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Market Overview: Application Performance Management, Q4 2011

by Jean-Pierre Garbani
for Infrastructure & Operations Professionals



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A Pragmatic Approach To Service Quality

by **Jean-Pierre Garbani**

with Evelyn Hubbert, Doug Washburn, and Lindsey Kempton

EXECUTIVE SUMMARY

In today's challenging economic times, business productivity takes precedence over many other considerations. To achieve a quality of service that's in line with this goal, IT infrastructure and operations (I&O) professionals usually monitor the weakest links in the delivery chain. Over time, the focal point has moved from networks to systems to application code. But the current complexity of business services is such that issues can spring from anywhere in the service delivery chain. Consequently, application performance management (APM) must now monitor, detect, and identify any abnormal behavior across the whole hardware and software infrastructure. This raises several questions: What is the future of APM? What key solutions and vendors should you focus on and consider? Where should you start building toward this vision? And how can I&O professionals manage and incorporate their monitoring solutions' legacy into this vision? This report identifies trends in APM, explains how I&O professionals should approach APM, and offers a panoramic view of today's vendors and solutions.

TABLE OF CONTENTS

2 **The New Meaning Of Application Performance Management**

The New Application Performance Management Solution

4 **The Key APM Technologies**

The Convergence Of APM And BTM
Building Your Own APM Solution

7 **APM Vendor Overview**

RECOMMENDATIONS

14 **APM Is An IT Operations Journey**

14 **Supplemental Material**

NOTES & RESOURCES

Forrester interviewed 26 vendors and 26 referenced user companies for this report.

Related Research Documents

["Competitive Analysis: Application Performance Management And Business Transaction Monitoring"](#)
September 9, 2010

["Tech Horizons: dynaTrace, When BTM Meets APM"](#)
May 20, 2010

["Tech Horizons: OpTier, A Step Toward Business Service Management \(BSM\) 2.0"](#)
October 5, 2009

THE NEW MEANING OF APPLICATION PERFORMANCE MANAGEMENT

The widespread use of J2EE and .NET architectures brought important changes in the way that the underlying infrastructure supports applications. The virtual machine and its opacity to traditional hardware monitoring agents created a whole new class of management solutions known as application performance management (APM). Three capabilities gave birth to today's complex applications: 1) the ability to federate multiple applications from the Java EE or .NET platform using some form of enterprise application integration (EAI) to connect existing applications; 2) the generation of complementary transactions with external systems; and 3) the inclusion of web services.

These capabilities brought applications closer than ever to the business process, since in any given process the multiple steps that separate applications had performed in the past were now integrated. Discrete steps in a business process allowed for a manual check on their completion; however, that control was no longer available in the integrated environment and had to be replaced by data coming from infrastructure management. Finally, the multiplication of moving parts in complex business services means that the focus is no longer on the black box represented by the Java EE application server. In fact, the use of virtualization and most probably cloud computing, public or private, multiplies the number of black boxes.

From a focused and narrow definition limited to Java EE and .NET, APM became a broad, comprehensive tool set that brought together monitoring data from all corners of the hardware and software infrastructure. After all is said and done, APM has now acquired all the attributes of system management and all the features that made business service management (BSM) such a great idea.

Application performance management thus must be considered a logical and pragmatic evolutionary step from system monitoring to service monitoring and management. The foundation for APM's current success stems from several simple facts:

- **Application performance is a key element in business workforce productivity.** Transactional applications and business services based on aggregates of these applications are the externally visible component of IT, and their performances are critical for the overall productivity of the enterprise. Insuring that these performances are in line with business expectations is naturally one of the most important tasks of an I&O professional.
- **The current economic conditions favor short-term returns on investments.** In today's economy, IT organizations tend to favor tactical over strategic initiatives. Application performance management is seen as a way to provide a quick return on investment in a very critical and visible part of IT.¹
- **Business service complexity becomes unmanageable without tools.** As IT innovation results in a decrease of unit price and an increase in overall technology capabilities, the demand for new business services grows exponentially. Combined with the diversity of

legacy applications, this means that the complexity of N-Tier business services has grown unmanageable. Enterprises clearly want to rationalize their business services and make them more manageable. However, this can't be accomplished without tools to abstract the current complexity of applications.

