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## Highlights

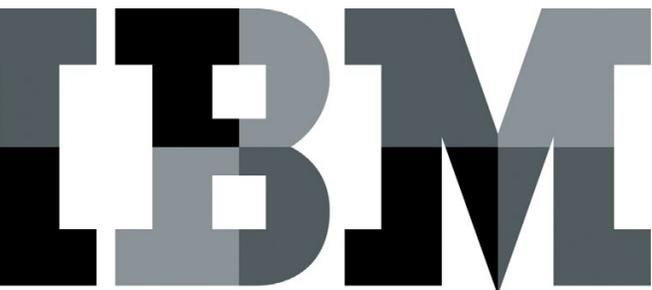
- Leverage “single pane of glass” analytics to align IT infrastructure to business objectives
  - Prevent flash deployments from pushing performance bottlenecks into other system components
  - Deploy a single solution that provides intelligent predictive analytics to pinpoint and prevent potential problems before they occur
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# Predicting and optimizing performance

*Galileo Performance Explorer can help optimize the performance and value of IBM flash storage*

As a receptionist at a prominent retail outlet, Pepper takes his job very seriously. He is well-versed in 20 different languages, ensures that customer queries are answered immediately, and if a particular shopper is having a bad day, he even goes to the extent of singing a song to lift their spirits. With his endearing, sensitive and witty qualities, Pepper is not only every employer’s dream come true, but also a humanoid robot powered by the cloud-based IBM artificial intelligence system. Famed as the world’s first robot with human emotions, Pepper is a premier example of how IBM is combining cognitive computing and cloud technology to achieve previously impossible results.

Also key to these results is the ability to monitor and manage system performance—both of which are necessary to ensuring the processing power and the bandwidth necessary for the cloud to return desired results. “Amid such advancements,” notes Tim Conley, co-founder of Galileo Performance Explorer, a division of the ATS Group’s IT infrastructure consultancy, a supporting technology for Pepper, “all companies are challenged day to day by which applications to move to the cloud and how to manage the performance monitoring around it.”



Most important, chief information officers (CIOs) face a constant challenge when it comes to monitoring the performance, capacity, configuration and assets spread across the world of cloud or across a distributed on-premises/cloud/flash storage/hybrid environment. Because most IT environments today are distributed and involve multiple storage and network tiers, visibility across the tiers poses a significant challenge.

When a user complains of an application slowdown, it is hard to determine whether the bottleneck lies in the storage, cloud, application or database. In such a scenario, Galileo Performance Explorer provides analytical perspectives for server, storage, storage area network (SAN) and hardware-virtualized environments. Galileo Performance Explorer is a cloud-based infrastructure performance monitoring (IPM) tool that's spearheading a compelling new approach to IT utilization and capacity planning.

Galileo was recently named among the "...25 IBM solutions transforming business." Developed by the ATS Group before cloud became a buzzword, Galileo Performance Explorer was the first IPM cloud service and today stands as the only complete cloud-based IPM solution offering a unified platform. Built on an innovative software-as-a-service (SaaS) architecture, Galileo provides single-pane-of-glass analytics that help align IT technology to business objectives. The tool installs within minutes, with no expensive hardware requirements.

### **Performance always matters**

Because complex IT environments make performance management a difficult and expensive task, enterprises need a single solution that provides intelligent predictive analytics to inform and pinpoint potential problems before they occur and to empower better decision-making. Unlike reactive performance

monitoring tools that inform after an overload occurs, Galileo Performance Explorer is designed for proactive system management where accurate predicting simplifies planning for future capacity needs. To save time and quickly identify vital assets, Galileo Performance Explorer provides configuration management tools that help access device information, configuration changes and code levels. Galileo Performance Explorer supports all IBM storage and IBM® POWER® servers as well as a broad range of other storage and servers.

Galileo Performance Explorer excels in delivering deep insights to IBM customers with multi-vendor infrastructures as well as distributed cloud providers. The solution identifies key performance indicators (KPIs) and actionable data that are projected through IT intelligence dashboards for enterprise analytics. Users can predict and prevent downtime and monitor health across their data centers—from operating system problems to storage concerns—with user-defined parameters and enhanced reporting. The performance reports generated are also customizable, allowing a customer to shape data views according to business unit or technology needs.

"While it's fairly easy to develop an agent that collects data from a source, it is another thing altogether to drive human intelligence and provide a human interaction dashboard that's completely intuitive," states Chris Churchey, co-founder of Galileo. Whether a customer's IT environment consists of physical or virtual data centers, with Galileo Performance Explorer, access to server, storage and SAN performance, configuration and capacity information is available in seconds. Because security is a chief concern with cloud, Galileo Performance Explorer does not transfer or store personally identifiable information and transmits only data related to IT data center performance.

