Network File Server Performance in a University Environment: A Case Study – Thesis Proposal

Stephen A. R. Houser

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1 Background and Definition

Novell's NetWare file server software product is widely used. At this university alone there are over 20 Novell NetWare file servers, servicing over 300 personal computers. These computers reside both in general access student microcomputer labs and in faculty and staff offices. The servers are used to provide access to shared applications and shared data. Microcomputers in the student labs are diskless clients, using the file server for nearly all disk resources. The performance of the file server in this environment is paramount to creating an efficient computing environment.

2 Problem Statement

There is a lack of performance reports available describing Novell NetWare file servers. The only readily available reports are done in-house by Novell. These reports describe NetWare;s limited statistics gathering features. They do not give in-depth description of network server disk performance. Many server implementation details are not revealed in these reports, leading network managers to *guess* at methods of improving performance. Clearly, a need exists for a repeatable way of obtaining detailed statistics about the performance and behavior of a Novell NetWare file server.

3 Objective of Study

This study is intended to produce performance details of a Novell NetWare file server. The results of thesis study will be useful in understanding and tuning the performance of Novell NetWare network file servers. As a further objective, we hope to develop tools and methods for measuring

and evaluating other network file servers. A description of Novell NetWare is an important part of this study. It is needed to provide a better understanding of the internals of NetWare such that we can evaluate performance.

4 Description of Methodology

In the study we plan to attack the analysis problem in two ways; monitor network traffic (client-server communications) to and from the file server and monitor traffic on the file server's disk channel. Using a network *sniffer* combined with our own software we can trace and record traffic to and from the file server. This trace data can then be analyzed to give a clear picture of workstation file access patterns. By using a SCSI bus monitor, the disk channel of the file server can be monitored while the network is traced. The data from the SCSI bus monitor can be correlated with the network trace data, giving an indication of file server cache performance and the overall performance of the file server. This data can also be used in tuning disks and disk drivers for use with Novell NetWare.