter	1 x Intel EtherExpress 10/100 PCI TX Adapter	1 x Intel EtherExpress 10/100 PCI TX Adapter
Windows NT Server 4.0 with Service Pack 5	Windows NT Workstation 4.0 with Service Pack 5	Windows NT Workstation 4.0 with Service Pack 5

Appendix B: System Configurations

Server under Test	
System	IBM Netfinity 5600
Processor	2 x 600EB MHz Pentium III
Memory	2.125GB
Cache	256KB ECC Full-Speed L2 Cache per Processor
RAID Controller	1 x Netfinity ServeRAID-3L Ultra2 SCSI Adapter and 2 x Netfinity ServeRAID-3HB Ultra2 SCSI Adapter
Disk Drive	3 x 18.2GB 10K rpm Drives (2 drives configured as a RAID-1 array and 1 drive used as boot drive), x 9.1GB 10K rpm (configured as four RAID-1 arrays)
Network Interface	1 x Netfinity 10/100 Ethernet Adapter
I/O	PCI Bus
Operating System	Microsoft Windows NT Server 4.0 with Service Pack 5
Notes	Lotus Domino Server Release 5.01 for Windows NT
NotesBench	NotesBench Version 5.0 - Windows/32, released March 12, 1999

Child Drivers 1 - 13	
System	IBM PC 365
Processor	1 x 200MHz Pentium Pro
Memory	128MB
Disk Drive	1 x 2GB
Network Interface	1 x Intel EtherExpress 10/100 PCI TX Adapter
I/O	PCI Bus
Operating System	Microsoft Windows NT Workstation 4.0 with Service Pack 5
Notes	Lotus Domino Client Release 5.01 for Windows NT
NotesBench	NotesBench Version 5.0 - Windows/32, released March 12, 1999

Parent	
System	IBM PC Server 325
Processor	1 x 200MHz Pentium Pro
Memory	128MB
Disk Drive	1 x 4.5GB
Network Interface	1 x Intel EtherExpress 10/100 PCI TX Adapter
I/O	PCI Bus
Operating System	Microsoft Windows NT Workstation 4.0 with Service Pack 5
Notes	Lotus Domino Client Release 5.01 for Windows NT
NotesBench	NotesBench Version 5.0 - Windows/32, released March 12, 1999

Appendix C: Operating System Parameters

In the system under test, the following registry variables were changed from their default values of 2 to 0:

HKEY_LOCAL_MACHINE/System/CurrentControlSet/Control/PriorityControl/Win32PrioritySeparation:
REG_DWORD:0

HKEY_LOCAL_MACHINE/System/CurrentControlSet/Control/SessionManager/MemoryManager/
LargeSystemCache: REG_DWORD:0

