

Solusi Data Backup & Recovery

Ben Marvin Tan





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IBM Service Management



Visibility:
*See your
Business*

***Respond faster and
make better decisions***



Control:
*Manage your
Business*

***Manage risk and
compliance***



Automation:
*Improve your
Business*

***Lower costs and
build agility***



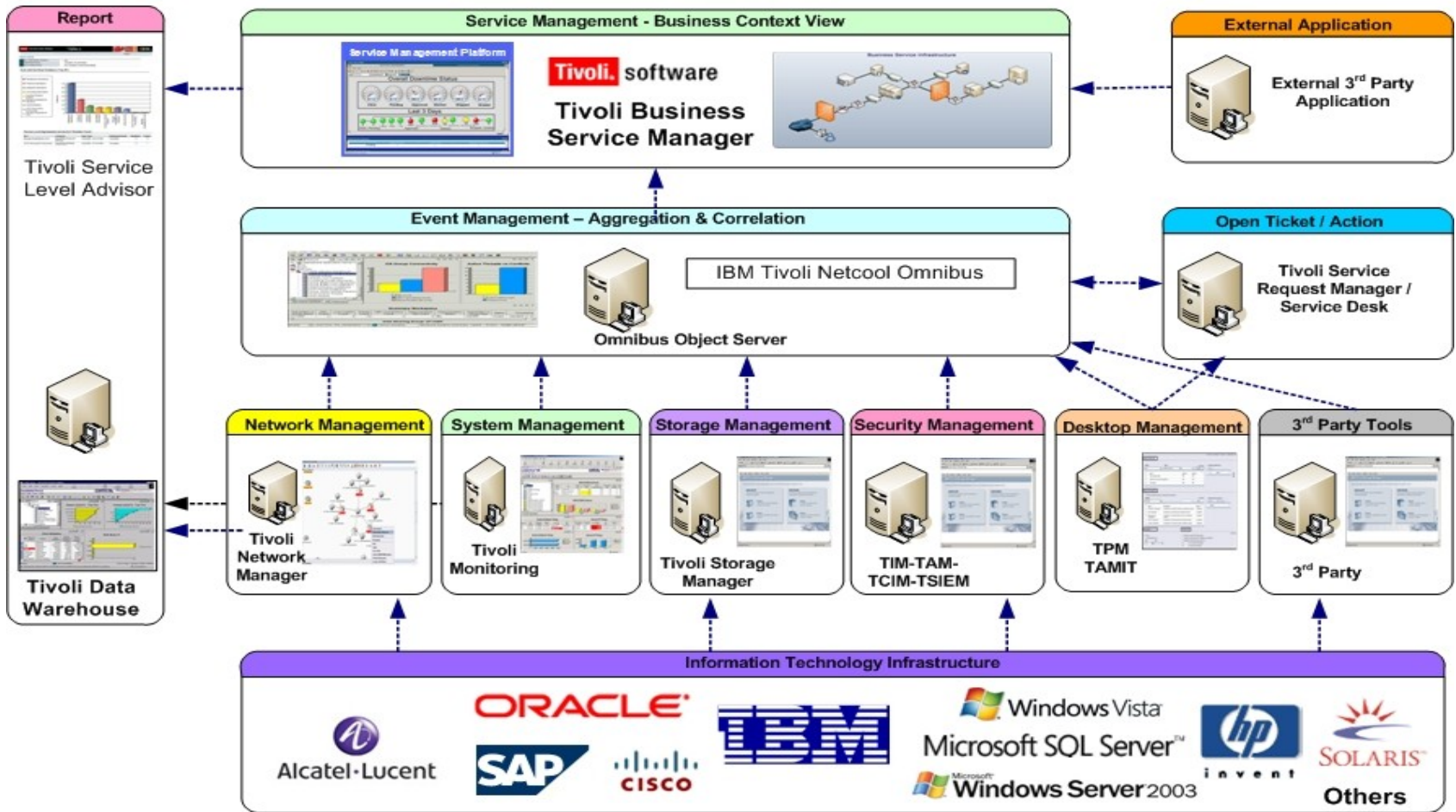
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Integrated Operation

Tivoli software @ HR-2008

Monitoring & Automation Architecture





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Leading the Way in Data Protection and Recovery

