NotesBench Disclosure Report

for

IBM Netfinity 5000

with

Lotus Domino 5.02 for Windows NT 4.0

Certified December 22, 1999

IBM Corporation

IBM ®

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Executive Summary

Performance measurements using NotesBench were conducted with the IBM Netfinity* 5000 (Model 8659-51Y) running Lotus** Domino** Server Release 5.02 on Microsoft** Windows** NT Server 4.0 with Service Pack 6. Results for the IBM Netfinity 5000, which were obtained on the NotesBench WebMail workload run on a RAID-1 configuration, are summarized in the following table, along with R5Mail results obtained on the same hardware configuration. (See Appendix H for an explanation for the reference to the R5Mail results in this report.)

Test Script	Maximum Users	NotesMark (tpm)	Ave. Response Time (sec)	$/User	$/NotesMark
WebMail	900	444	2.786	$19.93	$40.39
R5Mail-Only	3,500	4,672	2.532	$5.12	$3.84

The IBM Netfinity 5000, configured with one 550MHz[1] Intel** Pentium** III processor, 1GB of memory, and thirteen 9.1GB[2] hard disk drives (configured as a RAID-1 array), supported a WebMail workload of 900 active mail users. All configuration details are provided in Appendix A: Overall Test Setup and Software Versions.

IBM's Netfinity Server Performance Laboratory in Research Triangle Park, NC, conducted the WebMail benchmark in November 1999, and KMDS Technical Associates, Inc., audited the results in December 1999. Visit www.pc.ibm.com/us/netfinity/srvperf.html for complete details on the R5Mail result, which was audited in July 1999.

NotesBench provides an objective method for evaluating the performance of different platforms running Lotus Domino Server Release 5.0x. 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 5.0x WebMail and R5Mail-Only users supported on a RAID-1 configuration of the IBM Netfinity 5000 (Model 8659-51Y). Performance measurements on IBM Netfinity servers using NotesBench for the Domino Server Release 5.0x are ongoing.

Test Methodologies

Test Setup and Hardware/Software Configuration

The IBM Netfinity 5000 system under test used one 550MHz Pentium III processor (512KB of L2 write-back cache); 1GB of memory, and thirteen 9.1GB 10K-rpm Wide Ultra SCSI hard disks. Three Netfinity ServeRAID-3L Ultra2 SCSI Adapters and one Ethernet 100/10Mbps Adapter were used for this test. The system under test and the client driver systems were connected to the SUT through a single 100Mbps Ethernet LAN segment, using the TCP/IP network protocol. IBM IntelliStation** M PRO systems were used as the client drivers and as the source driver (parent) system.

The IBM Netfinity 5000 system under test (SUT) ran Microsoft Windows NT Server Version 4.0 and Domino Server Release 5.02. All clients used the SUT's Name and Address Book, which contained person documents for 1,800 mail recipients who were randomly selected by each active WebMail user. The SUT contained mail files for 900 WebMail users for the RAID-1 configuration.

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

WebMail Workload
Mail_Number_Of_MailBoxes = 2
NSF_DBcache_Maxentries = 10000
Server_Max_Concurrent_Trans = 1000
Log_Sessions = 0
Log_MailRouting = 10
Server_Show_Performance = 1
NAMES = names.nsf

