NotesBench Disclosure Report

for

IBM Netfinity 7000

with

Lotus Domino Server 4.51 for Windows NT 4.0

Audited September 19, 1997

IBM Corporation

IBM ®

NotesBench Disclosure Report

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Executive Summary

The IBM Netfinity 7000 server demonstrated leadership performance and price/performance running Lotus Domino Server Release 4.51 on Microsoft Windows NT Server Version 4.0 with Service Pack 3. The results for the IBM Netfinity 7000 are based on two NotesBench workloads: Mail-only, which was run on a three-processor configuration, and Mail and Shared Database (MailDB), which was run on a four-processor configuration.

Test Script	Maximum Users	NotesMark (tpm)	Ave. Response Time (sec)	$/User	$/NotesMark
Mail-Only	3,500	4,623	0.312	$18.91	$14.32
MailDB	2,900	6,294	1.042	$24.70	$11.38

The IBM Netfinity 7000, configured with three 200MHz[1] Intel** Pentium** Pro processors, 1GB[2] of memory, and ten 4.51GB hard disk drives, supported a Mail-only workload of 3,500 active mail users. In a four-processor configuration, the IBM Netfinity 7000 supported a MailDB workload of 2,900 active users (see price/performance results[3] above).

In addition to the IBM Netfinity 7000 system under test (SUT), the benchmarked configuration used three destination servers, 14 client driver systems for Mail and 16 for MailDB, and one controller system. All systems were connected via two 100Mbps Ethernet LAN segments, using the TCP/IP network protocol. Configuration details are provided in Appendix A: Overall Test Setup and Software Versions.

The Server Performance Laboratory in the IBM PC Company conducted the benchmark in September, and KMDS Technical Associates, Inc., audited the results in September.

NotesBench provides an objective method for evaluating the performance of different platforms running Lotus Domino Server Release 4.51. 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 the number of Lotus Domino Server Release 4.51 Mail-only and MailDB users supported on the IBM Netfinity 7000 system in configurations using three and four 200MHz Pentium Pro processors. Performance measurements on IBM Netfinity 7000 and other IBM PC Servers using NotesBench for the Domino Server Release 4.x are ongoing.

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[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 pricing provided by Entex Information Services, Inc., of Michigan. IBM resellers set their own prices, and actual prices may vary.

Test Methodologies

Test Setup and Hardware/Software Configuration

The IBM Netfinity 7000 system under test (SUT) for Mail-only used three 200MHz Pentium Pro processors (1MB of L2 write-back cache per processor) and for MailDB four processors; 1GB of memory; ten 4.51GB Wide Ultra SCSI hard disk drives configured as a RAID-0 array, using an IBM ServeRAID II Ultra SCSI Adapter; and two EtherJet 100/10 PCI Adapters. The IBM Netfinity 7000 system under test ran Microsoft Windows NT Server Version 4.0 with Service Pack 3 and Domino Server Release 4.51. Two 100Mbps Ethernet LAN segments were used. A 12-port Bay Networks BayStack 201 100BaseT Hub was used to connect child drivers 1 through 7, and destination server 1 to one network interface card in the system under test. A 24-port Bay Networks BayStack 201 100BaseT Hub was used to connect child drivers 8 through 16, and destination servers 2 and 3 to a second network interface card in the system under test.

For the IBM Netfinity 7000, the following Power-on Setup parameters were changed from their default settings:

- IOQ Depth = 8
- Outbound Posting = Enable
- PCI Line Prefetch = Enable
- Address Bit Permitting = Enable

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:

