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Is your Web site ready for the flash crowd?

By Scott Lorenz

Bridgestone-Firestone took a heavy hit with its tire recalls in August but was blown out once more when its customers were unable to access its corporate Web site to get information or answers.

Like many sites on the Internet, the Bridgestone-Firestone site was designed for normal traffic and ground to a sudden halt when an unexpected number of online users swamped the site. Hours after the recall of millions of tires was announced, the Bridgestone-Firestone corporate Web site lay dormant for nearly a full day because it could not absorb the impact of 8 million visitors to its site. The lockout happened from 9 a.m. to 11:30 p.m. PST, Wednesday, August 9.

Keynote Systems, a Web-performance monitoring service based in San Mateo, Calif., began to monitor the corporate Web site, anticipating the recall would create massive problems. Keynote sent agents from 57 Internet access sites around the United States and discovered it was unable to achieve full page download of the Bridgestone-Firestone site during a period exceeding 14 hours on that Wednesday, despite using T1 and T2 lines. The next day there was some relief during off-hours but the site achieved only some 10 percent availability from 8-9 p.m. that second day.



A screen capture of the Bridgestone/Firestone home page

The shutdown caused by the recall announcement is similar to Web site crashes experienced by Brittany Spears, Victoria's Secret, Yahoo, Encyclopedia Britannica, e-Bay and others because of high-volume, traffic without a contingency plan in place to cope with the unexpected onslaught of visitors.

The result can be a community relations nightmare. Remember how you feel when calling tech support or customer service and being left on hold for half an hour. It was far worse when angry motorists attempted to get information about recalled tires and were put on hold for 14 hours plus. When visitors had Web site access doors literally slammed shut in their faces, the unintended message was that Bridgestone-Firestone didn't care about its customers. The result was a classic case study of how to make a PR nightmare even worse.



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A better understanding of load-balancing, content caching and the tolerance levels of a Web site's infrastructure could have protected Bridgestone-Firestone from the shutdown. By using a content delivery service (CDS), extra servers already would be in place for quick and easy access as soon as the recall announcement was made.

Bridgestone-Firestone did have two other Web sites for consumers with identical information as its corporate site. But the search engines showed the corporate site first on the list of choices and that's the site chosen by online visitors searching for recall information. The Bridgestone-Firestone corporate site normally receives between 75,000 to 85,000 hits daily. But no one else inside the company anticipated that hits would multiply 90 times within minutes after the recall announcement.

The problem eventually was solved when the tire company selected the CDS solution. A caching vendor created local caching areas at 10 sites around the country, (similar to creating 10 mirror images of the corporate site) and restored site download availability and response time for users.

A CDS was hired by mid-afternoon on Aug. 9 and the corporate site went from zero availability on that day to a response time of 14 seconds and 66 percent availability on Thursday, and to 6.5 seconds response time and 77 percent availability by Friday. By Tuesday, August 15, the site was operating at 95 percent availability with a response time of 3.7 seconds.

The need for speed with CDS is critical when you consider reports by Zona Research that \$4.6 billion per year is lost because users abandon slow Web sites. Providing a fast and reliable site keeps customers at the site, a condition Web marketing leaders refer to as "stickiness."

The service uses multiple Web servers distributed across the country to deliver copies of a Web site's content. The largest player in the CDS field is Akamai Technologies but other major players include SolidSpeed Networks, Inc., Digital Island and Adero.

The three primary benefits of a CDS are speed, reliability and flash crowd protection, said Jon Zeeff, who is Chief Technical Officer at SolidSpeed Networks, a provider of CDS to small and medium-sized business markets. After much experience with the challenges of single-site hosting for sites such as ameritech.com and gateway.com, Zeeff became convinced that the need for optimal performance will drive the majority of Web content to be served from multiple locations.

Greater speed is achieved because when a user calls up a CDS-enhanced Web site, the system quickly determines the best site for that user and sends them there. Generally, the fastest site is the closest site. This approach avoids the congestion and delays involved in a cross-country trip that would occur without a CDS. The increased speed a CDS provides is often 2 times to 10 times faster. The site is more reliable because its availability is no longer dependent upon a single Internet Service Provider (ISP). If any one-server site provided by the CDS goes down, traffic is redirected to another server site, and users are still able to access content without interruption. If the ISP's server goes down, duplicated content is still available from the CDS' server sites. It typically provides a five-fold increase in reliability.

