



VPN Traffic Explorer



Harnessing the Intelligence of IP

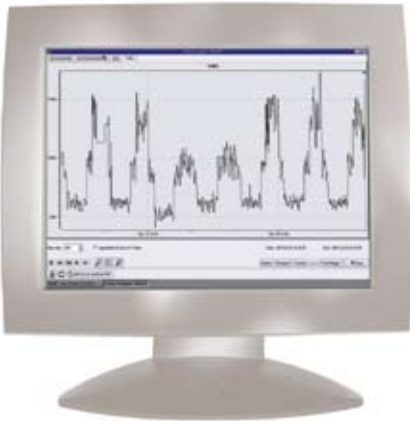
VPN Traffic Explorer delivers the industry's most comprehensive Layer 3 MPLS VPN service management solution, helping service providers rapidly resolve service issues, proactively plan for growth, accurately model changes to their network, and identify revenue opportunities and key business trends. VPN Traffic Explorer leverages Packet Design's industry leading route analytics technology to provide unprecedented visibility across the service provider's entire network, including the ability to view individual customer VPN topologies, monitor reachability and traffic loads between all sites, and analyze traffic flows by customer and Class of Service (CoS) on every link in their network. With an integrated view of customer VPN routes and traffic flows - not just at the network edge, but across the MPLS core - VPN Traffic Explorer restores critical visibility to RFC 4364 (RFC 2547bis) service provider networks. Armed with a new level of VPN-centric management knowledge, network operators can more rapidly and efficiently manage the details of service delivery while increasing competitiveness, lowering operational costs and maximizing profitability.

MPLS VPNs - A "Core" Management Problem

Layer 3 MPLS VPNs have benefited both service providers and their customers, but the technology has created significant problems for network operators who have to maintain the quality of their service offering. The virtualized nature of VPNs, combined with limited traffic visibility through an MPLS network, has complicated their ability to monitor, analyze and diagnose customer problems. Traditional VPN traffic analysis techniques involve capturing customer traffic data at the perimeter of the provider's network, using a probe or other traffic collection device to monitor each of the links between Provider Edge (PE) routers and Customer Edge (CE) routers. While this gives data on traffic entering or leaving the provider's network, problems in the MPLS core, where service issues have the greatest impact on the most customers, are still manually intensive and time-consuming troubleshooting tasks. In addition to its limited visibility, perimeter-based traffic monitoring represents a high cost of ownership due to the heavy footprint required to instrument all customer links.

VPN Traffic Explorer Benefits

- VPN-aware traffic analysis provides end-to-end visibility of customer traffic flows across a service provider's network, including through the MPLS core, dramatically speeding problem detection and resolution and avoiding SLA pay-outs
- Integrated route analytics technology lets service providers visualize individual customer VPN topologies overlaid on their network; baselines each VPN and alerts on changes for improved service assurance
- Network-wide capacity planning lets service providers know when links will need to be upgraded, or if QoS configurations need to be modified, avoiding guesswork and service disruptions. On-line routing and traffic modeling delivers industry's most accurate "what-if" simulations for failure analysis, planning network changes, or understanding the impact of adding new customers, sites or traffic loads
- Business data mining enables viewing of individual customer dynamics for sales opportunities, and analysis of overall usage trends to create a more targeted, competitive service offering
- Small deployment footprint, minimal network load and continuous auto-discovery, deliver fast time-to-value and low management overhead



VPN Traffic Explorer allows network managers to “rewind” the network to the time when a problem was occurring, helping to resolve intermittent or historical problems, leading to increased service availability and performance.

