

**NotesBench Disclosure Report**  
**for**  
**IBM Netfinity 7000 M10**  
**with RAID-1**  
**and**  
**Lotus Domino Server 4.62a for Windows NT 4.0**

**Results Certified November 10, 1998**

Performance results obtained using NotesBench 4.6 on a system configured with RAID-1 or RAID-5 should not be compared with results from previous versions of NotesBench, which used RAID-0. While RAID-5 implementations provide substantial data redundancy, the increased I/O overhead consumes disk subsystem bandwidth, which could otherwise be used to support additional users.



**IBM Corporation**

## **Table of Contents**

***Section 1: Executive Summary***

***Section 2: Benchmarking Objectives***

***Section 3: Test Methodologies***

***Section 4: Data***

***Section 5: Analysis***

***Section 6: Conclusions***

***Section 7: Statement by Auditor***

***Appendix A: Overall Test Setup and Software Versions***

***Appendix B: System Configurations***

***Appendix C: Operating System Parameters Values***

***Appendix D: Notes Parameters (NOTES.INI file)***

***Appendix E: Network Configuration File(s)***

***Appendix F: Guidelines for Information Usage***

***Appendix G: Pricing***

***Appendix H: Optional (vendor-defined information)***

***Edition Notice***

## Executive Summary

The IBM Netfinity\* 7000 M10 server demonstrated leadership performance running Lotus\*\* Domino Server Release 4.62a on Microsoft\*\* Windows\*\* NT Server Version 4.0 with Service Pack 3. The results for the IBM Netfinity 7000 M10 reported here are based on the NotesBench Mail-only workload.

Test Script	Maximum Users	NotesMark (tpm)	Ave. Response Time (sec)	\$/User	\$/NotesMark
Mail-Only	6,100	8,816	0.419	\$11.25	\$7.78

The IBM Netfinity 7000 M10 was configured as a partitioned server with four 400MHz<sup>1</sup> Intel\*\* Pentium\*\* II Xeon\*\* processors, 2.5GB<sup>2</sup> of memory, and seventeen 4.51GB 10K rpm hard disk drives. The server under test supported a Mail-only workload of 6,100 active mail users (see price/performance results<sup>3</sup> above). Three Domino 4.62a Partitioned Servers ran on the IBM Netfinity 7000 M10 system, using identical copies of the Public Name & Address Book. Mail messages generated by users connected to the three partitioned servers were all routed to six destination servers.

In addition to the server under test, the benchmarked client/server network used six destination servers, 15 client driver systems, and three controller client systems. All systems were connected via six 100Mbps Ethernet LAN segments, using the TCP/IP network protocol. Configuration details are provided in Appendix A: Overall Test Setup and Software Versions.

IBM's Server Performance Laboratory in Research Triangle Park, NC, conducted the benchmark in October, and KMDS Technical Associates, Inc., audited the results in November 1998.

NotesBench provides an objective method for evaluating the performance of different platforms running Lotus Domino Server Release 4.6x. 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 7000 M10 system as a Domino Server 4.62a mail server with data redundancy provided by RAID-1 technology on the Netfinity ServeRAID-3H Ultra2 SCSI Adapter.

---

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

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

<sup>3</sup> The price/performance results are based on IBM's Estimated Reseller Price. IBM resellers set their own prices, and actual prices may vary.

Performance measurements on IBM Netfinity 7000 M10 and other Netfinity servers using NotesBench for the Domino Server Release 4.6x are ongoing.

## Test Methodologies

### *Test Setup and Hardware/Software Configuration*

The IBM Netfinity 7000 M10 system under test (SUT) for Mail-only used four 400MHz Pentium II Xeon processors (1MB of L2 write-back cache per processor), 2.5GB of memory, seventeen 4.51GB 10K rpm hard disk drives, and three EtherJet 100/10 PCI Adapters. The first RAID array consisted of six disks connected to a Netfinity ServeRAID-3H Ultra2 SCSI Adapter via two SCSI channels. The second and third RAID arrays consisted of five disks each. Each array was connected to its own SCSI channel on a second ServeRAID-3H adapter. One drive was used as the boot disk.

The network consisted of six LAN segments. The LAN segments, each consisting of one 12-port AsanteFAST 100 Hub, were configured as follows:

- Segment 1 connected the SUT Partition 1, destination server 1, child drivers 1-5, parent 1, and router port 1.
- Segment 2 connected the SUT Partition 2, destination server 2, child drivers 6-10, parent 2, and router port 2.
- Segment 3 connected the SUT Partition 3, destination server 3, child drivers 11-15, parent 3, and router port 3.
- Segment 4 connected destination server 4 and router port 4.
- Segment 5 connected destination server 5 and router port 5.
- Segment 6 connected destination server 6 and router port 6.

The 15 child drivers were distributed evenly across segments 1, 2 and 3.

The IBM Netfinity 7000 M10 system under test ran Microsoft Windows NT Server 4.0 with Service Pack 3 and Domino Server 4.62a.

The RAID controller configuration value for Stripe Unit Size was set at 16KB.

