

Ark implements fully-featured, high-performance SCSI storage directors. Ark supports all current and legacy protocols in any combination, providing virtualization and any-distance multiple-copy data mirroring for enterprise, cloud, backup, data consolidation, data mining, business continuance, and disaster recovery. Ark-based solutions can be implemented quickly and cost effectively using off-the-shelf hardware. Ark provides IP and reference platforms for quick-to-market, mature, high-quality data storage products.

Features

- Share data among multiple hosts using multiple protocols (SAS, FC, iSCSI, SCSI).
- Access campus or remote storage devices as if locally attached.
- Consolidate data from multiple locations (cloud storage).
- Implement easy, inexpensive, and nondisruptive facility relocation.
- Offload volume mirroring and backup from servers.
- Transparent, heterogeneous protocol conversion, allowing older hosts to access newer devices, or newer hosts to access older devices.
- Nondisruptively install/test/prototype devices, and migrate data from device to device.
- Define virtual volumes down to a single logical block. Quickly reconfigure storage resources for cloud/virtual-machine environments.
- Locally mirror data (RAID-1). Other RAID levels supported via hardware assist.
- Remotely mirror data at campus distances using TCP/IP and/or bidirectional Fibre Channel.
- Remotely mirror data at any distance using existing TCP/IP networks.
- Supports any number and combination of local and remote data mirrors.
- Maintain identical synchronized copies of data at multiple remote locations.
- Snapshot data at a point in time allowing for offline, nondisruptive backup or data mining.
- Snapshot base data at a point in time, allowing multiple hosts to share common data while using as separate volumes. Snap back to point-in-time for error recovery / application failure / testing.
- Copy data locally, physically move it to a remote site, and then resynchronize using interim changes, allowing for low-bandwidth creation of remote data sites.
- High-performance, large-cache-size caching including support for FLASH devices. Device access / copy establish at line speeds.
- Built-in extensive device testing and performance measurement facilities.
- N-way active-active configurations for no-single-point-of-failure platforms. Hardware assisted “zero copy” of host write data.
- Fully heterogeneous and transparent to hosts and devices – no host software or drivers required. Supports all legacy and current host operating systems.
- Vertically and horizontally scalable.
- Easily extensible, allowing for device simulation, prototyping, or testing. Extensive performance information can be collected. Many configurable performance settings are provided.
- Built-in development/debugging tools allowing for fast and easy creation of new products – no external support hardware or licenses are required for product development, debug, or test.
- Has undergone independent certification, and prior versions were installed worldwide without a single severity-one issue, ever.

Specifications

Target interfaces – 12GB SAS (LSI, PMC), 8GB FC (PMC, QLogic), iSCSI (QLogic), parallel SCSI (PMC). Any number of concurrent protocols and ports, simultaneous access to shared data.

Device interfaces – 12GB SAS (LSI, PMC), 8GB FC (PMC, QLogic), iSCSI (QLogic, Intel), 6GB SATA (Intel, LSI, PMC), ATA, parallel SCSI (PMC). Multiple protocols and ports with multiple path access to devices.

SCSI Device support – Block devices (disk, FLASH, memory) 64-bit logical block addresses, optical devices, tape devices, SAS/FC switches/expanders, SATA, ATA, USB.

Protocols – Latest SCSI specifications supported (SAM-5, SPC-4, SBC-3, SPL-3, FCP-4). Blocksizes from 128 to 4,224 bytes including end-to-end protection information (DIF) support (types 0-3). Device data encryption using hardware assists.

Interconnects – Up to 10GB Ethernet (Intel) for any-distance interconnect, 12GB bidirectional SAS, 8GB bidirectional FC for campus-distance interconnect. Multiple network paths supported for performance/failover.

Processors /Platform – N-way multiprocessing/multitasking (Intel 64/IA-32). Processor(s) may be dedicated to specific tasks, devices, and/or interrupts. MSI/MSI-x supported. Intel/Supermicro server motherboards supported as reference platforms.

Cache – 32 or 64-bit addressable LRU data cache. Configurable prefetch / delayed write. Memory-only nonvolatile block-device emulation.

Nonvolatile data – Saved SCSI MODE/LOG data, dirty blocks, configuration data, log data, and dumps maintained on mirrored block devices (ATA, SATA, USB) or FLASH. A failing system can be swapped out and reconfigured quickly by moving a USB flash device to the new unit. Uninterrupted Power Supplies are monitored in order to save off cached data in the event of a power failure.

Data Mirroring – Any number of local and/or remote copies. Asynchronous, semi-synchronous, or synchronous write / verify support at volume granularity. Cascaded copies-of-copies. Automatic suspend/resume for communication errors/slowdowns. Volume groups for data consistency. Copy data automatically used to repair failed blocks.

Command and Control – Local keyboard/display, Telnet, FTP, HTTP, SNMP. Multiple simultaneous operators supported running at different authentication/privilege levels.

Implementation – All code developed in-house (except for device drivers licensed from chip vendors). No General Public License or foreign-development issues. Protected by twelve issued U.S. Patents.

Usage and technical deep-dive presentations may be found online:

- Ark Sample Storage Applications Overview ([DOC](#))
- Ark Storage Solutions Overview ([PDF](#))
- Ark Technology Overview ([PDF](#))
- Ark Real Time Operating System Overview ([PDF](#))

For more information, please contact James Bergsten, President & CEO (jim@arksys.net)

Notes:

1. For fastest speed, mirror rebuild is performed using nonvolatile changed data maps.
2. Highest interface speeds are cited, lower speeds are also supported.