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 = \\parent1\results\SUTINFO.txt
```

All Domino server tasks were disabled except Router and HTTP.

All Domino mail data files were distributed across the E: and F: partitions. The Domino data and mail data link files were located on the C: partition. The transaction logging option was disabled for all runs.

Test Procedures

Five child drivers were used; the number of users simulated in child drivers 1 through 5 were, respectively, 200, 200, 200, 175 and 125. The number of child drivers used and the number of users simulated by each child driver are defined by the "NumClientsN" parameters in the parent's NOTES.INI file. For each child driver, users' start times were staggered. Numerically by child driver they were, respectively, 5, 5, 5, 5 and 5 seconds, as defined in the "ThreadStagger" parameter for each child driver. The start time of each child driver was staggered to allow sufficient time for all users simulated by each child driver to be connected at the SUT and to allow the SUT to settle for at least 5 minutes before releasing the users from the next child drivers. The ramp-up time was approximately 2 hours.

Our experience shows that ramp-up time increases non-linearly as a function of the number of users simulated by a child driver. This effect becomes even more pronounced as we approach the capacity of the server. Since the NotesBench audit rules do not put any restriction on ramp-up time, and we had a limited number of child drivers, the attempt to minimize ramp-up time was only carried far enough to ensure adequate benchmarking productivity. During the test runs, the tools used to determine steady state included Windows NT's PERFMON, the Notes Server SHOW command, and the child driver RES files.

To confirm steady state, we monitored the number of users, the number of transactions per minute, and pending mail at the SUT. We confirmed steady state when:

- The SUT Domino Server console sustained the peak user load
- Pending mail did not become backlogged, as verified by:
  - Inspection of the mail-routing log at the SUT after the test run ended
  - Server Mail statistics collected every thirty minutes throughout the test run.