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

<b>Mail-Only Workload</b>
LOG_MAILROUTING=10
MAILLOGTOEVENTSONLY=1
MAILUSEPROCESS=0
MAILUSETHREADS=1
MAILMAXTHREADS=3
SERVER_SHOW_PERFORMANCE=1

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

```
NO_FORCE_ACTIVITY_LOGGING=1
DEBUG_OUTFILE=\\FILESERV\LASTRUNSUTINFO.TXT
```

All Notes server tasks were disabled except Replica, Router and Update.

All Domino data files were located on the D disk-partition for Partition Server 1; E disk-partition for Partition Server 2; and F disk-partition for Partition Server 3. All three data disk-partitions were formatted with an Allocation Unit Size of 512 bytes. The Domino executables were placed on the C - partition.

### ***Test Procedures***

Several trial test runs were conducted starting with a single Domino server to attempt to exhaust at least one of the three system resources: CPU, memory, and the SCSI subsystem. When average user response time reached an unacceptable level before any one of these resources had been fully utilized, an additional server partition was installed until the four CPUs reached an average utilization of around 95 percent during steady state with acceptable average user response time. System resource utilization was monitored using Windows NT Performance Monitor (PERFMON). This enabled the system configuration to be optimized while maximizing balanced system resources. Acceptable user response time at the 95-percent average CPU utilization determined the configuration of the memory and disk subsystems. Audited runs were conducted with no performance monitoring to avoid the performance penalty incurred in the use of the system performance monitor.

The number of users was distributed over 15 clients. Each client added 100 to 500 users to the system under test. The first client to be started added the most users. The test was run continuously for approximately 9-1/2 hours, including ramp-up.

Child 1 added 500 users to Partition Server 1. Child 2 added 450 users to Partition Server 2. Child 3 added 450 users to Partition Server 3. Child 4 added 500 users to Partition Server 1 and so on. Children 1, 4, 7 and 10 simulated 500 users each. Children 2, 3, 5, 6, 8, 9, 11 and 12 simulated 450 users each. Child 13 simulated 100 users. Child 14 and child 15 each simulated 200 users.

The actual ramp-up period from startup of child 1 to when all 6,100 users were shown on any of the three partitioned server consoles was about 2-1/2 hours. The test ran for about 7 hours after ramp-up. During the test runs, the tools used to determine steady state included the Domino Server SHOW command, the child driver RES files, 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 each server partition and their server logs. We confirmed steady state when the:

- Number of users on the SUT Domino Server console reached the intended number of connected users
- Pending mail did not become backlogged, as seen from the server mail routing log.

To ensure that the test results were reproducible, all tests were repeated, and the results were compared for consistency.

Partition Server 1 total number of users = 2,100

Partition Server 2 total number of users = 2,000

Partition Server 3 total number of users = 2,000

ThreadStagger

Child 1 - Child 2 = 0

Child 3 - Child 6 = 1

Child 11 - Child 12 = 2

Child 13 - Child 15 = 3

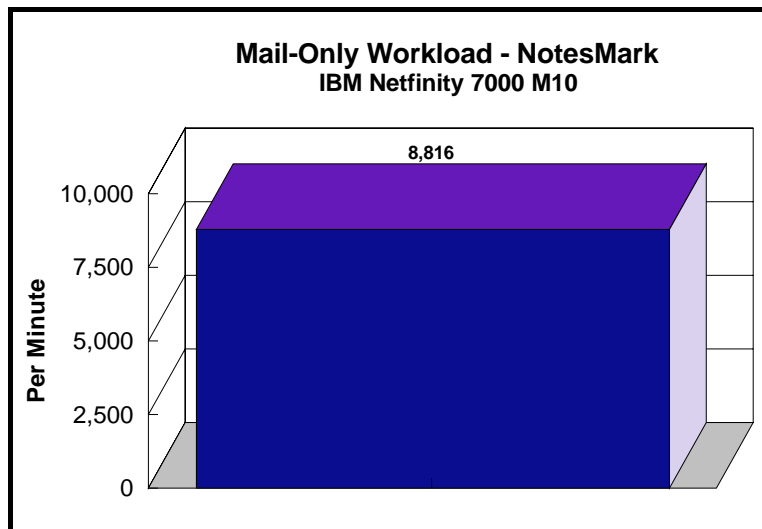
### ***Other NotesBench Tests***

The maximum sustainable user capacity shown for the Mail-only script serves as a matrix for comparing different servers. We plan to use NotesBench scripts to provide capacity levels suitable for capacity planning purposes. To obtain this information for Netfinity servers, visit [www.notesbench.org](http://www.notesbench.org) and locate the Server.Planner for IBM Personal Systems Group.

## Data

### **IBM Netfinity 7000 M10 NotesMark Value for Partitioned Server Mail-Only Test**

The IBM Netfinity 7000 M10 server demonstrated that it can support 6,100 concurrent active users with this workload. The NotesMark throughput value was 8,816. Average response time was 0.419 seconds. The test procedure used three parent drivers. Results for all three parent drivers were consolidated after the test and notesnum.exe produced average statistics for all three server partitions as a single unit. The average response time is the average for all 6,100 mail users, regardless of which server partition they were connected to.



