First Impression

Why OS/390 Should Be Your Backup Server

by Patrick Fitzsimmons, Innovation Data Processing

In a perfect world.

Here we are coming to the end of this millennium and network and LAN administrators are doing what they have been doing since the advent of LANS were installed: still searching for that perfect backup method. As the Wizard of Oz or was it the Good Witch of the North said…look no further than in your own backyard…so if you have a mainframe, then look no further! You already have the perfect backup server!

It seems that shops with distributed data and a MVS mainframe can leverage their existing infrastructure, hardware, and personnel to manage this data. Is there really anything different about distributed data that can't be managed by the Operations Department, **NO** of course not. Is a megabyte not a megabyte?

By using the existing resources, such as your automated MVS job scheduler, very mature robust tape management system, security system you can get the benefit of getting backups performed in a lights out, automated and unattended environment. What could be better than that? Ok, in a perfect world 1 day work weeks and virtual backups would be it.

With ATLs, Robots, and Silos already on the data center floor why not take advantage of these devices and the available MVS cycles? The mainframe tape devices have approached and finally reached the point where their capacities are equal to DASD devices in modern day. The Magstars with fast access time and 60GB compressed capacity and the STK 9840 also with 60GB compressed capacity finally rival what LAN administrators see on LAN attached devices. But with an important difference…with much better reliability.

The management of this LAN/UNIX data can be performed by the MVS tape management system such as CA-1 or IBM's RMM, using GDGs or retention periods to manage expirations. These excellent systems have been the standards in operations of the MVS staff and have been performing adequately for many years, with nothing coming close to competing with their reliability in the distributed world.

Many improvements have also come over the last 10 years in network capacity and bandwidth. When coax was king, so were 286 processors, but now generations later with Pentium class machines and RISC processors, that combine with 100mbit networks, resulting in much improved access to the mainframe. Gone with coax and 286s are the older 3174 cluster controller or 3745 Front End processor, being replaced by the OSA adapter and channel connections that make bulk data transfer orders of magnitude faster allowing the mainframe to be used as the big backup server. Newer technologies such as ATM, ESCON, FDDI and FICON are making bulk data transfer a goal and the norm rather than the exception and something to be avoided.

COMPELLING REASONS TO USE OS/390

- ☑ Automated Job Scheduler
- ☑ Superior Tape Management
- ☑ ATLs, Robots & Tape Silos
- ☑ Centralized Control
- ☑ Physical Security
- ☑ Attendant Staff
- ☑ Superior DR Plan
- ☑ Comprehensive Logging & Reporting
- ☑ Policy Based

"Why try and duplicate the staffing and hardware"

With 30+ years of protecting mainframe data, the venerable mainframe disaster recovery plans have been proven and well tested. The compelling question then is "Why try and duplicate the staffing and hardware" when they can be used for other more productive and revenue generating goals that aren't repetitive and are more useful.

So with all this hardware and personnel to manage it why **NOT** use the mainframe to backup the distributed data. Innovation Data Processing a leader in storage management since 1972 has a solution with its FDR/Upstream product. FDR/Upstream is a storage management product for backup/restores, and management of PC/LAN/UNIX data. The backups can be automatically initiated by existing MVS job scheduler by submitting "MVS batch jobs" and the backups can be written either directly to mainframe tape or DASD. The backup process can use either TCP/IP or SNA APPC LU6.2 protocols. The "batch job" can also optionally wait until the completion of the backup job and perform JCL condition code checking allowing exception handling to take place! Zero condition code goes to another step in the job or another job, a non zero condition code can cause pre-programmed notification tasks such as to beep or page someone.

A most important and desirable benefit is centrally managed backups that are automatically initiated by the MVS ops group. As for restores they can be performed by the MVS ops group or can be performed by a few different departments (making the NT LAN or UNIX group happy). A JAVA or GUI interface allows the restores to be monitored and performed by either of your colleagues in the LAN/UNIX group, and allows them to feel like masters of their own destinies, and avoiding the lively discussion of whose data is more valuable to the organization.

In Disaster recovery planning FDR/Upstream's vaulting facility can be used to create a secondary tape copy for DR to be stored in an offsite vault, and can be used for onsite recovery if primary backups are damaged or unusable, or for long term recovery.

FDR/Upstream has several data reduction techniques that minimize how much data is sent across the wire. With Upstream's "Full Merge Backup", you can obtain a complete full backup, while only sending a fraction of the total data across the network. The Upstream Full Merge Backup facility drastically reduces the elapsed time of full backups, by utilizing already existing mainframe backups of files which have not changed, instead of transmitting them from the PC.

Using a sophisticated technique, FDR/UPSTREAM can construct a complete full backup without the PC having to read or send most of the files, resulting in extraordinary performance for full backups.

