

A Compelling Green Message

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Abstract: Compellent has always had a focus on being economical with storage in terms of its usage, provisioning and environmental impact... The company's 'green' approach is thus just the current vernacular for something that was already built into its DNA—making its implementation both credible and impressive.

'Green in IT'... and from Compellent

There are always 'waves' of messaging in any industry. The 'green' wave that is endemic in IT right now is somewhat different inasmuch as it crosses just about every industry. "That's great," you might say—other than the fact that the ubiquity of the message also creates a driving need for every vendor to *have* a 'green story,' which in turn means there are many rather thin or diluted stories appearing. Separating the ersatz from the earnest becomes important for users that are motivated to actually seek out the truly environmentally-conscious suppliers, and/or that simply want to benefit from genuine and differentiated economic advantages. Claims are all-too-easy to make and need to be evaluated carefully.

ESG's position on 'green' (see box on page 2) is focused on the direct savings that are possible in terms of power, cooling and space efficiency (PCSE). Such savings—when delivered well and at no detriment to the efficacy of a storage solution—are simply good for business. Leaving politics, morals and global-warming discussions aside, combining economic efficiency with operational effectiveness is always likely to win customers in any business... and in essence, it's the model that Compellent has striven to deliver against in the storage market.

The Compellent Implementations

Any organization has to have a 'mantra'—a crisp focus—in terms of the products and services it delivers. No one company can be everything to everyone. For IT vendors, examples of such focus are cost-per-gigabyte, ease of use, sheer scale, and so forth. A review of Compellent's history and growth shows that its modus operandi has always been to *optimize utilization*. Even before green was the 'term-du-jour,' Compellent was setting out to enable users to 'get more' out of its offerings by driving improved disk system efficiencies. Of course, such improved disk efficiency means offering solutions that either require less physical disk to fulfill a particular need (whether capacity or performance), or that package varying disk types to achieve the best operational advantage. In either case, the end result is a product implementation that requires less actual hardware consumption—and therefore less consumption of power, cooling and floor space. It is—in the current vernacular—a green path. The important point is that the company was already on this path, as it's chosen differentiation in the market; the fact that this is now a path that is called 'green' makes little difference other than, notably, telling us that the green story Compellent has is not one of convenient 'green washing' or riding the latest wave, but rather a story that is foundational to the company.

Many vendors might stop at this point. It's a pretty good story after all; with significant user benefits. Compellent, however, has gone one stage further. A genuine 'green' approach is about more than just making green benefits available to users of one's product. And 'practicing what you preach' is more than just using that product yourself. Companies with real green aspirations make other tangible changes. Compellent has done just that by designing, building and occupying a green headquarters building. Yes, it uses its own products (of course!), but its efforts were much broader and resulted in the first certified green facility in Minnesota. Overall, compared to the previous building, Compellent has doubled the size of its headquarters and simultaneously reduced its carbon footprint—using 12% less energy than before. Some specific actions and initiatives are:

- Extensive use of wind generated power and natural daylight

- High levels of recycling—with non recyclable waste being incinerated in order to produce steam energy that is converted to electricity
- 40% of the materials used to build the facility were extracted and/or manufactured locally, which reduced transportation emissions. And 55% of the materials themselves were already recycled.
- Efficient HVAC systems and reduced water consumption

Local limestone, low pollutant carpeting and hybrid-only parking spaces may seem a world away from storage, but it tells you a lot about the company. And, as the purchasing criteria of many larger organizations expand to review the 'green-ness' of the entire supply chain, it can be viewed as a smart business decision as much as an environmentally responsible one. Companies that are committed to 'green' want to deal with companies that demonstrate a similar commitment.

ESG's Position on 'Green' – Focus on 'PCSE'

There is a lot of messaging around 'green' these days. Indeed, with global-warming as a top item on public and private agendas everywhere, it is hard to avoid. Everything from aircraft to zoos claims some green aspect or endeavor. And, like everyone, we applaud these efforts—if things can be done with a reduced negative impact on our planet, then that's clearly a good thing. Every small step counts. 'Green is good'. And the IT infrastructure suppliers know it too.

