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Preliminary Examination of Novell GroupWise 5.5 Performance and Scalability with NetWare 5.0

Abstract: GroupWise 5.5 is the latest version of Novell's messaging and collaboration product and NetWare 5.0 is the latest release of the Novell operating system. This Communiqué outlines preliminary results from a series of capacity-planning tests that were performed with these two products running in combination on Compaq servers. These results indicate significant improvements in capacity performance, better use of higher processor speeds, and significant scalability achieved using the combination of GroupWise 5.5 and NetWare 5. This paper also details the new features and benefits of using both of these products.

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Compaq's Preliminary Examination of Novell GroupWise 5.5 Performance and Scalability with NetWare 5.0 Solutions Guide prepared by Messaging and Collaborations Solutions Business Unit

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Novell GroupWise 5.5 and NetWare 5.0 Scale on Compaq Servers

Compaq recently conducted an initial series of tests at Novell's SuperLab facility to determine the improved capacity performance of GroupWise 5.5 and NetWare 5.0. Preliminary results indicate that NetWare 5.0 offers users a 40%-50% performance improvement using response time measurements. CPU utilization also fell from 95% with a single CPU in use to 55% using four CPUs, with noticeable improvements at points in between. Preliminary tests also indicated that GroupWise 5.5 offers significant improvements over GroupWise 5.2 in terms of registered response time. Response time is a measurement of the time required for the server-based post office agent (POA) to respond to requests from the client-based GroupWise agent.

Figures 1 through 4 provide a summary of these preliminary findings:

Figure 1 compares the response time of GroupWise 5.5 with GroupWise 5.2 and illustrates a 100% improvement in capacity performance. The post office agent for GroupWise 5.5 responded twice as quick to requests from the GroupWise desktop agent, especially during heavy loads, as did the post office agent for GroupWise 5.2.

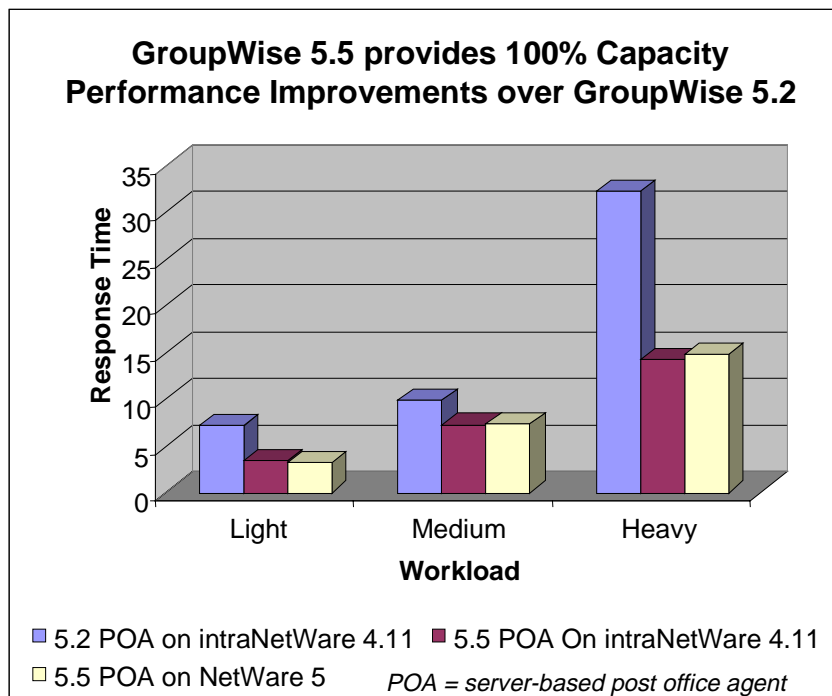


Figure 1. Capacity Performance of GroupWise 5.5

Figure 2 indicates performance improvement as processor speed increases, particularly with heavy workloads.

