

# Ustream Drives Social Broadcasting Servers to the Limit with the Nytro™ Card



## Ustream Boosts Performance and Avoids Cost

### The Challenge:

Ustream was beginning to feel the effects of rapid growth, bumping up against the performance limitations of existing servers and storage resources, but they did not want to buy processors and storage capacity 'just in case'. They needed additional performance and capacity to respond to demand spikes when one of their hosted videos goes viral, which, in the recent past, had caused a file to receive more than 10,000 read requests in less than a minute. In cases like that, the I/O reads get truly random as viewers start to watch at different times and they usually seek to different positions in the video during playback. Random I/O performance becomes a critical consideration

### The Solution:

They needed a game changing technology that could boost performance and be true to their design objectives of minimizing server sprawl and related power and cooling costs.

### The Result:

Ustream's decision to integrate the Nytro card into their front end Video on Demand (VoD) systems. They can now deliver 500,000 IOPS from a single server without adding additional nodes.

- Optimized program cycles
- Extended endurance by 20x or more compared to standard controllers
- Low host burden – No static CPU and memory overhead
- Installs as single drive with no user configuration required, just plug-and-play
- Uses standard drivers that are included in most OS distributions

### About Ustream

After meeting at West Point, founders John Ham and Brad Hunstable joined with Gyula Feher to create a service that would allow service men to communicate with their families and friends live, all at once. The founders launched Ustream in March 2007, and the service has since found worldwide adoption, becoming the leading live interactive broadcast platform. Ustream has offices in Los Angeles, Tokyo, Seoul and Budapest. For more information, visit Ustream at <http://www.ustream.tv/>

### About Racklive

Racklive was founded on a clear mission to provide turnkey datacenter hardware solutions and deployment to companies. We design, build, rack, deploy, You go Live. At Racklive, we have assembled a team of mechanical, electrical, and system engineers, production and project managers who work cohesively on datacenter projects from pre-deployment data center site surveys to field (post-shipping) deployment services. Racklive is the main datacenter hardware infrastructure vendor to some of the most trafficked web and mobile companies in the world. To learn more, visit [www.racklive.com](http://www.racklive.com)

Some would argue that social media could change the course of human history; Some would say it already has. Some would argue that the full potential of social media is untapped, in part because it is mostly text and still images, but no one seems to disagree that live and on demand video are likely to be the next big wave.

Cisco, for example, anticipates huge increases in the amount of video moving across the internet in the next few years. In their latest Visual Networking Index (VNI) forecast, they project that by 2016, "1.2 million video minutes—the equivalent of 833 days (or over two years)—would travel the Internet every second."<sup>1</sup>

They go on to say, "Globally, there are expected to be 1.5 billion Internet video users by 2016, up from 792 million Internet video users in 2011."<sup>2</sup> and that "Video-on-demand (VoD) traffic will triple by 2016. The amount of VoD traffic in 2016 will be equivalent to 4 billion DVDs per month."<sup>3</sup>

Helping to meet the challenges and fulfill the promise offered up by live social broadcasting and VoD delivery is Ustream ([www.ustream.tv](http://www.ustream.tv)), the world's leading live interactive broadcast platform\*, enabling anyone with an internet connection and a camera to start engaging with their family, friends or fans anytime, anywhere.

According to the company, millions of Ustream users view and broadcast a wide variety of content, from high school sporting events to red carpet movie premieres. Notable Ustream broadcasts include major political events, concerts, conferences, talk shows or your daughter's first birthday when you are deployed overseas or closing the deal in Detroit, or...

Ustream's mission is to bring people together around shared interests for amazing live, interactive video broadcast experiences that build and maintain relationships.

Founded in 2007 and managing service levels in a hypergrowth environment, Ustream recently had to come to grips with some serious growth challenges. They felt that the I/O performance coming off their servers was falling behind demand, particularly under very heavy random I/O. (Even though they are supplying video, which is sequential, the profile of their data is random due to the large number of users making requests.)

"We are pleased with Nytro cards because they help us deliver value to our users, optimize our systems' random I/O performance and avoid cost.

**Arpad Kun**  
Director of Network Operations  
Ustream

to keep their server footprint low to save on space, power & cooling, server and management costs.  
"Today we are consistently seeing half a million IOPS from our systems with the Nytro card. We believe we would have needed to add two more servers to get that same performance. We like avoiding that hardware, management and operating expense.  
"And a nice little side benefit of using Nytro application acceleration products is that we now have so much I/O horsepower available, we've gone back and found opportunities to optimize our code," Kun explained.

### Benefits Nytro Card

"We were beginning to bump up against the performance limitations of our servers and needed to look for a game changing technology that could boost performance and be true to our objectives of minimizing server sprawl... be true to our desire not to buy processors and storage capacity 'just in case,'" explained Arpad Kun, Director of Network Operations at Ustream.

"When we started the company, we put a lot of thought into architecting an easily optimized platform. We wanted to be able to wring every last bit of performance out of each system," he continued. "We did not want to 'throw hardware' at the problem and simply scale out our servers and hard drive subsystems to support peak loads when certain videos go viral." Ustream could have added more servers and hard drives to solve the problem, but they wanted

#### Footnotes

- <http://newsroom.cisco.com/press-release-content?type=webcontent&articleId=324003>
- [ibid.](#)
- [http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white\\_paper\\_c11-481360\\_ns827\\_Networking\\_Solutions\\_White\\_Paper.html](http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html)

\*<http://www.guinnessworldrecords.com/Search.aspx?q=ustream#>