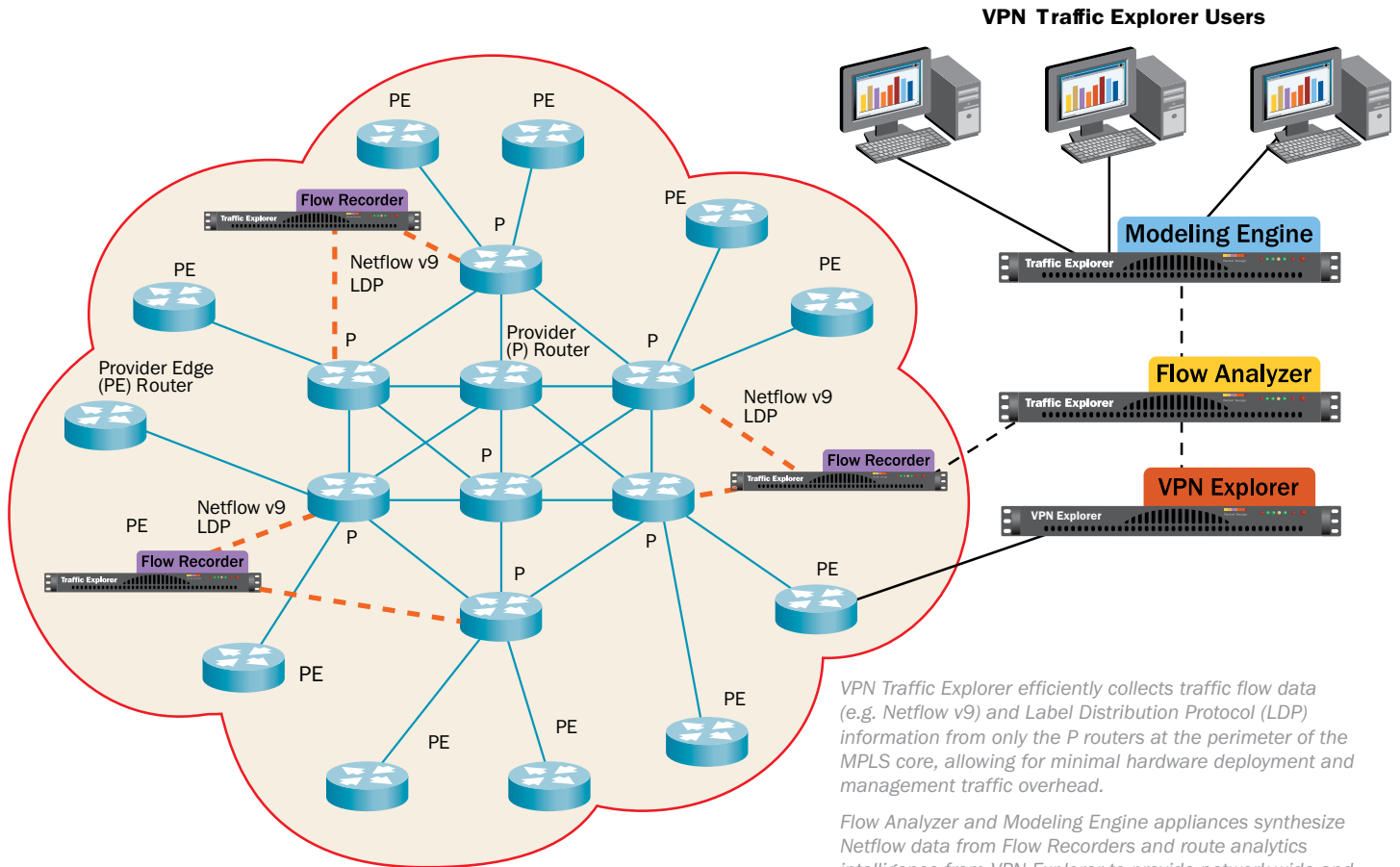
Better Visibility Means Better Customer Service

VPN Traffic Explorer’s comprehensive VPN monitoring allows service providers to identify and resolve customer issues rapidly – often before the customer ever notices. By mapping customer traffic flows across their individual VPN topology, VPN Traffic Explorer uniquely delivers traffic visibility throughout the provider’s network - from the PE router where customer traffic enters the network, through the routers and links in the MPLS core that forward that traffic, to the PE router connected to the customer’s destination site.

Traffic on every link can be monitored and analyzed, either in aggregate across all customers or by individual customer. Service providers can view individual customer VPN topologies, visualize the complete end-to-end path between any two sites, and analyze a customer’s site-to-site service by prefix reachability, traffic utilization and CoS breakdown on all links connecting those sites.

