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Service Provider WEEKLY

Mirror Image Internet Teams-up To Help Tsunami Victims – Helps Bloggers Stream Video

When bloggers began posting video from the tsunami region to share non-commercially with viewers from across the globe, they didn't take into account the resulting, massive bandwidth bills they would receive from their ISPs (which charge based on the highest amount of traffic the site sees). Last Monday, The Media Bloggers Association, in partnership with Zubr Communications, launched a Tsunami Video Hosting Initiative, a public service offered in response to concerns over bandwidth issues facing bloggers by providing tsunami video to the world. (http://www.mediabloggers.org/archives/2005/01/media_bloggers_2.php)

In response to the call, Boston-based Mirror Image began offering free ongoing use of its global network and related technical support.

The past few weeks have proven to be a time when organizations and citizens across the globe are donating what they can. These media and technology outlets are coming to gather to combine unique abilities, in an effort to relieve the cost burden off the shoulders of those bloggers trying to provide timely news.

After these videos became available, in the first day and a half alone, 390,000 requests for video were served. There were hours upon hours where there were 200-400 requests per second. In case it's helpful, Links to three of the videos below. Before you click, please note: as you would expect, you may find them distressing to watch:

mms://wm.world.mii-streaming.net/media/mblog/12.srilanka.wsx
mms://wm.world.mii-streaming.net/media/mblog/patong-beach.wsx
mms://wm.world.mii-streaming.net/media/mblog/sri-lanka-tsunami.wsx

Then we had the good fortune to get the following four people together and here's what they had to say about it. Participating are, Alex Yuriev, CTO Zubr Communications, Robert Cox, Media Bloggers Association, Steve Safran, Executive Producer NECN.com, Jeffrey Schutzman, Vice President, Global Sales and Marketing

How did the initiative start?

SS: In the tsunami crisis, I recognized the need for a fast, efficient and free way for bloggers to stream video. Individual bloggers were getting hammered with charges. They had the content - what they needed was bandwidth.

I put the idea out there on our blog, Lost Remote. It was Robert Cox at the Media Bloggers Association who turned the idea into reality. I don't have the pipes or technical know-how. Robert contacted Alex at Zubr, and they made it happen over the New Year's holiday weekend. I was amazed. You'd expect a project of this magnitude to take months to put into action, under normal circumstances.

I appealed to our partners at Mirror Image for help. Even with Zubr in place, we still needed more bandwidth. Otherwise we were just transferring expenses from bloggers to Alex. Mirror Image stepped up the same day I asked for their help. Washingtonpost.com also followed suit, along with The Internet Archive.

JS: When Steve approached us and asked for Mirror Image's assistance we immediately said yes. When disasters happen it's important for companies to step up and offer their support. Donating the space for the blogger videos was the right thing to do.

How has your initiative gone so far?

RC: The idea behind the initiative is a good one - and it is certainly a good role for the Media Bloggers Association in helping support citizen media. We have learned a lot and we are well prepared for the next major blogging event. That said there are things we would do differently.

Ideally we would deal only with the owners of the video. Not only is it cleaner all around but we have a number of corporate donors who will only host video where the original owner has signed over permission for us to place the video with a donor host. Today 20% of our videos come directly from the person who shot the video. This is due to our late start. We came to the event six days after it happened - in response to a plea for help from other bloggers - and there was already a great deal of video floating around. We have had no luck in matching this "floating" video to the original owners. We went ahead with the MBA Tsunami Video Hosting Initiative because in analyzing how blogs and other sites were hosting video, it was apparent to us that none of it was sustainable. Alex can explain why.

AY: The primary reason is that although video traffic is an extremely expensive proposition many web hosts set a false

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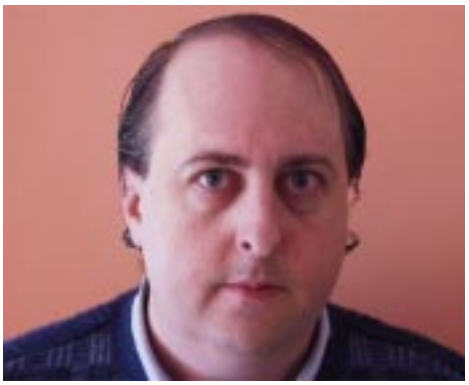
expectation with customers - that bandwidth is “cheap”. This is because there are hosts who are willing to sell capacity at any cost to obtain revenue in the hope that customers will never use all of the bandwidth they promise. Their business model is based on the assumption that only 5% of customers will use 50% of promised capacity and the other 95% will use just 0.1%. When a major web video event occurs - 9/11, the Danny Pearl murder, the Nick Berg murder - customers who upload video begin to burn through all that promised capacity - and often well beyond it. Most of these customers have no idea how expensive video hosting can be and are shocked to find they are getting a $10,000 data transfer bill on their $20 a month hosting account. What we expected as the interest in Tsumami video skyrocketed was that those small sites who had uploaded some video were going to blow up pretty darn quick - and they did. Next went the mirror sites. And finally on Day 8, the bitTorrent nodes blew up.



