Application Performance Management (APM) in the Age of Hybrid Cloud: Ten Key Findings

Dell Report Summary

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An ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) Research Report

December 2013

Sponsored by: DELL Software

EMA™ *IT & DATA MANAGEMENT RESEARCH, INDUSTRY ANALYSIS & CONSULTING*

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Overview

ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) analysts have been following the impact of Cloud on application management for more than five years. This paper highlights ten key takeaways from the most recent survey on the topic, conducted in October of 2013.

An assessment of the 2013–2014 technology landscape reveals an industry in flux. As a result, application management in general, and Application Performance Management (APM) in particular, are among today's hottest topics in enterprise management.

While many IT organizations still lack a good answer for managing on-premise-delivered applications, the extension of application execution into the Cloud introduces a host of additional management concerns. At the same time, companies of every size are incorporating new application architectures into existing application systems, extending into the mobile world, and sharing application connectivity with converged networks carrying voice and video.

Each of these factors carries staffing, performance, and cost-related impacts, all of which are generating a new level of interest in the APM market. Public Cloud, in particular, introduces a host of APM challenges relating to relinquishment of visibility and control. This is complicated by the fact that, while businesses are increasingly extending the reach of the data center into the Cloud, many are still taking a largely manual approach to application management.

Gathering insight into such environments, and managing them as production services, are among the biggest challenges facing IT organizations today. Regardless of who delivers the service, IT still "gets the call" when users experience problems.

In this research survey, EMA analysts set out to identify and quantify the factors impacting IT organizations as companies increasingly embrace the Cloud. To gather this data, EMA surveyed more than 150 IT professionals with expertise in the APM space. The result is a wealth of detailed information about the ways in which businesses are delivering and managing both Cloud- and on-premise-hosted applications.

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Cloud and APM

IT organizations in the process of becoming "Cloud-ready" are seeking ways to mitigate the challenges of the Cloud in all its "flavors." This EMA report shows how well prepared they are to do so and charts their plans and preferences for becoming more Cloud-ready.

That being said, there is no "one size fits all" in terms of managing Cloud performance, as public and private Clouds are different animals entirely. This report addresses private Cloud only minimally, since private Cloud is essentially an extension of the data center; however, since public Cloud services lie outside IT's direct sphere of control, managing them brings unique challenges requiring a unique set of capabilities.

In private Cloud environments, visibility to application execution is limited only by the levels of instrumentation deployed and the robustness of available toolsets. Software vendors are building increasingly powerful monitoring, visualization, and management capabilities supporting virtualization and private Cloud management.

With private Cloud as the baseline for "lowest level of difficulty" in terms of application management, public Infrastructure as a Service (IaaS) platforms such as Amazon Web Services (AWS) are the next

step up. Today, many IaaS vendors allow co-provisioning of agents in customers' IaaS deployments. This delivers a level of visibility into the IaaS execution tier which can be very helpful in monitoring the performance of that tier. This is only true, however, if customers select monitoring products (and IaaS vendors) that support this approach.

Software as a Service (SaaS) and Platform as a Service (PaaS) are different stories though. From the perspective of most APM solutions, both are essentially black boxes. In addition, until Cloud vendors provide API interfaces or similarly share performance data, this will remain the case.

Multiple APM vendors are tackling this challenge from variety of different perspectives. Real User Monitoring (RUM) products, for example, can extrapolate Cloud performance by watching the entry and exit of the transaction. Synthetic transactions provide some level of visibility into availability and performance, regardless of whether there are users on the system. And a growing number of network vendors are moving their products "up the stack" to add application insight to existing network monitoring/management capabilities.

EMA analysts believe, however, that as public Cloud use becomes increasingly mainstream – and it is certainly early mainstream today – APM and Cloud vendors will have to partner more closely to jointly solve these challenges. As this research shows, public Cloud customers are already experiencing performance issues and "intermittent problems of unknown origin." Lacking visibility into the customer's Cloud instance via APIs or similar instrumentation, such issues cannot be 100% mitigated by APM solutions alone.

Public and hybrid Cloud applications (defined by this report as applications that span on-premise and public Cloud) generate a host of management challenges requiring a new breed of APM solutions. This paper does not describe specific vendor products in detail as an EMA Radar™ Report would. In general, however, it should be noted that vendors such as those sponsoring this report are well aware of these challenges and are stepping up to the plate to deliver products that help solve them.

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In the end, the primary justification for purchasing an APM solution is based on simple facts. IT is in business to deliver a service to users. Ultimately, users don't know and don't care where that service is hosted. When they have problems, however, they will still call the Help Desk, and they will still expect a solution.

Methodology

The survey supporting this study was developed by EMA analysts and conducted in October 2013 by EMA's dedicated research team. The survey consisted of approximately 60 questions and more than 200 data points, and was completed by a total of 156 respondents.

