

INSIGHT

Application Management in the Cloud — New Relic Turns a Traditional Model on Its Ear

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IDC OPINION

Small, medium-sized, and large enterprise customers are increasingly gravitating toward the use of SaaS-based application management (AM) solutions to monitor and tune their Web applications running in private, hybrid, or public cloud environments. More specifically:

- ☒ New Relic, a four-year-old SaaS application performance management (APM) provider, continues to aggressively grow its customer base, touting 16,000 customer accounts, with 8,000 deployed in public, private, or hybrid cloud environments as of January 2012. In November 2011, New Relic expanded its 24 x 7 on-demand management service to include support for Python, alongside PHP, Ruby, Java, and .NET Web applications. Its APM service (fka RPM Enterprise Edition) released Real User Monitoring (RUM) in 2Q11 and server monitoring support in 4Q11. The integration of APM with multiple cloud platforms, including Amazon Web Services (AWS), Rackspace, Microsoft Azure, RightScale, Engine Yard, and Heroku, has helped New Relic scale, enabling customers to manage, monitor, and improve the performance of their Web applications in dedicated or public cloud models.
- ☒ As application instances are being moved around or created dynamically in virtualized environments, with accelerated timelines and more agile, highly iterative development/test approaches, New Relic provides rapid Web access, code traceability, and resolution of production-related Web application problems in real time.

IN THIS INSIGHT

This IDC Insight discusses New Relic, a SaaS APM company that is focused on providing deeper levels of application management transparency to SMB, enterprise, and developer communities that are deploying applications on multiple language and deployment platforms in virtual, hybrid, or dedicated environments. New Relic's APM on-demand SaaS solution is targeted at a range of customers, including in-house development teams in large enterprises, SMBs, consultants, and SIs. Multiple PaaS or cloud platform service providers (e.g., AWS, Heroku, Joyent, Pantheon, and CloudBees) and hosted cloud infrastructure providers (e.g., Rackspace, RightScale, Blue Box Group, Acquia, and BrightBox) have teamed up with New Relic and have either integrated New Relic into their platforms or offer New Relic free of charge as part of their hosted AM services.

SITUATION OVERVIEW

As the volume of Web and mobile applications designed and developed across multiple platforms increases across all sizes of business, the need to be able to test, manage, and monitor these applications with agile, accelerated operations management becomes critical. While adoption of agile/scrum development methodology has been gaining traction, there are but a few affordable application management tools that have kept pace with the rapid configuration and parallel operations management support required for these same applications. While there are several application performance management tools in the market, most are focused on assessing performance at the infrastructure layer. Although current APM dashboards typically provide visibility into server statistics, including availability and usage of database servers, application servers, and load balancers, they often fail to provide the ability for customers to quickly understand application performance behavior under load, rapidly identify the presence of inefficient code, and understand root causes for slow database response or failing transaction results.

New Relic has kept a sharp focus on developing a SaaS-based application management solution that is affordable and can be self-provisioned in minutes. It currently services more than 16,000 customers, with about 8,000 of these customers deployed in public, private, or hybrid cloud configurations. Of this cloud group, approximately 50% of customers are deployed on Amazon EC2 and the other half are running in dedicated hosted environments with companies like Rackspace, Engine Yard, or Blue Box Group or in their own datacenters with use of the APM service.

Customers extend from the very large enterprises (e.g., AT&T Interactive, CBS Interactive, Comcast, CSC, Groupon, Intel, Intuit, McDonalds, Nike, Sears, Thomson Reuters, and Zynga) that are leveraging the service for their own internal applications to the very small business customer. According to New Relic, even though the majority of cloud customers were initially smaller businesses when New Relic first launched its service, the landscape has been rapidly shifting to the point where larger enterprises are taking advantage of the cloud for a range of new projects. This is helping New Relic to both establish and deepen its foothold within the enterprise space, as word-of-mouth successes are shared within individual organizations. With support for five commonly used programming languages (e.g., Java, Ruby, Microsoft.NET, Python, and PHP), New Relic is continuing to see a ramp-up in enterprises looking to manage and monitor composite applications (e.g., where the front-end UI tier may be done in RoR and the middle tier and the back end are often Java based). The rapid acceleration of customers (16,000 accounts), and the number of app instances it is monitoring (~330,000) with approximately 36 billion metrics measured per day, attests to New Relic's growing value within the broader business community.

A number of New Relic's founding members and employees bring many man-years of AM software development expertise to this venture, having been involved in the evolution of Wily Technology, an ISV that was acquired by CA Technologies in 2006 for its advanced Web-based application management solution. New Relic has been backed by venture partners Trinity, Benchmark, DAG Ventures, and Four Rivers Group, with four rounds of funding raising approximately \$35 million to date. The New Relic executive team is made up of CEO Lewis Cirne, the former founder of Wily Technology, and other former Wily executives including New Relic's president/COO, CFO, chief architect, and business development lead.

