

Software Strategies for the Digital Business

The Importance of Application Performance Management (APM) in DevOps and Continuous Delivery

An ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) White Paper
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IT & DATA MANAGEMENT RESEARCH,
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Overview

As part of ongoing research on DevOps and Continuous Delivery, EMA recently completed a survey assessing the use of automation supporting these practices.¹ One key finding was that exceptional revenue growth is one of the major advantages of seamless interactions between Development (Dev) and Operations (Ops). Another key finding was that accelerated Continuous Delivery of software releases, made possible in part by high-quality DevOps practices, also contributes to exceptional growth. Both findings have been supported by multiple similar EMA studies over the past decade.

This recent study also found that many of today's most successful companies are now applying DevOps thinking across the lifecycle. Almost 30% of the top-performing companies surveyed indicated that their DevOps teams were involved in every stage of the application lifecycle.

As part of this lifecycle-focused “big picture,” application performance management (APM) toolsets are becoming essential elements supporting accelerated delivery practices. Whether it is funneled directly into analytics and reporting functions, shared with a central data integration hub—or both—APM data delivers a unique perspective on end-to-end execution that other tools categories simply lack.

By automating the processes of identifying and diagnosing application-related problems throughout the lifecycle, these unique insights help eliminate wasted time and human error on the part of IT specialists. They also facilitate collaboration, particularly when APM-focused data is integrated with data from other tools and reporting functions supporting multiple stages of application delivery.

This EMA white paper utilizes data points from past and current EMA research to illustrate the value proposition of APM in support of DevOps and Continuous Delivery. APM tools provide essential support for the collaborative sharing of skills and information that is critical to DevOps and Continuous Delivery best practices.

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The Value Proposition of DevOps/Continuous Delivery

EMA analysts view the DevOps function as a set of skills, processes, technologies, and tools that together support cross-functional collaboration and operational efficiency across organizational teams, silos, and skill sets. Today, approximately 90% of companies surveyed report using such teams. Of these, about 65% have dedicated DevOps teams in place while 35% form ad hoc teams in response to specific technology- and application-related issues.

From the EMA perspective, Continuous Delivery can be viewed as an iterative and ongoing cycle of development, testing, and delivery of software to a targeted destination. As Figure 1 shows, in enterprise IT, the DevOps and Continuous Delivery functions are intertwined. High-quality DevOps processes serve as a backbone for Continuous Delivery, “greasing the wheels” to facilitate and accelerate efficient delivery at each stage of the lifecycle. Well-executed DevOps and Continuous Delivery processes bring proven efficiency to IT service delivery; both benefit from cross-tool and cross-stage data sharing across lifecycle stages.

¹ EMA, “DevOps/Continuous Delivery Tooling: Launchpad for the Digital Enterprise,” June 2017.

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Figure 1 also depicts a physical and/or logical automation hub as the operational integration point for such data sharing. This provides a basis for collaborative problem-solving and cross-silo information sharing, as well as for the end-to-end process automation that is a growing requirement for supporting digital business at scale.

EMA research on these topics has also found that such processes can have a dramatic impact on revenue:

- Survey respondents who rated the interactions between Dev and Ops teams at their companies as “excellent” were nearly three times as likely as all other respondents to report that year-over-year (YoY) revenue increased by 25% or more.
- Survey respondents from companies whose IT teams increased software delivery frequency by 25% or more in the prior year were 62% more likely to report a YoY revenue increase of 25% or more than competing companies.

Clearly, the value proposition is significant. Tools investments in these areas benefit not only IT budgets; they also benefit the business as a whole.