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Nortel Networks

As CEOs face increasing pressure to adopt business-to-business Internet strategies, more companies will enter into virtual Internet marketplaces. These virtual Internet marketplaces will be created among companies, partners and suppliers to share resources, collaborate on solutions and offer new services.



A typical performance graph, comparing the Web site's response time with and without CDN service. The red asterisks indicate server outages, significant because content continues to be delivered from the CDN's caches even when the origin server is down.

As Bridgestone-Firestone and others learned the hard way, flash crowd protection also is provided. Because a CDS uses multiple, high-capacity cache servers, a site gains the capacity to instantaneously absorb large surges in traffic.

"If you go with a CDS, make sure you get what you pay for," cautioned Zeeff. "You'll need some type of service to provide ongoing data showing that the CDS is providing speed and reliability to all users. A performance monitoring service included with CDS services is convenient. Otherwise, a separate monitoring system, such as Keynote, should be considered." Keynote charges about \$500 a month for each URL monitored.

Zeeff recommended that when Web site owners shop for a CDS, they consider transparency, log files and the strengths and weaknesses of providers. All of the content delivery services are transparent to users. Users can enter a URL in their browser, link to a site and bookmark that site with CDS just as they could without the enhanced service. But CDS should be transparent to the Webmaster as well. Ideally a Webmaster should not have to make any changes to its site's pages. Some services require changes to all of the image links on a site's pages. In this instance, the name of the CDS provider is displayed at the bottom of the browser screen as images are loaded, possibly diluting the site's marketing message. It is not necessary to accept this inconvenience, which also impedes a site's ability to switch to a new CDS provider quickly if needed.

Zeeff also advised that companies investigate the procedures needed when content is updated. Typically, the CDS needs some kind of notification when you change content on your site so the copies of your pages are re-updated and the cached versions are always correct.

Another issue is maintaining accurate log files. Because hits that previously came directly to your Web site now go to the CDS network, the CDS should provide the means to retrieve your log files so that hits can be analyzed. Some services handle only images, and not HTML files, which will result in unnecessary headaches for the site owner. Such a service offers a log file that contains only image hits, while the ISP will provide another log file of HTML hits. Integrating the two can be difficult, especially if they are in different log file formats. Services that handle only images will leave the Web site owner with two log files that need to be combined.

SolidSpeed targets small to medium-sized businesses with a reasonably priced service that includes performance measurement. Using Sun Microsystems AXi Ultra Sparc II-based systems running Solaris 2.7, the service accelerates HTML and images and generally does not require changes to Web site content. SolidSpeed provides a simple mechanism to notify the CDS of content changes. Complete log files also are available from the Web site. SolidSpeed Network offers a variety of pricing options based on hits per month. The minimum charge is \$50 a month and it scales upward.

Digital Island merged with Sandpiper, the first standalone CDS. The company targets medium to large companies, providing content delivery service for larger sites. Both HTML and images are served from Sun Microsystems servers. To handle the load, as many as 5,000 servers may be deployed in the next 28 months at Internet service providers worldwide. The charge is about \$18 per gigabyte served with a monthly minimum of \$1,500.

Akamai concentrates on accelerating graphic and multimedia content for large companies. Its technology does not speed up HTML content. Modifications to Web site content are needed and Akamai provides the tools to assist with this process. Its pricing starts at \$2,000 per megabit per second served per month with a 12-month minimum contract.

"A CDS is the way to go if you are interested in accelerating your site, making it more reliable, and providing a better user experience," said Zeeff. "Most of the CDS providers offer a free trial, allowing you to fully evaluate their service before purchasing."

And if you think CDS might be an option for your Web site, began investigating today. Once the choice is made, and you begin marketing and promoting your Web site, you can grow to any volume desired and be prepared for the deluge of visitors your successful marketing may produce.

Scott Lorenz is president of Westwood Communications. He can be reached at scottlorenz@mediaone.net. Site addresses for the CDS companies mentioned in the article are www.keynote.com, www.solid-speed.com, www.akamai.com and www.digitalisland.com.

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