

WebMarshal 6.X Performance and Scalability

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This document is intended to assist WebMarshal administrators with system sizing for WebMarshal 6.X.

The specific testing presented in this document was performed with WebMarshal 6.0. However, the results are generally applicable to all releases of WebMarshal 6.X. Please read the full document to understand factors that can influence performance.

WEBMARSHAL SERVER SPECIFICATIONS

WebMarshal 6.0 was tested on a server with the specifications below.

3.4 Ghz Pentium 4 CPU
2 GB SDRAM
250 GB SATA hard drives (Mirrored)
Windows Server 2003 with Service Pack 2
WebMarshal 6.0.2.2865

Servers with different specifications will have different results – increasing the speed of the disk subsystem or processor will significantly impact the maximum number of users WebMarshal can support.

In addition, these results were obtained using the methods described in the Testing Methodology section of this whitepaper; real life results will vary based on policies enabled, browsing habits, and Internet connection speed.

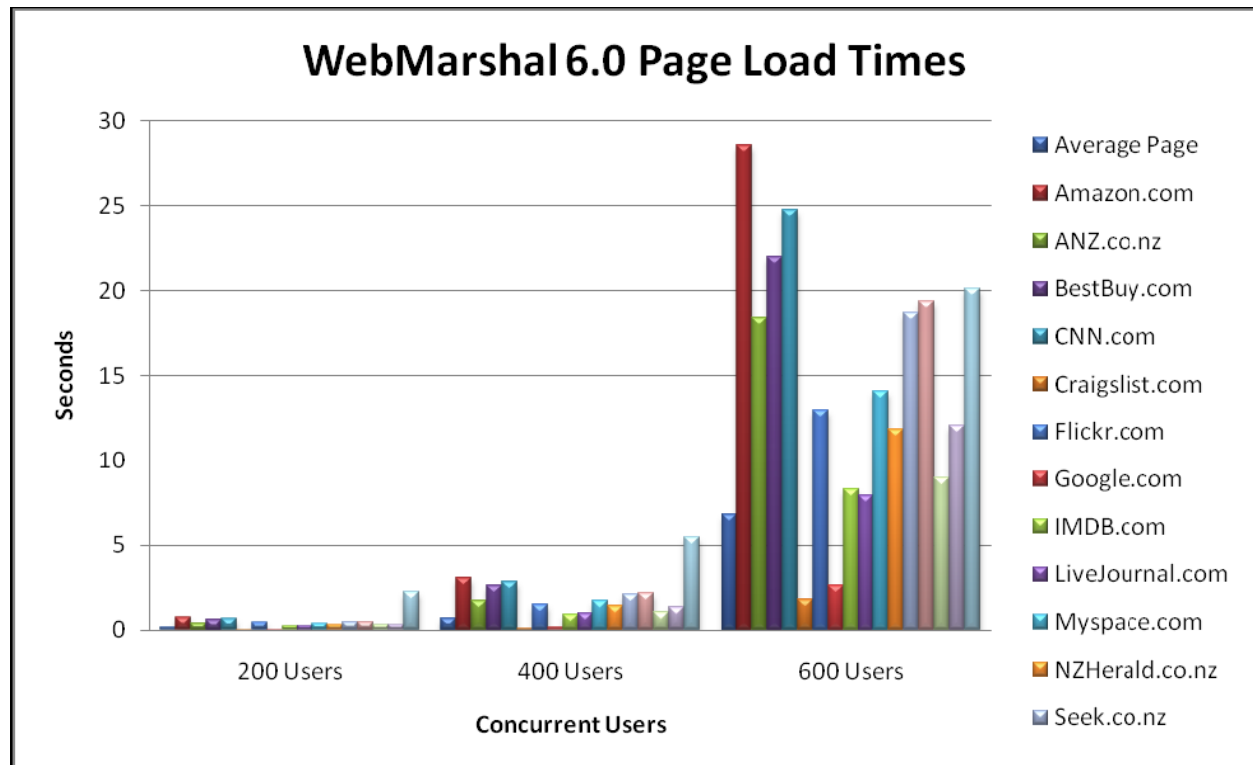
This server was used as a dedicated Content Processing Node joined to an array. Its Array Manager and database server were located on another server. No other applications were active on the server.

Note: For full details of the hardware and software requirements and recommendations for a specific WebMarshal version, please see the Release Notes.

TEST RESULTS

The graph below shows the page load times for different numbers of concurrent simulated users.

- At 200 users, the page load times are approximate to the load times users would see if they were accessing the page directly, without WebMarshal filtering their web requests.
- At 400 users, the page load times are slightly over double what they were on at 200, but are still well within acceptable levels. For example, an average-sized page still loads in under a second, and a large page, such as Amazon.com, loads within 3 seconds.
- At 600 users, the page response times become unacceptable, with some pages taking nearly 30 seconds to load.



