

ESG Lab Review

Coraid's EtherDrive is ESG Lab Proven and Well-suited to Emerging IT Needs

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Abstract: *This ESG Lab Review summarizes the highlights from hands-on testing of Coraid's EtherDrive in August, 2010 and outlines new 2011 product enhancements and capabilities. The net value proposition of Coraid is then examined—and found to be very positive—in light of the rapidly emerging needs for storage to remain cost-effective, efficient, and easy-to-deploy in increasingly virtualized IT environments.*

The Coraid EtherDrive

Coraid EtherDrive Ethernet SAN products combine off-the-shelf hardware, ubiquitous Ethernet networking, and a scale-out virtual storage architecture that can grow from a single appliance to multi-petabyte installations. Coraid can configure varied combinations to optimize the cost, capacity, and performance of its storage appliances by varying the mix of the supported SATA, SAS, and SSD drives (supporting all standard RAID, including 0, 1, 5, 6, and 10). Coraid systems are a specialized blend of open-source elements—built on AoE, the ATA over Ethernet protocol—that can deliver an unprecedented price-performance outcome, together with massive throughput and a notable ease of implementation and management when compared to “standard” Fibre Channel, FCoE, and iSCSI storage offerings.

Beyond the “raw horsepower that’s inexpensive and easy to use” Coraid’s products also have advanced capabilities that make them well-suited for the demands of modern and emerging virtualized data centers. For example, VMware and Hyper-V see Coraid storage as locally-attached disks, so consequently there’s no need for switch configurations or multi-pathing software. In terms of maintaining data availability, Coraid provides a noteworthy alternative to traditional four- and eight-hour support offerings; instead, it has what it terms a “zero-hour” support offering whereby disks can be moved from a problematic unit to a hot-spare chassis in minutes.

Finally, with the announcement of its VSX-Series product in March 2011, Coraid is considerably beefing up its operational feature set: adding storage virtualization, mirroring, snapshots, cloning, and asynchronous replication will allow the company to address an increased number of more complex and larger enterprise storage opportunities.

ESG Lab Validation: Key Findings & Update

In August 2010, ESG completed an extensive Lab Validation and Report¹ on Coraid’s Ethernet SAN platform. As noted by ESG Lab at the time: “We found the ease of implementation and management of Coraid EtherDrive storage shockingly simple compared to most Fibre Channel and iSCSI systems ... and the price-performance is staggering. It's fair to say we were enormously impressed.” Among some impressive results, perhaps the key findings were these:

- Coraid’s SAN’s can deliver higher performance than comparable Fibre Channel solutions (hardware and connectivity) at approximately 20% of the cost (and can even save more than 25% of the cost as compared to a traditional DAS implementation).
- ESG Lab was able to configure, provision, and use an EtherDrive in less than two minutes from power on.

¹ See: ESG Lab Validation, [Coraid EtherDrive SAN: Ethernet SAN Delivers Simple, Scalable, Cost-efficient Storage](#), August 2010.

The goal of ESG Lab reports is to educate IT professionals about emerging technologies and products in the storage, data management and information security industries. ESG Lab reports are not meant to replace the evaluation process that should be conducted before making purchasing decisions, but rather to provide insight into these emerging technologies. Our objective is to go over some of the more valuable feature/functions of products, show how they can be used to solve real customer problems and identify any areas needing improvement. ESG Lab's expert third-party perspective is based on our own hands-on testing as well as on interviews with customers who use these products in production environments. This ESG Lab Review was sponsored by Coraid.

- ESG Lab validated throughput performance of over 1800 MB/sec per shelf on Coraid EtherDrive SRX-Series storage arrays² for large-block sequential workloads.
- In a VMware environment, ESG confirmed that storage could be deployed and managed within the hypervisor without the need for a storage administrator to complete the task.

Coraid EtherDrive’s Suitability in Virtualized Data Centers

ESG recently released a Market Report³ highlighting the rapidly changing storage needs associated with—and multiplied by—virtualized data centers; there is a growing gap of virtualized server IO demand relative to legacy storage networks and arrays’ ability to meet it with ease, high performance, and cost effectiveness. Many user organizations are indeed either discovering and/or grappling with a barely-discussed “dirty little secret” as they make the move to increased virtualization, which is simply that, in many cases, the cost of upgrading to faster legacy storage systems to handle virtual servers can negate a large portion of the savings that were supposed to be enabled by virtualization in the first place! With “storage as a gate to the IT utility”⁴ that most-everyone wants (or at least needs) something has to change.

