

Extending DMF into the Enterprise

TrustedEdge with DMF

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Trusted Edge

Enabling intelligent data analysis and automated, policy-based content migration from primary storage to StorHouse

- **What is Trusted Edge?**
- User-friendly intelligent content analysis
- Policy-based migration management tool
- Automatically managed, virtualised storage environment
- Automated backup, archive, disaster recovery, replication, retention and HSM
- Intelligent storage virtualisation and data management platform for relational and file-based

TrustedEdge Toolbox

Analyse



Analyse:

- Data analytics; organisations typically discover that more than 80+% of data has not been accessed or changed in over a year.

Migrate



Migrate:

- Flexible job scheduling options, import/export capabilities, and comprehensive reporting and audit trail features.

Manage



Manage:

- Customer applications include backup, archive, HSM, internal cloud, device migration, disaster recovery, relational data archiving and digital preservation.

The First Step

Analyse

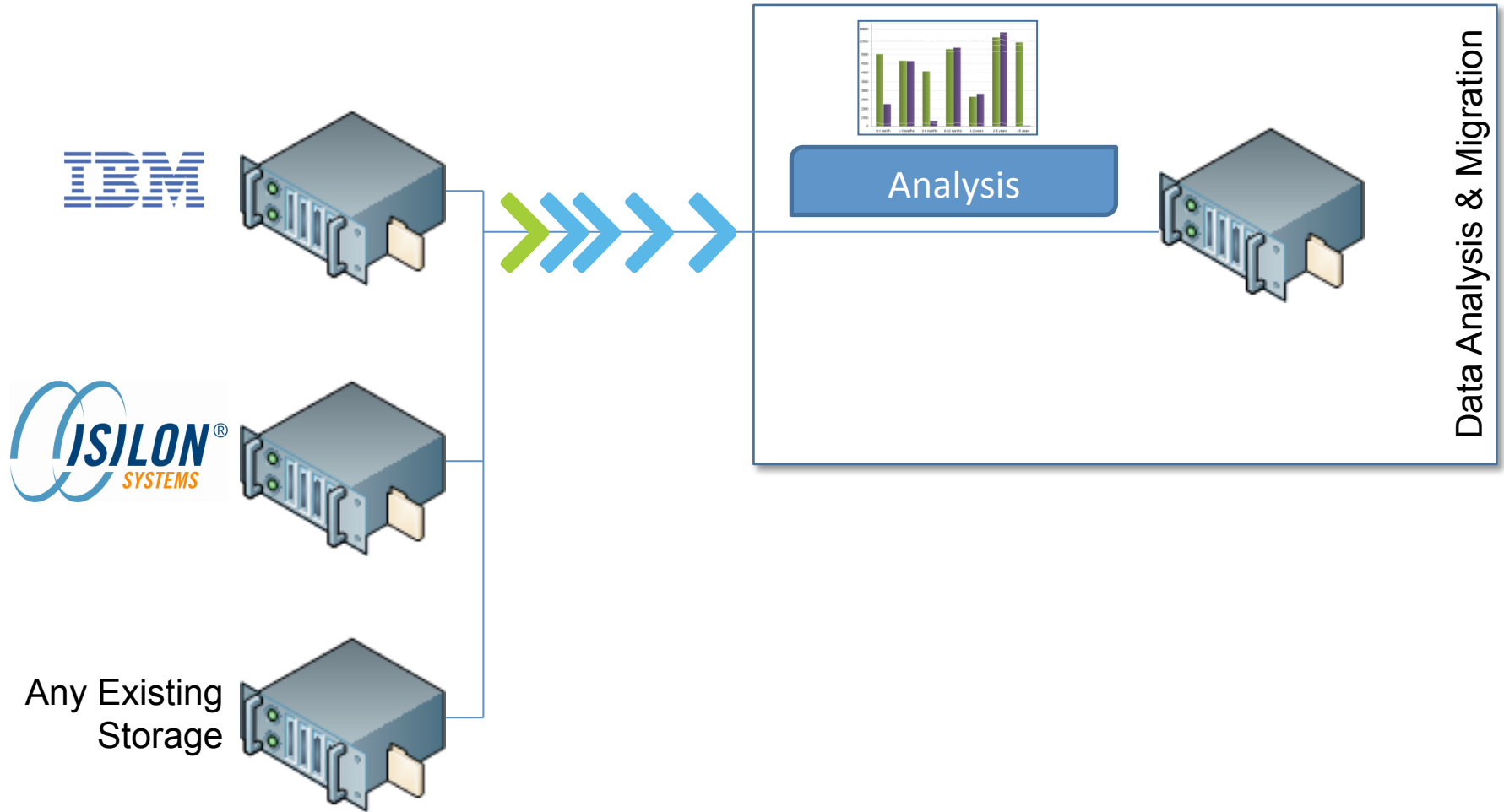


“A problem well stated is half solved.”