Appendix D: NOTES.INI Settings

NOTES.INI for System under Test

```
[Notes]
;      Server Performance
;
DBMaxEntries=10000
MailMaxThreads=4
Mail_Number_Of_MailBoxes=2
Max_Users=10000
NSF_DBCache_Maxentries=10000
;(IRIS recommended 2 params: 100 & 1000)
;Server_Pool_Tasks=100
;Server_Max_Concurrent_Trans=1000
Server_Pool_Tasks=120
Server_Max_Concurrent_Trans=1200
;View_Rebuild_dir=m:\view_dir
;
;MailUseThreads=1
LOG_SESSIONS=0
SetMailLogToEventsOnly=1
LOG_MAILROUTING=10
SERVER_SHOW_PERFORMANCE=1
No_Force_Activity_Logging=1
DEBUG_OUTFILE=\\parent1\c$\results\sutinfo.txt
;Server_MaxSessions=8000
;Server_Session_timeout=15
;      end performance parameters

Directory=J:\NotesR5\data
KitType=2
SetupDB=Setup.nsf
UserName=Teton
CompanyName=IBM
NotesProgram=J:\NotesR5
InstallType=3
CONSOLE_Lotus_Domino_Server=80 25 7 3 86 655 417
WinNTIconPath=J:\NotesR5\data\W32
Timezone=5
DST=1
$$HasLANPort=1
WWWDSPP_SYNC_BROWSERCACHE=0
WWWDSPP_PREFETCH_OBJECT=0
EnablePlugins=1
Preferences=3185
AltNameLanguage=en
ContentLanguage=en-US
WeekStart=1
ViewWeekStart=2
NavWeekStart=2
XLATE_CSID=52
SPELL_LANG=1033
Region=en-US
Passthru_LogLevel=0
Console_LogLevel=2
VIEWIMP1=Lotus 1-2-3 Worksheet,0_IWKS,.,WKS.,WK1.,WR1.,WRK.,WK3.,WK4.,4,
VIEWIMP3=Structured Text,0_ISTR,.,LTR.,CGN.,STR.,1,
VIEWIMP4=Tabular Text,0_ITAB,.,PRN.,RPT.,TXT.,TAB.,1,
VIEWEXP1=Lotus 1-2-3 Worksheet,0_XWKS,.,WKS.,WK1.,WR1.,WRK.,4,
VIEWEXP3=Structured Text,0_XSTR,.,LTR.,CGN.,STR.,1,
VIEWEXP4=Tabular Text,1_XTAB,.,LTR.,RPT.,CGN.,TAB.,1,
EDITIMP1=ASCII Text,0_ITEXT,.,TXT.,PRN.,C.,H.,RIP.,1,
EDITIMP2=Microsoft Word RTF,0_IRTF,.,DOC.,RTF.,2,
EDITIMP3=Lotus 1-2-3 Worksheet,0_IWKSE,.,WKS.,WK1.,WR1.,WRK.,WK3.,WK4.,4,
EDITIMP4=Lotus PIC,0_IPIC,.,PIC.,8,
EDITIMP5=CGM Image,0_IFL,.,GMF.,CGM.,8,
EDITIMP6=TIFF 5.0 Image,0_ITIFF,.,TIF.,18,
EDITIMP7=BMP Image,0_IBMP,.,BMP.,18,
EDITIMP8=Ami Pro,0_IW4W,W4W33F/V0.,SAM.,2,
EDITIMP9=HTML File,0_IHTML,.,HTM.,HTML.,1,
EDITIMP17=WordPerfect 5.x,0_IW4W,W4W07F/V1.,DOC.,WPD.,2,
EDITIMP21=WordPro 96/97,0_IW4W,W4W12F/V0.,LWP.,2,
EDITIMP22=PCX Image,0_IPCX,.,PCX.,18,
EDITIMP28=Binary with Text,0_ISTRNGS,.,*,1,
EDITIMP29=WordPerfect 6.0/6.1,0_IW4W,W4W48F/V0.,WPD.,WPT.,DOC.,2,
```



```

TCP/IP=TCP, 0, 15, 0
Ports=TCP/IP
KeyFilename=nchild1.id
CertificateExpChecked=nchild1.id 10/14/99
MailServer=CN=sut/O=IBM
MailFile=mail/nchild1.nsf
TemplateSetup=55
Setup=59
Location=Office (Network),9A2,CN=nchild1/O=IBM
$IEVersionMajor=4
$IEVersionMinor=72
ECLSetup=3
$headlineClientId=044CC4BC:7FEB136E-852567D3:004D2488
NAMES=names.nsf
$MIMESaveFormat=132
$headlineDisableHeadlines=0
EmptyTrash=0
MIMEPromptMultilingual=1
MIMEMultilingualMode=1
EnableActiveXInBrowser=1
EnableJavaScript=1
EnableJavaScriptErrorDialogs=1
EnableLiveConnect=1
ShowAccelerators=1
DESKWINDOWSIZE=12 9 616 447
WINDOWSIZEWIN=12 9 616 447
MAXIMIZED=0
WinNTIconCommonConfig=Universal
WinNTIconSize=2
WinNTIconPos=2
WinNTIconHidden=1
WinNTIconRect=0 0 0 24
NthIteration=6
Tmp=Notestmp
MaxSessions=100
NumAddLocalReplica=1
NumDeleteLocalReplica=1
NumStampLocalReplica=1
NumUpdateLocalReplica=1
NormalMessageSize=10000
NumMessageRecipients=3
NumMailNotesPerUser=100
AttachmentSize=500000
LargeMessageSize=32000
MAXDocToDelete=10000
NumNotesLocalReplica=90
NumSharedNotes=900
MailTemplate=Mail50.NTF
Domain=IBM
UseServerNAB=1
PhoneLog=2
Log=log.nsf, 1, 0, 7, 40000
SMTPHOST=sut.raleigh.ibm.com
LDAPHOST=sut.raleigh.ibm.com
IMAPHOST=sut.raleigh.ibm.com
RecipientDomain=raleigh.ibm.com
IMAP_session_timeout=15
R5IMAP_Loop_N=100
MessageLineSize=100
MailRecipientPercentUser=50
MailRecipientPercentVolume=50
MailRecipientBeginNumber=1
MailRecipientEndNumber=1000
FileDlgDirectory=D:\NotesR5\data
NewMailSeqNum=233

```

NOTES.INI for Parent Source Driver

[Notes]

```

;
; Begin Notesbench variables for PARTITION 1
;
; *****
NodeName=parent1