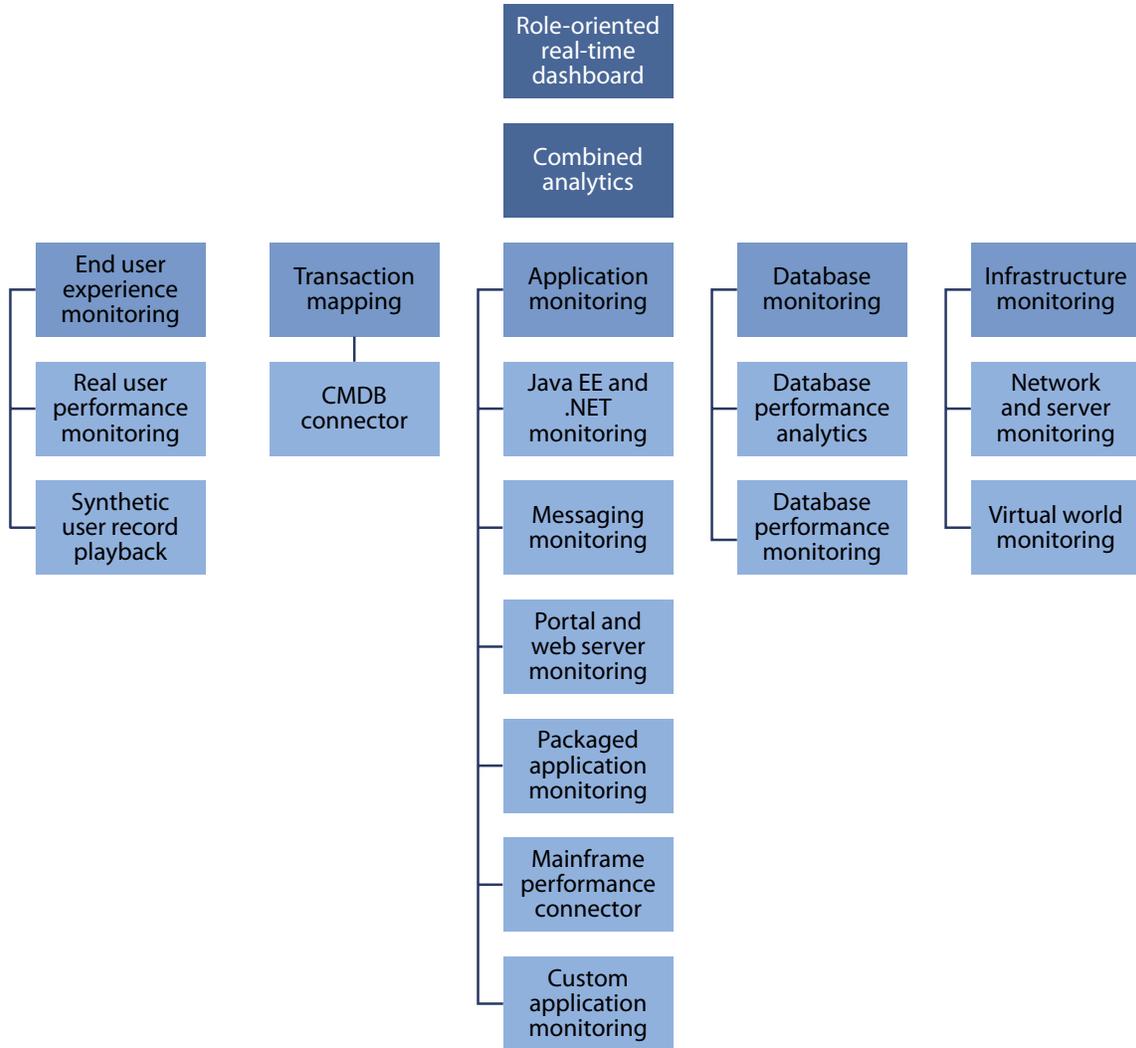
The New Application Performance Management Solution

