

EMA Report: The Business Value of Digital Experience Management

A Case Study Review

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Executive Summary

This white paper examines the value of using multiple Riverbed SteelCentral solutions together to manage application and infrastructure performance. It includes four case studies with Riverbed's enterprise customers of SteelCentral network performance management, application performance management, and end-user experience management solutions. It also examines how integration between these tools can add value to IT operations teams.

IT Operations Teams Need to Integrate Tools

IT organizations traditionally use sprawling toolsets to manage their environments. For instance, recent Enterprise Management Associates (EMA) research found that 24 percent of enterprise network operations teams use six to ten tools to monitor and troubleshoot their networks, and another 27 percent use 11 or more.¹ This tooling strategy can create data silos that discourage collaboration and complicate workflows. It comes as no surprise that these same teams struggle with tooling problems. EMA's research found that the top challenge to network operations today is a lack of end-to-end network visibility, and fragmented management tools are the fourth most common challenge.

Meanwhile, IT operations teams need tools that encourage collaboration across groups. For example, 38 percent of enterprises reported increased collaboration between data center operations and network operations, and 29 percent of enterprises reported increased collaboration between application management and network operations teams. EMA believes the integration of network operations, application operations, and end-user experience management tools is becoming more essential to IT success.

Riverbed® SteelCentral™ offers a Digital Experience Management suite that is broken down into two core components: network and IT infrastructure performance management (NPM & ITIM), and application performance management and end-user experience management (APM & EUEM). There are multiple points of integration between the solutions. One key integration point is SteelCentral Portal, a customizable user interface and visualization tool with real-time monitoring data and analytics extracted from all SteelCentral solutions to provide executive- and IT-level views. From these real-time views, IT operations staff can follow workflows for deeper analysis and troubleshooting. The combination of SteelCentral end-user experience, network, application, and infrastructure performance monitoring solutions can address many of the challenges and requirements described. The rest of this paper examines the success of four Riverbed SteelCentral customers who increasingly drive value from the integration of these tools.

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¹ All research data in this paper is taken from EMA, "Network Management Megatrends 2018: Exploring NetSecOps Convergence, Network Automation, and Cloud Networking," April 2018

Case Study #1: Financial Trading Platform Operator Combines Packets, Flows, and UC Insights

At a North American financial transaction processing firm, more than 100 people within the IT organization are using a combination of Riverbed SteelCentral NPM products to manage a network of 3,000 devices across North America, Europe, and Asia. These products are mostly used by the network operations team. "I have 20 people on SteelCentral at any given time," said the company's senior network tools architect. However, members of the server systems group and the application management group are increasingly using these solutions, too.

The organization has two primary integration points across these tools. First, SteelCentral NetProfiler provides correlated visibility across NetFlow data and packets. Second, UC data was integrated into SteelCentral Portal, allowing the unified communications team to have an integrated view of voice and video services.

"We use SteelCentral NetProfiler and Portal to get a broad view of issues," the architect said. "We're becoming more proactive in monitoring. Prior to rollout, the only way we knew something was wrong was if we got a help desk call. Now, we see a degradation at a site for call quality, and we can start looking at it. We've seen a reduction in help desk calls and a more timely closure of the calls that come in."

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Streamlined UC Operations

The UC team uses SteelCentral UC monitoring to identify an issue with voice or video. The Portal dashboard then shows them where the issue might be occurring. From Portal, they drill into other Riverbed tools to get a more granular view of the issue. For instance, packet capture appliances can collect more advanced UC metrics than what UC monitoring can collect. Packet analysis is deployed wherever a Cisco Call Manager is deployed, allowing the UC team to access deep metrics for troubleshooting.

Prior to using Riverbed, the organization was managing call quality with Cisco's UC element management solution, which could identify potential problems but offered limited metrics for troubleshooting. For diagnostics, the UC team captured packets with legacy NPM solutions, but it struggled to determine which packets it should investigate. "We didn't know where to find the packet data we needed," the architect declared. "There was no easy way to tell, no single pane of glass. It was hard to find the right packets for troubleshooting."

