

Xiotech – Intelligent Provisioning

Date: October, 2007

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Abstract: Xiotech has always been focused on ease of management and optimization of its storage systems. The latest capability, Intelligent Provisioning, embodies these principles.

Xiotech Intelligent Provisioning

It seems appropriate that a joke could be made about Intelligent Provisioning being an oxymoron, but in this case, it is actually a valuable capability supported by the Xiotech Magnitude 3D storage systems. The goals of Intelligent Provisioning are to: 1.) Simplify provisioning so that it is required only once; 2.) Minimize allocated but unused or stranded storage capacity and 3.) Eliminate the risk of over-subscription. However, do not confuse Xiotech's Intelligent Provisioning with thin provisioning. Although there is an overlap in the benefits, they are different technologies. Xiotech's Intelligent Provisioning allows you to grow a volume automatically, online and transparently. It works like this:

1. Determine what size you want your volume to be. For example, 100 GB.
2. Factor in a threshold based on your growth projections.
3. Let's say you set a threshold of 500 GB. The initial volume only consumes 100 GB, but as the data stored on that volume approaches that limit, the size of the volume will increase automatically.
4. The volume will continue to automatically expand as more data is stored over time.
5. As it gets close to the 500 GB limit, the Magnitude storage system will send an alert indicating that you are nearing the growth threshold. At that point, you can increase the threshold and begin the process over again.

Magnitude 3D systems have always been highly virtualized—treating storage as logical pools, making it easy to manage. Xiotech has long provided the ability to increase volumes, but now they are adding much more sophistication and new abilities—such as setting thresholds—as well as enhanced ease of use through the ICON Manager user interface.

Intelligent Provisioning supports multiple automated volume expansions (it monitors virtual disk usage via the Windows OS) based on user-defined parameters, with no risk of over-subscription since allocations are from true storage capacity in the common free storage pool.

Why This Matters

The value of Xiotech's Intelligent Provisioning is that you don't have to create large volumes. You can create smaller volumes and allow them to grow automatically, while still controlling growth by setting thresholds. It becomes a "set and forget" method of provisioning.

When purchasing a new storage system, Intelligent Provisioning requires less storage initially. End-users can buy what they need with a minimal amount of spare capacity for short-term growth.

Since Intelligent Provisioning minimizes stranded storage capacity, less storage is required over the life of the storage system.

ESG has found that end-users actually acquire and implement new storage systems because of allocated but unused storage capacity. Intelligent Provisioning can eliminate this potentially major cost as additional storage systems will not be required due to stranded storage.

Intelligent Provisioning can support more applications and servers per storage system, thereby providing greater levels of consolidation. Since capacity doesn't have to be dedicated and fixed on a per volume basis, end-users can create more volumes with the XioTech Magnitude 3D systems. As a result, more applications and servers can be attached to a single storage system.

The time and resources required to perform storage provisioning tasks are reduced. Tasks such as capacity planning, the entire process of storage provisioning and adding new drives are minimized.

Since Intelligent Provisioning is capacity efficient, it requires fewer disks, resulting in lower power and cooling costs. Often, this is essential for data centers that are running out of power and it always makes sense to cut costs. Additionally, there are companies and organizations that are mandating a green initiative.

Thin, Not Thin

XioTech's Intelligent Provisioning has many of the benefits of thin provisioning, but it is not actually the same thing. Thin provisioning actually presents a logical layer to the applications and operating system that is not equal to the actual physical size of the volume.

In the example, a 100 GB volume is created using traditional provisioning. The entire 100 GB will be allocated and dedicated to that volume. If you have 10 GB of actual data, the other 90 GB will be empty blocks that can only be used for applications that are mapped to that volume. As the volume grows towards 100 GB, you need to add more disks, provision the new capacity and then reboot the servers for the operating system to recognize the increase in capacity.

With thin provisioning, a 100 GB volume is created, but only the 10 GB of actual data is consumed and allocated and the other 90 GB is available for all other applications to use. As the volume grows towards 100 GB, you need to add more disks and then reboot the servers for the operating system to recognize the increase in capacity. Thin provisioning best practices actually suggest that you create a much larger thin provisioned volume. Instead of a 100 GB volume, create a 1 TB volume so you won't have to worry about growth consuming capacity too quickly. Since thin provisioning doesn't actually allocate the disk space, you can have large volumes without a cost to your system.

With XioTech's Intelligent Provisioning, a 100 GB volume is created and, like traditional provisioning, the entire 100 GB will be allocated and dedicated to that volume. If you have 10 GB of actual data, the other 90 GB will be empty blocks that can only be used for applications that are mapped to that volume. However, as the volume grows towards 100 GB, the user defined threshold set at 500 GB enables the volume to grow automatically. There is no need to reboot. Intelligent Provisioning best practices suggest that you create small initial volumes and higher thresholds based on the amount of actual capacity you have and the rate at which data is growing in your environment.

ESG's View

XioTech's Intelligent Provisioning is extremely valuable functionality that provides a number of benefits that reduce capital cost, simplify management and reduce power and cooling consumption. XioTech has also talked about shrinking volumes to reclaim capacity, but currently does not support it. Additionally, their Intelligent Provisioning is only supported for Windows environments in this version, but they have other O/S platforms on the horizon.

Intelligent Provisioning provides a very straightforward value proposition that is easy to quantify. Additional benefits include the ease of use and other capabilities provided by the Magnitude 3D systems, as well as the new ICON Manager interface that further simplifies the management of XioTech storage systems. Some people will continue to confuse this with thin provisioning, but they are different technologies. The thing to focus on is how Intelligent Provisioning can help to lower cost and complexity—and it achieves both.

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