

Westek Technology Snapshot and HA iSCSI Replication Suite

Westek's Power iSCSI models have feature options to provide both time stamped snapshots of your data; and real time block level data replication with auto-failover to provide a secure copy of your data and provide access to that data even in the event of a catastrophic failure of the primary storage system.

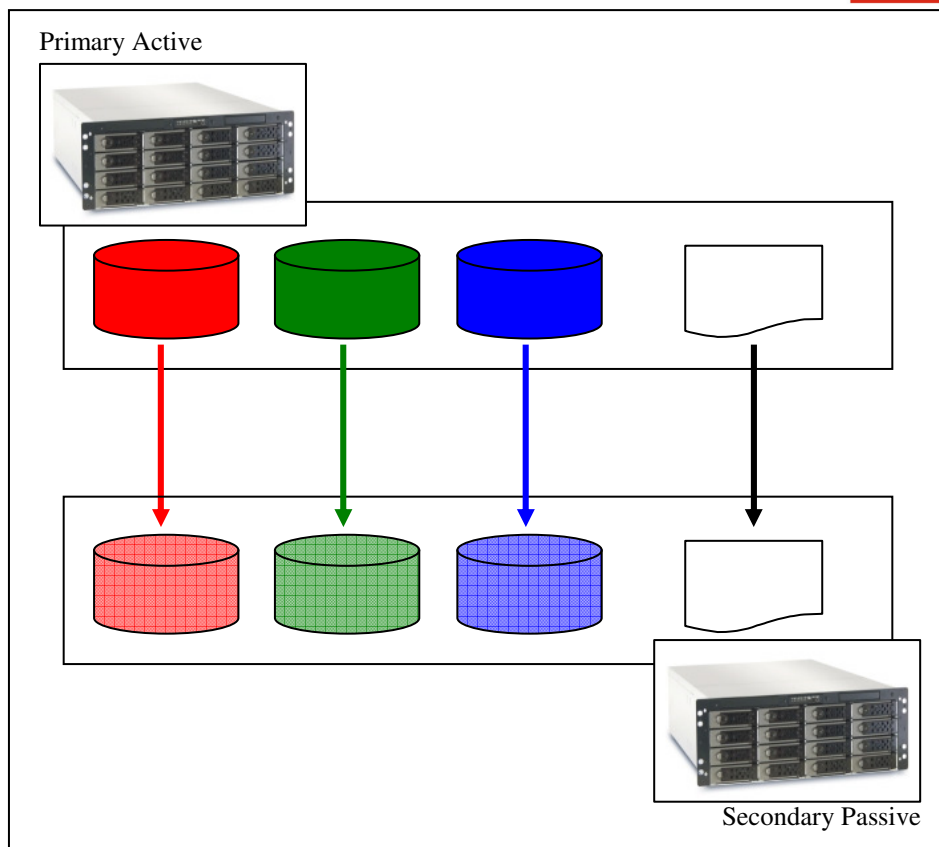
The snapshot feature provides easy file recovery in the event of a virus attack or accidental file deletion. Snapshots record only the data changes since the last snapshot was taken and you can roll back your data to any stored time point with up to 512 timed snapshots per volume. Snapshot is also a great way to perform backups without disrupting normal operation by simply taking a snapshot of the data, which takes a matter of seconds, and then mounting that snapshot for transfer to tape or other long term storage medium. The snapshot can be mounted on the iSCSI storage system itself, or on any backup server on the network that understands the data file system of the snapshot volume (eg Windows for Windows type data). Once mounted, even individual files can be recovered easily and quickly.

Westeks high availability replication suite requires two Power iSCSI model storage systems to replicate the data stored on the iSCSI Target disks. Since iSCSI is block level storage technology, any data types are replicated including SQL or exchange databases, and file types. All iSCSI storage systems are client operating system and file system independent.

The storage systems themselves are already highly resilient and include as standard:

- RAID Data Protection either RAID 5 or RAID 6 with a hot spared drive as an option. RAID 6 protects your data even in the unlikely event of two disk drives failing.
- Hot swap high MTBF (up to 1.2 Million Hours) high duty cycle (100% 7 x 24 use) specification disk drives specially designed for use in RAID systems.
- Redundant hot swap power supplies with separate power cords.
- Hot swappable cooling fans.
- Dual Gigabit Interfaces for failover or trunking (expandable).

