Performance and Drupal – Using Caching as an Example

Gerhard Killesreiter

August 28, 2008

Computer performance

- Computer performance
- Performance analysis
- Monitoring
- Performance tuning
- Measurement
- How to measure Drupal?
- A Plan
- Cache
- Drupal’s Caches
- Efficiency of Caches
- Top Secret!

Computer performance is characterized by the amount of useful work accomplished by a computer system compared to the time and resources used.
Depending on the context, good computer performance may involve one or more of the following:

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- Short response time for a given piece of work

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From: *Wikipedia, the free encyclopedia*

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For Drupal this translates to:

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For Drupal this translates to:

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For Drupal this translates to:

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In software engineering, performance analysis, more commonly profiling, is the investigation of a program's behavior using information gathered as the program runs [. . .]. The usual goal of performance analysis is to determine which parts of a program to optimize for *speed* or *memory* usage.

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If you don’t monitor the health of your Drupal install, you are a fool!

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Programms to use:

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Programms to use:

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Programms to use:

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- rrdtool (efficient data collection)

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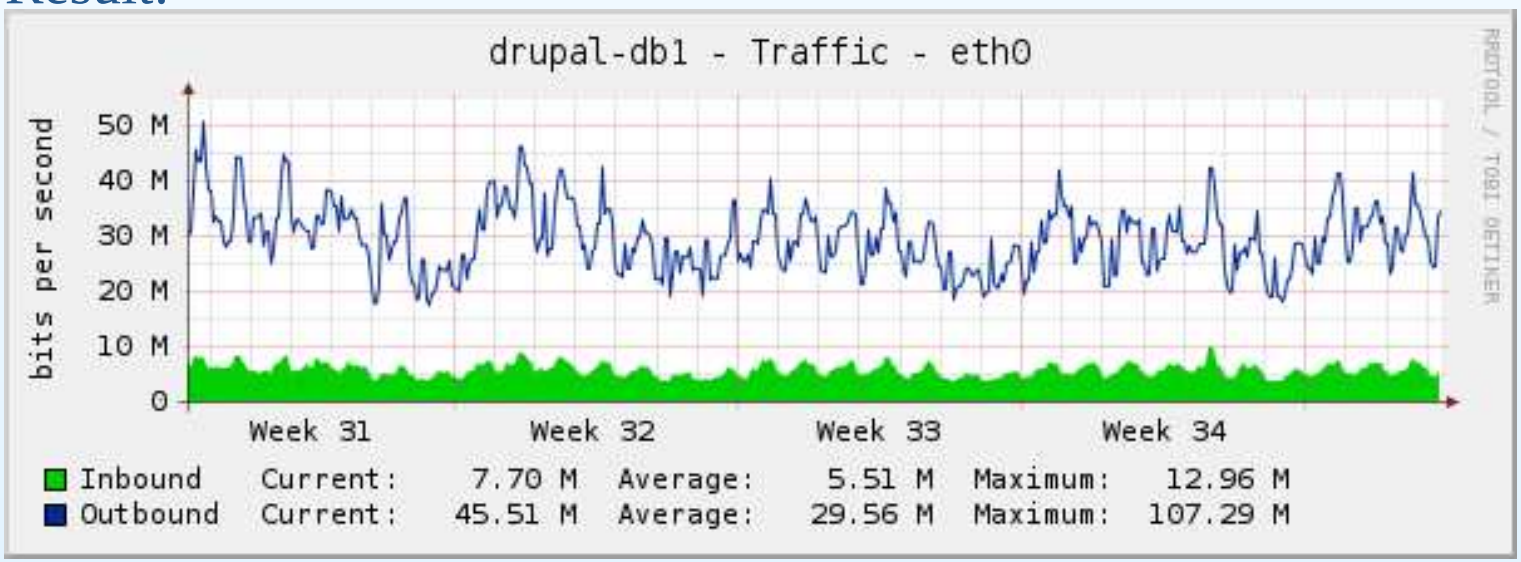
Result:



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Performance tuning is the improvement of system performance. [. . .] The motivation for such activity is called a performance problem, which can be real or anticipated. [. . .] A system's ability to accept higher load is called scalability, and modifying a system to handle a higher load is synonymous to performance tuning.