To use the full merge backup, a first-time baseline full backup of the file server is performed, backing up **ALL** and transmitting all the specified files to the mainframe. Once it has this baseline, future backups need only be incremental and full merges. When performing Full Merge Backups, Upstream sends a picture of the drive to be backed up to the Upstream MVS database, which uses earlier existing backups plus changed files to construct the full merges. Because relatively few of the files must be read or transmitted, the benefits are greatly reduced network traffic and complexity, and dramatic time savings for full merge backups.

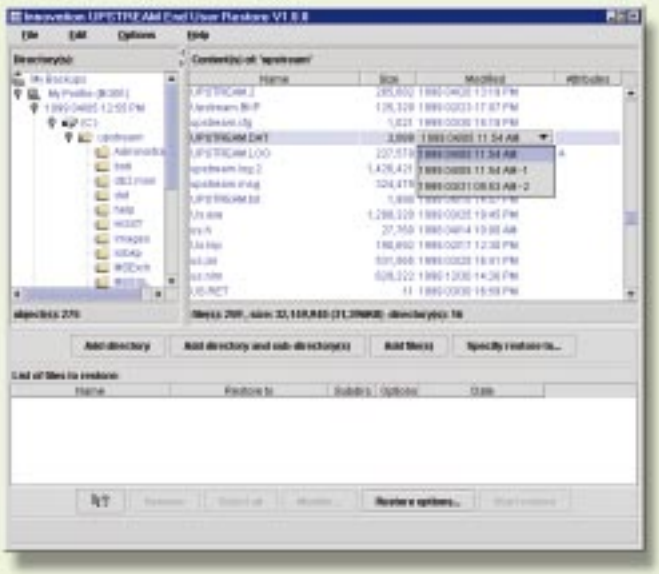
Merge backups include a duplicate file transmission suppression facility. Often similar files are duplicated on many machines across your enterprise. These include operating system files, word processors, and other software packages. FDR/UPSTREAM can be set up to recognize certain files as duplicates and not transmit them saving transmission time, and reducing host storage requirements. Determination of duplicate files can be performed manually, by manually backing up the files which are known to be duplicates to the duplicate file database. You can also activate the unique Automated method which will identify duplicate files for you automatically. These features combined with compression make efficient use of the network bandwidth.

But I have too much data!

While the average hard drive left megabytes in the rear view mirror for the now standard gigabyte drives, some shops think they have too much data to consider a mainframe solution. For these environments, there are alternatives.

Upstream can be used to backup data across the network or across the mainframe ESCON channel. Innovation has teamed with EMC to produce software that takes advantage and exploits the channel connection of the EMC Symmetrix; resulting in FDRSOS and Upstream/SOS. FDRSOS performs physical volume backups of the open systems data on the Symmetrix and Upstream/SOS provides incremental backup processing, file level granularity, and single file restore capability. Both FDRSOS and Upstream/SOS will also work with the EMC BCV (Business Continuance Volumes) volumes that make a local, non disruptive, point-in-time copy of a volume of production data, allowing the backup to be taken while the production volumes are up and still available for production processing.

FDR/Upstream can also be used with MVS channel cards. These cards are installed in the file server, are connected via fiber, use TCP/IP as the communication protocol, and will then transfer the data across the host channel at much faster speeds than even the fastest network. Upstream works with the Polaris ESCON card from Polaris Communications, as well as other cards such as IBM's Netfinity card. These cards are fast, reliable and easy to implement mainframe connections from Windows NT/2000 and UNIX systems. The Polaris 6950 PCI to ESCON Channel Interface directly connects an open system PCI bus to a mainframe ESCON channel. With onboard RISC processor and memory to handle the ESCON protocol, the Polaris 6950 can transfer data bi-directionally using the full bandwidth of IBM's Enterprise System CONnection (ESCON) fiber based protocol.



Even for large databases it is a good automated solution. FDR/Upstream, due to its command line control and program return code facilities, can be integrated into the facilities provided by most database vendors providing online backup support for Oracle, UDB Universal Server, Lotus Notes, MS Exchange, SQL Server and is SAP certified. Upstream can also be used with BMC SQL Backtrack to manage backups for Sybase and Informix databases. By using the database vendor APIs, Upstream is able to backup the database online and also an incremental backup, and thereby not requiring a backup of the complete database everyday, resulting in a much faster backup!

Moreover, if you really need a reason to make the mainframe folks give their approval, Upstream can also be used to backup/restore OS/390 Unix System Services, also known as HFS, on a file basis and also has file transfer facilities with ASCII to EBCDIC translation.

A natural extension.

Protecting the corporate data that is distributed on PC LANS and UNIX servers should not require a complete and separate solution from the mainframe datacenter. In many companies today the servers are already stored IN the datacenter, so using the hardware there is a natural extension.

So if you haven't considered backing up to your mainframe in the past, maybe its time to give it some consideration or a look. What with the new hardware technologies and Innovation Data Processing's software assistance, maybe you can "look no further than your own back yard".

For more information on FDR/Upstream and the complete family of FDR storage management products, contact Innovation Data Processing at (973) 890-7300, or visit us at http://www.innovationdp.fdr.com

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