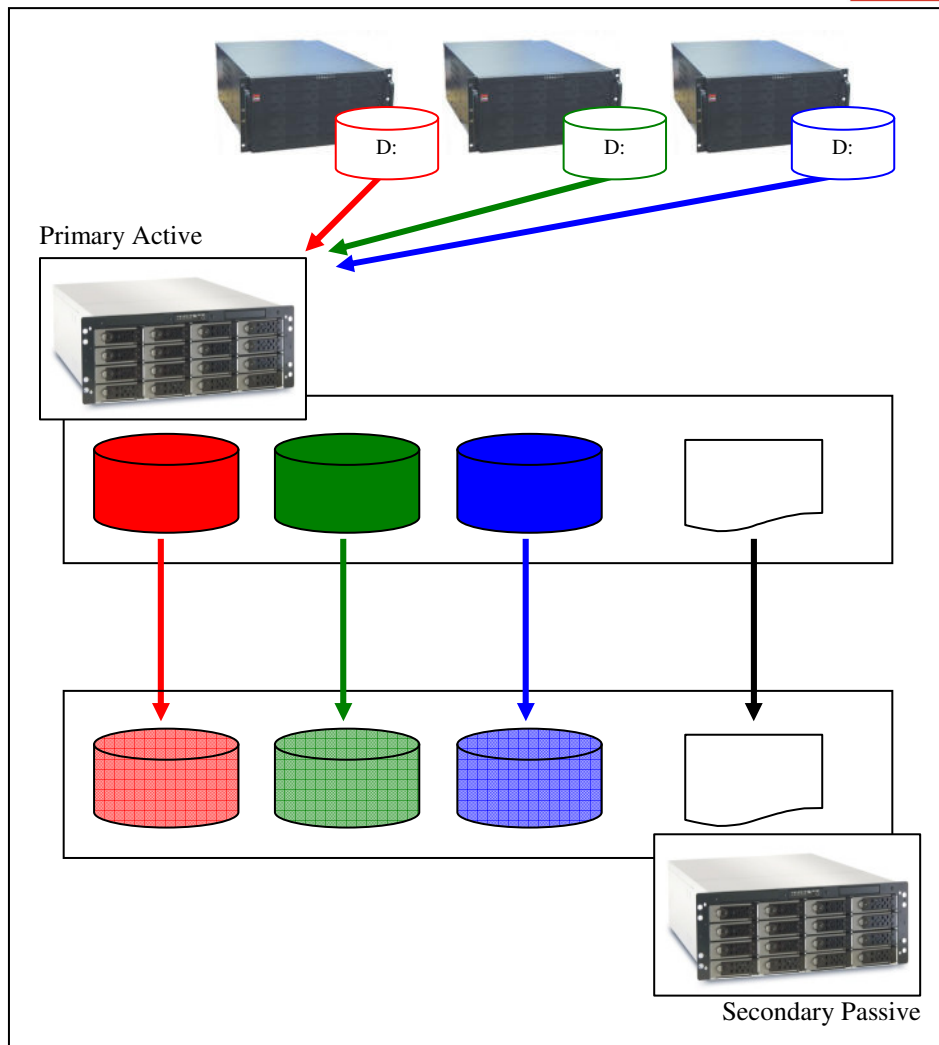
Replication takes place from the Active Power iSCSI system to the Passive Power iSCSI system. The Secondary unit can be located with the Primary; it can be elsewhere over a network in the same building, or even at a remote location. Under normal operation the Primary storage system is Active, and the Secondary storage system is Passive:



The two storage systems are configured to be identical. The Primary and Secondary Power iSCSI systems communicate with each other over a dedicated “channel” network link. Both the Primary and Secondary servers have the same “public” IP address and NetBios name, a filter ensures that only one machine in the pair is visible on the network at any time.

The Power iSCSI storage systems do not have to be in the same geographical location, which is an important consideration for DR (Disaster Recovery) situations. The dedicated channel link needs to have sufficient bandwidth to transmit the replicated data to the secondary (but only changes and new data are sent), plus cope with any additional load in a DR scenario. A data buffer queue on the primary system enables the use of a lower bandwidth link to allow data changes to be sent to the secondary unit.

