



## 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

$$d(f^T(x), f^T(y)) > \delta$$

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 manage 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 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 of 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"



## Butterfly Analysis Engine- Report for Financial Sector

### SOURCE Environment

#### Source Software Architecture

- Source software environment based on **Sybase NetBackup 6.0.5**
- 3 Full Backup management servers in three data center locations
- Full Backup methodology and policy extended throughout the environment
- NET configured backup clients
- NET configured backup clients
- Active data retention policy varies from 7 days up to 180 days
- Software agents in use are NBUPT, Lotus Notes, MS Exchange Server, MS SQL, Server, Sybase
- Active data retention policy varies from 7 days up to 180 days
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#### Source Hardware Architecture

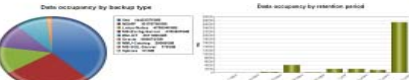
- Backup management server technology based on **SOLARIS SPARC Enterprise** platform
- Backups are scheduled over the TSP2 network and via MEDIO Servers
- Three number of physical tape drives in 14
- Total number of virtual tape drives is 10
- 320 physical tape drives, 216 Virtual tape drives (132 UNIMATED)
- Total physical volume online estimated 300GB, size virtual volumes required 388A
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#### Source Client Environment

- Client operating system platforms include Windows NT-SP-2002-2003-2005, NDMF
- OS/390, VSE, VM/CPE, I.2-62, Solaris SPARC, HP-UX, SunOS 5.6-5.8-5.9-5.10-5.11-5.12, IBM AIX (5200)
- Client environments are 100% Uncompressed data 70% Structured data
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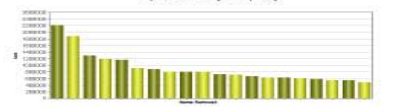
#### Active Backup Cycle (2 Active Policies)

- Lotus Notes 21100000
- MS Exchange Server 620000
- MS SQL Server 620000
- Microsoft Exchange 620000
- Microsoft SQL Server 620000
- Microsoft SQL Server 620000
- Microsoft SQL Server 620000
- Microsoft SQL Server 620000

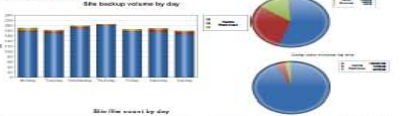


### Capacity Metrics

#### Top 20 clients by occupancy



#### Daily Backup Volume Summary



### Butterfly AER Details

Document Name: Backup Migrator Analysis Engine  
 Customer: Financial Sector - NetBackup to TSM  
 Author: Butterfly Analysis Engine v1r (release 5.8)  
 \*Data Collection Completed 2/26/2010

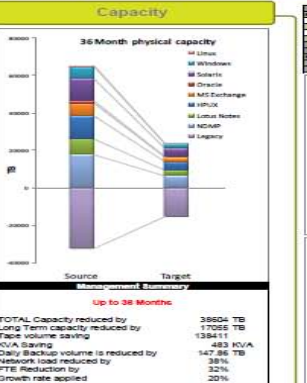


### SOURCE Hardware Infrastructure

Category	Quantity	Unit Price	Total Price
Infrastructure Services	1	9,642,392	9,642,392
Hardware Requirements	1	10,896,122	10,896,122
<b>TOTAL</b>	<b>2</b>	<b>20,538,514</b>	<b>20,538,514</b>
<b>Savings</b>			<b>47%</b>
<b>Actual Savings</b>			<b>39%</b>