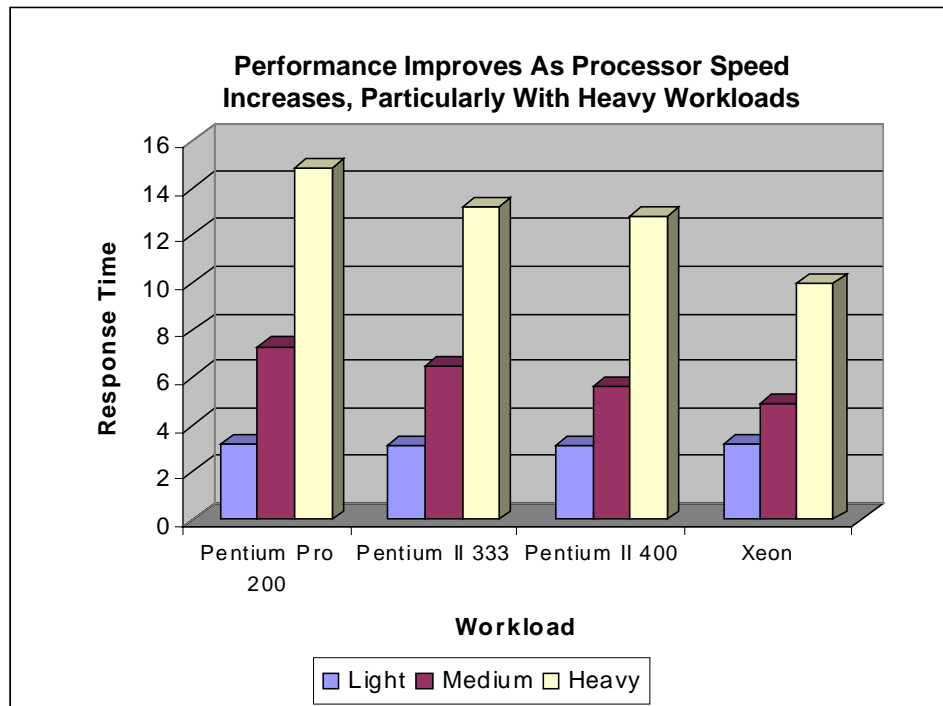


Figure 2. Comparison of Processor Speeds using GroupWise 5.5

Figure 3 indicates that NetWare 5.0 provides SMP scalability when processors are added. Significant performance improvements were noted when adding a second processor, especially with heavy loads running on more than one processor. Further testing in early Spring 1999 should determine, with greater precision, the extent to which scalability can improve incrementally as additional processors are added.