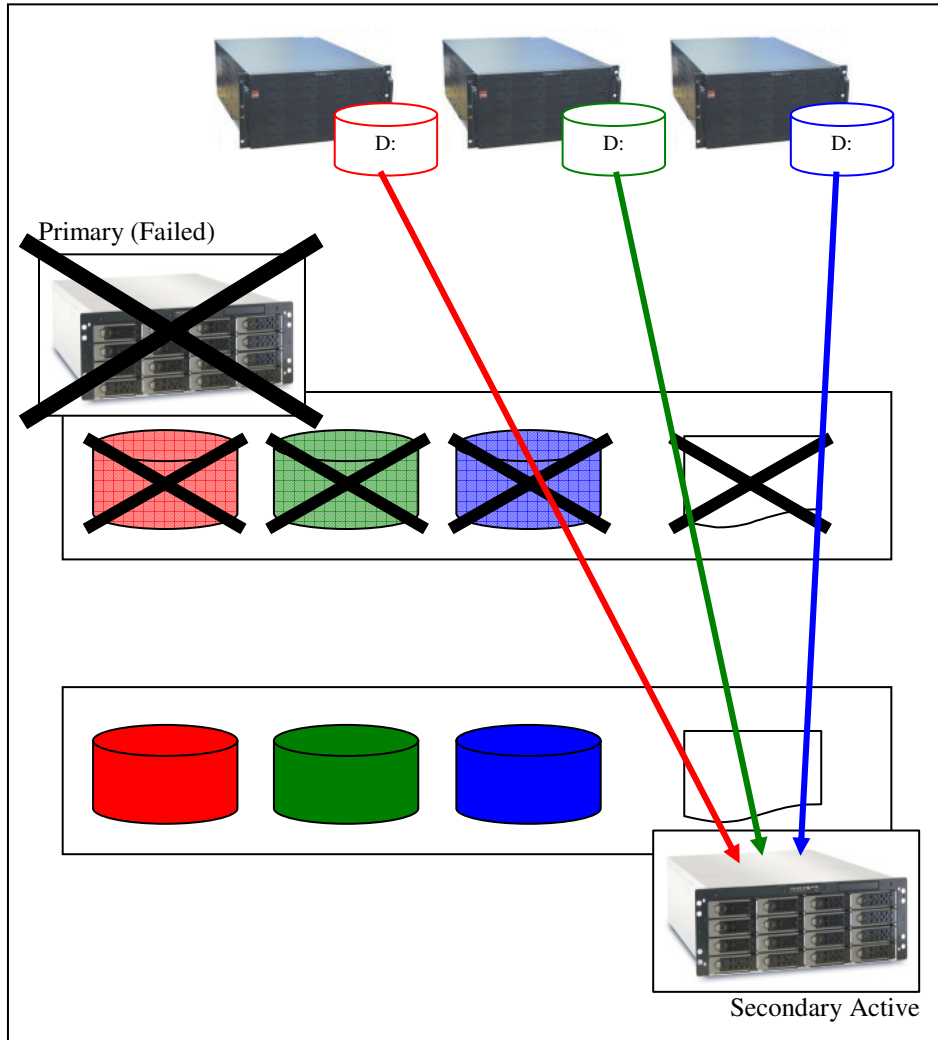
Under normal operation all client / initiator machines connect to the iSCSI disk storage system on the Primary Active system. The client machines have no knowledge of the replication process, or of the Secondary storage system. They are simply connecting to an IP address or NetBios name:



Only new data write operations are asynchronously replicated to the Passive iSCSI storage system. Data read operations are serviced by the active unit as normal and the replication process is such that the primary unit operates at full performance for all read and write operations, even with a lower bandwidth link to the passive unit.

A data buffer area on the Primary system temporarily stores new data to be written (replicated) to the Secondary system if the link between units has less bandwidth than the primary data path. Data is written to the Secondary virtually immediately subject to any bandwidth limitations in the connection between primary and secondary systems.