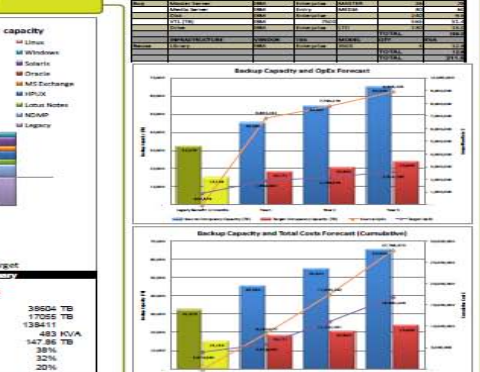


### Butterfly Differential Business Case



### TSM/TSM STORAGE MANAGER BUILDING BLOCK

### TARGET Hardware Infrastructure



### TARGET TSM Consolidated Environment

- #### Inductive Target Architecture
- TSM 6.2.1 based on management server platform
  - TSM 6.2.1 based on management server platform
  - TSM 6.2.1 based on management server platform
  - TSM 6.2.1 based on management server platform

- #### Target Hardware Architecture (BUILDING BLOCK)
- IBM TSM Backup Manager 6.2.1 (Storage Manager)
  - IBM TSM Backup Manager 6.2.1 (Storage Manager)
  - IBM TSM Backup Manager 6.2.1 (Storage Manager)
  - IBM TSM Backup Manager 6.2.1 (Storage Manager)

- #### Transformation Benefits
- Simplified management environment
  - Clear, efficient backup access reporting
  - Data source independent access and retention
  - Reduction of media handling and physical tape movement
  - Increased efficiency of backup due to automatic availability and reliability
  - TSM managed replication of active awareness disaster recovery

- #### Building Block Model
- Allow a pre-defined hardware and software model to be deployed in line with the business
  - Allow the provision of a fixed data volume on throughput and capacity
  - Allow growth planning and accurate backup alignment
  - Scale out model allows fast deployment of additional infrastructure
  - Building block model supports iterative development and evolving processes

### Operational Issues Resolved

- #### Infrastructure Issues
- Legacy hardware refresh not standardized (ZAS/3825)
  - CD device across an ULTRAMTDC
  - Complexity of tape backup environment
  - CD drive introduced in physical tape environment
  - Virtual tape drive (VTD) added to UNIMATED and UNIMATED to NBU
  - Tape drive refresh not standardized
  - Allocation and backup storage administration for new clients
  - High media count meaning MTED media has a high capacity
  - Management and handling of large amount of physical tape media

### Operational Issues

- Daily FULL backup operations to be retained for INFINITY
- Aggregates environment backup SUCCESS rate 92.26%
- Lowest full backup SUCCESS rate 73%
- OTD non-scheduled backup jobs being initiated (20 days)
- Not all backup jobs completed within defined backup window
- Variable throughput and data capacity capabilities
- Management overhead of hundreds of backup elements in environment
- Backup operations not completing within defined backup window
- OTD backup backup process

### Butterfly Migration Engine™ Planning



### Migration Planning

- Migration Duration: 4-6 Weeks
- Migration Complexity: Low to Medium
- Migration Risk: Low
- Migration Success: High

# 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 environment
- 4** active backup management servers addressing a total of **5098** client environments
- 4571** configured backup clients
- 138** active media servers in the environment including **30 NDMP SERVER**
- Active data retention policy varies 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-Ent**
- 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, TS**
- 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-2000-2003**
- OSF1\_V5, RedHat 2.1-2.4-2.6, Solaris SPARC 2.6-8-9-10, Solaris X86 11, 11-11.2.3, IBMzseries LINUX**
- Client environment **49%** 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

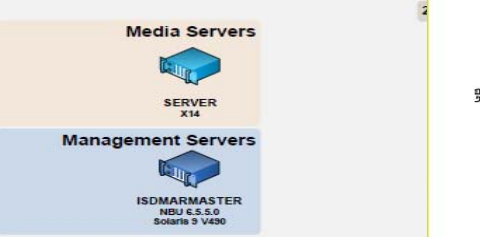
- Lotus-Notes 23 Policies**
- MS-Exchange-Server 6 Policies**
- MS-Windows-NT 142 Policies**
- NBU-Catalog 6 Policies**
- NDMP 32 Policies**
- Oracle 14 Policies**
- Standard 163 Policies**
- Vault 19 Policies**

