ProjectShare.com

The Science of Project Management

DNA Edition

Performance and Scalability of ProjectShare.com DNA Enterprise Server and ProjectShare.com Xtends™ Server

A Technology White paper

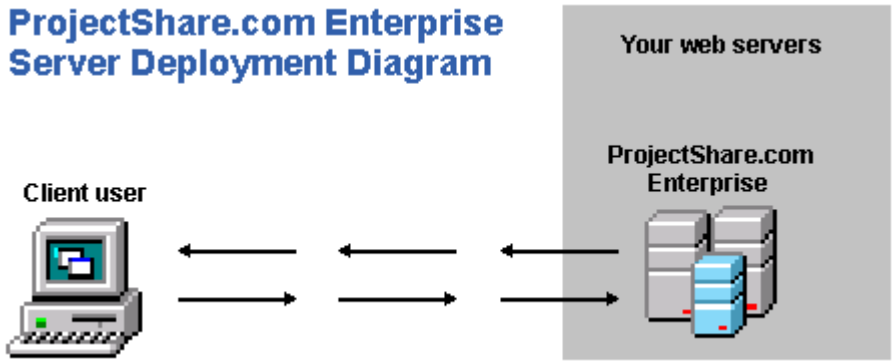
Task Overview

Today companies require diverse web-based solutions that can serve their collaboration needs in many capacities. ProjectShare.com DNA Enterprise Server and ProjectShare.com Xtends™ Server procure these needs in a productive, easy to use web-based application. ProjectShare DNA delivers rich full featured, cross-enterprise solution that has multiple configuration schemes for high levels of scalability and self-healing reliability.

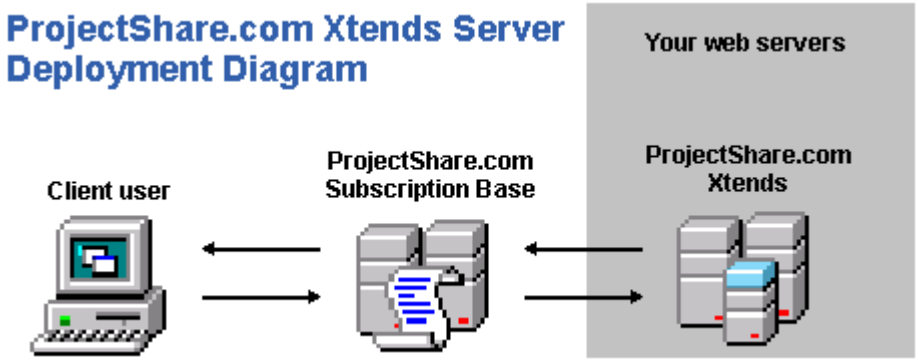
This technical white paper demonstrates the two different solutions under simulated multiple user loads. The loads are measured using 10 real world testers and “Win Runner” emulator tools to stress the web servers, database servers and file server. The measurements where reported using the windows performance viewer during the simulated and real world testers point of transaction.

Product Solution Descriptions

ProjectShare.com DNA Enterprise Server is a server-side deployment that houses the entire ProjectShare.com co-branded solution. With this deployment scheme, you are able to create multiple accounts, create users per account, administer access rights per account and utilize all features currently available within the ProjectShare.com DNA solutions suite. In the illustration below your clients are able to utilize the software directly deployed from your web servers.



ProjectShare.com Xtends™ Server is a mixed hybrid server solution that utilizes ProjectShare.com in a subscription format and a subset of ProjectShare.com DNA Enterprise Server. ProjectShare.com Xtends™ Server to empowers your enterprise with the ProjectShare.com solution suite of tools and extends the flexibility of unlimited storage, because the data is stored on your server. In the illustration below your clients access the ProjectShare.com web site in a subscription based capacity to access files on your web servers.



Test Scenario Platform

To emulate the "real-world" use of a ProjectShare DNA server in a production environment, a simulated workload was designed. The simulated user workload emulates the various tasks that a user performs from viewing notes to creating and uploading documents.

The user population is comprised of two types of users: short-term and long-term. Short-term users log in and work for three minutes. Long-term users log in and work for 30 minutes. Both of the user types randomly perform the operations listed above. The workload is distributed across all of the facilities and ProjectShare.com on the server. During the simulation, users perform operations at random intervals averaging one per minute.

Practical Server Configurations

ProjectShare.com DNA server configurations are very flexible in deployment the listing illustrates those possibilities in summary format.

Optimal Server Configuration

Three Server Configuration:

Database Server
File Server
Web Server

Database Optimized Server Configuration

Two Server Configuration:

Database Server
Web Server (web services and files services combined)

Low utilization Server Configuration

One Server Configuration:

Web Server (web services, data services and files services combined)

For our testing purposes we chose the “Low utilization Server Configuration” scenario to exploit the heaviest or worst possible load condition. A dual processor configuration was chosen for the performance testing. There are two possible database configurations, Microsoft Access and Microsoft SQL Server. Although ProjectShare DNA performs functionally exact on both database solutions, we recommend and have provided only testing results for the Microsoft SQL Server solution.