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Systematic tuning follows these steps:

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Systematic tuning follows these steps:

1. Assess the problem and establish numeric values that categorize acceptable behavior.

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Systematic tuning follows these steps:

1. Assess the problem and establish numeric values that categorize acceptable behavior.
2. Measure the performance of the system before modification.

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5. Measure the performance of the system after modification.

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Measurement is the process of estimating the magnitude of some attribute of an object. [. . .] The act of measuring usually involves using a measuring instrument. [. . .]
Measurements always have errors and therefore uncertainties.
[. . .] Measurement errors are often assumed to be normally distributed about the true value of the measured quantity. Under this assumption, every measurement has three components: the estimate, the margin of error or uncertainty or error bound, and the confidence level — that is the probability that the actual magnitude lies within the margin of error. For example, a measurement of the length of a plank might result in an estimate of 2.53 meters plus or minus 0.01 meter, with a level of confidence of 99%.

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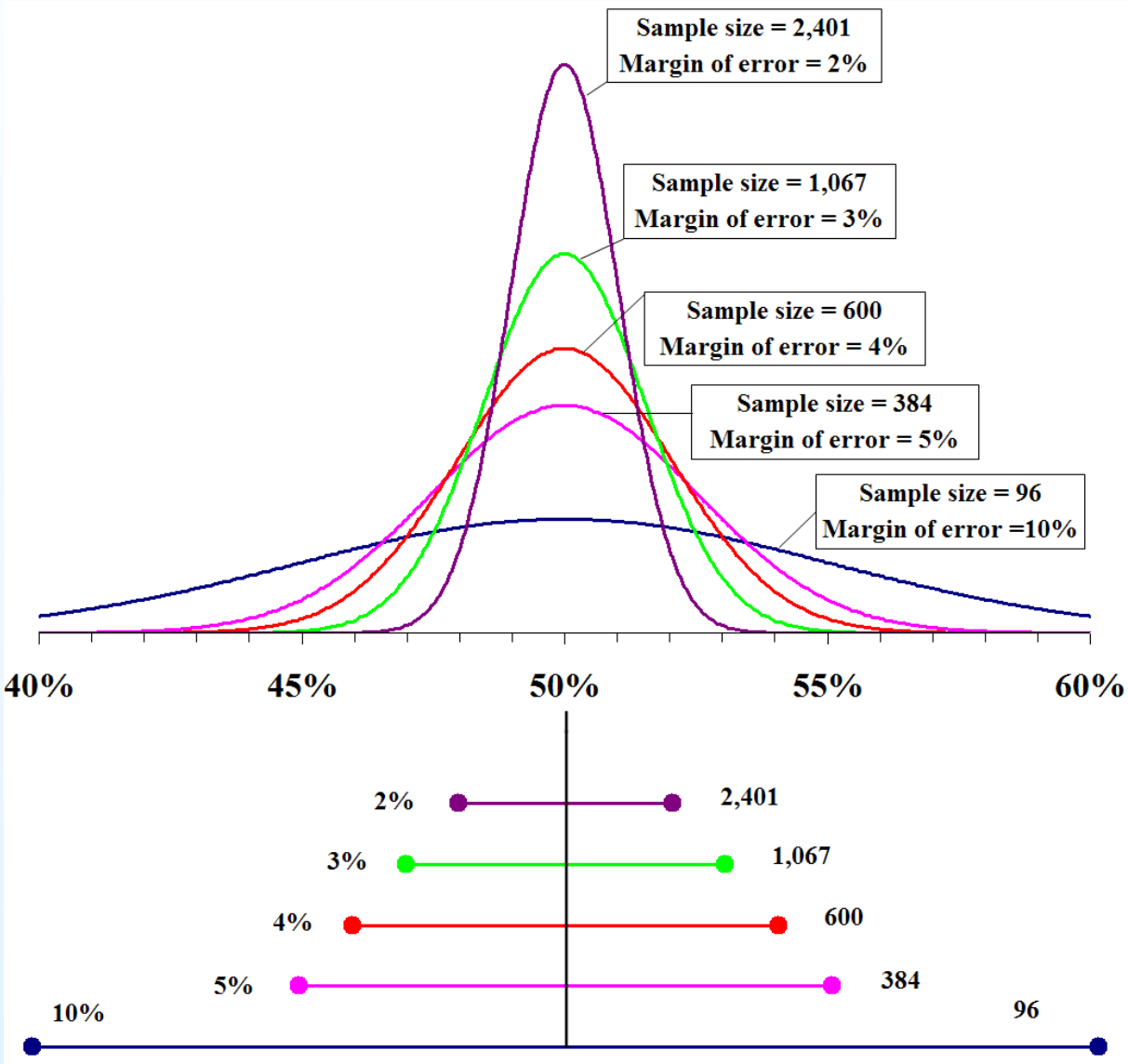