Data occupancy by backup type

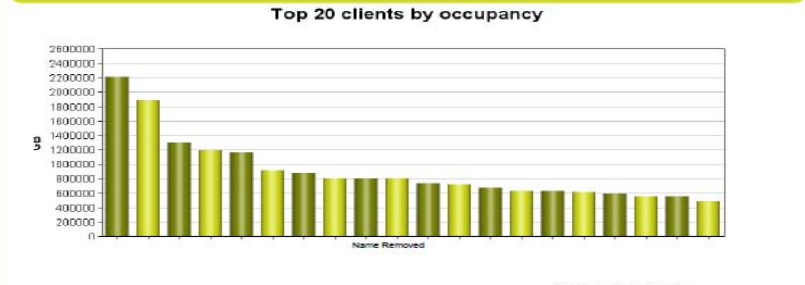


MS-Exchange-Server	4102466GB
MS-Windows-NT	3200000GB
Oracle	80072GB
Lotus-Notes	4709500GB
IBMzseries	1078700GB
OSF1_V5	1443376GB
RedHat	361106GB
Solaris SPARC	23098GB
Solaris X86	91GB

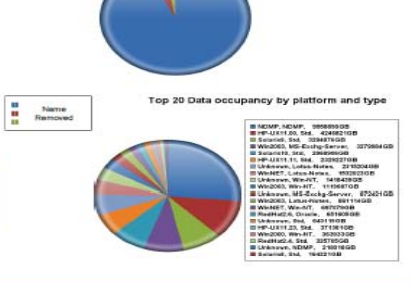
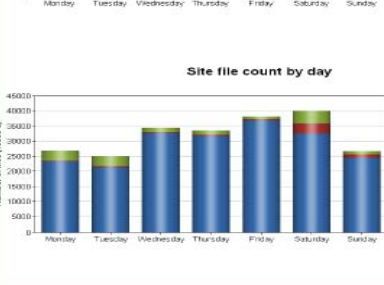
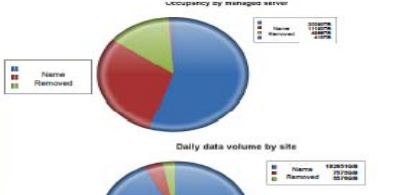
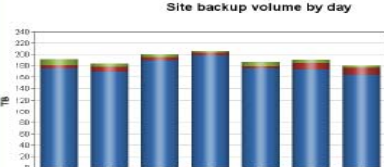
Data occupancy



## Capacity Metrics



### Daily Backup Volume Summary



# Explanation of our target solution

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

## 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 10TB\*2
- DISK Storage to Cluster 45 TB
- IBM TS7650G ProtecTIER Clusters 10 Drives
- IBM TS3500 Physical tape scalable platform
- IBM Ultrium-5 Physical tape technology

- 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 predictable 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

# Compare the differences

## 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 environment
- 4 active backup management servers addressing a total of **5098** client entities
- **4571** configured backup clients
- **138** active media servers in the environment including **30 NDMP SERVER** media servers
- Active data retention policy vary from **7 days up to infinity**
- Software agents in use are NDMP, Lotus-Notes, MS Exchange Server, MS-SQL Server, Sybase
- Encryption AES-128-CFB and Compression in use

### Source Hardware Architecture

- Backup management server technology based on SOLARIS SPARC-Enterprise platforms
- Total number of physical tape libraries is 1
- Total number of virtual tape libraries is 8
- Physical policies based on LT600, T9840C, T9840E, T9940B, LT02 and LTO4
- 291 physical tape drives, 216 Virtual tape drives (106 UNKNOWN)
- Total physical volumes onsite reported 23543, total virtual volumes reported 2864
- Offsite physical volumes 193288
- Tape volumes are produced for offsite recovery
- NDMP clients in host environment
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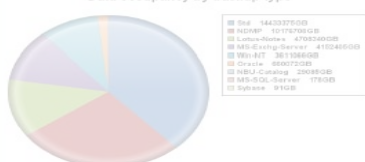
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- Client operating system platforms include Windows NT-NET-XP-2000-2003-2008, NDMP, OSF1\_V5, RedHat 2.1-2.4-2.6, Solaris SPARC 2.6-6-8-10, Solaris X86 6-8-10 HP-UX11.00, 11.11-11.23, IBMzseries LINUX
- Client environment 48% Unstructured data 52% 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

