Overview

Oracle has just given its Sun ZFS Appliance storage family a series of enhancements: there are new models (that are, of course, more powerful and capacious than the preceding ones), new hardware that notably and sensibly includes SAS drive support, and a small set of new software functions as well as a thorough version improvement of all the software. It’s a commendable package, but not the sort of leap forward that might usually inspire a Brief of this nature. However, it is the perfect reason to re-evaluate the S 7000 package overall, for it bears new review—and consideration—as much for what it already was as for what it is now. The reason can be summed up in one word: Oracle. But first, and before explaining why the change in ownership is so significant, what is the ZFS Storage Appliance series and what are the new announcements?

ZFS Storage Appliance in a Nutshell

The 7000 series was launched around 18 months ago by then Sun Microsystems. It combined a hardened software stack (the exceedingly capable and flexible ZFS, together with some storage management enhancements) with commodity components to offer not only attractive price/performance, but a surprisingly, even shockingly, comprehensive swathe of advanced functionality. Then, as now, the list was impressive and included:

- Unified storage supporting both SAN/block and NAS/file requirements and an extensive range of protocols: everything from FC, IB, NFS, CIFS and iSCSI through to SRP, FTP, HTTP, and WebDAV.
- Active-active HA (on all versions except the entry-level device).
- Remote replication, mirroring, and snapshots.
- Thin provisioning, compression, and deduplication.
- Triple-parity RAID, with super-fast rebuilds and self-healing block-level data integrity.
- Extreme ease of use for install, upgrade, and configuration or—via the industry leading D-Trace analytics—ongoing real-time insight and control.
- Automated storage tiering via the ZFS “Hybrid Storage Pools” which are a practical, working manifestation of the long-held-promise of ILM: an architecture that seamlessly integrates enterprise SSDs, HDDs, and the ZFS file system to optimize data management, dramatically lower overall power consumption, and significantly increase IO performance and capacity.

Overall, the package was aimed solidly at IT organizations facing increasing demands for data storage and protection, yet simultaneously expected to dramatically improve performance, simplify operations, and reduce costs. It was well-suited for most users’ core day-to-day applications: Oracle databases and Microsoft applications. It also provided the financial benefits of being based on commodity, industry-standard components without forcing users to have to risk “rolling their own.” While nothing in IT is ever a panacea, the 7000 certainly looked promising. Before examining why its market success was initially constrained (and why it can now be a real contender), what follows is a succinct summary of the new announcements.

Abstract: When the 7000 Series was new and came from the “uncertain stable” of Sun, its potential users could be forgiven for overlooking it despite its massively impressive capabilities. Now it is a time- and market-proven offering that has just added increased speed, capacity, and functionality—and it is delivered from the “thoroughbred house” of Oracle. Any excuses users may have for not considering it as a strong and capable mid-to-high market storage contender are getting pretty hard to come by.
The New Sun ZFS Storage Appliance

ZFS comes in four new models which in general vary more in terms of scale and raw horsepower than in terms of function. The Sun ZFS Storage 7720, which is aimed at “bulk consolidation,” backup, and archive, can be viewed as “capacity- and density-centric.” The Sun ZFS Storage 7420 and Sun ZFS Storage 7320 have more emphasis on performance and are hence aimed at everyday, busy, likely virtualized and heterogeneous, workload-heavy environments. Data-in-place upgrades can be made from earlier 7000 models to these. The entry-level Sun ZFS Storage 7120 is more for general purpose file-sharing, Web storage, and less demanding application environments. In terms of specific features and functions:

1. All four versions have increased their “raw” specifications:
   a) Storage capacity ranges from a few TB to over a PB.
   b) Performance is improved by up to 50%, with larger memories and more processing cores.
   c) Read flash scales up to 4 TB in the workhorse 7300 and 7400 models.
   d) Write flash can scale up to 1.7 TB (less in the capacity/archive oriented 7720).

2. SAS-2 disk drives are available across all models.

3. Solid state (the product always had separate read-optimized and write-optimized flash) is added to even the entry-level product.

4. NDMP backup was added as well as across-the-board software improvements and considerably enhanced integration with traditional Oracle products.

5. All models are due to be available in October, except for the 7720, which is due in November.

Of course, all the new models have retained the capabilities of the earlier versions—notably the analytics, both compression and in-line deduplication, extensive simultaneous connectivity, and an all-in-one software package that does not require the kind of “license charge creep” that so many users abhor.

Market Fit

Although it is a truism, it is worth repeating that no product will be successful in any market unless it addresses known user needs. Even then, depending upon the market and the criticality of the purchase, other factors will come into play (see “The Oracle Effect” section that follows).

The list of functions and terms for the 7000 family seems to check plenty of the right boxes. For example:

- **Hardware**: SAS-2 drives, varying types of solid state, use of commodity-based components to get “more bang for the buck”
- **Software**: Automated tiering, data and capacity reduction via deduplication, thin provisioning and compression, and data protection and replication
- **System**: unified protocols and connectivity across block and file storage, ease of use and management, lower resources (human and power), simplified all-in-one [price] software

This can all be summarized as looking to improve both simplicity and value. Although Sun was not able to really deliver that message effectively or consistently in its latter days as an independent organization, the message was essentially correct and Oracle looks—wisely—to be keeping to the straightforward and not-too-precious approach in its messaging. It boils down to something like this: “This is storage that does pretty much whatever any regular user might need, does it easily and well, and does it at a decent TCO.”