Coraid and its EtherDrive look to have the appropriate elements to be a key positive contributor to that change—whether it’s storage shifting from Fibre Channel to Ethernet or from monolithic to scale-out architectures, platforms such as Coraid’s Ethernet SAN can address the major challenges that traditional storage implementations cannot. The three most notable advantages that Coraid can deliver are shown below.

1) Disruptive Price-Performance

Coraid leverages scale-out design and raw Ethernet to deliver an impressive blend of performance, scalability, and simplicity at a price point that is a fraction of traditional SAN technologies (see Figure 1). But such affordability does not come as a trade-off to performance; ESG Lab confirmed that SRX-Series appliances could deliver over 1,800 MB/sec throughput. Figure 2 shows that a single SRX3500 LUN was able to support enough transactional IO to support more than 4,500 Exchange 2007 users with just 12 SAS drives and scaled linearly to just over 9,000 users with 24 SAS drives.

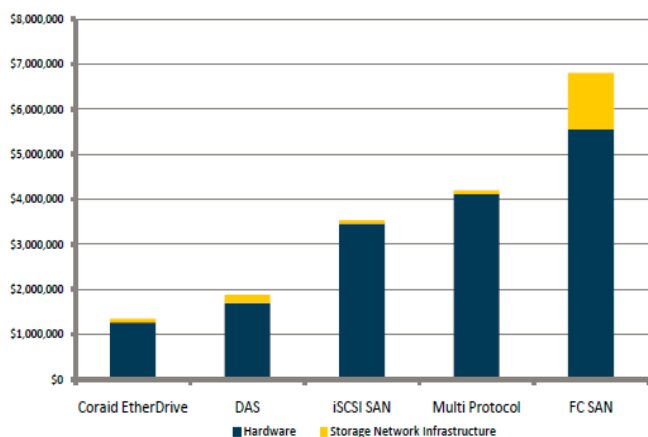


Figure 1: CAPEX per 1 PB comparison

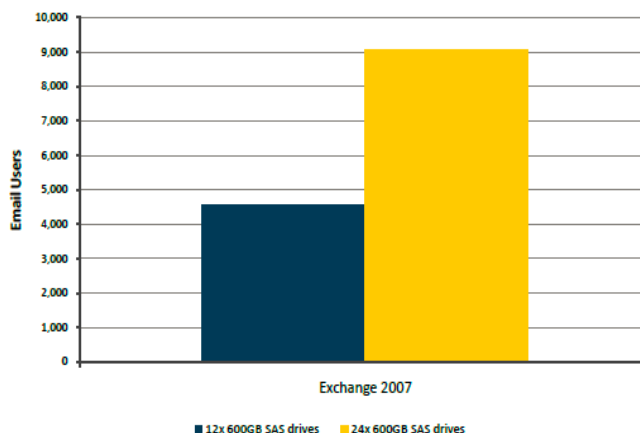


Figure 2: Exchange users on SRX3500

2) Optimized for Server Virtualization

ESG Lab’s testing focused on Coraid’s Ethernet SAN in virtualized environments. As previously mentioned, Coraid’s systems integrate with VMware via a simple driver that enables VMware to mount the EtherDrive storage arrays as if they were local drives; this means a VMware administrator can provision and manage virtual machine storage without the need for FC SAN administration or iSCSI client configuration. Likewise, the entire virtual storage infrastructure and mappings to Coraid storage devices were visible through the vSphere client (as shown in Figure 3).

² The throughput stated in the 08/10 ESG Lab Validation was 1200 MB/sec on the SRX3200; the higher number in this paper was ESG Lab verified at the time of testing, but was demonstrated on the SRX4200 which Coraid had not formally announced at the time of the original report publication.

³ ESG Market Report: [The Future of Storage in a Virtualized Data Center](#), January 2011.

