

Application Performance Management and DevOps: An insurance perspective

*A research study exploring a path to higher application
quality and performance*



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APM and DevOps: Agile, responsive application development for the insurance industry

Insurance companies have a reputation, both culturally and technically, for being conservative. According to Gartner, the innovation maturity levels of insurance companies are still relatively low. More than half of all innovation managers consider their organizations to be either reactive or rather conservative.¹ Yet, like most industries, insurance companies are grappling with disruption. Extensive compliance and regulation requirements, sophisticated customers who expect multichannel interactions and fast access to claim data, and wavering profit margins all create a demanding, competitive environment.

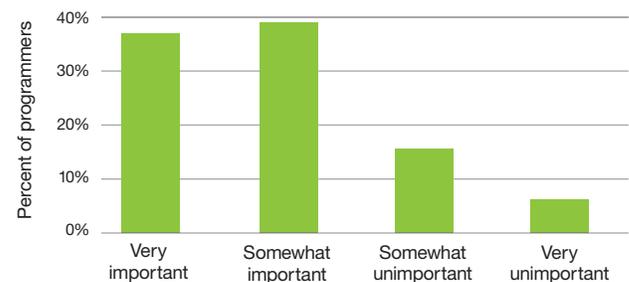
Additionally, research shows that insurance applications are much more likely to be transactional in nature (83 percent versus 55 percent across industries). Also, insurance companies are much more apt to develop their own customized applications—in other

words, they are far less likely to use applications that are packaged or off the shelf (18 percent versus 32 percent). And because data security is of paramount concern, they put fewer of their applications on a public cloud (7 percent versus 14 percent).² All of these characteristics create a unique set of challenges.

Keeping pace with a global economy, emerging technologies and a rapidly evolving industry requires iterative, responsive development cycles. By incorporating both DevOps and end-to-end application performance management (APM), insurance companies can realize substantial benefits, including enhanced application customization, insightful data analytics and heightened customer satisfaction.

DevOps is a vital component of digital transformation. In fact, a recent study by Evans Data Corporation illustrates the importance of DevOps, with a combined 76 percent of the developers polled across industries considering DevOps to be very or somewhat important for their future (see Figure 1).³

How important is DevOps to your overall digital strategy?

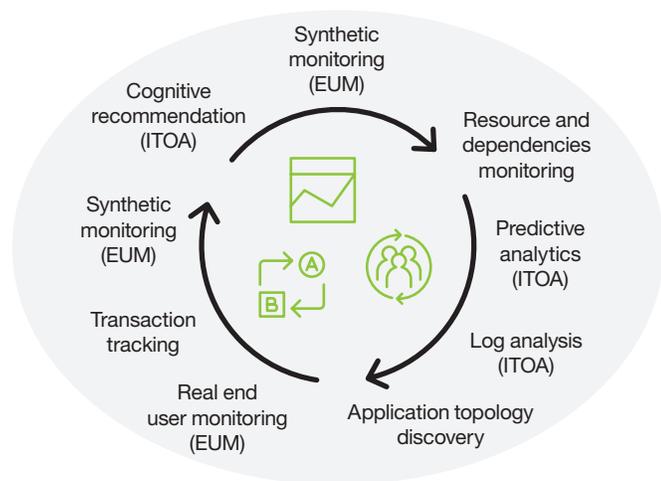


Source: Global Development Survey: Vol. 1, © 2016 Evans Data Corp., Date published: 05/31/2016.

Figure 1. A combined 76 percent of developers polled across industries consider DevOps to be very or somewhat important to their future.

From a process and tools perspective, DevOps breaks down the barrier between development and operations to help deliver three key value propositions, including:

- Accelerating the delivery of innovation with frequent application updates (daily, weekly and monthly)
- Facilitating reduced operational costs of delivering releases—costs that have traditionally hindered agile delivery
- Engaging directly with the user base to align limited development resources with high value efforts



Source: Research study data provided by IBM Market Development & Insights.

