



IBM Storage Software & Service Management

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Agenda

- **Storage Business Drivers**
 - Need for On-Demand capability – Flexibility
 - Managing data growth & storage capacity – Lifecycle Management
 - Data Security – Business Continuity
 - Managing IT as a business – Service Management

- **Storage Solutions**
 - Infrastructure Simplification
 - Business Continuity
 - Information Lifecycle Management

- **Service Management and How it Relates to Storage Solutions**
 - IBM Tivoli Storage Process Manager

- **IBM TotalStorage Productivity Center**



Storage Business Drivers

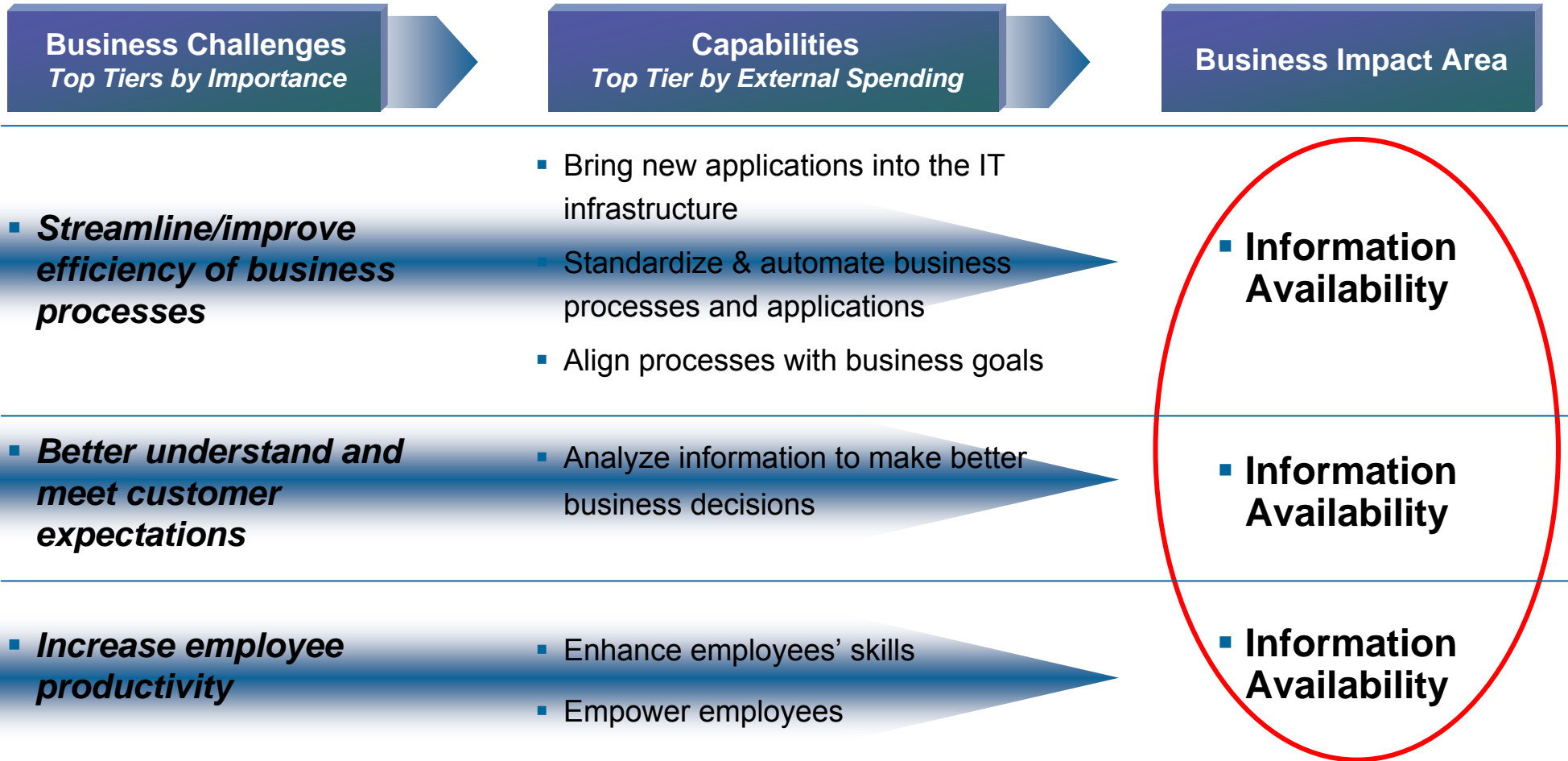


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Today's Business Challenges

Information Availability is the Top Priority

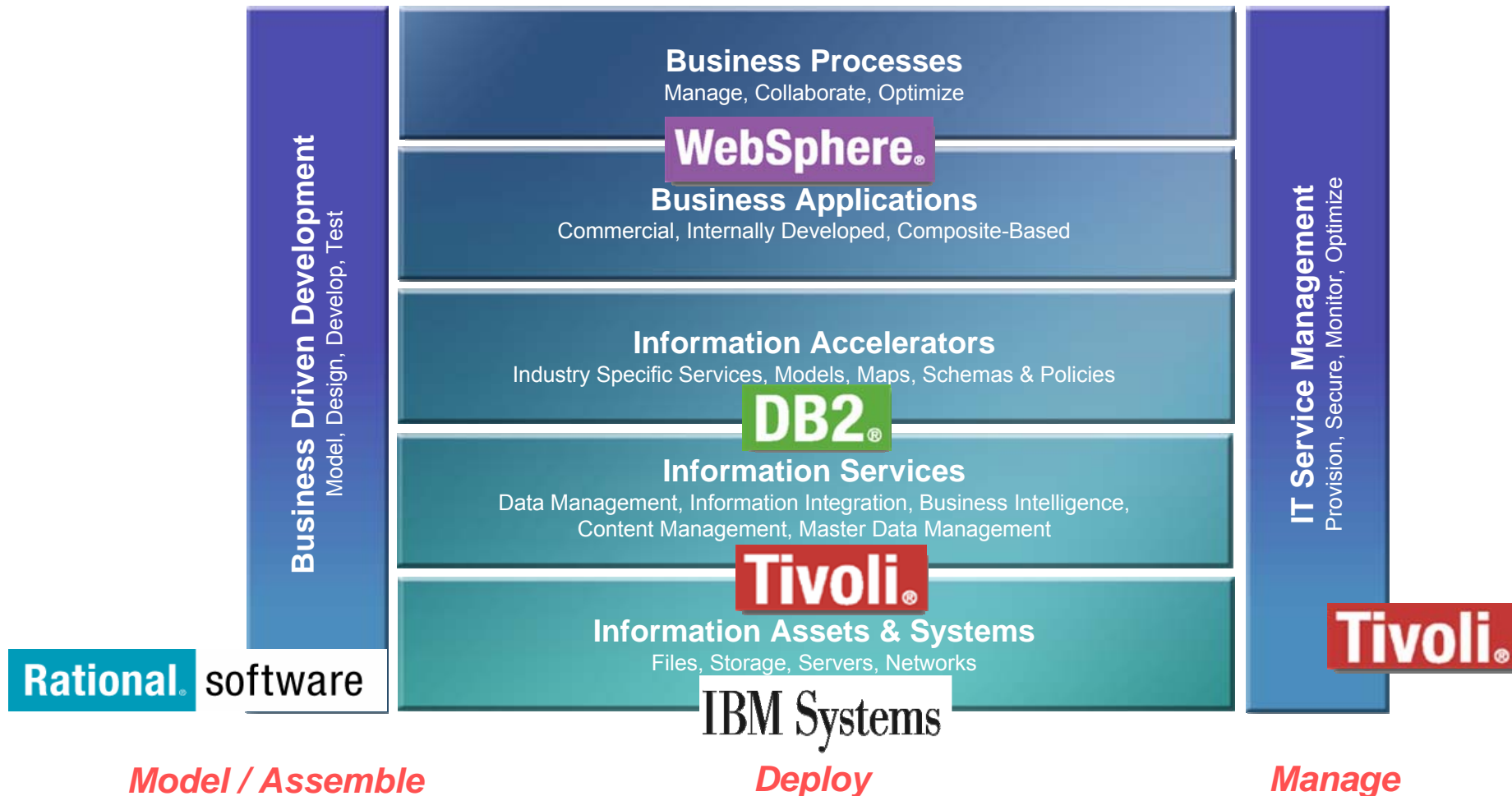
The most anticipated impact of business investing in IT has become information availability