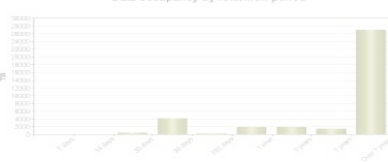
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Data occupancy by backup type



Data occupancy by retention period



IBM

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- 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

**Media Servers**

- SERVER X12
- NDMP SERVER X5

**Management Servers**

- MASTERBPP001  
NBU 6.5.5.0  
Solaris 10 SPARC-Ent

21\* LTO Ultrium-4

ROBOT0  
IBM3584L32 226560403 7360

**Media Servers**

- SERVER X14

**Management Servers**

- ISDMARMASTER  
NBU 6.5.5.0  
Solaris 9 V490

2\* Ultrium 2-SCSI

ROBOT2  
LLC74001771 215

17\* T9940B

ROBOT13  
ACS-D-camsacsIH01

12\* T9940B

ROBOT4  
ACS-D-e6wa6s8a1

8\* ULTRIUM-TD2

ROBOT1  
MPC74000516 310

3\* ULT3580-TD4

ROBOT21  
IBM3584L32 78223630405 7360

5\* ULT3580-TD4

ROBOT20  
IBM3584L32 78230480405 8140

**Media Servers**

- SERVER X20
- NDMP SERVER X16
- SERVER X32
- NDMP SERVER X2

**Management Servers**

- NBU 6.5.5.0  
Solaris 9 Netra-T12
- NBU 6.5.5.0  
Solaris 9 V890

52\* T9940B

ROBOT1  
ACS-D-abstract1

20\* T9940B

1\* T9940A

ROBOT0  
ACS-D-beach01

22\* T9940B

5\* ULT4-SCSI

ROBOT13  
ACS-D-weather1

6\* SDLT600

**Virtual Tape**

2\* Ultrium3-SCSI

ROBOT14-VTL  
HP MSL6000 Series  
SL07300002 501

24\* ULT3580-TD3

ROBOT30-VTL  
IBM3584L32 4 02

24\* ULT3580-TD3

ROBOT31-VTL  
IBM3584L32 4 02

4\* T9940B

ROBOT15-VTL  
7.0P030205 3.05

20\* T9940B

ROBOT11-VTL  
7.0P100501 3.05

4\* T9940B

ROBOT15-VTL  
7.0C030303 3.05

10\* T9940B

ROBOT35-VTL  
0K050005 3.05

20\* T9940B

ROBOT15-VTL  
7.0P047100 3.05

10\* T9940B

ROBOT36-VTL  
001A17P005 3.05

37\* ULT3580-TD4

ROBOT21  
IBM3584L32 78229830405 7360

34\* ULT3580-TD4

ROBOT20  
IBM3584L32 78230480405 8140

21\* ULT3580-TD4

ROBOT21  
IBM3584L32 78229830405 7360

14\* ULT3580-TD4

ROBOT20  
IBM3584L32 78230480405 8140

**Backup Servers**

Tivoli Storage Manager 6.2.1  
Library manager Server

6 TB

IBM TS7650G ProtecTIER  
De-duplication gateway

5\* ULT3580-TD5

IBM3584L32

**Backup Servers**

Tivoli Storage Manager 6.2.1  
Library manager Server

24 TB

IBM TS7650G ProtecTIER  
De-duplication gateway CLUSTER

5\* ULT3580-TD5

IBM3584L32

**Backup Servers**

10 TB

Tivoli Storage Manager 6.2.1  
Library manager Server

10 TB

Tivoli Storage Manager 6.2.1  
Library manager Server