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, the tests were repeated, and the results were compared and found to be consistent.

Data

IBM Netfinity 5000 Metrics for WebMail Test

The Netfinity 5000 server ran for a period of 6 hours and demonstrated that it can support 900 concurrent active WebMail users. The NotesMark throughput value was 444. Average response time was 2.786 seconds. During the run, no errors were generated.
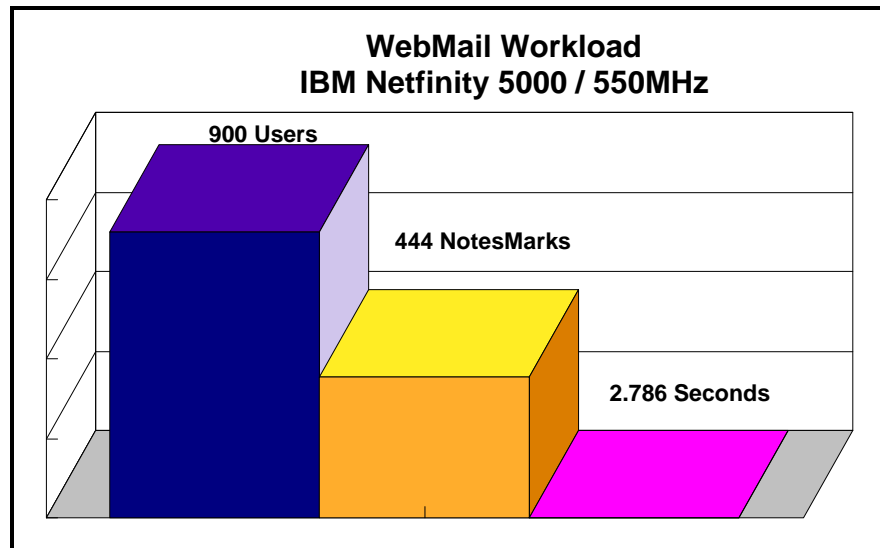
The WebMail workload executes Notes transactions that model a server for Web mail users at sites that rely only on mail for communication. The resulting capacity metric for a WebMail server is the maximum number of users that can be supported before the average user response time becomes unacceptable.

The Domino WebMail test script models an active user who is reading and sending mail via a Web interface. The table below shows the workload characteristics. Script iterations per user are 15 minutes long or four times an hour.

Workload Component	Iterations/User	Iterations/Hour Per User	Iterations/Hour for 900 Users
Open/Refresh Inbox View	1	4	3,600
Read Message from Inbox	5	20	18,000
Mark Messages as Read	5	20	18,000
Delete 1 Message	1	4	3,600
Create a Message	0.17	0.67	600
Lookup Recipients	0.5	2	1,800
Send E-mail Message	0.17	0.67	600
Total Activity	12.83	51.33	46,197
Gets Issued	65	260	234,000
Posts Issued (Sends, Deletes)	1.17	4.67	4,203

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. Compared to a Domino R5Mail-Only workload, the WebMail workload is much more resource-intense, since it must not only simulate R5Mail type requests, but also the HTTP sends and gets associated with a Web interface.

NotesNum Output for WebMail Test

Min Start Time = 12/10/99 05:20:47 PM   Max Stop Time = 12/11/99 01:56:42 AM
Total Test Errors = 0
Total Test Time = 30960 sec
Test Run: Users = 900   NotesMark =   444   Response Time = 2786 msec (12/10/99 07:20:00 PM to 12/11/99 01:51:00 AM)

Analysis

PERFMON data was collected for a shorter run when the system was ramped up for about two hours. Ramp-up through shutdown is shown in the screen capture below.

Steady State Values	Domino Data in RAID-1
Maximum Concurrent WebMail Users	900
Average CPU Utilization	88%
Average Memory Used *	585MB
Average Physical Disk Q Length	0.69

