

Keynote Systems Extends its Leadership in Monitoring Public/Private Cloud Performance

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Executive Summary

The fact that the role of IT is changing is no longer debatable. Economic pressures for cost efficiencies on the one hand, and new avenues for business model enhancements and revenue creation on the other, are challenging IT to be both more efficient and more proactive in delivering business value.

In parallel with the growing role of IT services in shaping business outcomes, the very structure of IT service delivery is changing. Rather than being about a single *territory* – the *data center* – IT services hinge increasingly on an ecosystem of federated resources, from partners and suppliers to service providers.

This was true even before Cloud computing, but of course Cloud computing has vastly accelerated the process of reshaping IT's role more as a *broker* of services, with a wide range of choices on how services are created and provisioned, than a single, monolithic “territory” measured more on cost than value. The combination of options across public, private and community Cloud, as well as hybrid non-Cloud environments, are increasingly revitalizing larger IT/business ecosystems.

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As a result, both the challenges and the impacts of improving the performance of IT services so that business users get real value from them have become ever richer, more varied, and almost invariably, more complex. Many companies in retail, financial

services, healthcare, manufacturing and even many government and public institutions are finding themselves transformed through an innovative alignment of business objectives and IT services that leverages new technology and ecosystem resources.

One of the clear market leaders in approaching these challenges is *Keynote Systems*.

Keynote has established itself as top choice for capturing how the performance of Web-based applications truly affect the business, including user experience, with strong diagnostics for Web and Web 2.0 application design, as well as external, “outside-the-firewall” service performance issues. Now, with the recent addition of targeted new functionality and a well chosen set of alliances, Keynote has extended its leadership position.

This ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) report looks at Keynote in context with these market trends, and introduces Keynote's Cloud Application Perspective for extending its synthetic performance monitoring and analytics to support internal and external business ecosystem interdependencies, including both public and private Cloud requirements. The report also addresses Keynote's recent capabilities to support open integrations for superior diagnostics inside and outside the firewall through well targeted partnerships.

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Public/Private Cloud and the Rise of Business and Organizational Ecosystems

In some internal research conducted in late 2009, EMA investigated *ecosystem* requirements across partners, supply chains and service providers across 119 respondents. A few highlights underscore the complexity and challenges of optimizing these environments:

- Among the top desired areas for monitoring Web application performance across business ecosystems, *Web Analytics* led the pack, with strong showings for a wide array of other capabilities from *load balancing*, to *integrations with third-party Web sites*, to *data on competitors' performance*, to *geographically specific content*, *CDN performance*, *Ad-serving* and *Mashups*.
- While the most dominant groups seeking to share application performance information were internal business and IT groups, 39% were being petitioned for application performance information by *external partners*, 38% by *external customers* and 35% by *external suppliers*.
- Of the information sought, *Web traffic analytics* led the pack, with strong showings for an array of other options such as *transaction data*, *DNS look-up*, and *third-party SaaS performance*. Much of this information was viewed as critical both for KPI sharing, and for more formal SLAs.

The Cloud Factor

With the dramatic growth of Cloud computing over the 14 months since this data was collected, these types of requirements are only being accelerated. And while the ecosystem research targeted more progressive IT/business ecosystems, Cloud is transforming what had once been more mainline, traditional IT environments as well.

In [*Operationalizing Cloud: The Move Towards a Cross-Domain Service Management Strategy*](#), EMA, February 2011, research data confirmed

that Cloud has become, among other things, a catalyst for dramatic change. Of the 155 global respondents with committed Cloud deployments, 33% feel Cloud is “essential” and an additional 32% feel Cloud is “important” to their overall environment. Only 29% felt it was “mostly supplemental” to other types of computing.

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While SaaS (Software-as-a-Service) led Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) by a margin of nearly 2 to 1. Most environments were hybrid mixtures of public and private Cloud, with private Cloud dominating (Figure 1).

