

Scalable Linux-Based Network Attached Storage Appliance

DAKOTA RAID-LE2

DakotaRAID-LE2 is a scalable Linux-Based NAS Appliance that delivers high performance file sharing, solid reliability and simple-to-manage storage resources for heterogeneous network environments. Just attach it to your existing network and within minutes your Windows®, UNIX, Linux and Macintosh clients can share RAID protected storage resources. The optional iSCSI target module enables you to provide both file and block level storage from the same appliance.

Performance

The DakotaRAID-LE2 is built on a powerful server-class Dual-Core Xeon platform with single or dual processors and up to 4 GB of memory. Dedicated SCSI or SATA 3 Gb/s Hardware RAID controllers provide enterprise-level storage performance. Dedicated SCSI or SATA RAID controllers provide enterprise-level storage performance. Dual Gigabit Ethernet connections with teaming capability provide for efficient transfer of data across networks. Additional PCI slots are available on most models for NIC expansion.

Reliability and Data Availability

DakotaRAID-LE2 is integrated with best-of-breed components and the Linux-Based NAS operating system is embedded on a Flash Module for high reliability and maximum uptime. Support for multiple RAID levels protects your data against disk failure while features such as hot swappable disks, hot spares, automatic drive failure detection, automatic data rebuild and redundant hot swappable power supplies provide for high data availability. RAID level 6 support on the SATA models improves fault tolerance by implementing two parity drives. A journaling file system enables easy, dependable file system recovery in the event of unscheduled downtime.

Multi-Protocol Connectivity

DakotaRAID-LE2 delivers data using industry standard file sharing protocols (SMB/CIFS, NFS, AFP, & FTP) over industry standard network protocols. Therefore, clients can share storage resources, regardless of their operating environment. Cross platform connectivity provides common storage resources and increased user productivity.

Configuration and Scalability

DakotaRAID-LE2 features high performance Serial ATA disk drives in multiple RAID configurations, providing the flexibility you need to fit your price, performance and data protection requirements. DakotaRAID-LE2 supports multi-terabyte configurations and is available in tower and rack models. A flexible design, featuring external SCSI ports and PCI expansion slots enables you to expand capacity with external storage. The embedded iSCSI initiator provides simple capacity expansion to iSCSI storage systems or SANs.

iSCSI Initiator

DakotaRAID-LE2 supports iSCSI HBAs and includes a software iSCSI Initiator for easy capacity expansion. New units and logical volumes can be added by connecting an iSCSI storage system or connecting to an iSCSI SAN.

APPLIANCE FEATURES

- Linux-Based NAS Operating System
- Journaling File System
- Simple Web Browser Management
- Email Event Notification
- Multi-Protocol Client Support
- No Client Licenses
- Enterprise-Class Security
- NIC Teaming
- Integrated Virus Protection
- Redundant Hot Swap Components
- UPS Support

STORAGE FEATURES

- High Performance RAID Controllers
- Serial ATA Disk Drives
- RAID Levels 0, 1, 10, 5, 50, & 6
- 2 TB+ Volume Support
- iSCSI Initiator
- iSCSI Target Option
- Advanced RAID Features
- Hot Swappable Disk Drives
- Hot Spare Drives
- Automatic Drive Failure Detection
- Background Initialization & Rebuild
- RAID Level Migration
- Online Capacity Expansion
- Snapshots
- Data Synchronization
- Local Tape Backup Support
- Backup Agent Support



Manageability & Security

DakotaRAID-LE2 features an easy-to-use Web browser interface, which simplifies configuration and management tasks and enables administrators to manage multiple units from a remote machine. Active Directory support enables DakotaRAID-LE2 to integrate into a Windows enterprise network. Other authentication features include NT Domain Authentication (PDC), Unix Network Information Services (NIS) and Lightweight Directory Access Protocol (LDAP). LDAP is an information directory in which users and groups can be defined and shared across multiple machines and multiple applications. DakotaRAID-LE2 employs native LDAP and can be integrated into other systems using LDAP. Using LDAP, multiple DakotaRAID-LE2 appliances can be configured as the "Dakota NAS Enterprise Server Farm" and be managed centrally. The User/Group Quota feature enables administrators to constrain Users or groups either by assigning them a dedicated share or by restricting usage. Secured Administration Access (using SSL) provides industry-standard security and you can assign multiple administrators with different rights. DakotaRAID-LE2 supports the SNMP protocol to monitor e.g. the data throughput, CPU, RAM usage of the NAS storage system. A "Superuser" account enables unrestricted access to all the files and volumes.