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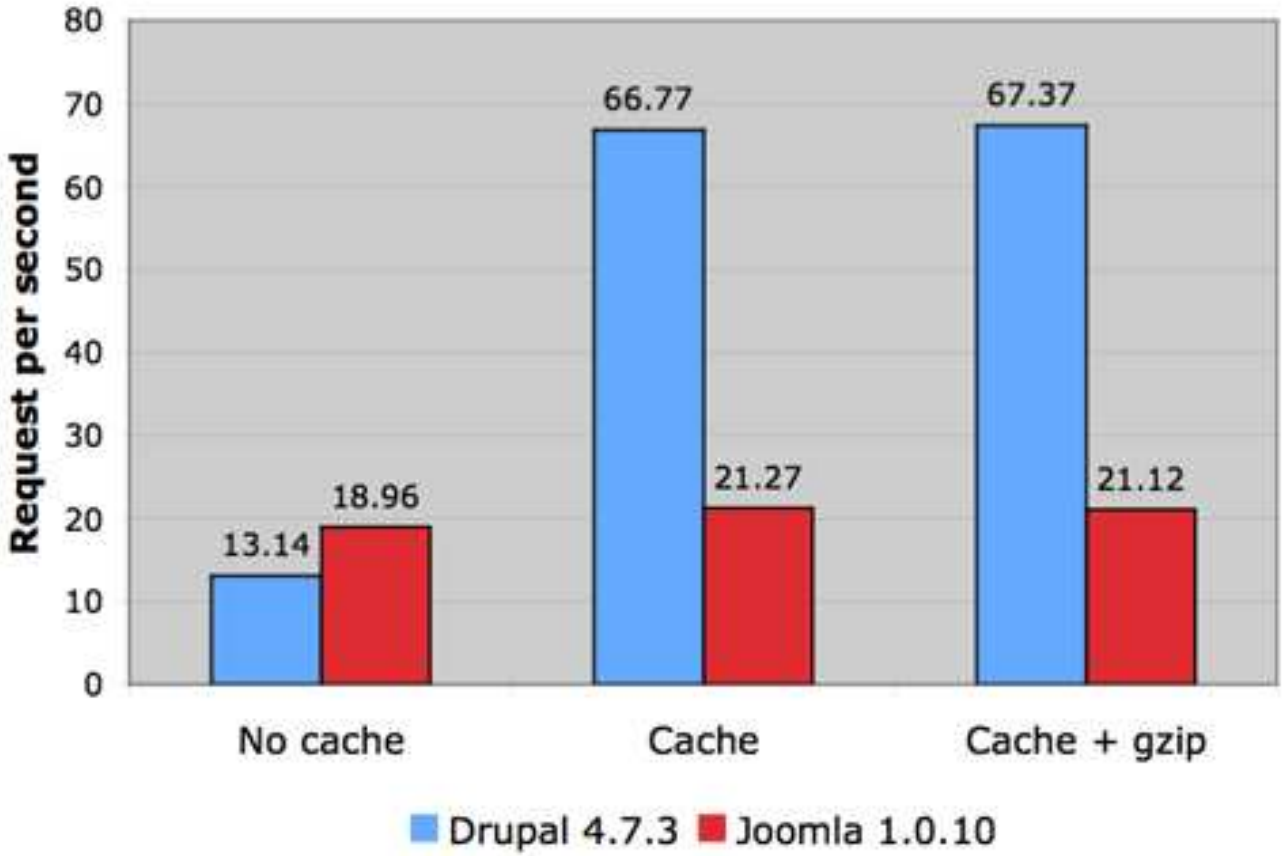