Charles Kettering, Inventor

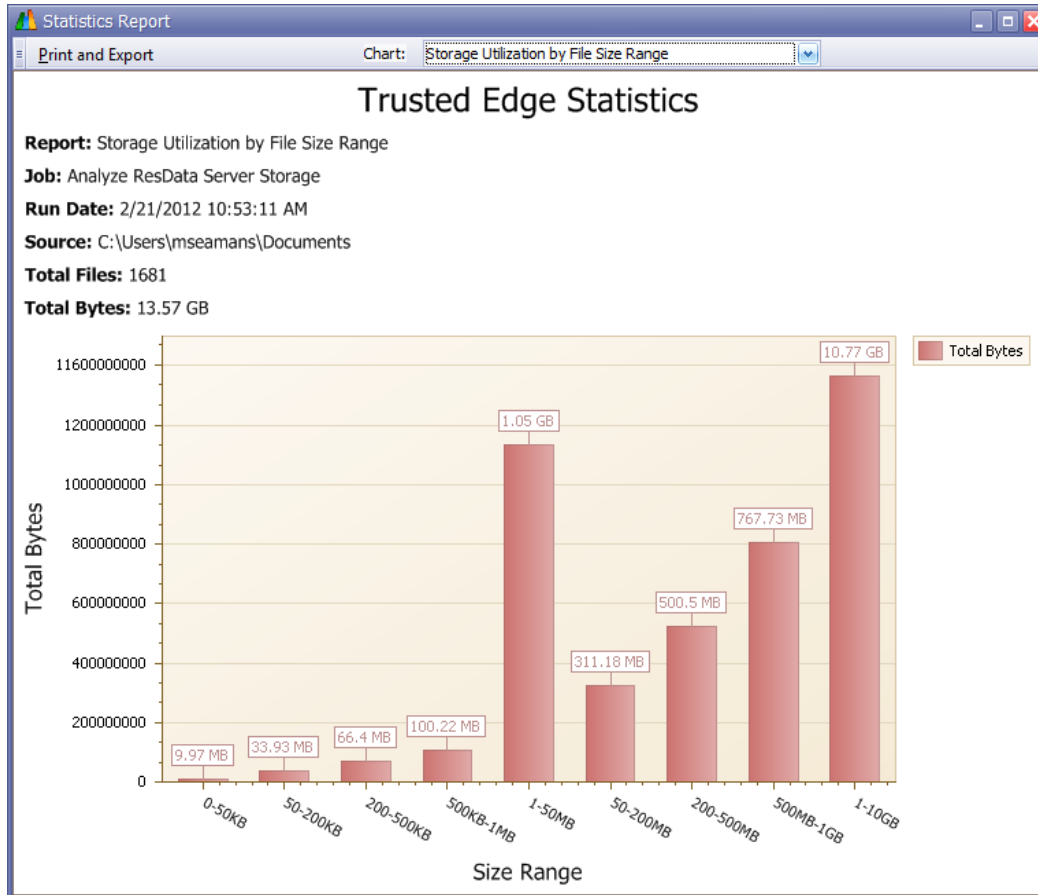
Trusted Edge Analytics

Understanding What, Where and How?



Trusted Edge Analytics

Understanding What, Where and How?



- Utilization by:
 - Creation Date
 - Last Access Date
 - File Size
 - File Type
 - Number of Files
 - More
- In-Place Analysis
- Understand Assets and Use Patterns

Powering Business Discussions

Value Realisation Modeler (VRM)

Input Questionnaire

Sources Of Defendable, Credible and Measurable ROI for Implementation of FileTek's StorHouse

There are many sources of ROI for the acquisition, installation, implementation and use of FileTek StorHouse that can be quantified. The following Input Questionnaire provides the appropriate questions to calculate measurable ROI in the following areas:

1. Storage Migration ("Active Archive") Savings
2. "Active-Active" Data Mirroring Savings
3. Traditional Data Backup Replacement Savings
4. Environmental/Green (Facility, Electrical, etc.) Savings

Color Codes:

Input: Customer may modify default values, as required

Input: Customer must supply information

Input: End-result values; protected cells

CORE ASSUMPTIONS

Taxes, Benefits, etc.

	Value
What is the employee fringe benefits rate for employee benefits, taxes, etc.	42.0%
What is the yearly salary growth rate (% increases per year)?	3.0%
What are the hours paid per workday (no OT)	8
What are the # of workdays per week (no OT)	5
What are the # of paid weeks per year	52
What is the OT pay as a % of regular pay?	150%
What is the pre-tax cost of capital discount rate?	10.0%
What is the post-tax cost of capital discount rate?	7.0%
What is the corporate income tax rate?	40.0%

Storage Migration ("Active Archive") and Active-Active Data Mirroring

This section provides the necessary data to identify the immediate and projected savings from using StorHouse as an "Active Archive" and replacing disk data mirroring for active-active storage.

- Storage Migration ("Active Archive") Savings
- Data Mirroring ("Active/Active") Savings
- Backup Replacement Savings
- Environmental/Facility ("Green") Savings

Powering Business Discussions

Value Realisation Modeler (VRM)

DETAILS OF ROI BENEFITS

Acquisition, Implementation, and On-Going Support Costs of FileTek Solution

Purchase, Implementation, and On-Going Support Costs of FileTek Solution

Targeted Storage to be Migrated to StorHouse

	I	Year 1	Year 2	Year 3	Total
Targeted amount of primary data to be migrated to StorHouse (TBs)	100	45	65	95	305

Existing/Initial Costs

	Year 1	Year 2	Year 3	Total	
Purchase Costs for New Hardware/Software for StorHouse Solution					
Initial and anticipated add-on costs for new hardware	\$110,000	\$0	\$0	\$0	\$110,000
Initial and on-going annual maintenance for new hardware	\$0	\$0	\$0	\$0	\$0
Initial and on-going media costs for StorHouse solution	\$30,612	\$13,776	\$19,974	\$28,963	\$93,325
Initial and anticipated add-on costs for StorHouse software	\$65,000	\$29,250	\$42,413	\$61,498	\$198,161
Initial and annual cumulative maintenance for StorHouse software	\$13,000	\$5,850	\$27,333	\$39,632	\$85,815
Training and consulting services for StorHouse solution	\$14,250	\$0	\$0	\$0	\$14,250
Total:	\$232,862	\$48,876	\$89,719	\$130,093	\$501,551

Personnel Costs for Internal Implementation and On-Going Support of FileTek Solution

Projected Implementation with FileTek StorHouse Solution:

	Initial Costs	Year 1	Year 2	Year 3	Total
Internal Implementation Costs:					
System Administrator	\$4,885	N/A	N/A	N/A	\$4,885
System Architect	\$5,226	N/A	N/A	N/A	\$5,226
Systems Engineer	\$3,976	N/A	N/A	N/A	\$3,976
	\$0	N/A	N/A	N/A	\$0
	\$0	N/A	N/A	N/A	\$0
Total:	\$14,088	N/A	N/A	N/A	\$14,088

- Storage Migration (“Active Archive”) Savings
- Data Mirroring (“Active/Active”) Savings
- Backup Replacement Savings
- Environmental/Facility (“Green”) Savings

Powering Business Discussions

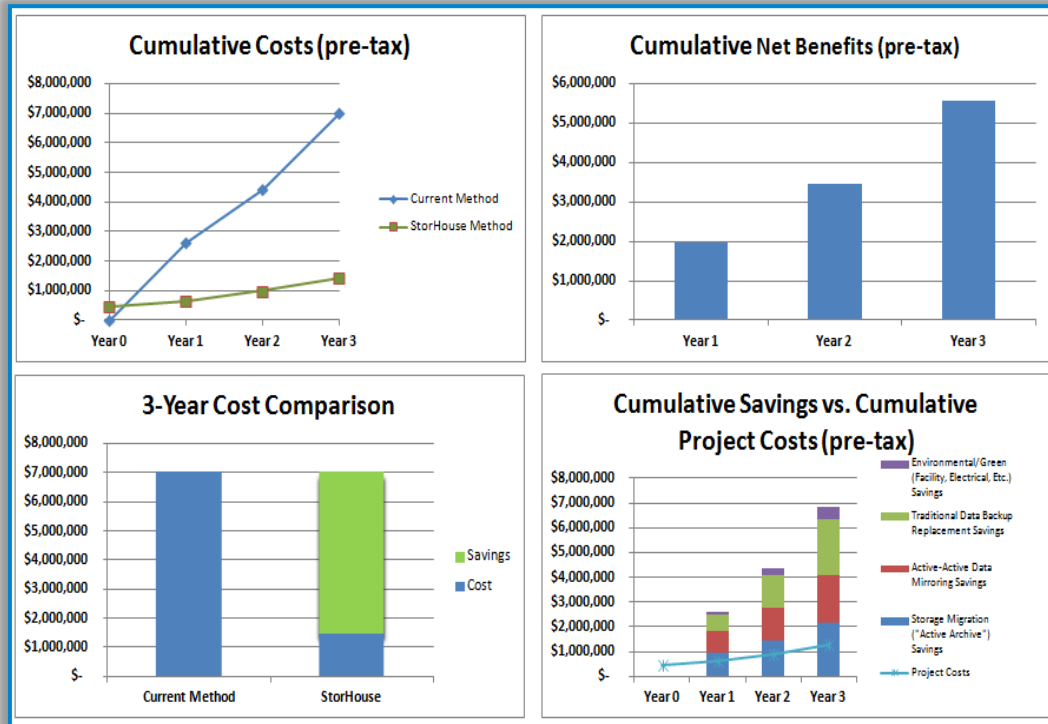
Value Realisation Modeler (VRM)