```

```

; Runtime in minutes
:Runtime=700
:ChildStagger=15,1-4;30,5;15,6-8;30,9;15,10-12;30,13;15,14-17
Runtime=515
ChildStagger=6,1;9,2;6,3;9,4;6,5;12,6;9,7-9;12,10-12;15,13
NumClients1=600
NumClients2=600
NumClients3=600
NumClients4=600
NumClients5=600
NumClients6=500
NumClients7=500
NumClients8=500
NumClients9=500
NumClients10=500
NumClients11=500
NumClients12=400
NumClients13=400
;NumClients14=600
;NumClients15=600
;NumClients16=700
;NumClients17=700
;NumClients18=100
; NumClients19=400
; NumClients20=100
ResultsDirectory=c:\results
DEBUG_OUTFILE=c:\results\notesnum.txt
;-----End
;*****
;
;      Multirun Variables
;*****
; ProbeIntervalDelay=wait after end of one run before starting next
; ProbeWaitTime=wait to start Probe (default=15mins)
; ProbeRunTime=#minutes probe will collect stats
;:Probe_Interval=2800,2900,3000
;:ProbeIntervalDelay=30
;:ProbeWaitTime=30
;:ProbeRunTime=180
; ProbeRunTime=2 because we want 240 minutes of runtime after ramp-up
; without overhead of PROBE
; Next line cause command 'show stat' to execute on SUT console
; before start of each multi-run and when ramped up for that run
; Mail statistics required for audit at ramp-up and before ramp-down
;:ProbeTestIncrementCMD=show stat mail
;:ProbeTestIncrementCMD=show stat database
;:NBTestReset=1
;*****
;      Server.Planner Variables
;*****
;:CPDatabase=c:\notesb3\data\Server.Planner.nsf
;:SUTMachineID=Teton600
;-----End

Directory=c:\NotesR5\data
KitType=1
InstallType=1
WinNTIconPath=c:\NotesR5\data\W32
Timezone=5
DST=1
$$HasLANPort=1
WWWDSP_SYNC_BROWSERCACHE=0
WWWDSP_PREFETCH_OBJECT=0
EnableJavaApplets=1
EnablePlugins=1
Preferences=-2147480463
AltNameLanguage=en
ContentLanguage=en-US
WeekStart=1
ViewWeekStart=2
NavWeekStart=2
XLATE_CSID=52
SPELL_LANG=1033
Region=en-US
Passthru_LogLevel=0
Console_LogLevel=2
VIEWIMP1=Lotus 1-2-3 Worksheet,0_IWKS,.,WKS,.,WK1,.,WR1,.,WRK,.,WK3,.,WK4,.,4,
VIEWIMP3=Structured Text,0_ISTR,.,LTR,.,CGN,.,STR,.,1,
VIEWIMP4=Tabular Text,0_ITAB,.,PRN,.,RPT,.,TXT,.,TAB,.,1,
VIEWEXP1=Lotus 1-2-3 Worksheet,0_XWKS,.,WKS,.,WK1,.,WR1,.,WRK,.,4,

```


MaxSessions=100
NumAddLocalReplica=1
NumDeleteLocalReplica=1
NumStampLocalReplica=1
NumUpdateLocalReplica=1
NormalMessageSize=10000
NumMessageRecipients=3
NumMailNotesPerUser=100
AttachmentSize=500000
LargeMessageSize=32000
MAXDocToDelete=10000
NumNotesLocalReplica=90
NumSharedNotes=900
MailTemplate=Mail50.NTF
Domain=IBM