Ongoing Cycle of Continuous Delivery

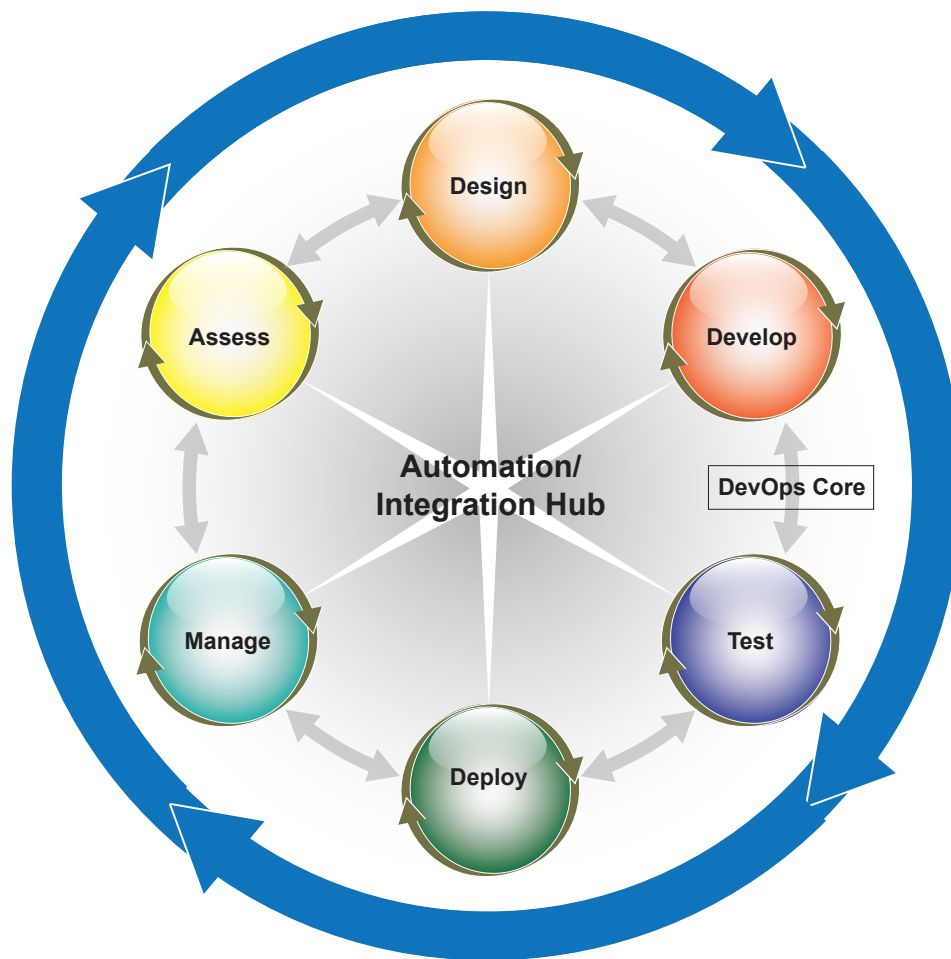


Figure 1. DevOps serves as a backbone for Continuous Delivery; both benefit from sharing data across lifecycle tools and stages

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DevOps, Continuous Delivery, and the Digital Business

There are multiple reasons for the exceptional growth cited above. High-quality DevOps and Continuous Delivery practices make the overall process of delivering IT services far more efficient. This can significantly lower the cost of delivering day-to-day IT services while freeing up skilled IT practitioners to focus on new software products and features. At the same time, these practices can also improve the overall quality of software delivered to production. High-performing applications and business services not only reduce the adverse impact of ongoing change; they contribute significantly to improvements in customer satisfaction.

The research also identifies integration as a key factor essential to DevOps and Continuous Delivery automation strategies. Our latest survey also asked respondents to identify the ways in which DevOps had impacted their tools acquisition strategies. The top response was that DevOps practices created “a need for integrations across the management tools portfolio.”

In a separate question, respondents were asked to identify the top three application delivery–related practices and capabilities necessary to support digital business. As Figure 2 shows, DevOps and Continuous Delivery were the first and third most common answers. However, “integrations unifying and/or sharing data from existing tools across lifecycle stages” surfaced as the second most important practice. This again reinforces the idea that cross-tool integrations are becoming essential to modern software delivery and support practices.

