The Butterfly Effect.

How to find out the true cost of protecting you data and how IBM can help you mitigate risk from data migrations

Date: Thursday, May 31, 2012
Time: 11:55am - 12:40pm
Location: Phillip Room
Robert MacEachern

The Butterfly Effect

$$d(f^{\tau}(x), f^{\tau}(y)) > \delta$$

Flexibility in Choosing your Data Protection

The Source of the problem

- Virtualization
- New Delivery Models - Cloud
- Exponential Data Growth
- End to end Storage solutions from multiple vendors
- Integration between storage and systems management offerings

Solving your data protection problems…

Complexities

- Expensive to operate
- Growing rapidly
- Always reacting to issues
- Too much to manage
- Costly and difficult to leverage new technology
- Multiple products introduce risk and cost

Our customers ask for

- a better TCO/ROI
- to proactively manager their data
- better scalability with less infrastructure
- more functionality for less money
- easier administration
- Less power consumption

What prevents us from addressing these issues?

You have

You may think

- it is too expensive to consolidate or migrate to another platform
- it is too time consuming and difficult to improve or change
- Not possible to demonstrate credible ROI
- Requires more manpower/staff than is available, given other projects/needs
- Data will be at risk (e.g. downtime, etc).

Enter THE BUTTERFLY EFFECT

- Butterfly is the software which provides automated discovery, health check and migration of one vendor backup systems and data- to a more cost-effective and scalable solution.

We Can…..

- We can take all of your one vendor backup and archive servers and combine them into the RIGHT solution

- Multiple servers can be combined to make administration costs and infrastructure costs decrease

What we would like to do first…

Run the Analysis Engine tool on your one vendor backup installation. This involves running a data collector on the backup server(s) and gathering the META Data required for an analysis.

It does not touch or manipulate production or actual backup data.

- Allows IBM to gather real environmental data and visualize it
- Allows IBM to create a comparison or your environment to what TSM could provide you
- Provides a differential business case that utilizes YOUR real statistics