Production Testing Server Configuration

Software

- Microsoft Windows 2000 Service Pack 1
- Internet Information Server Version 5
- ProjectShare.com DNA Enterprise
- Microsoft Windows NT Server Version 4 Service Pack 6
- Microsoft SQL Server 2000

Hardware

- Dual 733 MHz Processor
- 500MB RAM

Overall Workload

In order to emulate a disbursed population, 1,000 users log in an hour. These users also represent users who have made a request of the ProjectShare DNA server, this includes events such as downloading a document, and are then in the process of reading or editing the document. The number of users who are concurrently making requests of the ProjectShare server is a percentage of the number of logged in users, typically between 5 and 10 percent. The combination of users making requests, users logged in and monitor users represent the total ProjectShare user population in a production environment and are the load that was simulated. The following instances where taken into account for measurement.

- Active Server Pages Performance
- Memory Performance
- Processor Performance
- Transaction Response Performance

Measurement Item #1 - Active Server Pages Performance

The following results are those measured in the Active Server Pages capacity. These results are a direct data result of pertinent items that adversely effect server performance and stability.

Object: Active Server Pages	
Debugging Requests	0
Errors During Script Runtime	0
Errors From ASP Preprocessor	0
Errors From Script Compilers	0
Errors/Sec	0
Request Bytes In Total	277100086
Request Bytes Out Total	8904145516
Request Execution Time	0
Request Wait Time	141
Requests Disconnected	16
Requests Executing	0
Requests Failed Total	0
Requests Not Authorized	0
Requests Not Found	0
Requests Queued	0
Requests Rejected	0
Requests Succeeded	1000
Requests Timed Out	0
Requests Total	1000
Requests/Sec	0
Script Engines Cached	125
Session Duration	1204460709
Sessions Current	50
Sessions Timed Out	0
Sessions Total	169
Template Cache Hit Rate	86.503
Template Notifications	76
Templates Cached	136

Transactions Aborted	0
Transactions Committed	0
Transactions Pending	0
Transactions Total	0
Transactions/Sec	245

Measurement Item #2 - Memory and Throughput Performance

The memory availability is good during the stress test. The memory allocation never dropped below 213MB of 270 remaining after other system resources claim large portions of the original 500MB.The following chart displays the available memory and adjacent properties.

Object: Memory	
% Committed Bytes In Use	34.213
Available Bytes	223674368
Available KBytes	218432
Available MBytes	213
Cache Bytes	35799040
Cache Bytes Peak	37232640
Cache Faults/sec	0.399
Commit Limit	1309372416
Committed Bytes	447979520
Demand Zero Faults/sec	71.103
Free System Page Table Entries	159889
Page Faults/sec	119.836
Page Reads/sec	0
Page Writes/sec	0
Pages Input/sec	0
Pages Output/sec	0
Pages/sec	0
Pool Nonpaged Allocs	53500
Pool Nonpaged Bytes	9584640
Pool Paged Allocs	41516
Pool Paged Bytes	22134784
Pool Paged Resident Bytes	21970944
System Cache Resident Bytes	12328960
System Code Resident Bytes	1265664
System Code Total Bytes	524288
System Driver Resident Bytes	233472
System Driver Total Bytes	2334720

Measurement Item #3 - Processor Performance

Under the optimal configuration of the ProjectShare server, the processor scalability was excellent. The processors were not taxed during the simulation. The average percent processor time was 17.12, with a maximum of 27.76 percent. The optimally configured ProjectShare server was able to support more than double the number of monitor users while utilizing less processor resources. On average 21.33 percent of the processor was consumed by the default configuration. While 21.33 percent is an excellent number, the optimal configuration utilized roughly half, 11.16 percent, of the processor time.

Object: Processor	
	Average
% DPC Time	.10
% Interrupt Time	.12
% Privileged Time	0.467
% Processor Time	17.12

Measurement Item #4 - Transaction Response Performance

The transaction times in the optimal configuration averaged 1.80 seconds from the client simulation machines and 1.35 seconds from the probing client. These values represent excellent transaction times. During much of the simulation the average transaction time was the same for both the client simulation machines and the client.

Your Environment

The testing scenarios upon which the simulations were based were derived from typical usage patterns. There are several other factors that could impact the performance of the ProjectShare server in your environment, such as network connectivity, document size and usage patterns. This variance in the usage patterns could result in performance that differs from the results reported in this paper. With similar usage patters, you can expect the server performance to be in the same range as that reported.

Summary

These simulations illustrate that ProjectShare.com DNA performs with excellent results. As we add new functionality to our offering, our team continually performs this stress test to ensure customer satisfaction and reliability in high volume scenarios.