

Hostway's Web Hosting Service Down for Days

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Hostway is one of the largest web site hosting services in the world. When Hostway attempted to move 3,700 servers of the Miami data center of a recently acquired company to its own facilities in Tampa, Florida, the servers suffered multiple failures in transit. The result was that the web sites of 500 customers, many of them small online stores, were down for days. A week later, several customers were still down.

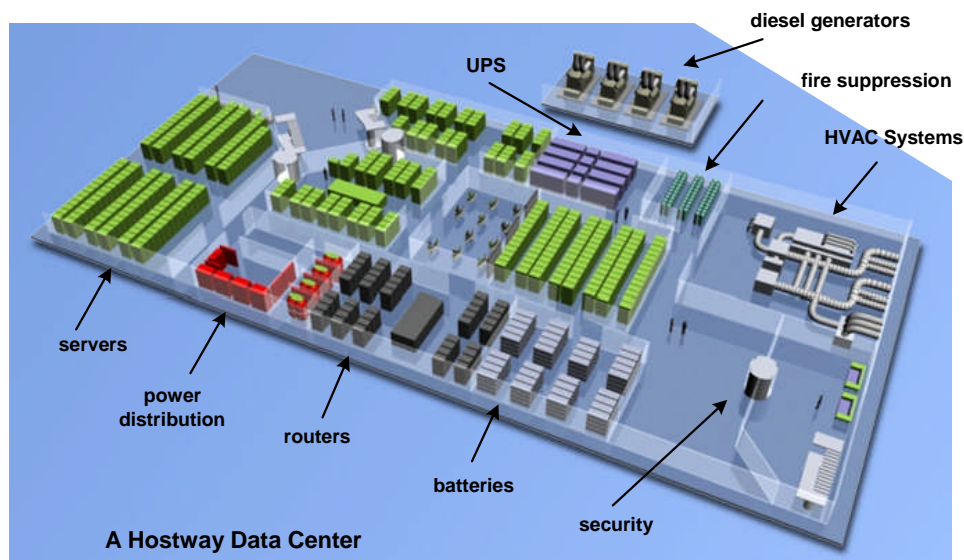
What went wrong? Where were the proper data and application migration techniques? What could Hostway have done to avoid the problem? Let us look at this horribly failed migration and attempt to answer these questions.

Hostway

Founded in 1998, Hostway Corporation provides web site hosting services for over 400,000 businesses worldwide. A customer may choose to use dedicated hosting, in which case it is provided its own dedicated server by Hostway; or it may choose the less expensive shared hosting service, in which case it shares a server with other customers.

Headquartered in Chicago, Illinois, Hostway has over \$100,000,000 invested in network infrastructure. Hostway is truly a global enterprise and maintains data centers at twelve sites worldwide, including Chicago, Tampa, Austin, Vancouver, Seoul, London, Paris, Frankfurt, Hanover, and Sydney. It also has operations in Antwerp, Amsterdam, Bucharest, and Mumbai.

Its data centers utilize fully redundant environments, including redundant HVAC systems and diesel generators. Hostway configures its data centers to provide four 9s of availability to its customers.



The Hostway/Affinity Merger

In April of 2007, Hostway acquired Affinity Internet, another major web site developer and hosting service. Via its ValueWeb hosting service, Affinity hosted web sites for over 3,000 customers on the 3,700 servers located in its Miami data center.

The Planned Data Center Migration

In order to improve service to its newly acquired ValueWeb customers, Hostway decided to move the Affinity data center from its Miami location to Hostway's major data center in Tampa. The Tampa data center had significantly more capacity and better network connectivity to the Internet backbone than Affinity's Miami center. The move would result in significantly improved service to the ValueWeb customers.

Migrations such as this had been accomplished successfully by Hostway several times in the past, and there was little doubt that this migration would go just as smoothly.

The move was planned to take place over the weekend of July 27, and Hostway anticipated that the affected web sites would be down for 12 to 15 hours while the servers and other equipment were transported and reinstalled. Hostway notified its affected customers by email and stated

“... The 12 – 15 hour outage will take place beginning this Friday, July 27th, at 8 PM EDT. The outage time will be incremental for customers. Therefore, if your server is taken offline at 8 PM, you should expect your server to be back online between 8 AM and 11 AM on Saturday, July 28th. The estimated completion of the project is July 28th at 7 PM EDT....”

According to plan, at 8 PM on July 27th, Hostway began the process of powering down, disconnecting, packing, loading, moving, repositioning, reconnecting, and testing the servers prior to returning them to service along with the web sites that they hosted.