Tivoli Storage Manager has been a leader in helping organizations protect, retain and assure availability of their most important asset, their data, **for more than 15 years.**

Comprehensive Solution

- Backup / Restore
- Archive / Retrieve
- Continuous Data Protection (CDP)
- Disaster Recovery
- HSM / ILM
- Application Protection
- Database Protection
- Bare Machine Recovery
- Robust Remote Office Recovery

Proof Points

- More than 20,000 loyal customers, including 60% of the Fortune 500
- 1st disk-based backup solution
- Unified recovery across:
 - The broadest range of OS and HW platforms: *from laptop to mainframe*
 - All storage tiers
- Four consecutive years of growing faster than the market*

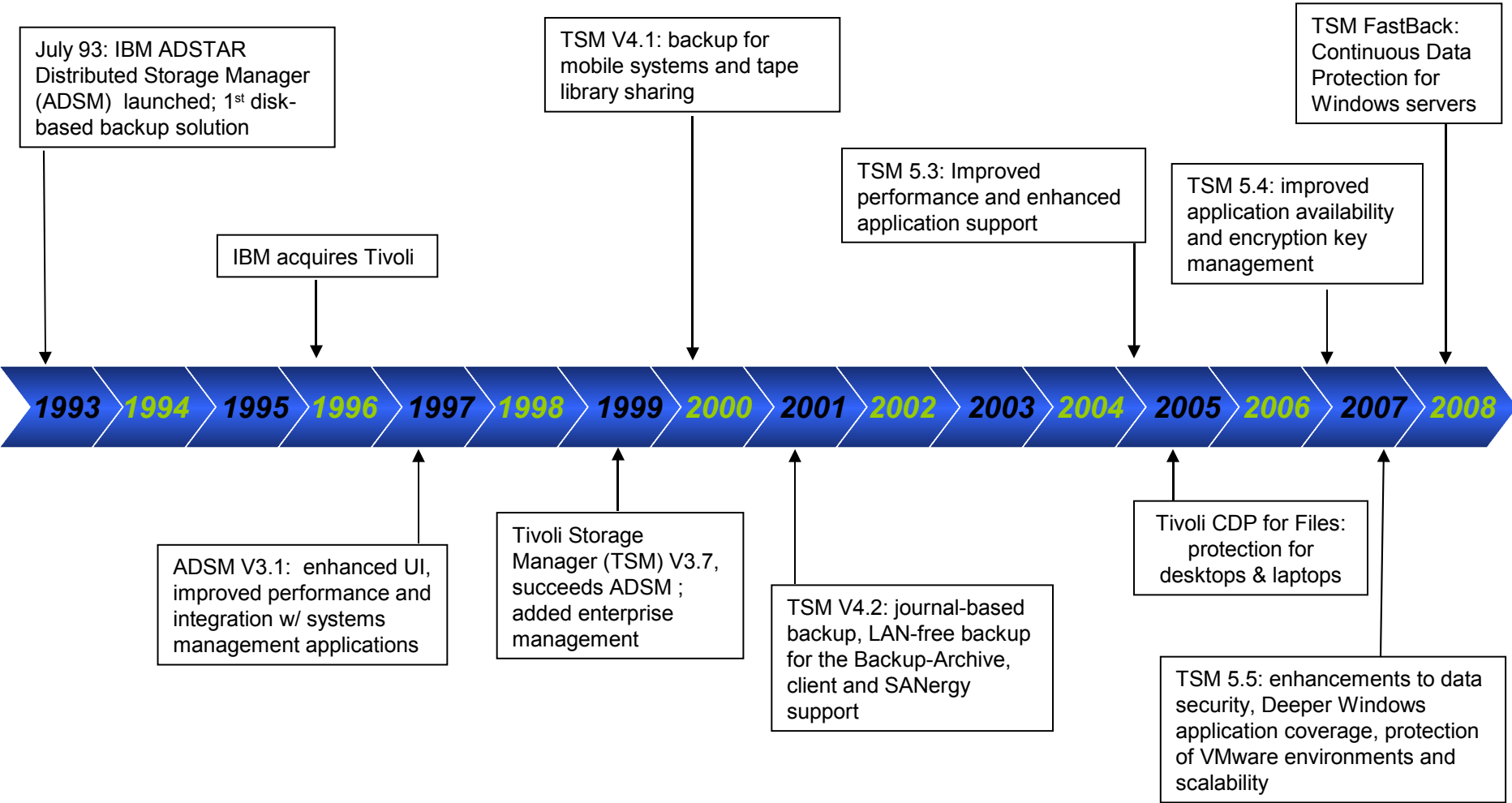
* Source: IDC, Jan. 2009 (TBD)



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15 Years of Leading the Way in Data Protection





Continuing to Lead the Way

Tivoli Storage Manager 6 leapfrogs the competition to address our customers' most challenging issue: the continuing tidal wave of data growth.

