

Four Keys for Monitoring Cloud Services

White Paper from ManageEngine



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Introduction

Organizations are becoming increasingly interested in leveraging cloud computing services to improve flexibility and scalability of the IT services delivered to end-users. However, organizations using cloud computing services face the following challenge: decreased visibility into the performance of services being delivered to their end-users.

Many cloud providers offer dashboards for tracking availability of their services as well as alerting capabilities for identifying service outages in a timely manner, but these capabilities are not sufficient for end-users who need to have a full control of the performance of cloud services in use. More importantly, organizations cannot rely on monitoring capabilities offered by their cloud service providers, and they need to deploy third-party solutions that allow them to monitor the performance and levels of SLA achievements of cloud services.

Overview of Cloud Computing

The term Cloud Computing stands for a type of service that allows organizations to deliver business-critical applications to their employees, customers, and partners over the Internet. End-users are able to access this data using a web browser, while organizations are able to improve flexibility and scalability of IT services and pay only for computing resources that they actually use.

There are three types of cloud computing services: public, private, and hybrid.

Public cloud computing services are hosted by third-party service providers, such as Amazon, Google, Rackspace, GoGrid, and VMWare and allow organizations to use externally hosted computing resources while paying only for computing resources that they actually use. This method of cloud computing fits the most common definition of cloud services, and it is most appealing especially for small and medium sized organizations.

Private cloud services are hosted by end-user organizations themselves to support their internal needs and allow their business users to access business-critical data services over the Internet. Even though this type of cloud computing does not completely fall under a traditional definition of cloud computing (computing resources are not hosted and managed by third-party providers), private cloud services are getting a lot of traction from end-user organizations. Deployment of these services does not require an involvement from external providers, but private cloud services are still helping organizations to achieve the majority of promised benefits of cloud computing.

Hybrid cloud computing services represent a combination of IT services that are based on hosting computing resources for supporting business-critical applications both in the cloud and in the externally managed data centers. This allows organizations to keep internal control over computing resources while complimenting these resources with the cloud capacity that users can access over the Internet.

Top Management Challenges

Inability to identify applications that could be seamlessly moved to the cloud

Before making decisions about applications that should be moved to the cloud environment, organizations should make a calculation about IT and business benefits that they can achieve from this action. Additionally, organizations should have capabilities in place to test whether the cloud infrastructure they are using can support applications that are being transferred to the cloud.

Unfortunately, many organizations do not have technology capabilities that would allow them to conduct this type of testing and,

therefore, they are forced to make adjustments to available capacity as they experience problems with quality of service.

This type of challenge prevents organizations from achieving one of their top goals for managing the performance of business-critical applications: prevent performance issues from occurring before end-users are impacted.

Inability to make educated decisions about adding or terminating cloud resources

Deploying cloud computing services changes the way organizations go about managing their computing resources, as it gives them more flexibility in using available capacity in the way that is the most cost effective. Instead of making costly investments in new hardware when they need additional capacity, organizations have the ability to increase and decrease cloud resources used as the demand changes. In order to take a full advantage of this capability, organizations need to have full visibility into how their existing resources are being used in both internal and external environments.

Organizations need to have capabilities for monitoring usage of the cloud resources that would also alert them when they need additional resources and about applications for which these additional resources are needed. These monitoring capabilities include tools for monitoring CPU usage per computing resource, ratios between systems activity and user activity, and CPU usage from specific job tasks. Also, organizations should have capabilities for predictive analytics that allow them to capture trending data on memory utilization and file system growth, so they can plan needed changes to computing resources before they encounter service availability issues. Not having these capabilities in place prevents organizations from taking timely actions for optimizing cloud resources in use to meet changes in business demand.

Inability to monitor performance of applications that use a hybrid cloud approach

Organizations using cloud computing services need to have visibility not only into the performance of applications that have moved to the cloud, but also into the different computing resources on which these applications depend. Typically, organizations find it easier to monitor the performance of applications that are hosted at a single server as opposed to the performance of composite applications that are pulling computing resources from different sources. This issue becomes even more complex if computing resources are hosted outside of corporate firewalls, and organizations do not have a full control and visibility into the performance of these applications.