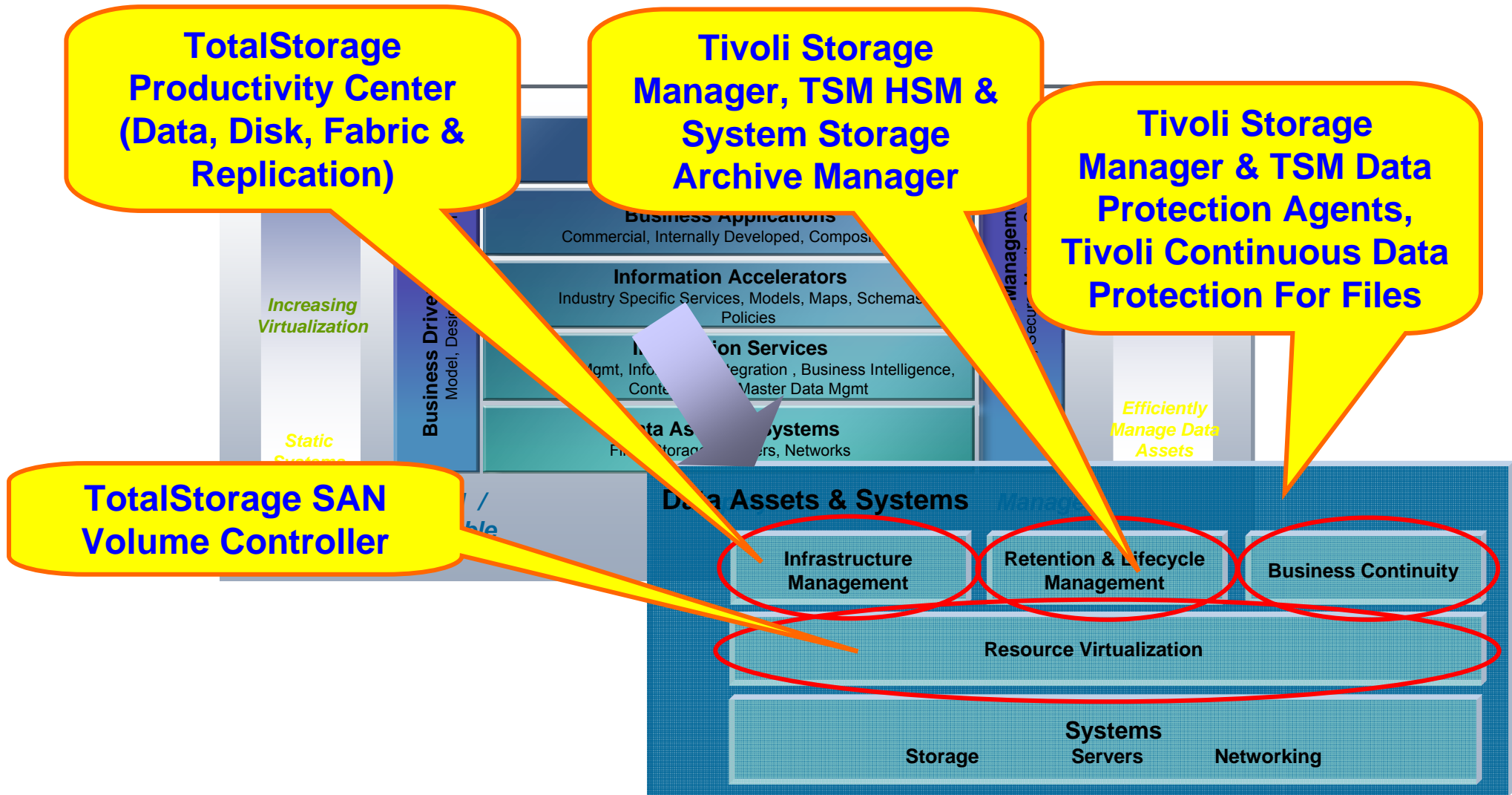
Source: IBM Attributes & Capabilities Study, 2005

Information On Demand

Supporting an On Demand business by getting the right information to the right people or processes at the right time to take the proper action



Information on Demand, Data Assets & Systems





Storage Solutions



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Infrastructure Simplification