Financial Benefits					
Total Savings Using FileTek StorHouse Solution (Incremental Cash Flow)					
	Initial	Yr 1	Yr 2	Yr 3	Total
Benefits					
Storage Migration ("Active Archive") Savings	\$ -	\$ -	\$ -	\$ -	\$ -
Active-Active Data Mirroring Savings		207,150	93,218	135,166	435,533
Traditional Data Backup Replacement Savings		157,877	124,956	143,796	426,629
Environmental/Green (Facility, Electrical, Etc.) Savings		1,146	1,711	347	3,203
	-	366,173	219,884	279,309	865,366
Project Costs					
Purchase of hardware, software, and services	232,862	48,876	89,719	130,093	501,551
Implementation & on-going support costs	14,086	42,757	44,040	45,361	146,244
	246,949	91,633	133,759	175,454	647,795
Net Incremental Cash Flow (Pre-tax)					
	(246,949)	274,541	86,125	103,854	217,571
Net (increase)/decrease in depreciation/amortization		36,886	66,950	135,906	239,742
Tax basis of disposed/re-purposed capital assets		(20,286)			(20,286)
Net increase/(decrease) in capex	205,612	(255,413)	(151,048)	(206,870)	(407,719)
Net increase/(decrease) in taxable income	(41,336)	35,728	2,026	32,891	29,309
Net (increase)/decrease in income taxes	16,535	(14,291)	(811)	(13,156)	(11,723)
Net increase/(decrease) in net income	(24,802)	21,437	1,216	19,734	17,585
Net Incremental Cash Flow (Post-tax)					
	\$ (230,414)	\$ 260,249	\$ 85,315	\$ 90,698	\$ 205,848
Financial Analysis					
		Results			
Net Value	pre-tax, 3-year cumulative	\$217,571			
Net Value	post-tax, 3-year cumulative	\$205,848			
ROI	pre-tax, average annual	11.2%			
ROI	pre-tax, 3-year cumulative	33.6%			
ROI	post-tax, average annual	10.6%			
ROI	post-tax, 3-year cumulative	31.8%			

- Storage Migration ("Active Archive") Savings
- Data Mirroring ("Active/Active") Savings
- Backup Replacement Savings
- Environmental/Facility ("Green") Savings

Powering Business Discussions

Value Realisation Modeler (VRM)



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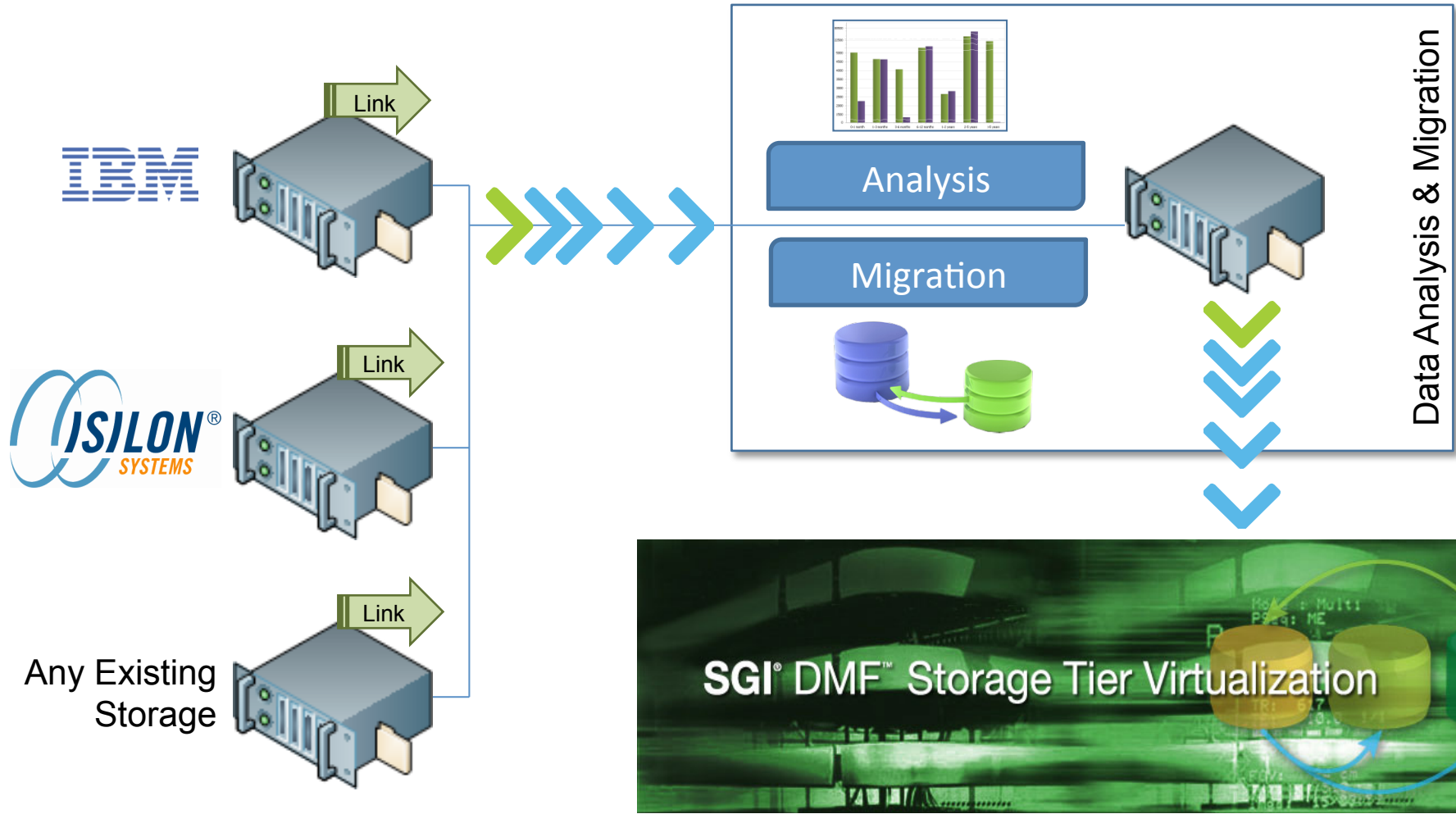
Migration Orchestration