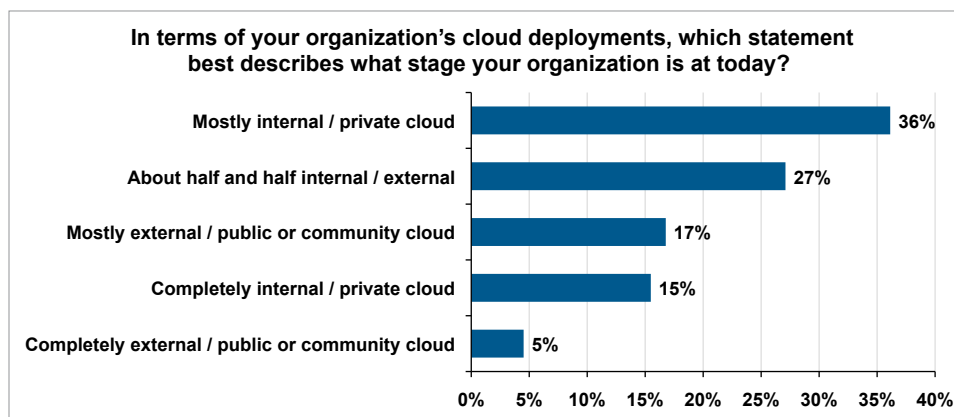


Figure 1: Most Cloud deployments are hybrid (public/private) with private Cloud dominating

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Some of the other highlights from the research indicated that:

- Capex and opex cost savings lead in achieved benefits from Cloud services, with strong showings for *more responsive service provisioning* for new and existing services, *improved infrastructure and service resiliency*, and even such benefits as *business model enhancements* and improved *revenue growth*.
- Among the changes that occurred from Cloud, the most dominant was *increased dialog between IT and the business* and a move to *more cross-domain service management across IT*.
- 70% had external SLAs with service providers, and 65% had internal SLAs for Cloud services delivered internally.
- 70% had to *rethink, or redirect Cloud initiatives* once they were begun. There were many reasons for this, but prime among them was the need to optimize and manage Cloud-enabled services more effectively in support of strategic goals.

EMA also correlated key service management technologies with achieved benefits from Cloud services and the results were fairly dramatic:

IT and service provider organizations with deployed capabilities for User Experience Management are:

- 1.5 times more likely to see a reduction of management complexity through Cloud services
- 1.4 times more likely to reduce operational costs through Cloud services
- 1.4 times more likely to accelerate deployment of existing services via Cloud
- 1.5 times more likely to increase infrastructure flexibility via Cloud
- 1.8 times more likely to expand revenue channels via Cloud

IT and service provider organizations with deployed capabilities for Service-Level Management are:

- 1.3 times more likely to reduce operational costs via Cloud
- 1.4 times more likely to improve service resiliency via Cloud
- 1.5 times more likely to accelerate deployment of new services via Cloud
- 1.5 times more likely to increase infrastructure flexibility via Cloud
- 1.8 times more likely to expand revenue channels via Cloud

IT and service provider organizations with advanced service management dashboards and analytics are:

- 1.8 times more likely to reduce management complexity
- 1.4 times more likely to reduce capital costs via Cloud
- 1.7 times more likely to free up resources for strategic projects
- 1.9 times more likely to improve service resiliency via Cloud
- 1.4 times more likely to accelerate deployment of existing services via Cloud
- 1.4 times more likely to increase infrastructure flexibility and agility via Cloud
- 1.8 times more likely to expand revenue channels via Cloud
- Twice as likely to deliver business model enhancements via Cloud

Figure 2: Advanced service management technologies correlate strongly with accelerated benefits from Cloud-related services

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The data in Figure 2 clearly reinforces the importance of key service management technologies in assimilating and optimizing Cloud services. But in many cases, these and other service management capabilities are delivered via costly and administratively cumbersome portfolios that can be anything but responsive to the agility of Cloud.

As a result, Cloud is accelerating requirements for new, more dynamic, and less cumbersome approaches for deploying and administering service management systems. This doesn't mean jettisoning core requirements for visibility, control and governance in service management – and EMA's *Operationalizing Cloud* research clearly reinforces this fact. But it *does* mean seeking more innovative and flexible approaches to achieving these objectives in a manner conducive to sharing information across entire IT/business ecosystems.

