sageza

Instant Insight
September 17, 2009

Oracle Announces Its OLTP Database Machine

By Clay Ryder

Oracle has announced the Exadata Version 2, the first version of the Sun Oracle Database Machine, which the company states is the first Database Machine for OLTP. The solution is an expandable server + storage + software package that is focused on data warehousing, OLTP, and mixed workload business applications. Exadata Version 2 is available in four models: full rack (eight database servers and fourteen storage servers), half-rack (four database servers and seven storage servers), quarter-rack (two database servers and three storage servers), and a basic system (one database server and one storage server). The company states that the Version 2 solution is twice as fast as its predecessor for data warehousing applications.

Sun's hardware contribution to the Exadata Version 2 improves on the previous version of Exadata by including:

- Sun's FlashFire memory cards enabling high-performance OLTP
- 80% Faster CPUs – Intel Xeon (Nehalem) processors
- 50% Faster Disks – SAS disks at 6 GBps
- 200% Faster Memory – DDR3 memory
- 125% More Memory – 72 GB per database server
- 100% Faster Network – 40 GBps InfiniBand
- Raw disk capacity of 100 TB (SAS) or 336 TB (SATA) per rack

Oracle's software contribution includes:

- A flash-enabled database – Oracle 11g Release 2
- Hybrid columnar compression for 10-50 times data compression
- Scans on compressed data for even faster query execution
- Storage Indices to further eliminate disk I/O
- Offloading of query processing to storage through Smart Scans
- Scoring of Data Mining models in storage servers
- Applications running on the Sun Oracle Database Machine achieve up to 1 million I/O Operations per Second to Flash Storage

Pricing/Availability

All configurations of the Exadata Version 2 are now available. Pricing for each option is as follows: Basic System: $110K, Quarter Rack: $350K, Half Rack: $650K, Full Rack $1.15 million.

Net/Net

This announcement illustrates a strong focus on continued competitive differentiation, a differentiation that is likely to accelerate should the proposed Oracle + Sun merger come to fruition. Although this Database Machine is "just" an update to an existing product offering, its substantial technical enhancements and

The Sageza Group
931 Campbell Avenue
Los Altos CA 94024
510•675•0700 fax 501•640•8105

broader competitive positioning are noteworthy. As a solution that is targeted at three market opportunities (DW, OLTP, consolidation), the niche in which some might attempt to place this solution has effectively burst open to a more general-purpose class of high-performance business computing.

Although there have been many viable ERP, CRM, HR, and DW solutions for years, with few exceptions, most have been envisioned as siloed deployments. In this context siloed refers to deployments on dedicated hardware, even though the solution may be intended for corporate-wide use. With the Exadata Version 2, it is now possible to share compute and storage resources across these workloads within the same server solution as an assumed part of the system design. In other words, intentionally deploying mixed workloads on an x86-based solution, which historically has not been the assumed deployment mode for most organizations. Combined with the scaling options afforded, this system is positioned as a "start small, grow large" approach that the company claims will grow with the customer, and substantially reduce disruptions that can be incurred when dynamically managing growing databases.

Perhaps one of the most notable achievements is that Exadata storage servers implement data intensive processing in storage, which does not require any changes to existing applications. The "Smart Scans" Columnar compression in Query Mode provides for a typical 10:1 compression ratio that is optimized for speed of access. In Archival Mode the compression realized is typically 15:1 but can range as high as 50:1 for certain tables with optimization squarely focused on storage space reduction. In very large database environments, which are ever more common, this degree of compression could play an important role as organizations are charged with managing increasingly larger amounts of active data. According to Oracle, data could take up only one-tenth the storage space, but scanning the data could be many multiples faster. Taken at face value, this is a compelling consideration.

It is amazing to consider that the processors powering Exadata have a long lineage that dates back to the early days of microcomputers. At that time, it was beyond the realm of thought that this venerable processor family would eventually be the basis of such powerhouse solutions such as the Exadata, which in one respect is the antithesis of personal micro computing. It is somewhat ironic that this Exadata announcement comes only days after Oracle's very prominent ad in The Wall Street Journal extolling its commitment to R&D and support for the SPARC platform. While Sun has been a dual platform shop for most of its life, the very strength of Exadata's industry standard-based capabilities can work competitive FUD against the proposition that SPARC is a very compelling platform of its own. Then again, many other RISC platforms have officially been put out to pasture, and yet SPARC remains. There is something to be said for that.

Competitively, the company is claiming that its latest Exadata is faster than an IBM System p 595 OLTP solution at roughly one quarter the price point and with fault tolerance features that Big Blue does not offer. We'll leave the technical tit-for-tat to the lab geeks, but to our way of thinking, it is very clear that IBM is the competitive target for the Exadata, as not even a mention of HP or Dell was made during the official announcement, although limited reference to Teradata and Netezza was made in presentation materials. As such, it seems that Oracle views IBM as the only serious OLTP competitor in a consolidated IT vendor marketplace.

In some ways, we see Oracle and Sun trying to redefine the marketplace expectations for OLTP solutions. Taking a page from the well traveled Sun playbook, when the competition is giving you grief, change the rules and definitions of the game and position yourself out in front. Exadata is another example of this approach in action. This is further illustrated by Oracle's consistent refrain about management of network-based databases and the need for dynamic scaling of both DB storage and compute capacity, an area in which the company perceives Big Blue as being weak.

Overall, this is a positive announcement for the Redwood Shores company, and one that we believe foretells much of its future focus once the merger with Sun Microsystems is complete. It will be interesting to see how IBM responds to Oracle's competitive tweaking of Big Blue's OLTP nose. Given the importance of DW, and OLTP overall, we conjecture that neither company will stand by idly, but rather both will continue the competitive drive and marketing marksmanship that collectively helps drive ever more innovative solutions into the marketplace.

The Sageza Group
931 Campbell Avenue
Los Altos CA 94024
510•675•0700 fax 501•640•8105