Mail-Only Workload	MailDB Workload
LOG_MAILROUTING=10	LOG_MAILROUTING=10
MAILLOGTOEVENTSONLY=1	MAILLOGTOEVENTSONLY=1
MAILUSEPROCESS=0	MAILUSEPROCESS=0
MAILUSETHREADS=1	MAILUSETHREADS=1
MAILMAXTHREADS=3	MAILMAXTHREADS=3
SERVER_SHOW_PERFORMANCE=1	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=D:\SUTDATA\SUTINFO
```

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

All Domino data files were located on the E - partition, which was 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 and system resource utilization was monitored using Windows NT Performance Monitor (PERFMON). This enabled the system configuration to be optimized while maximizing balanced system resources. The number of processors used determined the configuration of the memory and disk subsystems. To maximize memory performance, we selected from optimal supported memory size increments. Smaller memory sizes may support the maximum number of users achieved, albeit at lower overall system performance. 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 14 clients for Mail-only and 16 for MailDB. Each client added 100 to 260 users to the system under test. The first client to be started added the most users. The tests were run continuously for a total duration of approximately 9 hours, including ramp-up.

For both the Mail and MailDB test, users were added in a manner that simulated the staggered connection schedule of a real-world environment. In both tests, the system under test ran for a minimum of 6 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 and the result of the SHOW command queries at the SUT. 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 output of the SHOW SERVER command.

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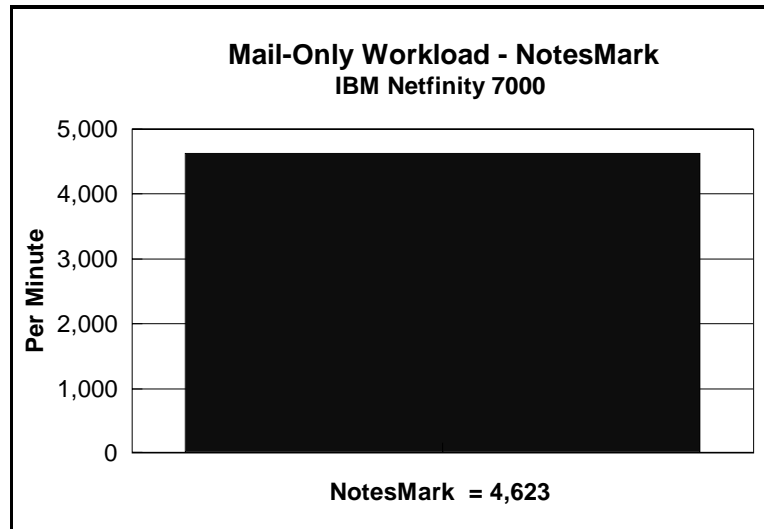
Other NotesBench Tests

Other Lotus NotesBench tests, such as WebWalker, WebBuyer and Calendar and Scheduling are planned for future disclosure reports.

Data

IBM Netfinity 7000 NotesMark Value for Mail-Only Test

The IBM Netfinity 7000 server demonstrated that it can support 3,500 concurrent active users with this workload. The NotesMark throughput value was 4,623. Average response time was .312 seconds.

Mail-Only Workload - NotesMark
IBM Netfinity 7000

(bar chart: Per Minute axis from 0 to 5,000; single bar at 4,623)

NotesMark = 4,623

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 = 09/02/97 04:25:55 PM   Max Stop Time = 09/02/97 11:42:03 PM
Total Test Errors = 6598
Total Test Time = 26220 sec
Test Run: Users = 3500   NotesMark = 4623   Response Time = 312 msec (09/02/97 06:23:00
PM to 09/02/97 11:24:00 PM)

Mail-Only Workload - Average Response Time
IBM Netfinity 7000

Seconds

5
4
3
2
1
0

Average Response Time = .312 Seconds

Mail-Only Workload - Users
IBM Netfinity 7000

Mail Users

4,000
3,500
3,000
2,000
1,000
0
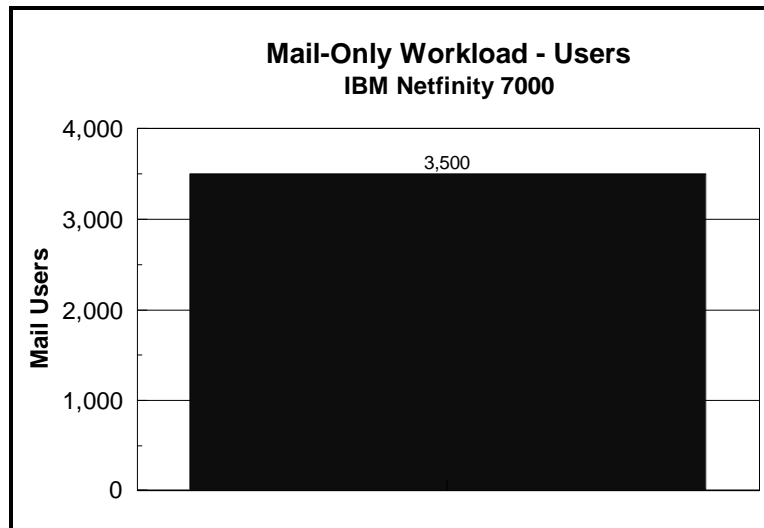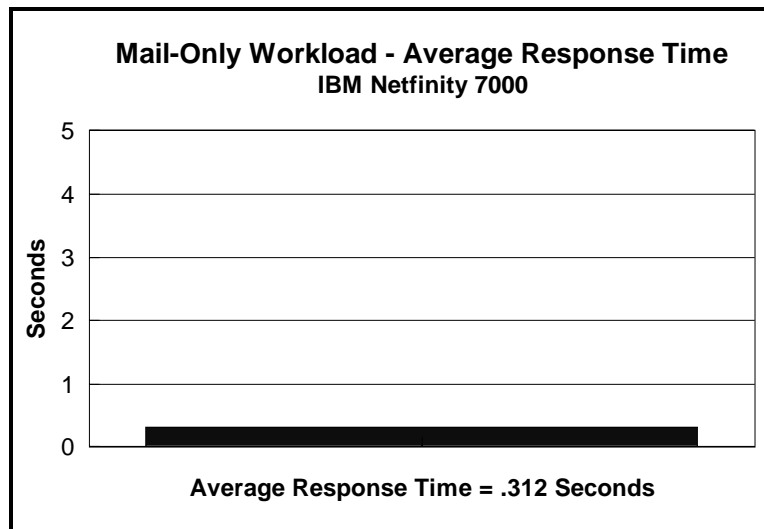
Explanation of Test Errors in Mail NotesNum Output