Keynote Systems

Few companies are as well equipped to address these accelerating requirements for business-to-IT collaboration across Cloud and hybrid environments as Keynote. And none can equal Keynote in several critical areas. Keynote is well established as a global SaaS provider for extensive synthetic testing, monitoring and diagnostics optimized to Web-based ecosystems. It supports both business and IT professionals with consistent and relevant data sets, and can generate metrics relevant to a wide range of roles in on-line operations, application development and test, IT operations, and business leaderships that care about the impact of key applications on business outcomes. This breadth of role support is essential for enabling the types of dialogs that will become increasingly required across private, public and hybrid Cloud ecosystems.

Some of Keynote's other distinctive strengths include:

- Keynote's capabilities for synthetic monitoring and User Experience Management (UEM) and linking these to both business impact and performance issues are unsurpassed by any other vendor.
- Keynote leads the industry in its balanced support for mobile as well as more traditional environments.
- Keynote's global reach to assess geographical performance "outside the firewall" and how it impacts critical business application systems is also unequalled. Keynote has more than 3,000 measurement computers and mobile devices in more than 240 locations worldwide with especially strong points of presence in San Francisco (Sprint), New York (AT&T), London (PSI), Frankfurt (Verizon) and Hong Kong (HKT). Keynote currently records 460 million measurements a day.
- Keynote offers the industry's most mature analysis of competitive environments for IT/business ecosystems that are targeted at external, or end-customer, or significant B2B interaction.
- Keynote offers uniquely extensive support for different device and browser requirements, including iPhone and AndroidOS, as well as real browser support for both Internet Explorer and Mozilla Firefox, which typically do not provide the same responsiveness for the same application type, even when they are present in the same location.

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- Keynote’s advanced diagnostics include granular insights into abandonment rates, Ajax/Flash/Silverlight network activity, as well as the ability to capture other network components at an object level such as DNS Lookup, Initial Connection, SSL, Redirection, Request Time, First Byte Download, Content Download and Client Time.
- Keynote requires minimal to no administrative overhead as a SaaS solution.
- Keynote has recently broadened its reach through partnership integrations and new functionality to provide the more cohesive, end-to-end insights for application performance so critical for public/private Cloud adoptions and hybrid Cloud/non-Cloud environments.

Virtual Pages

Cloud is far from being the only “modularity” game in town. Web and Web 2.0 applications in particular have created a sea of interdependencies that have demanded more flexible, versatile monitoring technologies for years. Keynote found that in some instances Web pages with third-party content (as provided via Ajax or Flash/Silverlight, for example) took as much as nine times longer to download than Web pages without third-party content.

With this in mind, Keynote introduced *virtual page* monitoring in 2010 so that IT and business users can monitor an overall page, or choose to separate out their own internal published content, or isolate third-party content. This can all be done with a single pass, regardless of the number of separate views desired. This level of efficiency is more advanced than running separate measurements for each filtering criteria, and currently leads the industry in efficiency and value for evaluating the effectiveness of third-party and internally published content.

Moving Inside the Firewall for Private Cloud with Cloud Application Perspective

Keynote has begun to provide behind-the-firewall monitoring for inside private Clouds via its new Cloud Application Perspective (CApP) agent. Cloud Application Perspective enables granular insights across private/public Cloud and other ecosystem interdependencies that are *seamlessly* (and the word

here is appropriate) integrated into the Keynote Internet Testing Environment (KITE) and Keynote’s SaaS portals. A CApP agent can monitor any private point-to-point Web communication and so is distinctive in flexibility and choice of use case for evaluating internal and external interdependencies, combined with consistently facile deployability and cohesive analytics.

Keynote’s Cloud Application Perspective is a variant of its existing Application Perspective measurement agents but can be installed on Windows PCs and servers owned and operated by the customer.

It installs as a service and runs unobtrusively in the background on Windows XP, Vista and Windows 7 desktops as well as Windows Server 2003 and above. It is easily scripted and leverages the same core power that KITE delivers in ease and reuse of script creation. For confidentiality, customers/users can specify the agent name, so that details are visible only to them.