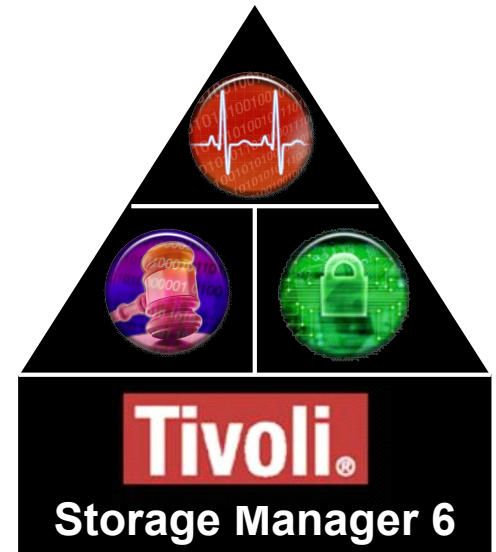
 ***Simplified deployment and management***

 ***Increased scalability, availability and performance***

 ***Built-in Data Deduplication***

 ***Enhancements to help achieve demanding RPO, RTO and business continuity requirements***

**Net Result = Unified Recovery Management
Improved Quality of Service**





Customer Benefits: Simplified Deployment

- Manage more data with fewer **Tivoli Storage Manager 6** servers
 - TSM Servers can now be added at a much slower rate as your data grows
 - ***Much less complicated*** than competitive solutions (no media servers)
- Re-designed reporting and monitoring
 - Wide range of pre-configured 'out-of-the-box' reports; reports are fully-customizable
 - Near real-time monitoring via a customizable dashboard
 - Included with ***no additional licensing***
- Tivoli Storage Manager Admin Center 6 requires 30% less disk and takes half the time to install as compared to the TSM 5.5 Admin Center
 - Enhances the administration experience of multiple TSM servers in large environments with less impact to the managed servers

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Results will vary depending on user's environment, systems/processors, type of data, *
.expiration policies, data change rates, etc



Customer Benefits: Simplified Management

- Simplified database administration through the Tivoli Storage Manager user interface (UI) and through the exploitation of autonomic computing concepts:
 - No specialized database administration skills required
 - A self-tuning database buffer pool
- **More reliable backup and recovery**
 - Run-time data validity checks
 - Errors are immediately detected and corrected
- **Improved Availability**
 - Online database reorganization enables changes and tuning of the database while the system remains operational
 - The **Tivoli Storage Manager 6** server does not need to be taken "offline" for database repair actions
 - Competitive offerings require the servers to be off-line to preserve the integrity of their distributed catalogs and index files.



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Customer Benefits: Scalability Improvements

- Manage twice* as many objects as the industry-leading TSM 5.5
 - At least double the internal database size (from 512GB to 1TB, minimum)
 - Support for at least **1 billion objects*** with a single TSM server
 - TSM integrates with TSM Fastback to successfully manage and protect remote office data
- Run an increased number of concurrent operations*
 - **9x increase** in the size of the internal Recovery Log enables running more backup jobs from a greater number of clients, and/or an increase in the size of existing backup jobs
 - Result = **Potentially shorter backup windows**

TSM 6 can effectively meet the challenges of the 'tidal wave of data'



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Results will vary depending on user's environment, systems/processors, type of data, * .expiration policies, data change rates, etc



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Customer Benefits: Performance Improvements

- **Greater than 300%** improvement in backup performance demonstrated in the lab for multiple clients backing up small files
 - Improved backup throughput may reduce backup windows and/or increase the workload that can be managed within existing window
- Improve Recovery Point Objectives for DR planning
 - Addition of Active Data Pools to Disaster Recovery Manager (DRM) in **Tivoli Storage Manager 6** Extended Edition
 - Track, manage and recycle active-data pools as required by policies
- 100% improvement* in expiration processing
 - New **granular expiration process** and parallel process execution
 - Fine-tune expiration policies by specific client nodes, node groups, or nodes belonging to a specified domain