During the benchmark run, a Notes client was running a script that queried the Domino Server on the SUT every 30 minutes for server information, and stopped the server at the end of the run via remote console commands. The tester had inadvertently programmed the remote Stop Server command to start too soon. The Domino Server on the SUT started shutdown within the same minute as when the first child driver started shutting down. For this reason, child driver 1 was unable to finish its last transactions and reported time-out errors since the server started its shutdown. All subsequent child drivers (2 through 14) continued to start transactions and report time-out errors because the Domino Server had started its shutdown.

All errors were reported by the clients within a minute of when SUT shutdown began. The program used to summarize the statistics recognized the 5 hours of error-free steady state and generated a NotesNum result for the period prior to the SUT shutdown.

Because child driver and SUT status and statistics are reported once a minute, it can be determined from submitted files that SUT shutdown started at 11:25:01 PM according to the SUT's clock. Child 1 through child 14 reported errors starting between 11:24:55 PM and 11:26:14 PM according to their own system clock.

IBM Netfinity 7000 - NotesMark Value for MailDB Test

The MailDB workload was run for a minimum of 6 consecutive hours after ramp-u p. The IBM Netfinity 7000 server demonstrated that it can support 2,900 concurrent active users with this workload. The NotesMark throughput value was 6,294. Average response time was 1.042 seconds.

MailDB Workload - NotesMark
IBM Netfinity 7000

NotesMark = 6,294
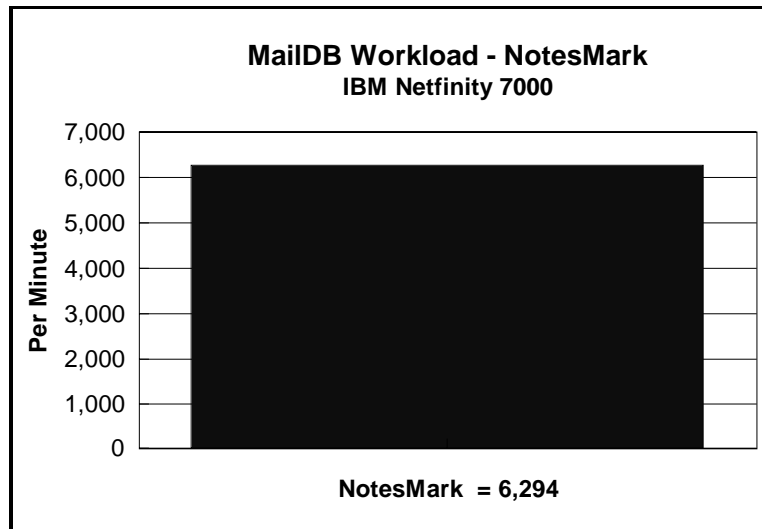
The MailDB workload models a server for active users who are performing only mail and simple shared database operations. The test includes mail-only activity plus view operations in a shared database and navigation of unread documents in a shared database. The test applies especially to sites that rely primarily on mail for communication or that have Notes users who do not yet use all the Notes features. The throughput for this test is a capacity metric. It indicates the maximum number of active users that can be supported before the average user response time becomes unacceptable.

The MailDB script models an active user who is reading mail, sending mail and reading a shared database. It contains an average of 15 minutes of waiting; thus, an average user will execute this script no more frequently than four times per hour. For each iteration of the script, there are 8 documents read, 2 documents updated, 2 documents deleted, 4 view scrolling operations, 2 databases opened and closed, 2 views opened and closed, and some miscellaneous operations. In sending messages, each user sends one mail message to NumMessageRecipients approximately once every 90 minutes.

NotesNum Output for MailDB Test

Min Start Time = 09/12/97 11:54:09 PM   Max Stop Time = 09/13/97 09:13:24 AM
Total Test Errors = 0
Total Test Time = 33540 sec
Test Run: Users = 2900   NotesMark = 6294   Response Time = 1042 msec (09/13/97
02:08:00 AM to 09/13/97 08:53:00 AM)

MailDB Workload - Average Response Time
IBM Netfinity 7000

Average Response Time = 1.042 Seconds

MailDB Workload - Users
IBM Netfinity 7000
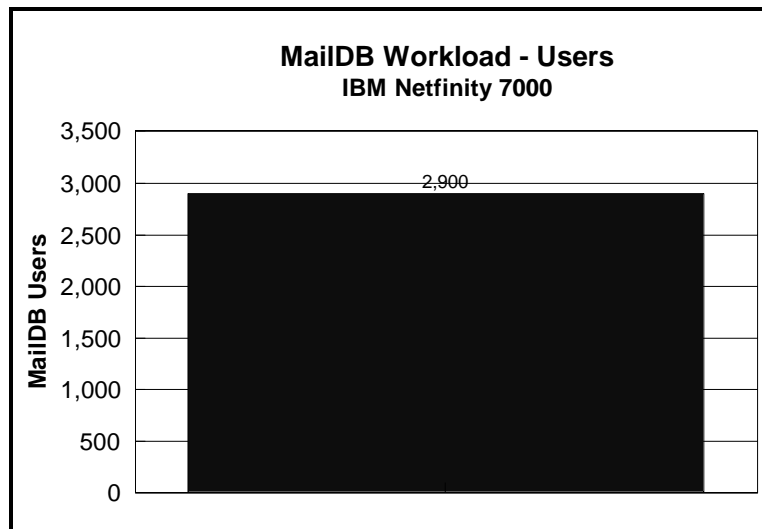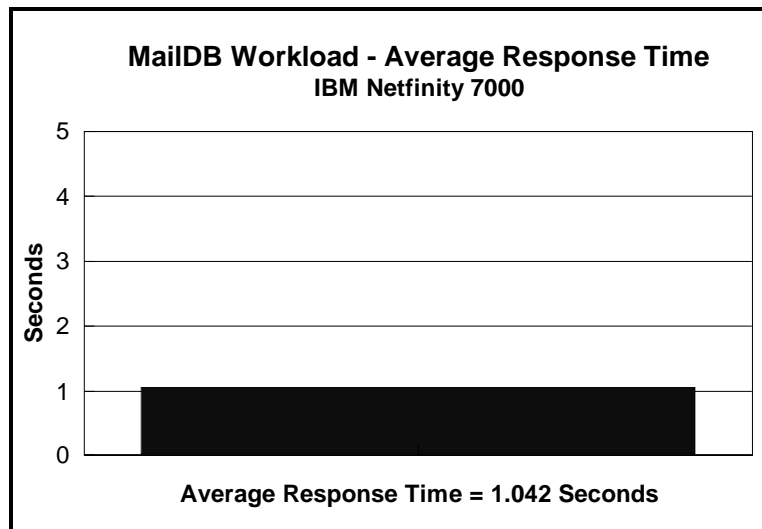
Analysis

