

Company Brief

Oracle Storage: A Force to be Reckoned With?

Date: March 2011 Author: Mark Peters, Senior Analyst

Abstract: Oracle is getting increasingly active in the storage business and it looks to have the desire, resources, and products to become more of a factor in the overall marketplace. Although a non-traditional player in this space, its Sun/StorageTek acquisition, combined with its traditional areas of strength, are creating an opportunity for it to be a disruptive (i.e., successful) element.

Market Overview

Oracle occupies an interesting spot in the storage industry: it is neither a traditional large systems player (albeit there appear to be desires in that direction) nor is it an “emerging” or start-up player. Instead it is a—somewhat niche—industry behemoth that has acquired and developed a storage portfolio that spans from the very established (large scale tape automation), through the almost start-up but highly contemporary (ZFS disk systems), and all the way to the specific Oracle Exadata Database Machine.¹ Is it a mish-mash that the rest of the “regular” storage industry can ignore, or does it represent a real competitive market threat?

After a recent Oracle Storage update event (even writing “Oracle” and “storage” makes you expect a Word dialog box that says “are you sure?”!), it seems clear that Oracle certainly intends to be a factor in the storage world ... and there seem to be three factors that give this notion credibility:

1. Oracle is a very pugnacious organization, with sufficient resources (people, products, penchant, and money) to achieve this if it wants.
2. Its focus is very pragmatic and precise, an approach that can often gain a determined market entrant a beachhead from which to grow in any industry—just ask the British motorcycle industry or the American car industry, both of which helped their own decline by “gifting” market segments to their competition.
3. The purchasing decision for storage can often be subsumed to the application decision and, of course, Oracle can use its database presence as a “Trojan Horse” initially to get involved in database storage decisions and then as a springboard into other areas.

Oracle’s Market Approach

Oracle will be wise to play up these three factors. After all, it sells the leading enterprise database, which is ideally matched to users subsequently needing both very high performance storage (Oracle has extensive flash storage offerings and integration) and also very high capacity archive capabilities (the latest tape drive announcements from the company put its individual library systems into the exabyte range). Other building blocks include the eminently “well-spec’ed” Sun ZFS Storage Appliance (often referred to as the 7000), the general purpose 6000 series disks, and its brisk-selling Oracle Exadata Database Machine,² a hardware and software combination designed specifically to support Oracle Database 11g. There’s even a public cloud offering.

Clearly, job number one for Oracle right now is to ensure that Exadata becomes the number one place for users to store the massive quantity of data required on Oracle databases worldwide. In the meantime, many customers of the venerable StorageTek libraries will be pleased to have an active and interested vendor and sales force back after the

¹ Oracle is keen to point out that Exadata is not a “storage appliance” but rather a “Database Machine” with storage servers, database servers, Infiniband to connect everything, and software. Users invariably like that it provides a pre-tested, pre-configured, balanced solution to consolidate and manage enterprise data; they don’t have to worry about buying the wrong amount of storage to work with their database servers or figuring out how to connect the storage servers to the database servers. Exadata is being used to consolidate dozens of standalone database and storage servers into a single Oracle Exadata Database Machine, differentiating it from standalone storage systems and appliances.

² This is the formal name of the product, however for brevity and readability it is sometimes referred to simply as [Oracle] Exadata in this paper.