To be effective, the APM tool set must support the incident and problem management process as defined by either ITIL or other best practices and align to the expertise of the different roles involved in the process. A typical incident and problem management process flows through several steps, and requires:

- **An alerting capability.** IT operations must somehow become aware of the problem, and preferably before it has snowballed into a complete failure. APM must therefore include an alerting component that is as proactive as possible.
- **A way to determine if there is an immediate cure to the problem.** Past incidents, whether coming from a user mistake or from a known issue, must be cataloged and documented in a knowledge base so that corrective action can be applied immediately to minimize impact.
- **An ability to locate the problem source.** Here, the key is to identify the specialist who must investigate the problem. Understanding the problem location within the maze of components becomes a key feature that will expedite this very critical stage. This is where most time is wasted in problem management, with dire consequences for user satisfaction and productivity.
- **A way to analyze the root cause of the problem.** An APM solution must provide a way to analyze the issue for root cause in the context of the initial alert. It must provide the specialist with the ability to do a “deep dive” into the data, understand the issue, and propose a problem resolution.

This leads to the Forrester APM reference model, a collection of tools aimed at providing complete support for the alerting, identification, and resolution of complex application performance issues (see Figure 1).²

Figure 1 Forrester's APM Reference Model



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Source: Forrester Research, Inc.

THE KEY APM TECHNOLOGIES

The Forrester APM reference model is a map of what an I&O organization would ideally deploy for a complete application performance management solution. It includes the typical solutions that could be used to best support an incident and problem management process:

- **Alerting tools, such as end user experience management using a passive and an active agent.** These are the main ingredients for alerts and identification of the severity and magnitude of the problem. We believe that passive, real end user monitoring is the best solution for evaluating

and understanding performance, but that the active, simulated transaction technology remains the best tool for identifying availability issues. To this, we would expect the solution to add monitoring, active or passive, of new end user devices such as phones and tablets.

- **Problem localization tools, such as transaction tracing and performance analysis.** The link between the business service user and the infrastructure is the application. A business service is a collection of transactions that IT applications support and the infrastructure enables. Managing the infrastructure from a business service perspective supposes an understanding of how transactions map to the different infrastructure components. By understanding this transaction tracing or mapping, the I&O professional achieves the two complementary goals of: 1) limiting the problem localization to within a finite group of components; and 2) acquiring the ability to determine which component, hardware, software, or middleware is behaving abnormally, through the collection of data from each component. Using these technologies, we expect that I&O professionals will improve cooperation between competency silos and eventually pass on the problem to the right support group more efficiently.
- **Deep problem analysis tools used in context by support groups to resolve problems.** One of the major difficulties in debugging a problem comes from the inability to actually recreate it. A complete APM solution must therefore complement the alerting and localization mechanisms with the ability to do a deep dive into the transaction at issue. To be effective, this deep dive must be relevant to the specific transaction or application and be comprehensive, especially when components are shared between multiple applications.

The Convergence Of APM And BTM

A major confusion that the Forrester APM reference model clarifies is the difference between: 1) the “old” APM definition of Java EE and .NET monitoring, and 2) business transaction monitoring or management (BTM). Because our reference model is intended to support an actual incident and problem management process, our new definition of APM is broader than the confines of Java EE and .NET: The Forrester model actually encompasses both the old APM and BTM into a converged solution where these technologies complement each other. By the same token, more traditional system management approaches are also included in the model: Performance issues are unfortunately not limited to specific technologies. Any and every component that plays a part in the delivery of a business service is a priori a suspect.

Building Your Own APM Solution

Implementing an APM solution in today’s I&O organization is a challenge. Most I&O organizations have, over the years, deployed solutions to manage infrastructure or application issues. Rare are the IT operations where infrastructure is not partially or comprehensively monitored, often by several different products, depending on which part of I&O is considered. Point solution APM products (the old APM model) are often in use in QA groups and in production, sometimes from different vendors and in multiple instances. In this context, implementing a global model such as Forrester’s requires the possibility to integrate new modules with the solutions in place.

