

Butterfly® IN ACTION

AUTOMATED BACKUP DATA MIGRATION

HEALTH SERVICES

This is a real life case of a major Health Authority client illustrating the type of benefits Butterfly® can deliver, in this case consolidating data onto an IBM infrastructure. The identity of the organisation involved has been omitted. All other claims are based on actual data obtained during the project.

Butterfly® is an innovative, totally automated application that enables companies to fully realise their data backup and recovery cost, risk and energy reducing strategies by facilitating completely flawless consolidation of all historic compliance data from their legacy environments; quickly, safely, cost effectively and without disruption.

One of Butterfly's early clients was an established health authority operating in Denmark, with a large and ever expanding base of patients running into the hundreds of thousands. They approached IBM for help in resolving issues common to any major organisation having to deal with historical information records.

Like most large enterprises, the client had invested in various hardware devices and media to store their records which at various times had been replaced or overtaken as storage technology moved on. Over time and through municipal reform and expansion of other authorities the group eventually found itself with a number of disparate backup and recovery storage solutions for a variety of digital information records.

The information was held in a number of legacy (source) locations and formats including HP Data Protector software, and EMC and COMPAQ physical and virtual tape environments with three different generations of tape media. Not only were there costs involved in software licences and infrastructure maintenance, but specialist skills were needed to keep the tape libraries and software platforms providing ongoing backup operations functioning; ready to be called into action should they be needed for recovery of vital patient data.

The problem

Patient information records, especially in this field, contain a mass of extremely sensitive and vitally important information

crucial to administering proper care. The sheer volume of the information needing to be securely held, coupled with the legislative retention requirements of up to 70 years, had meant the existing infrastructure had been overwhelmed.

IT staff at the authority were struggling to cope with their responsibilities. Not only were there overrunning backups and failures, but performance problems and operational issues meant they were unable to recover some records at all. Even reducing the frequency of backups from daily to weekly didn't help. In such an unstable environment, workers were almost scared to try and improve things in case they made it worse, and all the time the ad hoc costs of urgent retrieval and fire fighting were spiralling out of control.

All of their time was being spent trying to hold together a system which simply wasn't working.

The client had already recognised that a new backup and recovery system was needed. An IBM configuration had already been identified as a potentially suitable strategic (target) solution to efficiently capture and store all new backup and archive data being generated moving forward.

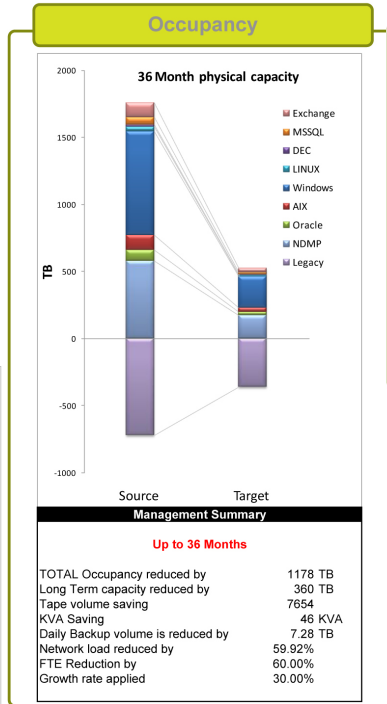
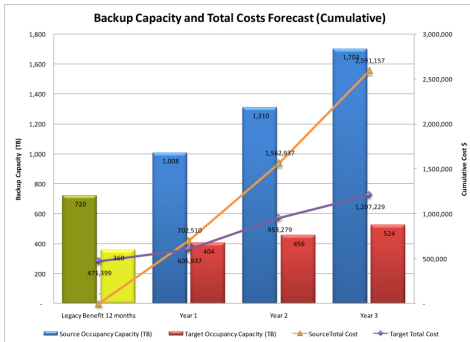
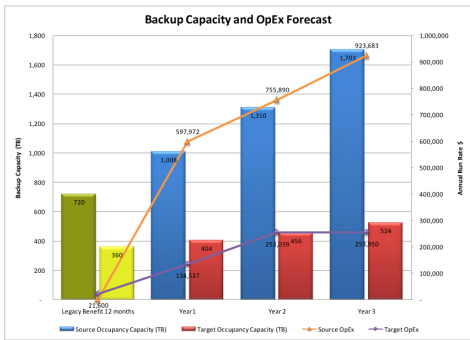
However, that still left them the issue of their historic records, kept on an expensive, unreliable solution containing hundreds of thousands of essential data and client records.

The head of the project explained "The client was stuck in what we call paralysis by analysis. They knew they had an issue with their historic data records, but they just didn't know where to start with solving it. Even just collecting data for analysing the problem they saw as costly and risky, even though they were in denial about protecting a system that was clearly failing and costing them a tremendous amount of money to keep."