When configured optimally as described in this disclosure, the IBM Netfinity 7000 with the IBM ServeRAID II Ultra SCSI Adapter has demonstrated that it can manage the intense resource usage during ramp-up to as many as 3,500 concurrent Mail-only users with minimal recoverable errors at the clients. This was achieved without applying excess processor resource, which is left idle after ramp-up. 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 did not significantly rise above average processor utilization after ramp-up.

During an 8-hour run with 3,500 Mail-only users, PERFMON was enabled and the performance information from ramp-up through ramp-down was captured in the following chart. When only steady state was examined, the system configured for the Mail-only run exhibited the following statistics:

- Average percent of total processor time = 75%
- Average available memory =74.3MB
- Average Pagefile usage = 1.6%
- Average disk queue length = 8.74
- Average disk seconds/transfer = 18 milliseconds
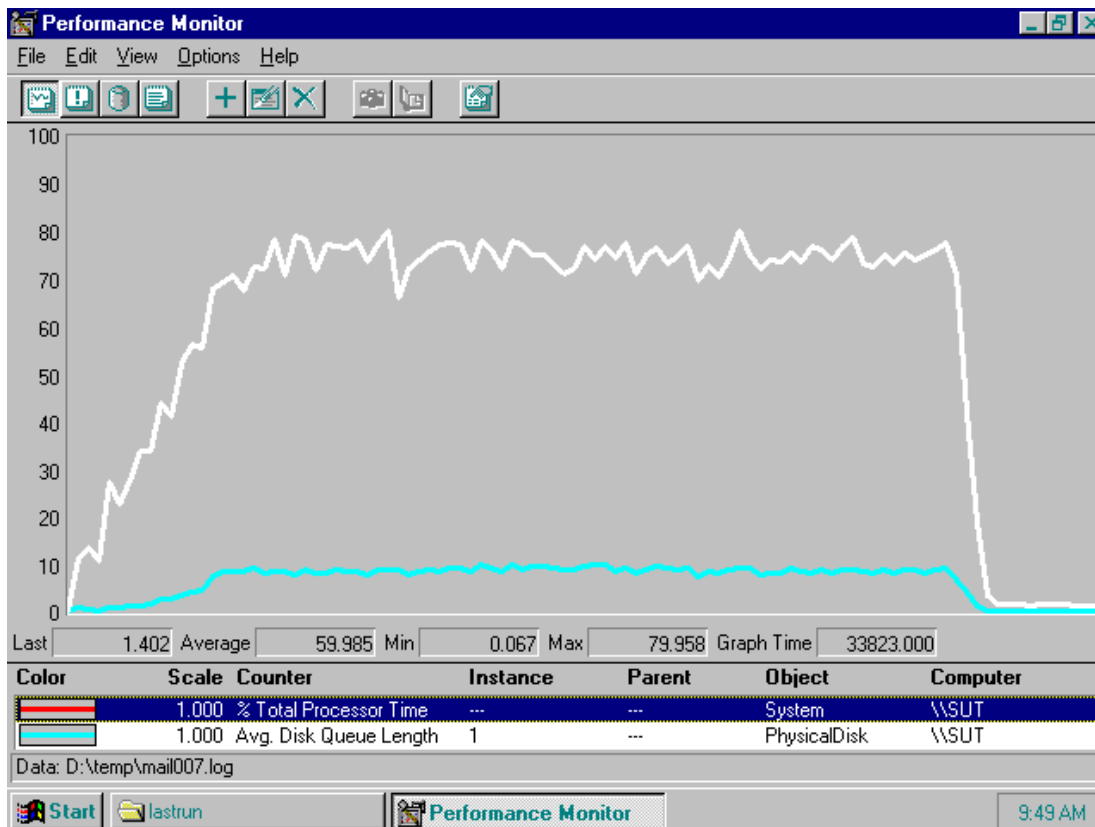
Conclusions

The test results demonstrate that an IBM Netfinity 7000 configured as described within this report can support 3,500 Mail-only users and 2,900 MailDB users with a response time well below what the test criteria permit. These results are based on running the IBM Netfinity 7000 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.

Based on the statistics shown by the PERFMON results collected during this run, the system has spare processor, memory and disk subsystem bandwidth to support more users, or additional applications.

These results demonstrate that the IBM Netfinity 7000 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 Dana M. 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 Mail-only, 15 driver systems were used. Fourteen of those systems were configured as child drivers (child 1 through child 14). One system was configured as the parent (source driver). For MailDB, 17 child driver systems were used. Sixteen of those systems were configured as child drivers (child 1 through child 16). One system was configured as the parent (source driver).

The child systems were each configured with one 150MHz Pentium processor, 80MB of memory, one 1.12GB hard disk, and one Intel EtherExpress 10/100 PCI TX Adapter.

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

> C: Partition (12MB - FAT) - DOS 6.3 and DOS Network Client for DOS and Windows NT 4.0
> D: Partition (1207MB - NTFS) - Windows NT 3.51 Workstation, Domino Workstation executables and data

Number of Server Platforms

One server platform, the IBM Netfinity 7000 with three 200MHz Pentium Pro processors for Mail-only and four for MailDB and 1GB of memory was benchmarked.

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

> C: Partition (4.5GB - NTFS) - Windows NT Server Version 4.0 (Boot Partition) Domino executables
> E: Partition (49.5GB - NTFS) - Domino data

The disk configuration used for destination servers 1, 2 and 3 is as follows:

> C: Partition (2GB - NTFS) - Windows NT Server Version 4.0 (Boot Partition) and Domino executables
> E: Partition (10GB - NTFS) - Domino data

Network

