Assure

Advanced Performance Management

Today's complex business applications present new challenges that legacy application monitoring systems find difficult to address. The following overview discusses these challenges and the elements that make up a complete and effective application performance management (APM) solution.

New trends affecting the business applications landscape

The growing demand for newer, more powerful business applications has led to the adoption of rapid development methodologies that not only increase the speed of delivery but also the complexity of IT infrastructure. Examples include:

- Agile development: methodology in which cross-functional teams share knowledge, ideas, opinions and experiences to evolve requirements and solutions in short time spans (typically weeks).
- Service-oriented architecture (SOA): software design methodology based on functional modules, or "services", typically seeking to reuse standard building blocks.
- Virtualisation and cloud: these technologies provide flexibility, rapid provisioning and operational efficiencies, but as a consequence can introduce additional layers of complexity.
- Edge computing: multi-tiered, integrated architectures mean that a portion of the application will run at the "edge" — close to the user. When an application has an issue, it's the experience at the edge that matters most. Troubleshooting in such a complex environment requires visibility wherever IT resources are located.
- Mobility: in traditional networks, business applications run entirely on systems in the corporate network, making it easier to have visibility of performance. Increasingly, users are accessing systems and applications beyond the corporate boundary — from anywhere, at any time and on many devices.

New challenges in the business applications landscape

Arising from developing trends in the IT landscape, owners and consumers of business applications are faced with a number of challenges:

- Downtime and poor performance of critical applications: when application issues occur, IT and network teams need to detect, isolate, and fix issues quickly. Using traditional performance management tools and reacting to user issues as they arise can take days, sometimes weeks, to isolate and resolve, having a direct impact on the business.
- Failing to find and fix recurring or persistent performance problems: intermittent and chronic performance problems negatively impact user satisfaction, productivity and confidence, preventing IT from focusing on new initiatives. Although users often become de-sensitised to these chronic problems, they can still have a significant impact on business performance.
- Inability to detect problems early: IT departments normally find out about performance problems from users after the business has already been impacted. New applications causing performance issues: when rolling out new applications or virtualising existing infrastructure, it's critical to ensure the performance required by the business will be delivered. Without appropriate tools to manage and predict the effects of changes, businesses often find themselves dealing with performance problems post-deployment.
- Difficulty in communicating with executives and stakeholders: application performance isn't a single group's responsibility and has broad implications across IT operations, application team, and business owners. It can be difficult for IT to communicate application performance to executives broadly and in languages tailored to multiple audiences.

Users rely on applications to reach customers, automate processes and perform almost every other task critical to the business. As applications become more critical, they also become more complex and IT organisations are changing the way they manage performance to be more holistic and application focused. Enterprise Management Associates recently reported that 80 percent of participants relies on cross-functional supplier teams to manage application performance. Similarly, Gartner reported that 20 percent of Global 2000 enterprises were re-focussing IT support processes to the monitoring and management of business applications.

Application Performance Monitoring (APM)

An effective approach to APM should integrate all elements and more specifically, enable IT teams to:

- Rapidly diagnose the root cause of performance problems by seeing all components of application delivery including IT infrastructure and network.
- Identify performance problems sooner, avoiding negative impacts on the business with advanced analytics that detect, isolate and pinpoint performance problems.
- Eliminate "war rooms", reducing or eliminating "finger pointing" and dramatically improve IT efficiency.
- Streamline communication among IT teams for faster development life cycles, lower support costs and fewer project failures.
- Leverage dashboards and reporting processes that present relevant and pertinent information to both business and IT stakeholders.
- Understand how applications are performing with easy-to-understand performance snapshots.
- Proactively manage performance issues.
- Map the landscape of application dependencies across IT assets to perform impact analysis and ensure critical parts of the delivery chain are monitored.
- Enable faster, more accurate planning to minimise the impact of IT change initiatives.

Different Elements of APM

Today's complex application and infrastructure landscapes require an APM solution with visibility of the application delivery chain. Whether you are rolling out new applications, consolidating or virtualising data centres or migrating to the cloud, managing application performance requires a holistic view including the following vital components:

- Monitoring user experience: what is the user actually experiencing as they interact with the application? Regardless of whether they are local, remote or mobile, you must be able to monitor and troubleshoot the most meaningful measure of application performance: the user's experience.
- Tracing transactions and monitoring components: what a user perceives as a single operation will involve many distinct transactions and interactions across IT systems. How do you track, monitor, and troubleshoot the performance of each, correlate them and drill down into the various subcomponents?
- Managing infrastructure and network performance: how is the performance and availability of the IT and network infrastructure contributing to the performance of the application? IT infrastructure exists for one reason - to deliver business applications. To understand application performance in the round, infrastructure must be managed from the perspective of the application. In particular, the network is a critical component whose importance continues to grow with cloud, mobile, SDN (software-defined networks) and network virtualisation.
- Tracing transactions: whilst transaction tracing in APM tends to refer to code-level analysis within the servers, the network also provides another perspective using packet captures to analyse traffic. Both approaches have value and should be available.

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