- **Multiple Management Levels:** Administrators can be assigned different rights. The Open-E NAS-XSR supports three levels: Full Access, Maintenance and Administration.
- **Console Tools:** The Open-E NAS-XSR SMB server can also be managed by using the console tools. For security reasons some advanced and critical administrator tasks like, removing and restoring volumes, checking and repairing the file system, can only be managed from the console. From the console tools, the NAS server can monitor the status of the network, installed drivers and hardware, memory usage and others.
- **Email Notification:** Administrators will be automatically alerted by Email, in the event of a technical failure of the NAS server.
- **Update via Web:** With one click the server can check for new updates. New updates can be downloaded and installed remotely on servers at different locations.

Log Function

For technical support and troubleshooting purposes, the DakotaRAID-LE2 log file is an efficient instrument in analyzing and solving technical issues.

Antivirus Support

DakotaRAID-LE2 has an integrated antivirus software tool for scanning shares for viruses at predefined points in time. The Virus Definition Database can be updated and is stored in firmware. Online scanning of files transferred via the SMB and FTP protocols is supported.

iSCSI Target Option

The optional iSCSI Target module enables you to provide both file and block level storage from the same appliance.

- **Multiple Challenge Handshake Authentication Protocols (CHAP) per Target:** CHAP users can be assigned to a specific iSCSI target. CHAP is an authentication schema, managed by user name and password, to validate the identity of users to manage the access rights of users to targets.
- **MPIO Support:** The iSCSI target option allows set multiple connections to one target increasing performance and reliability.
- **Volume Replication:** DakotaRAID-LE2 iSCSI Target option provides an extra layer of fault tolerance as you mirror two iSCSI target volumes, similar to disk mirroring (RAID1). By allocating one iSCSI target as the primary data storage device and the second as a destination iSCSI target, data will synchronously be written to both iSCSI targets using a dedicated network connection. The primary iSCSI target will be replicated in real time, so that the data will be available if the primary storage system becomes unavailable.

Span & Stripe Option

As part of its Disk Preparation function, DakotaRAID-LE2 offers a Span & Stripe option. Disks can be spanned or striped, depending on the capacity and performance desired. The Span option offers flexible scalability of the storage capacity by simply adding a new disk array. The Stripe option offers a better performance by striping 2 or more disk arrays.

Multi-Snapshot with the Scheduling Function

The snapshot function enables an immediate point-in-time image of the share volume. The snapshot image is used for consistent backup, while users still have uninterrupted and complete access to the shares. Multi-Snapshot with a scheduling function allows users to take a snapshot at a specified time (e.g., automatically every hour). If a user accidentally deletes or incorrectly modifies a file, data can be recovered from a previous snapshot image.

Backup Client Support

DakotaRAID-LE2's backup client agents help administrators to back up data with backup software from Veritas, Dantz, CA BrightStor ARCserve, and Bakbone Backup. Using the client agents, you can administer complete data protection for all client machines. This improves data transfer and provides network security, task monitoring, real-time directory browsing, and cross-platform backup support.

Data Synchronization

With DakotaRAID-LE2, you can synchronize files between two NAS appliances. If the same file already exists, it copies only differences between the files, therefore saving network traffic. This data cloning function allows users to generate a mirror copy of a NAS appliance, and to keep two identical copies on the network.

DHCP Server Support

The Dynamic Host Configuration Protocol (DHCP) is a communications protocol allowing network administrators to centrally manage and automate the process of assigning IP addresses in a network.

UPS Support

A UPS can be attached to DakotaRAID-LE2 through a standard serial port, and it provides safe shutdown in case of power failure.

Network UPS

DakotaRAID-LE2 is capable of using the SNMP interface for communication with other SNMP-enabled servers for a smooth server shutdown in case of power failure. The server with UPS sends (or receives in case of slave mode) the power failure signal through the network to (or from) other servers and will shut down all servers in the network.

Total Cost of Ownership

DakotaRAID-LE2 enables you to reduce your total cost of ownership by ensuring fast deployment, seamless network interoperability, high uptime, low administration and no client license costs.