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Results obtained in lab conditions for multiple clients backing up small files. Customer results will vary *
.depending on environment, systems/processors, type of data, expiration policies, data change rates, etc



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Progressive Backup Methodology

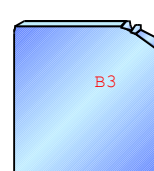
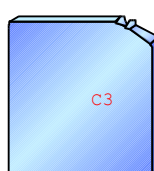
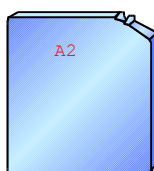
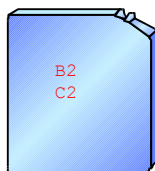
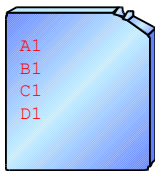
Week 1

	Monday	Tuesday	Wednesday	Thursday	Friday
A	A1		A2		
B	B1	B2			B3
C	C1	C2		C3	
D	D1				

Save time and money

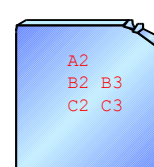
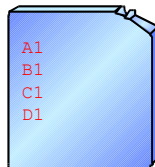


Full + Incremental



**5 Tapes
9 Files**

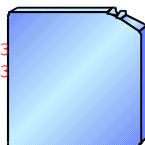
Full + Differential



**2 Tapes
9 Files**

Progressive Backup

A1 A2
B1 B2 B3
C1 C2 C3
D1



**1 Tapes
4 Files**

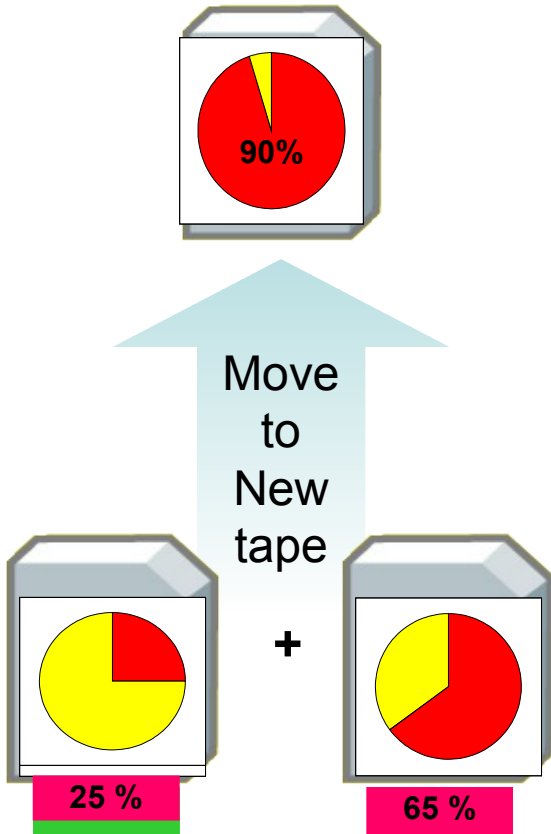


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Tape Reclamation

TSM moves data on off site tapes to save restore time, shelf space and money



Reclamation

When a tapes dead space reaches policy's threshold

- Tape is mounted
- Valid data moved to another tape
- Original tape returned to the scratch pool