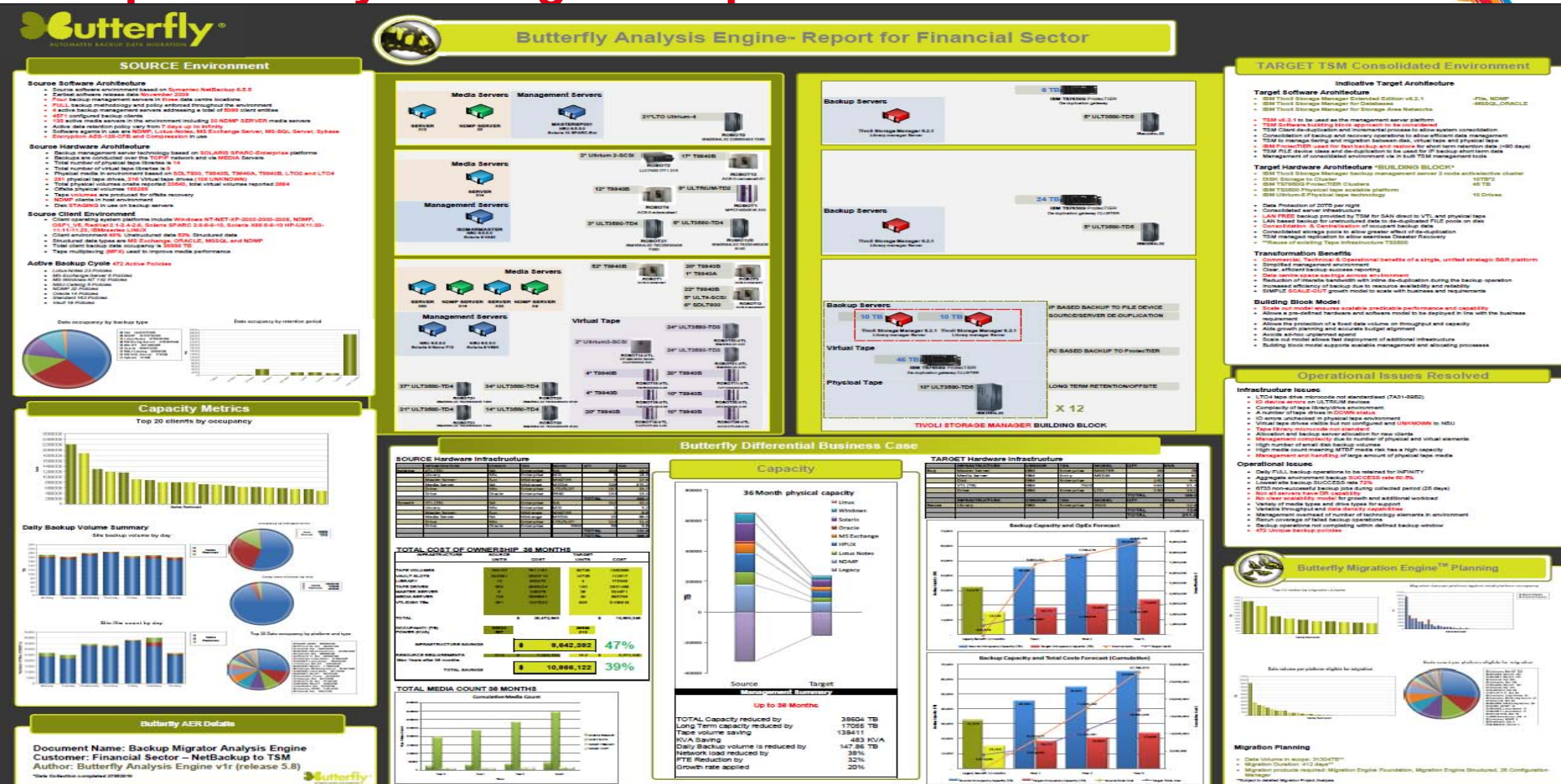
Your data is secure

- Security is a key concern for all businesses and again Butterfly is unique,
  - no client data is accessed
  - no client data collected
  - no applications are installed
- Collection includes metadata specific to operational devices and software.
- All metadata is encrypted before transmitting from the collector to the Butterfly secure portal for database import

An in-depth look at the Analysis Engine Report

How IBM lowers your costs

Sample “Analysis Engine Report”



Examination of your current environment

SOURCE Environment

Source Software Architecture

- Source software environment based on Symantec NetBackup 6.5.5
- Earliest software release date November 2009
- Four backup management servers in three data centre locations
- FULL backup methodology and policy enforced throughout the environme
- 4 active backup management servers addressing a total of 5098 client en
- 4571 configured backup clients
- 138 active media servers in the environment including 30 NDMP SERVER
- Active data retention policy vary from 7 days up to infinity
- Software agents in use are NDMP, Lotus-Notes, MS Exchange Server,
- Encryption AES-128-CFB and Compression in use

Source Hardware Architecture

- Backup management server technology based on SOLARIS SPARC-En
- Backups are conducted over the TCPIP network and via MEDIA Servers
- Total number of physical tape libraries is 14
- Total number of virtual tape libraries is 9
- Physical media in environment based on SDLT600, T9840B, T9940A, T9
- 291 physical tape drives, 216 Virtual tape drives (106 UNKNOWN)
- Total physical volumes onsite reported 23543, total virtual volumes report
- Offsite physical volumes 193288
- Tape volumes are produced for offsite recovery
- NDMP clients in host environment
- Disk STAGING in use on backup servers

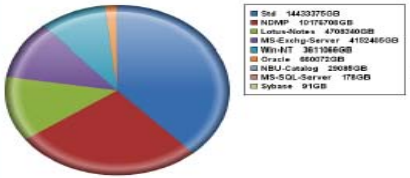
Source Client Environment

- Client operating system platforms include Windows NT-NET-XP-2000-20 OSF1_V5, RedHat 2.1-2.4-2.6, Solaris SPARC 2.6-8-9-10, Solaris X86 11.11-11.23, IBMzseries LINUX
- Client environment 48% Unstructured data 52% Structured data
- Structured data types are MS Exchange, ORACLE, MSSQL and NDMP
- Total client backup data occupancy is 36886 TB
- Tape multiplexing (MPX) used to improve media performance

Active Backup Cycle 472 Active Policies

- *Lotus-Notes 23 Policies*
- *MS-Exchange-Server 6 Policies*
- *MS-Windows-NT 142 Policies*
- *NBU-Catalog 6 Policies*
- *NDMP 32 Policies*
- *Oracle 14 Policies*
- *Standard 163 Policies*
- *Vault 19 Policies*

