NETEQUALIZER

Library Guide

In working with libraries across the country, we have heard the same issues and challenges repeatedly from network administrators. Here are just a few:

- *We need to meet the varying needs of all of our patrons while keeping the network truly open to the public.*
- *We need to ensure access to our online resources for remote users (online catalogs, databases, etc.).*
- *We need to do more with less bandwidth.*
- *We need a solution that's low cost, low maintenance, and easy to set up.*
- *We need a solution that will grow with our network.*

In this article, we'll talk about how the NetEqualizer has been used to solve these issues for many libraries around the world.

We need to meet the varying needs of all of our patrons while keeping the network truly open to the public.

Patrons who come into the library have a variety of needs for computer usage. Some want to just surf the web, send email, or hold an online chat session. Others may need to download files or watch YouTube videos.

The concept of NetEqualizer "fairness" enables your network to continue providing quick response times to the majority of your users while restricting the network hogs. Low bandwidth users, such as email, surfing the web, or online chat do not have to share the pain of a slow, congested network with the bandwidth-intensive applications, such as downloading a large file or watching a YouTube video. Your patrons expect email and web surfing to be responsive, and with equalizing, they will be.

For example: Suppose you have 30 patrons using the network as follows:
- 95 percent are casually surfing the Web
- 25 percent are using email
- 5 percent are watching YouTube
- 1 percent are downloading large files

In this example, if your trunk is saturated, the NetEqualizer would add latency to the YouTube and downloading file streams (since they are the most bandwidth intensive), leaving all the other streams alone. So instead of having your network crash completely, a few YouTube videos would break up for a few seconds, and a few downloads would take slightly longer to complete, and then when conditions abated, they would be allowed to run. The impact of network congestion is limited to 5-6% of your patrons, freeing up bandwidth for 95% of your patrons, instead of slowing down the network for everyone.

NetEqualizer Key Functions

- *Behavior-based bandwidth shaping (aka "equalizing")*
- *Plug-and-play, low-maintenance solution*
- *Effective P2P control*
- *Reduces RIAA requests*
- *CALEA compliant*
- *Prioritizes sensitive applications such as VoIP*
- *Shapes up to 5 Gbps*
- *Up to 40,000 users*
- *Pricing starting at $1525*

Notice that the exact allocations per user do not matter. We do not try to hit fixed allocations, *we just put delay on the nastiest "hog" traffic until the bandwidth usage overall drops back to 85 percent* (or the setting you choose). This quickly takes the delay away until your network is no longer congested. The value is that you get the best possible usage of your network bandwidth without having to micro-manage your network.

To learn more about our thoughts on YouTube, please review our blog posting How Much YouTube Can the Internet Handle?

We need to ensure access to our online resources for remote users (online catalogs, databases, etc.).

The NetEqualizer not only will improve the Web-user experience of patrons on-site, but also remote users. Freeing up the network from patrons using bandwidth-intensive applications in-house will ultimately enable better access to all patrons of the library's online resources.

The NetEqualizer reviews bandwidth utilization for both inbound and outbound traffic, utilizing its "fairness" rules to reduce network congestion for all patrons on your network.

We need to do more with less bandwidth.

NetEqualizer's built-in rules-based, application-level traffic-shaping technology dynamically controls traffic based on current network usage. When the network is congested, the "fairness" algorithm favors business class applications, including VoIP, Web browsing, chat and email, at the expense of large file downloads. This approach allows network managers and operators to maintain high levels of customer satisfaction without having to purchase additional bandwidth.

We need a solution that's low cost, low maintenance, and easy to set up.

Put simply, the NetEqualizer is a "plug-and-play" solution. Once you put the NetEqualizer in place, it immediately and effectively handles traffic shaping automatically around the clock. You simply need to define the size of your network pipe, establish the level of total bandwidth usage (default is 85%) at which you want shaping to kick in, make sure that the defaults are "on," and that's it.

In general, the NetEqualizer is installed between your Router and your Switch, acting as a transparent bridge once in place. It will reside passively in your network until bandwidth shaping is needed, and when the set level of congestion is reached, it kicks in to smooth your network traffic.

There are additional parameters that you can set to customize your NetEqualizer implementation. However, many of our customers find that they do not need to make any changes to the default settings in order for their network performance to improve dramatically.

We need a solution that will grow with our network.

The NetEqualizer is not licensed per user. Rather, the NetEqualizer license is tied to the size of your network pipe. It can be updated as the size of your pipe is increased, typically by purchasing a NetEqualizer license upgrade. Also, unlike

other solutions on the market, you pay a one-time license fee for the NetEqualizer, and then only a small yearly support fee to cover software upgrades and support questions.

So, you can size your network to support your anticipated number of patrons, and then purchase the NetEqualizer that matches your network pipe size, knowing that you have the option of a license upgrade for more users later on. For more details on our sizing recommendations, see our contention ratio blog post Can Your ISP Support Video for All?, which specifically addresses the needs of administrators.

Furthermore, if you need to architect your network to support full redundancy, you can buy a second NetEqualizer and put it in place as either a cold backup or in hot swappable mode.

For more information…
Although we've covered a few of the most pressing issues libraries face, we understand that everyone's situation can be different. So, to learn more about how the NetEqualizer might specifically help your library, please contact us at sales@apconnections.net or call us at 303.997.1300, extension 103.

About APconnections, Inc.
APconnections is based in Lafayette, Colorado, USA.
We develop cost-effective, easy-to-install and manage, traffic shaping appliances. Our NetEqualizer product family optimizes critical network bandwidth resources for any organization that purchases bandwidth in bulk and then redistributes or resells that bandwidth to disparate users with competing needs.

We released our first commercial offering in July 2003, and since then customers around the world have put our products into service. Our flexible and scalable solutions can be found at ISPs, WISPs, major universities, Fortune 500 companies, SOHOs and small businesses on six continents.

About the NetEqualizer Product Family
NetEqualizer appliances are bandwidth shaping systems designed to optimize your Internet Connection, while giving priority to your important business and data applications. The flexible, scalable, and cost-effective bandwidth control products can be deployed in both corporate and service provider networks.

NetEqualizer is available in a range of configurations from 4Mbps up to 5 gigabits.

What NetEqualizer Users Are Saying...

The residents of Henderson, Nevada were loving their library system to death. With five sites and 200 computers, Sean Hill, Information Technology Manager of Henderson District Public Libraries, had a challenge to keep the networks flowing.

"We've had a policy of trying to be as open as possible," said Sean.

But, "as the Internet got richer, the programs got larger," says Hill. File sharing and downloads, on-line games and systems that allow an application to open lots of ports to download started to plague the Henderson network. "There were times of the day you couldn't use the thing."

They stumbled on the NetEqualizer. Hill assumed that for the low price the results would be limited. But he was very pleasantly surprised. "It immediately made it better. People were able to reliably surf the Internet," said Hill.

It's been a while now and the Internet and its use continues to grow. They are in the process of upgrading their connection to a 10 Meg line. But they will keep the NetEqualizer.

"I know however much bandwidth I throw at them they'll use it. Someone will take it." Hill believes there will always be a need at Henderson Library for some bandwidth management. He's considering putting a NetEqualizer at each of his sites once the bandwidth is increased.

Hill says: "We've grown so much and we've gotten by with the NetEqualizer. Without the NetEqualizer our network hardly works at all. It's kept us going when we didn't have funds to do anything else."

-- Sean Hill, Henderson Library