Addressing Key Cloud Performance Challenges

An Integrated Web and Mobile Monitoring Approach from Inside and Outside the Firewall

Introduction

Fifty-nine percent of organizations that participated in TRAC's research reported lower than 50% success rate in preventing application performance issues before users are impacted. Additionally, the Web browser was found to be the top "blind spot" when monitoring application performance. As the complexity of cloud environments and the ubiquity of mobile devices grow, organizations are realizing that having full control over the quality of Web experience is becoming a more challenging task and requires a new set of capabilities. The ability to effectively address these challenges can impact customer satisfaction and revenue growth.

This Solution Overview report from TRAC Research examines how capabilities of Keynote Systems align with the emerging trends in the Web experience monitoring market.

Market Context

Organizations that participated in TRAC's recent survey reported that, in order to have full visibility into the quality of user experience, they need to be able to measure more than just averages around application speed and availability. Today, organizations are looking at how application performance directly impacts key business goals (Figure 1) and expect their user experience monitoring solutions to provide information about how different types of delivery methods, Web browsers and devices are impacting the quality of user experience.
TRAC's research revealed that the performance of Web APIs could impact revenues by as much as $400 million annually. Additionally, 49% of Web-based applications are dependent on data from other applications. However, 43% of organizations are still not monitoring back-end Web APIs. As organizations are increasingly depending on Web applications that are pulling data from other applications and data sources, it becomes more important to have capabilities for measuring the performance of Web APIs and Web Services in general. Performance of Web Services is increasingly impacting some of the key business goals (Figure 1) and organizations are looking to expand their application performance strategies to include visibility into the performance of Web APIs.

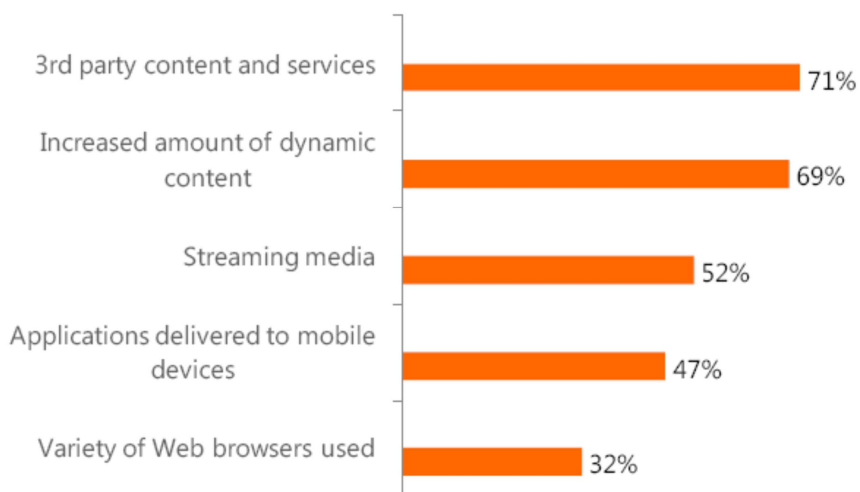**Figure 1: Top Business Areas Impacted by Issues with Performance of Web Services**
Source: TRAC Research, March 2011

Customer satisfaction	94%
Revenue growth	63%
Ability to communicate with partners	52%
Business agility	37%
Brand recognition	32%

The research shows that 44% of organizations are deploying Agile methodology for software development. The research also shows that the key challenge for application performance monitoring in Agile environments is the inability to measure the impact of individual application release/upgrade cycles on performance. The need to reduce the release cycle times for new applications, while ensuring optimal levels of user experience, is one of the key drivers for organizations to focus their application performance management efforts on both production and pre-production.

Figure 2: Top Factors Influencing Web Performance Management Strategies
Source: TRAC Research, October 2010

3rd party content and services	71%
Increased amount of dynamic content	69%
Streaming media	52%
Applications delivered to mobile devices	47%
Variety of Web browsers used	32%

As organizations are adopting Web applications that include rich user interfaces, the amount of processing that takes place in a Web browser and on user devices is increasing, which drives the need for moving points of application performance measurement out of the datacenter and

gaining visibility into the performance of Web and mobile browsers. Figure 2 shows that the quality of Web experience is increasingly impacted by the performance of third party services and modules. Since the content and interactions generated by these third party services are being processed directly within the Web browser, organizations are finding it increasingly challenging to have full visibility into the quality of user experience by solely measuring the performance of infrastructure elements (server, network, etc.).

Organizations that participated in TRAC's survey reported that the inability to prevent performance issues before business users are impacted is one of the key challenges for managing application performance. In order to address this challenge, organizations need to ensure, not only that they are collecting data around key performance metrics of user experience monitoring, but also that they are deploying solutions that include advanced alarming and diagnostic capabilities that would enable them to be notified about potential problems before they impact the quality of user experience.

Additionally, organizations need to gain a deeper understanding of how changes in usage patterns for Web applications and different types of Web content are impacting the quality of user experience. In order to achieve this goal, they need to have the ability to rapidly correct performance problems by testing Web application changes as issues arise. Organizations deploying applications for both Web and mobile browsers are also looking to take an integrated approach for both monitoring and testing each of these application types. Taking this approach allows organizations to make more educated decisions about actions that they can take to proactively eliminate potential performance bottlenecks before they impact their business goals. TRAC's research shows that organizations who are taking this type of approach are 89% more likely to improve the success rate in proactively preventing performance issues, as compared to their peers that do not have this capability.

