Dyband Solution: Minimizing Network Congestion

Challenge:

With the continuous growth of the Internet, fueled by both business and consumer users, it is inevitable that Service Providers will face periods of network congestion, when demand for bandwidth exceeds capacity. Left unmanaged, congestion will cause customer dissatisfaction, ultimately leading to customer churn. How, then, can congestion be minimized?

Solution:

Dyband offers service providers an effective management tool to minimize congestion and reduce packet loss. Dyband's approach to IP traffic management is dynamic, assessing traffic flows throughout the service provider's network every 10 ms and responding in the next 10-ms cycle. If the demand for bandwidth exceeds the capacity at any point in the network, Dyband responds with two powerful controls: dynamic rate controls and dynamic priorities.

Dynamic Rate Controls

When congestion is detected, Dyband restricts bandwidth consumption, but only at the points of congestion and only for the affected traffic direction. As soon as the lowered transfer rates have the desired affect (i.e., congestion is relieved), they are allowed to return to their normal limit. Since traffic conditions are reassessed every 10 ms, the rapid toggling between normal and congested rates makes full use of available bandwidth.

Dynamic Priorities

Dyband allocates access to bandwidth based on configured priority ranges in its service level policies. A customer who has been denied bandwidth in one 10-ms cycle will be granted increased priority, up to his assigned maximum, in the next cycle. A customer whose request has been serviced will be dropped to his minimum priority in the next cycle. This rotation system ensures that no customer is completely starved of bandwidth during periods of congestion.

Reducing Packet Loss

A key benefit of Dyband's quick response to surges in network load is a significant reduction in packet loss. Equitable access to bandwidth reduces retransmission requests, and enforcement of configured rate limits also helps prevent queue saturation and resulting packet loss at the upstream router. The impact of reduced packet loss on customer satisfaction is significant. Stalls due to packet drops are obvious to the user; in contrast, the slowing produced by Dyband's enforcement of rate limits is too brief to be perceived. Thus, Dyband's ability to minimize congestion and reduce packet loss helps service providers meet their customers' expectations for consistent, reliable access to the Internet.

For further information on Dyband, and how it can benefit your firm, contact us at
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