What Went Terribly Wrong?

It is not difficult to see the storm clouds forming. This was not a graceful migration – it was a “big bang” migration. All service was shut down and the data center moved with the full expectation that service would be restored as soon as the servers were brought online in the new data center.

But that was not to happen. The primary problem was that there were many, many more server failures induced by the move than anyone had anticipated. The result was that service restoration was delayed, not by hours, but by days.¹

Many of the failed servers suffered from hardware failures – especially hard drive failures. There were spares on hand in Tampa to correct such hardware failures, but not nearly enough. In addition, networking configuration problems prevented other servers from being brought online. All in all, about 500 servers arrived in Tampa in a nonoperational condition.

Hostway focused its entire technical staff on the sole task of getting these servers operational. As a result, normal service tickets submitted by other Hostway customers were ignored, causing additional failures.

¹ Hostway Server Migration Leaves Clients in Dark, eweek.com; August 1, 2007.
Analysts: Hostway Failed to Properly Plan Server Migration, eweek.com; August 3, 2007.
Web Hosting Outage Has Clients Pondering Options, eweek.com; August 3, 2007.
Also, dsreports.com, thewhir.com, news.netcraft.com, hostsearch.com, itbusinessedge.com; August 2 – 7, 2007.

Its call center was overloaded, causing many complaints that Hostway was not answering its service lines. It was not answering email sent in by anxious customers. In fact, there was little in the way of customer communication except a voicemail message that was only occasionally updated and a brief update posted daily on its web site² (yes, Hostway's web site was still working).

According to the postings on its web site, which amounted to two or three short paragraphs every other day or so starting on Tuesday, July 31, about 250 servers were still down on Tuesday (three days after they were first shut down). By Thursday, this number was reduced to 50; and by Saturday, August 4, one week later, about twenty servers were still down.

Most of the customers that were affected were those using dedicated hosting services. Each failed server represented one customer. Therefore, about 500 customers experienced multiple-day outages. Many of these were small online stores that were literally out of business during that time.

This for a service that advertises four 9s of availability. For the customers most severely affected, it will take two centuries of continued uptime to return to four 9s of availability!

The Cost to Hostway

The cost to Hostway of this fiasco is not known to the general public. However, numerous blogs noted the number of customers who were considering moving to other hosting sites. The publicity has been horrible. There was a popular thread on the Digg discussion forum³ entitled "How Not to Move a Data Center."

Hostway's costs are varied. They range from bad publicity in the press and on the blogs to lost customers and perhaps even to lawsuits brought by the online stores that lost days worth of business. Whatever forms it may take, what is certain is that the costs of this botched migration may be extreme.

Lessons Learned

This was a "big bang" migration gone wrong. There are several strategies that Hostway could have used to ensure a more orderly migration. I am sure that none of these are news to the Hostway staff. The considerations may have been more financial than technical.

- First of all, it is unconscionable to plan to shut down online store customers in this 24x7 world for hours at a time without consulting with those customers. It appears that the only notice that those customers received was the email quoted previously.
- The migration could have taken place incrementally over a longer period of time. True, if only 200 of the 3,000 customers were migrated per week, it would have taken about four months to do the migration rather than one weekend. But then the spare parts complement and the availability of technical staff would have been substantially more adequate to handle any problems.
- Evidently, Hostway does not provide backup sites. However, it is likely that there is spare capacity in their data centers worldwide. The proper way to do a migration such as this is to first move a customer's hosting service to another site, make sure that it is up and running on the new server, and then move the original server, returning the hosting service to that server after it has been reinstalled and thoroughly tested. There are some operational problems with this, such as getting the customer to agree to provide the

² migration.affinitymembers.net

³ www.digg.com

permissions required to move his site; but this is minor compared to dealing with an irate customer who has been down for days.

- It seems that there was no fallback plan to cover cases of massive migration failure. Perhaps it was deemed that the chance for such a failure was too small to make this exercise worthwhile. Wrong!!
- It is noteworthy that an operation as large as Hostway does not support a backup site. With twelve data centers worldwide, only one data center at a thirteenth location need be configured to back up any one of the operational data centers. Then the applications and the databases of the servers to be migrated could be transferred to the backup data center for the period of the move. A backup data center is expensive, but its cost may pale in comparison to the costs associated with a massive outage such as that experienced by Hostway in this move.

And speaking of a backup site. A major data center in “hurricane alley” with no backup? Come on!