File System

- Journaling File System

Management

- Web Browser UI
- SNMP Support
- Storage Quotas
- Email Alert Notification
- System and Security Logs
- Snapshots

Network Protocols

- TCP/IP: Includes TCP, IP, UDP, and ICMP
- NetBEUI (NetBIOS Enhanced User Interface)

Automatic IP Address Assignment

- Supports DHCP, BOOTP, & RARP

NIC Teaming Options

- Link Aggregation
- Load Balancing
- Failover

Supported Clients and File Sharing Protocols

- Windows: CIFS/SMB
- Unix/Linux: NFS v2/v3
- Macintosh: AFP

SERIAL ATA MODEL SPECIFICATIONS

	DW100SA3 RACK DW800SA3 TOWER	DW1000SA3 RACK	DW2000SA3 RACK	DW3000SA3 RACK	DW4000SA3 RACK	DW5000SA3 RACK
PROCESSOR	1 Pentium D, 3 GHz	1 Dual-Core Xeon, 2.0 GHz, 1333 MHz FSB, Upgradeable to Dual Processor and 3.0 GHz				
MEMORY		1 GB (Up to 4)				2 GB (Up to 4)
HARDWARE RAID	Yes					
RAID LEVELS	0, 1, 5, 6, 10, 50 Single Disk & (JBOD)					
HOT SWAP HDD	4 – (R), 8 – (T)	4	8	12	16	24
EXTERNAL SCSI	Option	Option	2 – U320 VHD	2 – U320 VHD	2 – U320 VHD	2 – U320 VHD
INTEGRATED LAN	2 – 10/100/1000					
PCI EXPANSION SLOTS	0	0	2 – LP PCI-X	2 – FH PCI-X	2 – FH PCI-X	1 – FH PCI-X
COOLING FANS	3 – (R), 2 – (T)	4	4	4	6	8
POWER SUPPLY	300W PFC (R) 645W Low Noise (T) Redundant Option (T)	2 – 560W Redundant Hot Swap	2 – 460W Redundant Hot Swap	3 – 460W Redundant Hot Swap	3 – 460W Redundant Hot Swap	3 – 460W Redundant Hot Swap
DIMENSIONS HxWxD (in.)	1.7 x 16.7x27 (R) 17.1x7x25.5 (T)	1.7 x 17.2 x 25.6	3.5 x 19 x 26	5.25 x 19 x 26	7 x 19 x 26	8.75 x 19 x 26

RAID CONTROLLER SPECIFICATIONS

SATA VERSION

RAID CONTROLLER	AMCC/3Ware 9650SE Series
TYPE OF RAID	Hardware RAID with Dedicated XOR Engine and Onboard Cache
RAID LEVELS	0, 1, 10, 5, 50, 6 & JBOD
VARIABLE STRIPE SIZE	Yes
# OF DRIVES SUPPORTED PER CONTROLLER	4, 8, 12, or 16
DRIVE COMMAND QUEUING SUPPORT	Yes
MANAGEMENT UI	Web-based
HOT SPARE SUPPORT	Global per Controller
ARRAY PARTITIONING	Yes. Auto-Carving feature automatically creates 2 TB partitions
RAID LEVEL MIGRATION	Yes
ONLINE CAPACITY EXPANSION	Yes
ON-BOARD CACHE	128 MB (256 MB option)
CACHE BATTERY	Option

Security Features

- File Level Access Control Lists
- Local User/Group Database
- Microsoft® Active Directory Services™ (ADS)
- Microsoft NT Domain Controller (PDC)
- Unix Network Information Services (NIS)
- Lightweight Directory Access Protocol (LDAP)
- Embedded Operating System (Flash Module)

CONFIGURATION OPTIONS

Internal Storage Options

SERIAL ATA DRIVE CAPACITIES

250, 500, & 750 GB

PCI Expansion Slot Options

NETWORK ADAPTERS

1, 2 & 4 Port Gigabit Copper Server Adapters
1, 2 & 4 Port Gigabit Fiber Server Adapters

SCSI HBAS

1 & 2 Channel U160/320 SCSI HBAs

SCSI RAID CONTROLLERS

1 & 2 Channel U320 SCSI RAID Controllers

FIBRE CHANNEL HBAS

1, 2 & 4 Port QLogic FC HBAs

Support

- Three Year Warranty on System with One Year Advance Replacement on Components
- Toll Free Technical Support
- Extended Advance Replacement Programs
- 8 x 5 and 24 x 7 On-Site Support Available