IP BASED BACKUP TO FILE DEVICE  
SOURCE/SERVER DE-DUPLICATION

**Virtual Tape**

45 TB

IBM TS7650G ProtecTIER  
De-duplication gateway CLUSTER

FC BASED BACKUP TO ProtecTIER

**Physical Tape**

10\* ULT3580-TD5

IBM3584L32

LONG TERM RETENTION/OFFSITE

**X 12**

**TIVOLI STORAGE MANAGER BUILDING BLOCK**

# Lists current issues IBM solution will resolve:

## Operational Issues Resolved

### Infrastructure Issues

- LTO4 tape drive microcode not standardised (7A31-89B2)
- **IO device errors** on ULTRIUM devices
- Complexity of tape library/drive environment
- A number of tape drives in **DOWN status**
- **IO errors unchecked in physical tape environment**
- Virtual tape drives visible but not configured and **UNKNOWN** to NBU
- **Tape library microcode not standard**
- Allocation and backup server allocation for new clients
- **Management complexity** due to number of physical and virtual elements
- High number of small disk backup volumes
- High media count meaning MTBF media risk has a high capacity
- **Management and handling** of large amount of physical tape media

### Operational Issues

- Daily FULL backup operations to be retained for **INFINITY**
- Aggregate environment backup **SUCCESS rate 80.5%**
- **Lowest site backup SUCCESS rate 72%**
- 5733 non-successful backup jobs during collected period (28 days)
- **Not all servers have DR capability**
- **No clear scalability model** for growth and additional workload
- Variety of media types and drive types for support
- Variable throughput and **data density capabilities**
- Management overhead of number of technology elements in environment
- Rerun coverage of failed backup operations
- Backup operations not completing within defined backup window
- **472 Unique backup policies**

- 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

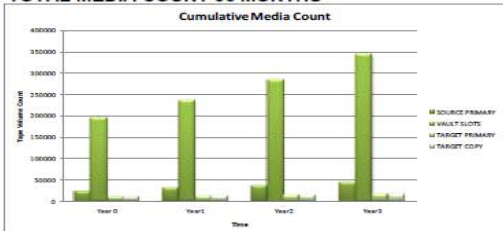
### SOURCE Hardware Infrastructure

Existing	INFRASTRUCTURE	VENDOR	TIER	MODEL	QTY	KVA
	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	475.7
	Drive	Mix	Enterprise	LTO/SLOT	137	15.3
	Drive	Oracle	Enterprise	9940	134	13.4
				<b>TOTAL</b>		<b>555.1</b>
<b>Growth</b>	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/SLOT	114	13.8
	Drive	Oracle	Enterprise	9940	98	9.8
				<b>TOTAL</b>		<b>131.6</b>
				<b>TOTAL</b>		<b>686.8</b>