Figure 2. As more organizations across industries adopt DevOps models, these APM tools and capabilities are expanding from operations into development.

On the *APM* side of the equation, such tools were traditionally focused on production operations. But as more organizations adopt DevOps models, APM tools and capabilities (as shown in Figure 2) are expanding from operations into development. Development and testing environments now bear close technical resemblance to production environments, which makes APM easier to expand and implement. This helps enable development to take advantage of traditionally production-oriented APM capabilities such as:

- Low overhead and reduced cost monitoring
- Management of complex dependencies and end-user experience
- Highly scalable and flexible deployments with effective collaboration across development and operations

As one chief information officer (CIO) summarized, “You’re increasing productivity because you’re giving the users their applications faster. You’re reducing IT resources and getting more things done.”

A global study: Investigating current and future APM and DevOps adoption

To explore the influential role that APM and DevOps play in an organization’s digital transformation, IBM conducted a global study regarding adoption and usage patterns and impact. The study involved a web survey of 519 participants spanning the DevOps lifecycle, residing in both the IT department and/or lines of business. Respondents were also responsible for at least one application and/or were involved in DevOps practices and methods.

Insurance organizations comprised 30 of the 519 participants. This paper outlines key research findings across all industries and highlights areas in which insurance companies diverged from typical cross-industry responses.

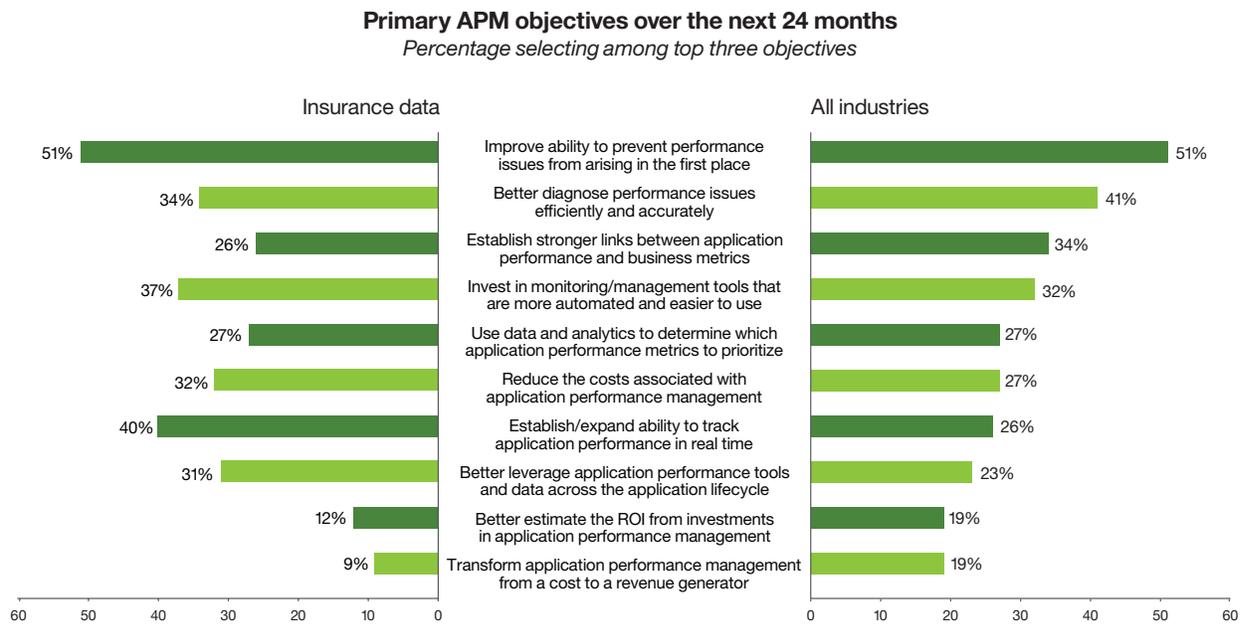
APM solutions: Who’s accountable?

