

## Dyband Solution: Controlling Aggressive Users

### Challenge:

Customers who are purchasing bandwidth should have a fair expectation of "getting what they paid for". Too often, however, a few aggressive users monopolize bandwidth at the expense of all other customers. Until now, service providers lacked sophisticated tools to deal with those few "bandwidth hogs" whose behavior disrupts service for the rest of the customer base.

### Solution:

Two steps are needed to control aggressive users: 1) identify who they are, and 2) take appropriate action to reduce their consumption.

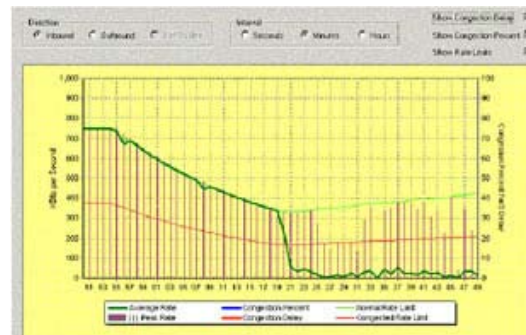
Both steps are incorporated into the Dyband IP Traffic Management solution. Dyband's 24-hour moving window of performance data gives service providers immediate insight into their network, allowing them to see who is consuming bandwidth, at what rate, and during what time of day. Additionally, Dyband provides reports down to the subscriber level, both real-time and historical, which pinpoint the most aggressive users.

Identifying aggressive users is an important first step, but Dyband also provides the means to control them. Service providers can take advantage of Dyband's "rate ramps", a unique feature which progressively reduces rate limits for targeted subscribers. The approach is to specify, as part of the subscriber's service level policy, an Acceptable Average Rate (consumption averaged across 100 shaping cycles per second). When usage exceeds that rate, Dyband progressively reduces the rate limit until the sustained high usage ends or a final specified rate limit is reached.

The speed and severity of the rate reduction is left to the service provider's discretion. Rate ramps can be further fine-tuned by ramping not only the user's rate limits but also his access to bandwidth during periods of congestion.

Rate ramps are strict but responsive; as soon as the aggressive behavior ends, rate limits automatically rise until the user's original service level is restored. The example below, viewed through Dyband's user interface, shows a rate ramp in action. The ramp was triggered at minute 55 after a period of unacceptably high usage -- that is, the user's average consumption, shown by the thick line, was continuously at its rate limit of 750 Kbps, far above the specified Acceptable Average Rate.

Dyband responded by progressively lowering the rate limit until the aggressive behavior ended at minute 19. At that point, Dyband allowed the rate limit to slowly rise (see the upper thin line, previously hidden by the thick average rate line). Eventually, barring a recurrence of aggressive behavior, the rate limit would return to its original level.



**The graph above clearly shows that peak transfer rates (shown as vertical lines) are permitted up to the rate limit without penalty, as long as the average transfer rate remains at or below the Acceptable Average Rate.**

For further information on Dyband, and how it can benefit your firm, contact us at [sales@dyband.com](mailto:sales@dyband.com) or visit us at [www.dyband.com](http://www.dyband.com)

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