

HPE ProLiant: Serving the data center revolution

HPE and Samsung offer new solutions to boost application performance for virtual server environments



Summary

Data centers are experiencing a revolutionary shift. With the rise of big data, an "always-on" generation and an ever-growing array of connected devices, data centers must manage storage in heavily virtualized environments using many different techniques. Virtual machine (VM) performance must improve while IT maximizes system resources. This shift enables data centers to reclaim idle CPUs and support more business applications. Proper cost controls require flexible

solutions that boost performance and throughput capacity — all while improving return on investment (ROI).

But how does the data center gain greater VM density, efficiency and performance to eliminate bottlenecks?

Enterprises optimizing hybrid environments will seek new technology solutions such as Hewlett Packard Enterprise (HPE) ProLiant Gen9 servers and Samsung AutoCache™.

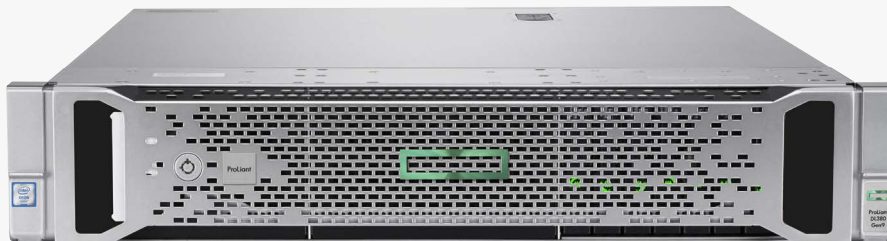


Figure 1. HPE ProLiant DL380 Gen9 Server

Increasing data demand is pushing the limits of data center architectures

The data explosion drives a new role for IT

Constrained by traditional data center and server architectures, IT departments are struggling to efficiently deliver the latest applications and services and manage exponential quantities of data, while at the same time reducing costs.

Here are three virtual desktop I/O bottleneck issues where HPE ProLiant Gen9 servers and Samsung AutoCache improved that ROI.

Virtual desktop overload

A full-service virtual desktop reseller experienced virtualization constraints. Their customers included enterprise businesses, government agencies and educational institutions. During periods of heavy activity, the number of virtual desktop I/O demands pushed the backend storage system to its limit, slowing data access for all users. Moving server input/output operations per second (IOPS) to lower-class devices or buying additional spindles of an expensive, higher-performance disk storage was not feasible.

VM performance killers

When attempting to run monthly reports for customer service feedback, a top provider of employee purchase programs found that reads were too slow. Other departments viewed

relocating customer VMs to another host as “labor intensive and disruptive.” With monthly reports hogging resources, the software needed a performance boost to improve customer response times and free resources necessary for maintaining the core business.

The perfect boot storm

A moving and storage company supported the virtual desktop infrastructure (VDI) for approximately 140 desktop users. The company saw severe I/O bottleneck issues, such as too many read requests during boot storms and slow reconnection times for servers following power/server failures. These slowdowns impacted user productivity and overran virtualized environments with read requests.

The solution

Innovation in infrastructure provisioning can almost entirely eliminate or greatly reduce these common problems. Through infrastructure provisioning, servers in virtualized data centers can run high-performance workloads, enabling enterprises to support key business goals, such as delivering new mobile services for employees or customers in minutes, or converting customer behavior data into actionable insight in seconds — all of which means capitalizing on opportunities in real time.

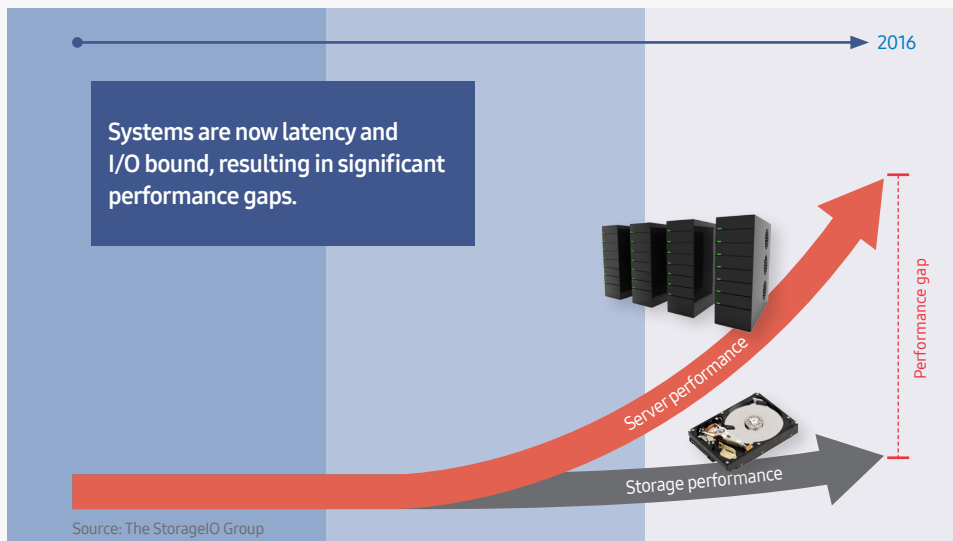


Figure 2. The gap between server performance and storage performance

AutoCache adapts to changing workloads, virtually eliminating I/O bottlenecks

The benefits of AutoCache in data centers

How can today's data center dramatically increase capacity and efficiency, IT service delivery and application performance — all at a lower cost?

