

Solution Brief

Next-Generation Application Performance Monitoring with Riverbed SteelCentral and Big Tap Monitoring Fabric

THE CHALLENGE

Data centers worldwide have seen an increasing demand to monitor a greater portion of their network traffic in recent years. The year-over-year exponential growth in data center traffic further exacerbates the problem. It's clear that the optimal tapping or mirroring of network traffic is not just essential but increasingly required as it delivers efficient troubleshooting that quickly resolves problems and provides optimal network and application performance. While the benefits of monitoring are significant, only a small portion of data center network traffic has typically been tapped or mirrored due to the high equipment and operational costs required to deliver traffic from the production network to the monitoring tools.

Key requirements of a modern monitoring infrastructure include:

- *Flexibility and Scale:* Typical box-by-box designs need to evolve to a fabric-based approach.
- *Consolidation and Efficiency:* Traffic tapped anywhere within the network should be able to reach any tool, thereby increasing tool performance and scope.
- *Simplification and Centralization:* The solution should provide a centralized console (single pane of glass) to provision and manage monitoring policies, fabric operations and troubleshooting.
- *Cost Reduction:* The solution should be sufficiently low in CAPEX and OPEX costs so all data center traffic can be monitored.

SOLUTION OVERVIEW

Riverbed SteelCentral with Big Switch's Big Tap Monitoring Product

Riverbed® Technology and Big Switch Networks® have partnered to provide a cost-optimized, application-aware network monitoring solution enabling easy and efficient troubleshooting of the network and applications. The joint solution offers unprecedented scale for data center-wide monitoring, including east-west application-to-application traffic. The SDN-powered Big Tap Monitoring Fabric™ delivers tapped and SPANed traffic to the Riverbed SteelCentral™ application-aware network performance management platform, which ensures comprehensive monitoring with detailed packet capture and analysis. Customers can realize unsurpassed benefits of having a highly scalable, operationally simple, and cost-optimized solution while eliminating the choke points typically seen in static, box-centric monitoring solutions.

BIG TAP MONITORING FABRIC

The Big Tap Monitoring Fabric from Big Switch Networks is a next-generation, multi-tier, scale-out solution that leverages commodity bare-metal switches and software defined networking (SDN) design principles. The Big Tap Controller fully manages multi-tenant monitoring policies, provisions the fabric, programs the forwarding paths of monitored flows, and centrally controls all bare metal switches and their interconnections. This enables data center wide monitoring with the ability to tap every rack and send it to any tool. With the ability to tunnel monitoring traffic, this capability is being extended to tap every location across the enterprise. In addition to supporting

Big Tap Benefits

- *Any tap to any tool at any time*
- *Flexible, Scale-Out 1G, 10G, 40G Fabric*
- *Multi-Tenant Support*
- *Operational Simplification with SDN-powered centralized Programmability*
- *Efficient use of NPBs*
- *Significant Cost Savings*

TAP/SPAN aggregation, flow filtering, replication and load balancing. Big Tap can also leverage Network Packet Brokers (NPBs), attached as service nodes, for packet modification functions such as deduplication, packet slicing

THE RIVERBED STEELCENTRAL SOLUTION

The Riverbed SteelCentral suite of products provides non-intrusive, sustained, real-time information into network and application performance. The SteelCentral NetShark™ and SteelCentral AppResponse™ ensure comprehensive monitoring with detailed packet capture and analysis for proactive alerting and rapid rectification of problems in the network. They feed data to the SteelCentral NetProfiler™ which provides early warning when traffic patterns deviate from normal behavior and complete end-to-end visibility into network performance, down to the actual user IDs. This enables easier, faster and smarter problem diagnosis and troubleshooting, thus making the network more efficient.