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CApP is extremely versatile for monitoring inside private networks, private Clouds, and across Hybrid deployments. Some of the popular use cases for Cloud Application Perspective are:

- *Partner monitoring* – CApP agents can be placed to ascertain whether an unacceptable transaction latency is caused by internal infrastructure or application ecosystem issues, or if it's due to an external partner – such as in a supply chain, financial services partner, or federated global resource in a travel or real estate industry. CApP can be placed alongside application servers inside the firewall to monitor performance and availability of transactions dependent on external connections directly linked to specific partners and suppliers. In addition to watching and investigating problems, CApP can gather long-term data so selection and replacement of partners can be informed by data on historical performance.
- *Service provider and public Cloud monitoring* – Similarly, CApP agents can be placed inside the data center to monitor direct links to third-party telecommunications and other service providers, including public Cloud computing services. This can be essential in planning and optimizing Cloud-related strategies, as well as in holding service providers accountable to verifiable issues, including pre-established SLAs. If organizations also care about performance from their private data centers to Cloud computing, then CApP can easily be deployed in the Cloud provider's infrastructure.
- *First mile monitoring* – IT organizations may also want to ascertain whether issues are with an internal/private network, or internal to their data center, or an externally provided, third-party infrastructure. CApP agents can be easily deployed behind a firewall or load balancer to deliver this type of visibility.
- *Optimizing services in hybrid (virtualized/ non-virtualized) infrastructures* – One extended usage of this ability to capture internal/external interdependencies is the versatility to deploy CApP agents to effectively monitor and optimize infrastructures in transition to virtualization by looking at their impact on application performance. Hybrid infrastructures can be partitioned and viewed between and within data centers to track how and where technology and configuration changes are impacting critical business services.
- *Internal application monitoring* – Besides monitoring applications and services provided to external customers, CApP can be used to monitor the applications and services that are provided to employees. Poorly performing or unavailable internal applications, whether they are SaaS or internal hosted, impact internal user satisfaction and productivity, many times with severe business impacts. By monitoring applications from branch offices and connections to IT solution providers from the data center, IT operations can reduce the time it takes to identify and resolve problems. Data trends can be applied to software and hardware as well as service provider investments to improve service and select vendors, and renegotiate contracts and SLAs with more objective data.
- *B2B application monitoring* – For providers of B2B applications, monitoring their Web services from Keynote's global test and measurement network offers a solid departure point. By deploying CApP to customer offices an enterprise can see exactly what users in that office experience and can compare it to measurements from other locations, or Keynote public measurements. In this way the location of a problem impacting a service can be authoritatively located. The fact that CApP can be hidden in actual user systems enables it to be deployed more pervasively across a wider variety of B2B environments, such as sharing a user device or point of sale unit in retail offices.

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Beyond Cloud Monitoring: Keynote's OpenAPM Strategy

During 2010, Keynote introduced four application performance partnerships. Each of these provides strong complementary value to Keynote's synthetic testing outside the firewall with effective application monitoring inside the enterprise.

In alphabetical order, the four partners are: dynaTrace, ExtraHop, OPNET and OpTier – each of which offers a distinct footprint with its own unique advantages. Both collectively and individually, these four partnerships significantly extend the value and reach of Keynote capabilities across private, public and hybrid (Cloud/non-Cloud) environments. They also offer Keynote customers a rich choice of visual integrations that can significantly narrow the time it takes to diagnose and remediate core application performance problems and assess their impacts on critical business outcomes.

Both collectively and individually, these four partnerships significantly extend the value and reach of Keynote capabilities across private, public and hybrid (Cloud/non-Cloud) environments.

dynaTrace Software

dynaTrace Software provides granular and continuous monitoring and diagnostics of application flows from within the data center looking outward. It supports a wide variety of roles, including operations, application developers and testers, cross-domain service management teams, and business executives and professionals.