With Riverbed, the UC team has streamlined operations. For example, some users recently complained about poor video conference quality. SteelCentral UC monitoring identified the video sessions with poor mean opinion scores and could determine that these sessions were dropping large numbers of packets. The UC team followed up by running a traffic flow report. The report showed that outbound video traffic was fine, but return traffic was hitting parts of the network that it shouldn't have been, which were dropping the packets. The network team reconfigured the network to quickly solve the problem.

Correlation Across Device Metrics, NetFlow, and Packets

NetProfiler allows network operations to view device metrics, NetFlow-based performance monitoring, and packet-based analytics in one dashboard. With this correlation, the network team can identify the location, scope, and source of problems with NetFlow-based monitoring, then drill down into packets to diagnose problems.

“SteelCentral’s infrastructure monitoring has a really cool hop analysis function, which provides a hop-by-hop view of the health of devices between two IP addresses,” the tools architect said. “I start from SteelCentral NetProfiler on all troubleshooting activities to get a nice, single pane view of what’s going on. I can determine if it’s a network issue or something else.”

Recently, a third-party network availability monitoring tool failed to pull metrics via SNMP polling from a specific device. The network team used SteelCentral infrastructure monitoring to examine the SNMP traffic. “In NetProfiler, we could see SNMP traffic being delivered to the device, but it wasn’t coming back. We drilled into packets, and could see that the tool was using public community string, so the device was ignoring it.”

The company plans to expand its use of Portal for cross-tool integration. It will pull data from all its SteelCentral solutions into Portal for a single dashboard view of device statuses, network traffic, application performance, and UC applications. It also plans to expand the amount of application monitoring it does within NetProfiler.

“We want the help desk to proactively monitor applications in NetProfiler so when something goes red, they can act immediately,” the architect pointed out.

Benefits of the SteelCentral Portfolio Approach

This organization’s network team benefited in several ways from its use of multiple SteelCentral products. First, the network management team became more efficient. “When you have a network guy spending hours on troubleshooting, that’s money,” the architect said. The SteelCentral portfolio unlocked the value of these skilled personnel by removing the “mean time to innocence” mindset. “The network team gets blamed for everything, and 90 percent of the time it’s not the network,” the architect said. The combined SteelCentral solutions enable network operations to produce reports for other groups within IT that identify the source of trouble. Then they can devote their time to more valuable projects.

This company’s use of the SteelCentral portfolio also led to capital and operational savings. SteelCentral replaced a third-party packet-based monitoring solution that was due for a refresh. “We estimated about \$4 million in savings on support costs and capital expenses associated with appliance upgrades from the other vendor,” said the architect.

Finally, this organization enhanced network capacity planning with SteelCentral. The network capacity planning team uses SteelCentral NetProfiler to analyze network trends in general, but they will rely on it especially for a SharePoint migration. The company is moving its on-premises SharePoint environment into Office 365.

“We need to know how much bandwidth we will consume pulling files from and viewing the web portion of SharePoint,” the architect explained. “The capacity team has been using NetProfiler to determine whether the move to Office 365 will require an upgrade to our Internet links.”

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Case Study #2: Insurance Company Combines SteelCentral APM and EUEM for Service Assurance

A global insurance company that specializes in consumer technology insurance is using Riverbed SteelCentral AppInternals (APM) and Aternity (device-based EUEM) together to manage application performance and end-user experience. The insurer has been using AppInternals for four years to monitor enterprise application performance, and it started using Aternity a year ago to manage end-user experience, according to the company's senior director of technology solutions.

The application management team is the primary user of AppInternals, but multiple groups use Aternity. The service desk and the Layer 2 desktop support team both use it to troubleshoot end-user support calls. The desktop engineering team uses Aternity for proactive PC management across 15,000 end-user devices, with plans to grow to 23,000 systems under management. For instance, Aternity is integrated into the company's ServiceNow ticketing system. If Aternity detects a problem, it will automatically open a ticket. If a user's laptop battery stops holding a charge, for example, Aternity will open a ticket, which will trigger the shipment of a replacement battery to the user, even though that person hasn't asked for one. Finally, the application development team will soon start using Aternity to identify application coding problems that are leading to end-user experience issues.