Application Service Overview

New Relic's APM SaaS solution has two component layers: the New Relic agent and the New Relic service. The agent is a small software module that is deployed within the Web application. Its purpose is to capture performance metric data and send it to the New Relic service. The service is hosted in New Relic's datacenter, and it provides the aggregation, storage, correlation, and display of application performance metric data pulled from the agents. Using a browser, one can connect to the New Relic service and monitor application performance in real time, spot and diagnose problems, or optimize an application for higher-level performance. 24 x 7 monitoring and alerting along with end-to-end response times of critical Web transactions are built into the standard edition.

The addition of Real User Monitoring (RUM v2) and server monitoring rounds out a combined set of capabilities that serve as a credible frontline defense against unexpected/unplanned errors. While Murphy's Law will undoubtedly show itself and platform architectural complexity is a mounting force, having a flexible (low-cost) responsive set of tools to restore and improve app performance is key. RUM provides browser transaction tracing to find end-user performance issues, with support for drilldown from browser transaction to the application code level. An application topology map has been developed to illustrate connected services and related resources. Server monitoring provides critical system metrics including CPU, memory, and network activity in conjunction with RUM and APM data. Server health and availability can be tracked for on-premise, cloud, and hybrid environments. Automatic filtration of problematic SQL statements supports a stack trace, with SQL explain plans to facilitate more rapid diagnostics.

In addition to troubleshooting and root cause diagnosis, the New Relic service offers proactive planning tools such as capacity planning, scalability analysis, database usage analysis, and Apdex scoring (for measuring customer experience from the application perspective). Apdex allows the IT and business owners of the application to set a threshold for the response time of the application to the end user's request.

Application behavior thresholds and use of alerts are developed using a number of criteria. Alerts may be triggered by one of the thresholds the customer has created, such as an Apdex score violation or errors or response-time thresholds. The APM system goes through a constant rescoring or reassessment of the application itself as new data comes in every minute and looks backward for a period of time and assesses what has been normal or has exceeded set thresholds. New Relic performs a series of calculations that take into account response time, throughput, average Apdex score, user errors, and other common behaviors in the application and looks for anomalous behavior that will set off an alert. If the infrastructure fails downstream, for example, responses from payment gateways or from an external processing service would indicate excessively long or non-completing transactions.

The New Relic agent typically watches the transaction as it enters the application; measures its transit time from component to component; follows the transaction as it triggers calls to databases, external services, or other applications; assembles the performance data; and sends it to the service. Details on background jobs that the application initiates, such as credit card authorizations or email confirmations, are offered.

When there are problems with a particular transaction, an automatic stack trace can be requested, which provides an inventory of individual calls, methods, and classes for that transaction. Seeing the SQL statements behind the transactions and the identification of slow SQL queries can help a developer fine-tune the performance of an application. Ability to view performance by instance, by host, or by application cluster is available. An automatic application grouping capability allows a customer to logically combine data from multiple instances to see aggregate performance information from applications that span hosts.

New Relic also monitors and tracks the number of times an application has been deployed, keeping track of who deployed it and when, helping those who manage application development or testing to gain visibility into different elements including version control and performance of Apdex across application versions. Transparency into CPU and memory utilization, response time, assessment of new feature deployment, and performance in a rapid iterative manner is available.

New Relic has continued to invest and extend its application management features. In April 2010, New Relic introduced real-time thread profiling on live production Java Web applications. Historically, profiling has typically been used prior to deployment as part of the application testing process because traditional profiling tools can introduce excessive performance overhead, which will slow the running application and impact the end-user experience. The availability of real-time thread profiling via the New Relic service helps development teams find production performance bottlenecks at the code level, identify flaws in the application stack (e.g., virtual machine, application server, and integration middleware), reduce CPU utilization, and improve transaction response time, without the overhead drag of traditional solutions.

New Relic has also reached out to extend its solution to support additional platforms. It added Python support in November 2011, on top of four major languages (Java, Ruby, Microsoft.NET, and PHP). It also supports Apache Solr, the open source search engine for the Lucene project. These capabilities monitor Solr performance, cache hit rate and cache size, document cache, filter cache, and special tracking of index operations.

Pricing and Packaging

New Relic offers a number of package and subscription pricing options. Its Lite offering is free and is targeted at start-ups, students, and nonprofit organizations. This provides basic application monitoring functionality. For small, medium-sized, and large enterprise customers, with larger environments and multiple application instances, higher subscription levels with more advanced feature sets are available. The Standard version is either \$24 per month per server with an annual commitment or \$49 month to month. This level includes full functional application performance management with server and real-user monitoring. The Pro version pricing is \$149 per month per server with an annual commitment or \$199 on a month-to-month basis. The highest-paid versions offer more advanced diagnostic capabilities (e.g., transaction tracing, error detection, automated incident detection, scalability analysis, and custom dashboards) along with unlimited data retention. Annual, monthly, volume, or on-demand billing options are offered.

