

David: Hi, this is David Spellman with a Storage Trends podcast. In this podcast we'll be talking a little bit about storage virtualization. Storage virtualization is not new - but the offerings on the market today give new meaning to the benefits virtualization brings to our business. Today, we're talking with Abbott Schindler, a senior technologist with HP's StorageWorks division. Abbott has recently written a great whitepaper that offers a user-friendly guide to the basic concepts and technologies that fall under the virtualization umbrella. He also offers insights on how virtualization drives business value through efficiency, consolidation, increased application productivity and simplified management. Welcome Abbott, and thanks for joining us.

Abbott: Hi David. Thanks a lot for inviting me and I'm glad we're able to do this.

David: So I guess a good place to start is, what is storage virtualization?

Abbott: That's a good question David. Virtualization is anything that has to do with abstracting the underlying physical infrastructure from its presentation to the ultimate consumers. Typically in storage, we think about underlying resources as being disk arrays, tape libraries, and other things which are built out of, you know like cabinets, and stuff like that. On the other hand if you look at the way storage capabilities are consumed they're consumed in terms of files, file systems, logical disks, and other things like that. Virtualization is anything that has to do with abstracting that underlying infrastructure so that it can be consumed the way applications need it.

Now it's interesting to think about it because when you do you realize that a lot of storage management functionality, a lot of things we call information lifecycle management and so on, a lot of the ways we manage and manipulate data in the background are also forms of virtualization. Whereas traditionally we thought of virtualization as being something simpler, like creating RAID arrays and so on. So as time goes on, we the industry have been expanding the way we think about what virtualization is and how storage plays in it.

David: If I were a CTO, why should my business consider storage virtualization? Can you talk about some of the benefits?

Abbott: Storage virtualization's been around for a long time, and people have been realizing it's benefits in terms of consolidation, performance, and availability for decades. In terms of consolidation, for example, what virtualization can let you do is take the contents that used to be stored in multiple disk arrays, or stored locally on multiple servers, and combine that into a single larger storage system. Clearly when you do that, over the course of several different storage systems, several different consolidations, the benefits you reach are things like fewer objects to manage which means a simpler management environment. Also, more effective and efficient system managers. You get lower footprint on the computer floor. Possibly a lower energy footprint. You get easier access from a client perspective. The systems overall get easier to manage and the security model gets easier as well.

Also, you can get from virtualization, things like improved availability. For example; RAID arrays, remote replication, things like business continuity solutions and things like that will give you better application

availability. So, when people embark on virtualization projects, what they'll do is justify those in terms of consolidation, cost savings, management simplification, which results in lower opics [sic]. Higher application productivity, that results from improved availability, and so on. The benefits from storage virtualization are huge and normally it's relatively straightforward to justify a project like that.

David: One of the terms you often hear in regards to storage virtualization is pooling. Can you talk a little bit about the concept of pooling?

Abbott: Pooling is one of the ways we talk about virtualization. In fact, one of the higher level definitions of virtualization is the pooling and sharing of resources. By the way, that definition, as well as others related to virtualization, applies not only to storage but also to servers, networks, and other types of resources.

David: In reading through the white paper, one of the charts that caught my eye was discussing the history of storage virtualization, and what I found very interesting is that HP has been involved in virtualization for about 30 years, correct?

Abbott: That's right David. HP has been involved in storage virtualization since back in the late 1970's, when we introduced VMS volume shadowing, which is now considered a type of RAID 1, or mirroring. And since the late 1990's, we've been doing more complex and interesting forms of virtualization at the subsystem level. A current example is the EVA family and the way it does array-wide pooling of disk capacity. The results for users include relatively simple configuration, the fact that the arrays tune themselves, optimizing load balancing and capacity utilization, with resulting better performance and availability. These are great efficiency and productivity benefits that affect both opics [sic] and overall operations.

Since the turn of the century, our virtualization has continued to advance. We now offer some of the most advanced capabilities in the industry. For example, XP Arrays and SVS subsystems can create pools of storage comprised of multiple disk arrays from HP and other vendors. Once pooled, the collection of arrays is managed as a single entity through the XP, and accessing the disk behind that XP is transparent to applications, and the individual array identities are totally invisible, as we would expect from virtualization. We also offer business continuity solutions that create a virtual pool of disks that can span geographically seperated sites. These are useful for providing things like sitewide failover capabilities that protect against disasters, and this give increased data access capability. And we can also use these sorts of approaches for lights-out remote backup, for example. We also offer virtual tape libraries that can speed up backup and recovery operations, and simplify data recovery processes. Other products use virtualization to deliver highly scaleable NAS and archiving subsystems, so there's a lot there in the subsystem area. We also have a broad arrange of storage software that encompasses a wide range of storage resource management and data oriented information lifecycle management. These deliver application oriented archiving, policy based data management, and other capabilities.

So, like you said David, HP has a long and broad experience in storage virtualization, as well as presenting data to servers, and extending to managing and monitoring storage in a data and application oriented context. But while we're on this topic, it's also really important to note that HP is increasingly bringing an end-

to-end perspective to virtualized resource management. Today, we deliver this with Systems Insight Manager, which allows customers to manage multiple resource domains simultaneously and in concert. SIM unifies server essentials, Integrity essentials and ProLiant essentials, and storage essentials management tools to provide an end-to-end view from the application all the way down to the core resource it's consuming.

David: Really good stuff. Thank you very much for joining us Abbott.

Abbott: Thank you David. It's been great.

David: If you'd like to download the storage virtualization white paper, it can be reached at www.hp.com/go/storage/virtualization. This has been David Spellman with a Storage Trends podcast. Thanks for listening.