About a third of cross-industry respondents say that both production and application Dev/Test roles assume responsibility for APM solutions. Predictably, these roles fall within traditional lines, with APM for application Dev/Test managed by development roles, and APM for production environments managed by operational roles. Respondents anticipate a merging of these APM roles, with the gap between development and operations narrowing over the next two years. This reflects the increasing synergies throughout the DevOps process.

Compared to cross-industry respondents, insurance companies have a higher focus on quality, demonstrating a greater likelihood of involving quality assurance (QA) testers in app development

and pre-production testing (51 percent versus 31 percent). And they also have a greater tendency to involve the head of QA testing in those areas (43 percent versus 23 percent). This could be indicative of the highly customized nature of applications within specific insurance companies. Developers typically do not follow an industry standard and thus have a greater need to eliminate development issues and bugs.

When it comes to purchasing APM tools, the function across industries is more centralized. Senior executives make the purchase decisions, with both development and operations managers influencing direction.



Source: Research study data provided by IBM Market Development & Insights.

Figure 3. Respondents cite a range of objectives for implementing APM solutions over the next 24 months.

Primary objectives for APM: Preventing performance issues and much more

When asked about their primary objectives for implementing APM solutions over the next 24 months, over half (51 percent) of cross-industry respondents state that preventing application performance issues from arising in the first place is key. As shown in Figure 3, insurance companies stand out from cross-industry trends in that their second highest objective is to establish and expand their ability to track application performance in real time (40 percent versus 26 percent). This objective supports their critical need to track insurance claims accurately and quickly.

Investing in automated, easier-to-use APM tools

Most companies across industries have tools that alert them to application performance issues in production. Some also use dashboards that monitor real-time status and historical trends. In this scenario, proprietary vendor tools are usually used about 74 percent of the time, with just 40 percent of respondents stating they use opensource tools.

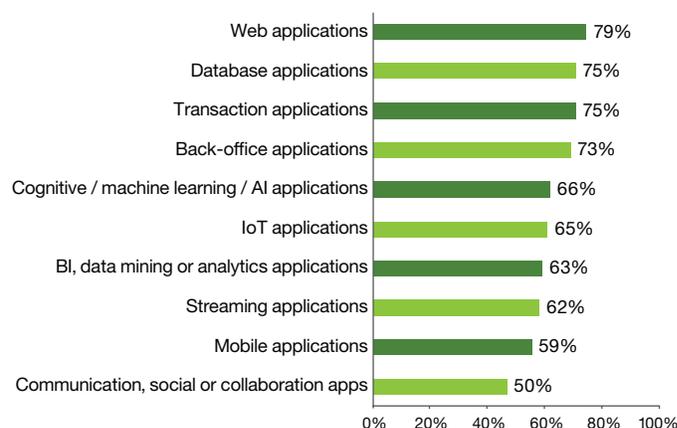
Compared to cross-industry respondents, insurance companies are more likely to use diagnostics that identify root causes by drilling into the code (54 percent versus 31 percent). This is important for these organizations, given that they gravitate toward custom applications. Insurance companies also have a greater tendency to value:

- Analytics tools for diagnosing or predicting application performance issues (84 percent versus 70 percent)
- Providing a single solution for sharing application performance feedback across different phases of the application lifecycle (77 percent versus 49 percent)
- The availability of APIs to integrate application management into an automated deployment pipeline (68 percent versus 48 percent)

Current APM tools are most commonly used across industries to monitor web, database, transaction and back-office applications (see Figure 4) not only in production, but also in pre-production development and testing.

Type of applications for which APM tools are currently used across industries

Percentage selecting, among companies using APM tools & applications



Source: Research study data provided by IBM Market Development & Insights.

Figure 4. Types of applications for which APM tools are currently used across industries. On average, companies use APM tools for 70 percent of their applications.