Can be scheduled to occur at specified times
User-defined reclamation threshold

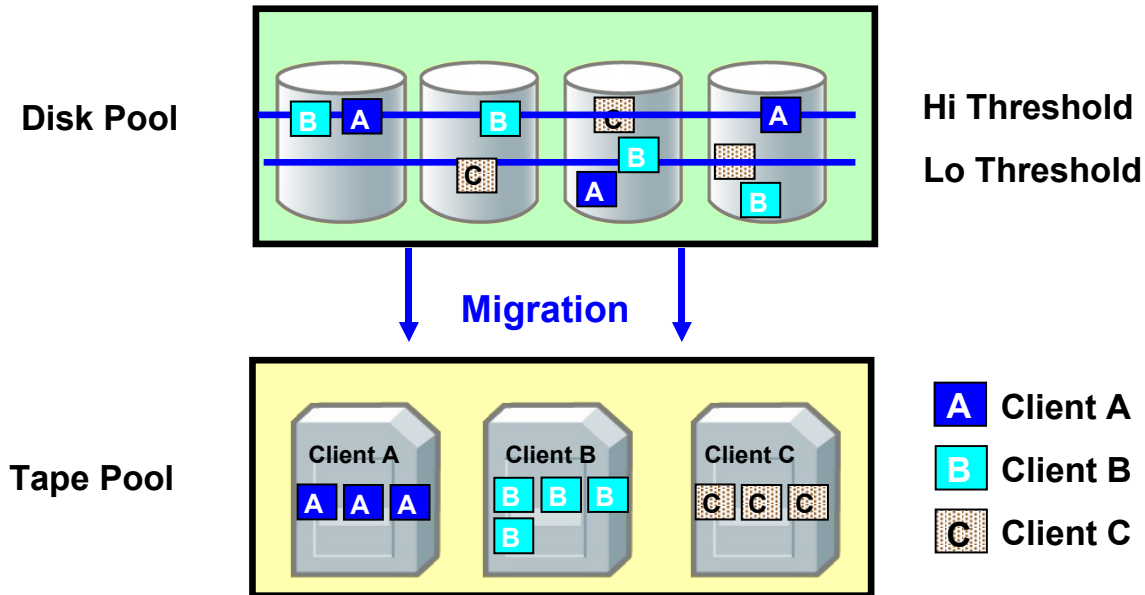
Benefits

- ✓ Better utilizes tapes
- ✓ Reduces the number of tapes required
- ✓ Reduces the size of tape libraries
- ✓ Speeds up restores



Collocation

- Automatically stacks data onto the same tape or group of tapes
- Individual or group of tapes for a client, filesystem or group of clients



Benefits

- ✓ Reduces tape mounts,
- ✓ Expedites restores



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IBM



What's New: Integrated DB2 Database

*Deployment & Management
Scalability, Availability & Performance*

- “Under the covers” in TSM 6
 - No DB2 admin skills required
- Enables next-generation management, scalability, availability and performance
- Celebrating 25 years of innovation
- Rock solid reliability; industry's best security, scalability and performance
- DB2 customers include:
 - 59 of the top 59 banks in the world
 - 9 of the top 10 global life & health insurance companies
 - 23 of the top 25 U.S. retailers

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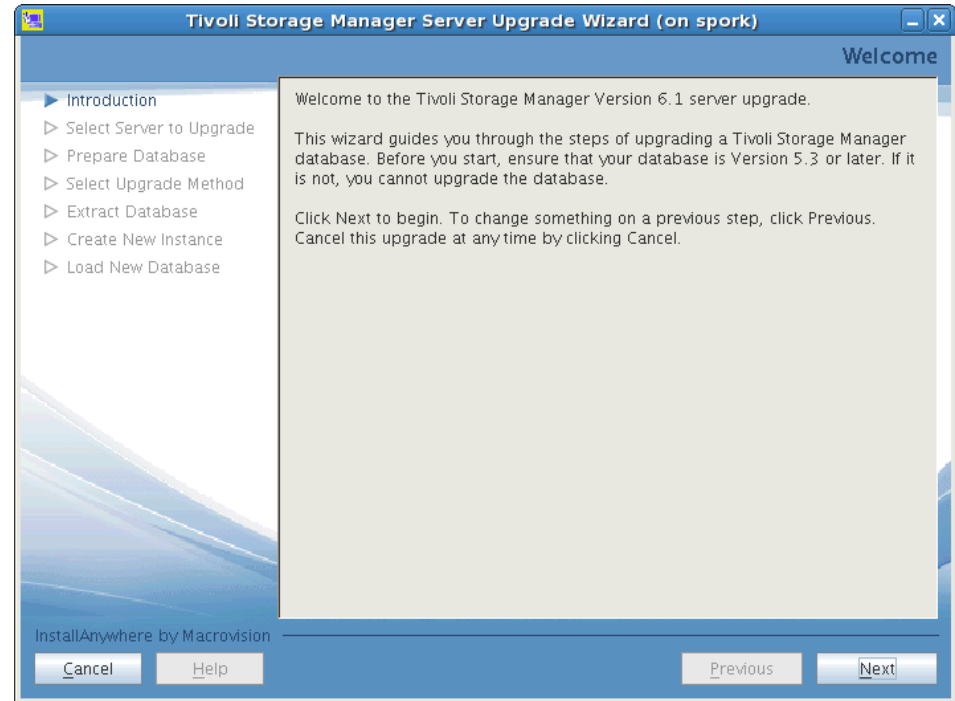
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Ease of Upgrade