Two 100Mbps Ethernet LAN segments were used. A 12-port Bay Networks BayStack 201 100BaseT Hub was used to connect child drivers 1 through 7, and destination server 1 to one network interface card in the system under test. A 24-port Bay Networks BayStack 201 100BaseT Hub was used to connect child drivers 8 through 16, and destination servers 2 and 3 to a second network interface card in the system under test.

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 4.51
- NotesBench Version 145 - Windows/32

Software versions used on the child drivers were as follows:

- Microsoft Windows NT Workstation Version 4.0 and Service Pack 2
- Lotus Domino Client for Windows NT Release 4.51
- NotesBench Version 145 - Windows/32

High-Level Test Setup Diagram for Mail-Only and MailDB

Destination Server 1 — System under Test — Destination Server 2 — Destination Server 3 — Parent Driver

LAN Segment 1   LAN Segment 2

Child Driver 1 ... Child Driver 7 — Router — Child Driver 8 .... Child Driver 16

* Child drivers 15 and 16 were not used for the Mail-only test.

Details of Configuration

System Under Test	Destination Servers 1-3	Child Drivers 1-16	Parent Source Driver
IBM Netfinity 7000	IBM PC Server 720	IBM PC 350	IBM PC 350
3 x 200MHz Pentium Pro Processors (Mail-only) 4 x 200MHz Pentum Pro Processors (MailDB)	2 x 100MHz Pentium Processors	1 x 150MHz Pentium Processor	1 x 150MHz Pentium Processor
1GB Memory	256MB Memory	80MB Memory	128MB Memory
10 x 4.51GB Drives (RAID-0)	6 x 2GB Drives (7200 rpm) (RAID-0)	1 x 1.12GB Drive	1 x 1.12GB Drive
1 x IBM ServeRAID II Ultra SCSI Adapter	IBM SCSI-2 Fast/Wide Streaming RAID Adapter		
2 x EtherJet 100/10 PCI Adapter	Intel EtherExpress 10/100 PCI TX Adapter	Intel EtherExpress 10/100 PCI TX Adapter	Intel EtherExpress 10/100 PCI TX Adapter
Windows NT Server V4.0 and Service Pack 3	Windows NT V3.51 and Service Pack 5	Windows NT V4.0 and Service Pack 2	Windows NT V3.51 and Service Pack 5

The IBM ServeRAID II Ultra SCSI Adapter was installed on one PCI bus. The two EtherJet 100/10 PCI Adapters used in the SUT were installed on the other peer PCI bus.

Two 100Mbps Ethernet LAN segments were used. A 12-port Bay Networks BayStack 201 100BaseT Hub was used to connect child drivers 1 through 7, and destination server 1 to one network interface card in the system under test. A 24-port Bay Networks BayStack 201 100BaseT Hub was used to connect child drivers 8 through 16, and destination servers 2 and 3 to a second network interface card in the system under test.

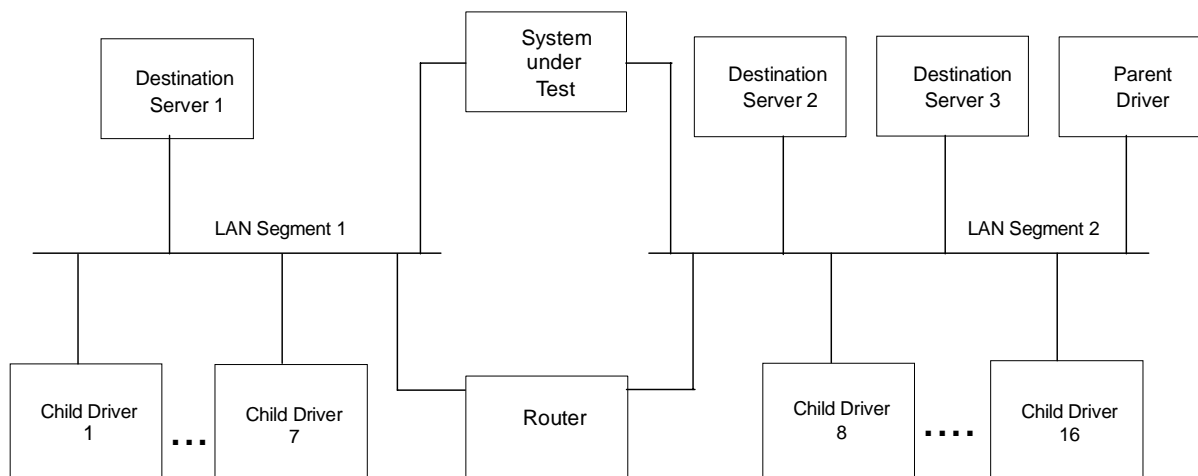# Appendix B: System Configurations

Server under Test	
System	IBM Netfinity 7000 (Model 8651-TM0)
Processor	3 x 200MHz Pentium Pro processors (Mail-only); 4 x 200MHz Pentium Pro processors (MailDB)
Memory	1GB
Cache	1MB L2 write-back cache per processor
RAID Controller	IBM ServeRAID II Ultra SCSI Adapter
Disk	10 x 4.51GB hard disks configured as a RAID-0 array
Network Interface Adapter	2 x EtherJet 100/10 PCI Adapter
I/O	PCI bus
Operating System	Microsoft Windows NT Server 4.0 with Service Pack 3
Notes	Lotus Domino Server for Windows NT Release 4.51 for SMP

Clients	
System	IBM PC 350
Processor	1 x 150MHz Pentium processor upgrade
Memory	80MB
Disk	1 x 1.12GB
Network Interface Adapter	Intel EtherExpress 10/100 PCI TX Adapter
I/O	PCI/ISA bus (I/O bus used was PCI)