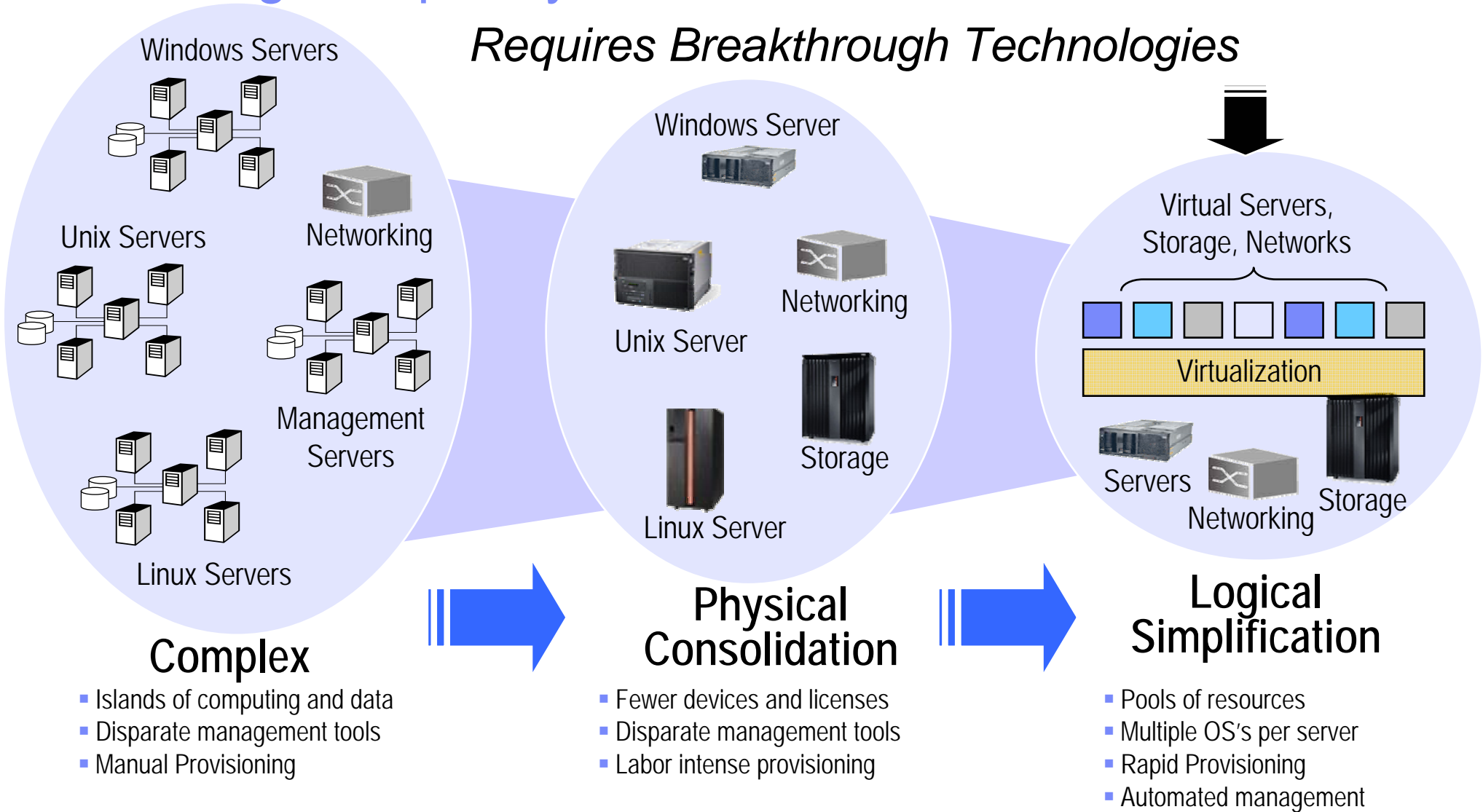
Objective: lower TCO and improved ROI

- ▶ **Consolidate dispersed storage resources**
- ▶ **Provide a unified, strategic view of your data**
- ▶ **Break through traditional storage complexity with advanced management capabilities**
- ▶ **Innovate to unify and simplify heterogeneous storage environments**

It's
choice

Reducing Complexity

Requires Breakthrough Technologies



Infrastructure Simplification – IBM Tools & Capabilities

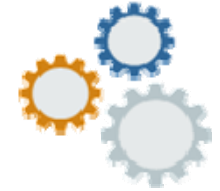


- Lower Costs through [Consolidation](#)
 - Centralization and Physical Consolidation (Scale up)
 - Data (Scale out) and Application Integration

- Improve efficiency through [Virtualization](#)
 - Enable tiered storage
 - Escape tyranny of physical devices
 - Use one point of management for disk storage