Here again, approaching the problem from a process rather than from a technology standpoint may help in deciding the next step on the road to a complete solution. The typical organization that supports the incident and problem management process is not a monolith. It's composed of groups of people with clearly defined roles; thus, a person receiving the first alert is not the person resolving the problem. Although the context of the problem is important in the resolution process, the coupling between alerting, localizing, and resolving solutions may be a loose rather than a tight integration. What is important is to group the information relevant to each role at the dashboard level and to provide the ability to analyze this information in the context of the role.

In preparing the criteria for this market analysis, we have taken into consideration this ability to federalize management tools and to effectively create a solution out of multiple products (see Figure 2).

Figure 2 Forrester's APM Model Components

| Criteria/technology | IT operations problem solved |
|--|--|
| End user experience monitoring using a passive appliance | Identification and alerts of performance issues at the end user level. Allows proactive management of application performances |
| Response time monitoring using a scripted robot or active agent | Identification and alerts of application availability issues by pinging specific transactions at set intervals |
| Transaction tracing and mapping | Provides a topology of the transaction across infrastructure components. Used for identification of problem location |
| Application monitoring (Java EE and .NET) | Monitors the Java EE and .NET application code performance |
| Packaged application monitoring (Oracle, SAP, etc.) | Monitors the performance of packaged applications and allows for an identification of application issues |
| Infrastructure monitoring (including virtualization) | Monitors all components (network, compute, and storage) for performance and fault |
| Database performance monitoring | Monitors the performance of databases in the context of a transaction |
| Messaging technology monitoring (ex. Websphere MQ, Tibco, etc.) | Monitors the performance of diverse messaging technologies used in the integration of application components |
| Monitoring of applications in public cloud (IaaS) | Monitors the performance of applications hosted in a public cloud |
| Dashboard reporting and analytics including statistical analysis, CEP, or other methods) | Integrates and normalizes all data collected and analyzes it to determine the source of performance and availability problems |

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Source: Forrester Research, Inc.

APM VENDOR OVERVIEW

Forrester selected 26 vendors for this market overview. This is by no means a complete list of all vendors in this market. For example, we overlooked some of the vendors from last year's competitive analysis, such as Aternity, Heroix, Knoa Software, and ServicePilot Technologies, to make room for new entrants. Because we are at a stage where many enterprises look for complementary solutions or entry solutions as a step toward full APM, it's important to present a diversity of solutions, even though some of these solutions require complements: They may be effectively the first step in someone's APM deployment.

What characterizes the past year is the consolidation of some of these vendors into more complete solution portfolios. This happened either by outright acquisition (for example, Compuware acquired dynaTrace Software), OEM agreements (for example, between ASG Software Solutions and CorrelSense), or simply participation in an ecosystem of complementary solutions through partnerships. The net sum is that the convergence of APM and BTM that we forecast last year is now a fact.³ A review of the different vendors and their solutions makes this perfectly clear (see Figure 3):

- **AppDynamics.** AppDynamics proposes a solution that does transaction tracing and mapping as well as an in-depth advanced monitoring of Java EE and .NET applications. AppDynamics proposes a "Lite" free version as well as a "Pro" version. Initially partnering with Coradient on end user experience monitoring, AppDynamics, following the BMC acquisition of Coradient, has become a BMC Software partner on a broader scale.
- **ASG Software Solutions.** An OEM agreement with CorrelSense complements an early acquisition in the Java EE and .NET space as well as a previous acquisition in the performance management of mainframe transactional software. This brings ASG to the forefront of APM solutions.
- **Avada Software.** Infrared360 covers Java EE applications, .NET services, web services, and especially all forms of messaging technologies, a critical component of multitier complex applications. It includes CEP technology to correlate operational and transactional conditions and other events. Partnership with OpTier complements the solution.
- **BlueStripe Software.** BlueStripe's forte is real-time application mapping, complemented by data collection of the elements identified in the map. BlueStripe easily integrates application performance and topology data into other systems management tools such as Microsoft System Center Operations Manager (SCOM), IBM Tivoli, and Netuitive, among many others. BlueStripe supports mainframe transaction protocols (CICS, IMS, and MQ Connect) and can track transactions through the cloud and virtualized infrastructures.
- **BMC Software.** After an early foray into performance management with the acquisition of ProactiveNet, BMC appears now as a serious contender in the APM market: The acquisition of Coradient and a close partnership with AppDynamics complement previous acquisitions (Neptunus, Identify Software) to deliver an advanced APM solution.

