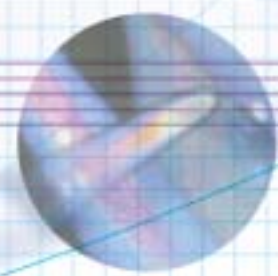
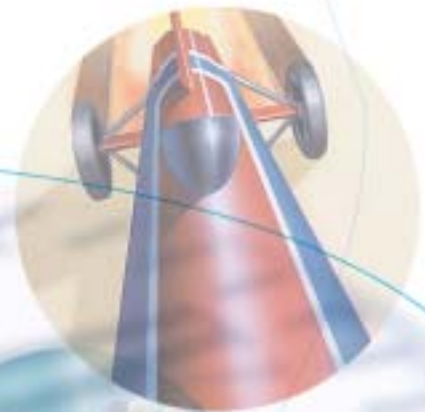


Product Brochure



Innovation Data Processing is recognized as a leader in providing storage solutions for OS/390 and z/OS users for more than 30 years. You can rely on INNOVATION software to be Efficient, Easy-to-Use, Reliable and backed with commitment to excellence for technical support.



Storage Management

FDR ■ FASTCPK ■ FDRINSTANT ■ ABR ■ FDRINC ■ FDRARC ■ FDREPORT ■ FDRAPPL ■ FDRREORG ■ FDRDRP



FDR > FDR is the base Backup and Recovery component for the FDR Family of Storage Management products. FDR features include high performance Volume Backup with Full Volume or Dataset Restore, Individual Dataset Backup/Restore and a powerful Dataset Copy/Move function.

FDR, combined with the optional Storage Management components, builds into a powerful and complete Storage Management System while the modular approach allows you to address, as a priority, areas of most concern.

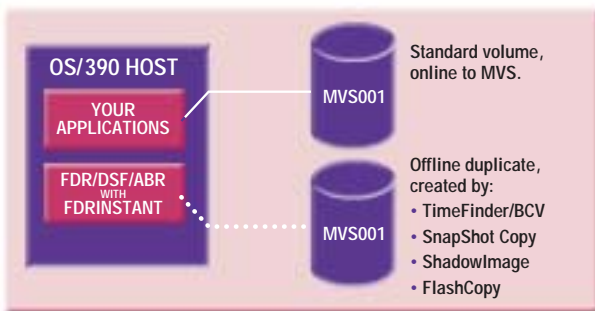


FASTCPK > FASTCPK can reorganize a 3390-3 in less than 2 minutes. FASTCPK will:

- Consolidate Free Space
- Merge multi-extent datasets
- Release all or a percentage of space on PS, PO, DB2 and VSAM datasets.



FDRINSTANT > FDRINSTANT provides the ability to take "instant" point-in-time backups from the offline duplicate. As shown in the diagram, this can be done while applications (CICS, TSO, Batch, etc.) continue to use the real data on the original online volumes.



FDRINSTANT works alongside FDR and ABR, and in conjunction with DASD Subsystem facilities such as EMC TimeFinder™, StorageTek/IBM SnapShot® Copy, HDS ShadowImage and IBM FlashCopy, which can all create offline duplicates of DASD volumes, seamlessly without disruption for near 24 x 7 availability.

FDRINSTANT easily works with DB2. Utilizing DB2 LOG SUSPEND, FDRINSTANT allows you to backup DB2 without closing the system. FDR supports RESTORE of the entire DB2 system and individual TABLESPACES.

FDRINSTANT supports FlashCopy V2, EMC Snap and SnapShot Copy, which allows you to copy datasets in a few seconds.

User Comments

We have been using FDR for more than 20 years. We use FDR to recover all of our volumes at our disaster recovery site and find FDR easy to set up and very fast in restoring all of our volumes.

As our needs have changed, Innovation has provided complementary products to FDR like FDRINSTANT and FDRDRP to meet and exceed our needs.

Last night, I released 17,577 tracks and eliminated 2,412 free space areas. FASTCPK did that in 11 minutes on 196 volumes. Some volumes are bypassed, as I only compact volumes with a FRAGI index above .300. By compacting nightly, I can reclaim all of the overallocated space and because the free space is optimized we have significantly reduced the number of multi-volume datasets that are created.

