DATA SHEET

DRV (BS2000/OSD) V3.2

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Dual Recording by Volume

DRV is a system software product enabling BS2000-systems to mirror data on volumes. It is realized as part of the BS2000-I/O-system and works transparently for applications. The DRV-operation-mode increases the availability of data through volume-mirroring. Each write-task of the DMS (Data Management System) is with the aid of DRV executed on two disks. Read-tasks on the contrary are in DRV-operation-mode served by the faster one of the mirrored-disk-pair. So reading is usually faster in DRV-mode. In case of a disk crash DRV-mono-mode can be enabled. The crashed disk can be replaced without affecting the operating system or any applications. After disk-replacement the operator can switch back from mono-mode to dual-mode. Then a new mirrored disk will be automatically generated, i.e. the data are copied onto the new disk. DRV is able to mirror Public Volume Sets and Private Volume Sets, especially Home-Pubsets and Paging Pubsets. Source- and mirror-disks must be formatted in the same way. As of DRV V3.1/V3.2 even the mirroring of not equally formatted disks is possible. This simplifies the migration of data to the strategic disk-format 3435.

Product Characteristics

The product **DRV** (**D**ual **R**ecording by **V**olume) offers disk drive mirroring through dual recording on two disk drives (DASD) under BS2000.

Dual recorded disk volumes are highly available and enable applications using data on these disks to have high data availability. DRV stores a copy of a disk drive on another disk drive of the same type. The entire storage area of the drive is mirrored, not only single files on the DASD or a DASD-subset.

Functional Description

DRV is an add on to the I/O system of BS2000. It is initiated, controlled, monitored and terminated by a series of commands issued by the operator or system administrator.
Each write job from the DMS is performed on both disks and each read job on that with the shortest access time. In the case of read operations, performance is thus better than in single reading mode.

In DRV dual mode operation, expanded correction options in the case of disk defects are offered by means of the dynamic alternate track allocator (DALTA). If a recording error is detected upon reading, this can be rectified by the alternate track/ block allocator, without dual recording being terminated, as the data on the second disk is available for correction purposes.

If a drive fails, then the system switches from dual mode to mono mode (either autonomously via DRV or on the instigation of the operator/administrator) and all access operations are supported by the other drive.

With the aid of the operator or system administrator, the faulty drive can then be replaced by another of the same type, without interrupting the current applications. The operator then has the contents of the serviceable drive copied to the new drive (reconstruction), and dual mode operation can be resumed. The copying here takes place in parallel with the current operations.

After a system crash in the case of DRV dual mode operation, discrepancies between the data on the two disks cannot be ruled out. This situation is recognized by DRV, and is healed by an equalization procedure. This function guarantees consistent data on both disks, so that as far as an application program is concerned there is no difference to a system crash during single-disk operation. Therefore a DRV-couple with server-exclusive data-pubsets can easily be moved between servers of a failover-cluster (HIPLEX).

DRV enables dual recording of both public volume sets including home and paging pubsets (paging zones are excluded from the mirroring) and private disks. DRV is however not intended for disks with shared access by several servers (PPD, SPD or shared pubset in HIPLEX-configura-tions).

Disk storage subsystems can be set up at distances of up to 46 km from servers using ESCON channels and type S connection directors (Remote Copy with DRV; disaster recovery) or up to 150 km from servers using fiber channels and DWDM-technology (Dense Wave Division Multiplexing). This enables access to data in the event of complete storage subsystem failure (possible reasons: maintenance, repair, power failure, water flood or fire). Main advantage of DRV in comparison with hardware-

based solutions, is the possibility of switching to the mirror disk without application interrupt, i.e. the mirrored data are immediately available.

DRV V3.1/V3.2 offer special functions for the migration of data on CKD-/FBA-formatted disks of type D3490-xx,

D34211 to FBA-formatted disks of type D3435. In this way DRV V3.1 / V3.2 offer a fast and easy migration path for data used by S1-servers to data used by SX-servers or SQ-servers.

Supplementary Data on DRV

Hardware

- DRV V3.2 runs as of BS2000/OSD V6.0 on S/390-servers or as of OSD/XC V2.0 on SX-servers, as of OSD/XC V4.0 on SQ-servers and can be used with all disk storage systems released for these servers.

Recommended configuration:

- With DRV, the two copies are mirror images on two disks, capable of being processed via the same channel program. It is thus a prerequisite for dual mode operation that the devices, controllers, channels, or controllers and buses for SCSI disks, employed are of the same type. Additionally, the disks must be initialized with identical VOLIN parameters.
- In order to optimize access performance, the con-figuration should display broad independence of access paths, so that dual write operations may be performed on both disks in parallel.
- Large objects > 32 GB (Files, Volumes) are supported
- x-large catalogues are supported.

Software

DRV V3.2 can be run as of BS2000/OSD V6.0 or as of OSD/XC V2.0 on BS2000/OSD business servers. It runs as of OSD/XC V4.0 on SQ-servers.

Operating mode

Interactive and batch mode

Implementation language

SPL and Assembler

User interface

Command interface for operator and system administrator

Installation

Installation is via DSSM, and control of the product is effected with the aid of the operator / system administrator commands.

Documentation

DRV Reference Manual; download from http://manuals.ts.fujitsu.com/manuals.html

Demands on the user

Understanding of system administration and system generation

Conditions

This software product is supplied to the customer under our conditions against a single payment or installments.

Ordering and delivery

This software product may be obtained from your local Fujitsu Technology Solutions office.

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