The Mail 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 mail-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, 1 view scrolling operation, 1 database opened and closed, 1 view opened and closed, and some miscellaneous operations. In sending messages, each user sends a mail message to NumMessageRecipients no more frequently than every 90 minutes.

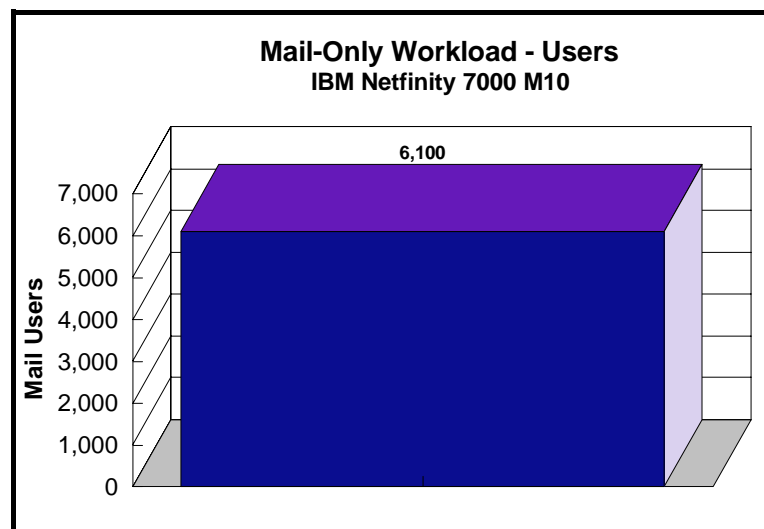
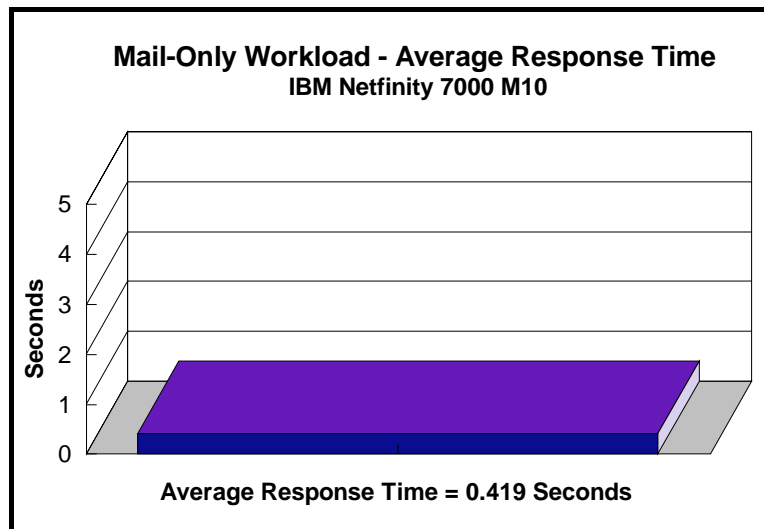
### NotesNum Output for Mail-Only Test

Min Start Time = 10/31/98 07:06:36 AM Max Stop Time = 10/31/98 05:11:36 PM

Total Test Errors = 0

Total Test Time = 36300 sec

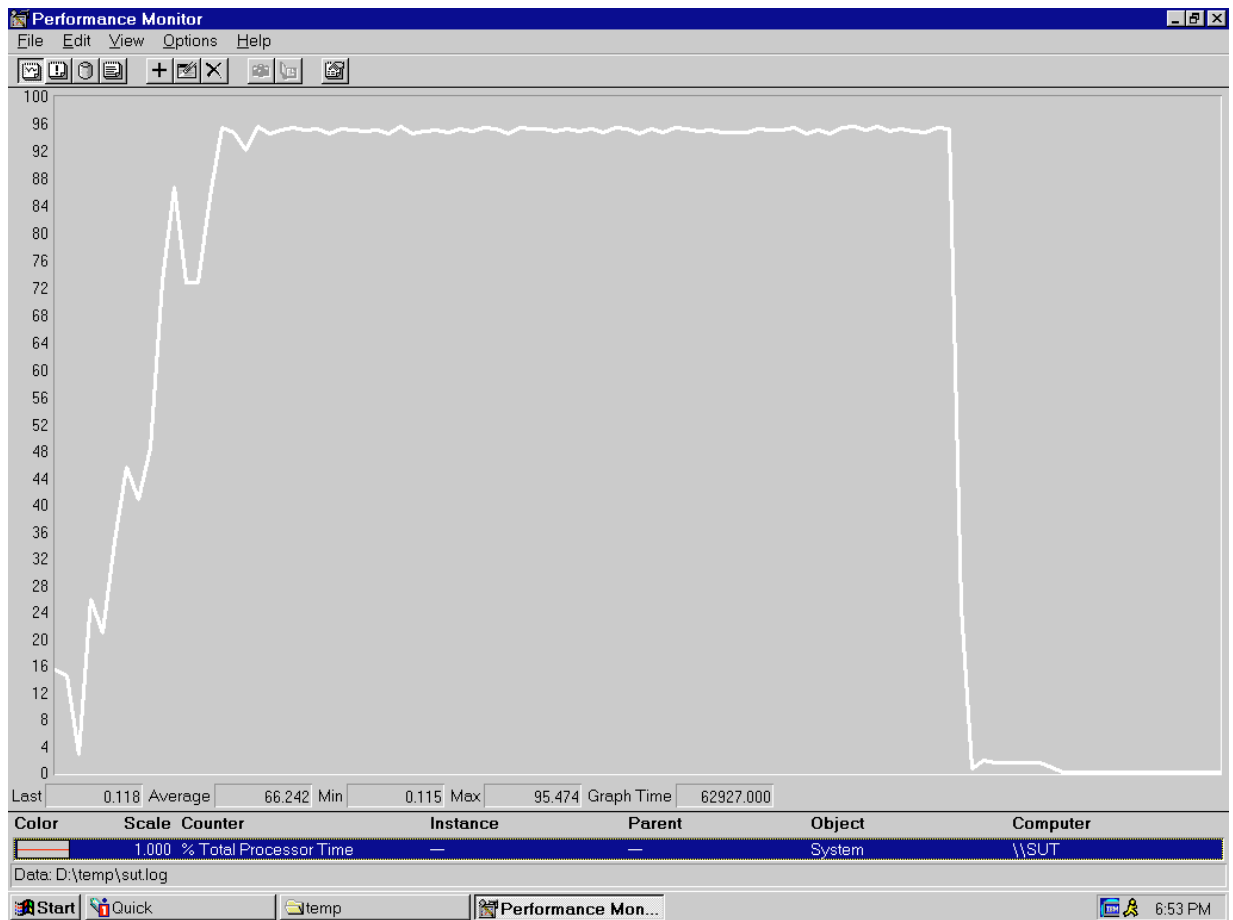
Test Run: Users = 6100 NotesMark = 8816 Response Time = 419 msec (10/31/98 09:26:00 AM to 10/31/98 05:05:00 PM)





