ERGO Group

"We are very satisfied with FDR/UPSTREAM. Ten years on from its initial implementation, it still does exactly what we want it to do. It gives us a good, solid, fast and reliable backup of our open systems data…"

Roman Jost
Storage Management Department Leader,
ErgoGroup AS

USER STORY

INNOVATION® DATA PROCESSING

About ErgoGroup

ErgoGroup is one of Norway's leading IT companies with a turnover of NOK 2.6 billion in 2004 and 1,500 employees. ErgoGroup offers outsourcing, electronic and business solutions and consulting services. ErgoGroup's head office is in Oslo, with local offices from Alta in the North to Kristiansand in the South, plus operations in Sweden.

ErgoGroup Case Study:

This case study celebrates 10 years of ErgoGroup's utilisation of FDR/UPSTREAM.

From its initial implementation on a handful of UNIX servers, FDR/UPSTREAM is now used to backup over 600 servers located at more than 200 offices across Norway.

The servers range in size from 200 MBytes to 600 GBytes, total around 8 TBytes (compressed) in all, and run a mixture of operating systems which includes **Windows**, **UNIX**, **Solaris** & **Linux**.

FDR/UPSTREAM's special database application agents are utilised to secure data belonging to **MS-Exchange**, **Lotus Notes** and **Oracle**.


ERGO Group

...In the mid-1990s, the MVS OS/390 team at a company, which is today owned by ErgoGroup, was handed the responsibility for backing up the company's UNIX (AIX) servers...

"At the time," recalls Roman Jost, ErgoGroup's current Storage Management Department Leader, "we had been using a fairly basic backup system to secure around 10 UNIX servers. These servers were running quite high profile, business-critical systems, and some of them were accessed by over 500 online users at a time. The backup procedures that were in place were neither reliable, nor appropriate for the type of data that was being secured..."

When they started investigating the possibilities for implementing a new and more robust backup system, they were keen to use the resources already available to them under the OS/390 Operating System.

"Right from the beginning of the project, we knew that we wanted to utilise the existing MVS mainframe infrastructure: the tape silos, the tape management system, the security system and the job scheduling system, as well as our tried-and-tested procedures for automated 24-hour operations. These were all the things that we wanted to introduce to the UNIX backups, and it really didn't make any sense to try and recreate all of that infrastructure elsewhere in our network..."

"It sounds simple to say it now, but the primary reason we chose FDR/UPSTREAM over the other product was because it actually worked!"

After evaluating the UNIX backup market, ErgoGroup eventually reduced the list down to two possible products, on which they then carried out a detailed study. The product that was eventually chosen was FDR/UPSTREAM from Innovation Data Processing.

"It sounds simple to say it now, but the primary reason we chose FDR/UPSTREAM over the other product was because it actually worked! We got it installed and running in less than a day, without any fuss, and it did exactly what it was supposed to do. It was also much simpler to use than the other product. In a straight head-to-head comparison there was simply no contest between the two: FDR/UPSTREAM was the obvious choice for us."

Aside from the clear technical advantage, there was also another reason why FDR/UPSTREAM was eventually chosen for the project. ErgoGroup was already familiar with Innovation Data Processing through the use of its MVS Dasd Management System. The FDR/ABR product had been successfully backing up their mainframe data since the mid-1980s.

"We knew that Innovation produced good, reliable products and we'd always been particularly impressed with its Technical Support. As the UNIX operating system was something new to us in the MVS team, it was comforting to know that we'd be using a product from a company with which we already had a good working relationship. We knew that they would be there to help us if we needed it."

Indeed, during the initial few weeks of using FDR/UPSTREAM, the team had to do some TCP/IP tuning on their own system, while at the same time some changes were also made to the TCP/IP coding under FDR/UPSTREAM itself to ensure optimum performance of the backups. "This was a good illustration of our strong working relationship with Innovation's Technical Support," comments Roman.

The "comms testing" facility of FDR/UPSTREAM was particularly useful in assisting with this tuning work. At a basic level, it showed whether the links from the UNIX boxes to the mainframe were functioning. Then, once those links were established, and based on expected performance figures, they could then see where additional tuning work was required

"Part of the problem was that our network was not really optimised for running backups," admits Roman, "But the Innovation tech guys were particularly helpful in this respect. They gave us plenty of advice on the TCP/IP tuning that was required. We learned a fair bit about network performance and tuning in those first few weeks!"


2000


...The measure of success of that initial project is best illustrated by events several years further down the line, towards the end of the 1990s, when one of ErgoGroup's current customers decided to replace its ageing OS/2 servers with Windows/NT...

A decision was also made at the same time to replace all "dumb" user terminals with PCs. These changes lead to an explosion of new Windows/NT servers — 300 new file/mail/print servers at 200 locations around Norway.