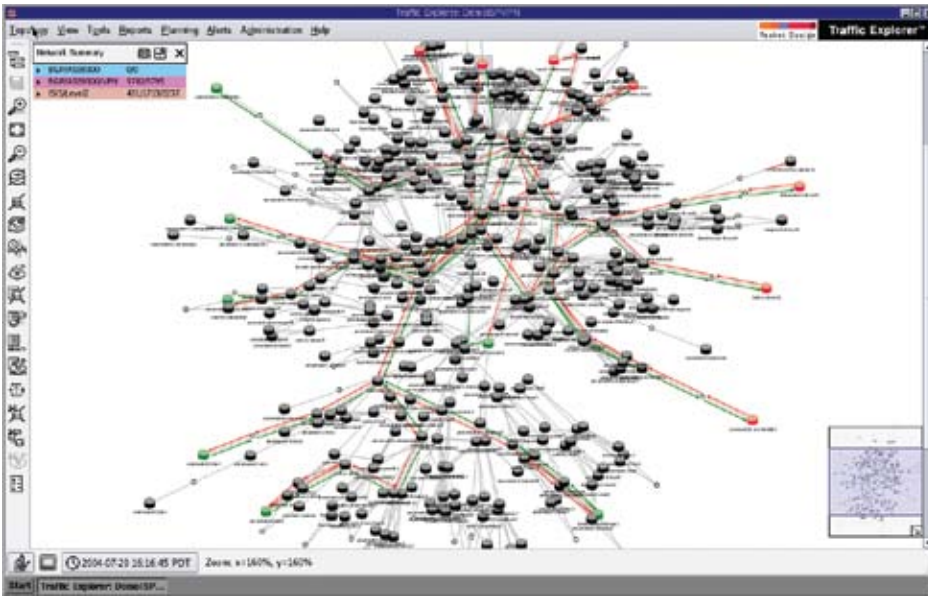
They can rapidly assess overall network health and be alerted to congestion or CoS-specific issues on every link. Since it maintains a complete history of traffic and routing events, VPN Traffic Explorer can even rewind the network’s traffic and routing state to a previous point in time when an intermittent problem may have been occurring, as well as compare current traffic loads against historical baselines.

With a complete, detailed view of each customer’s VPN infrastructure, providers can improve service delivery, increase customer satisfaction and reduce payouts due to service level agreement violations.



VPN Traffic Explorer efficiently collects traffic flow data (e.g. Netflow v9) and Label Distribution Protocol (LDP) information from only the P routers at the perimeter of the MPLS core, allowing for minimal hardware deployment and management traffic overhead.

Flow Analyzer and Modeling Engine appliances synthesize Netflow data from Flow Recorders and route analytics intelligence from VPN Explorer to provide network-wide and VPN-specific routing and traffic visualization, monitoring, alerting, analysis and modeling.



VPN Traffic Explorer provides a view of the service provider's entire network topology. Operators can monitor and analyze aggregate, per-CoS and per-customer traffic on all links in the network. Engineers can view complete, end-to-end paths connecting customer sites, and drill down to routing and traffic details on any link or node.

Proactively Plan Capacity and Accurately Model Network Changes

VPN Traffic Explorer lets service providers ensure that their network will continue to meet growing customer needs by predicting future capacity requirements, and accurately modeling changes to their VPN network.

Network engineers can analyze traffic trends on every link in the network, projecting future traffic levels, and easily determining when user-specified thresholds will be reached. Projections can be based on total link traffic, thereby anticipating and helping avoid network congestion, or by CoS, assuring that the network is properly engineered for critical traffic, such as voice or video. Traffic projections can be calculated using a variety of models (e.g. linear, exponential) to best fit historical trends.

VPN Traffic Explorer also allows engineers to accurately model changes to the "as running" network, using actual traffic loads and VPN topologies rather than outdated network snapshots or crude traffic approximations. "What-if" analysis features let them see the impact of potential network failures or changes, helping improve network reliability and preventing problems due to configuration errors. Planning departments can simulate a broad range of network changes, such as adding or failing routers or interfaces, creating new peering relationships, adjusting routing configurations, or modifying traffic loads.

Easy to use wizards let engineers see the impact of adding new VPN customers, adding new sites to existing customers, or changing customer traffic loads. Before-and-after comparisons help operators evaluate the potential impact of these changes before they happen, avoiding implementation surprises and preventing future problems.