## Analysis

When configured optimally as described in this disclosure, the IBM Netfinity 7000 M10 with two Netfinity ServeRAID-3H Ultra2 SCSI Adapters demonstrated that it can manage the intense resource usage during ramp-up to as many as 6,100 concurrent Mail-only users with no errors at the clients. As can be seen in the following PERFMON chart captured in a trial run for the Mail-only test, average processor utilization during ramp-up rose momentarily slightly above average processor utilization after ramp-up. We minimized this spike of activity by reducing the rate of user connection in our final run.



## Conclusions

The test results demonstrate that the IBM Netfinity 7000 M10 configured as described within this report can support 6,100 Mail-only users with a response time well below what the test criteria permit. These results are based on running the IBM Netfinity 7000 M10 as three dedicated partitioned Domino servers. 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 demonstrate that the IBM Netfinity 7000 M10 system provides leadership performance and price/performance as a hardware platform for the Domino Server 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 Mail-only test, 18 driver systems were used. Fifteen of those systems were configured as child drivers (child 1 through child 15). Each of three systems was configured as a parent (source driver) for a group of five child drivers.

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

- Child drivers 1-5
  - C: Partition (512MB - NTFS) - Windows NT 4.0 and Notes 4.6 Workstation code
  - D: Partition (1.5GB - NTFS) - Notes 4.6 Workstation data
- Child drivers 6-9
  - C: Partition (2.0GB - NTFS) Windows NT 4.0 Workstation, Notes 4.6 Workstation
- Child drivers 10-15
  - C: Partition (4.0GB - NTFS) Windows NT 4.0 Workstation, Notes 4.6 Workstation

### ***Number of Server Platforms***

One server platform, the IBM Netfinity 7000 M10 with four 400MHz Pentium II Xeon processors and 2.5GB of memory was benchmarked.

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

- C: Single disk drive (4GB - NTFS) - Windows NT Server Version 4.0 (Boot Partition) Domino executables
- D: Partition (10GB - NTFS) - Domino data for Partitioned Server 1
- E: Partition (8GB - NTFS) - Domino data for Partitioned Server 2
- F: Partition (8GB - NTFS) - Domino data for Partitioned Server 3

For experimentation purposes, 4.0GB of RAID-0 volume were reserved as free space in each array, but were not used as part of the RAID-1 volume in the final audited run.

The disk configuration used for destination servers 1-6 is as follows:

- C: Partition (4GB - NTFS) - Windows NT Server Version 4.0 (Boot Partition) and Domino executables
- D: Partition (18.5GB - NTFS) - Domino data

### ***Network***

The network consisted of six LAN segments. The LAN segments, each consisting of one 12-port AsanteFAST 100 Hub, were configured as follows:

- Segment 1 connected the SUT Partition 1, destination server 1, child drivers 1-5, parent 1, and router port 1.

- Segment 2 connected the SUT Partition 2, destination server 2, child drivers 6-10, parent 2, and router port 2.
- Segment 3 connected the SUT Partition 3, destination server 3, child drivers 11-15, parent 3, and router port 3.
- Segment 4 connected destination server 4 and router port 4.
- Segment 5 connected destination server 5 and router port 5.
- Segment 6 connected destination server 6 and router port 6.

The 15 child drivers were distributed evenly across segments 1, 2 and 3.