All of a sudden it was pretty hard to find the video. A few sites kept serving, but the demand was crazy and they were looking to lay off demand.

One interesting thing that came out of this is how WaveofDestruction.org’s bitTorrent node blew up. This site was the most high profile bittorent node and just serving as the node - not serving up video - caused an overload that led their host to shut them down. The loss of WaveofDestruction.org as a bitTorrent node shifted more traffic to other nodes and the capacity problem rippled across the network. This was a preview of the limitations of bitTorrent.

bitTorrent is a fundamentally wrong solution for the problem because it is based on the assumption that the peer to peer traffic between any two people on cable or DSL connection is “free” since it is a part of the package that they subscribe to. Guess what? It is not. The reason why one can buy a DSL 1.5M down/128K up connection from Verizon for $34.95 per month is because provider’s network is designed with the assumption that users do not use that capacity 80% of the time. That allows the providers not to buy all the capacity that they theoretically need to support the users. The infrastructure supporting the edges of the network simply is not designed to support that type of constant traffic. The more broadband users get on the P2P networks, the more traffic they generate, the bigger and better infrastructure would need to be in place to support the traffic generated by the edges and that infrastructure does not come cheap. Since fundamentally there is a misconception that $35/mo 1.5Mbit/sec residential broadband connection means that a user can always push/pull 1.5Mbit/sec, the customers of broadband companies won’t finance the upgrades by additional fees.

More traffic on same infrastructure means congestion. Congestion means slower downloads, slower downloads means lack of satisfaction. We have been down this road before, in 1997-2001. That is why now major content producers are located a pair of gige links away from someone who can accommodate 1Gbit/sec spikes. Now let’s presume that it all forces companies to actually upgrade the infrastructure? What do we end up with? We end up with a P2P network operating at 100Mbit/sec to 1Gbit/sec links...and at those speeds the most optimal place is to put the content on well connected web farms, which is exactly where they are today. Congratulations, in two years from now, after enormous costs the point to point protocols will cheerfully lead us back to the server farms that exist today.

So what’s the solution? The solution is to pay for the capacity used. The interesting thing is that we have no idea what the price of traffic actually delivered is. Some companies are willing to sell full giges for under 20,000 USD. Others say it is way below cost. But the reality is that no one knows. The vast majority of those who buy full giges do not sell to the end user who actually generates content. [Do realize that a blogger buying that hosting account is locating his content on a much better connected network than a broadband link. The odds are it is sitting on a server with at least 10Mbit/sec link, with 100Mbit/sec link being more common. They sell to someone else, who in turn sells to a smaller operator, who finally sells to say a blogger that generates video content.] Somewhere in that chain, the original $20K per 1Gbit/sec per month becomes $7.00 per month for 20Gb transferred to the blogger. Or maybe even $5 per month for 70Gb transferred. The point is, the fundamental starting costs are very close. The end costs vary dramatically and the vast majority of that capacity goes unused at any time. Now what we do with a content broker is we maintain information where that capacity is available and at what cost. You want to transfer 900Gb of video? No problem, we know where you can do it from and we know that right now that capacity is available at for a price X.

But back to bitTorrent... For all the talk about its reliability we had it blow up. Waveofdestruction used it. They got shut off. Why? Because they blew through their quotas and could not pay the bill. Someone has to pay it. If the blogger or web site using bitTorrent doesn’t, someone, somewhere does. There is no free lunch on the Internet. Unfortunately this fallacy has become embedded in the culture - that somehow, somewhere everything can be free.

