Measuring the Business Impact of IT Through Application Performance

What Are Your Performance Metrics
Really Telling You?

Today's CIOs and other IT leaders are often viewed as the stewards of business innovation. The technology they deliver to the rest of the organization not only powers day-to-day operations, it also fosters new ways of doing business and engaging customers. As a result, these technical leaders are starting to re-examine how they articulate the value of IT to their business peers.

A perfect starting point is demonstrating the business impact of the applications and related services they already deliver. Think about it: Perhaps more so than ever before, business success is contingent on superior-performing applications. If applications are down or not up to speed, employees can't work, customers can't complete transactions, products don't get shipped on time, and business grinds to a halt.

Figure 1: By the Numbers: Application Performance Impacts the Business

80%	$500,000 – $1 million	45 hours
Percentage of enterprises that say a slowdown to a mission-critical application would have a moderate to extreme effect on overall business performance[1]	The average hourly cost of a critical application failure for a large organization[2]	The working-hour deficit that is created over the course of a year when an application or business service does not perform as expected 2 percent of the time[3]

The examples from Figure 1 above illustrate what can happen if an application outage or performance degradation occurs. But how does the business benefit when applications meet or exceed expected performance levels? When trying to systematically quantify this relationship between application performance and business performance, IT may face some challenges:

- IT has historically focused on meeting application service-level agreements (SLAs), such as availability and response time. While these metrics are important indicators of IT's effectiveness when delivering services, they don't clearly convey how application performance supports or enhances critical business processes.

- A majority of businesses (64%[4]) still lean on fragmented approaches to monitoring and managing application performance. When performance data comes in from disparate sources, the information isn't actionable or as easy to digest, making it even more difficult to translate application performance metrics into business intelligence.

In order to start demonstrating the business value of application performance in a more predictable, reliable fashion, IT leaders must:

1. Speak the Language of Business Leaders

2. Eliminate Siloed Approaches to Performance Management

3. Develop Performance Dashboards to Establish Transparency and Trust

1. Riverbed, "Infographic: Application Performance Equals Business Performance," July 2014
2. IDC, "DevOps and the Cost of Downtime: Fortune 1000 Best Practice Metrics Quantified," Dec. 2014
3. Forrester, "Realize Practical Application Management, Feb. 2013
4. Forrester, "Application Performance Management Is Critical To Business Success," Feb. 2014

Speak the Language of Business Leaders

IT organizations typically evaluate business applications based on availability and speed. But those metrics don't truly measure how the applications impact the business, because they report on performance only from the IT department's perspective, rather than drawing insights from the business users themselves.

For instance, will C-levels care that an e-Commerce site is performing more favorably month-over-month from a response-time perspective? Sure they will, at least to some degree. But they'll be even more interested in how those improvements equate to better conversion rates and increased revenue recognition.

IT leaders need to identify the KPIs that matter most to various business stakeholders, and map those to the application SLAs they're already monitoring. Without that mapping, IT will struggle to tie application service delivery to business objectives.

That's not to imply this is a simple, one-size-fits-all process. The reality is that most enterprises have hundreds of applications, if not thousands, which span across dozens of departments and lines of business that have their own sets of KPIs. This can make mapping IT metrics to relevant business KPIs a cumbersome process.

Finally, keep in mind that tracking and reporting on metrics costs time, money, and energy. So before beginning this exercise in earnest, organizations need to make the conscious decision that this type of value analysis and reporting will become a strategic pillar of IT, while also ensuring the business benefits exceed the time and costs required to do so.

Starter recommendations: Mapping business KPIs to application performance metrics

1. Closely examine the current set of application performance metrics. If they do not effectively communicate IT's performance when delivering applications and other services to the rest of the business, it is best to address these known gaps before proceeding with the larger initiative outlined below.

2. Meet with members of the senior management team and review the KPIs through which they evaluate business success. Chances are they collect and monitor handfuls of KPIs. Encourage them to keep the most important business objectives top of mind, and select KPIs that strongly align with those overarching business goals.

3. Start with a small pilot project to find alignment between application performance metrics and business KPIs. Work with those same business stakeholders and identify five to 10 applications that have the most influence on the core KPIs (or, in other words, the applications that impact business performance the most). This may be a mix of internal-facing and customer-facing applications that drive revenue, brand reputation, employee productivity, and cost-reduction measures.