Analytical tools for APM: Organizations are ramping up

Seventy percent of cross-industry participants say the most critical feature of an APM solution involves analytics tools that diagnose application performance issues, yet less than 40 percent of companies used such tools at the time of the survey. With 60 percent of those surveyed exploring analytics capabilities for their APM solutions, this should shift dramatically. The top APM objectives for the next 24 months are analytics related, with the goal of identifying and resolving application performance issues.

“You’ve coded an important application that’s supposed to do an important piece of work for the company, which means revenue gained or revenue lost. Absolutely, time to market is accelerated. The quality of service is improved. All important reasons to comply with DevOps guidelines.”

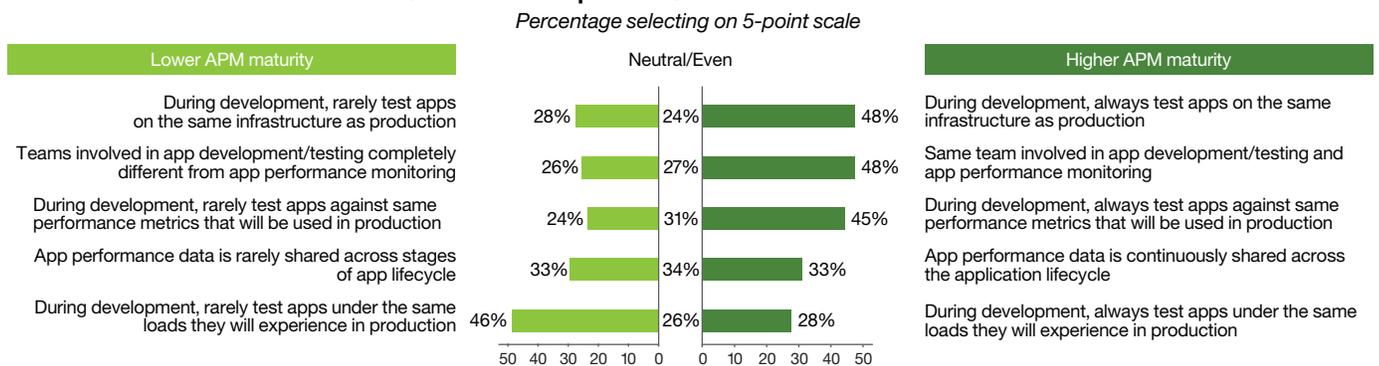
— CIO, 1,000–4,999 employees

The influence of APM on the adoption of DevOps

As organizations manage toward ever-shortening development cycles, performance monitoring throughout all phases of the application lifecycle increases in importance. *Almost half of application owners across industries say that the need to use APM solutions earlier in the application lifecycle was an influential factor in their adoption of DevOps practices. Insurance companies demonstrate an even greater need to use APM earlier (67 percent versus 48 percent).*

Once DevOps was integrated, almost half of cross-industry respondents say the approach has actually improved the quality of their applications, while also helping to reduce downtime and increase customer satisfaction. Nearly all companies across industries currently use or plan to adopt practices that will drive increased alignment between development and operations, including end-user feedback and continuous application performance monitoring. *Compared to cross-industry trends, insurance companies are more likely to use continuous application performance monitoring (90 percent versus 77 percent).*

Current APM capabilities/situation across industries



Source: Research study data provider by IBM Market Development & Insights

Figure 5. Practices that are indicative of lower and higher APM maturity.

Technical successes and challenges

As shown in Figure 5, almost half (48 percent) of cross-industry companies surveyed state that during application development, their applications were always tested on the same infrastructure as production, and that the same team involved in application Dev/Testing was also involved in application performance monitoring. However, insurance companies have a greater tendency than cross-industry respondents to:

- Always test applications against the same performance metrics during development as in production (64 percent versus 45 percent)
- Always test applications under the same loads during development that they will experience in production (54 percent versus 28 percent)
- Continuously share application performance data across stages of the application lifecycle (53 percent versus 33 percent)

Why adopt DevOps practices? Anticipated benefits and critical drivers

As noted earlier, DevOps adoption is driven by the need to use APM earlier in the application development and delivery lifecycle—according to 67 percent of insurance respondents (versus 47 percent across industries) who cite it as a critical influence.