Average Memory Used is computed by subtracting the Average Available Bytes of Memory measured by PERFMON from the installed memory of 1GB. In both cases, the available memory bytes would be used as disk cache, helping to provide acceptable user response time at the respective concurrent-users level. All users ran error-free for more than 6 hours before the controller client performed an orderly stop of the run.
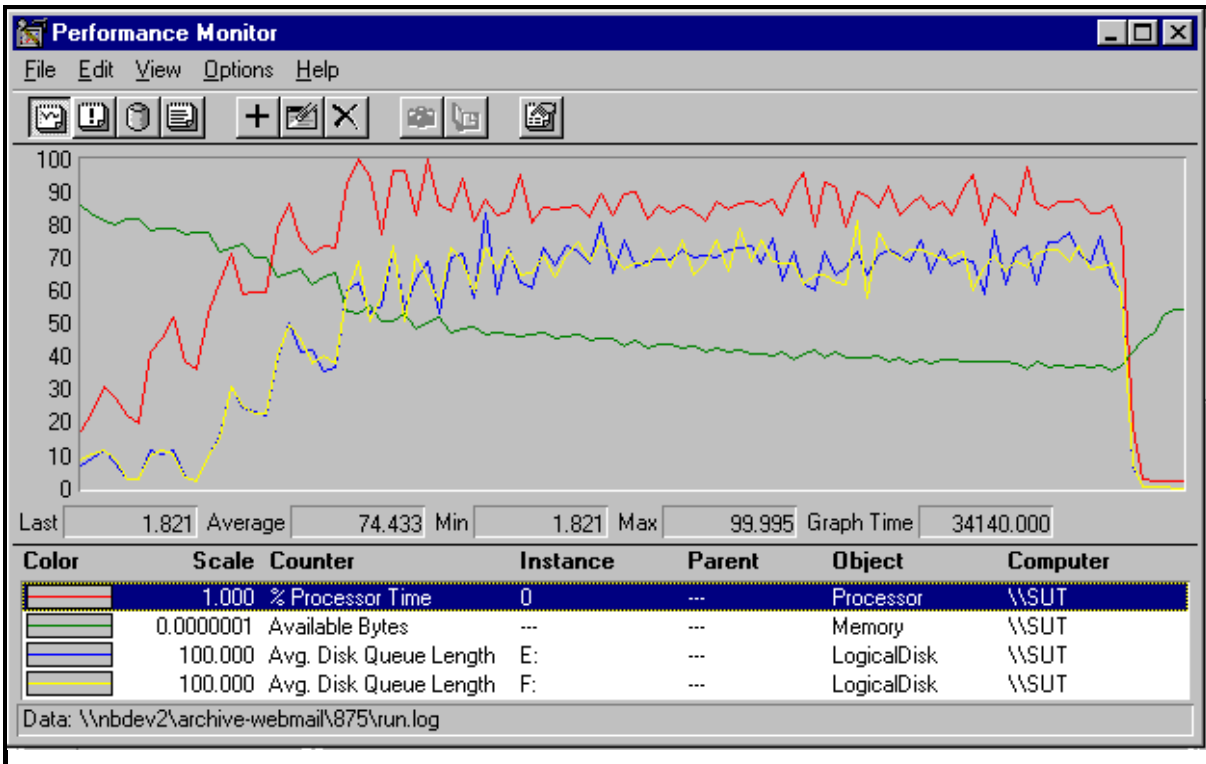
Conclusions

These NotesBench results demonstrate that the IBM Netfinity 5000 (Model 8659-51Y) can support 900 WebMail users. The results obtained are based on running the IBM Netfinity 5000 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.

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

Six driver systems were used. Five of those systems were configured as client driver systems and one as the parent (source driver).

The client drivers were IBM IntelliStation M PRO systems, each configured with one 500MHz Pentium III processor. Each client driver was configured with 256MB of memory, one 9.1GB hard disk, and one IBM 100/10 Ethernet PCI Adapter.

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

- C: Partition (4GB - NTFS) - Windows NT Workstation 4.0 and Notes Client 5.02
- D: Partition (5GB - NTFS) - Unused space

Number of Server Platforms

One server platform, the IBM Netfinity 5000 with one 550MHz Pentium III processor and 1GB of memory, was benchmarked.

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

- C: Partition (4GB - NTFS) - Windows NT Server Version 4.0 (boot partition) and Domino 5.02 executables and mail link files
- E: Partition (21GB - NTFS) - Actual NotesBench mail files
- F: Partition (21GB - NTFS) - Actual NotesBench mail files

Network

A single 100Mbps Ethernet LAN segment was used to connect all systems.

Software Versions

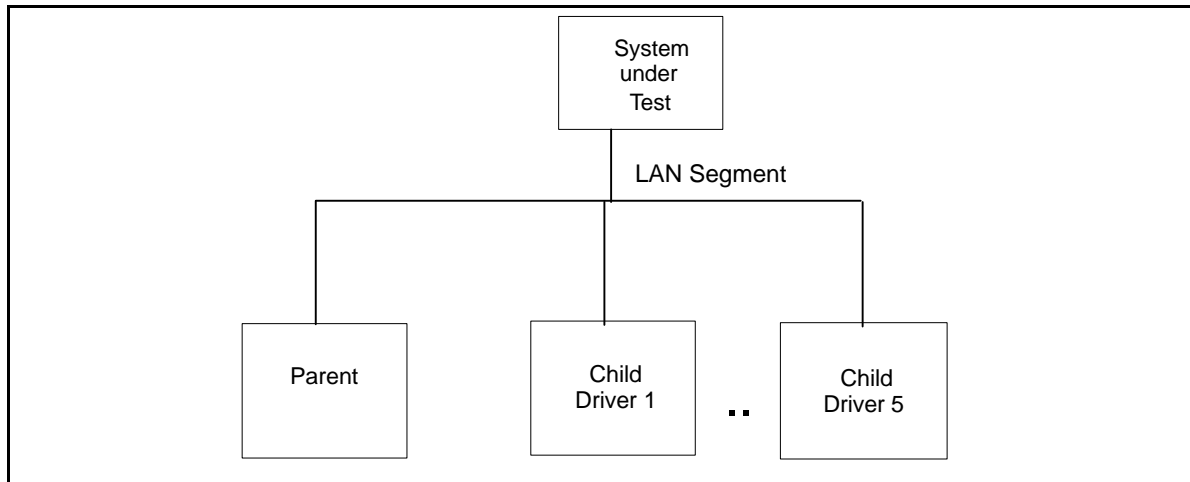Software versions used on the system under test were as follows:

- Microsoft Windows NT Server 4.0 with Service Pack 6
- Lotus Domino Server Release 5.02

Software versions used on the child drivers were as follows:

- Microsoft Windows NT Workstation 4.0 with Service Pack 5
- Lotus Domino Client Release 5.02 for Windows NT Workstation 4.0
- NotesBench Version 5.02 - Windows/32, released November 2, 1999

Test Setup

