

Raising the Standard of Corporate Data Protection

innovation

You're a Senior Storage Analyst at Europe's largest mutual life assurance company. You've currently got 6Tb of OS/390 production data on the floor, and your latest project is to implement a strategy for Corporate Data Protection that will cover not only today's requirements, but also those of the future. Quite a daunting task, and not one for the faint-hearted. Jim Armstrong, of Edinburgh-based Standard Life accepted the challenge of re-vamping the company's Corporate Data Protection with relish!

"From the start, I knew that the existing backup plan had to be reviewed..."

The nightly backups were taking longer and longer to complete (see side bar), causing delays in the start-up of the overnight Batch processing. So, after reviewing various options, and after talking to numerous hardware and software vendors, **Standard Life** eventually opted for a solution based on Remote Mirroring technology.

"We set up a separate data centre 10km away from the main site. We installed 6Tb of IBM ESS Shark Dasd to match what we already had installed. Then, using PPRC/GDPS, we implemented Remote Mirroring to give us a live, duplicate copy of all our Production data..."

However, while Jim and his colleagues knew that the PPRC copies would give them first-class Disaster Recovery protection, there were still some issues to be resolved...

The Existing Backup Plan

The 'online day' finished at 23:00. This was followed by a 30-minute period of system shutdown/quiesce activity, after which the daily DR backups were taken.

The backup process (utilising DFDSS) started at 23:30 and ran for 2-3 hours. Then, around 02:00 in the morning, when the DR backups had completed, the nightly Batch processing could begin.

This Batch work, which usually ran for approx 4 hours HAD to be completed by 07:00 at the latest, so as not to impact on the re-start of the 'online day'.

The Problem

Although the PPRC Remote Mirrored copy of the production data provided an excellent protection against a full disaster (i.e. the loss of the main Data Centre), this mirrored data could *not* be used for recovering datasets that had been accidentally deleted or corrupted by users:

"The accidental deletion or corruption of the prime copy of a dataset would be immediately reflected on the mirrored copy, so we knew that we had to continue to take some form of traditional, tape-based backup from which we could do the restores of individual datasets. And we also wanted to ensure that we had something to fall-back on in the event of a larger scale corruption of our data. Clearly, we still needed a system-wide, daily backup of all 6Tb of our production data..."

But Jim and his colleagues had to find some way of taking these daily backups without causing a 2-3 hour delay in the start-up of overnight batch...

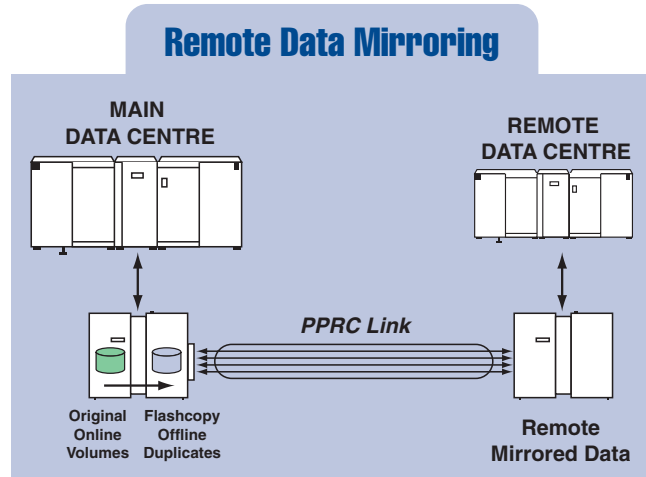
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The first step to the eventual solution to the problem was found in *FlashCopy*, which **Standard Life** purchased along with the IBM ESS Shark Dasd Subsystem and the PPRC Remote Mirror software. *FlashCopy* allows the creation of additional, *local* mirrors of primary Dasd volumes, in addition to the remote mirrored PPRC copies already described.

These ‘local’ paired mirrors of primary volumes, which ordinarily remain offline to MVS, can be detached at any time to provide a frozen point-in-time copy.

Once the system activity has been quiesced, *FlashCopy* sessions are initiated to create (and then split) the duplicate volumes—a process which takes only a few minutes, even for Standard Life’s 6Tb of data.

After the duplicate volumes have been created, they can be used as input to the nightly DR backup process while the primary copies are *immediately* available for the overnight Batch process—thus eliminating the 2-3 hour backup window. Unfortunately, Jim and his colleagues found that their existing backup software could not *directly* access the offline *FlashCopy* mirrored volumes.



“Running our existing backup software against the offline mirrors involved renaming the volumes and bringing them online to MVS. This presented serious problems during the restore process, and we simply can’t afford to waste time. When users want their datasets restored they want them back ASAP, not three hours later...”

So Jim and his colleagues replaced their existing backup software with Innovation’s FDR Dasd Management System. The **FDRINSTANT** module *does* allow direct access to the offline mirrors.

As you can see from the Before/After comparison, the combination of *FlashCopy* and **FDRINSTANT** gave Standard Life exactly what they were looking for...

Before	After
23:00 End of online day Start system quiesce	23:00 End of online day Start system quiesce
23:30 Start DFDSS backups	23:30 Start <i>FlashCopy</i> session
	23:35 <i>FlashCopy</i> complete
	23:40 Start overnight batch (Run FDRINSTANT backups as an offline task...)
02:00 Backups complete	
02:00 Start overnight batch	
	03:40 Batch complete
06:00 Batch complete	
07:00 Beginning of online day	07:00 Beginning of online day

“FDRINSTANT has unlocked the usage of the frozen, point-in-time mirrors. Now we can just dump straight from the offline disks!”

As a result, the overnight batch process no longer has to wait for the DR backups to complete. Now it can start at 23:40 instead of 02:00, allowing the Batch process to complete at 03:40 instead of 06:00.

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Jim and his colleagues have also found some other benefits with the utilisation of the FDR Dasd Management System. They are using **FDRINSTANT** to 'drive' the standard **ABR Incremental Backup** system, and this has removed some of the problems encountered with the old 'manual' backup process. In the past, they were frequently let down when it came to restoring datasets. Often, when a critical dataset had to be recovered, it was discovered that no backups had been taken, due to the manual "select/exclude" nature of the backup process.

"Now, when users delete or corrupt a dataset, I can be sure that there's a backup of the dataset available and, more importantly, that it can be restored as quickly and easily as possible..."

And What About The Future?

As well as the immediate results highlighted above, the combination of *FlashCopy* and **FDRINSTANT** also offers some key benefits for the future...

"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 FlashCopys will run in parallel with the existing ones, so even if we had 10Tb or 20Tb of Dasd, we'd still only need 5 minutes to create the frozen, point-in-time images!"

The final words on the project belong to Carol Borse, the Manager of Standard Life's Storage Management Group, and Jim Armstrong's boss...

"I'm delighted. The project was completed on time—we went live on the final day!"

"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..."

If you are using any of the following Dasd Subsystems, contact us today to find out what FDRINSTANT could do for you!

StorageTek 9500 SVA



StorageTek with SnapShot Copy

IBM ESS 2105



IBM Shark Dasd with FlashCopy

EMC Symmetrix 8000



EMC with TimeFinder


Hitachi 9900



Hitachi with ShadowImage

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To find out more about how you could use FDRINSTANT for your Corporate Data Protection, please ask for a copy of our White Paper...



A White Paper on Corporate Data Protection with a Special Focus on DB2

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