Once installed as lightweight agents in Java and .NET environments, dynaTrace's flagship product monitors both normal and degraded transactions continually so that problem sets can be more proactively identified. A single identifier known as "PurePath" ties together all components of a transaction regardless of tier, allowing per-transaction granularity down to the finest level of detail. For instance, an operations professional might observe that a slower transaction had a distinct set of input query parameters, and then drill down into the specific parameters themselves to see where the problem had occurred.

PurePath captures specifics such as slow running Web Services, remoting calls (RMI, WCF, JMS, etc.), exceptions, memory-related performance problems, method arguments, SQL statements, log messages, HTTP parameters, and session information. PurePath can also look at middleware issues such as CICS calls, and unnecessary LDAP queries. Finally, PurePath creates a dynamic map of application-to-application, application-to-application component, application-to-middleware, and application-to-infrastructure interdependencies. These and other analyses are available as real-time, live data on the dynaTrace Server, and for historical analysis or viewing off line.

Keynote's integration with dynaTrace PurePath is distinctive in its depth. When dynaTrace manages performance on the application server it traces each transaction that gets processed by the application – whether or not the transactions are executed by real users browsing a Web site, or by Keynote's synthetic monitoring transactions. In other words, PurePath provides a single cohesive data set that includes Keynote's synthetic testing in order to accelerate the effectiveness of its diagnostics. dynaTrace can also pull out the individual Keynote IDs (Agent, Transaction) and the Timestamp to get additional context about the origin of a request.

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When this is combined with Keynote's strengths for looking at user experience and Web application performance outside the firewall, the dynaTrace/Keynote integration quickly becomes unique in the industry. It is well optimized for superior, in-depth application analysis in support of both real-time performance issues, and lifecycle application planning. It is also well suited to IT organizations seeking to optimize application portfolio planning across internal and external Cloud, and hybrid (Cloud and non-Cloud) environments.

ExtraHop Networks

ExtraHop offers a network appliance that helps to bridge the gap between network-centric application performance focused on application-to-infrastructure flows, and application-to-application interaction as viewed from the network. ExtraHop's solutions are designed to address the needs of a range of professional roles across network management and application engineering/support. And ExtraHop's combination of deep packet inspection and on-board analysis addresses the growing requirement to keep up with gigabit transmission rates.

The ExtraHop Application Delivery Assurance System is an appliance that connects to the network via SPAN or tap, with data collection, analysis and presentation software all resident in the appliance. It provides packet-level analysis that can interpret the structure of traffic – not just its volumes and destinations, but also underlying interactions between the applications and the networks that they transit. In this way, ExtraHop can expose some of the more subtle and insidious issues that degrade application delivery over the infrastructure.

In the EMA Radar Report, [EMA Radar for Application-Aware Network Performance Management Q3 2010](#), ExtraHop was rated *Strong Value*. The following is an excerpt from that report: "Particularly high rankings were achieved in application recognition/discovery, alerting/alarming, troubleshooting, advanced analysis, visualization/reporting, and roles supported. Troubleshooting features including L2-L7 stream reassembly, advanced TCP analysis, and extensive application transaction analysis are worthy of specific note."

ExtraHop offers a complement to the more application-centric focus of Keynote partners like dynaTrace and OpTier that largely provide insights into application designs, components and transactions. Instead, ExtraHop delivers essential insights into the touch points between applications and networks, as well as a systemic context to understand interactions between applications and services that cannot be assessed while collecting data from endpoints. ExtraHop's insights can be especially valuable by binding exceptional Layer 7 analysis with real-time network monitoring, as bandwidth in itself cannot solve the foggy problems of optimizing application delivery across virtualized infrastructures.

The ExtraHop integration with Keynote offers significant value in bringing two hemispheres of the application performance brain together that too often reside in dysfunctional separation – Keynote's in-depth transaction insights for application diagnostics and business-related user experience, combined with ExtraHop's strong capabilities for uniting network-centric views of applications with ongoing Layer 7 application analysis. The combination of an appliance-based solution with Keynote's SaaS capabilities is also industry-leading in its ease of deployment and minimal administrative overhead.