FUTURE OUTLOOK

As application instances are being moved around or created dynamically in virtualized environments, traditional approaches to AM have difficulty keeping pace. Complex APM tools have traditionally taken weeks to configure to support new applications being launched (e.g., CA Technologies–Wily). A SaaS solution like New Relic's enables developers to easily access, monitor, and troubleshoot hosted applications in real time. The secret sauce of New Relic's solution is that it not only provides visibility into applications but the agent sits lightly on the application and does not impose substantial drag or overhead on the transaction flow of the application, which can be a problem with other types of agent solutions.

With SaaS design also comes the ability to be highly responsive and in touch with customer needs. New Relic focuses on designing enhancements to its on-demand solution that are synchronized with end-user data requirements. Bug fixes, patches, and new features are pushed out on a weekly basis. To keep a close eye on end-user data needs, New Relic collects roughly 36 billion rows of application performance data daily from approximately 330,000 application instances, across 16,000 active customers. Its RUM feature monitors over 630 million page views per day, equivalent to approximately 4 billion page views per week.

Partnership Opportunities

New Relic has been extending its partnership strategy with multiple types of cloud providers. It is partnered with cloud platform/infrastructure vendors (e.g., AWS, Rackspace, and RightScale), PaaS vendors (e.g., Microsoft Azure, Joyent, Pantheon, CloudBees, and Heroku), other cloud hosting providers (e.g., Engine Yard for RoR apps, Acquia for Drupal, and BrightBox for RoR apps), among others.

Third parties that focus on SaaS enablement of applications (e.g., Indian pure-plays and onshore global providers) can consider integrating New Relic APM capabilities with their existing AM platforms to enhance customer-facing on-demand application support. However, there has been minimal traction in this direction. Traditional on-premise ISVs with applications deployed globally can evaluate embedding this SaaS offering into their operational deployment solutions to accelerate support from tier 1 through tier 3 levels.

It is expected that as tighter development/operations relationships are promoted, cloud test providers like SOASTA or Skytap will consider integrating with SaaS platforms like New Relic's for the functionality they offer in both application test and deployment scenarios, providing added intelligence into application performance metrics.

Deepest APM integrations have occurred with cloud providers like Heroku or Engine Yard, where on-demand application performance transparency has been prioritized for New Relic's operational benefits and integrated value proposition.

IDC expects that as SMB and enterprise adoption of IaaS and PaaS solutions grow, deeper relationships between IaaS/PaaS providers and New Relic will evolve. Such providers bring greater expertise at either the infrastructure layer (managing hardware network, storage) or at the platform layer, but most have not taken responsibility for complete management of the application itself. Rackspace, for example, stands out among its hosted infrastructure peers in that its larger base of customers have adopted the New Relic solution, as Rackspace has advanced its own cloud framework. While the cloud application model implies that there are ready-built platforms to hold and rapidly deploy an application, it pushes responsibility for the operating system, the application server, the application container, and other choices on to the hosting provider. IDC expects that, while some hosting providers will remain focused on the infrastructure layer, others are developing their own platform capabilities and will likely take on more responsibility for the application stack over time.

Conclusion

While large enterprises have made significant investments in traditional APM tools, most have targeted the use of these costly tools at critical Web applications (e.g., online banking or critical Web ecommerce applications). The use of these products has historically been out of reach for many smaller customers due to their high cost of acquisition. While medium-sized to large enterprises continue to rationalize and improve upon their use of third-party APM services, leveraging the New Relic service in support of development/test requirements or for its core production-related AM value becomes an extremely attractive option. The need for visibility into application management and performance engineering to improve upon the end-user experience is only expected to grow, particularly as mobile Web and native mobile applications proliferate along with distributed Web applications. With the progressive shift toward service-oriented architectures (SOAs), virtualization cloud, and mobile computing, the ability to keep pace with rapidly changing dynamic application environments will become even more difficult. While New Relic exists in an industry with key competitors such as AppDynamics, Compuware (Gomez), Keynote DeviceAnywhere, or CA Technologies–Wily, among others, the company continues to invest in providing deeper APM capabilities for next-generation Web and cloud-based applications. IDC expects New Relic to extend its APM future coverage to include traceability to mobile application performance, especially as mobile solutions penetrate the core of business operations on a global scale over the next few years.

The New Relic service presents a viable alternative proposition for enterprises and third parties that are seeking greater application transparency into accelerated Web/cloud application development and deployment. Longer configuration cycles tied to more expensive on-premise AM tools have prevented large-scale adoption across all sizes of business. New Relic is building upon its four-year investment — with a highly affordable 24 x 7 SaaS AM solution that leverages its deep AM experience.

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