



SiteGround uses 1H Software

SiteGround solves a serious problem with server overloads and turns the excessive resource users causing the problem into an additional income source with the help of 1H software

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The challenge

SiteGround is a web hosting company specialized in providing shared hosting services. In 2008 it has simultaneously been listed on the first pages on several important web hosting related keyword. As a result its client base expanded very fast and the company started to attract a greater variety of users. As a downside of this expansion the company started to experience a much greater number of server overload instances, created by single accounts that used excessive number of server resource. The problem had at least three serious implications:

Server overloads created by abusive customers became a real problem.

1. SiteGround was not able to identify an overloading abuser fast enough, which lead to long overload period and general customer dissatisfaction.

During the time SiteGround resolved a server overload case created by an abusive customer, a considerable number of the other customers hosted on the same server had complained about their websites' performance.

2. Once the abuser was identified SiteGround had to apply very restrictive measures to stop the overload as soon as possible, which often lead to bad publicity.

Several complaints about websites being made inaccessible by SiteGround without any warning and alternative option provided appeared on the net.

3. The abuser identification process was ineffective, leading to high payroll expenses.

A lot of human effort was needed to solve each single case, and the number of the administrators needed to monitor and manage SiteGround servers drastically increased.

SiteGround needed a solution to the situation quickly. They set forth the following goals:

- effective abuse prevention policies for decreasing the number of the overload cases
- faster overload detection and easier abuser identification for shorter overload durations

The following restrictions existed:

- The results should be achieved without involving additional costs for server administrators or hardware and without applying more restrictive measures over the excessive users



The solution

Step 1: Decreasing the duration of the server overload instances by automation of the load detection and resolution with 1H Guardian.

Decrease overload duration by automation of the detection and the reaction

• Automate load detection

Before 1H tools there were instances when an overload was detected only after a SiteGround customer complained in the ticketing system. This meant that many customers from the same server, who have not complained, have felt the overload too and this was unacceptable.

So the first tool developed, which later became the foundation of 1H Guardian, was an automatic load monitoring system. It instantly alerted the system administrator on shift, that there is a server with a load above the acceptable level. The monitoring tool design was extremely lightweight and was able to check load levels on 0.5 seconds without creating additional overhead for the server. Later the tool evolved into the fastest proactive monitoring system checking on major services running on the server.

• Automate reaction when load is detected

Before 1H tools the resolution of a server overload included a manual search of the user immediately responsible for the load by looking at the data in console-based monitoring tools (like top, mtop, htop, lsof) and reading through a big pile of logs. This was time consuming and not always very precise. There were even some occasions when the account of a customer that was identified as a heavy user was immediately suspended and yet the server load continued.

With the use of the 1H Guardian SiteGround totally changed the process. The software not only detected server load automatically, but was also soon modified to apply a hierarchy of automated remedies depending on the load level. The software detects faster and more efficiently than a human administrator, which processes can be rescheduled, paused or killed, and which action is the best for the particular load level, without even needing to know which user is causing the load.

By starting to use 1H Guardian, SiteGround decreased the durations of the server overload dramatically. There were virtually no more unhappy customers' tickets related with this issue. However, Guardian provided SiteGround with faster resolution but did not address the cause of the overloads - the heavy resource users. To achieve a lower overall number of server overloads in future SiteGround needed something more.

Step 2: Decrease the number of the overload instances by applying resource usage limitations and by easy identification of abusers with the help of 1H Hive.

Decrease number of overloads by usage limits and early potential abusers identification

• Applying resource limitations

Following the logics that prevention is the best cure, 1H created custom suExec and Cron, that are part of its Hive software, to allow 5 different limitations to be applied globally on all shared hosting users and per customer too. By using these limitations, SiteGround was able to prevent single customers from executing processes above some predefined levels. This lowered the possibility that any single user would be able to overload a server.

The combination of these limits with the very precise reaction from the Guardian allowed SiteGround to treat excessive resource users much tenderly than before and still achieve better results. With the use of 1H software there were no more cases in which the immediate suspension of a customer's website was the only solution to an overload instance.

• Identifying heavy resources users easily

The detailed graphs of 1H Hive about the CPU usage generated through web and cron executions helped SiteGround have a clear picture of how much resources each of their customers used, when it was above the averages, and even if it has the potential to become a problem in the future. This information was much more useful either than the moment data from the console-based monitoring tools (like top, mtop, htop, lsof) or the enormous service logs, the information form which was hard to gather and interpret.



The results

With the help of 1H Guardian and Hive SiteGround successfully achieved its main goals. The server overload instances were fewer and their severity now never endangered the whole server performance. The duration of the overloads was decreased too. From an average of 30 minutes, with some cases lasting over several hours, now such cases last below 1 minute on average

Reneta Tzankova, SiteGround CEO:

"The business results we achieve by using 1H software are amazing!"

Additionally SiteGround achieved the following business improvements:

- **Lower server cost by hosting more accounts on the same shared server hardware**

The Hive limits, combined with the Guardian auto reaction, allowed SiteGround to increase the number of the accounts hosted on their shared hosting machine with 40%, without increasing the hardware cost. Thus the server costs per account were reduced with nearly 30%.

- **Lower server administrating payroll expenses**

Before the use of the 1H software SiteGround needed to have one server administrator on 25 servers. During the last two years after the software was applied the number of the people administering the servers have not been changed, regardless of the huge business expansion. The new rate was 200 servers per administrator or nearly 10 times more effective than before!

- **Successfully upsell of over 300 higher end solutions during 2010**

One of the greatest results of using 1H software for SiteGround was the fact that they replaced their previously quite aggressive abuse policies with a successful upsell policy. Before 1H many of the SiteGround customers felt like they are wrongly limited or suspended by the company without being offered any alternative solution. With the help of 1H Hive graphics it became much easier for the company to demonstrate that these people are really using much more than a standard shared hosting user and that they really need another solution. After the new policies were applied SiteGround successfully upsold over 300 semi-dedicated, dedicated and virtual private servers over several months and the retention rate of these services was nearly 80%, which was considerably higher than standard shared hosting retention. This meant that the customers really needed the offered solution and were happy to use it.