Data occupancy by backup type



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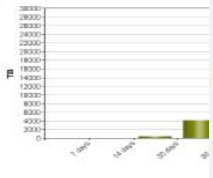
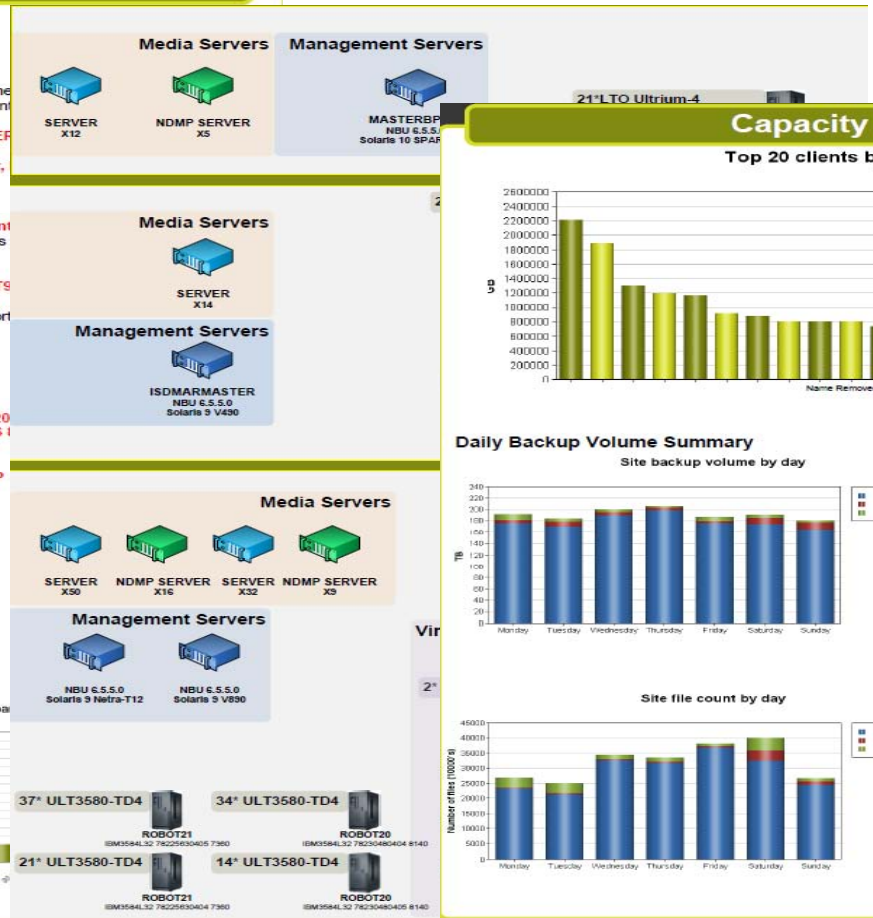