### ***Software Versions***

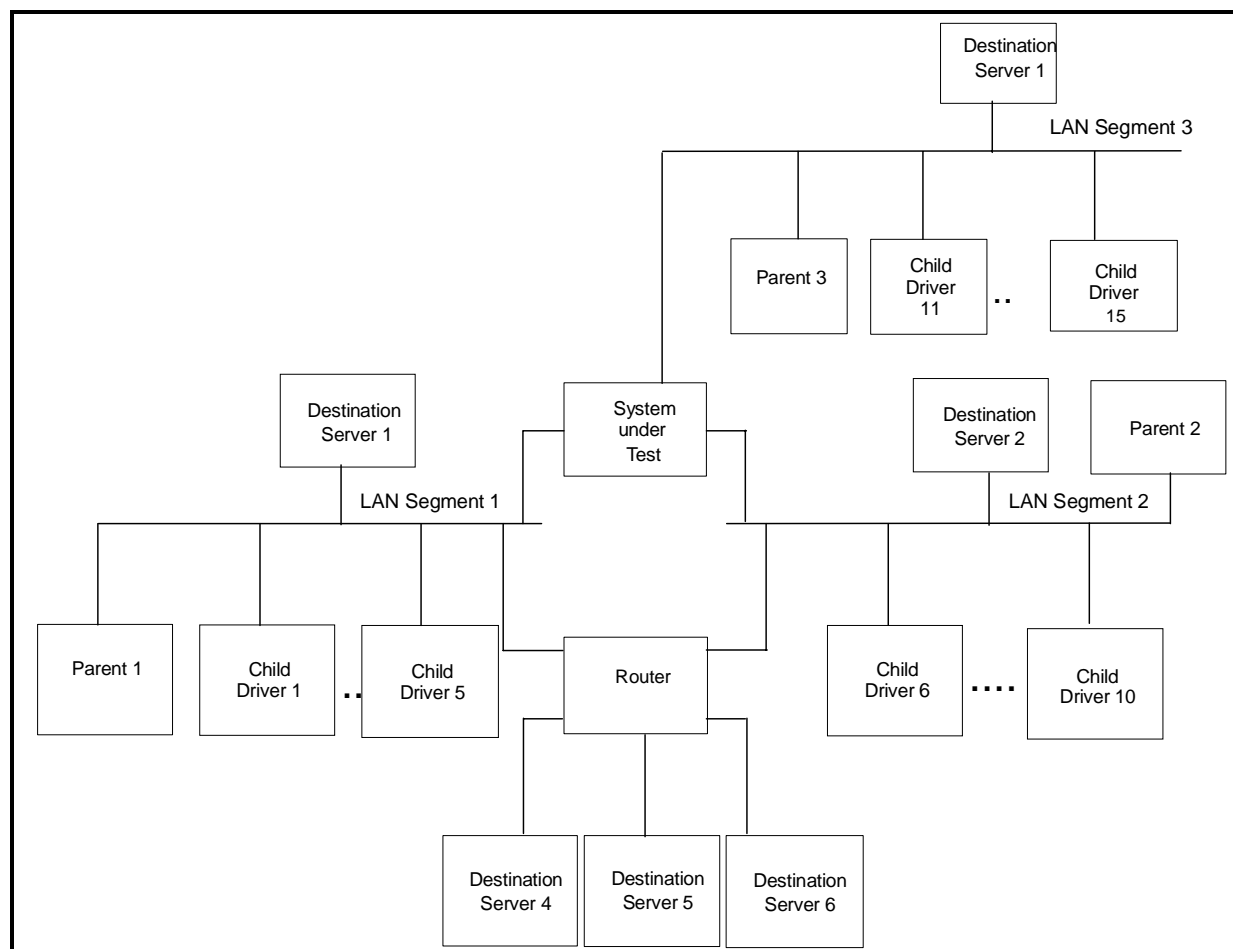
Software versions used on the system under test were as follows:

- Microsoft Windows NT Server Version 4.0 and Service Pack 3
- Lotus Domino Server Release 4.62a
- NotesBench Version 4.61 - Windows/32, released June 28, 1998

Software versions used on the child drivers were as follows:

- Microsoft Windows NT Workstation Version 4.0 and Service Pack 3
- Lotus Domino Client for Windows NT Release 4.62a
- NotesBench Version 4.61 - Windows/32, released June 28, 1998

## Test Setup Diagram



## Details of Configuration

System Under Test	Destination Servers 1-6	Child Drivers 1-9	Child Drivers 10-15	Parent Source Driver
IBM Netfinity 7000 M10	IBM PC Server 330	IBM PC 365	IBM PC 300GL	IBM PC Server 325
4 x 400MHz Pentium II Xeon Processors	1 x 200MHz Pentium Pro Processor	1 x 200MHz Pentium Pro Processor	1 x 233MHz Pentium II Processor	1 x 200MHz Pentium Pro Processor
2.5GB Memory	256MB Memory	128MB Memory	96MB Memory	128MB Memory
16 x 4.51GB Drives (RAID-1) 1 x 4.51GB Drive (Boot Drive)	6 x 4.51GB Drives (RAID-0)	1 x 2GB Drive	1 x 4GB Drive	1 x 4.5GB Drive
2 x IBM ServeRAID-3H Ultra2 SCSI Adapter	IBM SCSI-2 Fast/Wide Streaming RAID Adapter			
3 x EtherJet 100/10 PCI Adapters	Intel EtherExpress 10/100 PCI TX Adapter	Intel EtherExpress 10/100 PCI TX Adapter	IBM 100/10 Ethernet PCI TX Adapter	Intel EtherExpress 10/100 PCI TX Adapter
Windows NT Server 4.0 and Service Pack 3	Windows NT 4.0 and Service Pack 3	Windows NT 4.0 and Service Pack 3	Windows NT 4.0 and Service Pack 3	Windows NT 4.0 and Service Pack 3