In the past, every increase in DASD space has led to an increase in the nightly backup times. But now we no longer have to worry when we put more DASD on the floor. As new subsystems are added, the required FlashCopy's will run in parallel with the existing ones, so even if we had 10TB or 20TB of DASD, we'd still only need minutes to create the frozen, point-in-time images!

The combination of the IBM ESS SHARK DASD, together with the FlashCopy and FDRINSTANT software, now allows us to take an essential, tape-based backup of all our production data with just a 5-minute downtime! Now we have full protection for all of our corporate data. We're covered for major disasters and local home-site restores.

We use FDRINSTANT with ShadowImage to backup 800 volumes. The PSPLIT for the 800 volumes takes 2.29 minutes. Before the PSPLIT we issue a LOG SUSPEND to put the DB2 system into a consistent read only status. After the PSPLIT (About 3 minutes later) we issue a LOG RESUME and DB2 is available for Read/Write access to the primary volume.

Innovation provided support for IBM's FlashCopy Version 2 as soon as it became GA. Now when we copy datasets, it completes in a few seconds.

Storage Management

FDR ■ FASTCPK ■ FDRINSTANT ■ ABR ■ FDRINC ■ FDRARC ■ FDREPORT ■ FDRAPPL ■ FDRREORG ■ FDRDRP



ABR > ABR consists of 4 individual components which add a powerful layer of advanced features and automation to the base FDR component:

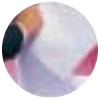
- Incremental Backup
- Archiving with Auto Recall
- Application Backup
- FDREPORT



FDRINC > Full volume and incremental backup which optionally interfaces with FDRINSTANT to provide non-disruptive backup. These are managed backups with automated volume reconstruction.



FDRARC > Space Management. Moving datasets from primary volumes to less costly medium with automatic recall when needed. Multiple copies of an archived dataset can be made to meet onsite and offsite disaster recovery requirements.



FDREPORT > FDREPORT, a powerful Reporting Tool that can gather information from a variety of sources, such as VTOCs, Catalogs, VVDS, ABR Control Files and the DFSMSHsm MCDS and BCDS. The information gathered from these sources can then be presented in highly tailored and flexible reports (or displayed online), with full control over titles, column headings, sorting, summarizing and page breaks.

FDREPORT is designed to report on large amounts of data from various sources without sacrificing performance.



FDRAPPL > FDRAPPL is designed to backup all datasets that relate to a given application, from whatever disk volume they reside.

Simple control cards to select critical files:

```
DUMP          TYPE=APPL
SELECT       CATDSN=HOURLY. PAY**, CATLI MI TGDG=1
SELECT       CATDSN=PAYROLL. **
```

FDRAPPL maintains a database which records all of the backup information, allowing for easy restores of the current or older backups.

User Comments

Using ABR we converted our backups from DFSMSHsm and reduced our backup time and CPU time by 70%. Interface with FDRINSTANT allows the backup to be made from our split BCV's.

It is a straight-forward and effective DR plan. We restore our 1-pack MVS system with Innovation's Stand Alone Restore (SAR). Then we restore all our DASD volumes (including the DB2 disks) with FDR/ABR. Once everything is restored, we IPL our full system and away we go!

Our user's DASD space needs continue to grow but by archiving aggressively with ABR, we have been able to meet our service levels without buying more DASD capacity.

FDREPORT is and has been in use in our organization from early 1993. The product continues to be our primary data gathering and reporting tool for DASD management. There are several reasons for our continued reliance on FDREPORT:

- the ease of job set up
- flexibility for extracting data elements
- punch file facility incorporating masking
- summary capabilities
- the number of file elements available for extraction
- professional output report format
- speed and efficiency of the reporting process
- SMS/HSM compatibility
- and our not having to code/support programs of any nature.

FDRAPPL is comparable to ABARS within DFSMSHsm except that FDRAPPL is significantly faster and offers more flexible selection criteria.

We use FDRAPPL to backup all of the User Catalogs and other Critical Dataset three times a day.