From: *buytaert.net*

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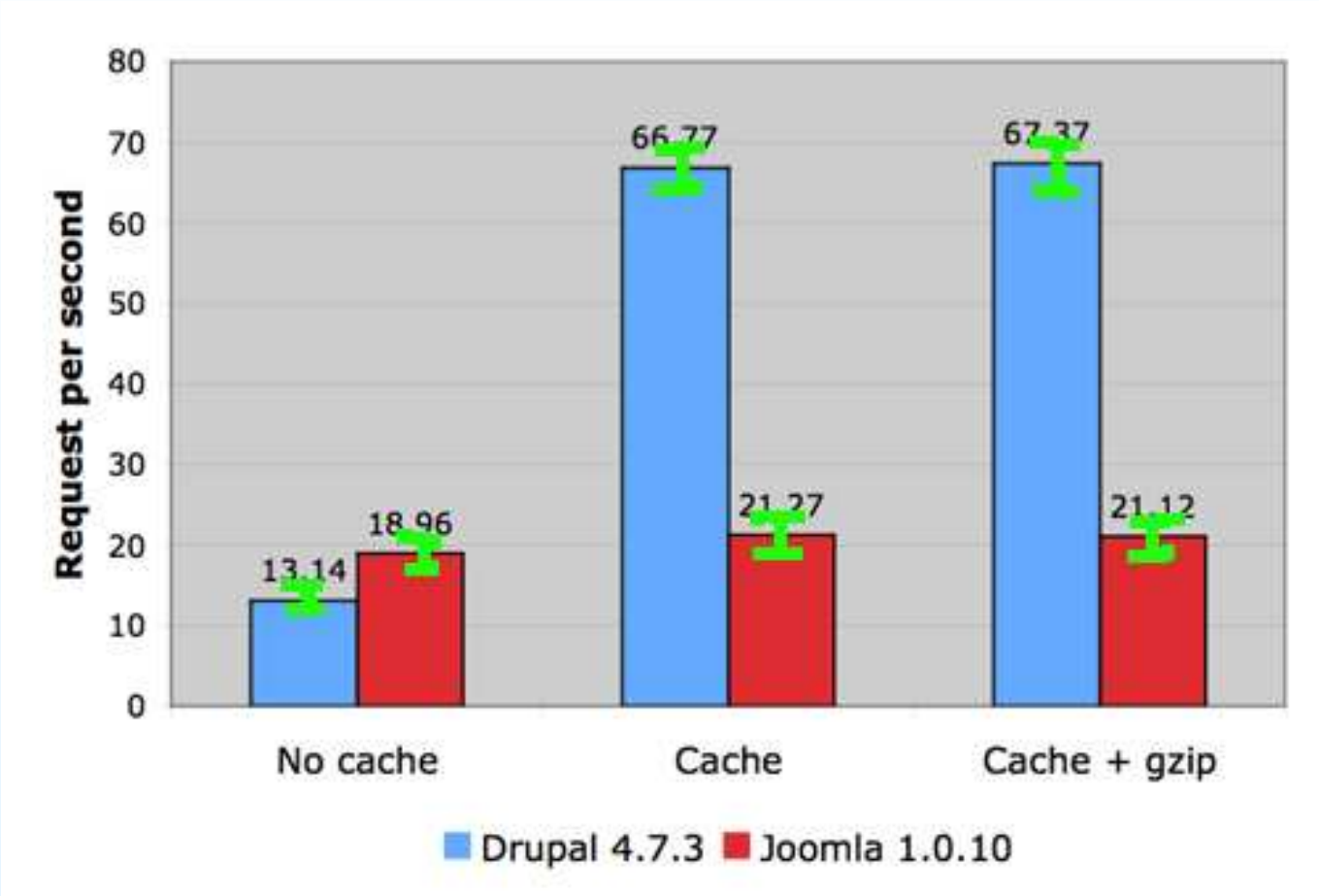