M86 Security recommends that a server of this specification be used to support no more than around 400 concurrent users. Depending on your environment's web usage, a server of this specification can be used to support different total user counts.

	Low Usage	Medium Usage	High Usage
% of Total Users Concurrently Browsing	10%	20%	30%
Total Number of Users	4000 users	2000 users	~1300 users

DATABASE SIZING

The WebMarshal database is used to store both user browsing history and parts of its configuration data for reporting purposes. The configuration data stored within the database is small in size and relatively static, at about 3 megabytes. Most of the space used in the WebMarshal database contains user browsing information.

Each user browsing session logged to the database takes a variable amount of space, depending on the length of the session, the number and content of the websites visited, and whether sites or files were blocked by WebMarshal.

M86 Security testing showed that an average session, consisting of a period about 5 minutes of continuous browsing over 4-5 websites, logged about 5.5k worth of data to the database. Our testing also revealed that an average user initiates about 10 sessions per day.

Therefore, using the formula (average session database log size) * (average number of sessions per day) * (number of users), we would expect the database for a 1000 user organization to grow by approximately 54 megabytes a day. Over a period of 30 days (allowing for weekends) of history retention, the database would be approximately 1.2 gigabytes.

Note: The figures above represent moderate usage. Website content and browsing habits differ significantly between individuals and organizations. **Your results will vary.** M86 recommends that you gather data about usage in your organization. When sizing hardware, plan for increased usage over time.

It is important to note that SQL Server Express Edition has a 4 gigabyte cap its databases. Therefore, SQL Server Express Edition is not appropriate for customers with large numbers of users, or for customers who need to retain logging data for long periods of time.

User Count	Database Growth per Day	Total Size for 30 Days of Logging	Total Size for 100 Days of Logging
100	~5.4 MB	~120 Megabytes	~408 Megabytes
500	~26.8 MB	~591 Megabytes	~2 Gigabytes
1000	~54 MB	~1.2 Gigabytes	~4 Gigabytes

LOAD BALANCING

If multiple WebMarshal Content Processing Nodes are required to service a given environment, they should be joined together in a WebMarshal Array. Once joined in an Array, the Nodes' policy can be centrally managed and consolidated reports become available.

However, while Nodes in an Array share policy, WebMarshal does not provide any load balancing features. In order to distribute load across multiple nodes, one of the following strategies can be used:

- Manually configuring proxy settings to point to specific nodes
- Round-robin DNS records.
- Microsoft Network Load Balancing Services
- Dedicated hardware load balancer (i.e., F5 BIG-IP Load Balancers)

Detailed instructions on configuring Microsoft's Load Balancing Services with WebMarshal can be found in M86 Security Knowledge Base Article [Q11845](#).

TESTING METHODOLOGY

M86 Security used a series of tools and custom scripts to simulate large numbers of users browsing through WebMarshal. A single node received thousands of requests from several load-generation servers, accessing sample Web pages.

These sample pages were downloaded from popular websites such as Google, MySpace, and CNN, and mirrored on a web server in the local test network. In addition, an “average” page was created which contained an average-sized HTML page containing several images.

The simulated users’ web browser requested Web pages using multiple threads to load components in real time as the page was being “rendered.” After the page had finished loading, each simulated user would pause for a random amount of time to reflect the page being read by the user. Typically, the time between page loads was around 17 seconds.

It is important to make two points about this testing.

1. Because the pages were hosted on a local Web server, the load times are much lower than what one would expect to see in real life, where a request must traverse the Internet and back.
2. M86 Security used a policy (set of processing rules) that was very close to the default WebMarshal policy, but it did differ in several ways. Several TextCensor rules and URLCensor rules were disabled, which impacted performance positively. Performance with the default policy would be slightly lower than what is reflected in this paper.

Features introduced in later versions of WebMarshal could also affect the test results.

- Proxy Caching could improve average load times in a production environment, by reducing the time taken to fetch pages. Caching does not affect WebMarshal processing time, because WebMarshal policy is evaluated for each user request.
- HTTPS Content Inspection could slow average load times, due to the extra processing required for decryption and encryption. This issue would only be significant if a large percentage of pages requested were HTTPS pages.

ABOUT M86 SECURITY

M86 Security is a global provider of Web and messaging security products, delivering comprehensive protection to more than 20,000 customers and over 16 million users worldwide. As one of the largest independent internet security companies, we have the expertise, product breadth and technology to protect organizations from both current and emerging threats. Our appliance, software and cloud-based solutions leverage real-time threat data to proactively secure customers' networks from malware and spam; protect their sensitive information; and maintain employee productivity. The company is based in Orange, California with international headquarters in London and offices worldwide. For more information about M86 Security, please visit www.m86security.com.

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