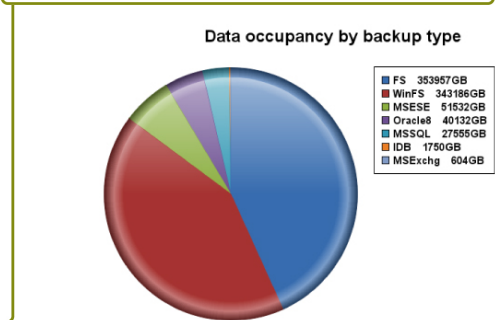
Step forward Butterfly®

IBM approached the authority with a revolutionary new tool developed by its partner, Backup Migrator Ltd. Utilising their





- ### Operational Issues Resolved
- Infrastructure Issues**
- Internal database communication errors within backup application
 - Reporting engine on Media fails due to internal corruption
 - Backup failure due to resources not being available
 - Data protector resources locking media and failing backup operations
 - Not enough licenses to allow backups to complete
 - IO device errors on ULTRIUM devices
 - Internal database updates fail making data unrecoverable
 - Mount points are not being backed up successfully
 - Media agent connections broken
 - Virtual Tape library media failures
 - Virtual Tape library corruption
- Operational Issues**
- 83% Backup success rate - well below industry averages
 - Attempting flat file backup of structured data types
 - Full system restore of client UNAVAILABLE due to backup errors
 - Operating system backups continually fail
 - Internal database errors in the Data Protector application
 - Software daemons not running on backup servers
 - Client agent timeout and client shutdown situations
 - Unrecoverable systems due to component and file backup failure
 - Reformatted volumes
 - Production and non production share backup servers
 - MS Volume Shadow Copy integration used but not operational
 - Long term backups fail due to contention with short term backups
 - 92 items of BAD MEDIA in environment
 - Concurrency configuration causing issues on Virtual Drives



unique method of automated data collectors, the team set-up and collated information on the current environment using **Butterfly's Analysis Engine™**. Using clever automated technology, the software was able to collate data from across the organisation without any disruption to the current live environment.

The entire exercise was carried out by the team following only one visit to understand the complexity and objectives, and a day of on site data collection- minimising impact on operational teams.

The Project Leader remarks "Our client was able to get a complete snapshot of the performance of their total backup and recovery environment - something they had always previously wasted weeks of consultancy trying to achieve and never succeeded. The Butterfly team did it in a day. To say they were impressed is an understatement."

The results were quite an eye opener.

Customer records made up a large proportion of this backup data in which regular restores were occurring. A high rate of failure on these 'Business As Usual' recoveries had been masked and blamed on time and resource availability, hiding underlying, critical issues with the software and hardware environment.

Butterfly identified a significant 20% failure rate in backups, due in part to a lack of relevant software licenses and an alarming number of errors amongst the physical storage media. Over 100 tape drives, 700 terabytes of data, were malfunctioning, representing many thousands of client records. Even the proportion of VTL was extensively corrupted as was the Data Proctor database itself. The risk of media failures leading to long term data loss was very real.

The software configuration was also complicated causing delays in root cause analysis in the Data Protector environment itself. Critically, full client restores were proven unobtainable, meaning the organisation had no disaster recovery capability at all.

Comparing against the strategic solution.

The target environment consisted of a consolidated, simplified

Tivoli Storage Manager and IBM ProtecTIER unified infrastructure. Utilising the TSM scale out and ProtecTIER de-duplication capability, the number of managed servers and storage devices was dramatically reduced, controlled via a single management layer. This would free up operational resources from fire fighting and allow them to focus on service development and the construction and testing of Disaster Recovery plans, now one of the client's key objectives.

A clear and well presented business case

The advantages of using a truly enterprise backup and recovery system allow physical consolidation of both servers and storage devices. The deployment of progressive incremental backup and in-built software de-duplication further reducing the volume of managed occupant data in the backup environment.

Butterfly software clearly demonstrated the technical and associated operational cost points in clear, accurate graphs- that could be communicated at the CIO level as well a being clearly understood by the operational teams. The analysis demonstrated a saving in cost terms alone of 53%, representing a staggering \$1.4m over a three year period.

A solid plan for migrating.

Butterfly was also able to demonstrate a full migration plan - clearly shown on the Analysis Engine Report. The planning demonstrated both data volumes and total duration of the migration project, including the automated risk free consolidation of long term data into the strategic Tivoli Storage Manager system, bringing benefit to both the ongoing data backup volumes as well as the significant volume of occupant data.

The engagement was neatly praised by the Project Leader:

"Butterfly has given our client invaluable insight into the reality of their current backup environment. Seeing the figures in black and white using their own real, empirical data has sharply brought into focus just how many improvements need to be made by migrating that information using Butterfly, saving them not only costs but providing them with a modern, reliable and effective restore capability."

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