"We'd gained a huge amount of respect within the company with the first project of FDR/UPSTREAM on UNIX," explains Roman. "For that reason, it was no surprise to us when we were also given the responsibility for backing up these new Windows/NT boxes. We already knew that FDR/UPSTREAM had a backup agent for Windows/NT, so expanding the usage of FDR/UPSTREAM out onto the Windows/NT platform was pretty straight-forward for us".

With the exception of some more TCP/IP tuning, scaling up the FDR/UPSTREAM usage from just 10 servers to over 300 went without a hitch. The client panels under Windows are similar to those under UNIX, so the transition from one client interface to another was also seamless.

"Aside from the new Windows servers, we were still backing up the original UNIX servers as well," explains Roman. "With our MVS data still being secured by FDR/ABR, and with FDR/UPSTREAM now covering our Windows and UNIX data, Innovation was providing us with a true enterprise-wide solution for all our storage management".

Almost 10 years on from that original project, FDR/UPSTREAM is still the primary backup solution for ErgoGroup's open systems data. Jørn Ellingsen is one of the guys currently responsible for maintaining FDR/UPSTREAM backups.

"We have around 600 servers spread around the country," explains Jørn. "They range in size from 200 MBytes to 600 GBytes, and total around 8 TBytes of data (compressed) in all".

These servers run a mixture of platforms, including Windows, UNIX, Solaris and Linux. The majority of them are file/print servers, but there are also business critical systems such as MS-Exchange, Lotus Notes and Oracle. FDR/UPSTREAM is used to backup the majority of these servers. In the case of the MS-Exchange systems, FDR/UPSTREAM's special MS-Exchange agent is used to run non-disruptive "hot" backups.

"We are very satisfied with the performance of FDR/UPSTREAM," Jørn enthuses. "It enables us to get the very best out of our highly-tuned network and our MVS tape hardware."

> ***"Running a single stream backup on a 1Gbit Ethernet link to an IBM 3592 robot with Jaguar tapes, we are backing up around 140Gbytes/hour (uncompressed data)..."***
>
> *(See back page for more details)*

This performance allows ErgoGroup to run full FDR/UPSTREAM backups every weekend, and this is done quite comfortably within the window available. Then, every evening during the week, incremental backups are run.

"Because of the "low update" nature of some of the data (mainly on the file/print servers)," explains Jørn, "the incrementals run in just 10% of the time required for a full backup. That's a massive saving for us, not only in elapsed time, but also in the utilisation of MVS resources, such as CPU usage and, of course, tape."

While the initial creation, definition, and maintenance of the FDR/UPSTREAM backups is carried out by Jørn and other members of the Open Systems team, the MVS side of the operation is looked after by Johnny Ryddheim, ErgoGroup's z/OS Storage Manager.

"It's pretty straight-forward from our end," Johnny explains.

"We control the FDR/UPSTREAM backups in the same way that we control our FDR/ABR z/OS backups. We initiate them through our CA-Jobtrack scheduler, we write them to either disk, to stand-alone Jaguar tapes, or to our VSM system (depending on client requirements), and we control their retention and expiration with standard z/OS retention periods. As far as I'm concerned, the FDR/UPSTREAM backups are just another set of backups that I need to look after."

In the case of the massive 300GBytes Jaguar tapes, FDR/UPSTREAM's "Deferred Merge" process is of vital importance, as Johnny explains. "If the backups are destined for a Jaguar, we write them initially to disk, then later we use the Deferred Merge process to combine/stack them onto a single Jaguar tape to optimise usage."


2005

INNOVATION® DATA PROCESSING

This flexibility and ease-of-control of FDR/UPSTREAM is vitally important to a company like ErgoGroup, which is running backups for multiple clients.

"FDR/UPSTREAM is flexible enough to allow us to give each customer exactly what they want," explains Johnny. "If a customer wants a second copy of every backup — no problem, we can do that for them. If they need different retention requirements for their backups, we can cope with that too. Essentially, we treat each client's backups separately, but we use the same tool for all: FDR/UPSTREAM. "

Of course, ErgoGroup has to keep the data for each client completely separate from other clients, and that includes the backups. To accommodate this, they run multiple instances of FDR/UPSTREAM. As Johnny explains, "FDR/UPSTREAM's flexibility and co-operability allows us to currently run 14 separate instances of the product across 3 separate z/OS LPARs".

"FDR/UPSTREAM is flexible enough to allow us to give each customer exactly what they want."

The ability to monitor and keep track of all the different backups for each customer is of key importance to both Johnny on the z/OS side, and Jørn Ellingson from the Open Systems perspective.

"FDR/UPSTREAM has good event recording facilities," explains Jørn. "Every day we extract information from its event logs and push it out to a home-written web interface. This allows both ourselves and our clients access to information about the success or failure of any given backup".

The actual restoration of data from a backup is carried out by a 2nd level support help desk. As Jørn explains "FDR/UPSTREAM restores are pretty straight-forward, so the help desk people need only minimal training before they can carry out those restores. The service they offer to our customers is first class. With the flexibility of FDR/UPSTREAM, they can restore anything from a single file to a whole server — whatever the client requests."