Enter AutoCache. Optimized for use with Samsung solid state drives (SSDs), the technology supports virtually all types of solid state storage, including NVMe, SATA or SAS interfaces, as well as SSDs from other vendors. AutoCache uses write-back caching, where data is first written to SSDs and then copied to disk drives, enabling the system to handle high bursts of write requests at SSD speeds instead of slower hard disk speeds.

AutoCache ensures that SSDs service and cache frequently requested data rather than leaning on backend storage and rotating media. This eliminates performance bottlenecks while accelerating response time.

AutoCache is designed to accelerate server tasks including online transaction processing (OLTP), real-time big data analytics, business intelligence applications, data warehousing, VDI, public and private cloud environments and other virtualized workloads.

AutoCache creates a universal cache for all VMs that adapts to the changing workloads, shifting cache resources to the VMs that need them most. AutoCache can increase VM density

by a factor of two or three with virtually minimal impact on IT operations. It requires no guest operating system (OS) agents or changes to storage processes.

Ideal working environments include multiple users accessing applications and files simultaneously, workloads with repeat I/O blocks or very common I/O blocks, or when requiring a non-disruptive boost to VM or physical host performance on a host or in small clusters.

Becoming virtualized

HPE ProLiant Gen9 server using Samsung AutoCache technology can also bridge the gap between constraint and capacity. Samsung AutoCache software is an option for the following HPE server models: the DL360, DL380, DL560, DL580 and ML580. AutoCache is fully certified by VMware to support the vSphere® Application Programming Interface (API) for I/O filtering (VAIO), introduced in ESXi™ 6.0 U2 and subsequent versions.

HPE announced the new portfolio of HPE ProLiant Gen9 servers last year as part of its role to advance the future of data center technology. With new technology features and workload-optimized design, the new server portfolio helps customers reduce cost and complexity, accelerate IT service delivery and enable business growth.

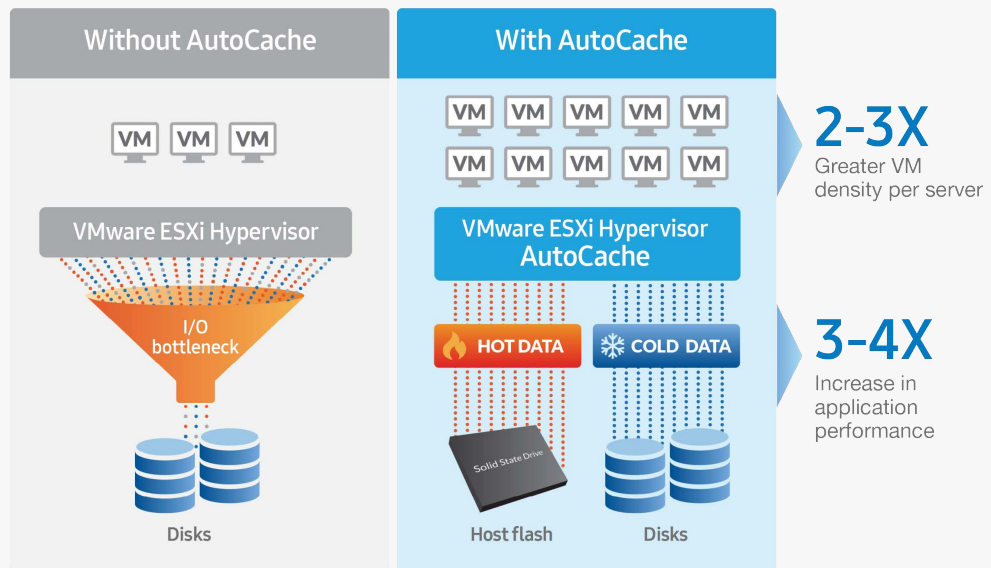


Figure 3. AutoCache automatically adapts to changing workloads for greater VM density and application performance.

Legal and additional information

Optimized for convergence, cloud and software-defined environments, HPE ProLiant Gen9 server features:

- PCIe accelerators and HP DDR4 SmartMemory that increase computing capacity
- Converged management across servers, storage and networking to enable a software-defined enterprise
- Faster setup, monitoring and firmware maintenance with reliable, secure and innovative embedded management, including Unified Extensible Firmware Interface (UEFI) and RESTful APIs for hybrid cloud environments

The timing couldn't be better for HPE and Samsung to help turbocharge the performance of virtualized environments with a combination of state-of-the-art caching software and industry-leading enhancements in flash and SSDs.

These offerings represent today's ideal solution for eliminating bottlenecks and achieving virtualization density in the data center.

“The rise of mobile, cloud, social and big data is driving the need for a new approach to the data center and its processing engine—the server—to enable successful business outcomes.”

- Antonio Neri
EVP & GM
Enterprise Group, HPE



Figure 4. HPE ProLiant DL360 Gen9 Server

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