```
                        ┌──────────┐
                        │  System  │
                        │  under   │
                        │   Test   │
                        └────┬─────┘
                             │ LAN Segment
          ┌──────────────────┼──────────────────┐
    ┌──────────┐       ┌──────────┐       ┌──────────┐
    │          │       │          │       │          │
    │  Parent  │       │  Child   │  ··   │  Child   │
    │          │       │ Driver 1 │       │ Driver 5 │
    │          │       │          │       │          │
    └──────────┘       └──────────┘       └──────────┘
```

Details of Configuration

System Under Test	Child Drivers 1-5	Parent Source Driver
IBM Netfinity 5000	IBM IntelliStation M PRO	IBM IntelliStation M PRO
1 x 550MHz Pentium III	1 x 500MHz Pentium III	1 x 500MHz Pentium III
1GB Memory	256MB Memory	256MB Memory
13 x 9.1GB Drives	1 x 9.1GB Drive	1 x 9.1GB Drive
3 x ServeRAID-3L Ultra2 SCSI Adapter		
IBM Ethernet 100/10 PCI Controller	IBM 100/10 Ethernet PCI Adapter	IBM 100/10 Ethernet PCI Adapter
Windows NT Server 4.0 with Service Pack 6	Windows NT Workstation 4.0 with Service Pack 5	Windows NT 4.0 Workstation with Service Pack 5

Appendix B: System Configurations

Server under Test	
System	IBM Netfinity 5000
Processor	1 x 550MHz Pentium III Processor
Memory	1GB
Cache	512KB L2 Write-Back Cache
Disk Controller	3 x Netfinity ServeRAID-3L Ultra2 SCSI Adapter
Disk Drive	13 x 9.1GB 10K rpm Drives (10 drives contained two RAID-1 arrrays, 3 drives contained one RAID-1 array, including the boot drive)
Network Interface Adapter	1 x Netfinity Ethernet 100/10 PCI Adapter
I/O	PCI Bus
Operating System	Microsoft Windows NT Server 4.0 with Service Pack 6
Notes	Lotus Domino Server Release 5.02 for Windows NT Server 4.0
NotesBench	NotesBench Version 5.02 - Windows/32, released November 2, 1999

Clients 1-5	
System	IBM IntelliStation M PRO
Processor	1 x 500MHz Pentium III Processor
Memory	256MB
Disk Drive	1 x 9.1GB
Network Interface Adapter	1 x 100/10 Ethernet PCI Adapter
I/O	PCI Bus
Operating System	Microsoft Windows NT Workstation 4.0 with Service Pack 5
Notes	Notes Client Release 5.02 for Windows NT Workstation 4.0
NotesBench	NotesBench Version 5.02 - Windows/32, released November 2, 1999

Parent Source Driver	
System	IBM IntelliStation M PRO
Processor	1 x 500MHz Pentium III Processor
Memory	256MB
Disk Drive	1 x 9.1GB
Network Interface Adapter	IBM 100/10 Ethernet PCI Adapter
I/O	PCI Bus
Operating System	Microsoft Windows NT Workstation 4.0 with Service Pack 5
Notes	Notes Client Release 5.02 for Windows NT Workstation 4.0
NotesBench	NotesBench Version 5.02 - Windows/32, released November 2, 1999

Appendix C: Operating System Parameters

The default registry variables were used.

Appendix D: NOTES.INI Settings

NOTES.INI Files for the System under Test