4. Create a business value mapping, similar to the example in Figure 2 on the next page. Like business KPIs, select only the application performance metrics or SLAs that help business stakeholders understand whether the company is achieving desired outcomes. It's probably true that IT organizations will need several other metrics for monitoring daily operations, but remove those from business performance reports.

Figure 2: Mapping Business KPIs to Application Performance Metrics

Business KPIs	IT or Application Performance Metric	Area of Business Impact
Net Promoter Score	• # of Customer Complaints or Support Tickets • Transaction Response Time • % Availability or # of Outages • % On-time Projects (e.g., application enhancements for customers)	Customer Satisfaction
Customer Retention Rate	• # of Customer Complaints or Support Tickets • MTTR • First-time Fix Rate • Average Users Per Day (and other adoption metrics)	
Web Conversion Rates	• Page Load Time • Transaction Response Time • % Availability or # of Outages	Marketing Execution
Project Schedule Variance/ Project Cost Variance	• # of Outages • MTTR • Error Rate	Operational Efficiency
Order Fulfillment Cycle Time	• Transaction Response Time • % Availability or # of Outages • Error Rate	
Units of Output	• Transaction Throughput • % Availability or # of Outages • CPU Utilization or Average Load • MTTR	Employee Performance
Employee Satisfaction Index	• # of Employee Complaints or Support Tickets • First-time Fix Rate • % On-time Projects (e.g., application enhancements • Average Users Per Day, Number of Sessions, and Other Adoption Metrics	

5. Conduct a gap analysis to determine if the right monitoring technologies are in place to collect and report on the relevant application SLAs (see the next section of this paper for a recommended performance management strategy).

6. Review trending data for the KPIs and applications. Draw conclusions by focusing on times where there were application issues or outages and a corresponding fluctuation to the business KPIs. Conversely, when performance is acceptable or above average, try to pinpoint positive trends to those same KPIs. While some assumptions will be made here, the goal here is to establish a baseline and prove the relationships between application performance metrics and their business KPI counterparts. Note that the amount of time that needs to pass before a trend becomes apparent will vary depending on the metrics involved. But, as a general rule of thumb, expect to collect data for at least three months; that way, data from the previous business quarter can be analyzed and trended.

7. Regularly review the sets of metrics to fine-tune and optimize this strategy. If applications continually miss their performance targets, or the effort required to collect certain metrics outweighs the perceived value of doing so, it's possible the wrong things are being measured. Remember, this is not a one-time project. Rather, it's a continuous improvement process of validating metrics and benchmarking performance against current and ideal future states.

8. Encourage IT professionals to learn the ins and outs of the business. At a fundamental level, understand critical workflows, how the company goes to market, what the supply chain looks like, and what the business's growth targets are. While it's important to do so without disrupting day-to-day IT operations, having a better understanding of the company's goals will help IT organizations articulate value and bring business impact into their cultural DNA.

Eliminate Siloed Approaches to Performance Management

An IT organization's ability to help business leaders make informed decisions based on application performance data is only as good as their approach to collecting that data and managing applications in the first place. Traditional approaches to application performance management—where disparate, point solutions are used to monitor various tiers and components across the delivery chain—can prove to be ineffective and error prone.

Often, these tools are redundant and too tactical, bought in siloes to solve reactive problems, not to drive strategic value. Consequently, each team within IT manages its own set of tools to monitor its respective part of the application delivery chain. While these point solutions theoretically allow IT to collect an adequate amount of performance data, the difficulty they pose is two fold:

1. It is challenging to aggregate, normalize, and present data from so many sources into a common measurement system. Translating that data into actionable business intelligence requires experts from across various IT domains to analyze outputs from their respective tools, making this effort highly manual and resource intensive.

2. Virtually anything that touches an application can affect its performance in today's complex architectures. Fragmented approaches only add to the complexity of managing applications. They also bring bad practices to IT teams, where the focus is on exonerating certain domains from blame for performance problems, rather than collaboratively resolving the issues, improving IT service delivery, and driving better business outcomes. Furthermore, siloed approaches only intensify the business impact of performance problems when they arise, which may partially explain why 31% of issues take a month to resolve[5].

