



At PrimaryIO, we are performance optimization specialists. Our sole focus is accelerating Application Performance in the most cost effective and least disruptive way imaginable in order to maximize business results.

PrimaryIO APA™ -

Predictable and Cost-Effective Application Performance Acceleration

Increase Agility

Accelerate application performance to speed business operations

Reduce Costs

Leverage your existing server and storage systems and avoid costly upgrades

Eliminate Risk

Seamless deployment without downtime or unwanted business disruption

Application Performance Acceleration Challenges

Business critical applications using hard disk based storage are often plagued by I/O performance issues inherent with rotating magnetic media. Most IT administrators deal with application performance issues by throwing more resources at the problem. But a rip-and-replace approach can be both disruptive and expensive.

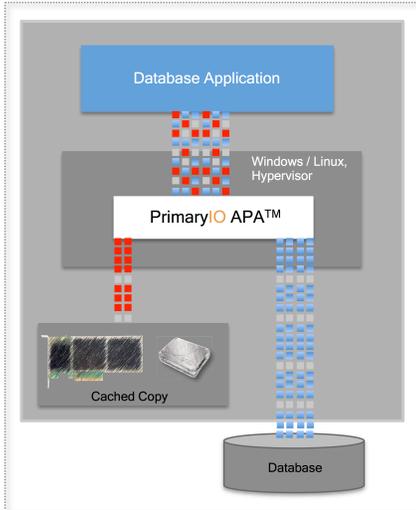
If you already have a significant investment in traditional storage and wish to harness the power of flash in a smart and cost effective manner, then server-side application acceleration is the right choice. It offers a cost-effective alternative that can improve enterprise application performance multifold without business disruption resulting in latencies very near all-flash storage levels at a fraction of the cost.

APA™ - Industry's First Application Centric Solution

Basic LUN acceleration solutions available today have many drawbacks. Since they are not application aware, they write more data than is necessary to accelerate applications resulting in inefficient flash utilization and jittery performance. APA from PrimaryIO leverages Application Performance Acceleration (APA) technology that solves these limitations by intelligently and dynamically writing only the most relevant data to maximize application performance and minimize expensive flash usage.

The APA technology incorporates an application tier plug-in that identifies component I/O blocks, such as collections, tables, indexes, etc., in the primary I/O stream that are specific to an application data store. PrimaryIO currently offers APA modules for Oracle, MySQL, MongoDB, and MS SQL Server.

APA™ From PrimaryIO



As illustrated in Figure 1, APA is a software-only, hardware agnostic, application acceleration solution that leverages server-side flash and optimizes application data in a targeted manner. The PrimaryIO solution delivers uniform acceleration capabilities across a Windows or Linux bare-metal server or a virtualized environment. Applications can be run within a private datacenter or on public clouds like AWS, Google Cloud Platform or Rackspace. The installation and set-up is fast and simple and does not require a server or application restart.

PrimaryIO APA incorporates a highly advanced application level intelligence technology called Application Performance Acceleration (APA) that provides superior performance and easy administration. The APA technology works by intelligently intercepting application I/O and determining which application elements are high value vs. low value in order to identify and accelerate performance of the most important data to an application or business such as database transactions stored in tables, indexes that speed up queries or the most important web pages to a business. A broad range of Tier 1 databases

are supported such as Oracle, SQL Server, MySQL and MongoDB that can be optimized to run up to 10x faster without any modifications to the application. There is also the added TCO benefit of more efficient cache utilization since typically only a working data set that is 20%-30% of the total database size is all that must be accelerated on flash to achieve the same performance as if putting the entire database in SSD.

PrimaryIO's technology is a perfect complement to the modern cloud datacenter that is virtualized and powered by flash. Whether the datacenter is already pure flash or has a mix of hard disks and flash, PrimaryIO's technology can help you redefine your approach to application performance.