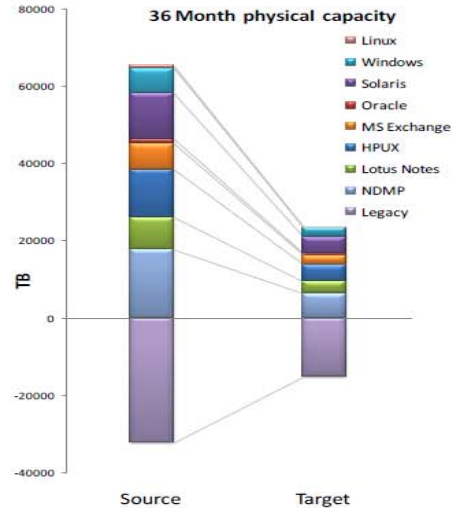
### TOTAL COST OF OWNERSHIP 36 MONTHS

INFRASTRUCTURE	SOURCE	TARGET	UNITS	COST
TAPE VOLUMES	169137	7611161	30726	1382660
VAULT SLOTS	342591	2580710	14726	112517
LIBRARY	10	852073	4	173049
TAPE DRIVES	503	4955424	130	2921495
MASTER SERVER	6	329079	26	524971
MEDIA SERVER	126	2965661	30	605736
VTL/DISK TB <sup>1</sup>	361	1247632	805	5109819
<b>TOTAL</b>				
				\$ 20,472,640
				\$ 10,830,248
<b>OCCUPANCY (TB)</b>	65304	26699		
<b>POWER (KVA)</b>	687	212		
<b>INFRASTRUCTURE SAVINGS</b>				\$ 9,642,392 <b>47%</b>
<b>RESOURCE REQUIREMENTS</b>				
Man Years after 36 months	22.2	7,293,730	16.2	5,970,000
<b>TOTAL SAVINGS</b>				\$ 10,966,122 <b>39%</b>

### TOTAL MEDIA COUNT 36 MONTHS



### Capacity



### Management Summary

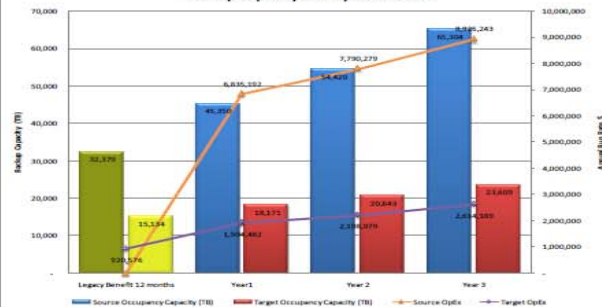
#### Up to 36 Months

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%

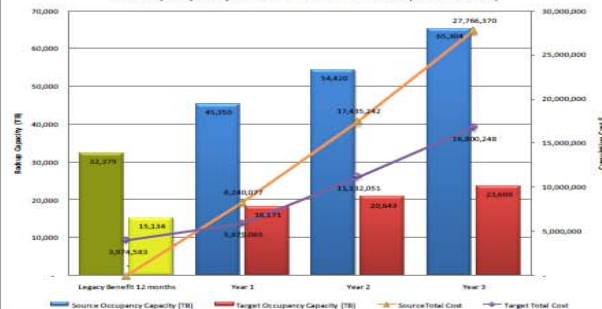
### TARGET Hardware Infrastructure

Buy	INFRASTRUCTURE	VENDOR	TIER	MODEL	QTY	KVA
	Master Server	IBM	Enterprise	MASTER	26	78
	Media Server	IBM	Entry	MEDIA	301	60
	Disk	IBM	Enterprise		240	9.6
	VTL (TB)	IBM	7500		565	51.4
	Drive	IBM	Enterprise	LTO	130	13.0
				<b>TOTAL</b>		<b>155.0</b>
<b>Reuse</b>	INFRASTRUCTURE	VENDOR	TIER	MODEL	QTY	KVA
	Library	IBM	Enterprise	3500	4	12.8
				<b>TOTAL</b>		<b>12.8</b>
				<b>TOTAL</b>		<b>211.8</b>

### Backup Capacity and OpEx Forecast



### Backup Capacity and Total Costs Forecast (Cumulative)



# 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



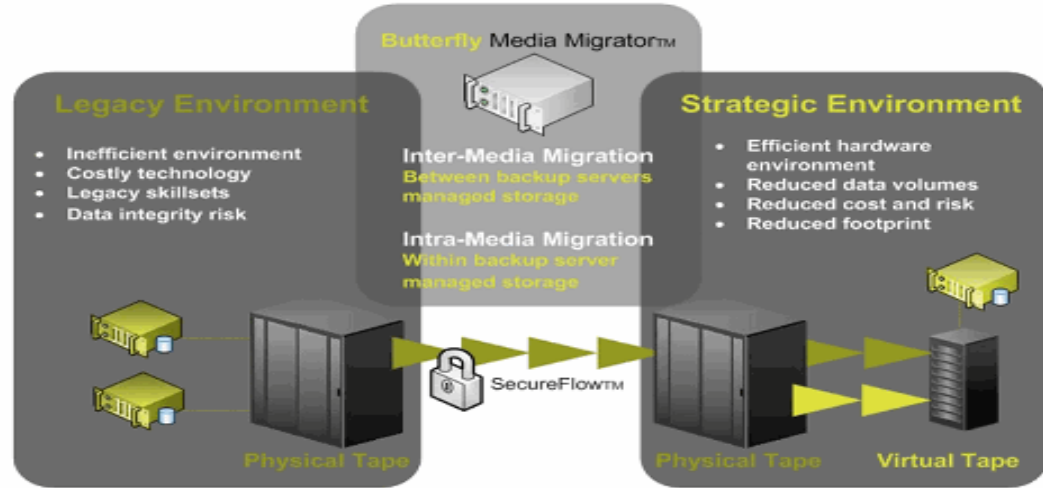
# How Tivoli Storage Manager Drives Down Costs!