The majority of organizations that participated in TRAC's research reported concerns that the application performance monitoring solutions they are currently deploying will not be as effective when used for monitoring cloud based applications. Additionally, these organizations reported that a lack of SLA from cloud providers is one of the key reasons as to why they are not moving more of their business critical applications to the cloud. In order to address these challenges, organizations need to develop a monitoring approach that would allow them to gain more visibility into the quality of user experience for cloud applications and, therefore, enable them to keep their cloud providers "honest". Also, 74% of organizations that participated in TRAC's research reported that they are looking to leverage a single solution for monitoring the performance of both cloud and on-premise managed applications. In order to achieve that goal, organizations need to have capabilities for monitoring the quality of user experience from both inside and outside the corporate firewall.
Figure 2 shows that managing performance of applications delivered to mobile devices is one of the key areas that is impacting strategies for managing the quality of user experience.

As more users are accessing applications on their mobile devices, in order to have full visibility into the quality of user experience, organizations need to have capabilities in place for monitoring the application delivery chain for the mobile Web. Applying generic Web performance monitoring capabilities for monitoring the performance of mobile Web can create additional blind spots for application performance management and organizations need to ensure that their performance management solutions include dedicated capabilities for monitoring user experience for mobile applications. Taking a unified approach for monitoring user experience for both traditional and mobile Web allows organizations to reduce the time needed for identifying and repairing performance issues and optimize application performance across a wide spectrum of delivery methods.

Overview of Keynote Systems

Keynote's product portfolio includes capabilities for synthetic monitoring of Web performance from outside of corporate firewall, mobile monitoring, Web load testing, and monitoring Web APIs, as well as recently announced capabilities for monitoring Web performance from anywhere within an organization's private network. This set of capabilities allows organizations to have coverage across key areas of the digital value chain and enables them to not only measure the quality of user experience, but also to collect actionable information that allows them to prevent and resolve performance issues. This set of capabilities allows Keynote to provide visibility into the Web experience from the perspective of end-users, while being able to measure the impact of a users' geographical location, type of network connectivity (including mobile carrier), as well as the device where the applications are accessed. The company also allows organizations to capture a wide range of metrics and data for the quality of user experience that include, not only availability and speed of Web applications as measured from the end-user's perspective, but also information about the impact of application load on the quality of user experience, and the resulting business impact.

Keynote provides capabilities that are addressing some of the key performance management challenges for both private and public cloud. Keynote's portable, on-demand solution for monitoring any HTTP transaction, including Web Services and APIs, provides performance visibility at key points in a cloud architecture. The company's global monitoring network and inside of firewall monitoring capabilities allow organizations to take an approach for monitoring the performance of Web applications that is agnostic of where applications are being hosted, either in the cloud or an on-premise managed data center. This type of integrated approach allows organizations to reduce the time that is being spent on correlating data about different aspects of application performance and, in return, reduces time needed for addressing potential performance issues.

Additionally, Keynote's ability to monitor cloud performance goes beyond monitoring applications that are hosted in the cloud. The company has developed dedicated capabilities for measuring the impact of third party cloud services, which are delivered as components of Web applications, on the quality of user experience. These capabilities span both services integrated within the browser, or directly integrated with an application on the back-end. As more Web applications are becoming dependent on the performance of Web APIs, Keynote enables

organizations to measure the performance of these connections and their overall impact on Web performance in general.

One of Keynote's core strengths is an integrated approach for monitoring the performance of Web applications in production and pre-production. The company's offerings include capabilities for both inside and outside of firewall monitoring in production, as well as Web load testing across a variety of usage scenarios. Information about both of these aspects of Web performance is delivered to users in a unified fashion, which allows them to improve their effectiveness in proactively addressing Web performance issues.

Keynote's product portfolio also includes dedicated capabilities for monitoring the performance of the mobile Web and it allows organizations to take a unified approach for monitoring the quality of user experience, regardless of the type of device that is being used for accessing applications. Having this type of capability allows organizations to expand its view into user experience across different types of devices and browsers and eliminates some of the key blind spots that organizations are experiencing for Web experience monitoring. Additionally, in October of 2011 Keynote acquired Mobile Complete (also known as DeviceAnywhere) which allows the company to enhance its capabilities for mobile application testing and quality assurance across the mobile application lifecycle.

Summary and key takeaways

As organizations are increasingly using Web applications to support a variety of aspects of their businesses, ensuring the quality of user experience for these applications is becoming even more important. Expectations of website visitors and business users for the performance of these applications are also increasing, while application designs and the application delivery chain are becoming more complex. These trends are driving new market dynamics and creating opportunities for technology vendors that have developed capabilities to cope with major challenges surrounding Web performance. Keynote's offerings for monitoring the quality of user experience cover a wide range of use cases and allow organizations to take an integrated approach for monitoring Web performance across desktop browsers, mobile applications and cloud environments.