Migrate



Documented,
Automated and
Auditable Migration
Processes Drive
Ongoing Success

Migration Orchestration



Migration Orchestration

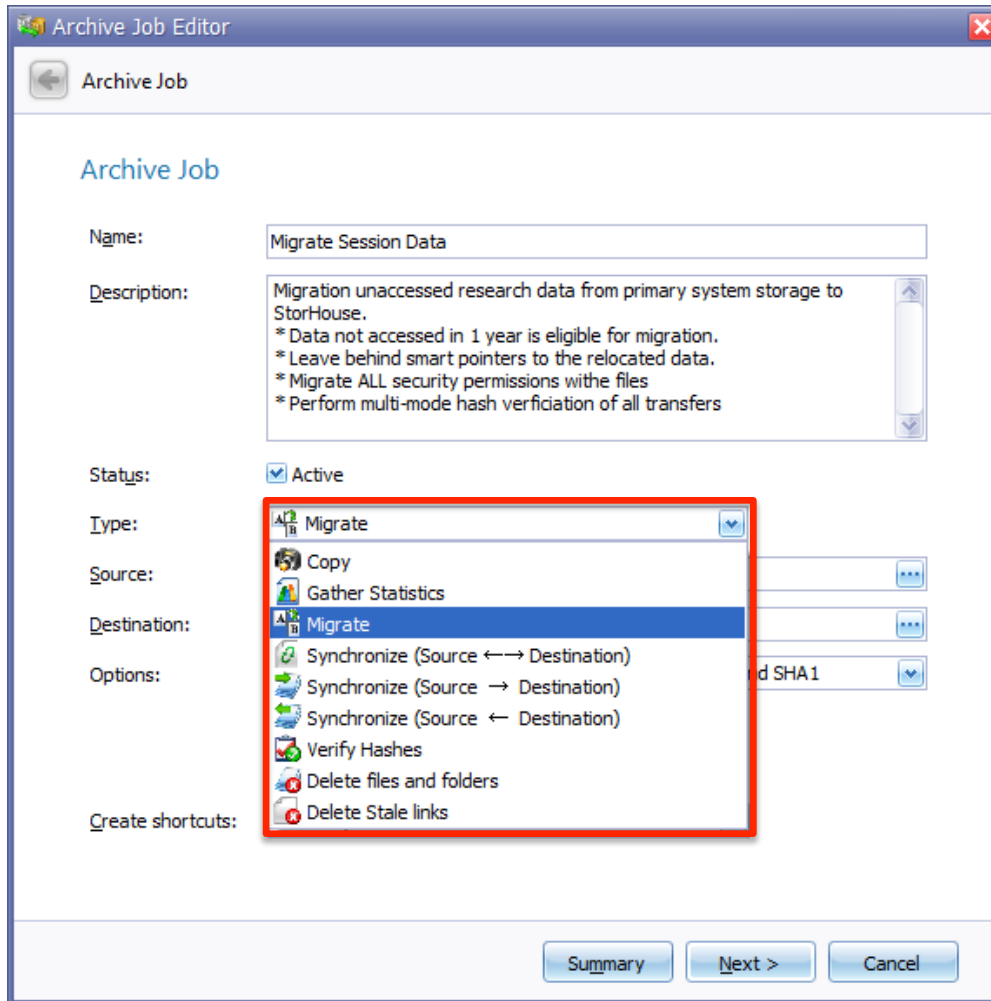
The screenshot shows the 'Archive Job Editor' window with the following configuration:

- Name:** Migrate Session Data
- Description:** Migration unaccessed research data from primary system storage to StorHouse.
* Data not accessed in 1 year is eligible for migration.
* Leave behind smart pointers to the relocated data.
* Migrate ALL security permissions with the files
* Perform multi-mode hash verification of all transfers
- Status:** Active
- Type:** Migrate
- Source:** C:\Research
- Destination:** F:\StorHouse\Operations
- Options:**
 - Ignore sub-folders
 - Reporting Only
 - Copy Security Information
- Hash Type:** MD5 and SHA1
- Create shortcuts:** As symbolic link

Buttons at the bottom: Summary, Next >, Cancel

- Migration by:
 - Copy
 - Migrate
 - Synchronize
- Inclusion and Exclusion Management
- Intelligent Linking
- Hash Verification
- Schedule Management
- Job Orchestration Engine
- Full Alerting and Proactive Notification

Migration Orchestration



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- Destination:** F:\StorHouse\Operations
- Options:**
 - Ignore sub-folders
 - Reporting Only
 - Copy Security Information
- Hash Type:** MD5 and SHA1
- Create shortcuts:** A dropdown menu is open, showing options: 'As symbolic link', 'None', 'As symbolic link', and 'As internet shortcut URL'. The 'As symbolic link' option is currently selected.

Buttons at the bottom: Summary, Next >, Cancel

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 - Copy
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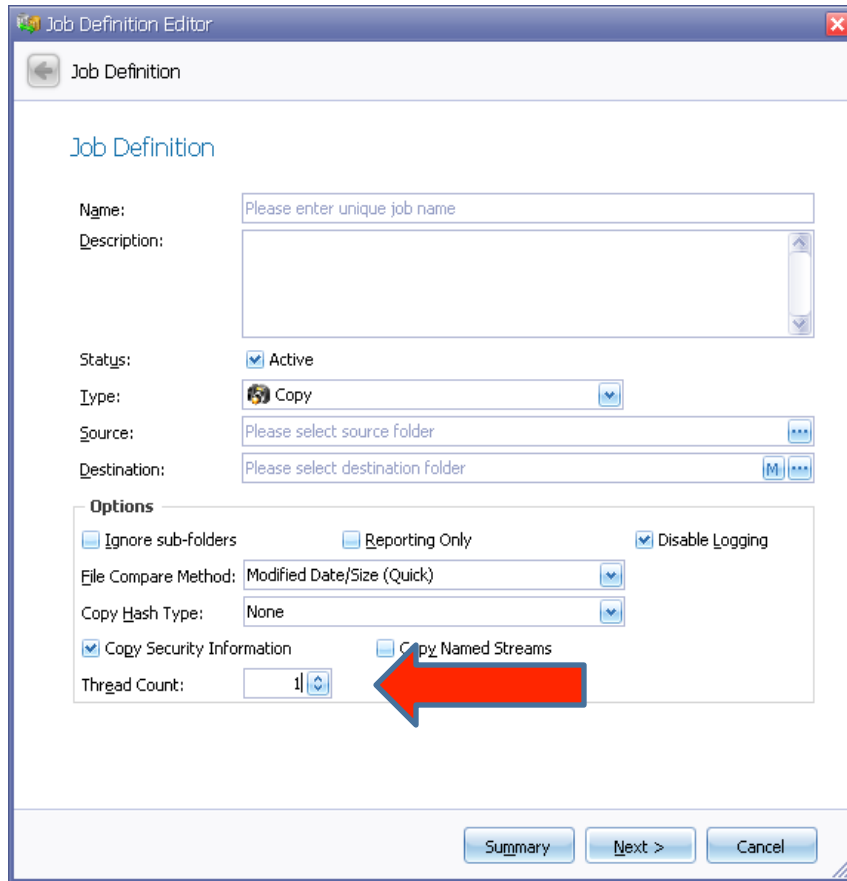
Migration Orchestration