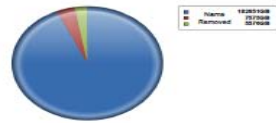
Capacity Metrics

Top 20 clients by occupancy

Daily Backup Volume Summary

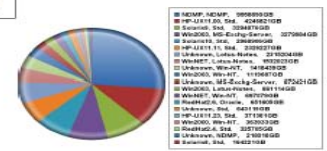
Site backup volume by day

Daily data volume by site



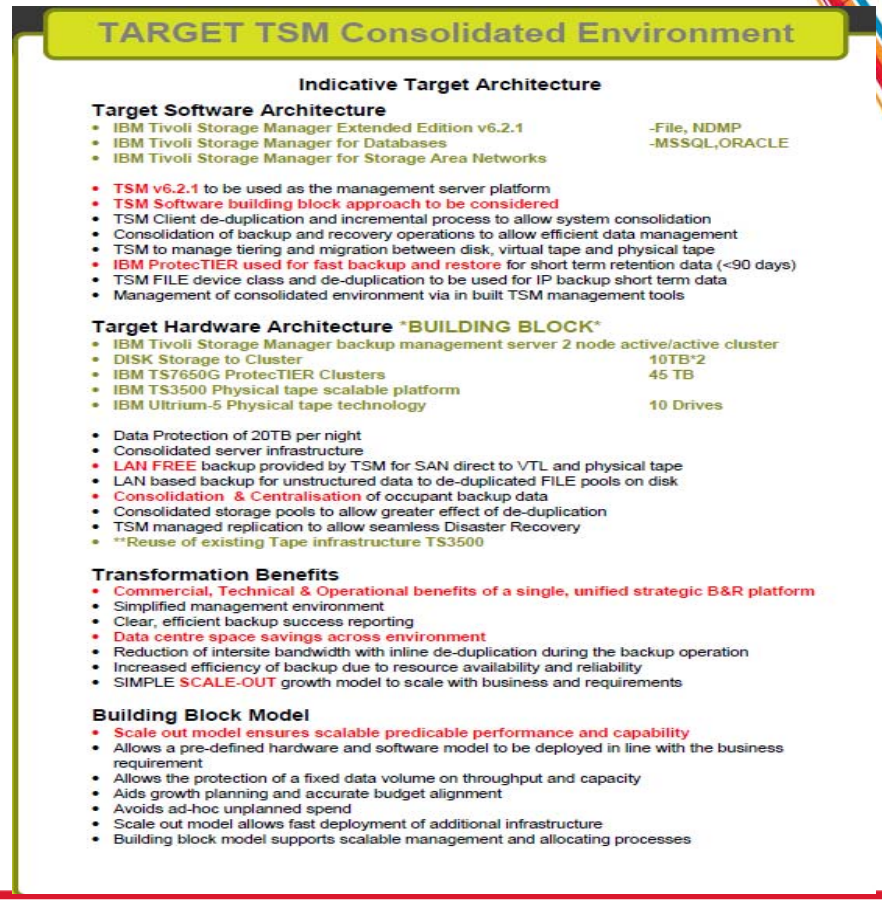
Site file count by day

Top 20 Data occupancy by platform and type



Explanation of our target solution

- Provides a new data protection solution
- Suggests Hardware and software
- Gives Benefits of the migration
- Explains the new infrastructure



Compare the differences

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Data occupancy by backup type

Data occupancy by retention period

IBM

TARGET TSM Consolidated Environment

Indicative Target Architecture

Target Software Architecture

- IBM Tivoli Storage Manager Extended Edition v6.2.1 -File, NDMP
- IBM Tivoli Storage Manager for Databases -MSSQL,ORACLE
- IBM Tivoli Storage Manager for Storage Area Networks

- TSM v6.2.1 to be used as the management server platform
- TSM Software building block approach to be considered
- TSM Client de-duplication and incremental process to allow system consolidation
- Consolidation of backup and recovery operations to allow efficient data management
- TSM to manage tiering and migration between disk, virtual tape and physical tape
- IBM ProtecTIER used for fast backup and restore for short term retention data (<90 days)
- TSM FILE device class and de-duplication to be used for IP backup short term data
- Management of consolidated environment via in built TSM management tools

Target Hardware Architecture *BUILDING BLOCK*

- IBM Tivoli Storage Manager backup management server 2 node active/active cluster
- DISK Storage to Cluster 10TB*2
- IBM TS7650G ProtecTIER Clusters 45 TB
- IBM TS3500 Physical tape scalable platform
- IBM Ultrium-5 Physical tape technology 10 Drives

- Data Protection of 20TB per night
- Consolidated server infrastructure
- LAN FREE backup provided by TSM for SAN direct to VTL and physical tape
- LAN based backup for unstructured data to de-duplicated FILE pools on disk
- Consolidation & Centralisation of occupant backup data
- Consolidated storage pools to allow greater effect of de-duplication
- TSM managed replication to allow seamless Disaster Recovery
- **Reuse of existing Tape infrastructure TS3500