Storage Management

FDRDRP ■ FDRREORG ■ IAM ■ IAM/AIX



FDRDRP > FDRDRP (Disaster/Recovery product) makes it practical to restore data right up to the point of the most recent incremental. FDRDRP enhances ABR volume recovery so that multiple disk volumes that have been backed up onto high-capacity tapes can be restored in one pass of each tape. This eliminates repeated mounts of the backup tapes and greatly reduces the elapsed time at the disaster recovery site.



FDRREORG > FDRREORG provides highly efficient reorganization services for VSAM, IAM and PDS datasets, outperforming utilities like IDCAMS and IEBCOPY. FDRREORG's intelligent selection criteria ensures that only the files that need reorganization are processed.

To increase availability, FDRREORG can be used to speed the reorganization of files like DFSMSHsm OCDS (offline control dataset) and the MCDS and the BCDS.



IAM > IAM, a transparent alternative to VSAM, eliminates VSAM's bottleneck by slashing I/O and CPU time. IAM's Real Time Tuning monitors I/O activity, dynamically changing the number of buffers and I/O chaining. IAM completely eliminates the I/O to the VSAM index. IAM executes fewer instructions per record request. Batch processing times are dramatically reduced by 50 to 80%. Customers can use IAM Record Level Sharing support to run multiple batch jobs and CICS regions that concurrently update the same IAM file on a single system image.

IAM does not require users to make any modifications to their operating system or the applications.



IAM/AIX > IAM/AIX, Alternate Index Support allows you to convert VSAM files with alternate indexes to IAM files. IAM/AIX uses 20 to 70% less CPU time than VSAM. IAM/AIX also includes support for VSAM RRDS type files.

User Comments

Results of our initial testing of the DRP restore process were even better than expected. On the test LPAR this weekend, we restored 101 production volumes from a full volume and one incremental backup tape in less than 2.5 hours.

FDRDRP cut the D/R time from 20 hours down to under 8 and a half.

We are able to compress PDS in 75% less time with FDRREORG.

FDRREORG took 3 hours to REORG a VSAM file that spanned 9 volumes compared to 12 hours with IDCAMS.

Our system resources were strained but with IAM's superior file structure and data compression we averaged a 60% savings in DASD space.

We have postponed a CPU upgrade by 18 months because we switched all of our VSAM files to IAM.

A sample of 3rd party applications that IAM users have converted from VSAM to IAM.

VENDOR

American Management
CA
Cyborg
GEAC
Global Software
Group 1
HBO/HealthQuest
Hogan
IBM
Mobius
Paysys
Pitney Bowes
SAP
Siemens Medical
Walker

PRODUCT

Financial
CA7/CA11
Payroll
AP/AR
Fixed Assets
Code 1/Plus
Medipac
Banking
RMDS
ViewDirect
Vision+
Mailers Choice
R2
Invision
HR/AP/AR

Tape Utilities Group

FATS/FATAR ■ FATSCOPY



FATS > **The Media Tool**

Erase Tapes: Erase all data on a tape before it is discarded.

Certify Tapes: Insure that new and existing tapes do not have errors that would cause costly reruns.



FATAR > **The Data Tool**

Mapping a Tape: Verify the characteristics of a tape, what files are on tape, how many, names, DCB characteristics, blocksizes, creation and expiration dates, compression statistics and more...

Copying a Tape: FATAR can make an exact bit for bit image copy of an input tape, or can do logical copies, allowing you to rename, reblock, and selectively copy files from the input tape.

Error Recovery: FATAR extensive error recovery allows you to read (and copy) tapes that have had tape errors, avoiding significant rerun time.



FATSCOPY > **Media Conversion**

Convert and Stack: FATSCOPY can convert tape datasets from one media type to another. For example, you could convert 100 3480 tapes to an IBM 3590 Magstar tape or an IBM 3592 tape cartridge and all of the files on the 3480s will be stacked on the 3590 or 3592 and recataloged, transparent to the using application. FATSCOPY supports CA-1 and IBM's RMM tape management systems.

VTS Support: Tape files can be moved to a VTS (Virtual Tape Server) or from a VTS to real tape. FATSCOPY supports VTS, VSM, CopyCross and CA-VTAPE.