- **CA Technologies.** CA is traditionally one of the leaders in APM with Wily Introscope. This is complemented by a full array of solutions (CEM, NetQos, Spectrum, eHealth, etc.) to bring together a complete solution of “Service Assurance.” The recent addition of CA APM Cloud Monitor (formerly Watchmouse) reinforces an already impressive and complete solution.
- **Compuware.** Compuware offers a full complement of end user monitoring solutions, from subscription services to a multiprotocol passive appliance, and the ability to monitor phones and tablet devices in real time. To this impressive list, Compuware has now added dynaTrace, which brings always on, end-to-end transaction tracing and monitoring to complement the Compuware Gomez platform, which includes Gomez SaaS products and on-premises products (formerly branded “Vantage”).
- **CorrelSense.** An early player in the business transaction monitoring space with its SharePath technology, CorrelSense has introduced its Real User Monitoring solution, a software-only product that can even monitor service levels in public cloud environments and offers a free “Express Edition.” CorrelSense is also partnering with ASG. Aside from the OEM agreement, we expect CorrelSense to also help its clients with the ASG integration.
- **ExtraHop.** ExtraHop provides a passive network appliance solution that monitors all transactions from layer 2 to layer 7 across the web, application, database, and storage tiers. ExtraHop reassembles the transaction streams and provides visibility into the end user experience as well as into all transaction paths.
- **HP Software.** HP Software has radically improved its APM product line with a very powerful transaction tracing and predictive analysis capability as well as a streamlining of its APM portfolio. The HP Software solution is a textbook example of how tools must support processes. We expect HP Software to become increasingly competitive in the APM market.
- **IBM Tivoli.** With powerful end user experience monitoring capabilities and transaction tracing based on network tracing or agent tracing (or both) that complement a full portfolio of monitoring solutions, IBM Tivoli possesses all the components described in the Forrester APM reference model.
- **Inetco Systems.** Inetco comes from the card processing space, where performance is king. Inetco Insight provides transaction performance analysis across the servers, network, and applications.
- **Nastel Technologies.** A longtime specialist of transaction performance through messaging and Java EE monitoring technology, Nastel AutoPilot discovers and traces transactions through infrastructure and applications. AutoPilot includes complex event processing technology to analyze transaction performances and other events.

- **NetIQ.** NetIQ provides a complete solution complementing the synthetic transaction monitoring, deep application monitoring, and built-in OLAP-based historical reporting capabilities of AppManager Suite with the real user performance monitoring, SLA management, and business service management capabilities of the recently acquired Novell Operations Center product.
- **NetScout Systems.** NetScout monitors application performances through deep packet analysis of all transactions. The solution decodes all protocols, which leads to monitoring based on actual performance of the different components. Transaction tracing is a feature of nGenius Intelligence.
- **New Relic.** New Relic is a subscription model that includes all the bells and whistles (transaction tracing, response time monitoring, and Java EE application monitoring, among others) and is aimed at web-based applications located on-premises or in the cloud. New Relic is a unique SaaS model created by the founder of Wily Technology.
- **Opnet Technologies.** Opnet has transformed from a network performance guru into a full-fledged APM vendor. Acquiring Altaworks a few years ago was only the beginning of an impressive buildup of APM solutions covering all the bases, with a focus on integration within existing environments and even an entry-level solution packaged as an appliance.
- **OpTier.** A pioneer in the BTM space, OpTier has now expanded its solution into APM by adding passive end user experience monitoring and the ability to monitor Java EE applications on top of its traditional transaction tracing and monitoring capabilities. OpTier has also launched into complex event processing (CEP) to provide better transaction performance analysis.
- **Oracle.** A series of acquisitions has provided Oracle Enterprise Manager with an impressive portfolio of APM elements that were then tightly integrated to provide a complete unified solution. Oracle Enterprise Manager provides one of the best real user monitoring solutions on the market, transaction tracing, and an impressive array of monitoring solutions for any technology that a complex application could possibly use. Oracle's goal is to provide a solution that converges toward business process management to become a universal business service management tool.
- **Precise Software.** From a traditional strength in database performance management and Java EE monitoring, Precise has now built a complete solution that includes transaction tracking and the monitoring of packaged applications: a well-rounded solution that answers the Forrester reference model.
- **Progress Software.** Progress Software is not a traditional APM vendor, not does it want to be one. However, the capabilities of true real-time transaction tracing of Actional, a true real-time business transaction management solution, provide a critical element that could be used in application management. We believe that, as APM inevitably will converge with business process management, Progress Software's real-time transaction tracing and control capabilities will become more and more relevant to business service management.