The field of potential survey respondents was narrowed by questions designed to ensure that only those knowledgeable about application management were allowed to participate. They were selected based on the following criteria:

- All respondents were "involved in or responsible for monitoring and/or managing enterprise IT applications."
- They were required to be in a role with responsibilities for application delivery. IT professionals whose primary roles were in adjacent areas such as security and program management, for example, were excluded.

- Since budget and finance-related questions were included on the survey, prospective respondents with no knowledge of such topics as IT budgets were excluded.

Of the 156 who completed the survey, roles spanned executive management (CIOs, Directors, etc.), mid-level management, and line staff. The number of respondents in each of the three categories was almost exactly equal.

Since small companies in general have tended to under-invest in APM solutions in the past (though this is changing with the growth of new, more lightweight APM solutions), the number of participants from companies with fewer than 1,000 employees was limited to 15%. Thus, the bulk of the respondents were from midsized (defined as 1,000-9,999) or larger companies.

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Ten Key Findings of this Study: Summary

The survey generated far too much data to write up in a single report; few readers would have the patience to actually read a report of such length. For this reason, this EMA report highlights ten key findings of broad topical interest.

Some data, such as customer satisfaction with specific vendors and products, will be withheld from all public reports and available only to research sponsors. However, subsequent EMA reports, which will be published in 2014 and beyond, will cover much of the remaining survey content.

This section provides a snapshot of the survey findings. For readers interested in additional detail, a complete analysis of each of the "top ten" findings, along with related graphics, is included in the full version of this report, posted at www.enterprisemanagement.com.[1]

1. ***What are the top three concerns of today's IT professionals?***

   Answer: This year's top concerns include:

   a) High cost of delivering IT services

   b) Staff shortages

   c) Project backlogs

While the top concern – cost – has not changed since 2008, the others have changed significantly. When the same question was asked along with the same list of potential responses in that year, the top response (by a hair) was "High cost of IT services." Less than a percentage point behind was "Lack of alignment with the needs and goals of the business." Coming in third at that time was, "Lack of tools/products to monitor, manage, and support the IT environment."

This year's findings are a significant shift, which is likely because most IT organizations are running on fumes, budget-wise. The economic problems of recent years have truly cut IT funding to the bone, and 2013 budget increases were only marginal at best.

While some may argue that IT professionals feel they have solved the "business alignment" problem, this is not the case. Multiple questions in this survey reinforced the fact that IT is back to delivering core services. It appears as if business alignment is on the back burner until earnings and budgets improve.

[1] *Application Performance Management (APM) in the Age of Hybrid Cloud: Ten Key Findings* (EMA, December 2014) http://www.enterprisemanagement.com/research/asset.php/2667/Application-Performance-Management-(APM)-in-the-Age-of-Hybrid-Cloud:-Ten-Key-Findings-

2. ***How is IT notified when application-related problems occur?***

   Answer: User calls are still the most common way IT finds out about application-related problems – by a wide margin. And this percentage has not substantially changed over the past five years.

Forty eight percent (48%) of the time, IT first finds out about application problems from user calls. Monitoring centers (18%) and application management products (16%) together account for only 34% of the notifications. This is an indication that application management is still woefully under-automated in most companies.

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As another point of interest, high-level executives are apparently unaware of how often this happens. They dramatically overestimate the role of automated monitoring systems in notifying IT staff of application problems, while middle managers and line staff report very different percentages.

3. ***Are companies <u>really</u> using public Cloud for production?***

   Answer: Yes, production use of public Cloud is now early mainstream.

Ongoing EMA research indicates that, since 2011, Cloud adoption in general has grown relatively slowly but steadily. During that same time frame, however, the number of companies using Cloud to deliver production services has significantly increased. It appears that many companies using public Cloud primarily in proofs of concept in prior years have now moved on to a more serious Cloud commitment. Public Cloud usage has now come into its own, and is early mainstream.

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As another point of interest, the types of Cloud in use vary considerably by company size. Mid-sized companies are leading SaaS and PaaS adoption, while enterprise-sized companies lead IaaS adoption.

4. ***How are IT professionals monitoring/managing public and hybrid Cloud applications? And, which tools do they deem "most essential" for this purpose?***

   Answer: "Homegrown tools" are the #1 way companies are currently managing public Cloud/ hybrid Cloud services.

However in a perfect world, IT professionals recommend application management platforms, log analysis products, or Real User Monitoring (RUM), in that order, as "most essential" for this purpose.

5. ***How are IT professionals monitoring/managing on-premise applications? And which tools do they deem "most essential" for this purpose?***

   Answer: APM platform and change management products tie as the #1 ways companies are managing on-premise applications.

However, again in a perfect world, their tools preferences would be log analysis solutions (40%), change management solutions (31%), or APM platforms (29%).