ErgoGroup also does regular disaster recovery tests to ensure that they can quickly and easily recreate all of their open systems data in the event of a full-blown disaster. Unlike the ad-hoc restores carried out by the help desk, the recovery of all open systems data (i.e. in a disaster) falls under the responsibility of Johnny and the z/OS team.

"It makes sense really," explains Johnny. "We already had the tried-and-tested procedures in place to recover our z/OS data in the event of a disaster, so it was logical to include a recovery of the Open Systems data within that process. As far as we are concerned, its just another bunch of restores that we need to do. And we can recover the data on these servers without the need for specialist Open Systems knowledge. Once the base operating system has been restored and the communications have been re-established, we can just roll-back the user/application data from the standard FDR/UPSTREAM backups.

Jørn and Johnny pick up again on the subject of Innovation's highly rated Technical Support, as mentioned earlier by Roman Jost.

"Yes, we're very impressed with the tech support that we get from Innovation," agrees Jørn. "As an example, I once rang them at around 17:00 with a new problem in a backup job. By 23:00 on the very same day they'd identified the cause of the problem and responded with some new code. Some of the other companies we deal with take longer than that just to give us a problem number!"

Overall, both Jørn and Johnny are very happy with FDR/UPSTREAM. Aside from the primary function of backup and restore, they also use some of the subsidiary functions, which are included in the product.

As for the future, it's back to Roman Jost for the final word. "We're very satisfied with FDR/UPSTREAM — 10 years on from its initial introduction it still does exactly what we want it to do. It gives us a good, solid, fast and reliable backup of our open systems data. In fact, we have recently proposed its utilisation to one of our clients".

"Looking ahead," says Roman, "we are aware of the recent addition of "SAN Express" into the Reservoir Version of FDR/UPSTREAM, and we'll be tracking the progress of that new feature with great interest…"

Aside from the principal functions of backup and restore, ErgoGroup also makes extensive use of some of the subsidiary functions of FDR/UPSTREAM, which are all included in the product...

File Transfer

"We use the file transfer facility quite extensively," explains Johnny. "Every day we have production processes which automatically transfer data files between an MVS batch job and an application running out on the Open Systems, or vice versa. This is an extremely high-profile, business-critical process, so the reliable and automated control provided by the FDR/UPSTREAM file transfer facility is absolutely vital."

File Migration

Jørn uses one of FDR/UPSTREAM's other subsidiary functions: file migration. "Some of our servers contain numerous user log files which we need to keep, but which we don't really want left lying around on disk all the time. We use the file migration facility of FDR/UPSTREAM to back them up to tape and then automatically delete them from disk. Aside from the obvious disk saving (often several GBytes at a time), it keeps everything generally tidy, and keeps those logs files out of the weekly full backups. There's simply no point in backing them up every week if they haven't changed. We really only need one copy of them, which we can now create and store separately."

Automated Restore

And one other subsidiary function is also used to maintain FDR/UPSTREAM itself. As Johnny explains, "We use the automated restore process as a kind of basic software distribution system. Every time we install a new version of the FDR/UPSTREAM client software, we take a backup of it as well. Then, when other FDR/UPSTREAM clients log into the system, we send an automated restore to update the client software. FDR/UPSTREAM really does look after itself!"

Backup Performance Details (For A Selected Case)

ErgoGroup is backing up a 450GBytes (uncompressed) Exchange 2003 server, running on a Windows 2003 platform, using FDR/UPSTREAM and the Exchange Online backup utility (msese.dll).

The server is part of a Gbit Ethernet environment, which has four OSA Ethernet ports on the IBM 2064-107 mainframe. The single stream FDR/UPSTREAM backup is being pushed through a 1Gbit Firewall to Jaguar drives in a Ficon-attached IBM 3592 Robot.

Using FDR/UPSTREAM "Compress Level 1", the backups that are well tuned are currently running at around 140GBytes/HR. Multiple backups are being run concurrently, up to 14 at a time.

For More Information

If you would like more information on FDR/UPSTREAM, contact your local Sales Representative and ask for a free copy of the **Concepts & Facilities Guide**. Alternatively, visit our website at: **www.innovationdp.fdr.com**

FDR/UPSTREAM is available on a **FREE**, No-Obligation Trial. Try it for yourself!

INNOVATION® DATA PROCESSING

CORPORATE HEADQUARTERS: 275 Paterson Ave., Little Falls, NJ 07424 • (973) 890-7300 • Fax: (973) 890-7147
E-mail: support@fdrinnovation.com • sales@fdrinnovation.com • http://www.innovationdp.fdr.com

EUROPEAN OFFICES:	FRANCE	GERMANY	NETHERLANDS	UNITED KINGDOM	NORDIC COUNTRIES
	01-49-69-94-02	089-489-0210	036-534-1660	0208-905-1266	+31-36-534-1660