- **Prepare**
 - Install the V6 server
 - Install the upgrade utilities on the original server
- **Upgrade**, using one of the following methods:
 - Upgrade wizard
 - Manually using utilities
- **Restart** the server once upgrade is complete
 - Register licenses
 - Verify the upgraded server
 - Update automation

Estimating Upgrade Time
*13 GB/hr for an extract to media and a reload on the same system **



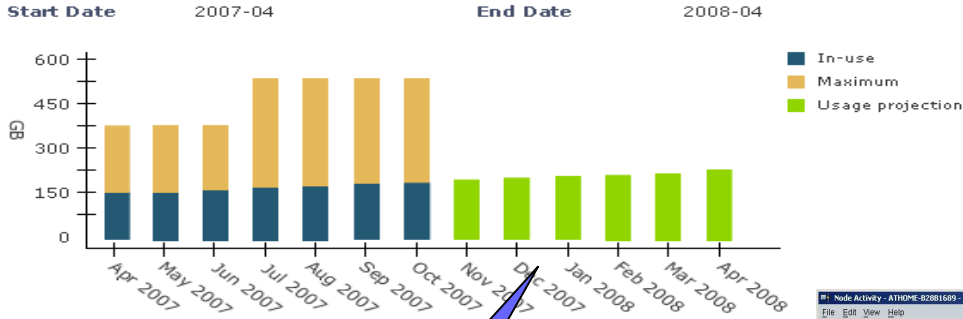
* The process is highly dependant on the system it runs on, in particular the disk subsystem.



Redesigned Reporting and Monitoring

Deployment & Management

Storage Capacity Projection



Client Node Name	Maximum (GB)	In-use (GB)
FILESRV01	350	100
FILESRV02	350	160
DB2_SRV_FIN	350	160
DB2_SRV_DEV	350	120