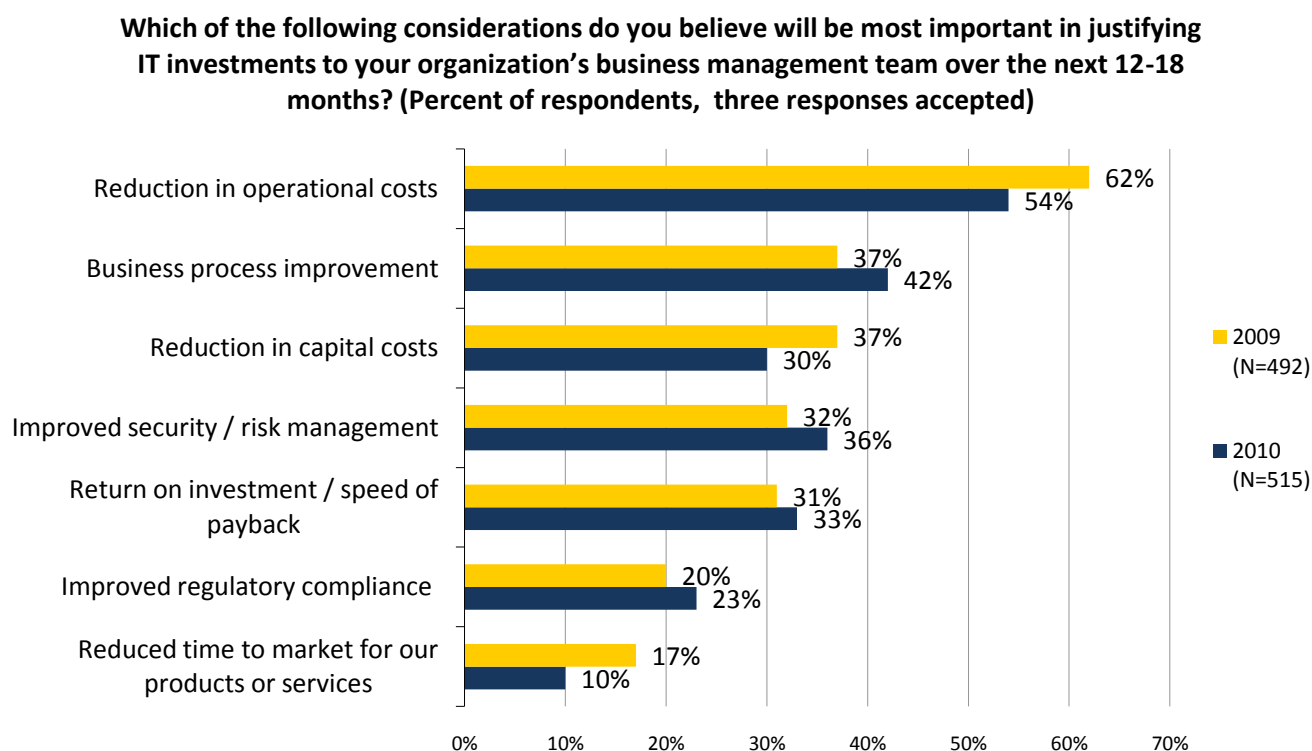
almost-catastrophic cuts Sun implemented in that product area. While Oracle is ramping its sales force rapidly to address both these areas, its coverage is plainly limited when compared to the major storage competitors such as EMC and NetApp, so expect it to be content to be opportunistic in its ZFS Storage Appliance sales until it has more traction and has plucked the low-hanging Oracle Exadata and StorageTek library fruit. This mix of pragmatism and patience is optimum for Oracle.

Oracle’s Opportunity and Offerings

While Oracle is no doubt smart enough to be working behind the scenes on product extensions to address wider market segments, its immediate focus—probably for a year or two—is to coordinate its sales and marketing efforts to inculcate storage into its brand and into its users’ psyches and expectations: both sides in the engagement will need to get accustomed to storage being, one way or another, part of most Oracle database renewals. And, it could be mutually rewarding. However, most databases are fairly small (maybe a terabyte or so) and so Oracle will be gradually compelled to seek wider participation in its users’ general storage pools in order to drive a good business for itself. Hence there’s also plenty of investment by Oracle in both general data management tools (SAM-QFS is an admirable tool, whose light was long hidden by Sun’s bushell!) and in what it calls “Oracle Optimized Solutions” (for Siebel CRM, Peoplesoft, etc).

Altogether, Oracle can be expected to promote an overall tiered storage message—while the 7000’s early teething troubles (which were as much about positioning as product) seem to be behind it, Oracle is likely to position its Oracle Exadata Database Machine as tier-1, supported by some of the flash appliances with the 7000 and general purpose unified storage and the StorageTek tape libraries as mass archive storage. This portfolio will be mixed so as to address the main needs users have when justifying IT investments: make it less expensive and make it better for business processes. ESG’s latest IT spending intentions research (see Figure 1) shows that while the balance between these items has changed a little, they are still all very important.³ In addition, Oracle will no doubt associate lower risk (also key to users’ justifications) with its “integrated” offerings.

Figure 1. How IT Expenditure Gets Justified, 2010-11



Source: Enterprise Strategy Group, 2010.

³ Source: ESG Research Report, [2011 IT Spending Intentions Survey](#), January 2011.