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OPNET

OPNET is a mid-sized vendor in network and application performance with special strengths in government, defense, telecommunications, financial services, healthcare, and a wide range of other verticals. It has an established set of partners including resellers and systems integrators designed to expand its international base.

In the EMA Radar Report, [EMA Radar for Business Service Management: Service Impact Q3 2010](#), OPNET led in the highest category, “Value Leader,” while also gaining an award for “Best Operational Business Service Management.” According to the report: “OPNET has evolved far beyond its original, network management roots to become a true service management vendor. OPNET has one of the most advanced set of management offerings in the industry for capturing application-and-infrastructure interdependencies from a performance impact perspective.”

In Q2 2010, OPNET Technologies and Keynote Systems introduced a strategic Application Performance Management (APM) Alliance that involves both technical integration as well as coordinated marketing and sales efforts. The APM Alliance highlighted what was actually a pre-existing integration between Keynote’s SaaS synthetic testing for Web application performance with OPNET’s ACE Live™, recently rebranded as AppResponse Xpert.

AppResponse Xpert offers some of the industry’s most advanced analytics for capturing distributed traffic flows across application components, including front-end Web pages, client/server relationships and application analysis via deep packet inspection. AppResponse Xpert also provides real-time insight into user experience through ongoing observed transaction analysis, which serves as a natural complement to Keynote’s in-depth synthetic transaction analysis.

The APM Alliance is targeted largely at operational requirements to support 24x7, global, geographically-specific awareness with powerful contextual drill-down into Web application transactions for both internal and external application issues, as well as rich capabilities for capturing application-to-infrastructure interdependencies. These capabilities will help support a number of different roles, including application support and Q/A Test, as well as more business-aligned functions such as Online Operations, and IT and Line of Business Executives.

AppResponse Xpert has arguably the richest analytic technology in the industry optimized to understand holistic patterns of application performance across the infrastructure – both when problems occur and after changes are made.

OPNET’s AppResponse Xpert has already integrated Keynote transaction testing as one of its “Insights.” AppResponse Xpert is an appliance (developed from OPNET’s 2007 acquisition of industry innovator Network Physics) that can identify user location, response time per page, intra-server latency, application turns and database bottle necks. AppResponse Xpert has arguably the richest analytic technology in the industry optimized to understand holistic patterns of application performance across the infrastructure – both *when* problems occur and *after* changes are made. OPNET is continuing to enrich AppResponse Xpert in the area of more advanced Web and transaction diagnostics through the APM Alliance, as well as its own internal development.

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OPNET's position in the market, with the richest single cohesive solution set to span infrastructure and application performance bar none, makes it a distinguished integration partner for Keynote. AppResponse Xpert's appliance packaging makes it a natural complement for Keynote's SaaS delivery in terms of ease of deployment. OPNET's broader portfolio includes detailed observed transaction analysis as well as thoroughgoing, application-to-application and application-to-infrastructure dependency mapping that should make the longer-term integration opportunities for Keynote even more compelling.

OpTier

Few vendors have shown such accelerated development in support of critical application performance issues as OpTier. OpTier's BTM version 4 brings together application performance and utilization insights throughout the data center, and across the entire application ecosystem including detailed end-user experience insights. BTM version 4, introduced in Q4 2010, unites OpTier's flagship product, CoreFirst, with its OpTier Experience Manager and offers strong enhancements in ease of use and visualization, analytics, end-user experience data and diagnostics, as well as significantly accelerated deployment (meaningful usage within one hour), along with support for iPhone and iPad mobility.

In late 2010, OpTier also introduced CloudFirst, targeted at lifecycle Cloud management, including planning, operational monitoring and optimization. The announcement leverages already proven success in supporting existing Cloud initiatives, as well as OpTier's enhanced analytics and reporting to enable compelling visualizations of the impact of external and internal Cloud deployments on tiered application performance and overall service impact.