5 Forrester, "Forrester's Ideal Tool Set For Application Performance Management For Better Business Performance," Aug. 2013

With the rising costs associated with application outages, IT must resolve business-impacting issues in a timely manner. But siloed approaches not only inhibit this objective, they also preclude IT from completing the cultural journey of turning application performance monitoring and reporting into a value-add for the business.

Starter recommendations: Converge performance metrics into a single, unified platform

Organizations need the ability to stitch together infrastructure and network monitoring technologies with application and end-user management tools to get a true, end-to-end view into application performance.

This cohesive platform provides IT with a single source of truth, where the right performance data is gathered to pinpoint root cause, delivered to the right people who can resolve the issue, and then distributed to the right business stakeholders—in the proper context—for better situational awareness and faster decision-making. See Figure 3 for recommendations on the key capabilities an integrated performance management solution should include.

Figure 3: What to Look for in a Performance Management Solution

1. Network performance management (NPM) and diagnostic tools with end-to-end visibility and analytics, integrated troubleshooting functionality, planning and configuration management, and visibility into the end-user and application experience.

2. Application performance management (APM) with continuous transaction capture, code-level metrics, and advanced root-cause analysis across technology stacks and application tiers.

3. A unified console that aggregates all NPM and APM metrics into role-relevant dashboards, providing a single source of truth in a collaborative workspace.

- Network flow and packet monitoring
- Remote site visibility
- Large buffer for packet storage/analysis

- Web transaction analysis
- Database call insight
- Citrix, VMware, and VoIP traffic visibility

Network Monitoring

Application Layer Analytics

End User Monitoring

- Response time for all Web applications and users
- Visibility into hosted and cloud deployments
- Proactive alerting

Unified Dashboards
Executive Views
Operational View

Deep Component Analytics

- Code-level metrics
- One-second granular metric correlation
- Advanced root cause analysis

Transaction Tracing

- Traces all transactions
- Traces across multiple tiers
- Google-like search capability of billions of transactions

Application Mapping

- Discover and map all app dependencies
- Essential to application moves and virtualization

Develop Performance Dashboards to Establish Transparency and Trust

Once the proper performance metrics are identified and the right management solutions are in place, the next step is being able to aggregate relevant data points into a set of performance dashboards.

Performance dashboards are integral to strengthening the alignment between IT and the business. For one, they provide IT leaders with a far simpler way of demonstrating their staff's effectiveness when delivering critical services. Instead of patching together performance reports and reactively providing status updates, IT can make the dashboards available on demand, empowering business stakeholders with more meaningful data related to their applications whenever they need it.

Dashboards also offer a deeper level of operational transparency between IT and the business, as these self-service reports allow business leaders to monitor application health and trends at a moment's notice. Perhaps most important of all, this real-time method of service delivery reporting raises IT's credibility and establishes more trust among business stakeholders, which is critical to up-leveling and showcasing IT's value.

Figure 4: Dashboard Examples

Dashboards allow IT to be more transparent by enabling business stakeholders to quickly view an application's health. They also provide meaningful information, which can be consumed within seconds for more agile decision-making.

Starter recommendations: Top considerations when developing dashboards

1. **Stakeholders need to be able to view dashboards at a quick glance:** Within a single screen and a few clicks, the dashboards need to tell a compelling, yet concise story that provokes actions and helps the intended audiences make quicker, more informed decisions.

2. **Provide role-based dashboards:** To expand on the first recommendation, be sure to understand the reporting requirements of various groups across both IT and the business, and customize their dashboards to present only the information that is most important to them.

3. **Dashboards should help communicate the value of IT solutions:** Dashboards are one of several mechanisms that can help IT articulate the value of performance management solutions and other supporting technologies. By comparing application performance metrics and corresponding SLAs before and after the adoption of such tools, IT can help business leaders extrapolate the following value points, among others:

   - How much money was saved from reduced MTTR of performance issues?

   - How many more orders were generated as a result of increased application availability or speed?

   - How many more hours of productivity did business users gain back? How about the IT staff?

   - How many more value-added projects was IT able to complete as a result of those time savings?

Conclusion: Quantifying the Business Value of Application Performance Paves the Way for More Effective Investments and Innovations

Clearly demonstrating the business impact of application performance steers IT into the center of a company's value culture. This is particularly important considering that applications and other IT services underpin most critical business processes and workflows.

