Application Performance Management Survey: Destination Cloud

Business White Paper
Abstract

Application Performance Management company AppDynamics recently surveyed a group of professionals directly responsible for the oversight of application performance, specifically in Java and/or .NET environments. Based on the answers from over 250 respondents, certain themes came into focus:

- Operations and Development teams are preparing for massive growth in 2012. Respondents to the survey indicated that they oversee extremely large, distributed applications that the business considers “mission critical,” and these applications are expected to grow significantly in 2012. Such growth will occur inside environments that are already complex and volatile; most respondents already participate in agile release cycles, and they expect their applications to change dramatically over the course of the year.

- Cloud is adding to the complexity. Compared to last year’s survey, respondents indicated a major upswing in planned cloud adoption. Over 50% of respondents are planning to move a major portion of their applications to the cloud.

- Despite this move to other environments and increased complexity, respondents haven’t adopted application management tools. Application outages and performance failures in mission-critical continue to plague app owners, with many companies reporting serious problems that lasted more than several hours. Yet at the same time, adoption of monitoring and management solutions is extremely low: despite the complexity of their environments and the expected rate of change in 2012, the majority of respondents rely on log files for troubleshooting production application problems.

The following summary provides more details around these insights.

APPLICATIONS ARE HEADING FOR MASSIVE GROWTH

The time has long since past where monolithic applications with a single tier are the norm. Most applications in the present day span multiple tiers; over half of survey respondents characterized their application environments as SOA or distributed.

But although distributed applications have become commonplace, the growth ramp for these applications has not yet tapered off. Rather, it appears as though that 2012 will be a year of massive growth and scale for applications—presenting significant challenges for the IT Operations and Development teams in charge of ensuring uptime and availability.

First, respondents indicated that they have a significant number of applications under their watch: over 40% have more than 10 mission-critical applications, with many being customer-facing and a surprising percentage (nearly 40%) processing more than 10,000 transactions a day.
Only 22% expected these environments to stay the same: the rest of the respondents saw growth in the 10-25% range or even more.

At the same time, even the growth of these applications wasn’t expected to remain static, as the need for agile release cycles is clearly the “new normal” with 85% of respondents participating in either multiple releases per year or even daily/weekly releases.

The general sense is that despite the recent growth in application environments, those environments will not be leveling off in 2012. Rather, Op and Dev teams are hunkering down for even more exponential growth and scaling of their environments.

**CLOUD IS ADDING TO THE COMPLEXITY**

According to last year’s survey, IT Operations and Development teams were interested in the cloud but were not yet prepared to migrate their applications to a cloud environment. But this appears to have changed.

34% of respondents already have 20% or more of their applications in a private or public cloud, and nearly 50% plan to move 20% or more of their mission-critical applications to the cloud. This demonstrates the significant upswing in planned cloud adoption versus the same survey last year (where only around 15% were seriously considering the cloud in the design of their applications).
One factor that hasn’t changed, however, is respondents’ general preference for the private cloud. The public cloud option, although enthusiastically embraced by forward-thinking companies such as Netflix, has not caught on with the majority of the survey participants. The private cloud continues to be a much more favored option.

Still, 36% of respondents have begun architecting their new applications to fit the cloud, which indicates a strong commitment to migrating critical applications to the cloud.

Interestingly, cost savings continues to drive this migration.

The emphasis on cost savings is somewhat out-of-step with the current thinking on cloud best practices. For example, Adrian Cockcroft—who masterminded the push to deploying critical applications in the public cloud at Netflix—does not feel that cost savings are the most important component of moving to the cloud. Rather, he feels that his team needs to focus on doing work that differentiates the company—which means that any work that’s the usual “data center heavy lifting” needs to be eliminated by moving to the cloud.

Similarly, cloud pundit David Lithicum points out that “cloud computing is not always the lowest-cost solution. This seems like blasphemy these days, considering the hype and love affairs with cloud computing as a concept. But it’s just another way to employ technology, much like the rise of client/server and distributed computing systems that emerged years ago. You must always consider the cost effectiveness of leveraging emerging technology, and the tradeoffs that are always there” (“Cloud Economics Come to Light,” June 2011, http://www.enterpriseefficiency.com/author.asp?section_id=965&doc_id=230590)

“STORM” CLOUDS: THE DIFFICULTY OF MANAGING APPLICATION PERFORMANCE

One would imagine that given all of this potential complexity, Ops and Dev teams would have “armored up” and prepared for the performance challenges that are likely to arrive with the advent of the scaling of distributed environments. But critical applications continue to suffer significant problems in terms of both production outages and performance failures, and Ops and Dev teams still seem to be spending an inordinate amount of time troubleshooting those problems.

Over 80% of respondents reported that they have experienced at least one Severity 1 problem in regards to mission-critical apps in the past 12 months, and over 50% have experienced five or more such problems. Furthermore, the Mean-Time-to-
Resolution to resolve these issues was not speedy. Over 60% of respondents took longer than 2 hours to achieve problem resolution, which is approximately 3x worse than what Aberdeen research indicated was “best practice” in their February 2010 report, The APM Lifecycle. 14% of respondents took longer than a day!

Surprisingly, very few respondents—despite their general expectation for growth—are using modern products designed for managing such complex environments. Over 60% are using log files as their primary approach to application performance!

The reliance on log files is surprising considering that survey respondents clearly predict massive growth and change in their applications over the course of 2012, including cloud migrations as well as frequent release cycles. Relying on log files for application performance troubleshooting is akin to hunting for the proverbial needle in a haystack, and it likely explains the long Mean-Time-to-Resolution experienced by Operations and Development teams when performance problems occur.

Operations and Development teams should consider adopting a different approach to managing complex environments. They will continue to face the challenges of:

• Distributed environments that are difficult to see and monitor
• The need for agile development and frequent release cycles
• Keeping overhead down even in high-volume production
• Creating a common language between ops, dev, and QA
• New cloud environments that are extraordinarily difficult to manage

In the face of these challenges, Ops and Dev teams should consider a more modern approach to application performance management, one that includes the following strategies:

• An emphasis on production monitoring, including the ability to gain both “wide” as well as “deep” visibility in distributed environments while only bringing to bear less than 2% overhead
• Reducing Mean-Time-to-Resolution down to minutes through a focus on business transactions as well as the ability to auto-discover application topology
• The ability to auto-baseline application performance
• An easy to set up and use application performance management solution (Operations and Development teams will have no time to either manage consultants or embark upon a steep learning curve)

These are strategies that application support teams will need to employ in order to handle the coming rate of change, as well as the tremendous demands that the business will be placing on customer-facing, mission-critical applications.
SUMMARY

Application environments will grow at a rapid pace in 2012. Companies have not only adopted Agile release cycles and built SOA environments to support their IT teams, but plan to expand their use in 2012. At the same time, cloud projects continue to be pursued – although private clouds are more in favor at the moment. Cost savings appear to be driving adoption of the cloud more than the desire for agility.

All of these innovations have given IT Operations more complexities to manage and more obstacles to overcome in an environment where change is the new constant. This explains why respondents indicate continued performance problems in regards to Tier-1 applications, with performance failures and relatively long Mean-Time-to-Resolution periods being the norm. Contributing to this situation, in many cases, is the lack of a strong APM tool that contains all of the features application support teams need to manage highly distributed production applications.

The complexity of managing mission-critical applications will only intensify in the near future. However, it is possible that these challenges may be alleviated by a new breed of APM tools designed specifically to enhance troubleshooting and root cause diagnosis for distributed applications. New strategies and best practices for application performance management must continue to be formulated to ensure the proper running of these applications in today’s new environments.