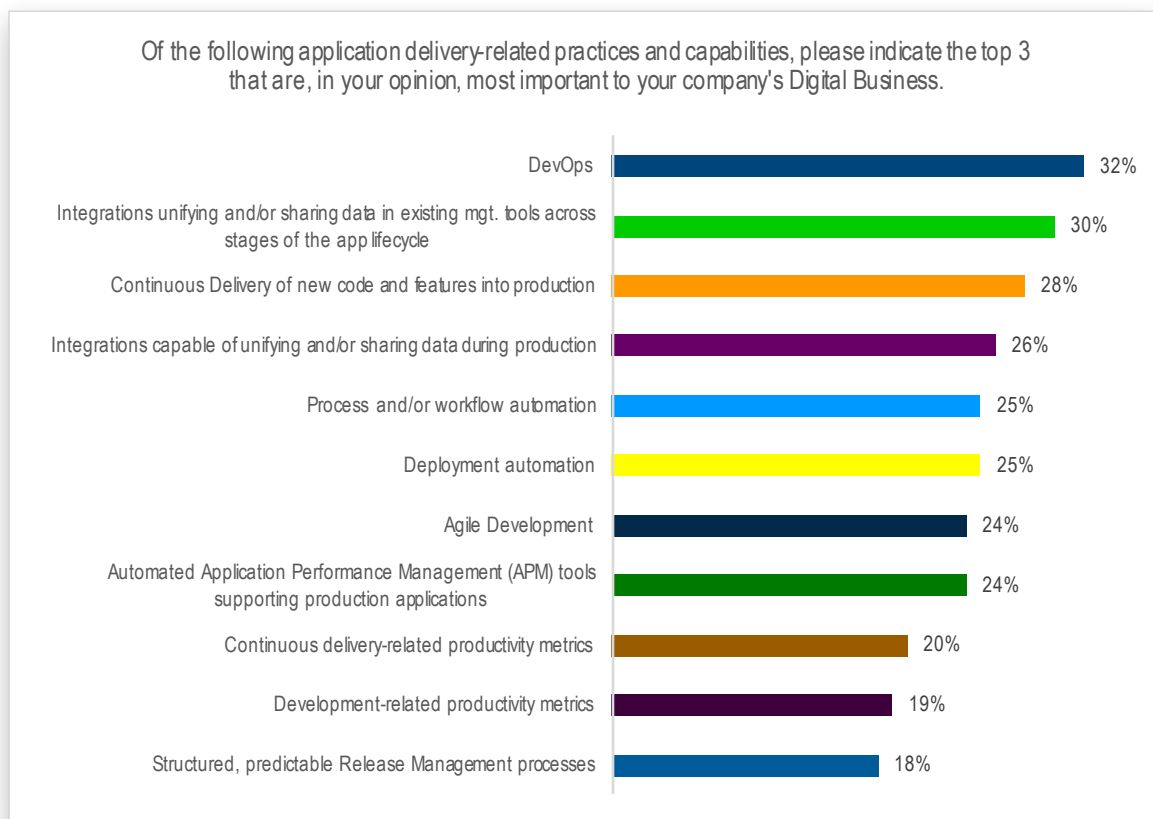


Figure 2. Cross-tool integrations now one of the top three most important capabilities supporting digital business

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Why is information sharing across the lifecycle so important? It accelerates Continuous Delivery by making the overall process more visible and seamless.

However, while accelerated Continuous Delivery can dramatically impact the business bottom line, it can only be accelerated to the speed of its slowest link. In this case, a “link” is a given lifecycle stage. If one stage is slow, it may well prove to be a bottleneck slowing down the entire delivery process. To ensure that each stage is executed as efficiently as possible, each must be appropriately instrumented and automated for the tasks and work specific to that stage. As the organization continues to mature in its use of automation supporting IT processes, the artifacts generated at each stage can then be shared in a way that supports diverse users; it can also be shared directly with other tools supporting subsequent stages of the lifecycle.

Figure 3 shows findings from a 2015 EMA research study on these topics², conducted with primarily DevOps and Operations personnel versus the primarily Development-focused personnel completing the 2017 study. This category of respondents identified “manual troubleshooting processes” as the biggest bottleneck slowing down Continuous Delivery. They also identified “Deployment/Release automation supporting Continuous Delivery,” “APM platforms/suites,” and “Workflow automation supporting DevOps and Continuous Delivery” as their top three “wish list” solutions.

These findings demonstrate that IT practitioners directly responsible for production delivery recognize both that the operational impacts of Continuous Delivery are significant *and* that APM solutions can substantially mitigate the challenges generated by high rates of production change.