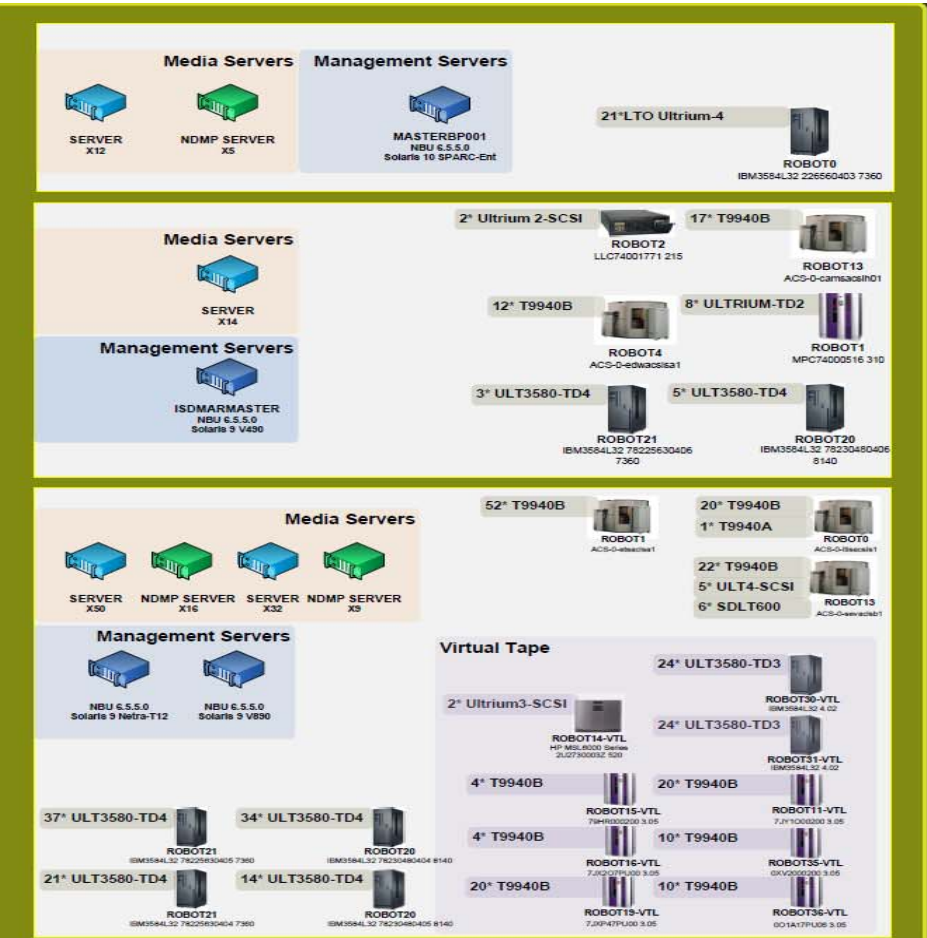
Transformation Benefits

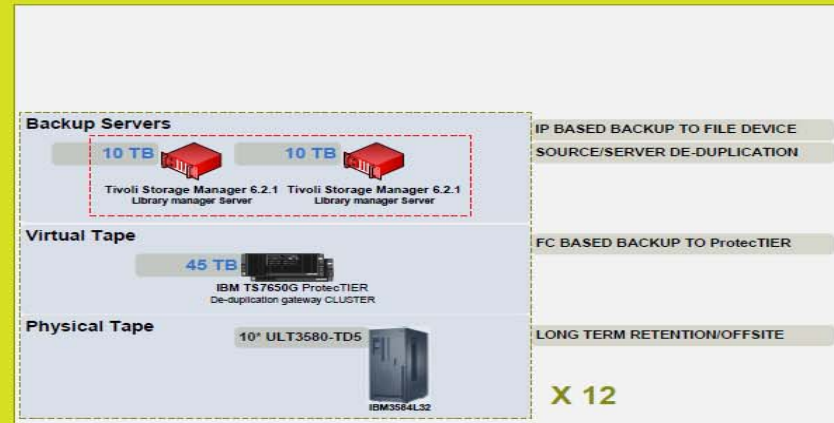
- Commercial, Technical & Operational benefits of a single, unified strategic B&R platform
- Simplified management environment
- Clear, efficient backup success reporting
- Data centre space savings across environment
- Reduction of intersite bandwidth with inline de-duplication during the backup operation
- Increased efficiency of backup due to resource availability and reliability
- SIMPLE SCALE-OUT growth model to scale with business and requirements

Building Block Model

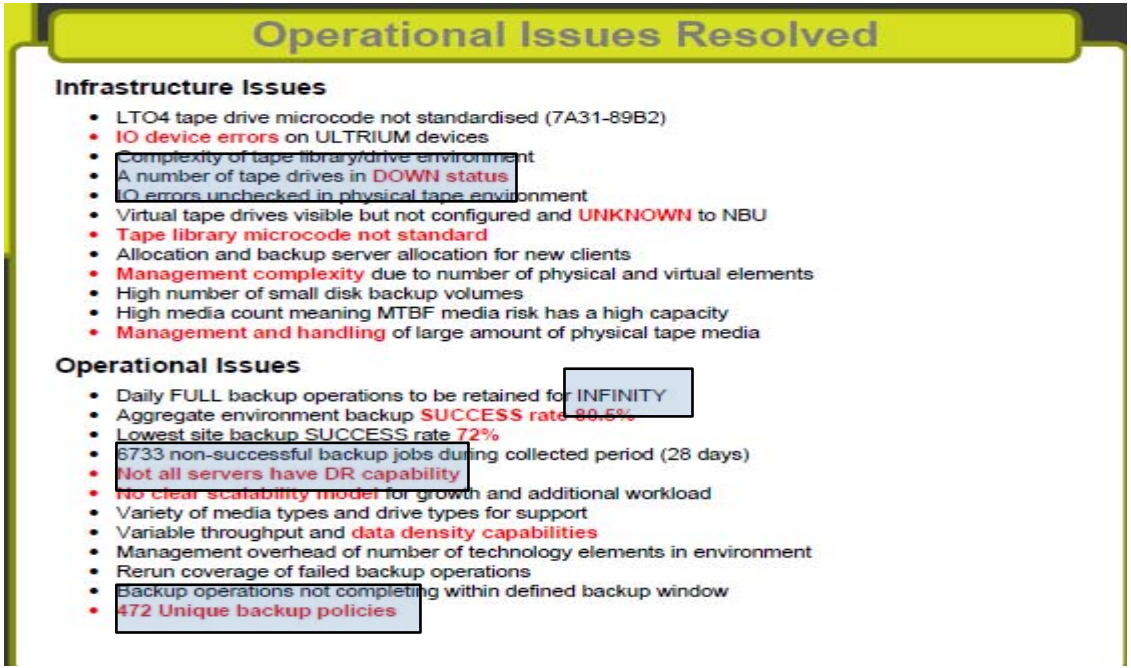
- Scale out model ensures scalable predicable performance and capability
- Allows a pre-defined hardware and software model to be deployed in line with the business requirement
- Allows the protection of a fixed data volume on throughput and capacity
- Aids growth planning and accurate budget alignment
- Avoids ad-hoc unplanned spend
- Scale out model allows fast deployment of additional infrastructure
- Building block model supports scalable management and allocating processes