The screenshot shows the 'Archive Job Editor' window with the 'Date' tab selected. The 'Date Accessed' section is highlighted with a red box. It contains a dropdown menu set to 'Relative date range', and two checkboxes: 'Older' (checked) with a value of '365' and 'Day(s)', and 'Younger' (unchecked) with a value of '0' and 'Day(s)'. At the bottom of the window are buttons for 'Summary', 'Next >', and 'Cancel'.

- Migration by:
 - Copy
 - Migrate
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- Inclusion and Exclusion Management
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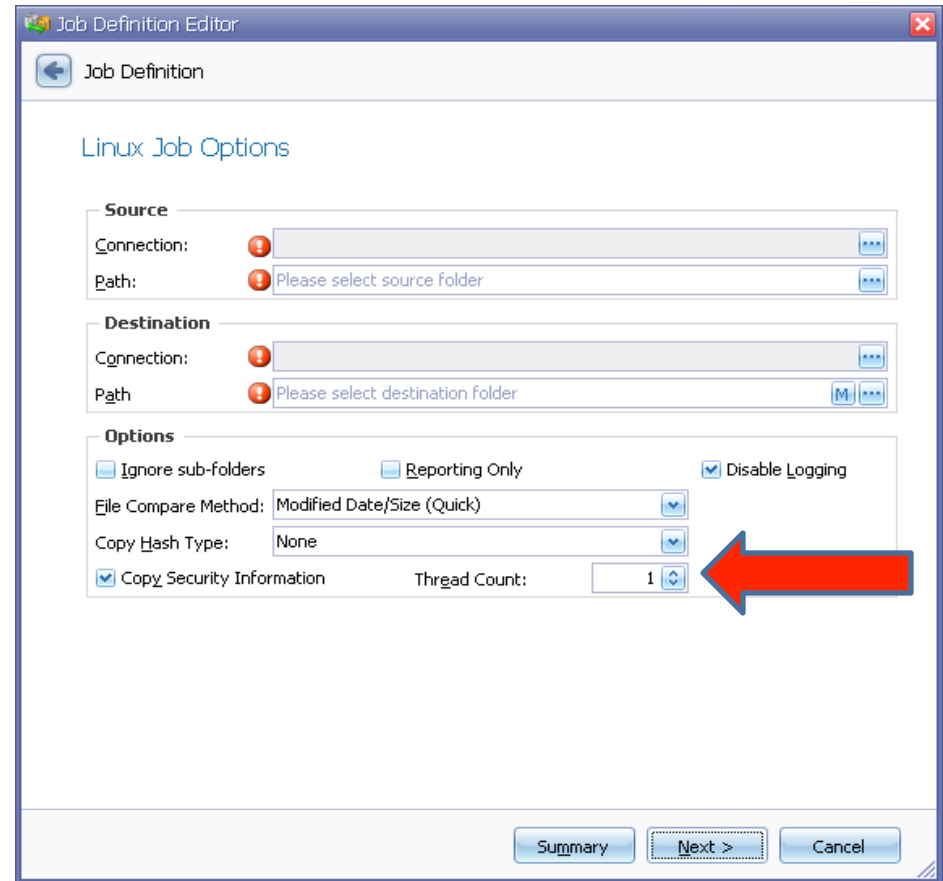
Multi-platform Execution Mgmt.

Several Layers of Throughput and Process Control



The screenshot shows the 'Job Definition Editor' window for a Windows/SMB job. The 'Job Definition' section includes fields for Name, Description, Status (Active), Type (Copy), Source, and Destination. The 'Options' section includes checkboxes for Ignore sub-folders, Reporting Only, and Disable Logging; a dropdown for File Compare Method (Modified Date/Size (Quick)); a dropdown for Copy Hash Type (None); checkboxes for Copy Security Information and Copy Named Streams; and a Thread Count dropdown set to 1. A red arrow points to the Thread Count dropdown.