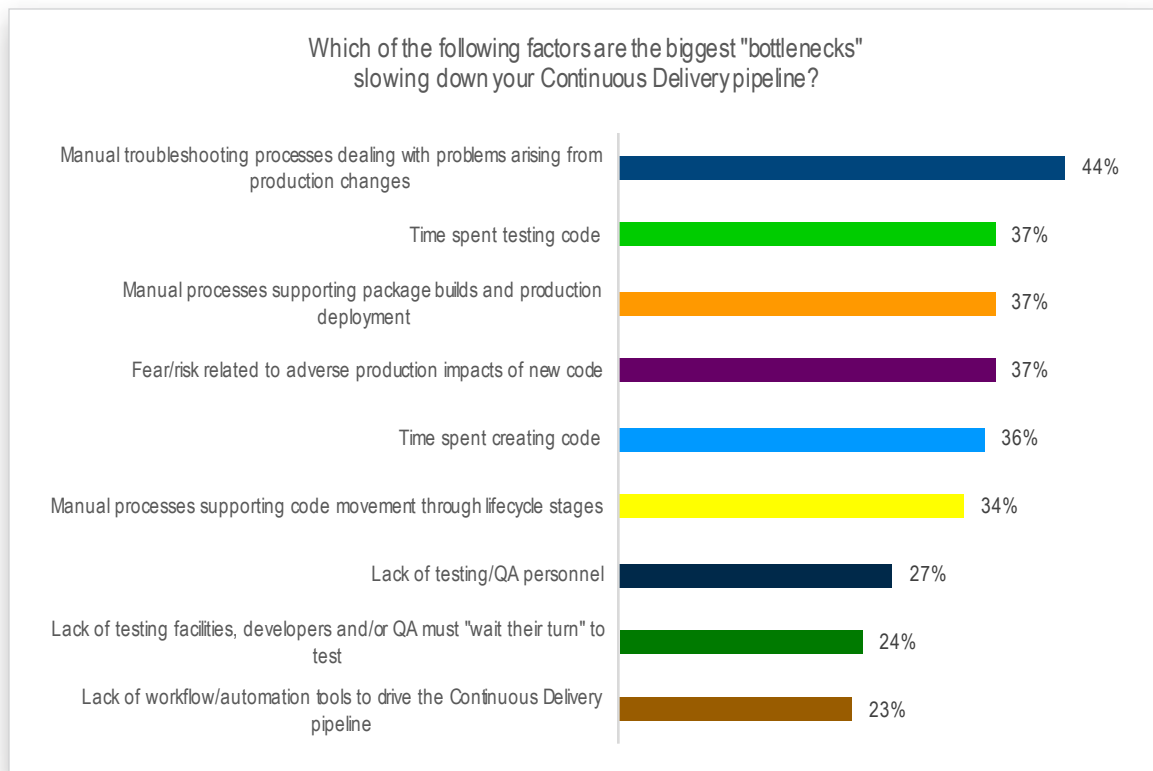


Figure 3. “Manual troubleshooting” is a bottleneck inhibiting acceleration of Continuous Delivery

² EMA, “Automating for Digital Transformation: Tools-Driven DevOps and Continuous Software Delivery in the Enterprise,” December 2015.

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Integrated APM Across the Lifecycle

In the digital business, application performance is paramount. However, as Figure 4 shows, while operations experts may well grasp the value proposition of APM, their production support strategies may not yet reflect this. Over 70% of IT organizations are still supporting applications with primarily manual, silo-based processes. Application troubleshooting, in particular, is most often supported by domain experts, silo tools, and/or “war room” collaborations. And while almost one-quarter of such troubleshooting is managed by DevOps teams, those utilizing APM solutions are still in the minority.

APM tools are specifically designed to:

- Automatically detect, diagnose, and inform when performance/availability problems occur or are about to occur
- Analyze data and metrics from the application ecosystem to diagnose problems to their root cause or causes
- Communicate performance/availability problems to IT professionals and, where possible, advise them regarding how to repair and recover from the problem.

Automating these capabilities eliminates wasted time and human error on the part of IT specialists by detecting and, ideally, guiding remediation efforts to eliminate performance issues *before* they impact end users. When problems do occur, they can be fixed far faster when APM tools are in place. This ensures the delivery of high-value applications that drive both revenue and customer satisfaction.

