



Wholesale and Peering Link Management

WHOLESALE AND PEERING LINK MANAGEMENT BENEFITS

- Delivers a measurably improved customer experience by measuring and managing peering links containing the most popular content
- Gets more from existing peering links and ensures upgraded bandwidth occurs only when links will deliver better QoE to important applications and content
- Provides better peering insights for all peers, including per AS path, origin, and transit QoE, as well as application usage; these insights ensure the right actions can be taken for maximum optimization

Minimize costs and maximize QoE by precisely managing peering links

MARKET OVERVIEW

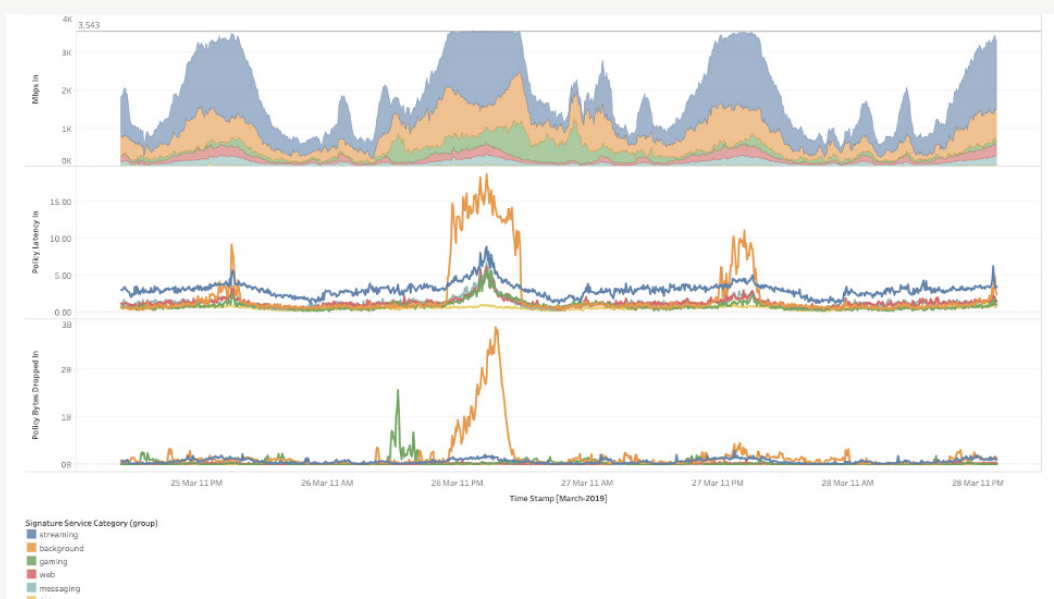
Not all network routes are created equal. When operators connect to one another, some routes are more expensive than others, some are purchased or leased, while others are part of peering arrangements. Some contribute positively to quality of experience (QoE) while others have a negative impact.

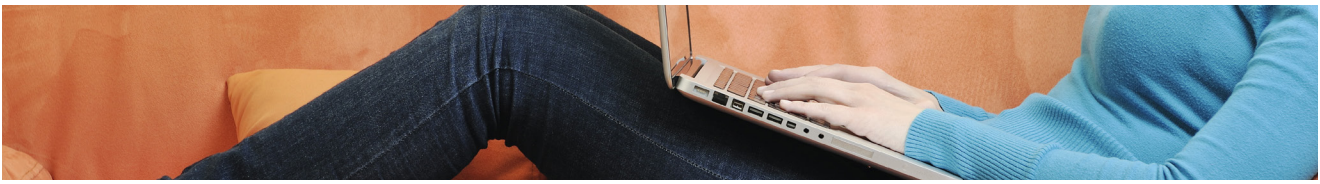
Typically, these leased arrangements include smaller operators connecting to multiple, larger (higher tier) networks. In order to maximize the most out of these leased links (i.e., better prices and for redundancy purposes), the smaller operators need to manage the traffic based on the traffic destination, capacity available on each of the links (during outage and outside of outage), and cost per Mbps.

Operators leading wholesale access links need to be able to control their throughput cost for peak traffic, while having the tools available to limit the peak traffic to maintain contractual obligations while also ensuring a good QoE. Additionally, these operators are looking for ways to offer differentiated services to a diverse population on a shared resource. For example, operators can differentiate by offering speed tier packages and associated pricing as well as provide an upsell opportunity for heavier or premium users.

