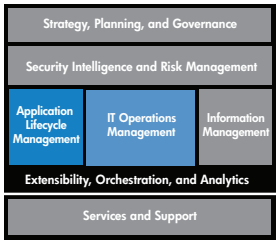
Seagate drives effective oversight of cloud computing

Data on end user experience, gathered with HP Application Performance Management software, enables company to manage cloud-computing SLAs, quickly triage availability and performance issues

> "We could not successfully manage our cloud initiative without HP Application Performance Management. It's absolutely critical because with third-party cloud computing we can't monitor the infrastructure. We have to rely on gathering data on the end user experience. HP Application Performance Management gives us the best-in-class tools we need to ensure that our cloud applications are meeting our service levels and that any problems are triaged quickly and effectively."
>
> —Steve Katz, senior manager, Performance Test and Monitoring, Seagate Technology

HP customer case study: HP Application Performance Management provides monitoring capabilities crucial to managing cloud computing services

Industry: Technology



Objective

Manage risk associated with transitioning mission critical email service from internal platform to a third-party cloud

Approach

Deploy automated monitoring agents to validate that cloud services are performing as expected; use collected data to analyze issues, triage support processes

IT improvements

- Fast detection of cloud service performance issues speeds ability to address
- Able to determine if issues originate with in-house or cloud provider systems improves ability to support IT vendor management
- Enhanced service, application, and infrastructure agility

Business benefits

- Company better able to manage, enforce cloud service SLAs, protect ROI of outsourcing
- Reduced risk of cloud service performance issues through productive and detailed monitoring
- Cost savings realized through managed flexibility

Like many corporations today, Seagate Technology, the world's leading provider of storage devices, has paid close attention to public cloud computing. After all—on paper—the technology adds up to an opportunity to support critical technology services more cost-effectively.

However like all IT projects, moving to cloud computing also entails risks that IT needs to manage and mitigate. Before relinquishing critical business processes to a third party, corporations must establish new oversight procedures and controls.

In Seagate's case, the technology organization was particularly well-positioned to leverage a cloud, because the company had a solid foundation of end-to-end applications performance monitoring. Seagate currently monitors over 300 critical internal applications using solutions, including HP Application Performance Management (APM) software, HP Operations Manager, and HP SiteScope software. This expertise and insight proved invaluable when Seagate decided to shift its corporate email from an in-house platform to a cloud-based service.

Mature framework for internal applications monitoring

Seagate, founded in 1979 in Scotts Valley, California, has design, manufacturing and sales offices in a dozen other countries across the U.S., Europe and Asia. Its products include 2.5-inch and 3.5-inch hard disk

drives, solid state drives, external storage solutions and hybrid drives that incorporate both rotating media and flash memory. Seagate's importance in the computer industry is perhaps best illustrated by a 2010 milestone, when it became the first hard drive manufacturer to ship 1.5 billion hard drives.

The company's reputation for high quality, reliable storage devices is reflected in the high standards that guide its internal operational processes. A notable example of these standards is found within its technology organization, where Seagate has established an Application Performance Management (APM) Center of Excellence (CoE). The CoE provides Seagate an organizational structure to support its application performance monitoring processes.

"The Center of Excellence articulates a service-based model for delivering applications monitoring," notes Steve Katz, senior manager of Performance Test and Monitoring for Seagate, "and allows us to formulate standardized processes and best practices."

Katz's team also manages a suite of monitoring tools. These include HP Operations Manager and HP SiteScope software for infrastructure monitoring and root-cause analysis. The team uses HP APM software to monitor critical business applications ranging from externally-facing website software to e-commerce, enterprise data warehouse, financial forecast and planning, ERP procurement, employee portals, and collaboration platforms. Seagate even has HP APM deployed to monitor factory systems in its media manufacturing plant in Asia.

The HP APM tools are integrated with HP Quality Center (QC) software, and HP Performance Center software, HP solutions Seagate developers use for requirements management, test planning and execution, and defect management. Release and requirements information is passed from HP QC to HP APM. Data from load and performance monitoring from HP Performance Center is compared with capability data acquired in HP APM. Event data gathered by HP APM is also shared with Seagate's change and incident management systems. "We've established a 'womb to tomb' framework that facilitates communication and continuous improvement from preproduction right through end user experience," Katz notes.

It's a mature and sophisticated applications monitoring approach and it delivers clear value to Seagate.

Today, however, Katz is applying applications monitoring in a completely different area: he's using it to measure performance of applications running in third-party hosted clouds.