Before / After: Reducing the infrastructure





Lists current issues IBM solution will resolve:



- The analysis will show any currently unresolved issues in the infrastructure and/or operational issues
- RED items need attention quickly

YOUR data YOUR Business case

Butterfly Differential Business Case

SOURCE Hardware Infrastructure

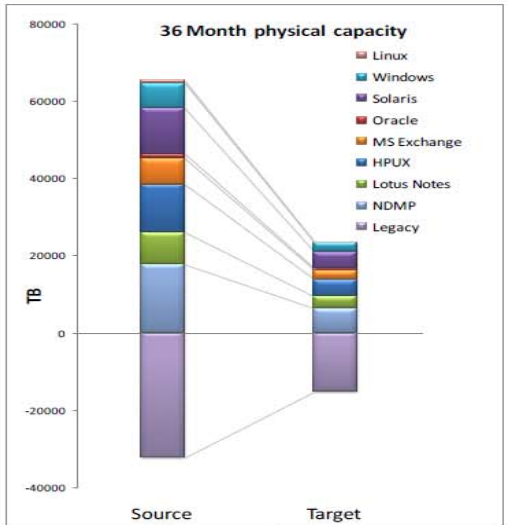
	INFRASTRUCTURE	VENDOR	TIER	MODEL	QTY	KVA
Existing	VTL (TB)	NA	Enterprise	NA	209	14.3
	Library	Mix	Enterprise	MIX	9	18.9
	Master Server	Sun	Midrange	MASTER	4	17.6
	Media Server	NA	Midrange	MEDIA	108	475.2
	Drive	Mix	Enterprise	LTO/SLDT	157	15.7
	Drive	Oracle	Enterprise	9940	134	13.4
				TOTAL		555.1
Growth	VTL (TB)	NA	Enterprise	NA	152	10.4
	Library	Mix	Enterprise	MIX	1	3.2
	Master Server	Sun	Midrange	MASTER	2	8.8
	Media Server	NA	Midrange	MEDIA	20	88.0
	Drive	Mix	Enterprise	LTO/SLDT	114	11.4
	Drive	Oracle	Enterprise	9940	98	9.8
				TOTAL		131.6
				TOTAL		686.8

TOTAL COST OF OWNERSHIP 36 MONTHS

INFRASTRUCTURE	SOURCE UNITS	SOURCE COST	TARGET UNITS	TARGET COST
TAPE VOLUMES	169137	7611161	30726	1382660
VAULT SLOTS	342591	2560710	14726	112517
LIBRARY	10	852073	4	173049
TAPE DRIVES	503	4985424	130	2921495
MASTER SERVER	6	229079	26	524971
MEDIA SERVER	128	2966651	30	605736
VTL/DISK TBs	361	1247532	805	5109819
TOTAL		$ 20,472,640		$ 10,830,248
OCCUPANCY (TB)	65364		26699	
POWER (KVA)	687		212	
INFRASTRUCTURE SAVINGS		$ 9,642,392		47%
RESOURCE REQUIREMENTS Man Years after 36 months	22.9	$ 7,293,730	16.2	$ 5,970,000
TOTAL SAVINGS		$ 10,966,122		39%

