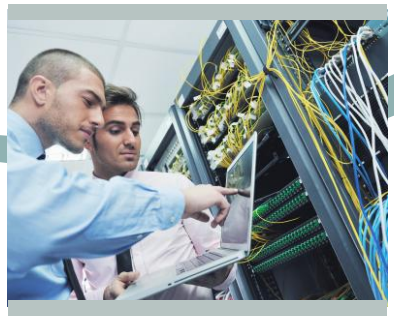
NETEQUALIZER

# Internet Providers Guide



## In working with network administrators over the years at Internet Providers around the world, we've repeatedly heard the same issues and challenges facing them.

### Here are just a few:

- We need an affordable, low maintenance bandwidth shaping solution.
- We need to set up multiple customer rate plans.
- We need to be able to report on subscriber usage over time.
- We would like to increase our contention ratio before having to buy more bandwidth.
- We need a solution that is not licensed "per-user" and will grow with our network.
- We need to meet customers' varying needs.
- We need a solution that will meet CALEA requirements.
- We would like flexible buying options, to better align with our monthly revenue stream.

### NetEqualizer Key Functions

- Fairness-based bandwidth shaping ("equalizing") looks at behavior
- Automatically prioritizes latency-sensitive applications such as email, web browsing, web applications, & VoIP
- Low-maintenance. No policy files to maintain.
- Controls both encrypted & unencrypted P2P
- Reduces RIAA/MPAA requests
- CALEA compliant
- Shapes up to 5Gbps
- License-upgradeable
- Affordably priced from $3,000 to $14,000. Read our *blog article on ROI*.
- Leasing option available.

### Who's Using the NetEqualizer?

- Over 300 telecom, cable, satellite, wired and wireless ISPs around the world.


**About APconnections, Inc.**

APconnections is an innovation-driven technology company that delivers best-in-class network traffic management solutions to give our customers better networks, with zero maintenance, at the best prices. We specialize in turnkey bandwidth shaping and intrusion prevention system (IPS) appliances. APconnections is based in Lafayette, Colorado, USA. We released our first commercial offering in July 2003, and since then thousands of customers all over the world have put our products into service. Today, our flexible and scalable solutions can be found in many types of public and private organizations of all sizes across the globe, including: Fortune 500 companies, major universities, K-12 schools, and Internet Providers on six (6) continents.

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## What customers are saying...

*I tell every other WISP that I speak to about the NetEqualizer.*

*We would certainly hate to be without it, because we feel the NetEqualizer is far ahead of all other bandwidth shaping devices. It is not like simple rate limiting devices; it intelligently shares bandwidth across all users, using equalizing to penalize network hogs when the network is congested. When the network is not congested, users can have as much bandwidth as they need, without being artificially limited.*

*We bought an existing WISP that had been in business about 10 years and was failing badly. In 2005 we purchased our first NetEqualizer. We traded that for an NE2000-45 in 2009, and have since upgraded to our current 100Mbps license.*

*The NetEqualizer is affordable. The NetEqualizer has been great about scaling with us as we grow.*

*Thank you for a great product. We feel that our NetEqualizer will last us many, many years to come…*

**Kevin Melson**, Eagleone WIreless

*AirSpeed Wireless runs a fairly extensive wireless network and we use the NetEqualizer to keep traffic flowing smoothly even at peak times and under heavy load.*

*The NetEq's give our wireless backhaul links as much as 50% more capacity without noticeably affecting customer service. This gives our equipment a longer lifespan and keeps bandwidth costs down, which is good for the bottom line.*

**Darren Muloin**, AirSpeed Wireless

## NetEqualizer has been used to solve these issues and challenges for many Internet Providers around the world.

### We need an affordable, low maintenance bandwidth shaping solution.

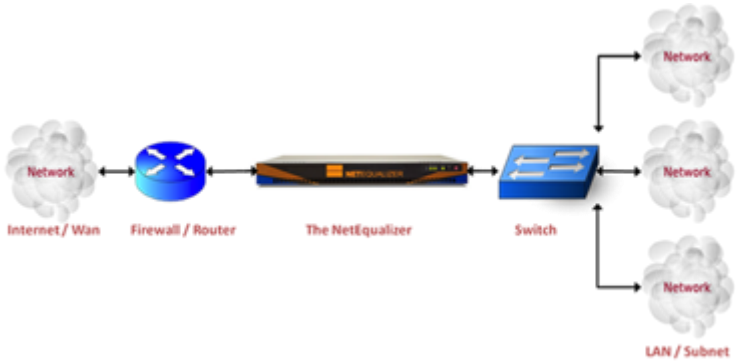
NetEqualizer is intended to be a “set it and forget it” type solution. Once you install and configure your NetEqualizer, it handles traffic shaping around the clock with little additional maintenance from your network administrator.

### Configuring Equalizing is as simple as three steps:

1) Define the size of your inbound & outbound Internet pipe,
2) Establish the level of total bandwidth usage at which you want equalizing to kick in (default is 85%), and
3) Make sure that equalizing is “on".

We believe that traffic shaping can be affordable. Our NetEqualizer units range from $3,000 to $14,000, licensed bi-directionally to shape 10Mbps to 5Gbps. Our yearly fees for access to software upgrades, support, and hardware warranties are under $1,500. In addition, under our Lifetime Buyer Protection Policy, we also protect your initial investment by offering a trade-in credit towards a new unit when it is time to retire a unit. We offer a compelling ROI, helping you to optimize your Internet resources.

