



The following document outlines the results and test procedures used to measure CNW's Turbo's performance enhancements on HTTP traffic.

The key performance metrics for web acceleration are:

### Effective DSL Speed

Effective DSL speed is the speed of DSL line required to deliver the same performance achieved over the 56K dial-up line. The effective DSL speed is measured by comparing the web download time of each configuration with those recorded using a business grade 400K SDSL line.\*

### Reduction in Web Download Time

Web download time is the total elapse time between issuing a web page request and the complete retrieval of the page information.

### Reduction in Download and Upload Traffic

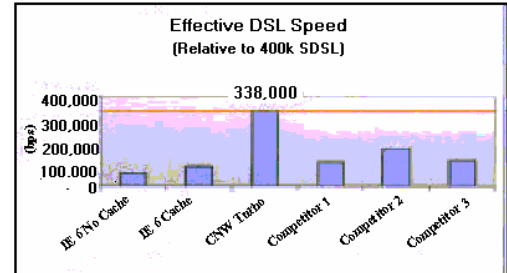
Download and upload traffic is the total number of bytes sent between the PC and web server for each web page request.

The test measures the performance of a single PC equipped with Microsoft Internet Explorer 6 (IE6), a standard 56k modem and ISP account, both with and without web accelerating products. To ensure consistency, the tests were automated using a proprietary test tool, WebBasher™, to generate HTTP page requests and record the web download time for each request. A third party load measurement tool, DU Meter, was used to record traffic measurements.

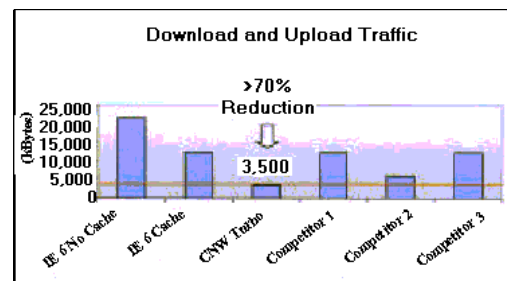
Web download times and traffic load measurements were recorded for the following configurations:

- Microsoft Internet Explorer 6 - no cache
- Microsoft Internet Explorer
- CNW Turbo
- Competitor 1
- Competitor 2
- Competitor 3

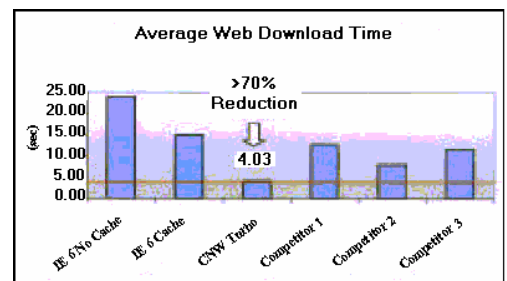
\* The high performance 400K SDSL is a business grade line with a guaranteed performance provider. This differs from a standard ADSL line which does not have an associated SLA and varies considerably from the rated performance



The results show that CNW Turbo using a 56K modem provides an average download speed equivalent to a 330,000 bps business grade SDSL line.



The web page download and upload traffic for CNW Turbo was 72% less than an equivalent system with Microsoft Internet Explorer IE6 using default settings. CNW Turbo was 1.7 to 2.5 times better than the competitive offerings.



The average time to display for the web pages was reduced by 73% compared to an equivalent system with Microsoft Internet Explorer IE6 using default settings. CNW Turbo was 2 to 3 times better than the competitive offerings.



End user surfing profiles include a combination of previously accessed and new web pages. These characteristics are reflected in the test with 70% of the requested pages previously accessed by the PC while the remaining 30% are new. All pages used in the testing are popular web pages, such as CNN, MSN, Yahoo and Amazon.com

To create this environment, all caches in the user PC were cleared prior to a test. In tests of CNW Turbo or competitive offerings, both the IE6 and any proprietary caches were cleared to ensure a clean starting point. After clearing the system, the WebBashers dialed an Earthlink ISP account from our test lab and downloaded 28 web pages to initialize the system. These 28 pages represent the 70% of pages which are now "previously accessed." At this point the test measurements are ready to begin.

An individual test consisted of running 4 web page request scripts, each having 40 web pages. Each of the 4 scripts consisted of downloading the original 28 web pages followed by 12 new pages. The time between page completion and subsequent web page requests was 5 seconds. The WebBasher tool continues through the each web page in this fashion until it has completed, at which point it waits 5 minutes before starting the next script. In between each run, Internet Explorer was closed to simulate multiple browsing sessions. Multiple runs were performed with a minimum of 640 web pages downloads. Total bytes transferred and download time per web page are recorded at the end of each run.

Tests were performed on PCs with the following operating systems with the same performance: Microsoft Windows 98, Microsoft Windows ME, Microsoft Windows 2000 and Microsoft Windows XP.

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