---

## Appendix B: System Configurations

<b>Server under Test</b>	
<b>System</b>	IBM Netfinity 7000 M10
<b>Processor</b>	4 x 400MHz Pentium II Xeon with 1MB L2 Cache
<b>Memory</b>	2.5GB
<b>Cache</b>	1MB L2 Write-Back Cache per Processor
<b>RAID Controller</b>	2 x Netfinity ServeRAID-3H Ultra2 SCSI Adapter
<b>Disk Drive</b>	16 x 4.51GB 10K rpm Hard Disks (configured as three RAID-1 arrays), 1 x4.51GB 10K rpm Hard Disk (configured as a boot drive)
<b>Network Interface</b>	3 x IBM EtherJet 100/10 PCI Adapters
<b>I/O</b>	PCI Bus
<b>Operating System</b>	Microsoft Windows NT Server 4.0 with Service Pack 3
<b>Notes</b>	Lotus Domino Server for Windows NT Release 4.62a for SMP

<b>Clients 1- 9</b>	
<b>System</b>	IBM PC 365
<b>Processor</b>	1 x 200MHz Pentium Pro
<b>Memory</b>	128MB
<b>Disk Drive</b>	1 x 2GB
<b>Network Interface</b>	Intel EtherExpress 10/100 PCI TX Adapter
<b>I/O</b>	PCI Bus
<b>Operating System</b>	Microsoft Windows NT Workstation 4.0 with Service Pack 3
<b>Notes</b>	Domino Client for Windows NT Release 4.62a

<b>Clients 10- 15</b>	
<b>System</b>	IBM PC 300GL
<b>Processor</b>	1 x 233MHz Pentium II
<b>Memory</b>	96MB
<b>Disk Drive</b>	1 x 4GB
<b>Network Interface</b>	IBM 100/10 Ethernet PCI TX Adapter
<b>I/O</b>	PCI Bus
<b>Operating System</b>	Microsoft Windows NT Workstation 4.0 with Service Pack 3
<b>Notes</b>	Domino Client for Windows NT Release 4.62a

---

## 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

NT Default Services stopped:

- Computer Browser
- License Logging Service
- Plug and Play
- Spooler



---

## Appendix D: NOTES.INI Settings

### *System under Test Notes.INI*

```
[Notes]
;
; NotesBench parm changes
;
SERVER_SHOW_PERFORMANCE=1
MAILUSEPROCESSES=0
MAILUSETHEADS=1
MAILMAXTHREADS=6
MAILLOGTOEVENTSONLY=1
Log_MailRouting=10
No_Force_Activity_Logging=1
;
; ***** for SUT1 *****
DEBUG_OUTFILE=\\parent6\results\sut1info.txt
TCP_TcpIPAddress=0,192.1.3.221:1352
WAN2_TcpIPAddress=0,192.1.3.221:1352
NOTESPROGRAM=c:\notes\
KitType=2
Directory=d:\notes\sut1

; ***** for SUT2 *****
; DEBUG_OUTFILE=\\parent6\results\sut2info.txt
; TCP_TcpIPAddress=0,192.1.13.221:1352
; WAN2_TcpIPAddress=0,192.1.13.221:1352
; NOTESPROGRAM=e:\notes\sut2\
; KitType=2
; Directory=e:\notes\sut2

; ***** for SUT3 *****
; DEBUG_OUTFILE=\\parent6\results\sut3info.txt
; TCP_TcpIPAddress=0,192.1.23.221:1352
; WAN2_TcpIPAddress=0,192.1.23.221:1352
; NOTESPROGRAM=f:\notes\sut3\
; KitType=2
; Directory=f:\notes\sut3

SETUPDB=SETUP.NSF
USERNAME=Me
COMPANYNAME=MyPlace
MTATEMP=C:\TEMP
NPN=1
WinNTIconPath=d:\notes\sut1\W32
$$HasLANPort=1
WWWDSPP_SYNC_BROWSERCACHE=0
WWWDSPP_PREFETCH_OBJECT=0
EnableJavaApplets=1
EnablePlugins=1
Preferences=527473
Passthru_LogLevel=0
Console_LogLevel=2
VIEWIMP1=Lotus 1-2-3 Worksheet,0,_IWKSV,,WKS.,WK1.,WR1.,WRK.,WK3.,WK4.,4,
VIEWIMP3=Structured Text,0,_ISTR,,LTR.,CGN.,STR.,1,
```



