

# Achieving Optimal Network Analysis and Visibility for Enterprises

The network is the most cost-effective, scalable place to understand the intricacies of network and application performance issues.

Most networking professionals are keenly aware of the need for visibility into network and application performance and often have a number of monitoring solutions competing for access to network packet data. They also understand that achieving end-to-end management of application performance requires uncompromised visibility at various points across their network. Accordingly, IT organizations are changing the way they manage performance to be more holistic and application focused. In 2012, EMA found that 81% of respondents regularly leverage cross-domain teams to tackle and manage application performance.

Monitoring the data center network is extremely important to assuring consistent and reliable application performance. Data centers are comprised of switches, routers, application servers, firewalls, load balancers, virtualized applications, storage, and more. All of this complexity results in hundreds, if not thousands, of 1- and 10-gigabit links from which application traffic could be monitored. The problem is that it is neither efficient nor cost effective to have a monitoring tool connected on every critical traffic path.

## Benefits

- Complete, highly flexible views for network monitoring tools
- Comprehensive record of packet travel from point of capture all the way to the monitoring tool
- Ideal for latency-sensitive monitoring applications as well as latency monitoring itself
- Does not affect network traffic
- Accuracy to the nanosecond is maintained even in the absence of external time reference

## Solutions overview

The key to complete visibility within the data center is to build a traffic visibility solution that can filter and groom, aggregate, and intelligently distribute optimized traffic to all monitoring and security tools.

Riverbed Technology and VSS Monitoring® have collaborated to develop a solution that provides cost-effective, application-aware network performance management (NPM), enabling end-to-end visibility into the performance of critical business applications.

VSS Monitoring's Network Packet Brokers (NPBs) for high performance networks combine many features, including hardware-based time stamping and vMesh™, a fully-redundant, self-healing, and single-system based architecture, to provide an accurate and efficient way for Cascade appliances to troubleshoot and measure application response times, jitter, and latency across the entire network. As packets flow through the VSS Monitoring vBroker™ and Protector™ appliances, each packet is time-stamped at the time of capture to create a permanent time record — precise to the nanosecond — that is permanently embedded in the packet. The packet is then forwarded to and analyzed by Cascade Shark appliances, enabling superior visibility across LAN, WAN, and Internet boundaries for more accurate performance monitoring and faster troubleshooting — all of which can lead to significant reduction in capital and operational expenses.

Cascade application-aware network performance management platform integrates flow data from routers, switches, and Steelhead appliances with the packet-based data from the Cascade Shark continuous packet capture appliances. This integrated data set provides complete end-to-end monitoring with deep packet capture and analysis for proactive alerting and robust network troubleshooting. Armed with this information, IT infrastructure teams can effectively support the application lifecycle, monitor and analyze operational network performance, and ensure that committed service levels are met in production networks.



### Packet optimization for high-performance networks

Time stamping is part of VSS Monitoring's Packet Optimization feature set, allowing users to append a time stamp to each packet as it enters a network ingress port. The time stamp is inserted as an 8-byte data between the payload and the cyclic redundancy check (CRC) value at the end of the packet. The first 4 bytes indicate seconds; the second 4 bytes indicate nanoseconds. Time stamping can be synchronized to one of three sources: Network Time Protocol (NTP), Global Positioning System (GPS), or Precision Time Protocol (PTP). After inserting the stamp, the CRC is recalculated and forwarded to the monitor ports as a standard Ethernet frame. Time stamping only affects monitored traffic — inline network traffic is always unaffected. Application of the time stamp can be enabled or disabled by the user at any time.