- 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

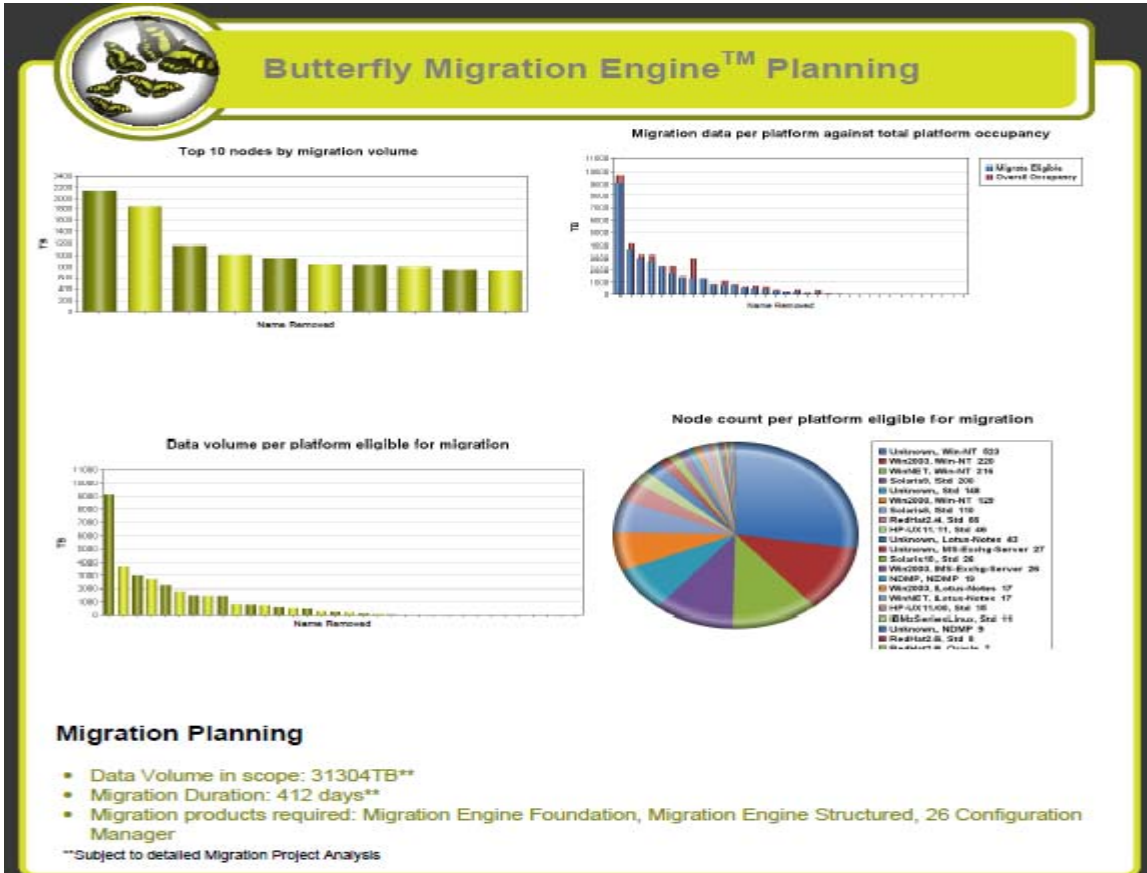


# So what's next

- 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

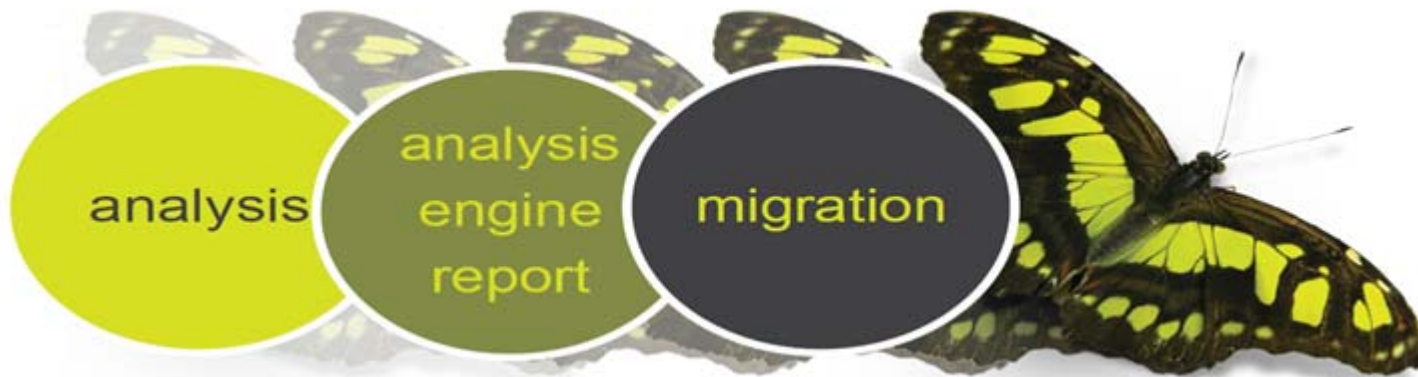
Current Time: 2009/12/08 01:28:11

Row:  of: 9 Page:

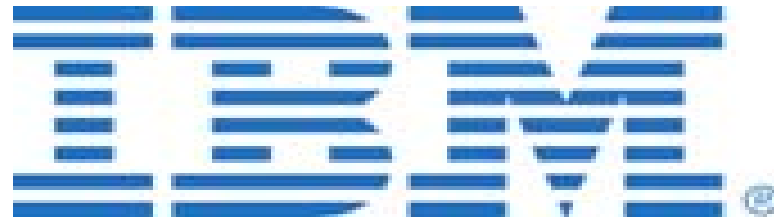
**Running** **Completed** **Warning** **Error**

Mig	Node Name	Object	Batch	Status	Prepare	PreStg	PostStg
	<a href="#">win2k3es-mig</a>	<a href="#">O4b1da3fd33bbb</a>	0	Migrated			
	<a href="#">win2k3es-nbu</a>	<a href="#">O4b1da408d79ed</a>	2	Error			<a href="#">view log</a>
	<a href="#">linux-mig</a>	<a href="#">O4b1da3f629424</a>	4	PreStage			
	<a href="#">win2k3es-mig</a>	<a href="#">O4b1da3fe66ee6</a>	4	Migrated			
	<a href="#">win2k3es-mig</a>	<a href="#">O4b1da3ff99aa1</a>	4	PostStage			
	<a href="#">win2k3es-nbu</a>	<a href="#">O4b1da40553e6b</a>	4	Restore			
	<a href="#">win2k3es-nbu</a>	<a href="#">O4b1da406729a3</a>	4	Migrated			
	<a href="#">linux-mig</a>	<a href="#">O4b1da3f76a4db</a>	7	Error		<a href="#">view log</a>	
	<a href="#">win2k3es-nbu</a>	<a href="#">O4b1da407a62ac</a>	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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