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Server Hostname: drupal.org
Document Path: /
Document Length: 24995 bytes
Concurrency Level: 1
Time taken for tests: 10.937806 seconds
Complete requests: 10
Total transferred: 256061 bytes
Requests per second: 0.91 [#/sec] (mean)
Time per request: 1093.781 [ms] (mean)
Transfer rate: 22.86 [Kbytes/sec] received
Connection Times (ms)

	min	mean	[+/-sd]	median	max
Connect:	208	210	1.9	210	215
Processing:	859	882	43.5	866	994
Waiting:	230	252	43.3	234	362
Total:	1067	1093	43.5	1076	1204

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Standard answer:

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Just run “ab”

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Better:

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Run “ab” and read the manual!

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And know something about measurement:
Choose correct parameters for concurrency and number of requests.

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“ab” is rather limited, it is good for testing a particular URL but doesn’t measure the system as a whole.

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Better answers are needed. We want to assess performance improvements involving the whole system.

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Credit: Ethan Fremen

Siege is an open source stress / regression test and benchmark utility. It can stress a single URL with a user defined number of simulated users or it can read many URLs into memory and stress them simultaneously. The program reports the total number of hits recorded, bytes transferred, response time, concurrency, and return status.
Sproxy is an HTTP proxy server that collects URLs including GET and POST information in a "siege-friendly" manner. It was designed to ease the burden associated with the creation of a siege urls.txt file.

From: *http://www.joedog.org/*

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1. Measure important quantities.

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1. Measure important quantities.
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8. Repeat

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In computer science, a cache [. . .] is a collection of data duplicating original values stored elsewhere or computed earlier, where the original data is expensive to fetch [. . .] or to compute, compared to the cost of reading the cache.

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Drupal stores its caches in the database.

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Drupal has a swapable cache.inc file $\Rightarrow$ Define your own caching!