User Comments

FATS/FATAR allowed us to quickly evaluate and correct tape related problems.

The alternatives—loss of data, failed attempts to recreate data and possibly sending tapes offsite to specialist recovery services—are not acceptable.

We used FATS data security erase feature to erase data from tapes prior to disposal and since we exchange tapes with many other companies, we erase the entire tape to ensure all previous data is destroyed.

We had 1000's of 3480/3490E tapes in our disaster recovery site. We used FATSCOPY to copy them to IBM 3590 Magstar tapes which reduced our offsite storage cost by 90%!

Would you like more information on...

Product Brochures > Our Product Brochures provide a clear, concise, overview of each of our Storage Management Products.

Concepts & Facilities Guides > The Concepts and Facilities Guides provide a good level of commercial and technical information, without all of the detail information available in the full manual. The Concepts Guides are now available on CD-ROM.

Product Fact Sheets > The Fact Sheets are brief technical introductions to our Storage Management Products designed to be read in less than 5 minutes each. Fact Sheets give a general overview of Innovation Products. It describes the product's key features and capabilities and also highlights the benefits it offers over other products.

White Papers > We have produced several White Papers, which focus on a particular key Storage Management issue (e.g. Non-disruptive Backup of DB2 databases).

User Stories > Why take our word for it when you can hear what some of our satisfied users have to say? Take a look at various testimonials for Innovation Products. Find out how these companies are taking advantage of the benefits provided by Innovation's Storage Management Solutions.

*To request any of the above, or for any other information about Innovation or its products and services, contact us at: sales@fdinnovation.com or visit our website at: <http://www.innovationdp.fdr.com>
European Customers: Please see back page for contact information for your local office.*



Windows/Open Systems Backups

FDR/UPSTREAM ■ UPSTREAM OS/390 UNIX ■ UPSTREAM S/390 LINUX ■ FDR/UPSTREAM/SOS ■ FDRSOS



FDR/UPSTREAM > FDR/UPSTREAM is a comprehensive, powerful, high performance storage management solution for backup of most of the open systems LAN/UNIX platforms and S/390 Linux data to OS/390 or z/OS mainframe backup server. UPSTREAM will provide automated operations with fast, reliable and verifiable backups/restores/archival and file transfers that can be automatically initiated and controlled from either client or the mainframe backup server. UPSTREAM provides unique data reduction techniques including online database agents offering maximum safety with superior disaster recovery protection.



UPSTREAM OS/390 UNIX > UPSTREAM OS/390 UNIX provides file level granularity that includes file level, incremental backup processing for the OS/390 UNIX System Services including the HFS and zFS file systems without having to dismount or take the system offline. Also with online support for Lotus Notes Domino!



UPSTREAM S/390 Linux > FDR/UPSTREAM provides extensive support for S/390 LINUX on S/390 and z/OS hardware and supports file level backups without having to dismount or take the system offline. UPSTREAM writes directly to OS/390 or z/OS mainframe tape or DASD and uses the z/OS or OS/390 tape management system, Security and Scheduling systems, to allow multiple simultaneous backups and restore operations. UPSTREAM features include support for Online Database agents while providing disaster recovery protection with the S/390 Linux Rescuer that will recover your system and data files.



FDR/UPSTREAM/SOS > FDRSOS and FDR/UPSTREAM/SOS features extremely high-speed backup/restore for open systems SCSI/Fibre disk devices across ESCON/FICON channel connections. FDRSOS supports the EMC TimeFinder feature that reduces the downtime for open system backup to seconds.

User Comments

The installation of this product on the server was extremely easy to do. The backup was made to virtual tapes (VSM) in a test partition on the mainframe. Some advantages I see we can get out of this product are among others:

- *It eliminates the need to purchase new cartridges 9840 (\$80 - \$100) for Open Systems*
- *It eliminates the need to acquire vaulting and tape management tools for Open Systems because they already exist with UPSTREAM*
- *Makes backup possible of any PC in the company*
- *Is extremely easy to install and manage*
- *Supports different platforms (Windows, Exchange, SQL, Solaris, etc.)*
- *Possible to consolidate backups to one single platform*
- *Finally, even though the FDR/UPSTREAM product works through TCP/IP, the possibility exists to acquire cards that can connect Windows servers directly to mainframe, which will make the transmission even faster.*

FDR/UPSTREAM in my opinion is the only option for a "Enterprise" backup system. The development and implementation of the "Director" is an example of the commitment at Innovation to make UPSTREAM the best product to be used for Enterprise backups.

