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Web Server Documentation

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| Tactic | Impacted Quality Attributes | Evaluation Method | Description |
| Client cache | Performance | When a client requests a file it already has in cache, that file is not transferred saving bandwidth equal to its file size. For our sample webpage (with the image), this is 166KB. | If a request is sent with a “if-modified-since” header and the modified date matches with the server’s, a 304 response is sent instead of 200 and the file data. |
| Server cache | Performance | Reading data from the hard drive takes longer than reading from memory. If the hard drive speed is 300 MB/s and memory is 10,600 MB/s, then our web page takes (166/1024)/300 = .54 ms to load with the hard drive, and (166/1024)/10600 = .015 ms to load with the memory, assuming the web page (and image) is in the server cache. | Recently used files are stored in memory. Uses LRU algorithm. |
| Persistent connection | Performance | Requesting the index page (from the Webfiles directory) when doing a persistent connection requires opening a connection and requesting two files. A non-persistent connection requires opening a connection, requesting a file, then repeating the process one more time. Larger pages would take even more time. | Multiple HTTP requests can be sent through a single TCP connection. |
| Socket timeout | Performance, availability | By removing inactive connections, we are able to devote the resources to active connections. | Server sends a “408 Request Timeout” response if a connection is open but the client is not sending an HTTP request within a certain timeframe. |
| DOS blacklist | Availability, security | By blocking clients suspected of doing a DOS attack, the server has more resources to serve other legitimate clients. Additionally, it prevents system failure from this kind of attack. | If an IP address makes more requests per second than a certain threshold, that IP address will be blocked for a certain amount of time. When an IP is blocked, the connection is accepted but then closed immediately. |
| Forbidden file list | Security | Making a system of user privileges increases the security of the system. This can be used to hide confidential data. Uses the tactic of limiting access. | A file that is requested and is in the forbidden file list will receive a “403 Forbidden” response. |
| Log files | Availability | Making a system log helps system administrators diagnose and repair problems with the server. This improves the MTTF and MTTR. | Exceptions that the web server does not know how to handle will be written in a log file. |
| Hidden file list | Security | Hiding files from clients increases security because it can hide confidential data. This uses the tactics of limiting access and limiting exposure. | A file that is requested and is in the hidden file list will receive a “404 Not Found” response, as if the file did not exist. |