⁴ ESG Blog, *The Virtual Revolution is Upon Us*, Steve Duplessie, February 2011.

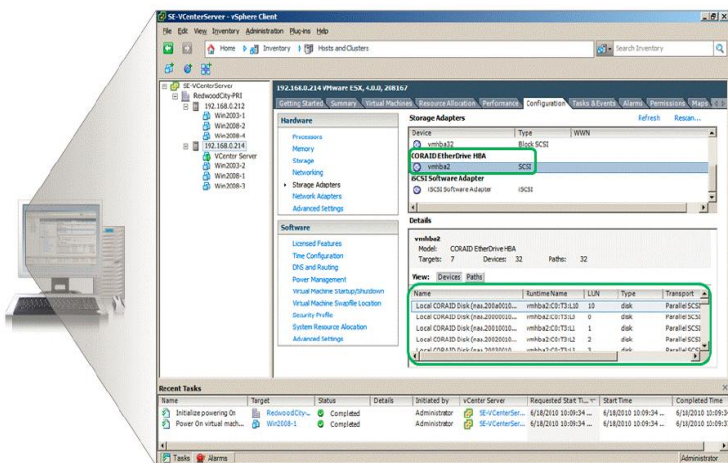


Figure 3: Self-service Coraid storage in VMware

This ability to take advantage of networked storage as if it were locally attached storage allows common storage functions to be performed quickly and easily, enabling self-service storage for virtualized data centers. ESG Lab was able to provision storage for virtual machines without the need for a storage administrator to complete the task.

3) Simplicity and Ease of Use

Coraid’s EtherDrive SAN presents disk storage to servers across a standard Ethernet network. It is an extremely simple method for sharing disk drives through a network. The communication that would normally take place between a motherboard and a disk drive is arranged into data packets and sent across the Ethernet. As shown in Figure 4, Layer 2 Ethernet SAN is a simpler and more direct protocol than either iSCSI or Fibre Channel. Ethernet SAN is not built on IP, TCP, or SCSI; packets are addressed to devices using their Ethernet MAC addresses and sent across the network with minimum overhead. Beyond all the acronyms, what potential users will enjoy is training that just takes an hour or two via Webex!

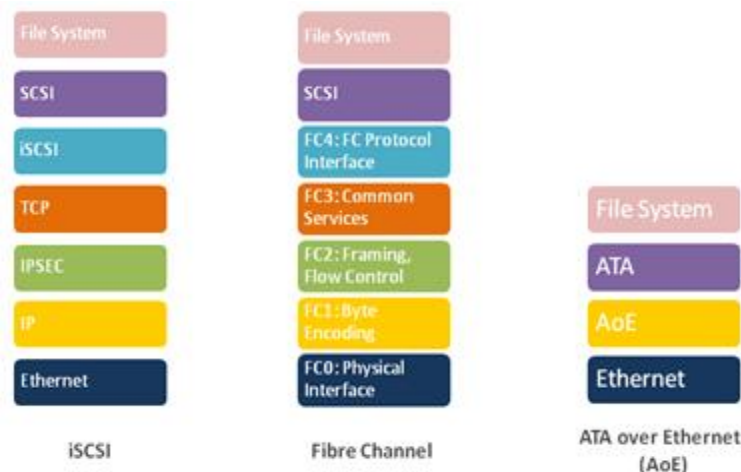


Figure 4: Comparing the Protocol Elements for Storage

The Bigger Truth

We continue to track Coraid with great interest. The attributes of an Ethernet SAN can certainly help to address the challenges that traditional storage now has in the face of advancing virtualization, increased data (and no slackening of user performance expectations!), and budgets that everyone wants to constrain. Of course, there are many great ideas and great small companies in the storage industry that never gain traction: but so far, so pretty darned good for Coraid, which raised \$35M in funding and nearly tripled revenues in 2010. In addition, it now has some 1,300 customers who are showing a distinct tendency to become “raving fans” (as anyone getting a 2 PB installation up and running in a single work day well might!). There’s little doubt that its early success and growing notoriety will generate competition in the area of Ethernet topology storage, but the massive potential advantages for users—and the increasing challenges they face—mean that plenty of upside exists.

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