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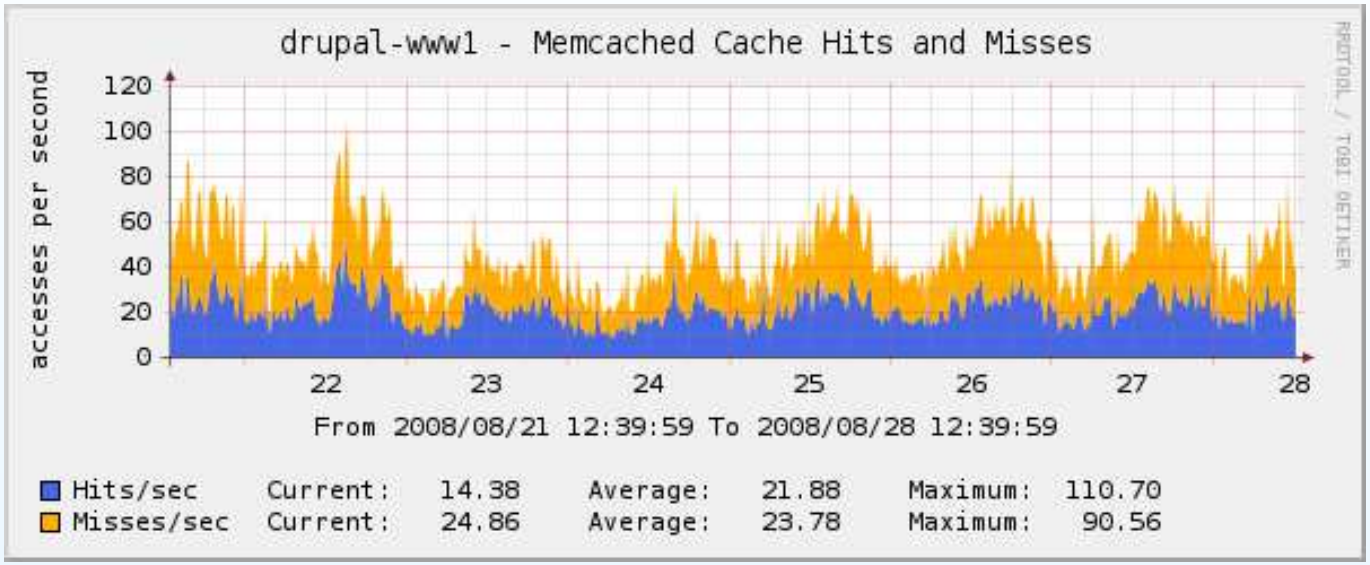
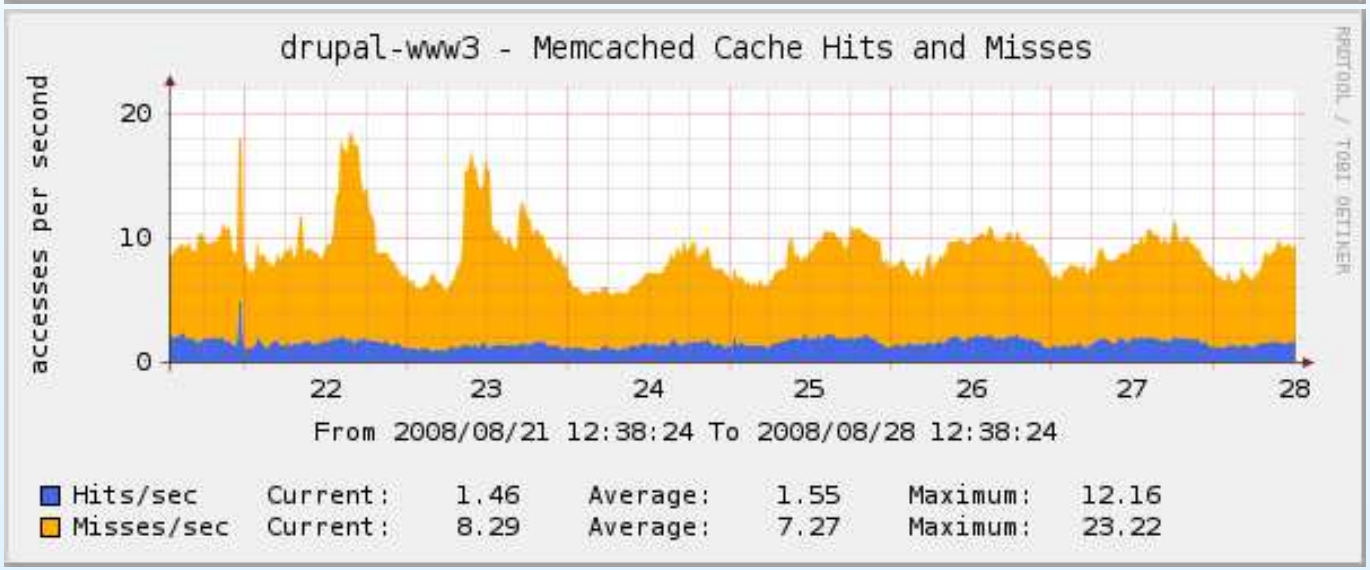
Does caching make sense?