Windows/SMB

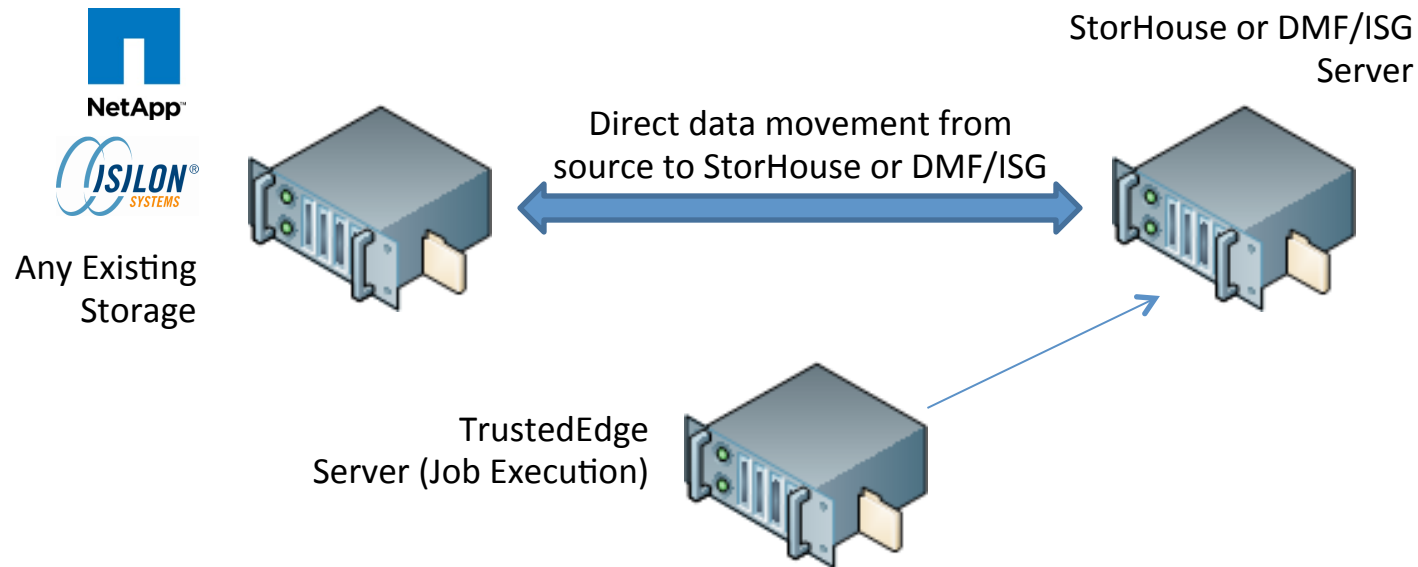


The screenshot shows the 'Job Definition Editor' window for a Linux/NFS job. The 'Linux Job Options' section includes Source and Destination fields with Connection and Path sub-fields. The 'Options' section includes checkboxes for Ignore sub-folders, Reporting Only, and Disable Logging; a dropdown for File Compare Method (Modified Date/Size (Quick)); a dropdown for Copy Hash Type (None); checkboxes for Copy Security Information and Copy Named Streams; and a Thread Count dropdown set to 1. A red arrow points to the Thread Count dropdown.

Linux/NFS

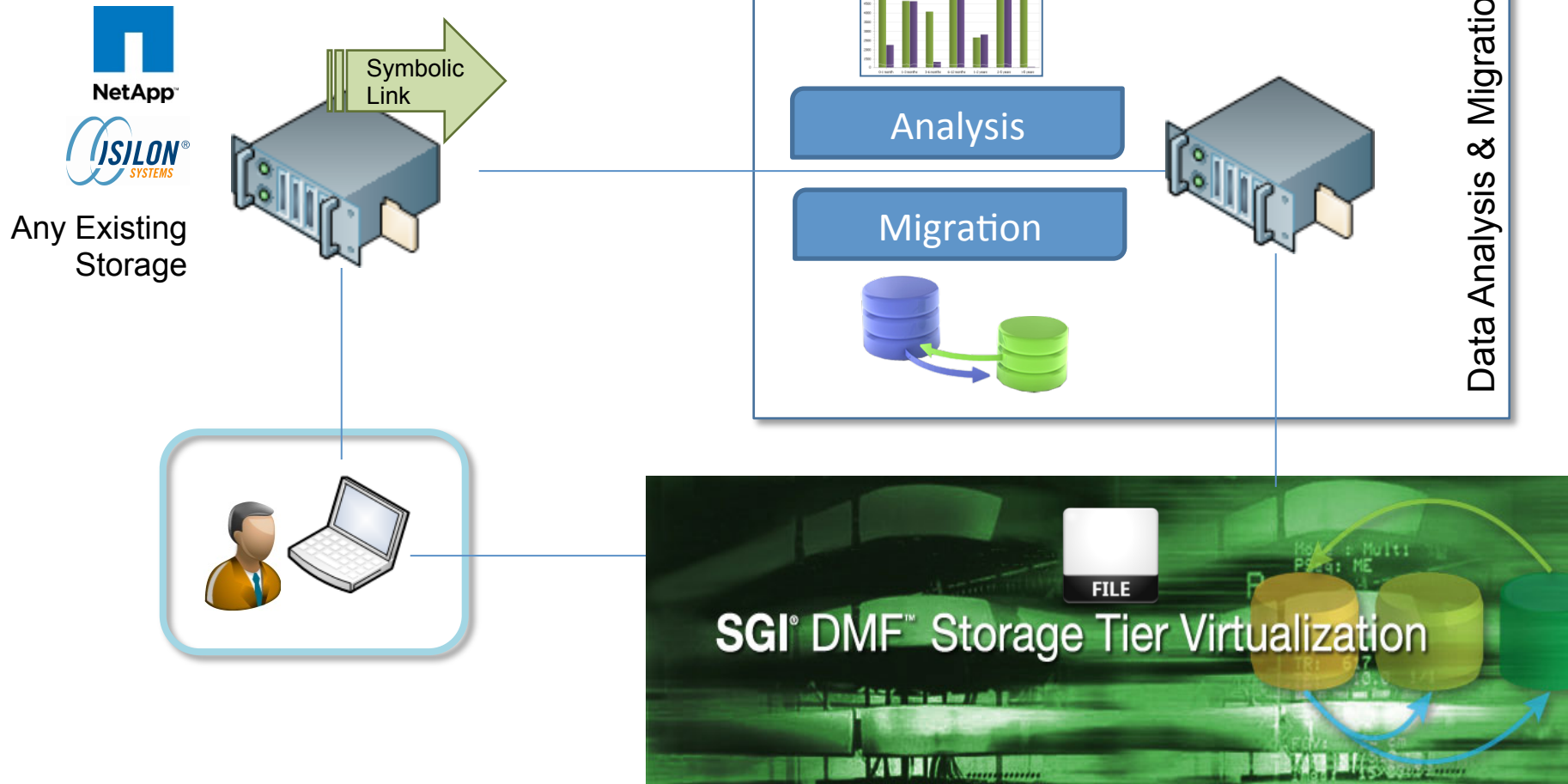
“Direct Connect” Linux Transfers

- Eliminates additional network hop
- Allows StorHouse or DMF/ISG to be “content vacuum” with TE orchestrating the process



Information Retrieval

Transparent Access for Users and Applications



Information Management

Capabilities to Build Out Our SGI Stack

Manage



Information Management

Capabilities to Build Out Our SGI Stack

An infinitely scalable ForeverNAS™ that users access as a standard Windows (CIFS 2.X) or NFS file share

Standard User and Application Access as Network Attached Storage (NAS)



StorHouse®

ForeverNAS

Storage

Disk - Tape – Cloud – SSD – NBT

Information Management

Capabilities to Build Out Our SGI Stack

An infinitely scalable ForeverNAS™ that users access as a standard Windows (CIFS 2.X) or NFS file share

Users Have Continuous Access to Data

Administrators Can Monitor and Tune Storage Policies

Over 100 Data Management Functions Are Provided

Standard User and Application Access as Network Attached Storage (NAS)