COM2=XPC,2,15,0,  
COM3=XPC,3,15,0,  
COM4=XPC,4,15,0,  
COM5=XPC,5,15,0,  
Ports=TCPIP,WAN2  
DisabledPorts=VINES,SPX,AppleTalk,LAN3,LAN4,LAN5,LAN6,LAN7,LAN8,COM1,COM2,COM3,COM4,COM5  
LOG\_REPLICATION=0  
LOG\_SESSIONS=0  
ExistingServerName=s1  
KeyFilename=sut1.id  
CertificateExpChecked=d:\notes\sut1\sut1.id 10/05/98  
MailServer=CN=SUT1/O=PARTITION  
Domain=DOMINO  
Admin=CN=Admin/O=PARTITION  
Timezone=5  
DST=1  
TemplateSetup=16  
Setup=53  
ServerSetup=8  
NAMES=names.nsf  
EmptyTrash=0  
WeekStart=1  
SDI\_WINDOW=0  
DisableImageDithering=1  
WAN2=TCP,0,15,0,,12288,  
DESKWINDOWSIZE=16 23 420 288  
MAXIMIZED=1  
WinNTIconCommonConfig=Universal  
WinNTIconSize=2  
WinNTIconPos=2  
WinNTIconHidden=0  
WinNTIconRect=-1 -1 641 25  
FileDialogDirectory=c:\notes  
ZONE\_SET=1  
ECLSetup=3  
PhoneLog=2  
Log=log.nsf, 1, 0, 7, 40000  
CONSOLE\_Lotus\_Domino\_Server=80 25 7 7 2 635 157

## ***The Sample Child Notes.INI***

[Notes]

KitType=1  
Directory=d:\notes\data  
WinNTIconPath=d:\notes\data\W32  
\$IEVersionMajor=4  
\$IEVersionMinor=70  
\$\$HasLANPort=1  
EnableJavaApplets=1  
EnablePlugins=1  
Preferences=2148011121  
Passthru\_LogLevel=0  
Console\_LogLevel=2  
VIEWIMP1=Lotus 1-2-3 Worksheet,0,\_IWKSV,,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,



```

WinNTIconPos=2
WinNTIconHidden=0
WinNTIconRect=-1 -1 641 25
FileDlgDirectory=D:\notes\data
; *****
;
;       BEGIN NOTESBENCH VARIABLES
;
; *****
;
NthIteration=6
Tmp=Notestmp
;
;       IDLE workload
;
MaxSessions=100
;
;       REPLHUB workload
;
NumAddLocalReplica=1
NumDeleteLocalReplica=1
NumStampLocalReplica=1
NumUpdateLocalReplica=1
;
;       MAILHUB workload
;
NormalMessageSize=1000
NumMessageRecipients=3
;
;       MAIL workload
;
NumMailNotesPerUser=100
;
;       MAILDB workload
;
;       GROUPWARE_A workload
;
AttachmentSize=500000
LargeMessageSize=32000
;

NodeName=child1
ResultsDirectory=\\parent1\results
DEBUG_OUTFILE=\\parent1\results\res1
ThreadStager=0
NBTestReset=0
; *****
; * MaxUsers=3500 per partition, 7000 total *
; * NumNotesLocalReplica=1% MaxUsers      *
; * NumSharedNotes=10% MaxUsers          *
; *****
NumNotesLocalReplica=35
NumSharedNotes=350
PhoneLog=2
Log=log.nsf, 1, 0, 7, 40000

```

## ***Parent Notes.INI***

[Notes]

```

KitType=1
Directory=c:\notes\data
; *****
;

```

```

; Begin Notesbench variables for PARTITION 1
;
; *****
;
; NodeName=parent1
; Runtime in minutes
Runtime=600
; ChildStart=2 means start 2 children w/o stagger
ChildStagger=20,1-2; 25,3-3; 30,4-4; 40,5-5; 35,6-7
NumClients1=500
NumClients2=500
NumClients3=500
NumClients4=500
NumClients5=100

; ***** for parent2 *****
; NodeName=parent2
; Runtime in minutes
RunTime=595
; ChildStart=2 means start 2 children w/o stagger
; ChildStagger=20,1-2; 25,3-3; 30,4-4; 40,5-5; 35,6-7
; NumClients1=450
; NumClients2=450
; NumClients3=450
; NumClients4=450
; NumClients5=200

; ***** for parent3 *****
; NodeName=parent3
; RunTime=590
; ChildStart=2 means start 2 children w/o stagger
; ChildStagger=23,1-2; 25,3-3; 30,4-4; 40,5-5; 35,6-7
; NumClients1=450
; NumClients2=450
; NumClients3=450
; NumClients4=450
; NumClients5=200
; *****

ResultsDirectory=c:\results
DEBUG_OUTFILE=c:\results\notesnum.txt
; *****
;
; 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=2300
ProbeIntervalDelay=60
ProbeWaitTime=400
ProbeRunTime=2
; ProbeRunTime=2 because we want 400 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
; NBTestReset=1
; *****
;
; Server.Planner Variables
; *****
CPDatabase=c:\notes\data\cpNFserverTB3.nsf
SUTMachineID=Osceola1M_L2_4GB_4ps6dr
;
; END NOTESBENCH VARIABLES

