

WHITE PAPER | Ten Things You Need to Know about Virtualization

As many already know, virtualization is big, and it continues to grow in popularity. Users are now actively seeking complementary solutions to extend the virtual infrastructure across the entire enterprise, from storage to server to desktop.

The move to “Total Enterprise Virtualization” is real and might be taking place in your organization right now. Today, virtualization is understood as a comprehensive infrastructure solution that is absolutely strategic to a competitive business.

Virtualization is a major driving force in the industry, and its impacts are profound. To dig into the subject a bit deeper, I wanted to look at virtualization from a different angle. Storage is a major part of virtualization. So here are some interesting points of view about virtualization that you should know about coming from the vantage point of a storage virtualization pioneer, DataCore Software.

Point #1: Virtualization is all about software.

One thing you might miss in all the virtualization excitement is that when you look underneath the covers at virtualization, what you will quickly see is that it is really all about software doing things we used to count on hardware to do. Software brings the flexibility to meet future needs, providing both independence from hardware and portability. VMware, Microsoft, and DataCore solutions are all portable software solutions that live beyond the life of their underlying hardware platforms. By not tying the brain of the solution to its body, your investment in the solution survives and benefits from future advances and cost savings from new generations of those underlying platforms.

Point #2:
Storage virtualization is just like its server virtualization cousin.

Point #3:
Virtualization changes what you have to think about.

Point #4:
Thin provisioning has been the ultimate game changer by changing the “need dynamic” significantly.

Point #2: Storage virtualization is just like its server virtualization cousin.

Virtualization fundamentally changes for the better the economics of IT investment and productivity by consolidating underutilized IT resources, such as servers and storage, and pools them so that you can use and manage them much more efficiently and effectively. The result is that you don't have to buy as much or as often because you are getting more out of what you already own. Server virtualization gives you far better utilization of the servers and the PCs you have in-house. Likewise, DataCore says storage virtualization software gives you the full utilization of the storage you already own because you can fully share and manage your storage as a common pool of storage resources over network connections.

Virtualizing and consolidating storage into a pool has a dramatic effect on productivity. Instead of having to work with many individual storage devices one at a time, DataCore's storage virtualization software allows you to deliver storage resources as a network service to many users from one common point of administration: the pool. DataCore also takes care of automatically allocating those resources where you need them, when you need them. Its thin provisioning software, for example, can reduce an organization's traditional “fat” storage capacity requirements by as much as 60%.

Point #3: Virtualization changes what you have to think about.

No longer do you have to think about how the physical device will work with your computer in order to deliver the service you want. The virtualized approach is one where you are now dealing with a network service to get you the appropriate services out of a pool of resources. That pool can be servers from a pool of virtual servers, storage from a pool of virtual storage, or printers from a pool of printers – a concept that we all understand.

Virtualization gives you a simple way to manage and look at things that are very complicated, such as complex, physical devices like computers and storage arrays. It turns physical devices and their specific complexities into simpler-to-use software representations. A good example might be your own PC and network printers. When you want to add a printer -- or if you simply want to print something -- you just click on an icon. That printer icon represents a physical device and the user is not concerned with what type of printer it is or how such a printer must be configured or connected. You click on it to find the printer you want to print on, click on that printer, and you have printing capability.

Virtual servers have turned servers into icons. When you click on the icon, you can create or deliver a new server. Virtual storage, likewise, turns the disk drives of many and disparate storage devices into an icon. By simply clicking on the icon, you can serve or provision storage. What all these advances have done is turn independently managed devices into a network service. Pointing and clicking to an icon on a centralized console replaces the need to physically run around and manually manage and administer many physical devices.

Point #4: Thin provisioning has been the ultimate game changer by changing the “need dynamic” significantly.

The amount of data enterprises generate and save -- data storage -- is more than doubling every year. It just keeps on growing, so the issue of storage proliferation and its cost is a significant issue for business.

Storage virtualization and advances like DataCore's automatic thin provisioning change the “need” dynamic in two ways: when you have to buy storage, and how efficiently you use it once you have it.

Point #5:

There are three lesser-known benefits of storage virtualization: productivity, business uptime, and performance.