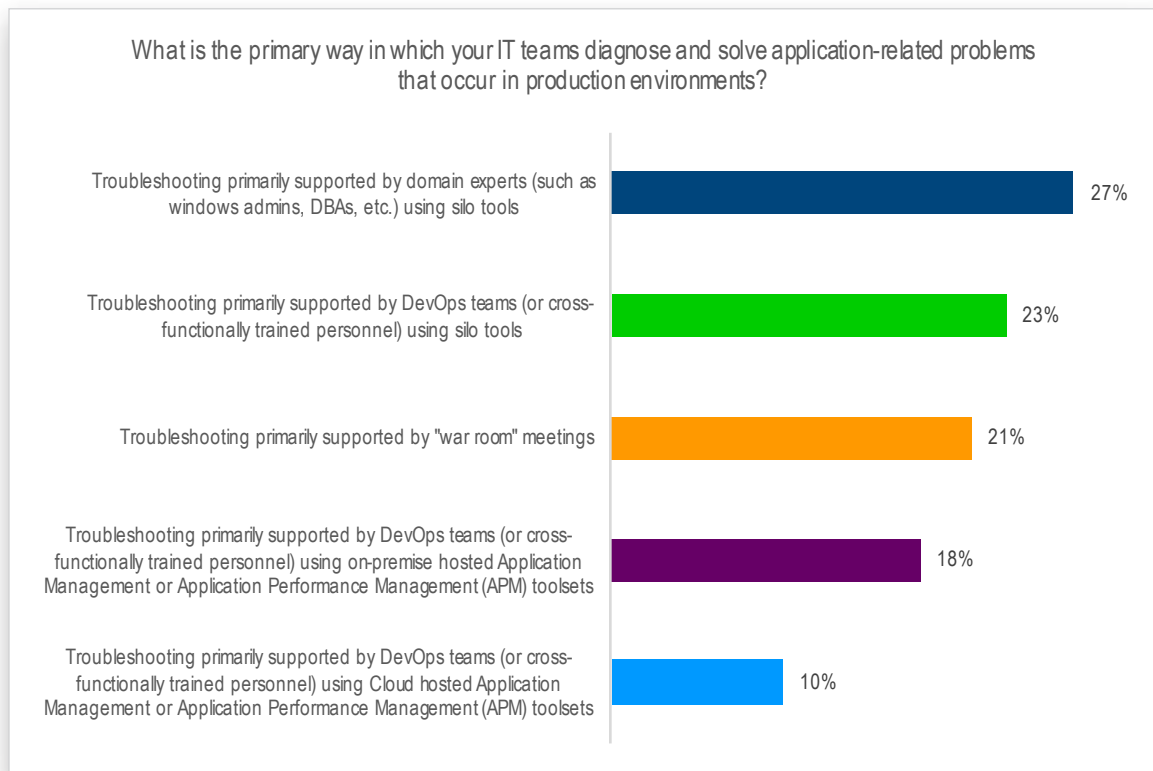


Figure 4. 70% of companies still utilize primarily manual (versus automated APM) troubleshooting practices

DevOps/Continuous Delivery With Riverbed APM

Riverbed's multidimensional APM solution provides integrated, real-time visibility across management systems for stronger collaboration, accelerated development, and optimized performance. By enabling a proactive approach to ensuring performance and availability across the full lifecycle, Riverbed supports DevOps/Continuous Delivery by:

- **Accelerating the development of high-performing applications**
 - Detailed performance diagnostics help identify and resolve bugs early in the development lifecycle and keep developers focused on coding, not on constantly recreating flawed test scenarios.
 - REST APIs automate the collection, sharing, and analysis of performance metrics during development and testing and into production to help ensure releases perform optimally.
- **Ensuring continuously high levels of production performance and user satisfaction**
 - Full-stack monitoring spans applications, networks, infrastructure, and user devices on and off the cloud so problems are more easily resolved before they impact business.
 - Unified performance dashboards enhance collaboration among teams, improving efficiencies and overall service delivery.
- **Promoting frequent high-quality releases that consistently achieve business objectives**
 - Device-based end-user experience monitoring measures adoption and usage trends across releases.
 - Performance insights quantify the impact of application changes or new releases from the financial and user productivity perspectives.
 - Detailed transaction reports highlight top-performing or underperforming features for more informed development planning.

For additional information, please visit www.riverbed.com/devops.

Summary

APM toolsets are essential automation investments for businesses looking to accelerate digital initiatives through DevOps and Continuous Delivery. Well known for providing application insights essential to production troubleshooting and root-cause analysis, these toolsets also deliver value across multiple IT teams and virtually every lifecycle stage.

During the development and testing stages, developers and testers can leverage APM in a preproduction setting to detect and resolve code problems early in the lifecycle, ensuring they never hit production. Once code is in production, APM toolsets prove invaluable for tracking changes to production infrastructure, monitoring delivery levels in support of Service Level Agreements (SLAs), and evaluating the success of new capabilities for more informed roadmap planning.

Throughout the lifecycle, APM capabilities also support proactive problem-solving—ideal for digital businesses that must deliver high-quality applications that encourage customer engagement and stickiness.

Within the realm of APM solutions, Riverbed boasts a particularly robust set of capabilities. Endpoint agents provide a level of visibility into the user experience and user activities that the majority of APM solutions lack. Deep visibility into network interactions and performance delivers granular

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insights into application architectures, dependencies, and performance anomalies. Combining these features with infrastructure monitoring and advanced analytics that pull it all together, Riverbed offers a singular set of functions that can dramatically enhance DevOps collaborations and Continuous Delivery at scale.

In a world where complex component-based applications have become the norm, relatively few solutions truly support the digital business. Riverbed is one that does.

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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 blogs.enterprisemanagement.com. You can also follow EMA on [Twitter](#), [Facebook](#), or [LinkedIn](#).

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