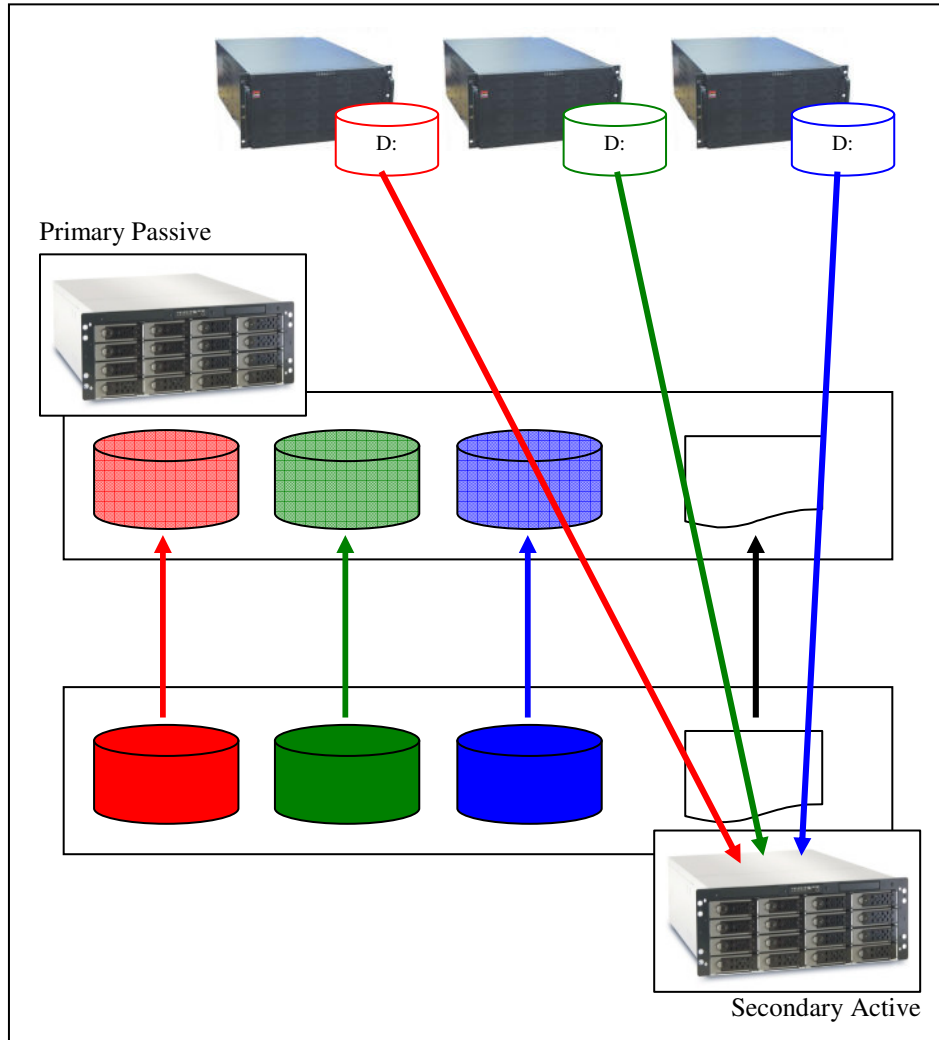
In the unlikely event that the Primary Power iSCSI system fails for any reason, the Secondary system is promoted to an Active state, and takes on the NetBios name and IP address.



There will be a small delay of a few seconds while the Secondary server positively confirms that the Primary server has actually failed before it takes over as the Primary.

The clients will seamlessly connect to the Secondary – now Active – iSCSI system. As far as the clients are concerned they are still connected to the primary storage system, as the secondary system is a clone of the primary. Even with such a complete failure of the primary unit, access to the stored data is virtually continuous providing a very high availability solution.

Once the Primary machine has been brought back online, it adopts the role of the Passive iSCSI storage system, and the Secondary Active begins synchronizing any new data changes that have happened in the mean time to it:



Once the Primary server has synchronised with the Secondary server, a manual switchover can be instigated to promote the Primary server back to Active if required, and demote the Secondary server back to Passive.

Westeks high availability replication suite provides enterprise class data protection with very high fault tolerance and exceptional protection against data loss in the most demanding environments.

An ideal secure system setup has the replicated pair as described above at the businesses main site with automated fail over to ensure continuous data access, but with the addition of a third unit off site to provide a data recovery copy (DR) should there be a catastrophic failure at the main site. The same basic principles are applied but with a third unit added to provide the near real time (bandwidth permitting) DR copy. Contact Westek Technology for more details.