Point #6:

Storage virtualization is of increasing necessity for large, medium, and small enterprises.

The real problem with the old way was that companies had different servers and had storage directly attached to each of them. When storage ran out for one server, you could not use the storage that was attached to the additional server for the one that ran out of storage space, so you had to buy more for that storage hungry machine. What storage virtualization does is change the need dynamic significantly. You buy storage less often because you use storage more efficiently. Traditionally, when companies bought storage they would in most instances buy a complete storage array, which included a very large increment of storage. Storage virtualization enables those responsible for administering storage to buy only the storage they need to use, because it can be added in increments behind the scenes without disruption of production.

Point #5: There are three lesser-known benefits of storage virtualization: productivity, business uptime, and performance.

Virtualization is often synonymous with utilization and manageability. Storage virtualization is no different, and its effects on the utilization and management of storage are well-documented. It is worth noting that storage virtualization can effectively double the utilization of existing storage resources. As far as manageability, storage virtualization dramatically improves this (as well as productivity) through automation and the simplification of many time-consuming tasks.

Increasing business continuity and productivity by cutting downtime is another major point to consider. If you look at virtual servers, what you have done is put all the “eggs in one basket” by consolidating all of your applications. The big issue becomes this: If I have a virtual server failure, all of a sudden I am taking down many different applications or many different computers. What a DataCore SAN can do is provide automatic mirroring and

failover protection of the data. In other words, it provides failsafe protection of the data storage, and it also protects the stored images of the virtual machines so they can be easily recovered in the event of a disaster. By doing this, you fundamentally change the uptime characteristics of the system. A rule of thumb here is that typically the downtime for direct-attached storage is somewhere between 1 and 2 weeks of downtime per year. Once you embrace a virtualized, high-availability DataCore SAN with automatic failover, your typical downtime goes down to less than 60 minutes a year. Reducing downtime from weeks to minutes can save a business a lot of money, not to mention aggravation.

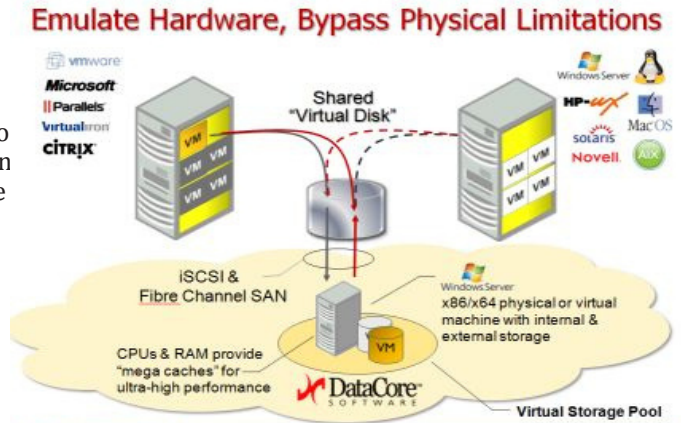
Then there is performance. One of the outstanding features of DataCore’s technology is that it overcomes the performance problem that is typically inherent to virtualization. When you add virtualization layers, you are adding software to the mix, and that often adds overhead. However, what DataCore effectively does is take advantage of memory and caching, making most I/O requests run at electronic memory speeds. By doing so, users normally see a 2-4x improvement of all the storage that is being managed under the DataCore storage virtualization layer. What that means is that administrators can do twice as much work in the same period, thus greatly enhancing their overall productivity.

Point #6: Storage virtualization is of increasing necessity for large, medium, and small enterprises.

Storage vendors selling hardware-based solutions typically had you buy new hardware every year to replace older boxes, to add capacity, to serve as a disaster recovery point solution, etc. By leveraging storage virtualization software like DataCore’s, you can do all of that without buying new and expensive hardware. The hardware no longer dominates the solution; the software is the solution and hardware plays an as-needed, supporting role.

**Point #7:
Virtualization
is not new.**

It may surprise some to learn that virtualization has been around in one form or another since the mainframe days. It was only in the last ten years, however, that server sprawl and now storage proliferation, coupled with the growing standardization and commoditization of servers and storage, reached the point where the economics of virtualizing instead of accumulating these devices became truly compelling.



can actually provide enhanced support to users, which adds more value than performing routine system administration functions.