- **Quest Software.** Quest Software is a leader in APM, and Quest Foglight has an impressive portfolio of monitoring solutions that cover all aspects of the Forrester APM model: real user monitoring, application and infrastructure monitoring, and of course, database performances.
- **SL Corporation.** The Forrester APM reference model stresses the importance of integration into a role-oriented dashboard that provides analysis for the different actors in an incident and problem management process. SL Corporation's solution is the epitome of such a feature, with a customizable, service level-based dashboard that integrates application and performance metrics collected from almost any source.
- **SolarWinds.** Well-known for its successful infrastructure monitoring solutions, SolarWinds is beefing up its portfolio with APM components such as an active agent for end user experience monitoring, the capability to monitor Java EE- and .NET-based applications, and the monitoring of cloud performance, all coupled to an analytics-based dashboard.
- **Uptime Software.** This vendor offers a solution that competes directly with Nimsoft and NetIQ in the midmarket and squarely with the big four in larger enterprises. It covers infrastructure and application monitoring (Java EE, .NET, and packaged apps) as well as active agent end user emulation.
- **Visual Network Systems.** This solution is typically aimed at the first layers of the incident and problem management process. While it doesn't offer a deep dive into Java EE or .NET, it does monitor most of the APM technologies at the alert and identification level.

Figure 3 APM Functionalities By Vendor

| | End user experience monitoring using a passive appliance | Response time monitoring using a scripted robot or active agent | Transaction tracing and mapping |
|--------------------------|--|---|---|
| AppDynamics | ● with BMC Software | ● with BMC Software | ● |
| ASG (Allen System Group) | ● | ● | ● with CorrelSense |
| Avada Software | ● with OpTier | ● with OpTier | ● with OpTier |
| BlueStripe Software | ● | ○ | ● |
| BMC Software | ● | ● | ● with AppDynamics |
| CA Technologies | ● | ● | ● |
| Compuware | ● | ● | ● |
| CorrelSense | ● | ● with ASG | ● |
| ExtraHop | ● | ● with Keynote Systems | ● |
| HP Software | ● | ● | ● |
| IBM Tivoli | ● | ● | ● |
| Inetco Systems | ● | ○ | ● |
| Nastel | ● | ● | ● |
| NetIQ | ● | ● | ● |
| Netscout | ● | ○ | ● |
| New Relic | ● | ● | ● |
| Opnet | ● | ● | ● |
| OpTier | ● | ● with Keynote Systems | ● |
| Oracle | ● | ● | ● |
| Precise Software | ● | ● | ● |
| Progress Software | ○ | ● | ● |
| Quest Software | ● | ● | ● |
| SL Corporation | ○ | ● | ● with OpTier |
| Solarwinds | ○ | ● | ● |
| Uptime Software | ○ | ● | ○ |
| Visual Network Systems | ● | ● | ● |
| Guidance: | <ul style="list-style-type: none"> ○ No product ● Basic response time measurement of HTTP/HTTPS protocols ● Response time measurement (HTTP/HTTPS) with transaction capture/error detection ● Response time measurement of multiple TCP-based protocols ● Support of multiple TCP-based protocols and transaction replay capability | <ul style="list-style-type: none"> ○ No product ● Basic scripting with emulated browser ● Basic response time measurement with real browser ● Response time and availability measurement for multiple TCP-based protocols ● Basic response time measurement with real browser plus performance measurement of mobile devices | <ul style="list-style-type: none"> ○ No product ● Application mapping using CMDB discovery tools ● Transaction tracking in debug mode only ● Transaction mapping using different techniques such as network flow monitoring ● Individual transaction tracking in real time |

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Source: Forrester Research, Inc.

