

ACCELERATED THROUGHPUT

- 20x faster application response times
- Higher number of Oracle transactions at sustained performance
- Predictable and consistent application performance

RESILIENT DATABASE PERFORMANCE

- Consistent low latency at any scale and with any mix of workloads
- Sustained maximum performance at connectivity bandwidth levels
- Pay-as-you-grow pricing for non-disruptive capacity upgrades
- No storage tuning, striping, or data locality issues to monitor

LOWER TCO

- Decrease power, cooling, and space costs by up to 80%
- Reduce cost per transaction by reducing cores thus a reduction in licensing
- Reduce or eliminate required Oracle Real Application Clusters (RAC) licenses

Optimize Oracle Databases with VIOLIN All Flash Arrays

Run Oracle databases in a flash to increase transactional throughput and lower total cost of ownership.

Business Needs

Today's enterprises are under constant pressure to reduce costs, improve performance, and increase revenue. The onus is on IT to support the rapid growth in data, along with real-time processing demands and detailed analytics requests, all while reducing operational costs.

To keep pace with these rapidly changing business needs, IT infrastructure has transformed, leveraging faster networks, multi-core CPUs, and server virtualization technologies to scale operations. Storage, however, has not kept pace. The legacy technology of spinning disks has not improved in line with these business demands and its I/O limitations are heavily impacting business critical operations, thus reducing the overall efficiency and performance of Oracle databases and applications.

Business Challenges

Storage acts as the ultimate inhibitor in database performance. The time needed to read or write data from storage directly impacts database performance. Legacy hard disk media is comprised of moving parts and spinning platters, unable to keep up with Oracle's multi-tenant workloads. This leads to slow response times (higher latency), and low throughput (IOPS).

When data is requested, the database engine must read from the storage medium, transfer responses across the network, and copy them into the database memory buffer. The requesting process must wait until this operation is complete, as with any other process requiring the same data. On average, disk response times are between 3ms and 7ms, but during heavy periods can increase to 15ms – 20ms. Waiting on I/O negatively impacts CPU efficiency, leading to wasted cycles and under-utilization of resources, and translating into revenue and productivity loss as well as customer dissatisfaction.

The VIOLIN Difference

VIOLIN address the I/O limitations of traditional solutions enabling you to achieve sustained peak performance. Whether you use Oracle databases for data warehousing, online transaction processing (OLTP), or analytics, VIOLIN All Flash Arrays ensure the lowest latency for data access, provide high bandwidth, and scale to hundreds of terabytes to accommodate even the largest Oracle databases. VIOLIN All Flash Arrays provide:

- Faster transaction and query performance
- Higher CPU utilization
- Up to 80% lower expense for power, cooling, and floor space
- Increased efficiency so you need fewer database licenses to support your workloads

Unleash Your Oracle Databases and Related Applications

Since the early days of the Oracle Database product, DBAs have developed methodologies to avoid accessing storage in order to improve database performance. Some of these include:

- Using database buffer caches and buffer cache hit ratios to pin data blocks in memory where possible
- Fine-tuning PGA memory components for the least use of temporary tablespaces
- Creating multiple complex indices to avoid the dreaded penalty from the “full table scan”
- Gathering, locking or even manually altering object and workload statistics to influence optimizer behavior
- Embedding application SQL with hints or overriding execution plans with profiles and outlines to ensure a specific plan will be used

The penalty for using the wrong access method on disk storage is extreme and costly: reading a data block from a disk array can take a million times longer than reading the same data block from memory. Systems running on disk are inherently unbalanced.

VIOLIN addresses this imbalance through the latest in flash technology to provide higher performance with consistent low-latency as well as higher IOPS and throughput for Oracle database environments. By reading and writing data blocks within microseconds, VIOLIN eliminates I/O contention, improves productivity and scalability, and raises overall application efficiency.

What’s more, storage is simpler and less risky to setup and manage, as there are no disk groupings, data locality issues, performance mapping or tuning required. Applications running on VIOLIN are unleashed, allowing DBAs and application designers to step back from the excessive demands of performance tuning and concentrate on business requirements.

Cost-effective Scalability Without Performance Degradation

Under-performing databases lead to lost productivity and directly affect the bottom line. With VIOLIN, you get a plug-n-play installation that provides resilient performance, at any scale, with storage access times that are orders of magnitude faster than legacy solutions. The result is extreme performance at a lower \$/TB than disk with the ability to support a mix of workloads with higher concurrency. In addition, VIOLIN’s pay-as-you-grow pricing

lets you scale capacity without having to order and install it in advance, which more closely aligns CAPEX with the benefit received. You can non-disruptively scale from 15 TB to 140 TB capacity.

Reduced Total Cost of Ownership

To achieve minimum latency and maximum IOPS, legacy solutions have been over-provisioned or software workarounds used to mitigate but not fully eliminate the issue. These workarounds incur both capital as well as operational expenditures due to their inherent inefficiency and low utilization.

VIOLIN All Flash Arrays, at 2U of rack space, enable the consolidation and scalability of your Oracle databases, all while providing a reduction of:

- 30% – 70% in database licensing costs
- 60% – 90% in power, cooling, and storage footprint
- 30% – 80% in processor cores required