Protecting Revenue Generation

The insurance company recently used SteelCentral APM and EUEM to nail down an application flaw that was causing end users' browsers to crash. A web-based application was producing a memory leak that caused certain versions of Chrome to slow down and crash. The IT operations center looked at AppInternals to examine the latency and performance of the application itself, and then looked at Aternity to analyze workstation performance. AppInternals was unable to spot a memory leak, but it did confirm that the application was performing fine, so IT operations focused on end-user devices. Aternity revealed that the application was producing a memory leak in all versions of Chrome, but only older versions of the browser were crashing. The operations team could show the application development team exactly where the memory leak was happening, which allowed developers to correct the problem.

"Without SteelCentral, we would have been looking at servers and networks for the source of the problem, troubleshooting by process of elimination," the senior director said. "Using both tools together reduced our troubleshooting time by one-third. This was essential, because the memory leak issues were affecting our call center agents. The application was slowing down until it crashed and required a reboot. Our call center is the life blood of our business. Our company relies on excellent customer experience and this problem was significantly reducing the ability of our agents to deliver a great customer service, ultimately impacting our business."

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Case Study #3: Investment Bank Expanding SteelCentral's Reach

The North American division of a European investment bank is currently using a combination of SteelCentral packet and transaction-based NPM solutions to assure the successful delivery of market data feeds for financial transactions.

"A three-second blip [in market data] costs millions," said the bank's network director. To troubleshoot performance of these data streams, the network team uses SteelCentral AppResponse for packet-based NPM. It captures packets at key network segments. Then, the team uses SteelCentral Transaction Analyzer for transaction-based analysis of packets.

Preventing Customer Churn with SteelCentral

Recently, one of the investment bank's clients complained about getting bad market prices from the bank's foreign exchange market data stream. The bank assumed the issue was an internal IT infrastructure issue, so the onus was on the network team to solve the problem. Otherwise, the IT department would be blamed for customer churn. "They were going to leave us if we couldn't fix it," the network director said.

The network team captured data between the bank's network and its client's network. Analysis revealed that the client was receiving data, but for some reason, the server that was streaming the market data was repeatedly cutting the connection.

"We determined that the client was advertising a zero TCP receive window, saying it couldn't get any more data and that it needed to slow down the transmission rate," the network director said. "But our application was designed in such a way that if it cannot write or send data within 30 seconds, it will reset the connection. This was causing an interruption in the price stream."

The network team showed the results of this analysis to the application team, which adjusted the application's timers to account for the client's buffer capacity. The timely resolution saved the bank from losing a client.

Expanding SteelCentral Value with Blended Analysis and Flow Monitoring

The bank's network team will soon expand its SteelCentral investment, with NetFlow monitoring for full traffic visibility. "NetProfiler will add value because I can't afford packet visibility everywhere," the network director explained. "NetFlow data from certain routers will help me figure out what's going on in those blind spots, and it will complement the visibility of packet-level monitoring."

The bank will integrate all its SteelCentral solutions via SteelCentral Portal, where the network team will build custom dashboards and gain a "single pane-of-glass view," the network director said. "It will enable us to be faster with incident response and allow us to automate some tasks."

He expects the combination of AppResponse and Portal to serve a security use case, too. The network team will build a custom dashboard aimed at highlighting anomalous application traffic indicative of a security incident.

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Case Study #4: Wealth Management and Trading Firm Combines Flow and Packet Visibility

At a North American wealth management firm, a team of 30 network engineers are using a Riverbed SteelCentral solution to monitor packets and flow for total network visibility. The network team monitors 1,800 network devices with a combination of Riverbed SteelCentral NPM solutions, according to the firm's senior network engineer.