Performance Systems

Exadata: Oracle claims that the Oracle Exadata Database Machine can not only make Oracle Database run around ten times faster than on conventional hardware and software, but that Exadata Hybrid Columnar Compression means some ten times less overall capacity is needed in Warehouse Mode and up to 50X less storage with EHCC Archive Mode. Clearly, even if these claims are only partly true (and they have been verified by several production users) this is good news for both users and Oracle's margins (ESG's best insight suggests that Oracle Exadata costs between \$7K and \$20K per terabyte, making it a very cost effective solution). Oracle Exadata has many specialized streamlining tools to achieve this—most notably a scale-out approach that parallelizes and reduces IO/movement and flash that is an integrated part of the hierarchy, as well as compression and indexing.

Disk: If disk systems were body-builders, then the 7000 would be regarded as “ripped;” it has an almost-embarrassing number of features and functions. With over 1200 customers and hundreds of petabytes shipped, it's far from unsuccessful, but it has the sort of capabilities that could garner a more significant market presence with the sort of support and sales emphasis that Oracle is now providing (whereas the Sun approach seemed to be based on a belief that starvation diets would produce Olympic athletes!). The 7000 product is a scalable, unified disk platform (Oracle says 80% of its users are operating block and file simultaneously) with active-active controllers and a broad range of tools such as remote replication, mirroring, snaps, thin provisioning, compression, and deduplication. Its most notable features are probably the Hybrid Storage Pools (advanced tiering) and advanced, easy management (via DTrace analytics). There's also the 6000 disk system, which is a well respected general purpose storage system; whereas the Exadata can be looked at as smart storage software, the 6000 is smart storage economics.

Capacity Systems

Long term data storage needs continue to grow: ESG research⁴ notes that the amount of digital archive capacity held on tape will grow from around 13 exabytes in 2010 to over 80 exabytes in 2015. Oracle's StorageTek brand competes strongly at the high end of that market. Cost per GB (both CAPEX and, notably, OPEX where tape can be 1% that of disk) is “king” in this segment, and Oracle has upped its investments to retain a leadership position based on the very successful SL85000 library. Its latest tape drive, the T10000C, has a native capacity of 5 TB—over three times better than the preceding and competitive “bests.” For those who love comparative facts, this new cartridge could hold 1.25 million songs or 2.6 million typed pages. Just as important for archives is reliability: the new media is designed to go 2×10^{16} bytes before data loss: plain English examples of what that means are 400,000 Blu-ray disks (183 years of recording) or 10.7 trillion typed sheets! With thousands of multi-generational libraries installed, Oracle has a ready-made (and logical database companion) high-end market that's anxious to see the renewed focus after the “field famine” of the Sun years.

The Bigger Truth

It must be interesting to be an “acquired Oracle [storage] customer”—those from a StorageTek heritage are mainly feeling relief now that order (and tape focus) is restored; those from the Sun side are more likely to still be wondering what happened and where the ride will take them! For both groups, however—and also, of course, for the impressive group of large committed Oracle software users—Oracle appears to have a product set and a plan to make storage relevant at database central. It is investing and has plenty of tools to be successful, especially market access and user relationships. This is a crucial point: frankly, we don't expect to see Oracle setting any records in terms of the overall *number* of storage deals it does, but it is highly likely to benefit from a smaller number of large deals thanks to its focus at the high end. This could open up database deals as well as other more general storage opportunities in its big accounts; the big accounts will typically have a need for significant archive storage as well. The StorageTek library base is another prime hunting ground for new opportunities.

Wrapping IT elements together is nothing new—it's done by mega-systems-vendors such as IBM, HP, and Dell; by smaller specialists such as Teradata; and by a host of partnerships such as the VCE coalition. But it's new to Oracle, which looks to be serious in its endeavors. There are some questions and a few missing parts—for instance, how will

⁴ Source: ESG Research Report, [Digital Archive Market Forecast 2010-2015](#), July 2010.

things go with Oracle's OEM relationship for Engenio hardware now that LSI is selling that operation to NetApp? And when will Oracle provide dedupe for backup? The Engenio relationship has been good, with over 40,000 systems sold and over 330 PB in production, so business pragmatism might win. For dedupe, Oracle already has block-level on ZFS.

Oracle's focus (or at least the perception of its focus, since it does actually play pretty broadly) has historically been that it is very narrow, very deep, and very high-end; initially, its storage foray might easily be seen as merely extending that play. Indeed, this might serve to convince its competitors to cede a small market segment and fight elsewhere. That would be a mistake. Oracle seems (are you sitting down?) set on becoming a force in storage.

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