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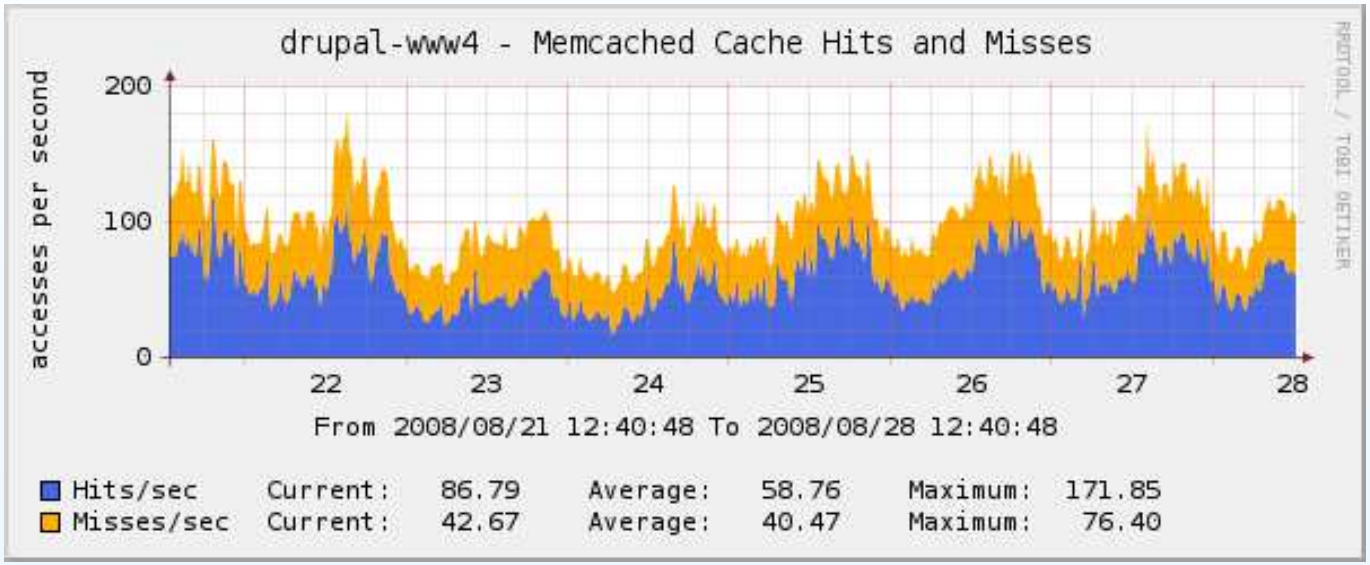

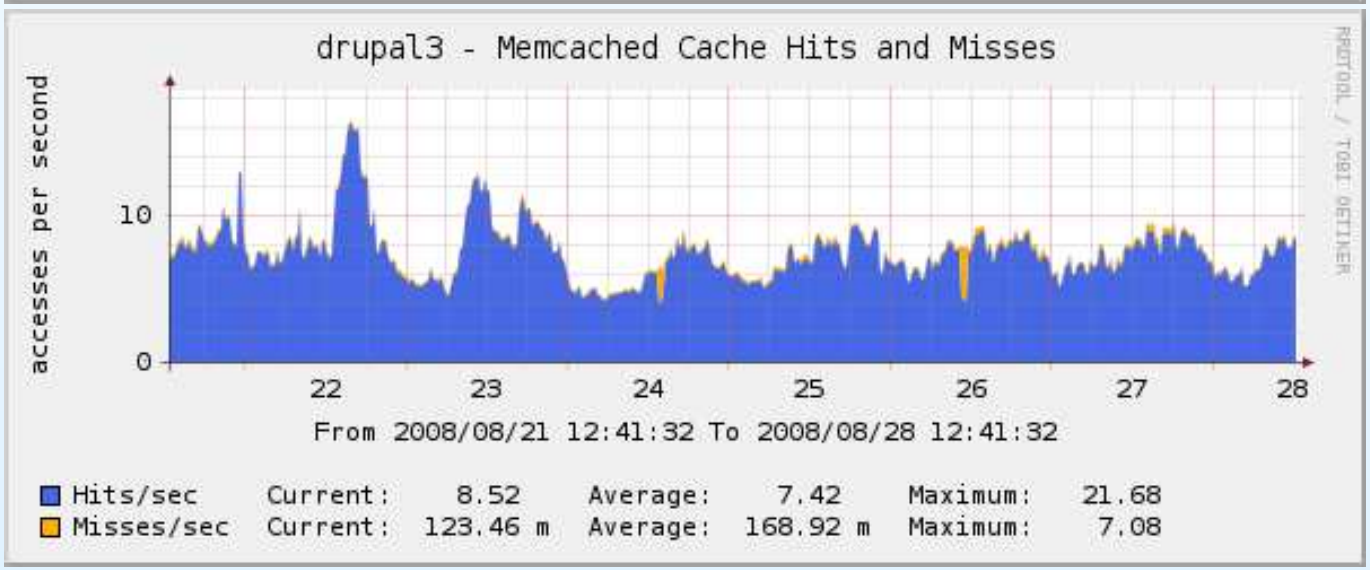

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If a website is called “slow” it turns out that in 80% of all cases not the PHP/SQL–backend is at fault, but that there’s a problem with too many included files (JS/ CSS/ Images). Attend Konstantin’s talk after the break to learn more about this.