Operating System	Microsoft Windows NT Workstation 4.0 with Service Pack 2
Notes	Domino Client for Windows NT Release 4.51

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 File for the System under Test (Mail)

[Notes]

KitType=2
Directory=e:\notes\data
WinNTIconPath=e:\notes\data\W32
$$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,
VIEWIMP3=Structured Text,0,_ISTR,,.LTR,.CGN,.STR,
VIEWIMP4=Tabular Text,0,_ITAB,,.PRN,.RPT,.TXT,.TAB,
VIEWEXP1=Lotus 1-2-3 Worksheet,0,_XWKS,,.WKS,.WK1,.WR1,.WRK,
VIEWEXP3=Structured Text,0,_XSTR,,.LTR,.CGN,.STR,
VIEWEXP4=Tabular Text,1,_XTAB,,.LTR,.RPT,.CGN,.TAB,
EDITIMP1=ASCII Text,0,_ITEXT,,.TXT,.PRN,.C,.H,.RIP,
EDITIMP2=MicrosoftWord RTF,0,_IRTF,,.DOC,.RTF,
EDITIMP3=Lotus 1-2-3 Worksheet,0,_IWKSE,,.WKS,.WK1,.WR1,.WRK,.WK3,.WK4,
EDITIMP4=Lotus PIC,0,_IPIC,,.PIC,
EDITIMP5=CGM Image,0,_IFL,,.GMF,.CGM,
EDITIMP6=TIFF 5.0 Image,0,_ITIFF,,.TIF,
EDITIMP7=BMP Image,0,_IBMP,,.BMP,
EDITIMP8=Ami Pro,0,_IW4W,W4W33F/V0,.SAM,
EDITIMP17=WordPerfect 5.x,0,_IW4W,W4W07F/V1,.DOC,
EDITIMP22=PCX Image,0,_IPCX,,.PCX,
EDITIMP28=Binary with Text,0,_ISTRNGS,,.*,
EDITIMP29=WordPerfect 6.0/6.1,0,_IW4W,W4W48F/V0,.WPD,.WPT,.DOC,
EDITIMP30=Excel 4.0/5.0,0,_IW4W,W4W21F/V4C,.XLS,
EDITIMP31=Word for Windows 6.0,0,_IW4W,W4W49F/V0,.DOC,
EDITIMP32=GIF Image,0,_IGIF,,.GIF,
EDITIMP33=JPEG Image,0,_IJPEG,,.JPG,
EDITEXP1=ASCII Text,2,_XTEXT,,.TXT,.PRN,.C,.H,.RIP,
EDITEXP2=MicrosoftWord RTF,2,_XRTF,,.DOC,.RTF,
EDITEXP3=CGM Image,2,_XCGM,,.CGM,.GMF,
EDITEXP4=TIFF 5.0 Image,2,_XTIFF,,.TIF,

EDITEXP5=Ami Pro,2,_XW4W,W4W33T/V0,.SAM,

EDITEXP14=WordPerfect 5.1,2,_XW4W,W4W07T/V1,.DOC,

EDITEXP21=WordPerfect 6.0,2,_XW4W,W4W48T/V0,.DOC,

EDITEXP22=WordPerfect 6.1,2,_XW4W,W4W48T/V1,.WPD,.WPT,.DOC,

EDITEXP23=Word for Windows 6.0,2,_XW4W,W4W49T/V0,.DOC,

DDETimeout=10

NAMEDSTYLE0=0200426173696963000000000000000000000000000000000000000000000000000000000000000001
010100000A0000000000000100A0050000A00500000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000

NAMEDSTYLE1=020042756C6C6574000000000000000000000000000000000000000000000000000000000000000001
010100000A0000000000000000080700000807000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000040000000000000000

NAMEDSTYLE2=0200486561646C696E650000000000000000000000000000000000000000000000000000000000000001
0101010B0C0000000000000100A0050000A00500000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000

$$$OpenSpecial=NotesNIC

$$$NotesNIC=CN=Home/OU=Notes/O=NET, welcome.nsf, Notes NIC Welcome, Notes Network Information Center on the Internet

;

; NotesBench parms

;

; ServerTasks=Replica,Router,Update,Stats,AMgr,Adminp

ServerTasks=Replica,Router,Update

; ServerTasksAt1=Catalog,Design

; ServerTasksAt2=UpdAll,Object Collect mailobj.nsf

; ServerTasksAt5=Statlog

;

TCPIP=TCP, 0, 15, 0

LAN0=NETBIOS, 0, 15, 0

VINES=VINES, 0, 15, 0

SPX=NWSPX, 0, 15, 0

AppleTalk=ATALK, 0, 15, 0

COM1=XPC,1,15,0,

COM2=XPC,2,15,0,

COM3=XPC,3,15,0,

COM4=XPC,4,15,0,

COM5=XPC,5,15,0,

Ports=TCPIP

DisabledPorts=LAN0,VINES,SPX,AppleTalk,COM1,COM2,COM3,COM4,COM5

LOG_REPLICATION=0

LOG_SESSIONS=0

ExistingServerName=CN=S1/O=NotesBench

KeyFilename=SUTserver.id

CertificateExpChecked=E:\notes\data\SUTserver.id 09/01/97

