Veritas Expands Its Foundation

Research Note

David Freund
Jonathan Eunice
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Veritas has been the go-to company for storage management for the better part of a decade. Sure, there were competitors, mostly among the storage-hardware makers themselves. But of the software-only crowd, Veritas stood ahead, if not alone. This is particularly true on Sun-Solaris servers, where Veritas has been dominant, even in competition with Sun's own product sets.

But during the last few years Veritas has also spread out toward other server environments, including HP-UX, AIX, Windows, and most recently, Linux. Veritas also spread beyond the volume-management and file-system products on which it built its business into backup/restore, data replication, and most recently, resource management and virtualization.[1]

Veritas recently released a substantial update to its core products, now entitled Storage Foundation. While the release isn't revolutionary in itself, it is indicative of Veritas' direction, and provides a good opportunity to examine the company's overall progress and attractiveness to customers, many of whom still come to Veritas first for volume- and file-management and only much later for the additional products and capabilities Veritas builds atop these underpinnings.

The Product Update

The first significant change is in the packaging. The names of several products have been changed, and others have been bundled in order to simplify the product line. The Veritas stalwarts—its File System, Volume Manager, Volume Replicator, and Cluster Server—are all still available separately. The bundle of Veritas' File System and Volume Manager formerly called Foundation Suite also remains, though renamed Storage Foundation. That brand name also expands to become an umbrella for other products.

1. In a sense, Veritas has always been about resource management and virtualization, albeit at the relatively low level of logical disk volumes and file containers. The "new Veritas" push into virtualization is more about moving up a level on the product/price hierarchy than jumping into a new market.

The cluster-optimized version of File System and Volume Manager, products previously saddled with the confusing name SANPoint Foundation Suite, has been rechristened Storage Foundation Cluster File System. This has the virtue of connecting with, rather than diverging from, the naming scheme of the foundation. In an effort to simplify the line even further, product-specific Database Editions for Oracle, DB2, and Sybase, which had been sold separately, have been renamed and repackaged into a single product called Storage Foundation for Databases. Customers who later decide to switch from Oracle to DB2, for example, have the license rights and the product binaries to make the switch themselves. The former Database Edition Advanced Cluster for Oracle9i RAC (that's a mouthful!) is now Storage Foundation for Oracle RAC.[2]

But Storage Foundation's new features, not new names or packaging, are what will grab most customers' attention. Among the many that have been added, the most significant include:

Provisioning Templates. Using "Intelligent Storage Provisioning Templates," customers can designate different classes of storage based on performance and/or availability criteria. They can be tailored to suit the needs of specific application profiles, such as SAP running atop an Oracle database. These classes of storage can be used by administrators to dictate which data are to be placed upon each storage class, and to make provisioning of additional storage for those applications much easier.

Online file migration. While Veritas has always been in the storage-virtualization business—even when the company simply called its technologies volume management and file systems—it's now taken those components' roles up a notch with better location independence. Customers can move less-important or rarely-accessed files from high-end—and high-expense—storage arrays to less expensive devices. Moreover, they can do so while the files are being actively used, without disrupting running applications. The movement of data can also be automated, using a set of rules, such as "move all MP3 files to <this SATA-based array volume>."[3]

Portable Data Containers. Veritas has always made a big deal out of its products' ability to run on multiple OS platforms. But moving data from one platform to another meant transferring them over a network, or via some backup medium, from one platform to the other—a time-consuming and laborious process. In an IT world that's increasingly focused on networked storage, that's positively wasteful. So Veritas enhanced Storage Foundation to allow customers to simply dismount the volume from one system, change server-to-storage connections,[4] and mount the volume on another.[5,6]

A 64-bit file system. Is this some sort of nod toward the furor over 64 bits in microprocessors? No. File systems on Unix historically suffered from a limit in the size of individual files (usually at 2 gigabytes), and even of entire file systems (typically around 2 terabytes). While that seemed like a reasonable limit a few years ago, today that much capacity can fit on a mere handful of disk drives purchased from a local computer superstore. By contrast, a 64-bit file system raises that theoretical limit to 10 million terabytes for both files and file systems.[7] There aren't *too* many users who will exceed that point, or could afford to purchase the

2. There are also lower-profile product bundles, for example Storage Foundation HA for Databases.

3. Veritas describes this as "policy-based" and "automated" data migration, but this is really a set of rules that dictate what's done when a migration function is requested by an administrator, rather than a set of policies that are continuously enforced. Such requests, however, can be automated to fire as frequently as desired, such as once per minute. So while a fully policy-based product would take action more integrally, such as whenever an MP3 file is created, frequent periodic execution of rules gives much the same effect as continuous enforcement.

4. Either physically or logically, using standard Fibre Channel SAN tools.

5. This capability is but one example of the ever-tightening integration of Veritas' File System and Volume Manager. While still available separately, the two increasingly behave as a single, unified entity.

6. Storage Foundation is only available for Solaris at the moment, so this feature won't prove its usefulness until the AIX, HP-UX, and Linux versions release later this year.

equipment even if they had the data, which few do. Yet some users do have vast storage needs, and even more want additional headroom. The 64-bit File System is their answer.