OpTier was awarded "Best Transaction-centric BSM" in the EMA Radar Report, [*EMA Radar for Business Service Management: Service Impact Q3 2010*](#), because of its "clean focus on automating insights between tiered transactions and business impact with insights into optimization and cost. No vendor in this EMA Radar Report does this better than OpTier's BTM (Business Transaction Management) Suite. Moreover, OpTier is evolving its BTM suite more aggressively to participate in larger CMDB and CMS Systems as a 'good citizen,' in sharing its information."

OpTier was awarded "Best Transaction-centric BSM" in *EMA Radar for Business Service Management: Service Impact Q3 2010* because of its "clean focus on automating insights between tiered transactions and business impact with insights into optimization and cost."

OpTier delivers insights into SLA compliance, flow topology, resource consumption, logical-modeled business impacts (fund transfers, bill payments, booking flights, insurance quotations, etc.), and automated support for tuning and optimization through real-time load balancing.

The partnership with Keynote gives customers a complete solution that includes real and synthetic user experience and in-depth insight into the application tiers – including diagnostics capabilities such as visibility into J2EE calling methods, SQL statements and mainframe CICS transactions.

When combined with Keynote's synthetic global monitoring capabilities, the OpTier integration can provide what may well be the single richest set of insights into transaction performance and interdependencies, including clear insights on how transactions impact business outcomes, in the industry. This includes unique depth in terms of user experience, transaction-to-business process impact, application transaction ecosystems and their interdependencies for real time updates into CMDBs, and clear insights into the impacts of public and private Cloud deployments on critical business transactions and their underlying application components.

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EMA Perspective

The pressures on IT executives to provide leadership in extending IT services to support business and organizational transformation, while leveraging a host of new technologies and new models for service delivery, might quickly age even the most robust CIO. The rising adoption of internal and external Cloud services, the move to virtualization, the increasing prevalence of Web 2.0, and Web Services, and the growth of IT/business ecosystems are all contributing to a change not only in technology, but in the very role of IT.

Forward-thinking IT and business executives and professionals, however, will need to seek out areas of innovation from within this chaos of change in a manner that's consistent, strategic and in line with business objectives.

With its well chosen partnerships and enhanced functionality, Keynote Systems offers one of the industry's most compelling solution sets for taking control of this innovative chaos and optimize it for critical business services. Keynote is uniquely strong in the geographical outreach of its offerings, its balanced support for mobile as well as traditional environments, its depth of insight into competitive and business impact, and the versatility with which it can offer its customers options for integration to complement its global reach "outside the firewall."

All this makes Keynote a distinctly potent ally in optimizing IT/business ecosystems as well as in planning and optimizing internal and external Cloud deployments from an application performance perspective. Its deployability options and versatility and choice through partner integrations should prove to be disruptive in an industry still dogged by complex and unwieldy deployments and sagging levels of integration.

EMA looks forward to seeing Keynote expand its reach through partner integrations, and new functionality, to become an increasingly central component of an end-to-end service management system – including lifecycle planning, business impact and portfolio optimization – for traditional, public and private Cloud environments.

About Keynote Systems

Keynote Systems (NASDAQ:KEYN) is the global leader in Internet and mobile Cloud monitoring. We provide companies with solutions for continuously improving the online experience. Founded in 1995, Keynote delivers testing, monitoring and measurement products and services for any enterprise including online portals, e-commerce sites, B2B sites, mobile operators and mobile infrastructure providers. Keynote products and services help companies improve customer experience in four areas: Web performance, mobile quality, streaming and real user experience testing.

Known as The Mobile and Internet Performance Authority(TM), Keynote has a market-leading on-demand infrastructure of over 3,000 measurement computers and mobile devices in over 275 locations around the world. Keynote's 2,800 customers represent top Internet and mobile companies including American Express, AT&T, Disney, eBay, E*TRADE, Expedia, Google, Microsoft, SonyEricsson, T-Mobile and Vodafone.

Keynote Systems, Inc. is headquartered in San Mateo, California and can be reached at www.keynote.com or by phone in the U.S. at 1-800-KEYNOTE.

About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise IT professionals, lines of business users, and IT vendors at www.enterprisemanagement.com or follow [EMA on Twitter](#).

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