Feature	Benefit
APA technology for Oracle, SQL Server, MongoDB and MySQL	Better performance than block/file level caching. Improved flash and network utilization. Application admins do not require complex storage skills. Overall benefit - lower TCO!
Integrated workload analyzer and provisioning tool	Ensures workload is cache friendly and recommends the amount of flash required in order to achieve performance SLAs
Generic caching	Support for all applications
SAN, DAS, Cloud storage support	Multiple deployment scenarios
Software only, SSD interface/vendor agnostic	Choose from a large number of flash offerings to balance price and performance
Application transparency	No changes to application configuration, supports seamless turn on / off of caching engine
Intelligent flash management	Prolongs wear and tear of flash, lowers write amplification - delivers consistent performance
Lightweight	No need to provision extra RAM or CPU. Works with less than 4% CPU overhead and about 40MB RAM
Web GUI and CLI	Simplifies management



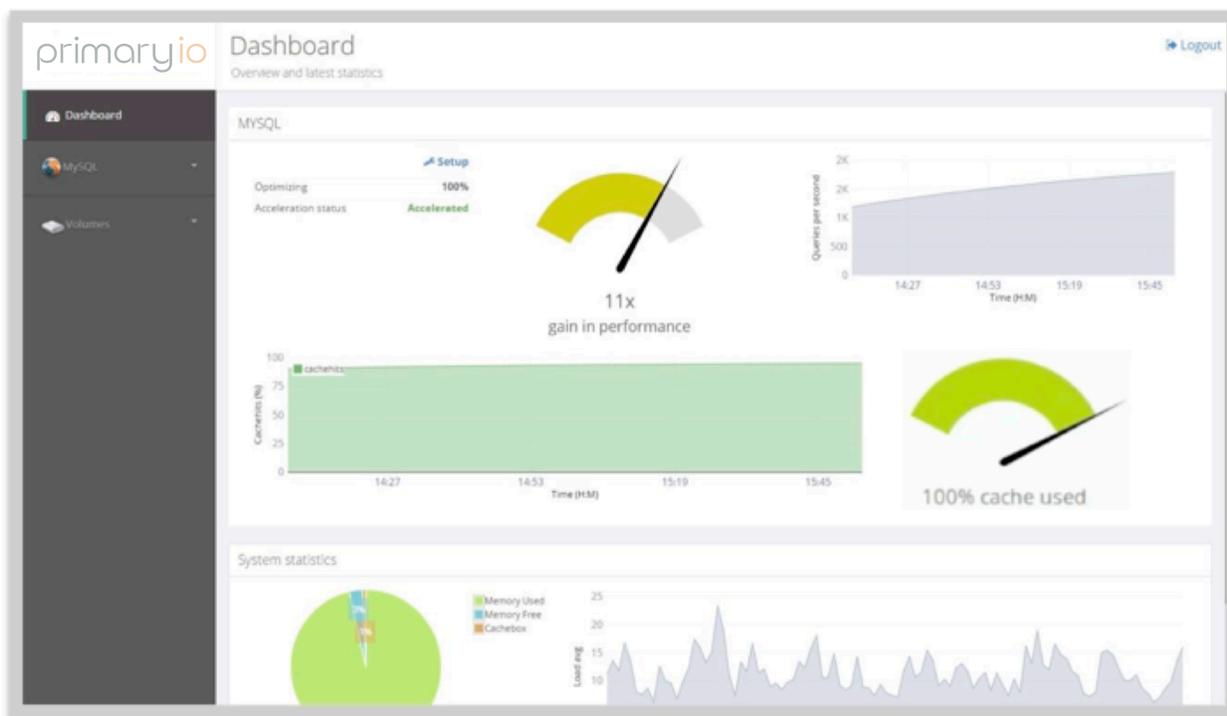
**PrimaryIO Voted Top 10
Coolest Startups of 2014**



**10 Data Storage Startups
to Watch in 2015**

Product Specifications and System Requirements

Components	APA Core, Web GUI and Application Performance Acceleration Technology
Cache Type	Fully Associative Cache
Cache Mode	Write-through, Write-back, Write-around, Read-around
Cache Size	Maximum 1 TB
Management	GUI, CLI
Operating System	64 bit x86 Linux – available now, Microsoft Windows 2008/2012
Environment	Baremetal, VMWare, KVM, Xen, AWS/EC2
RAM	40MB minimum for optimal performance.
Processor	Two dual-cores Processor 2.2 GHz or more
Supported SSDs	SSD supporting PCIe, SAS or SATA interface



About PrimaryIO

Big data, web and database applications are stressing the limits of traditional IT architectures because storage performance has not kept pace with compute capabilities. Eliminating this bottleneck has become a top priority for IT organizations globally. PrimaryIO provides software solutions to dramatically increase application performance by accelerating data I/O throughput. PrimaryIO's first product, APA™, is a caching software solution that increases application performance while avoiding costly server and storage upgrades.

For further details on PrimaryIO APA or to download the product, please contact: info@PrimaryIO.com or visit www.PrimaryIO.com.