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How to Improve Web-Based Application Performance in a Virtualized Environment

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Improving service levels for critical applications is a major concern of IT. Nowhere is that more evident than in efforts to support web-based applications, which can be both mission-critical and complex. Since many IT organizations have implemented Service Oriented Architecture (SOA), web-based

applications have skyrocketed in popularity — partly due to the ubiquitous browser as a platform-independent client and partly due to the explosion of functionality that rich Internet applications can bring to the client experience. The ability to create a robust application without having to load software on thousands of individual computers is an immeasurable technology benefit, which has driven an increasing number of companies to transition to the Internet as primary point of sales and support. Therefore, outages are flagged at the highest severity, with time quite literally being money. Furthermore, IT organizations must provide necessary levels of service to their end users and be able to understand the business impact when those service levels are violated.

Most web-based applications rely on application files that are accessed from remote servers in a company's IT infrastructure, creating the potential for an exponential growth in server farms. A way to optimize this situation is to implement a virtualized server environment — a solution that has reached critical mass in terms of

saturation in the IT world. Server virtualization facilitates multiple operating systems running on a single physical server as virtual machines (VMs). Dynamic allocation allows for easier provisioning and optimized system performance. Workloads are consolidated with underutilized server machines loaded on a smaller number of fully utilized machines. Fewer physical machines can lead to reduced costs through lower hardware, energy and management overhead.

For all the simplicity that virtualization drives in the data center around hardware, however, it drives complexity into production/run-time environments, introducing new application-performance and availability-management challenges. The combination of web-based applications running in a virtualized environment equals added support challenges simply because there are more places for the application and its associated transactions to fail.

In such complex, multi-tiered, distributed infrastructures, slowdowns and outages can lead to jumbo bridge calls that burn through dozens of effort hours as representatives from several parts of the organization hunt and peck for the root cause. The solution is to implement an Application Performance Management (APM) package that is specialized for web-based applications. It must provide the ability to monitor and manage customer transactions that traverse the IT infrastructure into the virtualized environment and monitor the performance and availability of the associated applications.

It has long been understood that poorly performing applications translate into missed business objectives and poor customer experience. APM solutions were developed to enable IT departments to improve performance, reduce outages, manage application productivity and deliver a successful customer experience. As a whole, APM software provides application information about customer transactions in real time, giving administrators more insight and visibility into their performance and availability. It protects business continuity as the software draws attention to potential transactional bottlenecks and faults before they affect service levels and end users. You can measure response time from the end-user perspective, providing real-time alerts to any hiccups. Additionally, APM software highlights several common productivity threats like undiscovered memory leaks and buffer overwrites. APM solutions have expanded to become important tools for monitoring and managing web-based applications, as well. But the *right* APM solution provides end-to-end visibility from the end user all the way into the virtualized environment.

For outages within a mission-critical web application, there is no substitute for visibility into the virtualized environment that makes the entire transaction flow transparent.

It is the virtualization component that makes the critical differential. Most APM solutions fall short of providing visibility into that virtualized environment, which creates a blind spot

that undermines the ability to manage the health and availability of these critical web applications. This vulnerability can cost hours, even days, when looking for a root cause to an interruption. The key to ending the “blame game” is to be able to see the entire transaction as it moves throughout the infrastructure.

When an outage within a mission-critical web application occurs, there is no substitute for visibility into the virtualized environment that makes the entire transaction flow transparent. This advantage provides correlation of the end-user transactions with the associated application, therefore reducing triage-to-diagnosis time significantly, which speeds recovery. An APM solution that can monitor applications in real-time from end-to-end helps in troubleshooting as well as measuring Service Level Agreements. In addition, it can capture the details that inform lessons learned, providing transaction “snapshots” that can be later used to reconstruct the sequence of events that led to the outage or fault.

An APM solution that provides visibility into the complexity of a virtualized environment is the answer to managing and monitoring a stable solution. And a well-managed web-based application running in a virtual environment can translate into higher revenue streams, increased customer success and higher IT productivity.

For more information on the CA APM solution, [click here](#).

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