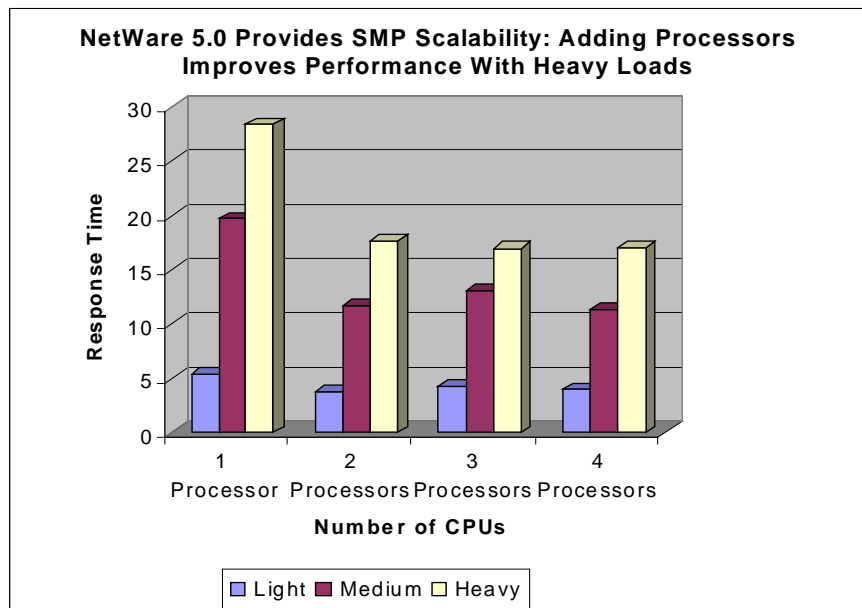


Figure 3. Comparison of Number of Processors and Scalability with NetWare 5.0

Lastly, Figure 4 indicates that running NetWare 5.0 does provide significant capacity improvements over Novell intraNetWare 4.11, especially with heavy loads, if memory is increased accordingly.

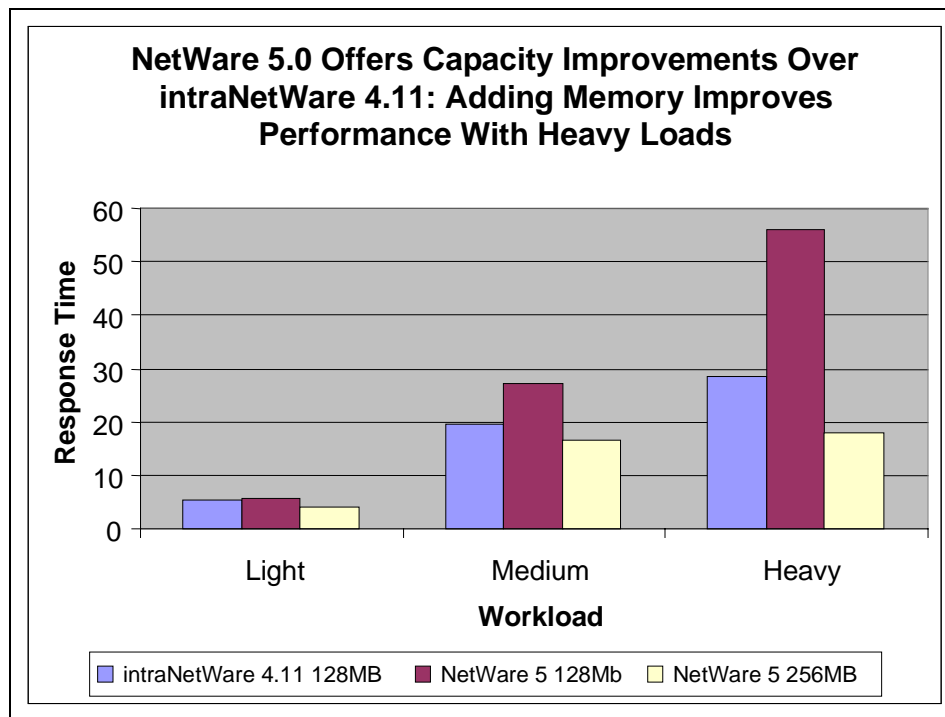


Figure 4. Comparison of Capacity Performance between NetWare 5.0 to intraNetWare 4.11

Initial Conclusion and Future Plan

Compaq and Novell GroupWise engineers recently performed tests to determine the scalability of Novell GroupWise 5.5 and NetWare 5.0. The results indicate that both scale well on Compaq servers. Compaq servers are the platform-of-choice for application development at Novell and recent market surveys indicate that Compaq enjoys a 65% market share for all GroupWise servers sold in North America.

With four CPUs in use, the tests revealed more than a 40% improvement in performance. More significantly, CPU utilization decreases as additional CPUs are used, an improvement not observed with Novell intraNetWare 4.1x. However, performance and capacity improvements may likely entail additional cost. This round of tests also indicates that NetWare 5.0 may require additional memory in order to reach optimal performance and capacity levels.

Compaq's engineering team will conduct more extensive testing at the Novell SuperLab facility in Spring 1999 to refine these preliminary findings. A TechNote addressing GroupWise 5.5/NetWare 5.0 performance and capacity findings in greater detail will be released by next March in time for BrainShare'99.