Companies across industries are also drawn to DevOps practices as a way to improve customer satisfaction by avoiding negative feedback from end users about their application experience. Additionally, a DevOps environment alleviates a lack of collaboration between application developers and operations, and enables companies to deliver applications faster into the market (see Figure 6).

Insurance companies differed from cross-industry respondents in that they are more influenced by an inability to meet service level agreements (SLAs) for application performance (42 percent versus 25 percent)—a nod to the transactional, customer-satisfaction orientation of their applications.



Source: Research study data provided by IBM Market Development & Insights.

Figure 6. Respondents cite numerous factors as influencing their decision to adopt DevOps.

The vertical, more customized nature of insurance application development is reflected by:

- Less influence from DevOps champions, trusted external consultants or partner recommendations (9 percent versus 24 percent)
- Less influence by seeing that others in their industry have been successfully adopting DevOps (14 percent versus 27 percent)

As shown in Figure 7, cross-industry organizations advance their DevOps journeys by adopting a number of practices. Insurance organizations and cross-industry respondents demonstrated similar rates of increasing alignment between application developers and operations and facilitating continuous delivery of applications. However, insurance companies demonstrated a greater tendency to use continuous application performance monitoring (90 percent versus 77 percent).

DevOps practices currently using or planning to adopt over 12-18 months

Percentage selecting



Source: Research study data provided by IBM Market Development & Insights.

Figure 7. Respondents indicate a number of practices that they are currently using or plan to adopt over the next 12 to 18 months.

Note: Study participants were required to have a sufficient level of DevOps adoption.

“What used to happen was, you provided customers a finished product that could have taken a lot of development hours. And the customer could say, ‘I want this changed.’ We have to throw out thousands of those hours. This approach saves money.”

— Mid-level IT manager, 5000+ employees

Incorporating APM solutions across DevOps: Significant results across industries

As companies across industries adopt DevOps and incorporate APM solutions—not just in application deployment, but during application development and testing as well—the results are significant:

- Application quality improves and defects decrease
- Costs from application downtime decrease
- Customer satisfaction increases
- Time-to-market for new applications decreases
- Better governance and risk management
- More advanced flexible skills among employees

Degree to which companies across industries are experiencing business benefits from adoption of DevOps.

Percentage rating 4 or 5 on 5-point scale



Source: Research study data provided by IBM Market Development & Insights.

Figure 8. Many respondents report experiencing significant business benefits from adopting DevOps.

Insurance companies reveal several differences, as shown in Figure 8. They are much more likely to achieve higher customer satisfaction (65 percent versus 48 percent cross-industry) and better security of company and customer data (61 percent versus 35 percent)—critical priorities for them. They also see more advanced and flexible skills among their employees (58 percent versus 37 percent), perhaps resulting from the in-house nature of their development processes.

These benefits impact not only a company's business performance at the top line with higher revenues realized through greater customer satisfaction, but at the bottom line as well, translating to cost savings from reduced downtime.

Greater adoption of DevOps, integrated with APM solutions, also helps companies achieve greater innovation than competitors. The study shows that cross-industry companies further along the DevOps and APM maturity curve introduced 46 percent more applications over the past three years versus companies that are lagging. Such companies are also more likely to use APM tools today, as well as plan to adopt even more in the future—with particular emphasis on the analytics components of those solutions. By continuing to enhance APM across the DevOps lifecycle, businesses can achieve even greater competitive advantages.

Going forward: The trend toward integrating APM with DevOps

IBM anticipates an increased correlation across industries between the implementation of DevOps practices and the value placed on key features and functions of APM solutions. These include analytics capabilities, application quality, customer satisfaction and governance.