Providing this added level of business intelligence also helps executives make more informed decisions about the investments that are needed to improve business operations moving forward. This can help IT secure funding for WAN accelerators, hyper-converged infrastructure, and other enabling technologies that are needed to optimize application performance while supporting high-priority initiatives such as bolstering information security, moving to cloud-based services, and improving business continuity.

Deliver Superior Application Performance for Better Business Outcomes with the Riverbed® Application Performance Platform™

The speed of your critical applications can result in a competitive edge when you let business objectives—not technical constraints—drive how you deliver applications and data.

As The Application Performance Company™, Riverbed can help you secure this business advantage—ensuring optimal service levels while helping you measure and improve the overall impact of the critical applications you deliver to employees, customers, and partners.

Figure 5: The Riverbed Application Performance Platform
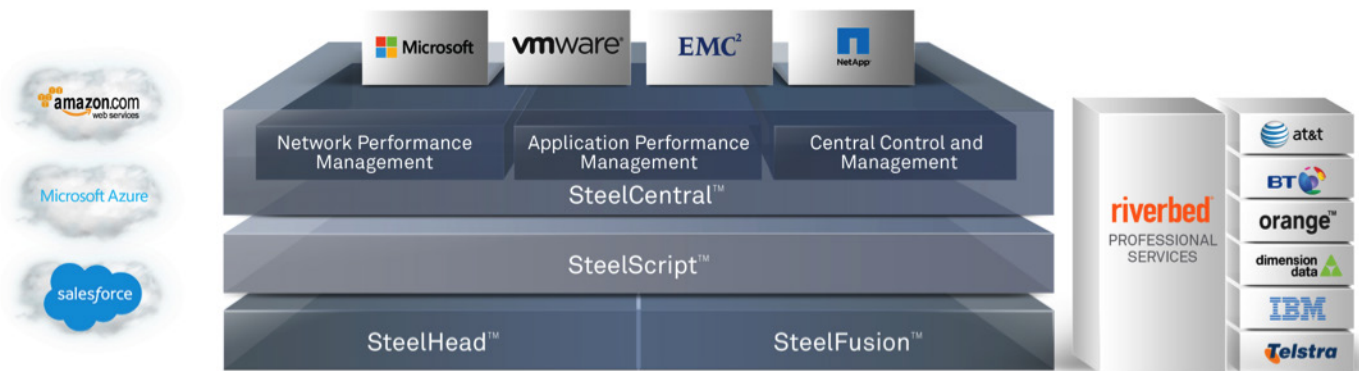
The Riverbed Application Performance Platform is built on products and innovations that work together to enable you to keep your applications, operations, and productivity at peak levels.

Riverbed® SteelCentral™

SteelCentral is the only end-to-end solution that combines user experience, application, and network monitoring for complete, centralized control. Deliver the application service levels that users demand while identifying and correcting problems before they impact business performance.

Riverbed® SteelScript™

Riverbed has a wide range of open APIs for its application performance infrastructure solutions, including representational-state-transfer (RESTful) APIs that allow software developers to write applications that communicate with other systems and services. These open APIs are the foundation for Riverbed's developer tools, including SteelScript for Python and the SteelScript Application Framework.

Riverbed® SteelHead™

SteelHead is the industry's #1 WAN optimization solution that guarantees optimal service levels for applications among data centers, branch locations, cloud networks, and end users. With SteelHead, enterprise and SaaS applications can be delivered up to 33x faster across hybrid WANs while using 97% less bandwidth.

Riverbed® SteelFusion™

SteelFusion is the first and only hyper-converged infrastructure purpose-built for branch offices. SteelFusion eliminates the need for physical servers, storage, and backup infrastructure at branch locations, allows for instant provisioning and recovery of branch services, and enables superior performance of on-premises and cloud-based applications, leading to dramatic increases in data security, business continuity, agility, and operational efficiency.

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Riverbed Professional Services offers expert lifecycle consulting and technical education services to help enterprises reduce risks, accelerate adoption, and discover new opportunities to improve business performance with Riverbed technologies. With a track record of 90% on-time, on-budget projects and client satisfaction scores that consistently measure 9.7 out of 10, enterprises around the world trust Riverbed Professional Services to help them achieve and maintain peak application performance.

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