Figure 3 APM Functionalities By Vendor (Cont.)

| | Application monitoring (Java EE and .NET) | Packaged application monitoring (Oracle, SAP, etc.) | Infrastructure monitoring (including virtualization) |
|--------------------------|--|--|---|
| AppDynamics | ● | ◐ | ◐ |
| ASG (Allen System Group) | ● | ● | ● |
| Avada Software | ◐ | ◐ with Microsoft | ● |
| BlueStripe Software | ● | ◐ | ● |
| BMC Software | ● | ● | ● |
| CA Technologies | ● | ● | ● |
| Compuware | ● | ● | ● |
| CorrelSense | ● with ASG | ◐ | ● with ASG |
| ExtraHop | ○ | ◐ | ● |
| HP Software | ● | ● | ● |
| IBM Tivoli | ● | ◐ | ● |
| Inetco Systems | ○ | ◐ | ◐ |
| Nastel | ● | ◐ | ● |
| NetIQ | ◐ | ◐ | ● |
| Netscout | ◐ | ◐ | ● |
| New Relic | ● | ◐ | ◐ |
| Opnet | ● | ◐ | ● |
| OpTier | ● | ◐ | ◐ |
| Oracle | ● | ◐ | ● |
| Precise | ● | ● | ● |
| Progress Software | ◐ | ● | ◐ |
| Quest Software | ● | ● | ● |
| SL Corporation | ◐ | ◐ | ◐ |
| Solarwinds | ◐ | ◐ | ● |
| Uptime | ◐ | ◐ | ● |
| Visual Network Systems | ◐ | ◐ | ◐ |
| Guidance: | <ul style="list-style-type: none"> ○ No product ◐ Monitoring of Java EE applications ◑ Monitoring of Java EE and .NET ◒ Monitoring of Java EE using dynamic bytecode instrumentation ● Monitoring of Java EE using dynamic bytecode instrumentation and .NET monitoring | <ul style="list-style-type: none"> ○ No packaged application monitoring ◐ Monitoring of end user response time for some major packaged applications (SAP, Oracle, Microsoft) ◑ Monitoring of end user response time for the major packaged applications (SAP + Oracle + Microsoft) ◒ Detailed monitoring for selected packaged applications (SAP or Oracle or Microsoft) ● Detailed monitoring for the major packaged applications (Oracle + SAP + Microsoft) | <ul style="list-style-type: none"> ○ No product and no integration with existing infrastructure solutions ◐ No product but integration with at least one major monitoring solution (BMC, CA, HP, or IBM) ◑ Proprietary solution and no integration with other solutions ◒ No product but potential integration with all major solutions (BMC, CA, HP, and IBM) ● Proprietary solution and capability to integrate with all major solutions as an option (BMC, CA, HP, and IBM) |

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Source: Forrester Research, Inc.

Figure 3 APM Functionalities By Vendor (Cont.)