New Features of Novell GroupWise 5.5

GroupWise 5.5 provides a single-point-of-management for all types of corporate knowledge-based tools, including e-mail messages, faxes, voice mail messages, calendar information, tasks, workflow items, and documents. This messaging-based collaboration product offers

comprehensive, easy-to-access corporate information gathering, accessing, and communicating advantages over competing solutions. It also remains one of the easiest collaboration solutions to use, according to *PC Computing*. The editors of *PC Computing* recently awarded GroupWise 5.5 a prestigious MVP award at COMDEX'98.

Network users receive immediate value through improved tools that gather, access and communicate corporate information through expanded information manageability and inter-company collaboration capabilities. Users benefit from support of industry-standard Internet security, improved open Internet standards support, and Novell's continued commitment to offer the lowest cost of ownership possible for its networking solutions.

As Novell's premier application for NetWare and Novell Directory Services (NDS), GroupWise 5.5 continues to expand upon the Internet standards support introduced in GroupWise 5.2, and offers sophisticated collaboration functionality through GroupWise WebPublisher and GroupWise WorkFlow Professional capabilities. GroupWise remains one of the most scalable collaboration solutions in the market, powerful enough to easily meet large-scale enterprise needs, yet easy enough for small businesses to use and maintain, according to the Gartner Group. Gartner recently calculated that GroupWise has one tenth the median-per-user operating cost of Microsoft Exchange. Further addressing network users' concerns, GroupWise 5.5 has been thoroughly tested and meets all Novell Year 2000 readiness specifications.

To date, nearly 15 million users, according to IDC, have embraced GroupWise as their messaging and groupware solution-of-choice -- the product has one of the largest installed base among groupware products worldwide. Its rich set of features and capabilities are available to users straight "out-of-the-box". Moreover, it is open to third-party development, thereby offering GroupWise 5.5 users rich functionality right "out-of-the-box", as well as freedom of choice.

As an expanded e-mail and collaboration system for traditional networks or intranets, GroupWise was the first groupware platform in the industry to include full document management capabilities in a common and familiar environment: e-mail. GroupWise facilitates the creation and management of documents on the WorldWide Web and corporate intranets, offering GroupWise users a means for managing complex corporate information on intranets and the Web. Moreover, GroupWise users can leverage the full power of the Internet for sharing information, while providing the security, management and administration features required to keep information secure, up-to-date and easily accessible.

Furthermore, it is the best solution for mixed environments since it runs on Novell NetWare platforms, Microsoft NT and UNIX, and it is fully integrated with NDS. Virtually any client or device that adheres to the open standards of the Internet can exploit the plentiful services of GroupWise and will most likely find it the best solution for today's evolving mixed environments.

GroupWise 5.5 Product Enhancements

The following functionality, previously available only in separate applications, is included in GroupWise 5.5:

- Related Fields - Ability to make an entry in a particular Properties field dependent upon an entry in another Properties field. For example, in the legal community this translates to the ability to make the "Matter" field entry dependent upon the "Client" field entry. In the absence of related fields, all values in the "Matter" validation table would be available, regardless of the "Client" entry.
- Document Echoing - Ability to automatically "echo" documents to a local hard drive or other location so the documents are available even if the user is remote.
- Default Public Security - Ability to set default security as either public or private (GroupWise Document Management security currently defaults to private).
- Enhanced Integration Capabilities - Ability to specify how document management functions will integrate with other applications.
- Import/Export of Lookup Table Data - Ability to import ASCII data into a Properties field lookup table or to export table data to an ASCII file.
- Librarian - Ability to split libraries and be able to move and change documents en-masse.
- Dynamic References/Attachments - Ability to send a document to a group of people and have GroupWise automatically send either a reference if group members have access to the document's library, or an attachment, if group members do not have access.