The solution we used, Content-Broker, is designed to squeeze the maximum efficiency out of the available capacity that we can obtain and has governors to brake excessive demand so that donor hosts do not get flooded with requests they did not bargain for when they donated capacity. Since we know where those objects are located and we know their size and we are the reference point that others use to access those objects, we can count how much traffic those hosts provided. Since we know how much they agreed to do and how much they did, we can

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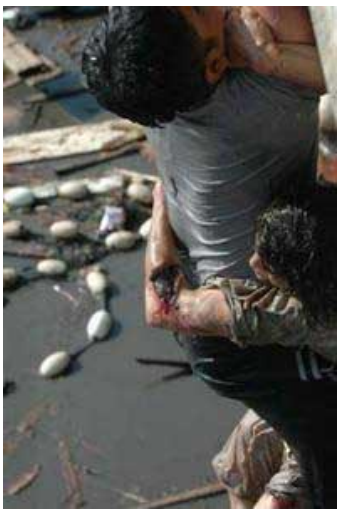
stop utilizing them as they meet their quota.

Have you had offers of more bandwidth, or queries from bloggers who need bandwidth?

RC: The Tsunami Video Hosting Initiative was predicated on the idea that most sites serving up Tsunami video had it backwards. Most just stuck up the video and tried to convince their hosts not to shut them off. We felt the right place to start was finding willing donor hosts and then matching them with video sources who could not afford to host the video on their own. Without the web host donors there is no video to see so our first priority has to be protecting them against demand beyond that they offered to give and finding ways to demonstrate that their donation is recognized and respected. That has allowed us to build a network of donor hosts with significant capacity. Alex has worked directly with the donor hosts so I will let him follow up.

AY: We have had quite a few offers. In addition to the capacity that we at Zubr Communications kicked in to get the project rolling, the wonderful folks at Mirror Image provided us streaming capacity on their CDN, which made a lots of people very happy since now they did not even need to download the entire movie before being able to watch it. Internet Archive and The Washington Post stepped up with the caveat that they could only host video where the copyright/permission issues were clearly resolved. Several smaller web hosts have stepped up as well and most recently IFILM has made an offer to donate capacity.



Has most of the video traffic blown over by now?

AY: Blown over? No. But the number of requests for the videos we are handling has decreased from a peak of 400 requests per second down to 150 requests per second. Still a lot. There are still new videos surfacing and there are likely some videos that would get wider notice if integrated into the MBA Tsunami Video Hosting Initiative. You may have seen the video from Bande Ache - the river of debris flowing through a downtown area. That only became available a couple of days ago.

What about the rights of people who shot the video and might want to either take down videos or be compensated for them?

RC: We support copyright 100%. At the same time, our mission here is to help those who shot video get their story out and beyond that to hopefully motivate people to contribute to the relief effort (the MBA is supporting the American Red Cross). The best we can do in this case is to strike the right balance.

The preferred situation is that we deal only with owners or those who have permission from owners, yet 80% of our video is of unknown (to us) origin. The nature of this event, the way the videos first made their way onto the Internet, the lack of digital watermarks, has made this extremely difficult. That said, our policy is clear. If an owner came to us and "claimed" the video we would either remove it immediately or offer to include them in the Tsunami Video Hosting Initiative so that the link from the Media Bloggers Association would appear only where they wish. What we are offering is a way for people with video of social or news value to get that video online when the cost of doing it themselves is beyond their means. If they can afford to host the video themselves they don't need us and if they are looking to sell video their are companies that do that.

How do you see that playing out?

AY: As video blogging grows, we expect demand on the web hosting companies and blog services providers would significantly increase. The reality is, most of the companies are not setup to be able to efficiently handle video files to begin with, not to mention handle them when their small customer suddenly gets hands on a very hot video and hundreds of thousands of people suddenly want to see it. The blogger who obtained that video would go over his/hers transfer quota in a matter of minutes, most likely not being just shut off himself, but getting the small hosting company providing him his $20 per month account shut off as well. Remember, it's never the sustained traffic that is difficult to handle, it's the peak traffic. The MBA's request for us was a way to test our solution to this problem in the real-world totally unpredictable situation. We are very pleased that it worked exactly as expected. In fact, the modifications we have made over the past week to manage the traffic have allowed us to achieve a 700% increase in performance from the day we launched.

RC: I agree with Alex. The early history of video blogging is going to be a lot of sites "blowing up" as they suddenly find themselves dealing with massive data transfer costs on a video that catches fire on the Internet (think of lots and lots of little "jibjabs"). These sites will take down some smaller web hosting companies. There is a lot of hope placed on bitTorrent but I suspect much of that hope is misplaced. What is really needed is better systems to cap sudden spikes in data transfer to prevent billing surprises and a way for a video blogger to rapidly, seamlessly add short-term data transfer capacity at a manageable cost if they elect to remove the cap and continue serving the video in the face of high demand. To that extent, I believe our experience with the Media Bloggers' Tsunami Video Hosting Initiative has been tremendously successful.