**Point #9: The future for
virtualization is bright, and the
future is now.**

Hardware-independent storage virtualization, with its inherent longevity, flexibility, and performance advantages, will continue to gain ground, and hardware-based storage virtualization will fade. The concept of tying virtualization to a particular hardware vendor's product line is a doomed effort by the hardware manufacturers to offer virtualization ostensibly, while at the same time denying what it really means -- that the solution is in the software and the decision as to what storage hardware to buy, who to buy it from, and when to buy it rests solely with the end-user.

"Unlike some other site recovery approaches that are limited to just virtual machines, DataCore ASR enables both physical and virtual servers to be protected across multiple sites," says George Crump, president of Storage Switzerland. "This advanced approach to DR -- one that encompasses distributed disaster recovery -- is an important milestone, and I am happy to see companies like DataCore reaching it."

**Point #8: Virtualization is
empowerment.**

Virtualization is an esoteric way of saying "we make your job easier," particularly when it comes to network and systems administrators. They become empowered, rather than overwhelmed, because technology is able to automate various functions that were fairly manual and labor-intensive. This means administrators' workload is reduced, maintenance cycles are accelerated, and they

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The biggest barrier to deploying virtualized storage today is not a technological issue because the technology is there. Nor are costs a barrier to adoption. The only barrier to deploying storage virtualization for any enterprise lies solely in a mindset that no longer reflects the reality of the day.

People are still stuck on a hardware mindset and just do not recognize the flexibility and the advances that have been made in the world of virtualization. It takes people who have been looking at solving a problem one way a little while to understand that there is a new way -- there is a learning curve. And those who have recognized these new advances are the businesses that are really gaining competitive advantages.

Point #10: Only the right technology delivers on the promise of virtualization.

“No one would ever dream of throwing away Exchange because the server became obsolete. So why do it with storage? When servers get old, we replace them inexpensively, but the software remains. I don't have to repurchase the 'brains' when I replace the 'body.' From a business standpoint, why do we treat storage differently?” asks George Teixeira, president and CEO of DataCore Software.

Avoid Risks. Storage virtualization enables businesses and infrastructures to better adapt to change through software flexibility and greater choice. The software keeps storage from becoming a major cause of business disruption or a single point of failure by making highly available SANs and offsite disaster recovery practical.

Boost Productivity. Storage virtualization simplifies management, automates time-consuming tasks, and speeds up disk performance through SAN-wide caching while eliminating storage-related downtime during planned maintenance, upgrades, and migrations that would otherwise slow down and interrupt IT operations.

Contain Costs. Rolling out a SAN usually entails replacing direct-attached disks or arrays with new equipment. Storage virtualization incorporates existing drives into new SANs to significantly reduce capital expenditures. It also defers spending on capacity expansion through SAN-wide thin provisioning and space-efficient snapshots.

Protect Investments. Storage virtualization software makes it simple to repurpose and migrate storage, plus it can be moved to faster platforms to enhance performance, scalability, and overall value.

The promise of virtualization is profound and the business benefits companies are realizing today are enviable. Risk avoidance, productivity increases, cost containment, and investment protection lead the list. However, in order to realize these benefits, you have to have the right solution working for you.

“The SAN-wide reach of DataCore's software overcomes the inefficiency of trying to accomplish SAN-wide objectives one by one, device by device,” says George Teixeira.

Teixeira adds that for more than 10 years, DataCore has developed a rich set of features and functions that free storage from mechanical constraints and improves the speed, resiliency, and utility of all the popular disk storage brands. DataCore's software operates across SANs and allows you to manage your storage centrally without having to learn device model or disk interfaces. Thousands of installations around the globe, ranging from petabyte-sized disk farms to small workgroups, speak to the scalability and robustness of DataCore Software.

If you'd like to find out more information about storage virtualization, thin provisioning, and other DataCore Software solutions, go to http://www.datacore.com/solutions/intro_home.asp.

For more information on storage virtualization, please visit:
www.datacore.com