```



COM3=XPC,3,15,0,  
COM4=XPC,4,15,0,  
COM5=XPC,5,15,0,  
Ports=TCPIP  
DisabledPorts=LAN0,VINES,SPX,COM1,COM2,COM3,COM4,COM5  
ProgramMode=0  
HomeSite=favorite.nsf  
MailServer=CN=SUT1/O=PARTITION  
MailFile=mail\parent1.nsf  
TemplateSetup=15  
Setup=53  
ZONE\_SET=1  
Timezone=5  
DST=1  
Location=Office (Network),2106,CN=Admin/O=PARTITION  
ECLSetup=3  
NAMES=names.nsf  
EmptyTrash=0  
WeekStart=1  
SDL\_WINDOW=0  
DisableImageDithering=1  
DESKWINDOWSIZE=16 23 420 288  
WINDOWSIZEWIN=33 5 574 470  
MAXIMIZED=0  
WinNTIconCommonConfig=Universal  
WinNTIconSize=2  
WinNTIconPos=2  
WinNTIconHidden=0  
WinNTIconRect=-1 -1 567 25  
FileDlgDirectory=C:\notes\data  
PhoneLog=2  
Log=log.nsf, 1, 0, 7, 40000



---

## **Appendix E: Network Configuration**

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

### ***SUT***

In the system under test, the network adapter speed for the IBM EtherJet 100/10 PCI Adapter was changed from the default 'Auto' to 100Mbps. This forced the Duplex Mode to 'Half'.

In addition, under 'Advanced' configuration options for the Ethernet adapter, the following three parameters were changed from their default values at the destination servers:

- Coalesce Buffers = 16
- Receive Buffers = 64
- Transmit Control Block = 32

### ***Child Drivers***

Connection attempt time-out duration in the TCP/IP Option (TCP/IP Port Setup) of User Preferences was set to 15 seconds for child drivers 1-15.

### ***Domain Name & Address Book Server-to-Server Connection Documents***

For the connection documents controlling mail routing between the SUT and the destination servers, the Route-at-Once parameter is set to 15 seconds versus the default of 5 seconds. The effective time of the document was set at "7:00 AM to 6:59 AM."

---

## **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	Extended Price
<b>IBM Netfinity 7000 M10</b>	8680-2RU	1	\$15,789	\$15,789
1 x 400MHz Pentium II Xeon Processor / 1MB L2 Cache				
400MHz / 1MB L2 Cache Processor Upgrade	01K8007	3	4,789	14,367
1024MB Memory Expansion Kit	01K8046	2	6,199	12,398
512MB Memory Expansion Kit	01K8045	1	3,029	3,029
Memory Card	01K8004	1	656	656
Netfinity ServeRAID-3H Ultra2 SCSI Adapter	01K7207	2	1,929	3,858
IBM Netfinity EXP10 4.51GB 10K Wide Ultra SCSI SCA-2 Hard Disk Drives	01K7960	17	685	11,645
IBM Netfinity EXP15 Rack Storage Expansion Enclosure	35202RU	2	2,799	5,598
IBM EtherJet 100/10 PCI Adapter	86H2432	3	109	327
IBM G42 14" (13.2" Viewable) Color Monitor	654000N	1	219	219
<b>Software</b>				
Windows NT Server 4.0 (Service Pack 3 free on Internet)		1	723	723
Lotus Domino Server Release 4.62		1	NC	
<b>Total System Price</b>				<b>\$68,609</b>

---

## Appendix H: Vendor-Defined Information

None.

## **First Edition - November 1998**

THE INFORMATION CONTAINED IN THIS DOCUMENT IS DISTRIBUTED ON AN AS IS BASIS WITHOUT ANY WARRANTY EITHER EXPRESSED OR IMPLIED. The use of this information or the implementation of any of these techniques is a customer's responsibility and depends on the customer's ability to evaluate and integrate them into the customer's operational environment. While each item has been reviewed by IBM for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere. Customers attempting to adapt these techniques to their own environment do so at their own risk.

In this document, any references made to an IBM licensed program are not intended to state or imply that only IBM's licensed program may be used; any functionally equivalent program may be used.

This publication was produced in the United States. IBM may not offer the products, services, or features discussed in this document in other countries, and the information is subject to change without notice. Consult your local IBM representative for information on products and services available in your area..

© Copyright International Business Machines Corporation 1998. All rights reserved.

Permission is granted to reproduce this document in whole or in part, provided the copyright notice as printed above is set forth in full text at the beginning or end of each reproduced document or portion thereof.

U.S. Government Users - Documentation related to restricted rights: Use, duplication, or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

### **Trademarks**

\*IBM is a registered trademark and Netfinity is a trademark of International Business Machines Corporation.

\*\*Lotus and Lotus Notes are registered trademarks and Notes and Domino are trademarks of Lotus Development Corporation. Intel and Pentium are registered trademarks and Xeon is a trademark of Intel Corporation. Microsoft and Windows NT are trademarks or registered trademarks of Microsoft Corporation.

Other company, product, or service names, which may be denoted by two asterisks (\*\*), may be trademarks or service marks of others.