TOTAL MEDIA COUNT 36 MONTHS

Capacity



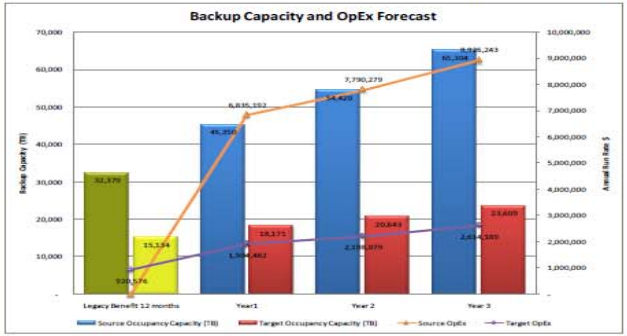
Management Summary

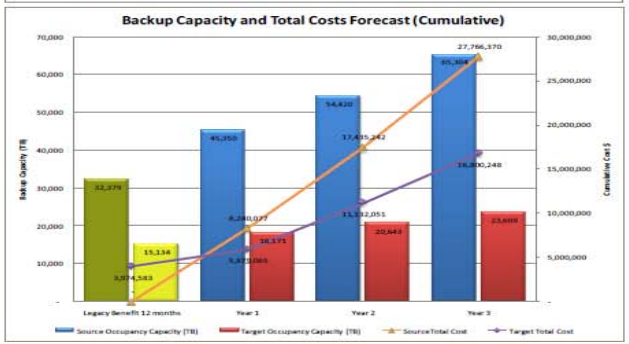
Up to 36 Months

TOTAL Capacity reduced by	38604 TB
Long Term capacity reduced by	17055 TB
Tape volume saving	138411
KVA Saving	483 KVA
Daily Backup volume is reduced by	147.86 TB
Network load reduced by	38%
FTE Reduction by	32%
Growth rate applied	20%

TARGET Hardware Infrastructure

	INFRASTRUCTURE	VENDOR	TIER	MODEL	QTY	KVA
Buy	Master Server	IBM	Enterprise	MASTER	26	78
	Media Server	IBM	Entry	MEDIA	30	60
	Disk	IBM	Enterprise		240	9.6
	VTL (TB)	IBM	7500		565	51.4
	Drive	IBM	Enterprise	LTO	130	13.0
				TOTAL		199.9
	INFRASTRUCTURE	VENDOR	TIER	MODEL	QTY	KVA
Reuse	Library	IBM	Enterprise	3500	4	12.8
				TOTAL		12.8
				TOTAL		211.8





What we can do for you

- Provide you a snapshot of your environment today
- Provide you a customized IBM solution proposal
- Show you a real ROI and TCO of migration to Tivoli Storage Manager
- Simplify your backup/recovery solution while providing for long term growth and archiving
- Allow you to use your infrastructure in a smarter manner

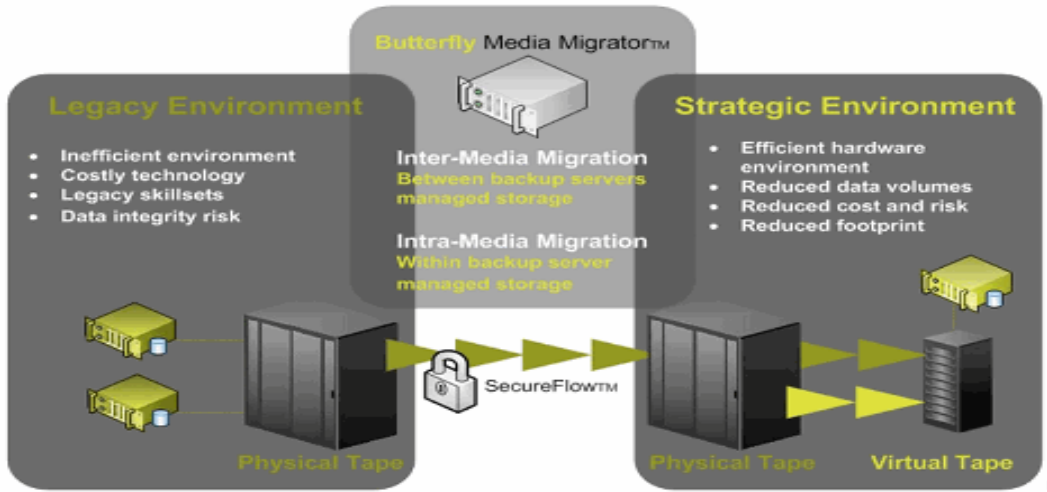
How Tivoli Storage Manager Drives Down Costs!

- Long Term Archive and Recovery
- Ability to become compliant (SOX, HIPPA BASIL etc)
- De-duplication
- Subfile backup
- Unified recovery GUI
- Encryption