Consequently, with electricity prices and consumption heading upwards, almost all storage vendors are chasing the 'green' mantle. However, while this may be right and good in general, the implied altruism is also somewhat misleading. There are no real green storage products; although certainly some are significantly less bad than others. And, as yet, there are few end-users making buying decisions purely on 'green-ness.' At ESG, we assert that most IT departments are realistically not currently highly focused on being 'green,' but rather *are*—and if not they should be—highly focused on reducing the consumption of power, cooling and floor-space that their operations require. While many IT vendors are enamored by this 'green' image, at ESG we concentrate on PCSE: Power, Cooling and Space Efficiency. This is where huge, immediate, practical improvements are possible in the data center. Driven by technology advances in collaboration with better processes, the power, cooling and space necessary to deliver a certain level of capacity, IO and service level can be dramatically reduced. PCSE focus and improvement is where the rubber (of 'green' expectations) meets the road (of IT and business deliverables). It's an area of massive potential.

This is not to say that there are no genuine initiatives by IT infrastructure vendors to directly minimize environmental impact (such as reducing their use of hazardous materials, improving manufacturing, or offering decommissioning and recycling programs). Where these exist and have merit we of course applaud and indeed highlight them too. They are an added bonus. But PCSE improvement is where the major opportunity lies today, offering significant operational advances and huge financial savings.

Analyzing the Claims: Are They 'Compelling?'

While the certified green HQ is certainly impressive—and can be an added benefit in certain sales situations—what most clients and prospects of Compellent will be judging are the cold, hard facts of what the offerings mean to them.

ESG examines two components when judging the PCSE advantages of a solution:

- **How the improvements are achieved.** Merely 'riding the technological coat-tails' of generic industry advances (such as improved disk drive power usage alone) is nice, but not special. Is Compellent differentiated in how it enables 'green savings'?
- **The absolute optimization numbers.** What is the real potential for PCSE savings for users and what do they mean in real world terms?

In terms of the first component, Compellent has a good differentiation tale to tell. While, naturally, taking advantage of the generic industry improvements that are available to all, the company then seeks to offer

enhanced utilization efficiencies. These are achieved largely through the high level of virtualization that Compellent has in its storage systems. Some of the features are available in at least a similar way from a limited number of other emerging storage vendors, but Compellent continues to ‘push the envelope’ and come up with innovative, differentiated tools that drive the efficient (a.k.a. green) attributes of storage harder and further. A sampling of the notable virtualization functions:

- **Thin Provisioning** (Compellent’s name is Dynamic Capacity) – means that only actual stored data actually consumes disk space
- **Automated Tiering** (called Data Progression by Compellent) – enables different data and data-activity-needs to be placed on varying and appropriate types of storage
- **Tagged Metadata** – which permits very granular data management, in turn enabling ‘perpetual optimization’ for data placement
- **Thin Import** – an intriguing ability to virtualize data as it’s moved off of other vendors’ systems
- **Windows Free Space Recovery** – allows free space created after a Windows file is deleted to be utilized again

In terms of figuring out what this all means to users, Compellent understands that a viable ‘green’ storage offering will be one that delivers business value as well as satisfying an environmental conscience. Therefore, it has done all the mathematical work to permit users and prospects to easily evaluate varying options and outcomes. The power usage calculation takes into account the ‘cascade effect’—in other words, a kWh saved at the device level equates to a much higher saving at the data center level once cooling, power management and other factors are taken into account. The potential for savings is certainly significant.