Certainly, the package is one that allows Oracle to play in the main areas that users actually say they will spend money. In ESG’s 2010 IT Spending Intentions Survey, respondents were asked specifically where they would be making the most significant data storage expenditures in 2010-11. As shown in Figure 1, the 7000 series allows Oracle to address many of the main areas. This is no niche product: it is a general purpose storage family that is just as suited to virtualizing and consolidating environments as it is to a more simple situation where the main challenges to address are constant growth, increasing complexity, and a need to drive data protection up while driving costs down.
Of course, no product is ever complete; the world evolves and new demands and capabilities arise. While the current iteration of the 7000 has broad capabilities, there are still some things that could usefully be added—for instance, a global namespace and encryption. Hopefully, Oracle has such things on its roadmap.

Back in 2009, ESG spoke to number of early users of the 7000 series; without exception, they were happy with the product and what it had done for them both operationally and financially. They especially liked the stronger-than-expected performance, the ease of use, and the hybrid pools. But, to give both sides of the story, many were frustrated by (and for) Sun. To them, the product looked like it should be a sure-fire hit, but somehow, that didn’t happen.

The “Oracle Effect”

While it still has to be fully proven in terms of adoption and sales, the early indication—and ESG’s expectation—is that the transition of ownership to Oracle will be nothing but good for the 7000. Sun had a confused message and its corporate situation was fragile for some time; neither factor was likely to engender any but the Sun-faithful to use, or even consider, the 7000. Under Oracle, things are very different. Clearly, there is the sheer strength of the company and its avowed intent to be a full systems provider. In storage, it now offers a range from Exadata and flash appliances all the way through to tape; very few vendors have such breadth. And, on the traditional database side of the company, even Oracle Database 11g is designed to work with storage tiers. The “captive” market Oracle represents is clearly a lot larger than what Sun had and such potential users will be pleased with the software integration and tuning that has been undertaken. For the wider prospect base, Oracle needs to have a “full stack” if it wants to compete with the convergence that is happening either within or between vendors; unified storage is an important part of the equation if Oracle is to successfully appeal to users that like the converged stack. Users, in turn, know this and will feel comfortable that the appropriate investments are being made to make it seamless.
One word of caution: while users invariably prefer to work with a vendor that makes money (and it would be hard to get a more stark contrast in the IT business, of both attitude and achievement, than between Sun and Oracle!), it is important for Oracle to maintain the cost advantage that the Sun ZFS Storage Appliance can provide; when we look at how IT investments get justified (shown in Figure 2), we can see that while aspects such as business process improvement have increased in importance, the ability to reduce OPEX is still the number one consideration when justifying IT expenditures.

Figure 2. How IT Expenditure Gets Justified, 2010-11

Which of the following considerations do you believe will be most important in justifying IT investments to your organization’s business management team over the next 12-18 months? (Percent of respondents, three responses accepted)

<table>
<thead>
<tr>
<th>Consideration</th>
<th>2009 (N=492)</th>
<th>2010 (N=515)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in operational costs</td>
<td>37%</td>
<td>42%</td>
</tr>
<tr>
<td>Business process improvement</td>
<td>30%</td>
<td>37%</td>
</tr>
<tr>
<td>Reduction in capital costs</td>
<td>32%</td>
<td>36%</td>
</tr>
<tr>
<td>Improved security / risk management</td>
<td>31%</td>
<td>33%</td>
</tr>
<tr>
<td>Return on investment / speed of payback</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>Improved regulatory compliance</td>
<td>10%</td>
<td>17%</td>
</tr>
<tr>
<td>Reduced time to market for our products or services</td>
<td>10%</td>
<td>17%</td>
</tr>
</tbody>
</table>


Oracle would be wise to keep things stable in that direction for the 7000. After all, it can only benefit itself in other important areas shown in the research; for instance, almost no one in IT likes to increase risk and Oracle is a much safer bet than Sun was. Its corporate credibility, combined with its desire to compete as a systems company, could well make its storage portfolio—especially such capable elements as the 7000 series—of considerable market interest.

The Bigger Truth

Sometimes it’s best to call a spade a spade; toward the end of its independent life, Sun was not a very effective organization, especially in sales and marketing. But it had jewels in its possession, with the 7000 Series being a great example. The combination of hybrid pools, advanced analytics, and a broad unified capability were the technical keys to the 7000’s market potential; ease of use and an attractive TCO based on its use of commodity hardware and open-source software were its commercial keys. Yet there have been many good storage products with extremely attractive economics that have never made it. To achieve success in this market, it’s also necessary to get heard and to somehow gain some credibility. These are things that Oracle can do and bring. Oracle has given the 7000 what it didn’t already have: the ability to move from potential to producing results, to go from barely noticed to a serious contender. Other than that, Oracle has been sensible to take its acquired 7000 “jewel” and simply, with these latest announcements, polish it a little more. No major re-cutting or re-setting. Why mess with a good thing?