Cloud computing requires new monitoring mindset

Seagate's first foray into the cloud followed an assessment of the company's internal email platform. "We were running an internal client application," Katz says. "It worked well and people were happy with it, but it was becoming dated." The technology wasn't keeping up with the current e-communications conventions, such as web-based mail and social media.

Customer solution at a glance

Primary applications
Application monitoring of on-premise and third-party cloud computing services

Primary hardware
- HP ProLiant DL380 G6 server

Primary software
HP IT Performance Suite — Application Lifecycle Management, IT Operations Management
- HP Application Performance Management software
- HP Operations Manager software
- HP SiteScope software
- HP Quality Center software
- HP Performance Center software

Seagate decided to switch to a cloud-based email and calendaring provider.

It was a smart decision from a fiscal perspective, but it carried significant repercussions for Seagate's technology organization. "The Holy Grail of infrastructure monitoring is to look at a dashboard and know with a glance if your applications are performing as they should be," Katz says. "If you see an issue, you drill down to determine what piece of the infrastructure is in trouble, what the root cause is. That's our vision and where we are moving as an IT organization."

But in the cloud, everything is different. "You don't have the luxury of being able to collect, aggregate and correlate information about the infrastructure," Katz continues. "The only thing you have is user experience."

Seagate IT was still responsible for ensuring the outsourced email service would meet the company's needs—but suddenly it had to do so from within a completely different operational mindset.

Validating the end user experience

Katz's first job, after Seagate's decision to switch to the cloud-based mail service, was to validate that the new service could meet acceptable performance levels. "We set up a staging version of the new email service, a sandbox that we used to compare the service performance with the performance of our existing system."

Over time, it became clear that Seagate needed a great deal more from Katz's group than just performance monitoring: the group's ability to monitor deployed applications was critical to managing the outsourcing relationship. "Many of the standard services that cloud providers offer are things you can't measure with infrastructure monitoring tools," Katz explains. "So as customers, we have to figure out how to ensure the cloud provider meets its service level agreements."

To do this, Katz's team implemented HP APM software and leveraged its end user experience capabilities to monitor its new email services. The solution is hosted on a four-node VMware virtual cluster running on an HP ProLiant DL380 G6 server. Every five minutes, from each of about 20 sites, an HP APM agent performs a series of email tasks. It logs onto the email system, composes an email, and sends it to another account, where another agent checks to see if the email was received. Data from these transactions is sent to HP APM for analysis. "We've taken advantage of the HP capability to help us distinguish between spurious data and persistent performance issues or widespread issues that suggest a regional problem," Katz notes.

If an issue is detected, the HP APM is able to isolate the problem's origin. Seagate's IT Operations Staff, leverages the APM data to determine if Seagate or the provider's systems are at fault. If the problem is internal, Seagate engages its own support resources. If the problem is external, Seagate reports the issue to the vendor. This process ensures Seagate doesn't waste time or resources troubleshooting issues that originate outside its infrastructure. Seagate can also validate, with data, that the problem is with the vendor's environment. "If we can show the service provider that it is their systems that are at issue, they will understand that they are jeopardizing their SLAs and may be affecting other customers as well," Katz notes. "They'll be motivated to get things fixed."

For the most part, the performance of the cloud-based mail service has been exemplary since Seagate transitioned to it. Seagate users are very happy with the service. However, shortly after the switch, Seagate's HP APM software detected slowdowns in one of the company's global regions. By isolating the issue geographically and in time, and sharing that data with the provider, Seagate helped them determine that there was an issue with the router algorithms. "We were able to provide precise data showing cyclic performance degradation. The provider fixed the issue and the slowdown went away," says Katz.

This experience gave Seagate confidence in its ability to manage its cloud computing SLAs. Since switching to the cloud-based mail service, Seagate has transitioned other pieces of its infrastructure to cloud service providers. It now uses cloud-based calendaring and collaboration functions, and has outsourced some of its human resources, learning management, and customer relationship management services to cloud providers as well.

In the future, Katz anticipates that his group will bring more value to Seagate's agreements with cloud service providers. It will help the company's legal and procurement departments more effectively negotiate contract terms via a better understanding of Seagate's measurement systems. "We can help them define what we'll be measuring as the basis for our SLAs," Katz says.

None of this would be possible without HP APM software. "Companies shouldn't be afraid of the cloud," Katz says. "We've glamorized it, but in reality it's still just a computing service that just happens to be delivered through the Internet.

"At the same time, companies need to have the tools in place so that if there is a problem, they know if it originates with the cloud provider," Katz concludes. "Companies absolutely need a solution like HP APM software if they are planning to put mission critical services, like email, onto the cloud."

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