What is it?

The IPStor® Asynchronous Mirroring Option offers the ability to define a *near real-time* mirror for any disk managed by IPStor software (virtual or service-enabled[1]) over long distances between data centers.

How is it used?

Asynchronous Mirroring is ideal for environments consisting of two storage systems located at geographically distant sites wherein the data must be kept as closely synchronized as possible. It also serves as an effective tool for zero-downtime migration of data from older disks to newer disks arrays.

How does it work?

When an asynchronous mirror is first created, administrators create a dedicated staging area and associate this staging area to any disk managed by IPStor software (virtual or service-enabled). Once the mirror is created, the primary and secondary disks (virtual or service-enabled) are synchronized to match data on both sides. This process is driven by the IPStor software, and does not involve the application server. After the synchronization is complete, all write-requests from the associated application server are sequentially delivered to the dedicated staging area associated to the disks managed by IPStor software(virtual or service-enabled). The data written to the staging area is then committed to both the primary and its mirror as a separate process in the background. The staging area can also be mirrored, for added protection.

Asynchronous Mirroring

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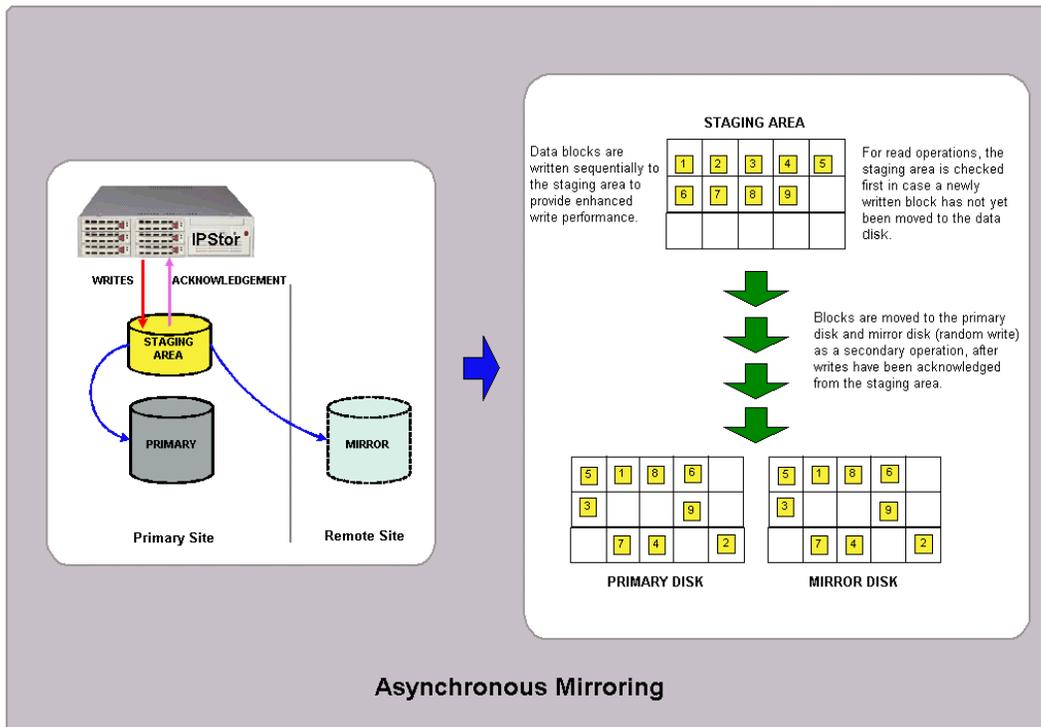
[1] Enables existing disks to make use of the full suite of IPStor storage services, including Mirroring, Replication, Snapshot Copy, TimeMark, HotZone, SafeCache, etc. Original disk partitions/volumes are not changed; no data conversion or migration is necessary.

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The primary and its mirror can be swapped any time. Mirror-and-swap is a technique to effectively migrate data from old disks to new disks without any downtime for the application server. After the swap, the mirror (which was the primary/old disk) can be removed and retired.

All mirroring is managed from the IPStor Console and using the same creation process. Storage administrators no longer have to contend with application and/or OS-specific host-based mirroring schemes, thereby greatly reducing management cost and complexity.

How does this benefit me?

Removes distance limit of the mirror without impacting local performance at the primary site
To guard against site failure, Asynchronous Mirroring enables organizations to locate a remote backup site miles from their production facility and maintain a near real-time mirror of crucial data there. At the same time, asynchronous mirroring offers a performance advantage at the primary site since data is committed to the local storage device without waiting for an acknowledgment from the storage device (mirror) at the remote site.

Sensible trade-off between performance of primary site and amount of unsynchronized data
With asynchronous mirroring, primary and mirrored disks are created, but are not identical and concurrent at all times. The further away a remote site is, the longer it takes data to travel to it from the primary site and then send back acknowledgement. To eliminate the resulting possible impact on application performance, the IPStor Asynchronous Mirroring option acknowledges and commits data to the primary disk without waiting for the acknowledgement to return from the remote, mirrored disk. As a result, the mirrored disk contains a certain amount of unsynchronized data due to bandwidth lag time between the sites. However, the delay associated with an asynchronous mirror is a sensible tradeoff compared with the performance advantages attained at the primary site.

Ideal tool for cross-vendor disk migration
Data mirroring permits real-time, online, transparent movement of data between devices. This process supports storage upgrades, data center relocation, and server consolidation. Throughout this process, the application servers continue to run without interruption for optimal business continuity.

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Page 2