6. ***What types of products top the "wish lists" of application management professionals?***

   Answer: Log analysis solutions are the top rated "wish list" application management-related purchases overall. However, for line staff, change management solutions are the top choice.

Readers should keep in mind that the question related specifically to purchases, a factor that assumes that the product selected is not one already in use. So while the selection of log analysis solutions was the top choice for almost 1/3 of the respondents, this may relate, in part, to the fact that these are solutions that they don't currently own. Log analysis solutions are relatively new in the management marketplace. Nevertheless, this finding is a testament to their perceived value proposition that they landed in the #1 spot.

Another interesting finding is the fact that the responses of management and line staff differed significantly. High-level execs and middle managers valued log analysis more highly than line staff, whose number one choice would be change management by a 5% margin.

7. ***Is "DevOps" really real?***

   Answer: Yes and no. Although only one respondent out of 156 indicated that his/her company has a "DevOps team," 80% use "cross-functional teams" to support applications across the lifecycle.

EMA sees "DevOps" practices as ideally being lifecycle focused. It also sees IT specialists with a variety of skills as being instrumental to – and necessary for – managing modern distributed applications. Collaboration across skills is fundamental to this process, and "DevOps-ready" tools make it possible for personnel with diverse skills, responsibilities, and skill languages to work from a common application perspective.

In 60% of companies, these cross-functional teams are composed of dedicated staff members, and this number appears to be unrelated to company size. Small, mid-sized, and enterprise-sized companies are all approximately equal in this regard.

EMA Analysts believe that these findings tally with the idea of DevOps as being more a lifecycle approach than a point-in-time endeavor.

8. ***What are the top three challenges of managing on-premise applications?***

   Answer: IT professionals report that poor performance, intermittent problems with no obvious cause, and high fixed costs related to application support are their top three challenges.

9. ***What are the top three challenges of managing public Cloud-delivered applications?***

   Answer: High fixed costs, intermittent problems, and slow performance are the top challenges associated with managing Cloud-delivered applications.

Since Cloud services are often viewed as being less expensive than on-premise services, the #1 placement of the "cost factor" may be a surprise. However, while initial expenditures for on-premise delivery are high, payment for Cloud services is ongoing. Overall, the top management challenges of either delivery method appear to be similar.

10. Which type of tiered, distributed application is most common in today's companies?

> ***Answer: While we continue to hear reports that the mainframe is dead, displaced by distributed applications, this research found that only 8% of companies are still running non-tiered, mainframe-only applications. In other words, the mainframe has become a significant element of the distributed landscape.***

More than 60% of the companies included in this survey are running either tiered, mainframe/non-mainframe distributed applications (40%), hybrid mainframe/public Cloud applications (22%), or both.

These findings are surprising, given the popular lore regarding the "death of the mainframe." However, it is very likely that this percentage was skewed by the fact that only 15% of the companies participating in this research had fewer than 1000 employees (by design).

Nevertheless, it is a big mistake to write the mainframe off, particularly in midsized or larger companies. While distributed applications are indeed displacing mainframe-only applications, more distributed applications touch the mainframe than not. In fact, the mainframe is now a mainstay in the distributed world.

Summary

Research surveys relating to the APM market are always interesting and often surprising. The fact that almost half (or more than half, depending on whose word you want to take) of application problems are reported by users seems to indicate, "The more things change, the more they remain the same." However, the fact that a significant percentage of companies are now using Cloud for production indicates that use of specific technologies is evolving. And the findings relating to the ubiquity of the mainframe, which definitely ***is not dead***, shows that the mainframe market has not been disturbed in the least by rumors of its demise.

The high percentage of user calls is probably the most troubling aspect of this research, as it seems to indicate that application complexity continues to stay one step ahead of IT's ability to manage it. The silver lining, however, is the fact that a new breed of APM solutions is making application-focused capabilities available to companies of every size.

Lightweight and Cloud-delivered APM solutions are edging out platforms in the marketplace; such solutions are experiencing astonishing year over year growth. And as the cost and complexity of deploying APM solutions continues to decline, EMA analysts expect to see continued exceptional growth in the APM space.

Sponsors

EMA appreciates the participation of sponsors in our survey-based research, as this helps defray the high costs related to conducting these studies. Typically, vendors with strong messages in the space being covered participate. For this reason, we recommend that readers seeking additional information on Cloud-ready APM solutions spend time researching the offerings of the sponsors of this study. They include (in alphabetical order):

- IBM:
  http://www.ibm.com/software/products/en/category/SWU50
- ManageEngine:
  http://www.manageengine.com/products/applications_manager/application-performance-management.html
- New Relic:
  http://newrelic.com/
- Quest (Dell):
  http://www.quest.com/performance-monitoring/application-performance-monitoring.aspx

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