| | Database performance monitoring | Messaging technology monitoring | Monitoring of applications in public cloud (IaaS) | Dashboard reporting and analytics |
|--------------------------|--|---|--|---|
| AppDynamics | ● | ● | ● | ● |
| ASG (Allen System Group) | ● | ● | ● | ● |
| Avada Software | ● with OpTier | ● | ● | ● |
| BlueStripe Software | ● | ● | ● | ● |
| BMC Software | ● | ● | ● | ● |
| CA Technologies | ● | ● | ● | ● |
| Compuware | ● | ● | ● | ● |
| CorrelSense | ● | ● with ASG | ● | ● |
| ExtraHop | ● | ○ | ● | ● |
| HP Software | ● | ● | ● | ● |
| IBM Tivoli | ● | ● | ● | ● |
| Inetco Systems | ● | ● | ● | ● |
| Nastel | ● | ● | ● | ● |
| NetIQ | ● | ● | ● | ● |
| Netscout | ● | ○ | ● | ● |
| New Relic | ● | ○ | ● | ● |
| Opnet | ● | ● | ● | ● |
| OpTier | ● | ● with Avada | ● | ● |
| Oracle | ● | ● | ● | ● |
| Precise | ● | ● | ● | ● |
| Progress Software | ● | ● | ● | ● |
| Quest Software | ● | ● | ● | ● |
| SL Corporation | ● | ● | ● | ● |
| Solarwinds | ● | ○ | ○ | ● |
| Uptime | ● | ● | ● | ● |
| Visual Network Systems | ● | ● | ● | ● |
| Guidance: | ○ No product ● Measures database server response time ● Measures database server response time for individual transactions* ● Measures database server response time and analysis of exchanges with database server ● Like ● plus monitoring of database server performances | ○ No product ● Integrates with an existing external product ● Integrates with a partner product ● Proprietary solution ● Proprietary solution and potential integration with other products | ○ No product ● Integrates information from the cloud provider ● Monitors the response time of the application in the cloud ● Integrates application monitoring with the application in the cloud ● Offers ● and ● capabilities | ○ No product ● Event reporting on a single console ● Customizable dashboard that includes events and performance ● Customizable dashboard that includes statistical (correlation or pattern recognition) analysis ● Customizable dashboard that includes advanced analytics |

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Source: Forrester Research, Inc.

RECOMMENDATIONS

APM IS AN IT OPERATIONS JOURNEY

The IT I&O organization often has many, and sometimes too many, monitoring solutions in place. In this context, APM as described by the Forrester reference model may appear overwhelming. But it's simply a representation of all the tools that should be present to effectively monitor application performances and resolve application performance issues. This is a journey, so take one step at a time. To start on this operational journey today, Forrester recommends that I&O leaders do the following:

- **Realize that there are no magic bullets.** Performance is a function in which all components of your infrastructure, including applications and any form of software, participate. If you don't monitor everything, you don't monitor anything, because the unexpected will always happen.
- **Start with the process.** Because there is no magic bullet, acquiring a tool for an immature process and organization won't provide the expected result. Address the weakest part of your process, which is usually alerting and identification. Building from ITIL or common sense, create an incident and problem management process.
- **Understand the roles involved in the process.** Determine the roles of the those involved in the process to uncover what their responsibilities are, what information they need, and what information they should communicate and to whom.
- **Select the tools.** Provision tools and levels of access based on the user's role and requirements. For example, don't provide deep dive capabilities to someone whose role is to identify and locate the source of the problem. Likewise, don't provide an alerting solution to someone whose responsibility is level 2 or level 3 support.

SUPPLEMENTAL MATERIAL

Companies Interviewed For This Document

| | |
|------------------------|---------------------|
| AppDynamics | ExtraHop |
| ASG Software Solutions | HP Software |
| Avada Software | IBM Tivoli |
| BlueStripe Software | Inetco Systems |
| BMC Software | Nastel Technologies |
| CA Technologies | NetIQ |
| Compuware | NetScout Systems |
| CorrelSense | New Relic |

| | |
|--------------------|------------------------|
| Opnet Technologies | Quest Software |
| OpTier | SL Corporation |
| Oracle | SolarWinds |
| Precise Software | Uptime Software |
| Progress Software | Visual Network Systems |

ENDNOTES

- ¹ In light of the poor economic situation and increasing pressure to prove business benefits of any IT spending, it's not surprising that reducing costs tops business goals. See the February 12, 2010, "[The State Of Enterprise Software And Emerging Trends: 2010](#)" report.
- ² Based on client inquiries and discussions with APM vendors, Forrester developed a model of what an APM solution should be in 2010 and beyond. For a description of the Forrester APM reference model, see the September 9, 2010, "[Competitive Analysis: Application Performance Management And Business Transaction Monitoring](#)" report.
- ³ The difficulty of determining the root cause of performance issues in transactional applications spanning a large number of moving parts emphasizes the need to aggregate data into a tool that can provide teams with a pre-analysis and a single view of the transaction dependencies. Thus, BTM transaction mapping and APM deep analysis will tend to converge into a single solution. See the September 9, 2010, "[Competitive Analysis: Application Performance Management And Business Transaction Monitoring](#)" report.

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