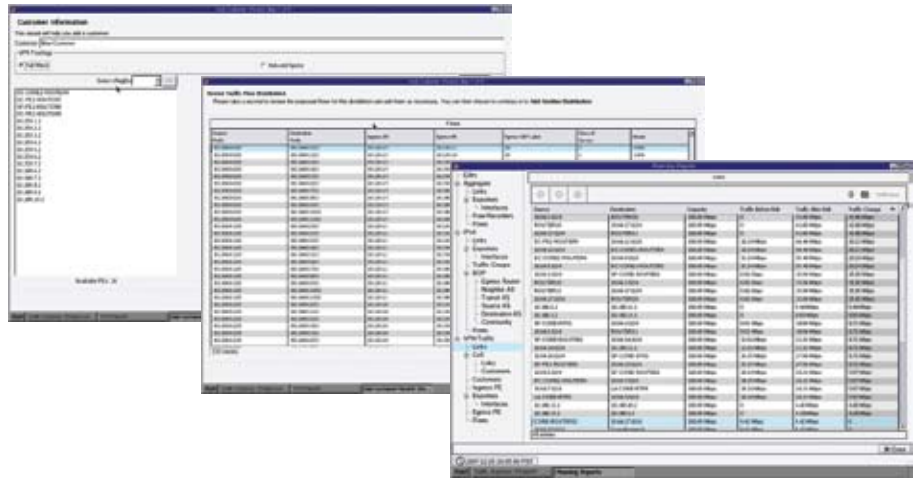
The VPN Link Traffic report shows aggregate MPLS VPN traffic on all links. Engineers can drill down on any link to view traffic broken out by customer, ingress/egress PE routers, CoS, or the individual flows.



Capacity planning reports project historical traffic trends to user-specified thresholds, or to a future date. Engineers can easily identify which links need to be upgraded, and when, as well as examine projected link traffic by CoS, customer or ingress/egress PE router.



Before-and-after reports show the effect of simulated routing or traffic changes on all links, providing assurance that customer service quality won't be impacted.



The "Add VPN Customer" wizard prompts engineers to select the PE routers that will service the customer's sites, specify the VPN topology (hub and spoke vs. full/partial-mesh) and PE to PE traffic volumes, so they can see the effect on all links and ensure existing service levels are maintained.

Enhance Business Intelligence

Delivering value beyond the operations and engineering teams, VPN Traffic Explorer provides a rich source of business data for the sales and marketing departments through its understanding of individual and overall customer trends.

Detailed information on individual customer usage can be mined to determine site-to-site traffic volumes, break down traffic by CoS per site, and identify bandwidth-hogging applications and the most active users. Service providers can access this data via an XML API and deliver it to their key clients using their own customer portal or by creating customized email reports. With the ability to offer extensive VPN usage data to their top customers, service providers are able to provide additional value while differentiating their service.

VPN Traffic Explorer's powerful reporting capabilities also help the service provider's sales and marketing teams to identify key trends, such as which customers are growing fastest, who will need a service upgrade and when, how various service classes are trending and which customers are using them. This knowledge can be used to up-sell individual customers, create new service bundles or tailor existing service offerings to gain competitive advantage and increase revenue.



Service Providers can access VPN Traffic Explorer's powerful XML API to offer individual customer traffic and reachability reports.

Greater Value at a Lower Cost of Ownership

VPN Traffic Explorer provides the broadest and most comprehensive set of management capabilities for MPLS VPN service providers. No other solution delivers network-wide, VPN-aware traffic analysis, route analytics, capacity planning, failure analysis, network modeling and business intelligence. In contrast to solutions providing much less visibility and functionality, VPN Traffic Explorer requires a significantly smaller deployment footprint while placing minimal load on the network. With a very fast time-to-value, low management overhead, and low cost of ownership, VPN Traffic Explorer delivers an impressive return on investment, enabling providers to offer a superior and more competitive service.



Packet Design

2455 Augustine Drive
 Santa Clara, CA 95054
 Tel: 408-490-1000
 Fax: 408-562-0080
 Email: info@packetdesign.com
www.packetdesign.com