Case Study

Enabling Real-time Bidding in the $35 Billion Dollar On-line Advertising Market

This case study shows how flash Memory Arrays can change a business model, lower costs and have immediate impact in a fast moving and demanding business environment.

Highlights

- Violin allowed the replacement of 8 high-end servers with 2 less expensive models with a large increase in system performance.
- The Violin installation provided immediate operational, financial and business benefits
- The new system is much less complex and easier to maintain.
- The truth is our Violin engagement has been one of the best vendor engagements we've experienced!

The Customer

The customer is a digital media technology company that enables marketers, advertising agencies and publishers to stay ahead in a rapidly changing digital marketplace. The company creates tools for business advantage in the digital world by enabling marketing organizations and digital publishers to leverage advanced proprietary technology that collects and combines both access to and control of digital marketing and media management solutions. For organizations that have traditionally relied on different solution providers for their digital advertising needs, this customer brings everything together.

The result is a stunning expansion of market vision and the ability to act decisively across the marketing and advertising field.

For this customer, information technology doesnt support its business; it is the business. The company builds its own applications, including one, built on the Application Service Provider (ASP) model, which enables real-time bidding on advertising space, and facilitates precise media valuation and purchasing at the individual level. This provides the interface that enables advertisers to gain access to advertising exchanges where realtime auctions of advertising space are held and allows users to set up their own customized ad campaigns, including the specific criteria used to bid for advertising space in the real-time auction environment.

The Challenge

On-line advertising is anticipated to surpass print advertising sometime in 2012. The number one requirement for participating in the on-line ad auction world is SPEED. The entire bid process, from request to results notification, takes approximately 100 milliseconds, and any participant who can't move that fast is excluded from the bidding process. In such an environment, database response latency is a mission-critical issue. Using hard disk drives becomes an impossibility; in fact, the original hardware architecture supporting the customers application consisted of eight high-end servers in a clustered configuration, each containing 192GB of DRAM. The application processing didn't require eight servers, but the volume of unique user profile information necessarily stored in DRAM did.

The customer sought to expand their application portfolio and grow the number of product users. Adding more servers just to increase the available DRAM data storage capability was extremely expensive, therefore the SVP of Global Technical Operations began exploring other options. After trying software solutions that provided faster versions of various database products, which did not deliver the performance he hoped for, the SVP turned to solid state storage (SSS). The team began with solid state drives (SSD) in the servers, which werent fast or reliable enough, and SSS PCIe cards, which also lacked performance.

Online advertising is a $35 billion opportunity requiring:

- Speed
- Low latency
- Ability to quickly customize a campaign without long simulation times

The team turned to Violin Memory. The Violin representatives were very helpful and responsive, the SVP of Global Technical Operations noted. They were forthcoming with information and worked hard to understand our requirements. The team requested a Violin Memory 3000 Series flash Memory Array demonstration unit. The team tested the unit with its application environment and the results verified the performance and reliability claims made by the Violin representatives.

The Solution

For the initial installation at their data center, they deployed Violins 3210 Memory Array with 10TB of flash storage. The Violin 3000 series is a redundant, modular 3U flash Memory Array that scales to 20TB of Single Level Cell (SLC) NAND Flash and provides the industry's best price/performance attributes. The Violin 3200 scales to more than 280TB in a rack with performance topping two million IOPS. The enterprise-grade Violin 3200 includes hardware-based Flash vRAID across hot-swappable memory modules to provide robust data protection and spike-free latency of less than 100 microseconds.

The capabilities of the Violin Memory Array offered this customer an extraordinary opportunity to completely re-architect the hardware layer supporting its applications.

Because of its speed and low latency, essentially equivalent to DRAM in this case, the Violin array allowed the replacement of expensive DRAM with the more affordable and reliable flash memory. The team re-purposed all eight of the original high performance servers. In their place, they deployed two less expensive servers in an active-active production and backup configuration their team connected the Violin flash appliance using a Fibre Channel interface to the server architecture. That arrangement constituted the entire hardware solution. Less complex, Less expensive and most importantly, much more scalable.

The Results

The Violin flash Memory Array provided immediate operational, financial and business benefits. Now that the company's applications are unhitched from its DRAM constraints and terabytes of memory are available to support increased system requirements, the development team can add new features. Operationally, the system is much less complex and therefore easier to maintain. Interestingly, the simplified hardware layer actually led to the development of more efficient software at points throughout the application code. The SVP of operations stated, Violin support has been very responsive. They supported the installation, provided training and even helped with our software upgrades.

Financially, the new hardware architecture saves money through significantly reduced hardware costs. But the business benefits are most important and thanks to the Violin Memory Array, not only are more features are being added helping to increased revenue, but more users are now being added. We saw a huge uptick when we went to Violin arrays, claims the SVP of Operations. We won more bids. Although the Violin Memory Array replaced DRAM, the overall speed of the bidding process has been increased. This means that the customer is placing more bids for more users, and it is placing them FASTER. The results? More bidding wins for their users and more business revenue for the company.

Because of the success of the initial Violin product deployment in the data center, the technical operations teams are rolling out the simple, effective and reliable hardware solution at data centers in across the US, Europe and Asia. According to the SVP of Operations, The truth is, our Violin engagement to this point has been one of the best vendor engagements I've experienced.

Violin MEMORY

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