As insurance companies look ahead over the next 12-24 months, their goals reflect the transactional, customer-facing nature of their applications. Objectives include:

- Improving ability to prevent performance issues from arising in the first place (51 percent—identical to cross-industry responses)
- Establishing and expanding ability to track application performance in real time (40 percent versus 26 percent cross industry)
- Investing in monitoring and management tools that are more automated and easier to use (37 percent versus 32 percent cross-industry)
- Enhancing and expanding continuous application performance monitoring (81 percent versus 65 percent)
- Testing applications under the same loads during development that they will experience in production (58 percent versus 34 percent)

Across industries, more than half of companies use or anticipate using diagnostic tools to identify root causes of application issues by analyzing log data/message activity, while almost half put emphasis on predictive analytics capabilities. The survey predicts that over the next 24 months, almost 30 percent of cross-industry companies will have analytics capabilities fully integrated with APM tools. And, roles and responsibilities will also continue to evolve and merge as DevOps reaches higher heights on its adoption curve.

“When our end customers notice that we’re moving forward, they’re excited about the changes and they can see the benefits.”

— App Developer, 1000–4999 employees

What's next for you?

If you're looking to achieve the benefits of incorporating APM solutions across DevOps, consider some of the best practices implemented by respondents who are higher on the DevOps and APM adoption curve—organizations that have achieved or are well on their way to digital transformation. They tend to:

- Test applications on the same infrastructure and loads used in production environments
- Use the same team across application development, testing and production
- Test applications against the same performance metrics that will be used in production
- Use an integrated APM solution across development, testing and production—including a single, unified dashboard
- Automate all application performance monitoring

Perhaps you are just now considering an APM and DevOps strategy. Or perhaps you have embarked on this journey but are experiencing challenges. Maybe you are already using APM across the DevOps phases, but you want to enhance your approach. IBM® DevOps and APM solutions can help you, no matter where you are in your APM and DevOps evolution.

The IBM APM portfolio

The IBM APM portfolio helps you detect and address software application issues, so your end users have a quality experience. IBM offers a single user interface to help you easily monitor your internal and external applications. For example, IBM can:

- Extend your hybrid management environment capabilities
- Measure the customer experience from multiple locations
- Further eliminate blind spots in your application environment
- Improve application quality and stability
- Accelerate release cycles and reduce costs

For more information on how the IBM APM portfolio can help you, visit ibm.co/LearnIBMAMP. You can see a five-minute walkthrough of availability monitoring at ibm.co/2jxAWPS.

The IBM DevOps approach

The IBM DevOps approach helps organizations incrementally adopt DevOps practices, enabling them to accelerate innovation without tradeoffs in terms of cost, quality or risk. Organizations can make the most of existing investments and build an environment in which open source and proprietary lifecycle tools coexist and interoperate. IBM DevOps solutions can accelerate application updates and innovation by:

- Reducing time to customer feedback
- Increasing quality
- Reducing risk and cost
- Unifying processes, cultures and tools across the application lifecycle

To learn more on how the IBM DevOps approach can help you, visit ibm.com/cloud-computing/products/devops/. Also check out an introduction of IBM DevOps processes, including availability monitoring for IBM Bluemix®, at ibm.co/2jmS518.

For more information

Please visit our IBM APM website at ibm.co/2rK67yZ.

Also, check out the IBM APM demo at ibm.co/APMdemo3.



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Route 100
Somers, NY 10589

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¹ Gartner. Predicts 2017: Insurance CIOs Must Balance Emerging Technology Opportunities and Risks to Drive Innovation. Nov. 7, 2016. ID # G00297679. (www.gartner.com/document/3505617?ref=ddrec)

² Source research study data provided by IBM Market Development & Insights.

³ Evans Data Corporation. “Global Development Survey 2016 Volume I.” May 31, 2016. (www.evansdata.com)



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