

## Pantano, Stephen

---

**From:** Pantano, Stephen  
**Sent:** Thursday, July 23, 2009 10:00 AM  
**To:** Pantano, Stephen  
**Subject:** FW: Brief comments; contact details

**From:** tim.oldham@bt.com [mailto:tim.oldham@bt.com]  
**Sent:** Thursday, July 23, 2009 3:44 AM  
**To:** Pantano, Stephen  
**Subject:** RE: Brief comments; contact details

Stephen, I've since realised that one minor item of this is incorrect and some of it not well described - so please could you correct my comments as follows:

However I am interested to see that while the document mentions rewarding software approaches to reduction of energy impact (de-duplication, thin provisioning etc - which might be server- or array-side, so VMware vSphere 4 thin provisioning would be relevant) there seems to be very little direct discussion even of the questions that need to be answered to do so. De-duplication's benefit is straightforward to understand but different implementations have different capabilities and are aimed at different uses of storage (primary vs archive/backup/DR) for example. Thin provisioning is perhaps less easy to see as being applicable but I would see it as allowing for greater contention of allocated disk to deployed disk and therefore overall avoid the deployment of disk shelves. The scope and efficacy of such solutions can be wide or constrained and this would need to be addressed. It may also be very effective to combine such approaches.

Other techniques such as boot from SAN - with or without single gold image and block delta tracking - are also of interest. Can a server for example get a EnergyStar for Storage approval by being fully supported to boot from SAN? If so, with what conditions - for example would an particular brand of server not get it because in order to do boot from iSCSI you have to buy a specific mezz card?

Hope that's OK - if so please feel free to post. If not please get back to me.

Thanks

T.

E: tim.oldham@bt.com  
M: +44 (0)7710 060929  
T: +44 (0)1902 776917