```
MailServer=CN=SUT/O=NotesBench
Domain=TstBed
Admin=CN=Admin/O=NotesBench
TemplateSetup=2
Setup=49
ServerSetup=7
PhoneLog=2
Log=log.nsf, 1, 0, 7, 40000
ZONE_SET=1
Timezone=5
DST=1
ECLSetup=3
DESKWINDOWSIZE=16 23 420 288
WINDOWSIZEWIN=32 8 571 463
MAXIMIZED=1
WinNTIconCommonConfig=Universal
WinNTIconSize=2
WinNTIconPos=2
WinNTIconHidden=0
WinNTIconRect=-1 -1 641 25
FileDlgDirectory=H:\
;
;
;  NotesBench parm changes
;
SERVER_SHOW_PERFORMANCE=1
MAILUSEPROCESSES=0
MAILUSETHREADS=1
MAILMAXTHREADS=3
MAILLOGTOEVENTSONLY=1
LOG_MAILROUTING=10
No_Force_Activity_Logging=1
DEBUG_OUTFILE=c:\svrdata\sutinfo.log
;
;
CONSOLE_Lotus_Domino_Server=80 25 7 -8 51 644 382
ADMINWINDOWSIZE=48 69 326 453
CertifierIDFile=E:\notes\data\cert.id
Win32InfoboxPos=2 110
```

NOTES.INI File for the System under Test (MailDB)

[Notes]

KitType=2

Directory=e:\notes\data

WinNTIconPath=e:\notes\data\W32

$$HasLANPort=1

EnableJavaApplets=1

EnablePlugins=1

Preferences=-2146956175

Passthru_LogLevel=0

Console_LogLevel=2

VIEWIMP1=Lotus 1-2-3 Worksheet,0,_IWKSV,,.WKS,.WK1,.WR1,.WRK,.WK3,.WK4,

VIEWIMP3=Structured Text,0,_ISTR,,.LTR,.CGN,.STR,

VIEWIMP4=Tabular Text,0,_ITAB,,.PRN,.RPT,.TXT,.TAB,

VIEWEXP1=Lotus 1-2-3 Worksheet,0,_XWKS,,.WKS,.WK1,.WR1,.WRK,

VIEWEXP3=Structured Text,0,_XSTR,,.LTR,.CGN,.STR,

VIEWEXP4=Tabular Text,1,_XTAB,,.LTR,.RPT,.CGN,.TAB,

EDITIMP1=ASCII Text,0,_ITEXT,,.TXT,.PRN,.C,.H,.RIP,

EDITIMP2=MicrosoftWord RTF,0,_IRTF,,.DOC,.RTF,

EDITIMP3=Lotus 1-2-3 Worksheet,0,_IWKSE,,.WKS,.WK1,.WR1,.WRK,.WK3,.WK4,

EDITIMP4=Lotus PIC,0,_IPIC,,.PIC,

EDITIMP5=CGM Image,0,_IFL,,.GMF,.CGM,

EDITIMP6=TIFF 5.0 Image,0,_ITIFF,,.TIF,

EDITIMP7=BMP Image,0,_IBMP,,.BMP,

EDITIMP8=Ami Pro,0,_IW4W,W4W33F/V0,.SAM,

EDITIMP17=WordPerfect 5.x,0,_IW4W,W4W07F/V1,.DOC,

EDITIMP22=PCX Image,0,_IPCX,,.PCX,

EDITIMP28=Binary with Text,0,_ISTRNGS,,.*,

EDITIMP29=WordPerfect 6.0/6.1,0,_IW4W,W4W48F/V0,.WPD,.WPT,.DOC,

EDITIMP30=Excel 4.0/5.0,0,_IW4W,W4W21F/V4C,.XLS,

EDITIMP31=Word for Windows 6.0,0,_IW4W,W4W49F/V0,.DOC,

EDITIMP32=GIF Image,0,_IGIF,,.GIF,

EDITIMP33=JPEG Image,0,_IJPEG,,.JPG,

EDITEXP1=ASCII Text,2,_XTEXT,,.TXT,.PRN,.C,.H,.RIP,

EDITEXP2=MicrosoftWord RTF,2,_XRTF,,.DOC,.RTF,

EDITEXP3=CGM Image,2,_XCGM,,.CGM,.GMF,

EDITEXP4=TIFF 5.0 Image,2,_XTIFF,,.TIF,

EDITEXP5=Ami Pro,2,_XW4W,W4W33T/V0,.SAM,

EDITEXP14=WordPerfect 5.1,2,_XW4W,W4W07T/V1,.DOC,

EDITEXP21=WordPerfect 6.0,2,_XW4W,W4W48T/V0,.DOC,

EDITEXP22=WordPerfect 6.1,2,_XW4W,W4W48T/V1,.WPD,.WPT,.DOC,

EDITEXP23=Word for Windows 6.0,2,_XW4W,W4W49T/V0,.DOC,

DDETimeout=10

NAMEDSTYLE0=02004261736963000000000000000000000000000000000000000000000000000000000001
010100000A0000000000000100A0050000A005000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000

NAMEDSTYLE1=020042756C6C6574000000000000000000000000000000000000000000000000000000000001
010100000A000000000000000080700000807000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000004000000000000000000

NAMEDSTYLE2=0200486561646C696E65000000000000000000000000000000000000000000000000000000001
0101010B0C000000000000100A0050000A005000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000

$$$OpenSpecial=NotesNIC

$$$NotesNIC=CN=Home/OU=Notes/O=NET, welcome.nsf, Notes NIC Welcome, Notes Network Information Center on the Internet

;

; NotesBench parms

;

; ServerTasks=Replica,Router,Update,Stats,AMgr,Adminp

ServerTasks=Replica,Router,Update

; ServerTasksAt1=Catalog,Design

; ServerTasksAt2=UpdAll,Object Collect mailobj.nsf

; ServerTasksAt5=Statlog

;

TCPIP=TCP, 0, 15, 0

LAN0=NETBIOS, 0, 15, 0

VINES=VINES, 0, 15, 0

SPX=NWSPX, 0, 15, 0

AppleTalk=ATALK, 0, 15, 0

COM1=XPC,1,15,0,

COM2=XPC,2,15,0,

COM3=XPC,3,15,0,

COM4=XPC,4,15,0,

COM5=XPC,5,15,0,

Ports=TCPIP,WAN2

DisabledPorts=LAN0,VINES,SPX,AppleTalk,COM1,COM2,COM3,COM4,COM5

LOG_REPLICATION=0

LOG_SESSIONS=0

ExistingServerName=CN=S1/O=NotesBench