Figure 1

Traffic management is applied to background traffic during peak time





The first step to control costs and ensure fair execution of peering arrangements is to enforce peak bandwidth levels on a per-link basis; however, a basic approach to peak enforcement can have significant negative side effects, as heavy users will dominate bandwidth usage, lowering QoE for other users and driving up peering costs.

Unfortunately, internet routers do not provide the flexibility and control over traffic selection and management needed to precisely control the available resources and QoE.

SOLUTION OVERVIEW

Sandvine's Wholesale and Peering Link Management solution leverages network-wide visibility and intelligent traffic management capabilities, allowing operators greater control over links and the ability to define different traffic priorities.

This solution is designed to:

- Limit overall traffic levels to an operator-defined peak
- Deprioritize the lowest priority traffic when traffic levels approach that peak; traffic is limited in this manner until a defined minimum threshold for the lowest priority traffic is reached, thereby preventing "starvation"
- Limit the next-lowest priority traffic when the lowest priority traffic has reached its minimum threshold
- Limit the highest priority traffic only when all lower priorities of traffic have reached their minimum thresholds
- Limit based on real-time versus non-real-time applications (i.e., P2P)

Sandvine's Wholesale and Peering Link Management Key Capabilities

Advanced Traffic Management

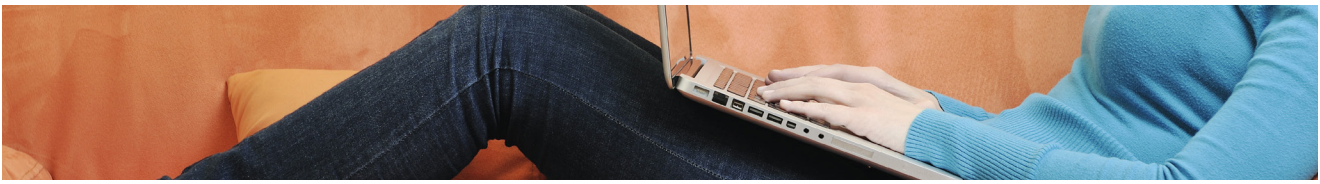
Sandvine's ActiveLogic delivers powerful and flexible shaping with advanced queue management algorithms, including fairness with weighted fair queueing, connection fairness, and normal or tiered subscriber fairness. ActiveLogic is designed to deliver the highest possible throughput through sophisticated algorithms, which is even more crucial at the scale and performance required for managing peering links.

Application Layer Visibility

Sandvine offers application-layer visibility for QoE KPIs – throughput, latency, and packet loss – for all traffic on the peering link.

Per AS Path Visibility and Control

Each BGP peer has statistics at the application layer and can set traffic control parameters (e.g., shaping, priority, weight). Sandvine also delivers visibility into up to 10 AS paths as well as transit versus origin. This visibility enables operators to identify content networks (not directly peering with) that could benefit from a direct peering relationship, both for cost and QoE purposes (i.e., offloading a heavily congested peer or improving costs).



By using Sandvine to manage peering and transit links, network operators can control costs by enforcing strict peaks, while at the same time maximizing the value and priority of the traffic carried over each link. Aside from general cost savings, operators can further benefit by managing P2P traffic to favor more cost-effective networks versus running over expensive transit links.

Additionally, by using Sandvine's unique QoE metrics, network operators can evaluate the quality delivered by each link and peer. Using this information, they can optimize peering and routing arrangements to protect – and even to raise – the QoE for applications – video, social sharing, and web browsing.

ABOUT SANDVINE

Sandvine helps organizations run world-class networks with Active Network Intelligence, leveraging machine learning analytics and closed-loop automation to identify and adapt to network behavior in real-time. With Sandvine, organizations have the power of a highly automated platform from a single vendor that delivers a deep understanding of their network data to drive faster, better decisions. For more information, visit sandvine.com or follow Sandvine on Twitter at [@Sandvine](https://twitter.com/Sandvine).



USA
2055 Junction Avenue
Suite Number 105
San Jose,
CA, 95131
USA

EUROPE
Svärdfiskgatan 4
432 40 Varberg,
Halland
Sweden
T. +46 340.48 38 00

CANADA
408 Albert Street,
Waterloo,
Ontario N2L 3V3,
Canada
T. +1 519.880.2600

ASIA
RMZ Ecoworld,
Building-1, Ground Floor,
East Wing Devarabeesanahalli,
Bellandur, Outer Ring Road,
Bangalore 560103, India
T. +91 80677.43333

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