As mentioned earlier, organizations sometimes use a hybrid model for deploying cloud computing, which presents end-user organizations with the challenge of monitoring usage of resources that are hosted and managed both externally and internally and are being used by the same application.

Improving scalability of the infrastructure creates heterogeneous environments that are difficult to manage

Even though organizations can achieve significant cost savings and increased flexibility of management by moving their business-critical applications into the cloud, this also creates a new environment that is fairly complex to monitor and manage. As a result, traditional IT management tools are not as effective in these environments as they are in managing the performance of internally hosted applications. This creates the challenge of finding a balance between scalability and flexibility of computing resources and

ease of management and visibility into performance of the IT services relying on these resources.

Capabilities Needed

Tools for measuring the impact of rules for assigning cloud resources on quality of end-user experience

One of the key benefits of cloud computing services is flexibility of assigning resources needed to support demand from business users. In order to achieve this benefit, many organizations deploying cloud computing services are defining rules for assigning cloud resources to each of their critical IT services and applications. However, the effectiveness of these policies depends on the visibility that organizations have into how cloud resources are being used. Organizations that have technology tools in place to monitor how changes in policies that control allocation of cloud computing resources impact the performance of business-critical applications, as measured from end-users' perspective, are more likely to reap the full benefits from the deployment of cloud computing.

Ability to compare cloud service delivery to performance of the internal environment

Organizations can garner the full benefits of cloud computing services only if they can ensure that the performance of these services as experienced by business users is at optimal level. The best way for organizations to evaluate the performance of these services is to compare them to the performance of those services hosted and managed internally.

Having technology capabilities that allow organizations to measure key performance indicators (KPI) for application performance in both cloud and internal environments allows organizations to define proper benchmarks for evaluating performance of cloud services and make better decisions about value received from making changes in their IT management strategies.

An independent tool for monitoring/validating performance of a heterogeneous set of applications in the cloud

As organizations deploying cloud computing services trust third-party providers to deliver quality of service that would be acceptable to the end-users, they need to have technology tools in place to enable them to keep their service providers "honest" and have capabilities for monitoring levels of SLA achievements that go beyond monitoring capabilities provided by cloud vendors. As a part of their agreements with providers of public cloud services, organizations are requesting guarantees for levels of performance that service providers are expected to deliver. However, in order to ensure that these service levels are met, organizations need to have independent monitoring tools in place that allow them to monitor not only actual levels of performance as experienced by business users, but also enable them to conduct root cause analysis of problems as they occur. These monitoring tools include capabilities for monitoring application response times, service availability, page load times, and ability monitor traffic during peak times.

For organizations that want to receive the full value of cloud computing services it is critical to be able to understand if any performance issues that they experience are caused by their cloud service providers, network issues, or the design of the application itself.

Ability to monitor cloud applications alongside with internal IT systems

The majority of organizations deploying cloud computing services are selecting the hybrid model, which means that they are moving some of their applications into the cloud while other applications are still being hosted on internally managed servers and delivered over the corporate network. That requires that these organizations have two different sets of capabilities, one for monitor-

ing the performance of applications hosted outside of their corporate firewalls and one for those hosted in their data centers. It is hence important for the monitoring tool to support integrating data from possibly two restrictive networks that form part of the data center.

Having this capability in place allows organizations to ensure optimal levels of performance of business-critical applications regardless of hosting method and in the process make their IT Operations more productive.

Business Benefits

Organizations that are using the right mix of technology solutions for monitoring the performance of applications in the cloud are more likely to enjoy the following business benefits:

- *Prevention and resolution of performance issues in timely manner.* Organizations that have visibility into resource utilization in the cloud are more likely to make educated and timely decisions about resource allocation and, therefore, to prevent performance problems before they impact their business users.
- *Ability to support changes in business demand.* Full visibility into the performance of cloud services allows organizations to unlock the benefits of cloud computing, especially when it comes to improved flexibility of IT management. Organizations that have end-to-end visibility into the performance of cloud services and their internal infrastructure are able to make better decisions about adding or subtracting resources to support changes in business demand, which allows them to ensure a high level of quality of end-user experience at optimal cost.
- *Ability to optimize spending decisions.* Organizations deploying independent tools for monitoring performance, SLA achievements, and usage of cloud services are more likely to be able to make educated decisions about the return they are getting from their investment in cloud services.