SOLUTION DETAILS

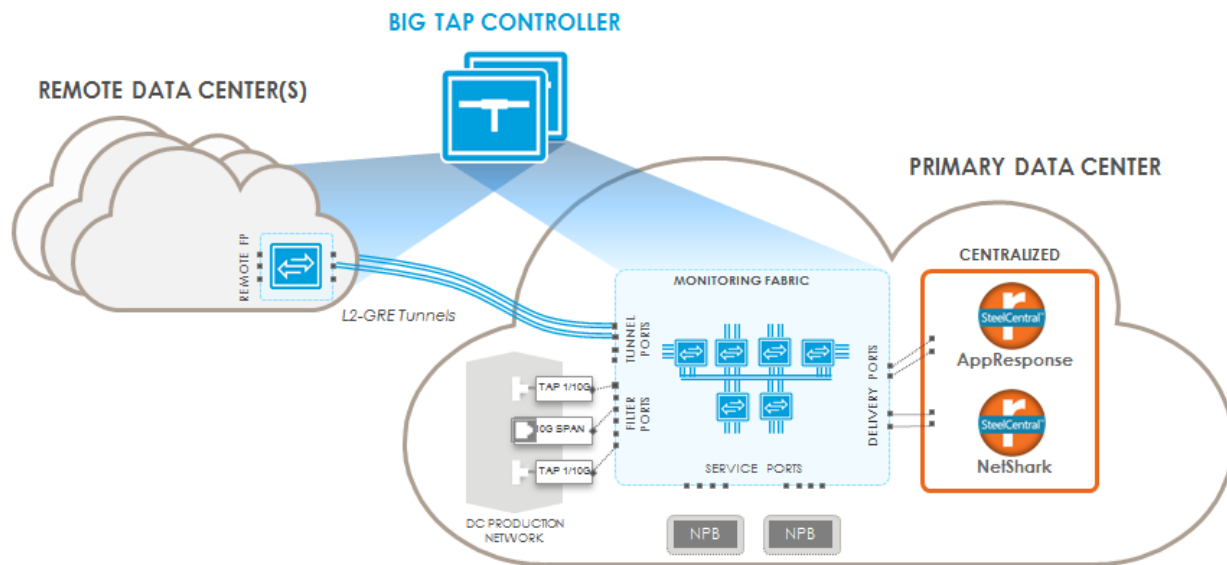


Figure 1: Riverbed SteelCentral Platform deployed along with the Big Tap Monitoring Fabric

Powered by an external SDN-based Controller, the Big Tap Monitoring Fabric offers a multi-tenant solution that can filter, aggregate, load-balance and replicate traffic to all security and monitoring tools connected to the fabric. For data center wide scaling, the Big Tap monitoring fabric is typically deployed in a two or three tier topology. Typically, there is a layer of “filter” switches that aggregate TAP and SPAN ports and another layer of “delivery” switches to which tools connect. An optional layer of “core” switches can be inserted between filter and delivery layers for large-scale deployments. Traffic passing through the filter ports and tunneled through the tunnel ports, if connected to remote locations, is subject to user-defined policies for filtering, replication or even modification via third-party services such as NPBs. It is then delivered to the Riverbed SteelCentral NetShark or AppResponse devices connected to the delivery layer.

The SteelCentral application-aware network performance management platform enables end-to-end monitoring, efficient troubleshooting and proactive alerting by integrating continuous, real-time packet-based data with the flow data from the production network as well as Riverbed SteelHead appliances. They ensure comprehensive monitoring with detailed packet capture and analysis necessary for rapid rectification of problems in the network. With this information, problems that required four to eight hours to resolve are identified in seconds and resolved in minutes saving significant amounts of time and money.

Key Benefits of the Solution

- **Flexible, scale-out deployment** – Thousand+ 1G/10G/40G TAP and SPAN ports can be connected to the Big Tap Monitoring fabric, and any network traffic can be directed to any of the connected Riverbed SteelCentral devices at any time. Now the fabric can be extended across L3 WAN to enable monitoring of remote DCs/POPs, colocation facilities, campus/branch locations, as well as retail sites. This allows centralization of monitoring tools and staff in few data centers,

thus dramatically reducing CapEx and OpEx cost while allowing operations teams to monitor networks across the entire organization

- **Massive operational simplicity** – The solution is based on SDN architecture with a logically centralized, programmable Big Tap Controller that controls and manages all fabric switches. Moreover, the Big Tap Controller is also the single-pane-of-glass for all fabric-wide operations, policy management and tenant management. Even when more switches or policies or tenants are added, operational overhead of managing the fabric is negligible. SteelCentral tools can access any data center flow through policies created on the Big Tap Controller.
- **Tremendous cost savings** – The Big Tap monitoring fabric is based on bare metal switches that are built with best-in-class networking ASICs. Big Switch's Switch Light OS runs on these bare metal switches and interacts with the Big Tap Controller to form the monitoring fabric. This disaggregation of hardware and software allows tremendous cost reduction compared to proprietary hardware-based solutions. It also provides customers a choice of hardware switch vendors for their monitoring needs. Hence, for the same budget, customers are able to significantly broaden SteelCentral's monitoring scope.
- **Multi-tenant tool and tap sharing** – Multiple network operations teams, each with its own SteelCentral tools, can monitor data center wide network traffic. When several teams decide to monitor the same flow, the Big Tap monitoring fabric automatically replicates the flow and delivers it to the respective SteelCentral tools.

About Big Switch

Big Switch Networks is the market leader in bringing hyperscale data center networking technologies to a broader audience. The company is taking three key hyperscale technologies – OEM/ODM bare metal and open Ethernet switch hardware, sophisticated SDN control software, and core-and-pod data center designs – and leveraging them in fit-for- purpose products designed for use in enterprises, cloud providers and service providers. The company's Big Tap Monitoring Fabric is an entry level solution to monitor existing networks, and the flagship Big Cloud Fabric is the industry's most advanced bare metal switching fabric intended for new data center pods such as private cloud, big data and VDI. For additional information, email info@bigswitch.com, follow @bigswitch or visit www.bigswitch.com.

About Riverbed

Riverbed Technology, Inc. at more than \$1 billion in annual revenue is the leader in Application Performance Infrastructure, delivering the most complete platform for Location-Independent Computing. Location-Independent Computing turns location and distance into a competitive advantage by allowing IT to have the flexibility to host applications and data in the most optimal locations while ensuring applications perform as expected, data is always available when needed, and performance issues are detected and fixed before end users notice. Riverbed's 25,000+ customers include 97% of the Fortune 100 and 96% of the Forbes Global 100. Learn more at www.riverbed.com.



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