NBCONFIG.INI for Child Drivers

[Notes]

```
; NotesBench parms
;*****
NodeName=nchild1
ResultsDirectory=\\parent1\c$\results
DEBUG_OUTFILE=\\parent1\c$\results\res1
ThreadStagger=0.6
*****
Directory=D:\NotesR5\data
KitType=1
InstallType=1
WinNTIconPath=D:\NotesR5\data\W32
Timezone=5
DST=1
$$HasLANPort=1
WWWDSPP_SYNC_BROWSERCACHE=0
WWWDSPP_PREFETCH_OBJECT=0
EnableJavaApplets=1
EnablePlugins=1
Preferences=-2147480463
AltNameLanguage=en
ContentLanguage=en-US
WeekStart=1
ViewWeekStart=2
NavWeekStart=2
XLATE_CSID=52
SPELL_LANG=1033
Region=en-US
Passthru_LogLevel=0
Console_LogLevel=2
VIEWIMP1=Lotus 1-2-3 Worksheet,0_IWKS,.,WKS.,WK1.,WR1.,WRK.,WK3.,WK4.,4,
VIEWIMP3=Structured Text,0_ISTR,.,LTR,.,CGN,.,STR,.,1,
VIEWIMP4=Tabular Text,0_ITAB,.,PRN,.,RPT,.,TXT,.,TAB,.,1,
VIEWEXP1=Lotus 1-2-3 Worksheet,0_XWKS,.,WKS.,WK1.,WR1.,WRK.,4,
VIEWEXP3=Structured Text,0_XSTR,.,LTR,.,CGN,.,STR,.,1,
VIEWEXP4=Tabular Text,1_XTAB,.,LTR,.,RPT,.,CGN,.,TAB,.,1,
EDITIMP1=ASCII Text,0_ITEXT,.,TXT,.,PRN,.,C,.,H,.,RIP,.,1,
EDITIMP2=MicrosoftWord RTF,0_IRTF,.,DOC,.,RTF,.,2,
EDITIMP3=Lotus 1-2-3 Worksheet,0_IWKSE,.,WKS.,WK1.,WR1.,WRK.,WK3.,WK4.,4,
EDITIMP4=Lotus PIC,0_IPIC,.,PIC,.,8,
EDITIMP5=CGM Image,0_IFL,.,GMF,.,CGM,.,8,
EDITIMP6=TIFF 5.0 Image,0_ITIFF,.,TIF,.,18,
EDITIMP7=BMP Image,0_IBMP,.,BMP,.,18,
EDITIMP8=Ami Pro,0_IW4W,W4W33F/V0,.,SAM,.,2,
EDITIMP9=HTML File,0_IHTML,.,HTM,.,HTML,.,1,
EDITIMP17=WordPerfect 5.x,0_IW4W,W4W07F/V1,.,DOC,.,WPD,.,2,
EDITIMP21=WordPro 96/97,0_IW4W,W4W12F/V0,.,LWP,.,2,
EDITIMP22=PCX Image,0_IPCX,.,PCX,.,18,
EDITIMP28=Binary with Text,0_ISTRNGS,.,*,.,1,
EDITIMP29=WordPerfect 6.0/6.1,0_IW4W,W4W48F/V0,.,WPD,.,WPT,.,DOC,.,2,
EDITIMP30=Excel spreadsheet,0_IW4W,W4W21F/V4C,.,XLS,.,4,
EDITIMP31=Word for Windows,0_IW4W,W4W49F/V0,.,DOC,.,2,
EDITIMP32=GIF Image,0_IGIF,.,GIF,.,18,
EDITIMP33=JPEG Image,0_IJPEG,.,JPG,.,18,
EDITEXP1=ASCII Text,2_XTEXT,.,TXT,.,PRN,.,C,.,H,.,RIP,.,1,
EDITEXP2=MicrosoftWord RTF,2_XRTF,.,DOC,.,RTF,.,4,
EDITEXP3=CGM Image,2_XCGM,.,CGM,.,GMF,.,8,
```


MailRecipientEndNumber=1000
FileDlgDirectory=D:\NotesR5\data
NewMailSeqNum=233

Appendix E: Network Configuration

The standard TCP/IP stack provided by Microsoft Windows NT Server 4.0 was used.

In the system under test, the network adapter speed for the Netfinity 10/100 Ethernet Adapter was changed from the default 'Auto' to 100Mbps. This forced the Duplex Mode to 'full'.

Appendix F: Guidelines for Information Usage

This report is intended for IBM Business Partners, customers, and IBM marketing and technical support personnel. The report may be distributed in accordance with the requirements stated in the Edition notice.

Appendix G: Pricing

The table provides the IBM Estimated Reseller Price to end users for the U.S. only. Actual Reseller prices may vary, and prices may also vary by country. Prices are subject to change without notice. For additional information and current prices, contact your local IBM representative.

Item Description	Order Number	Qty	IBM Estimated Reseller Unit Price	IBM Estimated Reseller Extended Price
IBM Netfinity 5600	8664-21Y	1	\$3,895	\$3,895
1 x 600EB MHz Pentium III Processor with 256KB L2 Cache (one 128MB RDIMM included)				
600EB MHz / 256KB L2 Cache Processor Upgrade	00N7948	1	1,395	1,395
1GB 133MHz ECC SDRAM RDIMM Memory	33L3064	2	7,389	14,778
Netfinity ServeRAID-3L Ultra2 SCSI Adapter	01K7364	1	785	785
Netfinity ServeRAID-3HB Ultra2 SCSI Adapter	37L6086	2	1,899	3,798
18.2GB 10K rpm Wide Ultra SCSI Hard Disk Drives	36L9749	3	1,025	3,075
9.1GB 10K Wide Ultra SCSI Hard Disk Drives	36L9748	20	585	11,700
Netfinity EXP15 Rack Storage Expansion Enclosure	35202RU	2	2,419	4,838
Netfinity 10/100 Ethernet Adapter	34L0901	1	115	115
IBM G54 15" (13.7" Viewable) Color Monitor	654000N	1	219	219
Software				
Windows NT Server 4.0		1	683	683
Lotus Domino Server Release 5.01		1	NC	
Total System Price				\$45,281

Appendix H: Vendor-Defined Information

None.

First Edition - December 1999

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