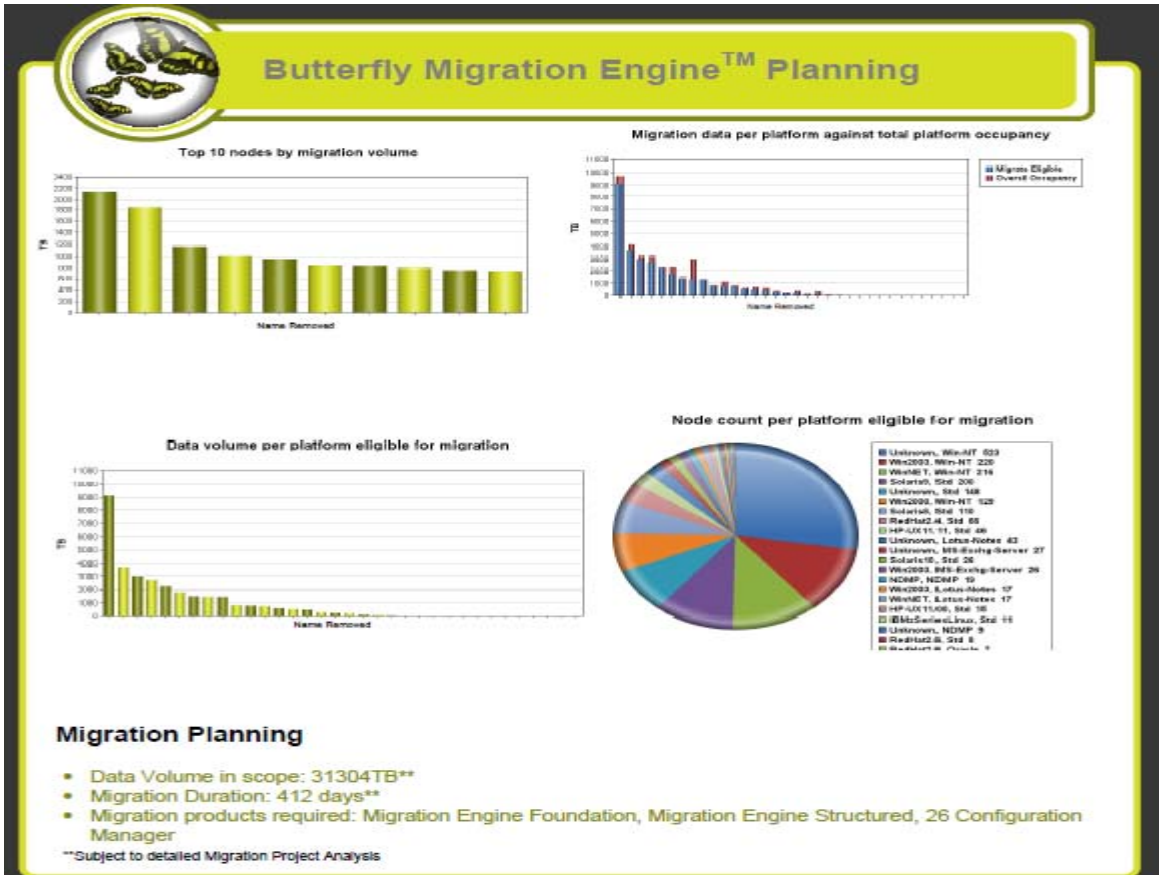
- Content management
- Built in Disaster recovery planning
- Progressive incremental
- Free db2 and Informix support
- HSM built into same product

So what's next

- Butterfly also solves the data migration issue from one vendor to Tivoli Storage Manager
  - From multiple sources
  - Without disruption
  - Safely
  - Automatically
  - Securely



Migration first steps



- We will walk you through a “high level” migration plan.
- Show the volume of data to be migrated and a sample timetable

Example of Butterfly's Software Migration…

AUTOMATIC

59%

Workload | Migration | Syslog | Configure | Help

Migration Progress

Current Time: 2009/12/08 01:28:11

Row: 0 of: 9 Page:

Running | Completed | Warning | Error

Mig	Node Name	Object	Batch	Status	Prepare	PreStg	PostStg
	win2k3es-mig	O4b1da3fd33bbb	0	Migrated			
	win2k3es-nbu	O4b1da408d79ed	2	Error			view log
	linux-mig	O4b1da3f629424	4	PreStage			
	win2k3es-mig	O4b1da3fe66ee6	4	Migrated			
	win2k3es-mig	O4b1da3ff99aa1	4	PostStage			
	win2k3es-nbu	O4b1da40553e6b	4	Restore			
	win2k3es-nbu	O4b1da406729a3	4	Migrated			
	linux-mig	O4b1da3f76a4db	7	Error		view log	
	win2k3es-nbu	O4b1da407a62ac	7	Enabled			

Let us Show You the potential of your environment!

Thank You

So what are the steps to begin the study…

- If you like what you have heard, here is what we would like to do:
  - Complete a pre-requisite questionnaire.
  - IBM collects the data on your current environment
  - Butterfly creates a report for IBM, showing a more efficient infrastructure utilizing TSM, complete with business justification.

- After reviewing this analysis, IBM will provide a detailed and customized proposal.
  - New hardware to optimize the backup infrastructure
  - Tivoli Storage Manager software
  - Services proposal to perform the data migration

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