```
[Notes]
; NotesBench parameters
SERVER_SHOW_PERFORMANCE=1
MAILUSEPROCESSES=0
;  DB_Max_Entries=10000
;  MailMaxThreads=8
Mail_Number_Of_Mailboxes=2
;  Max_Users=10000
NSF_DBcache_MaxEntries=10000
;  Server_Pool_Tasks=100
Server_Max_Concurrent_Trans=1000
LOG_SESSIONS=0
SetMailLogtoEventsOnly=1
Log_MailRouting=10
No_Forced_Activity_Logging=1

;  VIEW_REBUILD_DIR=h:\viewrebuild
DEBUG_OUTFILE=\\parent1\results\sutinfo.txt
NAMES=names.nsf

Directory=C:\Domino\Data
KitType=2
SetupDB=Setup.nsf
UserName=SUT
NotesProgram=C:\Domino
InstallType=5
CONSOLE_Lotus_Domino_Server=80 25 7 206 20 858 351
WinNTIconPath=C:\Domino\Data\W32
Timezone=5
DST=1
$$HasLANPort=1
WWWDSP_SYNC_BROWSERCACHE=0
WWWDSP_PREFETCH_OBJECT=0
EnablePlugins=1
Preferences=2147486833
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,_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,
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,
EDITEXP4=TIFF 5.0 Image,2,_XTIFF,,.TIF,,18,
EDITEXP5=Ami Pro,2,_XW4W,W4W33T/V0,.SAM,,2,
EDITEXP14=WordPerfect 5.1,2,_XW4W,W4W07T/V1,.DOC,,2,
EDITEXP21=WordPerfect 6.0,2,_XW4W,W4W48T/V0,.DOC,,2,
EDITEXP22=WordPerfect 6.1,2,_XW4W,W4W48T/V1,.WPD,.WPT,.DOC,,2,
EDITEXP23=Word for Windows 6.0,2,_XW4W,W4W49T/V0,.DOC,,2,
DDETimeout=10
NAMEDSTYLE0=0300426173696300000000000000000000000000000000000000000000000000000001010100000A0000000000000100A0050A0000006400A
0050A000000000000000000000000000000000000000000000000000000000000000000000000000000009404000000000000
NAMEDSTYLE0_FACE=Default Sans Serif
NAMEDSTYLE1=030042756C6C6574400000000000000000000000000000000000000000000000000001010100000A00000000000000008070A00000064000
8070A000000000000000000000000000000000000000000000000000000000000000000000000000000049404000000000000
NAMEDSTYLE1_FACE=Default Sans Serif
NAMEDSTYLE2=0300486561646C696E65000000000000000000000000000000000000000000000000010101010B0C0000000000000100A0050A0000006400
A0050A000000000000000000000000000000000000000000000000000000000000000000000000000000009404000000000000
NAMEDSTYLE2_FACE=Default Sans Serif
DefaultMailTemplate=mail50.ntf
ServerTasks=Router,HTTP
; ServerTasks=Router,Replica,Update,Amgr,AdminP,CalConn,Event,Sched,Stats,HTTP,maps
; ServerTasksAt1=Catalog,Design
; ServerTasksAt2=UpdAll,Object Collect mailobj.nsf
; ServerTasksAt3=Object Info -Full
; ServerTasksAt5=Statlog
TCPIP=TCP, 0, 15, 0
SPX=NWSPX, 0, 15, 0
LAN0ip=NETBIOS, 0, 15, 0
LAN1ipx=NETBIOS, 1, 15, 0
VINES=VINES, 0, 15, 0
AppleTalk=ATALK, 0, 15, 0
LAN2=NETBIOS, 2, 15, 0
LAN3=NETBIOS, 3, 15, 0
LAN4=NETBIOS, 4, 15, 0
LAN5=NETBIOS, 5, 15, 0
LAN6=NETBIOS, 6, 15, 0
LAN7=NETBIOS, 7, 15, 0
LAN8=NETBIOS, 8, 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=SPX,LAN0ip,LAN1ipx,VINES,AppleTalk,LAN2,LAN3,LAN4,LAN5,LAN6,LAN7,LAN8,COM1,COM2,COM3,COM4,COM5
LOG_REPLICATION=1
LOG_SESSIONS=1
KeyFilename=server.id
CertificateExpChecked=server.id 11/23/99
CertifierIDFile=C:\Domino\Data\cert.id
MailServer=CN=sut/O=notesbench
ServerKeyFileName=server.id
Domain=notesbench
Admin=CN=Admin/O=notesbench
TemplateSetup=59
Setup=60
ServerSetup=50
DESKWINDOWSIZE=-4 -4 1032 748
MAXIMIZED=1
ECLSetup=3
PhoneLog=2
Log=log.nsf, 1, 0, 7, 40000
SERVERS_FRAME_PERCENT=20
MONITOR_SCALE=1
ADMINWINDOWSIZEWIN=-6 120 984 580
ADMINMAXIMIZED=1
WinNTIconCommonConfig=Universal
WinNTIconSize=2
WinNTIconPos=2
WinNTIconHidden=1
WinNTIconRect=0 0 0 24
CleanSetup=1
TRANSLOG_AutoFixup=1
TRANSLOG_UseAll=0
TRANSLOG_Style=0
TRANSLOG_Performance=2
TRANSLOG_Status=0
MTEnabled=0
SCHEDULE_VERSION=3
WebAdminSetup=5