Thanks for your help yesterday. I was able to restore all the files that got wiped out from the virus attack. UPSTREAM saves the day again.

Using UPSTREAM's zLINUX Rescuer we were able to completely recover a 24 x 7 zLINUX image, this is something that volume backups could not do for us.

We use FDR/UPSTREAM/SOS to backup DB2 UDB and Lotus Notes databases. Support is always top notch in that the techs are very knowledgeable and professional, no matter if it's for a simple configuration issue or something like the next example. We had our first DB2 disaster recovery test for Intel and AIX platforms and it was a great success.

FDRSOS is a real lifesaver when it comes time to recover data during DISASTER RECOVERY testing. We submit a single batch job that restores multiple volumes simultaneously and within an HOUR our E-mail database is restored and available.

Non-Disruptive DASD Migration

FDRPAS



FDRPAS > FDRPAS allows an OS/390 or z/OS installation to:

- Swap disk volumes from their current locations to new disk hardware
- Move disk volumes within the installation for load balancing
- Do this volume movement without interrupting any system activity
- Do this volume movement during normal system operations
- Swap shared DASD on all sharing systems simultaneously

Non-Disruptive—The operating system, application jobs, online systems, and users will be unaware that FDRPAS is swapping disk volumes to new disk devices. When FDRPAS completes the swap of a disk, the volume resides completely on the new device, and the original device is no longer required. When all volumes on an old disk subsystem have been moved to new locations with FDRPAS, the old subsystem can be powered off and disconnected.

24 x 7 Installations—have no window for major re-configurations and hardware changes. OS/390 hardware and software allows you to attach new disk subsystems (hardware) to your system and dynamically activate an updated I/O configuration to make them available. FDRPAS complements that capability by allowing you to move the data from existing volumes to this new hardware while those volumes are still in use.

Move Terabytes of Data—Even installations with maintenance windows do not have the time to move the terabytes residing in large shops. FDRPAS allows you to swap large number of volumes during normal business hours.

Versatility—FDRPAS can swap volumes in use on a single system image, as well as those attached to multiple systems or LPARs in a shared-DASD complex or sysplex, whether locally or remotely attached. Multiple volumes can be swapped concurrently.

I/O Load Balancing—When the I/O load in one or more disk subsystems is excessive, while other subsystems are underutilized, you can use FDRPAS to rearrange your disk volumes to equitably distribute the I/O load and improve performance.

User Comments

- *Increasing online availability and improving service levels through continuous application availability with full read/write access of critical 24 x 7 applications*
- *Eliminating the need to IPL in order to migrate system volumes to new technology*
- *Avoidance of additional manpower to convert to new storage devices. The estimated man hours for the past year were over 500 hours*
- *Gaining flexibility in adding new storage technologies from any vendor*
- *Scheduling data migrations during normal business hours as well as weekends*
- *Cost avoidance of lease and maintenance overlap*
- *Eliminate the need to stop weekend batch processing to upgrade to new storage subsystems*
- *Provide real-time flexibility to address DASD performance issues*

I would just like to let you know that we have completed our initial move of DASD volumes. In all we moved approximately 3,400 volumes from 11 RVAs to 9 RVAs. We are now planning to use FDRPAS to help us reconfigure our existing pools to better accommodate our growth and the use of SnapShot.

Your product FDRPAS is a wonderful product. It was easy to install and worked as advertised. This product has saved literally hours of system downtime and weekend work for me by being able to move data from one set of DASD to another. I was able to move massive amounts of production data from our older RAMAC disk drive to our new ESS (SHARK) in a fraction of the time it would have taken without FDRPAS.

Since FDRPAS swaps to an offline volume, it saved us the time and inconvenience of pre-initializing with ICKDSF the new volumes.



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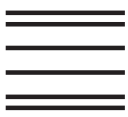
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