KeyFilename=SUTserver.id

CertificateExpChecked=e:\notes\data\SUTserver.id 09/11/97

MailServer=CN=SUT/O=NotesBench

Domain=TstBed

Admin=CN=Admin/O=NotesBench

TemplateSetup=2

Setup=49

ServerSetup=7

PhoneLog=2

Log=log.nsf, 1, 0, 7, 40000

ZONE_SET=1

Timezone=5

DST=1

ECLSetup=3

DESKWINDOWSIZE=16 23 420 288

WINDOWSIZEWIN=32 8 571 463

MAXIMIZED=1

WinNTIconCommonConfig=Universal

WinNTIconSize=2

WinNTIconPos=2

WinNTIconHidden=0

WinNTIconRect=-1 -1 641 25

FileDlgDirectory=E:\notes\data

;

;

; NotesBench parm changes

;

SERVER_SHOW_PERFORMANCE=1

MAILUSEPROCESSES=0

MAILUSETHREADS=1

MAILMAXTHREADS=3

MAILLOGTOEVENTSONLY=1

LOG_MAILROUTING=10

No_Force_Activity_Logging=1

DEBUG_OUTFILE=c:\svrdata\sutinfo.log

;

;

CONSOLE_Lotus_Domino_Server=80 25 7 -6 53 646 384

ADMINWINDOWSIZE=48 69 326 453

CertifierIDFile=E:\notes\data\cert.id

Win32InfoboxPos=2 110

NewUserServer=CN=SUT/O=NotesBench

BCASEWINDOWSIZE=16 23 420 288

NAMES=names.nsf

EmptyTrash=0

WeekStart=1
WAN2=TCP,0,15,0,,12288,
SDI_WINDOW=0

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 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 = 32
- 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 10 seconds for all child drivers.

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 10 seconds versus the default of 5 seconds. The effective time of the document was set at "7:00 AM to 10:00 PM." After 10:00 PM, mail routing from the SUT to the destination servers is controlled by Domino's default values. This represents a reasonable scenario for a customer installation where normal-priority mail is promoted to a higher priority after hours to ensure timely mail delivery.

Server-to-server file replications are initiated by only one of the destination servers, with replication between the initiator to each of the other Domino servers being staggered.

To accommodate making NotesBench runs after hours, the effective time of the mail routing connection documents is lengthened so that the runs represent the intended daytime behavior of the configured SUT.

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 Business Partner Quote
IBM Netfinity 7000 with Three Processors	8651-TM0	1	$15,974	$15,090
1 x 200MHz Pentium Pro Processor / 512KB Cache				
Standard 256MB ECC Memory (4 x 64MB)				
PC Server 200MHz / 1MB L2 Cache Upgrade[4]	94G7147	3	5,750	5,430
512MB Memory Expansion Kit	94G7385	1	8,306	7,850
256MB Memory Expansion Kit	94G7384	1	4,194	3,960
IBM ServeRAID II Ultra SCSI Adapter	76H3584	1	1,949	1,840
IBM Netfinity EX10 4.51GB 10K Wide Ultra SCSI SCA-2 Hard Disk Drives	01K7960	10	1,627	1,535
IBM Netfinity EX10 Rack Storage Expansion Enclosure	35201RU	1	2,947	2,785
EtherJet 100/10 PCI Adapter	86H2342	2	109	81
IBM G42 14" (13.2" Viewable) Color Monitor	654000N	1	299	276
Software				
Windows NT Server 4.0 (Service Pack 3 free on Internet)		1	730	730
Lotus Domino Server Release 4.51 for SMP[5]		1	1,855	1,855
Total System Price			$69,993	$66,188

The IBM Estimated Reseller total system price for the four-processor configuration is $75,743. Entex's total system price for the four-processor configuration is $71,618.

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[4]   The 200MHz / 1MB L2 Cache Processor Upgrade and the IBM Netfinity EX10 4.51GB 10K Wide Ultra SCSI SCA-2 Hard Disk Drives are available in this configuration on November 21, 1997, by special bid. Contact your local IBM representative for information. Planned general availability for these options is December 1997.

[5]   A single-processor edition of Domino Server Release 4.51 is included with the Netfinity 7000 on ServerGuide*. The price quoted here is for an upgrade to Domino Server 4.51 for SMP.

Appendix H: Optional (Vendor-Defined Information)

None.

First Edition - September 1997

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