The NetEqualizer is typically installed between your Router and your Switch, acting as a transparent bridge. As we do not perform deep packet inspection (DPI), we maintain Net Neutrality for traffic passing through the NetEqualizer.



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## We need to set up multiple customer rate plans.

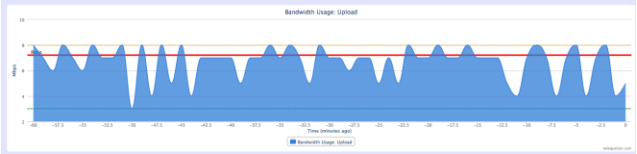
With the NetEqualizer, administrators will find they have significantly greater control over how bandwidth is distributed through the ability to shape their network traffic by IP address, IP subnet, VLAN, or MAC address.

The NetEqualizer provides the ability to set "rate limits" for both inbound and outbound traffic by individual IP address, to support setting fixed bandwidth per customer. You can set up these rate limits to match the plans that you sell to your customer base. For example, you could have 1Mbps up/2Mbps down, and a 2Mbps up/10Mbps down plans.

In addition, you can set hard limits for a class of IP addresses or subnets, if you have a contiguous block of IP addresses that you want to rate limit. Alternatively, hard limits can be set up by VLAN or MAC address as well. For more information on each shaping strategy, see our detailed User Guide.

## We need to be able to report on subscriber usage over time.

Once you have your fixed bandwidth allocated, you can use NetEqualizer's Dynamic Real-Time Reporting (RTR) capabilities to see how much network utilization is being used in real-time by each subscriber (IP address) on your network. Just set up Traffic Reports to track your subscriber IP addresses, and then you are able to view usage for the selected IP (see example below).




This will help you to track and report on network usage, so that you can send notification letters to your customers on their bandwidth utilization. For customers consistently hitting their fixed allocation maximum, this could include a recommendation to increase their bandwidth allocation to correct the issue.

We also offer the ability to set up User Quotas, if you want to need to set maximum usage over a period of time for your customers, and track usage against that. For example, you could see that a customer on a 1Mbps up/2Mbps down plan has used 5GB so far in a given month.

## We would like to increase our contention ratio before having to buy more 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 web applications, web browsing, VoIP, chat, and email, at the expense of large file downloads, live streaming video, and other bandwidth hogs.

Our approach allows network managers and operators to maintain high levels of customer satisfaction without having to purchase additional bandwidth.

We consistently get feedback from our Internet Provider customers that they are able to maintain higher subscriber-to-bandwidth ratios (aka contention ratios) on their networks after installing a NetEqualizer. An investment in a NetEqualizer may result in reduced bandwidth costs, by delaying your need to upgrade bandwidth.

## We need a solution that is not licensed "per-user" and 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, 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.

Faster Networks

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So, you can size your network as you need today, knowing that you have the option of a license upgrade as your network grows. 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.

## We need to meet customers' varying needs.

What is great about NetEqualizer bandwidth shaping (aka "equalizing") is that it is *fair*. Low-bandwidth users do not have to share the pain of a slow, congested network with the network hogging applications. Your customers *expect web applications, email, VoIP, and web surfing to be responsive, and with equalizing, they will be.* For example, suppose you have 1000 customers using your network, as follows:

- 85% are web surfing
- 50% are running chat sessions
- 40% are also using email
- 30% are also watching YouTube

In this example, if your trunk were saturated, equalizing would kick in and would add latency to the YouTube streams watched by 30%, 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 when conditions abated, they would be allowed to run. The majority of the traffic on the network is well-behaved, short/bursty bandwidth uses, such as web surfing, web-based applications, chat sessions, and email and so will not be penalized.

*Notice that bandwidth 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 below 85 percent* (or the setting you choose). The value is that you get the best possible usage of your bandwidth without having to micro-manage your network.

## We need a solution that will meet CALEA requirements.

The NetEqualizer is able to serve as a CALEA probe, offering ISPs an affordable, yet effective, answer to law enforcement regulations.

The Netequalizer CALEA release provides a network probe with the capability to comply with a basic warrant for information about a user by capturing and sending IP communications in real-time to a third party. IP communication may be captured by headers or headers and content.

Although the law (see CALEA sections 103 and 107(a)(2)) is fairly specific on what needs to be done, the how is not addressed to any level of detail to which we can engineer our solution. Many people are following the ATIS specification, which was put forth by the FBI, and we have read and attempted to comply with the probe portion of that specification.

As best we can tell at this time, there is no one government agency that can fully declare our technology CALEA compliant. However, we do pledge to work with our customers should they be faced with a warrant for information to adjust and even customize our solution; however additional fees may apply. Additional information on CALEA itself can be found at http://www.askcalea.org.

## We would like flexible buying options, to better align with our monthly revenue stream.

We now offer a Leasing Program, for customers that wish to align a monthly cost outlay for bandwidth shaping with business revenue streams. Our Leasing Program is currently available in the US and Canada. Read more about the Leasing Program. Leasing is in addition to our typical purchase program.

### For more information...

Although we've covered a few of the most pressing issues Internet Providers face, we understand that everyone's situation can be different. To learn more about how the NetEqualizer might help you, please contact us at sales@apconnections.net or call us at 303.997.1300 x103.