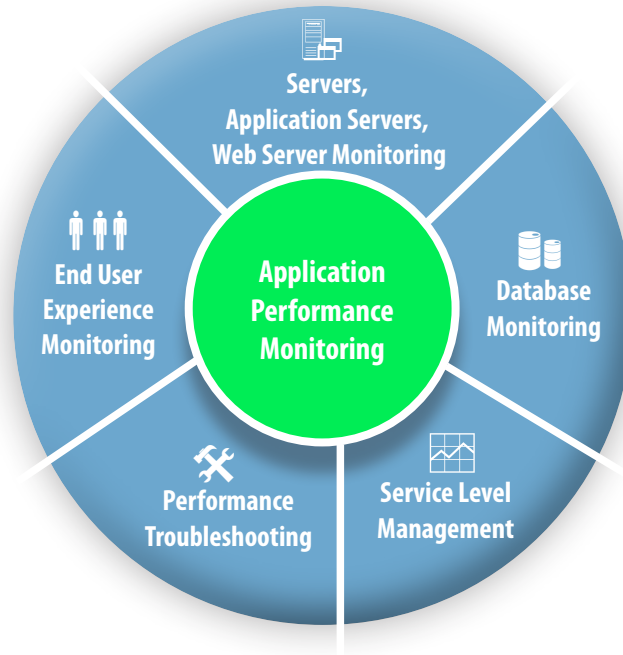
Recommendations for action

In order to have full visibility into the performance of cloud services, organizations should consider taking the following actions:

- Deploy independent tools for monitoring and validating the performance of cloud services
- Deploy tools for measuring the impact of rules for assigning cloud resources based on quality of end-user experience
- Develop the ability to compare cloud service delivery to performance of the internal environment
- Make sure your monitoring tool supports a hybrid deployment architecture

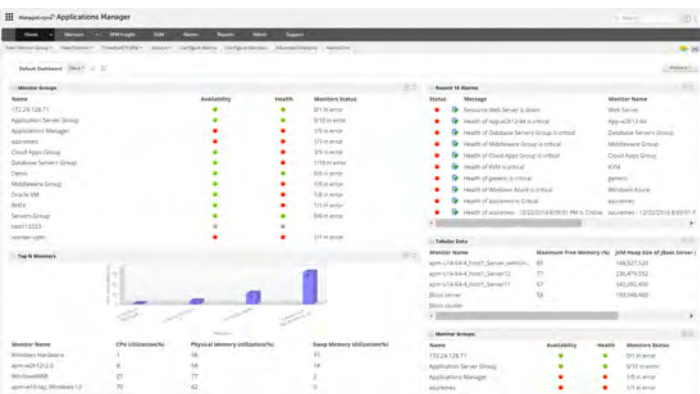
ManageEngine Applications Manager's Capabilities

ManageEngine provides capabilities that allow organizations to make educated decisions about parts of the enterprise infrastructure that should be moved into the Cloud by providing performance reports. There is out-of-the-box support for monitoring application servers, database servers, servers and web servers. The support for packaged applications like Exchange, SAP and Oracle E-Business Suite further helps IT Managers to make informed decisions.



Additionally, ManageEngine Applications Manager allows organizations to monitor levels of SLA achievements for cloud services and to be able to troubleshoot and resolve problems with application performance regardless of the hosting and delivery method (Internet and/or corporate networks).

The distributed architecture facilitates monitoring applications in the cloud and those present inside the corporate datacenter from the same console.



About ManageEngine

ManageEngine offers simple, easy-to-use IT Management products at a price that every business can afford. It is thoughtfully built with SMBs in mind and eventually scales for large businesses. The ManageEngine 90-10 promise gets you 90% of the features of the Big 4 at 10% of the price

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