There are a whole host of additional refinements, such as enhancing FlashSnap to use copy-on-write techniques instead of "split mirror,"[8] adding five new load-balancing algorithms to Dynamic Multi-Pathing (DMP), adding easy storage-configuration save and restore (making an "undo" possible), storage "mapping" to discover and mitigate database hot spots, and much more. This is a significant product release.

The Maturing Veritas Corporation

Veritas' revenues have historically been dominated by sales on Solaris systems, which hit 76% in 2000. Windows came in a distant second at 12%, with HP-UX on its heels at 11%, and AIX at 1%. By last year, this revenue mix changed dramatically, with Windows growing to 26% of total sales, AIX up to 4%, and Linux coming from almost nowhere to score 4%. Solaris and HP-UX both lowered their percentage of Veritas' sales, coming in at 58% and 8%, respectively. While Solaris still represents a majority of the company's sales, Veritas is decidedly—and deliberately—diversifying its platform mix.

Veritas is also diversifying geographically to shift a revenue picture that showed a whopping 86% of sales in the Americas during 2000, followed by Europe with 12% and Asia-Pacific at just 2%. By 2003, the percentage of sales in Europe doubled to 24%, and Asia-Pacific leaped to 9%.

Three things have contributed to Veritas' increasingly broad platform and geographic reach:

Increased focus on the channel. In the past, Veritas primarily sold its products directly to customers, or through OEMs like Sun or HP. But that has changed; the indirect channel now accounts for more than half of Veritas' sales volume, and that number is increasing. Europe and the Asia-Pacific region are much more channel-driven than North America—a lesson Veritas has applied with obvious success.

Increased focus on heterogeneity. For the past few years, Veritas has been gaining credibility—and marketplace traction—with its multi-platform support. In its more Solaris-dominated days, Veritas' claims in this area were somewhat disingenuous; products on other platforms chronically lagged behind Solaris in features and performance. But the company turned that around, bringing its products on the various platforms up to parity within the last two years.

Though volume-management, file-system, and clustering products from the likes of Sun and HP have been gaining feature and performance ground on Veritas, the fact that most IT shops have multiple platforms with which to contend remains a key advantage for Veritas. Training IT staffs on only one file-, volume-, and cluster-management technology saves time, effort, and money—an attractive distinction in an economy that forces company managers to constantly look for ways to save on operational costs.

Increasing sophistication of partners. When Sun (and more recently HP, with its Tru64 UNIX acquisition) began building sales at Veritas' expense by beefing up their own volume-management and file-system products, their relationship with Veritas cooled. But both sides have since recognized the budding rivalry as counter-productive. Veritas

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7. Actually, the size limit in Veritas' new file system is 2^{63}, not 2^{64}, making the limit only 8 exabytes instead of 10. At this writing, Veritas has qualified file systems at up to 9.5 TB. Using larger disk volumes emulated in software, file systems up to 80 TB have been tested.
8. A split mirror "snapshot" is a RAID-1 mirror set that has a copy of the volume logically disconnected, making it available for use as a point-in-time copy of the original, or "master," volume. Using copy-on-write makes a point-in-time copy available with almost no additional storage space. It also enables file systems and volume to be restored to a previous point in time almost instantly.

apparently came to the conclusion that its most-dangerous competitors in storage management are not the makers of the platforms Veritas products run on, but fully data-focused companies like EMC. That realization seems to have sunk in at Sun, as well; salespeople in both companies are moving back toward cozier relations beneficial to all concerned.

Broadening vision. As storage virtualization moves away from server-based volume management and into the fabric of the network, Veritas is going along by embedding its own software into switches from Cisco and Brocade. As much as the switched-fabric rivals would undoubtedly prefer Veritas' relationship with each to be monogamous, Veritas is sticking to its policy of heterogeneity—hoping to become the *de facto* standard in volume-management technology.

Veritas has also recently begun an expansion into even broader areas, with its recent acquisitions of Precise and Ejasent, which add application performance-management capabilities. Company execs have also begun talking about "application provisioning" and "virtualization" in the same way as rivals at EMC and elsewhere do. Veritas, however, seems intent on remaining a software company and avoiding the grief EMC, not to mention the systems vendors, face in building both systems and software.

Conclusion

Veritas has grown up significantly from its start as an OEM-focused provider of volume management software, especially during the past three years. It is now a power in the storage management marketplace, and even beyond. With nearly $2 billion in annual revenue, $2.5 billion in the bank, and a market cap more than $13 billion—figures substantially north of those of long-time, broad-based systems management leaders such as BMC Software, Computer Associates, and NetIQ—Veritas is a legitimate powerhouse in enterprise datacenter provisioning. Updating its core products, extending into complementary markets such as backup/restore and replication, and creating new opportunities with acquisitions in the nascent virtualization space,[9] Veritas continues on a roll.

9. For example, with the acquisition of application management specialist Precise Software and utility computing specialist Ejasent.