Help project my future storage requirements

Customizable Reports

2007-10-27 23:02 EST

Included in TSM – no additional licensing

Customizable dashboard

Client backup Activity

Client Restore Activity

Server Activity

Client Restore Activity

Server Activity

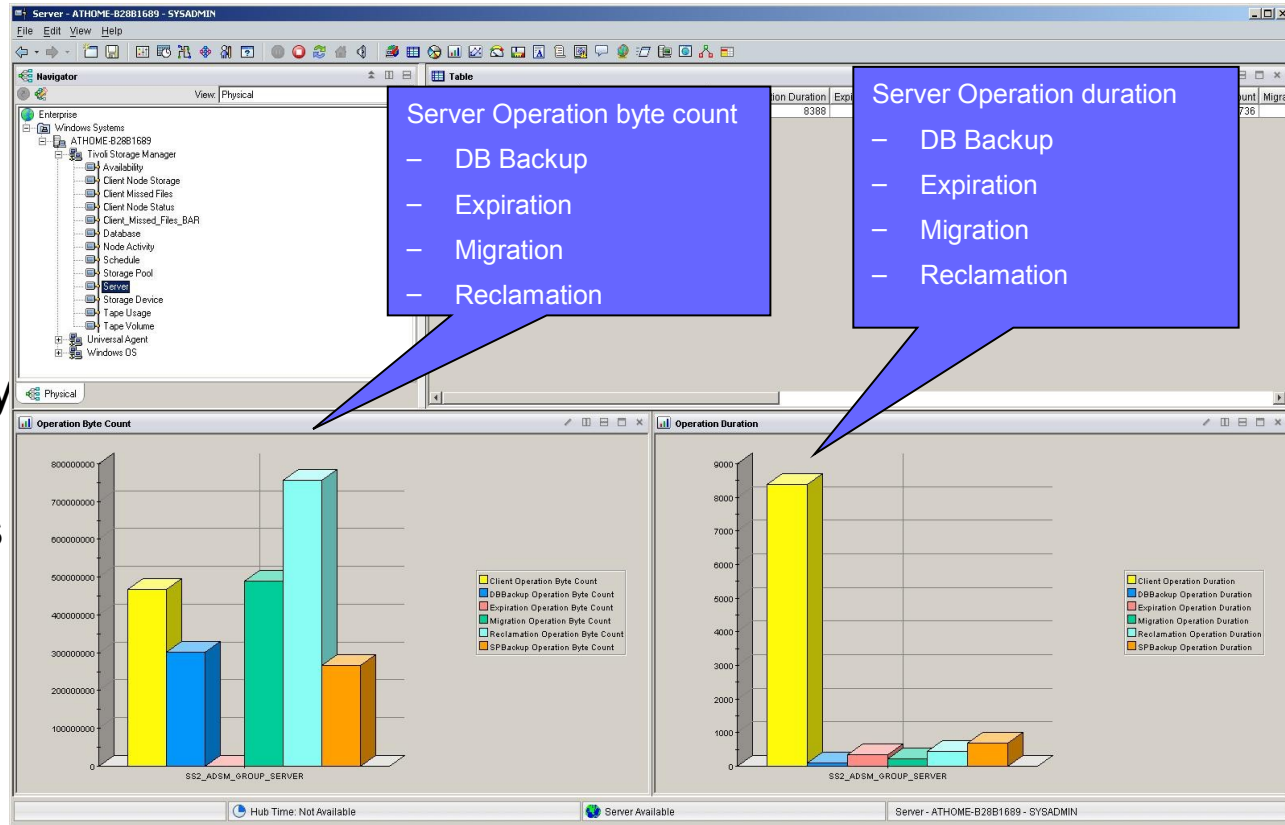


Near Real Time Monitoring

Deployment & Management

Customizable end-user "dashboard"
Delivers graphical representation and monitoring of trends and current status

- ✓ Scheduled Client Activity
- ✓ Scheduled Server Activity
- ✓ Client Current Activity
- ✓ Server Current Activity
- ✓ Current Errors
- ✓ TSM Database Status
- ✓ Tape Device Status
- ✓ Storage Pool Status
- ✓ Client Backup Status





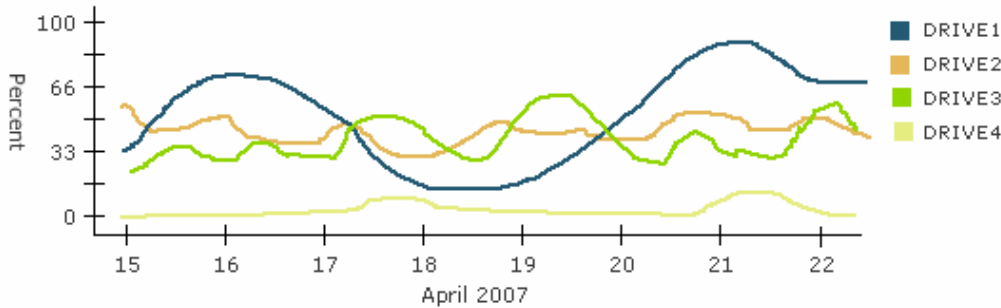
'Out of the Box' Historical Reporting - Server

Deployment & Management

Tivoli

{Server Name} Device Usage

Start Date 2007-04-15 End Date 2007-04-22



Device Name	Average Utilization (%)
DRIVE1	33
DRIVE2	33
DRIVE3	33
DRIVE4	0

Server Reports

- ✓ Server Job status
- ✓ Server Throughput
- ✓ Server Resource Usage
- ✓ Database Details
- ✓ Disk & File Usage
- ✓ Tape Usage
- ✓ Other Storage Usage
- ✓ Tape Volume Usage Analysis
- ✓ Tape Capacity Analysis
- ✓ Tape Device Errors
- ✓ Device Usage History
- ✓ Server Machine Utilization