Year 2000 Readiness

GroupWise 5.5, as well as GroupWise 4.1, 5.1, and 5.2, have been thoroughly tested and meet all Novell Year 2000 readiness specifications.

New Features of Novell NetWare 5.0

Released in September 1998, NetWare 5.0 is the latest release of the NetWare operating system from Novell. A variety of new features have been added by Novell making NetWare 5.0 an Enterprise class, high-performance, reliable, scalable, and secure network platform. NetWare 5.0 offers features that enable it to coexist easily with other server operating systems, such as UNIX and Windows NT Server.

Target Market for NetWare 5.0

NetWare 5.0 is targeted primarily at the 3.8 million unit installed server base currently running NetWare. This installed base is roughly split between customers who currently run NetWare 3.x and NetWare 4.x/intraNetWare.

Key Benefits of NetWare 5.0

- Superior management and control of heterogeneous networks. NetWare 5.0 and Novell Directory Services (NDS) enable management and control throughout a heterogeneous environment, including multiple operating systems (NT Server and UNIX), protocols (IP and IPX), desktops and applications (Java, Web-based and server).
- Efficient integration of networks and Internet. Designed to combine the stability of the business network and global standard of the Internet, NetWare 5.0 delivers tools and services that offer pure IP connectivity and management. Service and functions, including WAN

support, browser and Web servers, are integrated into the new product. Both IPX and Pure IP are supported.

- Proven network reliability, scalability, performance and security. Novell Storage Services (NSS) significantly expands file capacity and reduces mounting time. The new kernel is designed for running in multi-processor platforms. Memory protection, PCI Hot Plug support, NDS and other features enhance reliability and control.
- Robust and scalable application support. NetWare 5.0 provides high-performance and industry-standard support for application development. The new kernel supports multi-processor platforms, enhanced memory protection and prioritization of applications being run. It is also optimized to deliver database applications on Oracle 8, NLM and Java solutions.
- Lower cost of network ownership. With Novell Directory Services (NDS), Z.E.N.works and pure IP, NetWare 5.0 enhances network and desktop management. It also optimizes bandwidth and consolidates protocols to reduce the customer's cost of ownership.

NetWare 5 can be purchased through any authorized Novell reseller. For a complete listing, visit Novell's website at www.novell.com.

Table 1. Minimum System Requirements

Hardware	Requirement
Processor	Pentium (90mHz or greater)
Memory	64M Ram (Recommend 128M)
Disk Space	550 MB
Video	VGA or higher (Recommend: SGVA)
Pointing Device	

NetWare 5.0 Layered Products/Features

- Management
 - Novell Directory Services (NDS) on NetWare 5
 - Integration of Domain Name Servers (DNS) and Dynamic Host Configuration Protocol (DHCP) into NDS
 - Z.E.N.works Starter Pack
 - ConsoleOne (Java based GUI management)
 - New backup utility
- Internet
 - Pure Internet Protocol (IP) Support
 - IPX Support
 - Migration Gateway and Compatibility Mode for IP and IPX
 - Netscape FastTrack Server
 - Lightweight Directory Access Protocol (LDAP) Services

- Application Support
 - Java Server Framework
 - Oracle8 for NetWare (5.0 user bundle)
 - Multi-processing Kernel
 - Cryptographic Services
 - NetWare NLMs

Reliability, Scalability, Performance and Security Novell Storage Services (NSS), Novell Distributed Print Services (NDPS)

PCI Hot Plug and I₂O Support Server Authentication Services (SAS), Public Key Infrastructure Services (PKIS)

The Compaq and Novell Alliance

Compaq has a dedicated group of Messaging engineers who work closely with Novell's engineering team to jointly deliver the best solutions for customers implementing GroupWise 5.5. Compaq has tested GroupWise 5.5 by putting it through rigorous quality and assurance processes as well as actively engaging Novell's engineers to resolve issues and drive improvements.