## Galileo helps optimize IBM storage

In an innovative new solution, cloud and all-flash storage have been deeply integrated in the new IBM FlashSystem® A9000 and IBM FlashSystem A9000R all-flash storage systems. Galileo Performance Explorer is available with these two offerings. IBM FlashSystem A9000 and IBM FlashSystem A9000R are purpose-engineered to extend IBM FlashSystem leadership to hybrid cloud workloads and big-data analytics at the largest scales—exactly the same environments that are best suited to benefit from Galileo Performance Explorer. IBM FlashSystem A9000 integrates the extreme performance of IBM FlashCore® technology, highly parallel architecture and comprehensive data reduction in one powerful 8U solution. IBM FlashSystem A9000R is a rack based system that provides an excellent platform for rapidly growing cloud storage in large, mixed workload environments.



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IBM FlashSystem A9000.

Because of the exceptional performance they provide, IBM FlashSystem A9000 and IBM FlashSystem A9000R deployments can have the effect of eliminating system performance issues at the storage level that expose or push performance bottlenecks onto other system components such as networks, cloud-enabling systems or even application hosts. Galileo Performance Explorer can help discover throughput and data access issues that were previously hidden behind slow storage. By implementing Galileo Performance Explorer during IBM FlashSystem proofs of concept and deployment testing phases, IBM FlashSystem A9000 and IBM FlashSystem A9000R deployments can be refined and improved, increasing the value these new all-flash systems can provide.

With IBM FlashSystem A9000 and IBM FlashSystem A9000R, enterprises can deploy and manage cloud architectures, lower storage costs through innovative new data reduction capabilities, dramatically increase system performance, quickly and easily integrate all-flash storage with existing systems, and offer hybrid cloud solutions with many competitive advantages.



IBM FlashSystem A9000R.

## Giant retailer turns to Galileo

When Welch's, a renowned manufacturer located in Massachusetts known for juices, jams and jellies, wanted to opt for a proactive approach to performance management, it turned to Galileo Performance Explorer. Because Welch's single IT department serves the entire organization—from manufacturing and supply chain to finance—any slowdown in the system would disrupt the entire organization flow. Welch's depends on IBM XIV® and IBM Storwize® V7000 systems to power its business-critical applications. After implementing Galileo Performance Explorer, Welch's could easily identify factors that hindered CPU usage, paging, disk service time and IBM storage performance.

“With KPIs readily available, personnel can now better deal with potential threats, and the ownership of infrastructure performance is transferred to the right person at the right time,” says Churchey. Ultimately, Welch's optimized its systems and

operated less expensive and right-sized hardware, storage, and CPUs with greater efficiency. “In addition, as the company incorporated cloud resources, they cut weeks of planning, licensing requirements and 20 percent of workload,” notes Conley.

## Innovation every step of the way

Galileo Performance Explorer maintains a number of relationships and solutions with vendors across a wide spectrum, including Microsoft, Linux, Solaris, VMware, Brocade, NetApp and Cisco, as well as IBM. To ensure that IBM products are used to the best advantage, Galileo Performance Explorer has a team of more than 60 infrastructure-monitoring specialists who work extensively in the IBM ecosystem as well as many others. “We have an IBM Solutions Center that is configured with the latest generation IBM hardware assets and software solutions capabilities,” explains Churchey. The center houses IBM servers, SAN and storage portfolios. The company executes demonstrations, proof of concepts (POCs) and testing, helping build state-of-the-art software solutions across a broad spectrum of technologies besides IBM. “We believe in monitoring market requirements and our passion for IPM and customer success drives Galileo Performance Explorer to be the one-stop shop for not only expert software solutions, but human expertise as well,” adds Conley.

In one instance, an IBM customer who is a longtime user of Galileo Performance Explorer wanted to move all its non-production x86 computers and POWER servers to two different cloud providers. With Galileo Performance Explorer, the customer could chart the performance differences between multiple vendors. “Also our solution enabled a comparative analysis of whether the shift from on-premises to cloud was for the better or for worse, with regards to performance,” points out Churchey. Moreover, Galileo Performance Explorer was also used for service level agreements (SLAs) and displayed the customer resources consumed in the cloud, the trends, projected growth, and actionable insight for making cost-effective decisions.

## Explore new horizons in performance management

Galileo Performance Explorer has enhanced its vendor-agnostic servers, storage, and SAN, as well as its application performance, configuration monitoring and reporting. The tool is now bundled with every IBM FlashSystem A9000 that IBM partner Arrow deploys to its customers. Galileo has expanded its support to IBM and other vendors with a focus on improved return on investment for customers of a wide variety of other storage, server and SAN platforms. Facilitating continuous improvement with integrated analytics, Galileo is also advancing its enterprise dashboards and asset tagging for wider reporting and analytics.

As data center complexity outpaces organizational budgets, a single tool like Galileo Performance Explorer can be the go-to choice for storage system optimization and virtualization management. Backed by data center experts and their deep knowledge across a broad spectrum of solutions—including IBM solutions—Galileo Performance Explorer is a rock-solid platform that can deliver unprecedented performance.

## For more information

To learn more about IBM FlashSystem, please contact your IBM representative or IBM Business Partner, or visit: [ibm.com/systems/storage/flash/](http://ibm.com/systems/storage/flash/)

To learn more about Galileo Performance Explorer, visit: [galleosuite.com/product/galileo-ipm-suite/](http://galleosuite.com/product/galileo-ipm-suite/)

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