They use a mixture of physical and virtual appliances to capture packets at strategic points on the network, and flow collection to cover the rest of the network. NetProfiler serves as the network team's central analysis environment, providing visibility into both packets and NetFlow. The network team also creates custom dashboards in NetProfiler to give the application management team visibility into the performance of Tier 1 applications.

Total Visibility in the Data Center Network

The combination of packet and flow visibility delivers tremendous value in the firm's primary data center. "Flow information shows how an application is responding to our partners and what path it takes through the network," the engineer said. "This information is valuable when troubleshooting because it can point us to the right packets for analysis. Flows give a summary of what happened, and the packets give us the details on exactly what happened."

NetProfiler's NetFlow monitoring reveals the traffic of a problematic application. From this level of visibility, the network team can check for issues like routing errors or abnormal packet loss. Then, the packet captures can give the network team a back-in-time view of events. The firm maintains a rolling twelve-hour window of packet captures, which gives the network team full packet visibility for any network problems that happened that day.

"When we have an issue, we figure out when and where it happened, then we go to the specific time in the packets and pull five minutes of packets from before and after the incident. We can analyze, or share the PCAP file with the software team or one of our vendors for analysis."

Capacity Planning Boost with NetProfiler

While NetProfiler is an integral part of the firm's network operations monitoring toolset, the network team originally installed the product for capacity planning. The network team used Riverbed SteelHead WAN optimization across its remote sites, and it needed a tool to validate that optimization. SteelHeads generate NetFlow, which any flow monitoring tool can collect, but they also produce SteelFlow, which contains detailed insight into network conversations flowing over the optimized network. To read both flow technologies, the network team implemented SteelCentral NetProfiler. This implementation validated the WAN optimization technology and helped the network team improve overall WAN capacity planning.

This capacity planning capability delivers essential business value to a growing company. "It's helped us proactively look at the capacity of a circuit," the engineer said. "For instance, we opened an office with 100 people. Now we're expanding it to 400 people. We were able to use insight from the SteelHead product family to proactively increase capacity to avoid distress."

When the network team's incumbent flow monitoring tool from a third-party vendor stopped working properly, the group decided to expand its use of NetProfiler and integrate it with the rest of its SteelCentral tools. Since then, the network team has seen a significant improvement in its ability to gain insight into network incidents, the engineer said.

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EMA Perspective

All four of these case studies exemplify how an IT organization can improve operational effectiveness by combining the power of multiple Riverbed SteelCentral solutions. In each example, the operations team is using two or more SteelCentral solutions to improve end-to-end management of IT services.

Of particular interest is the variety of solution combinations. Some are merging multiple NPM products. Others combine APM and NPM, while still others integrate APM and EUEM. In each case, the products appear to be better together. Half of these case study subjects also revealed their intentions to increase their investments in SteelCentral products and the level of integrations between them.

EMA recommends an integrated approach to IT operations' tool strategy. When using multiple NPM, APM, and EUEM tools, IT organizations should integrate these solutions wherever possible. The integrations will create tremendous business value by making IT operations teams more efficient, effective, and proactive. When IT operations leverage an integrated tool approach to proactively prevent problems, they can protect and enhance revenue, prevent customer churn, and boost end-user productivity.

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Riverbed®, The Digital Performance Company™, enables organizations to maximize digital performance across every aspect of their business, allowing customers to rethink what is possible. Riverbed's unified and integrated Digital Performance Platform™ brings together a powerful combination of Digital Experience, Cloud Networking, and Cloud Edge solutions. The combination provides a modern IT architecture for the digital enterprise, delivering new levels of operational agility and dramatically accelerating business performance and outcomes. At more than \$1 billion in annual revenue, Riverbed's 30,000+ customers include 98 percent of the Fortune 100 and 100 percent of the Forbes Global 100. Learn more at riverbed.com.

About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA's clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals, and IT vendors at www.enterprisemanagement.com or blog.enterprisemanagement.com. You can also follow EMA on [Twitter](#), [Facebook](#), or [LinkedIn](#).

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