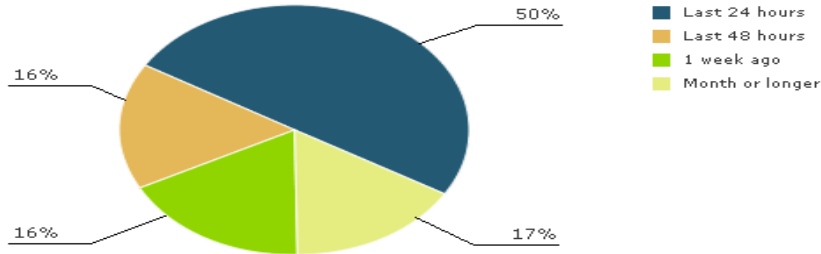


'Out of the Box' Historical Reporting - Client

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Client Backup Currency



Client Node Name	Last Successful Backup	Issues
FILESRV01	2007-02-03 4:45 AM	—
FILESRV02	2007-03-28 3:45 AM	✓
ORB	2007-04-01 3:45 AM	—
DB2_SRV	2007-04-29 3:45 AM	—

Client Reports

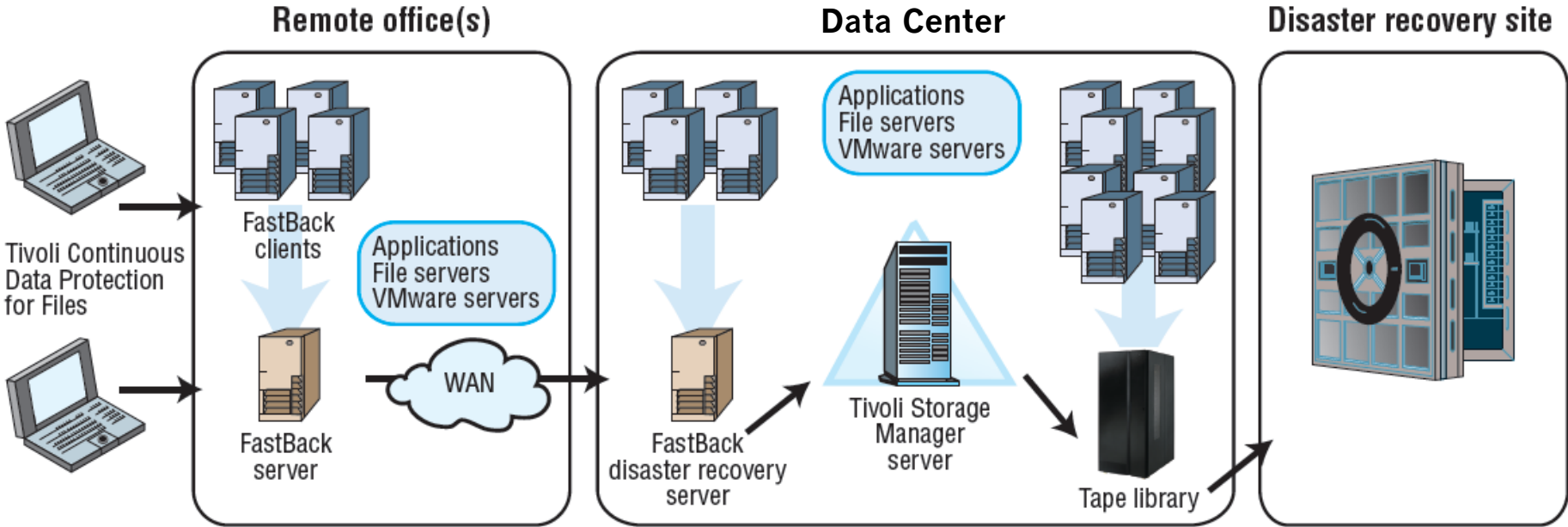
- ✓ Client Job status
- ✓ Client Backup Currency
- ✓ Storage Capacity Projection
- ✓ Backup Details
- ✓ Top 10 Backups
- ✓ Backup Missed files
- ✓ Backup History
- ✓ Restore Details
- ✓ Top 10 Restores
- ✓ Restore History
- ✓ Archive details
- ✓ Top 10 Archives
- ✓ Archive History
- ✓ Retrieve Details
- ✓ Top 10 Retrieves
- ✓ Retrieve History



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Tivoli Storage Manager 6 is the core component of an integrated, end-to-end data protection and unified recovery management solution



- **Tivoli CDP for Files:** Continuous data protection for desktops & mobile users
- **TSM FastBack:** Block Level CDP protection for critical Windows servers
 - Robust remote office data protection & replication
 - Near-instant recovery of any data, anywhere



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Questions ?!?