StorHouse®

ForeverNAS

Storage

Disk - Tape - Cloud - SSD - NBT

Information Management

Capabilities to Build Out Our SGI Stack

Application Information Access

Direct User Information Access



StorHouse®

ForeverNAS

- Policy Management
- Active Validation & Repair
- CIFS Interface
- NFS Interface
- FTP Interface
- System Mirroring
- Media Migration Management
- File Version Management
- Point-in-Time File Access
- WORM Tape Support
- Global Name Space Mgmt.
- System Health Monitor
- Soft/Hard Deletes
- Automated Data Migration
- File Stubbing & Links
- Silent Corruption Detection
- DR Management & Failover
- MD5 Checksum
- Collector Retention
- Onsite/Offsite Data Mgmt.
- Data Encryption
- Automated Backup/Archive
- Optimized Retrieval based on File Size and Media
- Audit Trail
- LTFS Support
- Capacity Reporting
- System Alerts
- Intelligent Buffering
- Media Consolidation

Storage

Disk – Tape – Cloud – SSD – NBT

StorHouse Control Center (CCi)

Browser-based System Administration and Monitoring



[Main](#)
[New](#)
[Profiles](#)
[About CCi](#)
[Logout](#)

StorHouse®

RFS Nodes

RFS	Stop	Start	Edit	Del
RFS Node: argument				
Status: Not Connected				
RFS Host: arf				
RFS Port: 1346				

RFS/PIT	Stop	Start	Setup	Del
Inactive PIT: linxpc2				
Status: Running				
RFS Host: linxpc2.filetek...				
RFS Port: 1346				

RFS/PIT	Stop	Start	Setup	Del
Inactive PIT: linxpc1				
Status: Running				
RFS Host: linxpc1.filetek...				
RFS Port: 1346				

RFS	Stop	Start	Edit	Del
RFS Node: alpha3				
Status: Running				
RFS Host: alpha3.filetek.c..				
RFS Port: 1346				

RFS	Stop	Start	Edit	Del
RFS Node: linxsth				
Status: Not Connected				
RFS Host: linxsth.filetek...				
RFS Port: 1346				

RFS	Stop	Start	Edit	Del
RFS Node: punkwitch				
Status: Not Connected				
RFS Host: lkjlkj				
RFS Port: 1346				

RFS	Stop	Start	Edit	Del
RFS Node: bugwit				
Status: Not Connected				
RFS Host: bugwit				
RFS Port: 1346				

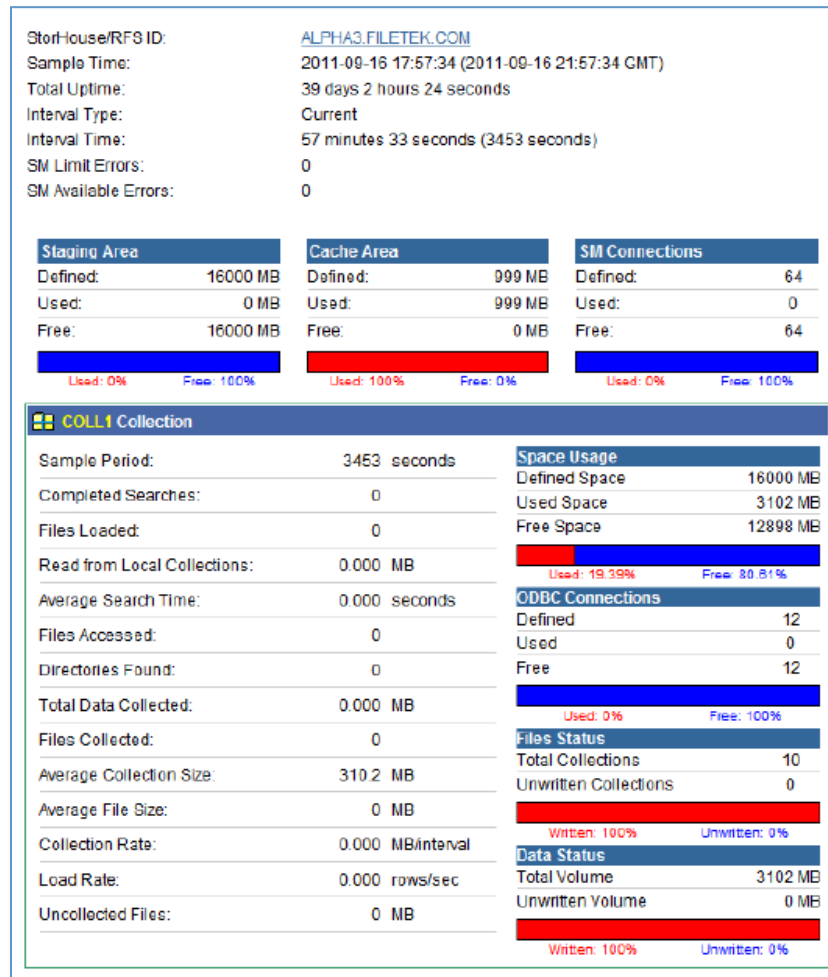
Storage Machines

STH	Stop	Start	Edit	Del
System Name: linxpc1				
Status: Connected				
STH Host: linxpc1.filetek...				
STH/RM Ports: 1200/1990				
STH/RM Ver: 5.6/3.4				

STH	Stop	Start	Edit	Del
System Name: alpha				
Status: Connected				
STH Host: alpha3				
STH/RM Ports: 1200/1990				
STH/RM Ver: 5.6/3.4				

StorHouse Control Center (CCi)

Browser-based System Administration and Monitoring



StorHouse Control Center (CCi)

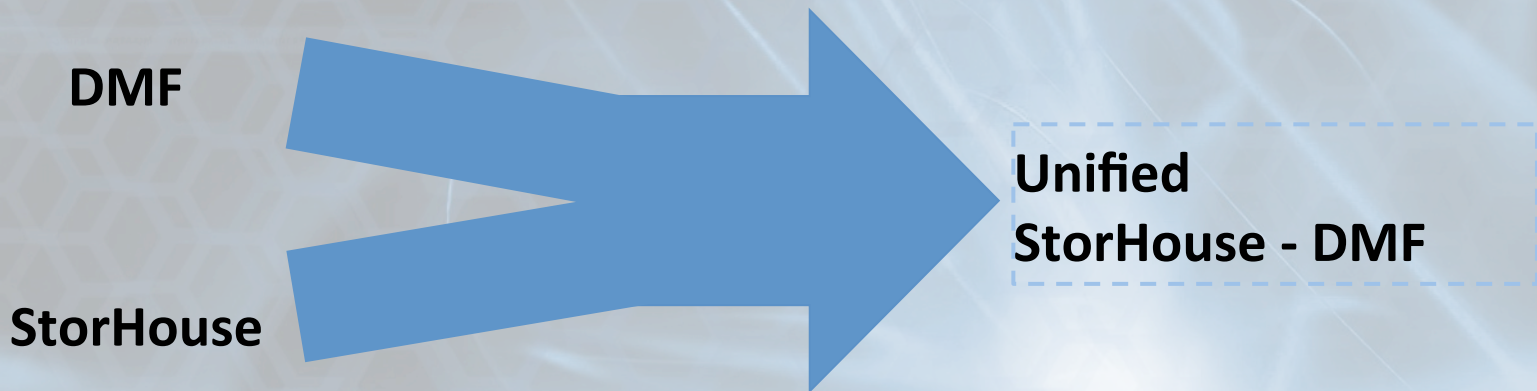
Browser-based System Administration and Monitoring