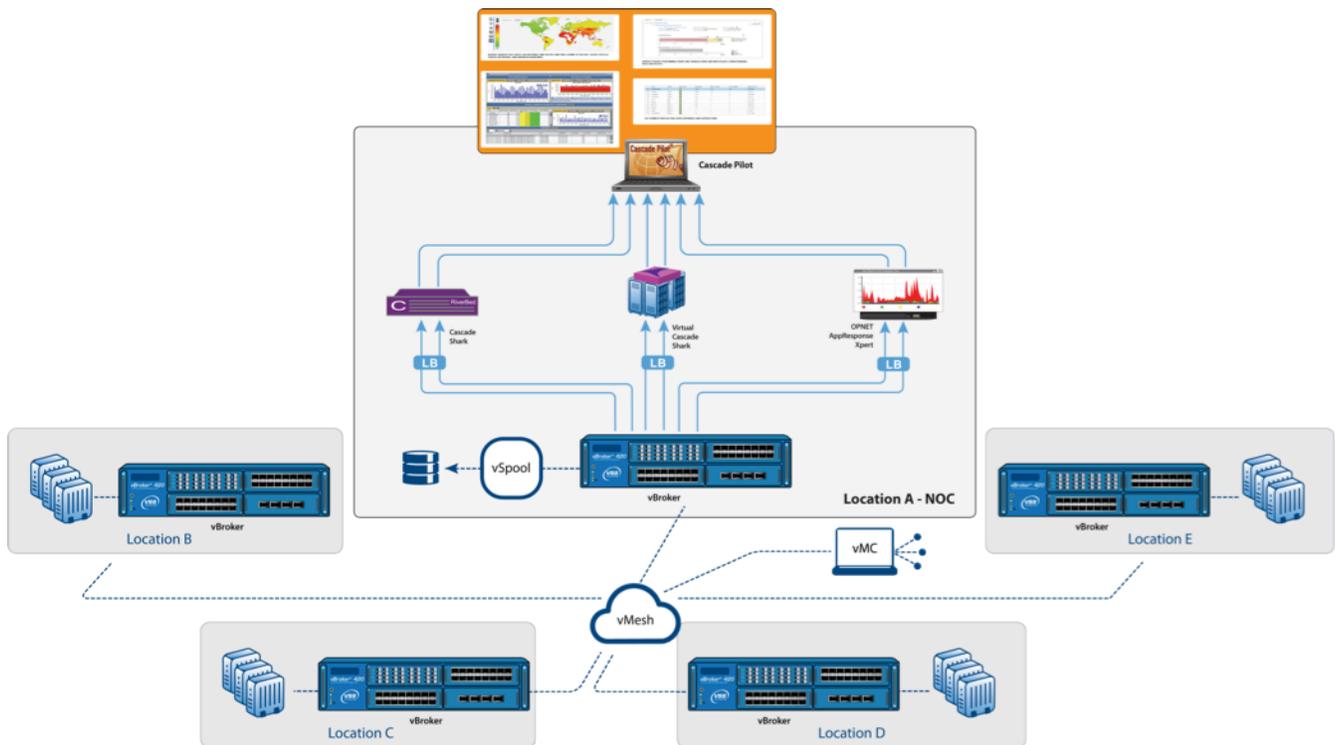


Figure 1 - Capture all traffic from remote segments, aggregate to a central location where Cascade and OPNET products reside that can be managed via the Cascade Pilot

## Riverbed Performance Management Solution

The Riverbed performance management solution provides actionable, real-time information into network and application performance to enable smarter decision-making and faster, easier problem diagnosis. As a unified monitoring solution, it not only alerts on brewing problems but also helps identify where the problems are and what's causing them. An easy-to-use service dashboard provides an at-a-glance view into the health of application services to help IT operations and IT management understand the impact of performance problems on the business, and how best to prioritize triage. Additionally, top-down, application-focused workflows mirror the typical IT troubleshooting processes, enabling IT personnel to quickly and seamlessly drill down from high-level dashboards to transaction- and packet-level details to accelerate problem diagnosis and resolution.

## About VSS Monitoring

VSS Monitoring is a world leader in network packet brokers (NPBs), providing a visionary, systems approach for optimizing and scaling the connectivity between network switching and the network intelligence universe of performance and security tools. VSS Monitoring network packet brokers improve tool usage and efficiency, simplify IT operations, and greatly enhance ROI from tools. For more information, visit [www.vssmonitoring.com](http://www.vssmonitoring.com).

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## About Riverbed

Riverbed delivers application performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at [www.riverbed.com](http://www.riverbed.com).