- *Less power – Up to 93% reduction is modeled. On a 20 TB configuration at \$0.10 per kWh, this would save nearly \$25,000 over 5 years.¹*
- *Less physical disk – The savings from thin provisioning can be 10%, 40% or even 75%+ (a good average would be around 40 to 60%) by only buying sufficient space for actual data, rather than provisioning allocated and unused (a.k.a. wasted) capacity.*
- *Tiering – Less active data on higher capacity, slower spinning drives makes good sense and can reduce the power consumed for an equivalent storage capacity by a staggering 80% or more.²*
- *Storage footprint – Overall, this could be less than 10% of a fully traditional equivalent storage system; saving on both capex and opex for data centers.*
- *All this saves not just \$\$, but also reduces carbon emissions – High capacity SATA drives produce a carbon ‘footprint’ that can be under 10% that of high speed ‘enterprise class’ drives.³*

And, of course, the ‘laundry list’ of options is combinable, not mutually exclusive—meaning that the overall savings compared to a fully traditional environment can be genuinely breathtaking. So, to add some realism, even if a user doesn’t do everything that’s possible with the Compellent ‘suite’ and even if a user feels it’s never possible to attain the ‘maximum’ (put simply, if you apply some percentage for presumed ‘mileage variance’), there is still a very realistic potential to make dramatic and noticeable reductions in power, cooling and space requirements just by utilizing storage more efficiently.

Looking at both components (the ‘how’ and the ‘what’), these overall business benefits certainly seem compelling. And the good news can be spread: users can take advantage of reporting tools (a subset in Compellent’s Enterprise Manager software) to ensure accurate measurement of the precise ‘green impact’ in their site. These tools provide specific cost and power savings tracking; portraying the value of the Compellent installation in terms of energy savings and carbon-emission reductions. These simple but powerful demonstrations of bottom-line value have justifiably earned the nickname of ‘Hero Reports.’

¹ Traditional configuration is 20 TB, RAID 10, 50% utilization, 146 GB 10 K drives; Compellent comparison has Thin Provisioning and Tiering to enable using less high speed RAID 10 drives and the balance of capacity on 750 GB 7.2 K SATA drives with RAID 5.

² 300 GB 15 K FC drives versus 1 TB 7.2 K SATA drives.

³ Compares a 146 GB 15 K drive configured as RAID 10 to a 1 TB 7.2 K SATA drive configured as RAID 5.

The Bottom Line

Everyone is being bombarded by green stories across every aspect of life these days. Unfortunately, many vendors across many industries are just derivatively riding the bandwagon. Not only is Compellent offering some real differentiation to enable the PCSE 'green-ness' that it provides, but its basis for being 'green' (as it's now known) actually preceded the 'craze,' which gives the company credibility and serves to preclude any doubt as to its motivation in this area. *And* it's also embracing a broader green approach corporately, for which it should get kudos.

Compellent offers such a broad array of virtualization-based storage utilization improvements that, even if users find that their 'mileages vary,' the opportunities in user sites are nonetheless significant. Indeed, as further evidence of a commitment to the 'mantra,' we very much like that Compellent drives efficiency beyond just what it actually sells, and also enables users to derive utilization improvements from other vendors' products (i.e., Windows Free Space Recovery and Thin Import). Moreover, Compellent's 'Hero Reports' allow active monitoring and reporting of the green impact of their products on a real installation basis, so users will know their precise value. It's a good tool for users, and a nice piece of ongoing—and deserved—publicity for Compellent.

With or without such publicity, the Compellent green story *is* good. Quite clearly and simply, one of best 'green' options is to buy and operate a lot less equipment—assuming you can still get the job done at least as well as by any alternative means, of course. 'Buy less' is not exactly a popular rally-cry for the major incumbents in the storage market, but it is one that sits well with Compellent. It can afford to proclaim this (which of course also means 'buy Compellent'... the company is not a charity!) precisely because it is not yet a major market incumbent. Using 40%, 60% or 80% *less* than traditional methods is an *effective net loss* to old, better-established suppliers, but the remaining % is all *net new gain* to Compellent.

The company was focused on the 'green' issues and attributes long before they were known by that name. It broadly addresses these issues with a knack for finding new efficiency twists. Whether users and prospects are motivated by eco-responsibility and/or just plain business value, Compellent provides a generic attitude as well as a specific product set—and that's compelling.