Volume Set	Directory	Location	Media	Volumes	Usage Graph	Size	Free Space	Objects	Actions
ALEX_TST	Primary	L00	TFD	1		799,994,281 KB	0 KB		
DEVBKUP	Primary	L00	TFD	1		799,994,281 KB	728,993,331 KB		
EWINGBU	Backup	L00	TFD	1		799,994,281 KB	798,414,036 KB		
EWINGT	Primary	L00	TFD	1		799,994,281 KB	798,364,930 KB		
FLEXBKUP	Backup	L00	TFD	1		799,994,281 KB	0 KB		
FLEXES30	Primary	L00	TFD	1		799,994,277 KB	735,949,998 KB		
L00TFD0	Primary	L00	TFD	1		799,994,281 KB	0 KB		
L00TFD1	Primary	L00	TFD	1		799,994,275 KB	0 KB		
L00TFD2	Primary	L00	TFD	1		799,994,281 KB	0 KB		
L00TFD3	Primary	L00	TFD	1		799,994,281 KB	0 KB		
MAGDISK	Primary	F00	MIA	4		1,009,196,105 KB	259,196,105 KB		
PLOCATE	Primary	L00	TFD	1		799,994,281 KB	0 KB		
RELO	Primary	L00	TFD	1		799,994,281 KB	0 KB		
RFS	Primary	L00	TFD	4		3,199,977,119 KB	582,687,374 KB		
SYSTEM	Primary	L00	TFD	1		799,994,281 KB	80,082,085 KB		
TSTINPUT	Primary	L00	TFD	1		799,994,281 KB	0 KB		
WINDY1	Primary	L00	TFD	0		0 KB	0 KB		
_00_TFD_	Primary	L00	TFD	0		0 KB	0 KB		

Platform Technology Summary

- Linux-based (Red Hat and CentOS currently) platform that can run on a single box OR which can be distributed across numerous boxes for scalability and high-availability
- Connectivity to StorHouse using CIFS 2.X, NFS v3, FTP, and Native API
- Support for RAID, SAN, NAS, JBOD, S3/REST, Object-based Storage, LTO tape, Enterprise Tape, Numerous Libraries
- Browser-based administration
- Advanced system monitoring, diagnostics, reporting and notification for global support

DMF + StorHouse Integration



Unified Architecture



- Leverage high-performance CXFS and DMF architecture for tiered storage management
- Enable all StorHouse enterprise functionality as value-added services
- Expand and accelerate cloud connector architecture with superset list of SH & DMF adapters
- Allow seamless migration for users of both current platforms

Print and Export

Chart: Storage Utilization by Age

Trusted Edge Statistics

Report: Storage Utilization by Age

Run Date: 11/7/2013 10:21:04 AM

Total Files: 2864

Source: C:\Users\mseamans\Desktop

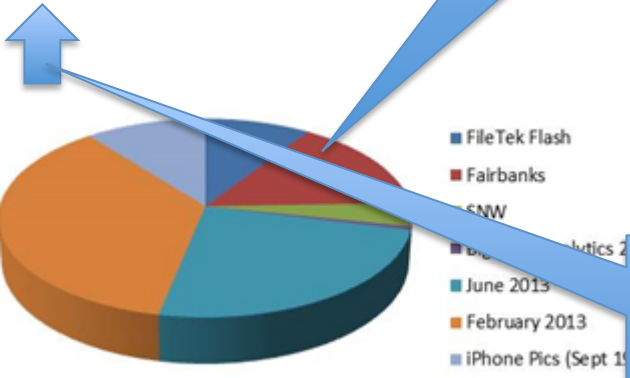
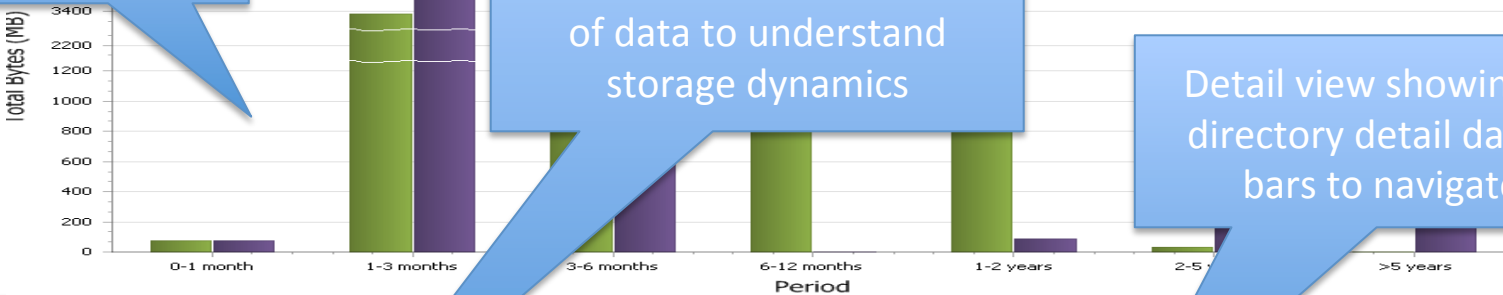
Total Bytes: 21.07 GB

Chart types as with current product

Chart selection as with current product

"Active Charts" with ability to do interactive drill-down of data to understand storage dynamics

Detail view showing current directory detail data. Scroll bars to navigate info.



Name	File	File Size	Date Modified
C:\Users\mseamans\Desktop			
XC Bronco Round-Up Pics 2013			
Big Data Analytics 2013			
SNW			
FileTek_Flash			
February 2013			

Navigation control to go back "up" a directory from current location

TE – Possible Future Options*

- User/group space usage reporting
- Execute Linux command/script from alerts
- Cascading Jobs
- MetaData Capture
- Metadata Management
- NetApp Cluster fPolicy Stubs
- Drag and drop between job editor windows
- Drag and drop between Enterprise view servers
- Post report analysis capability
- Job Queuing Prioritization
- Job Run Progress Updates
- Universal exclusions
- Migrate between different object stores
- Export Stat report results
- Update Job Activity report
- Recycle bin for excluded jobs

* Plan of intent, no set date