DominoConfigLevel=3
AdminSetup=502
AdminLastServer=sut/notesbench
ShowCertifierRecoveryWarning_C:\Domino\Data\cert.id=0
AdminLastDomain=NOTESBENCH
TASKS_FRAME_PERCENT=30
MONITOR_VIEW_TYPE=0
CompanyName=IBM
Win32InfoboxPos=2 110
ServerTasksAt1=Catalog,Design
ServerTasksAt2=UpdAll,Object Collect mailobj.nsf
ServerTasksAt3=Object Info -Full
ServerTasksAt5=Statlog

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 was changed from the default 'Auto' to 100Mbps. This forced the Duplex Mode to 'Half'.

Under the 'Advanced' configuration option, the following three parameters were changed from their default values to double the default value:

- Coalesce Buffers
- Receive Buffers
- Transmit Control Block

At the destination server, under 'Advanced' configuration options for the Ethernet adapter, the following three parameters were changed from their default values to double their default values:

- Coalesce Buffers
- Receive Buffers
- Transmit Control Block

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 IBM Estimated Reseller Price
IBM Netfinity 5000	8659-51Y	1	$2,349	$2,349
1 x 550MHz / 512KB L2 Cache Pentium III Processor				
1 x 128MB ECC DIMM				
Integrated 100/10Mbps Ethernet PCI Controller				
Netfinity ServeRAID-3L Ultra2 SCSI Adapter	01K7364	3	785	2,355
256MB SDRAM ECC DIMM	01K8043	4	849	3,396
Netfinity 9.1GB 10K Wide Ultra SCSI Hard Disk	36L9806	3	585	1,755
Netfinity EXP10 9.1GB 10K Wide Ultra SCSI Hard Disk	01K7959	10	465	4,650
Netfinity EXP15 Rack Storage Expansion Enclosure	35202RU	1	2,419	2,419
Netfinity Ethernet 100/10 PCI Adapter	34L1501	1	115	115
IBM G42 14" (13.2" Viewable) Color Monitor	654000N	1	209	209
Software				
Windows NT Server 4.0	227-01025	1	685	685
Lotus Domino Server Release 5.0 included on ServerGuide* with IBM Netfinity 5000 at no charge		1	0	0
Total System Price				$17,933

Appendix H: Optional (Vendor-Defined Information)

This report provides a sizing aid for a single mail-server installation in which the majority of users use a Notes Client while a small number of off-site or traveling employees access their mail via a Web browser. For this type of environment, we recommend that the server be optimized for the Notes Mail environment, as it was for the results documented in this report.

The WebMail runs were made on the same Netfinity 5000 used for an R5Mail report, which we published in July 1999. All hardware configuration and optimization are unchanged, and the server is optimized for R5Mail.

While the number of WebMail users sustained is the maximum given this configuration, this configuration is not necessarily the one that would produce the lowest dollars-per-user metric.

To obtain an error-free run on our testbed setup, we upgraded the benchmark code, the server code and workstation code to Release 5.02 (Release 5.0a was used to obtain the results published in July 1999). Windows NT Service Pack 6 with the hot-fix for the Lotus Notes access problem was also applied to this installation. Considering that Windows NT Service Packs and Domino/Notes point releases are meant to fix operational problems rather than to introduce performance improvements, we expect any resulting performance difference to be small. Thus, we feel the capacity comparison is sufficiently accurately for sizing purposes.

First Edition - December 1999

Notes

[1] MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.
[2] When referring to hard disk capacity, GB equals one billion bytes. Total user-accessible capacity depends on operating environment.