- Improve effectiveness through [Automated Management](#)
 - Use continual monitoring to better understand, predict, and manage your storage environment
 - Change manual tasks to automated

Business Continuity



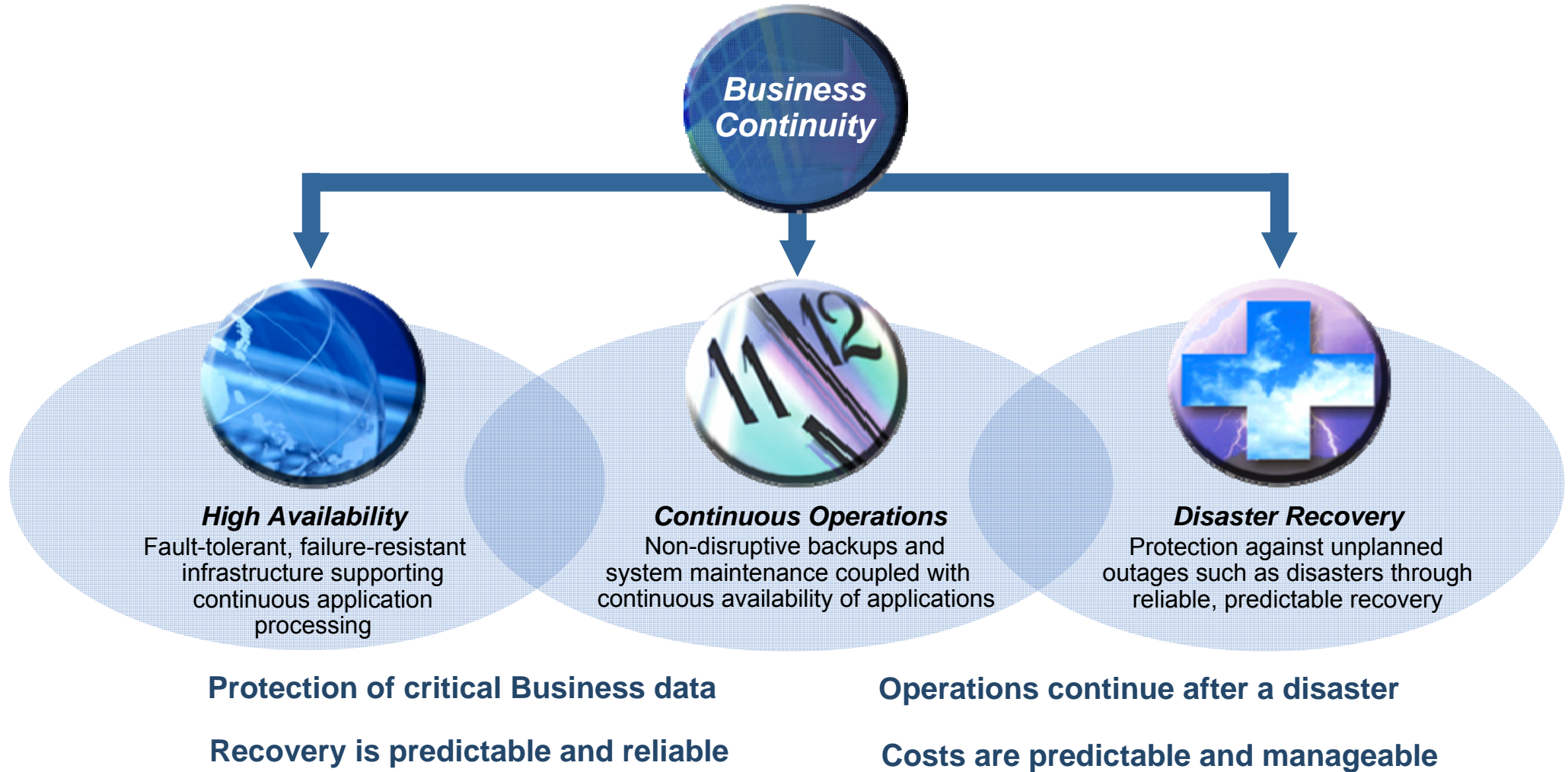
Objective: protect your business

- ▶ **Help reduce business risk, by increasing resilience**
- ▶ **Help secure and protect business information**
- ▶ **Stay competitive and maintain market readiness**



It's
confidence

Aspects of Business Continuity



Information Lifecycle Management



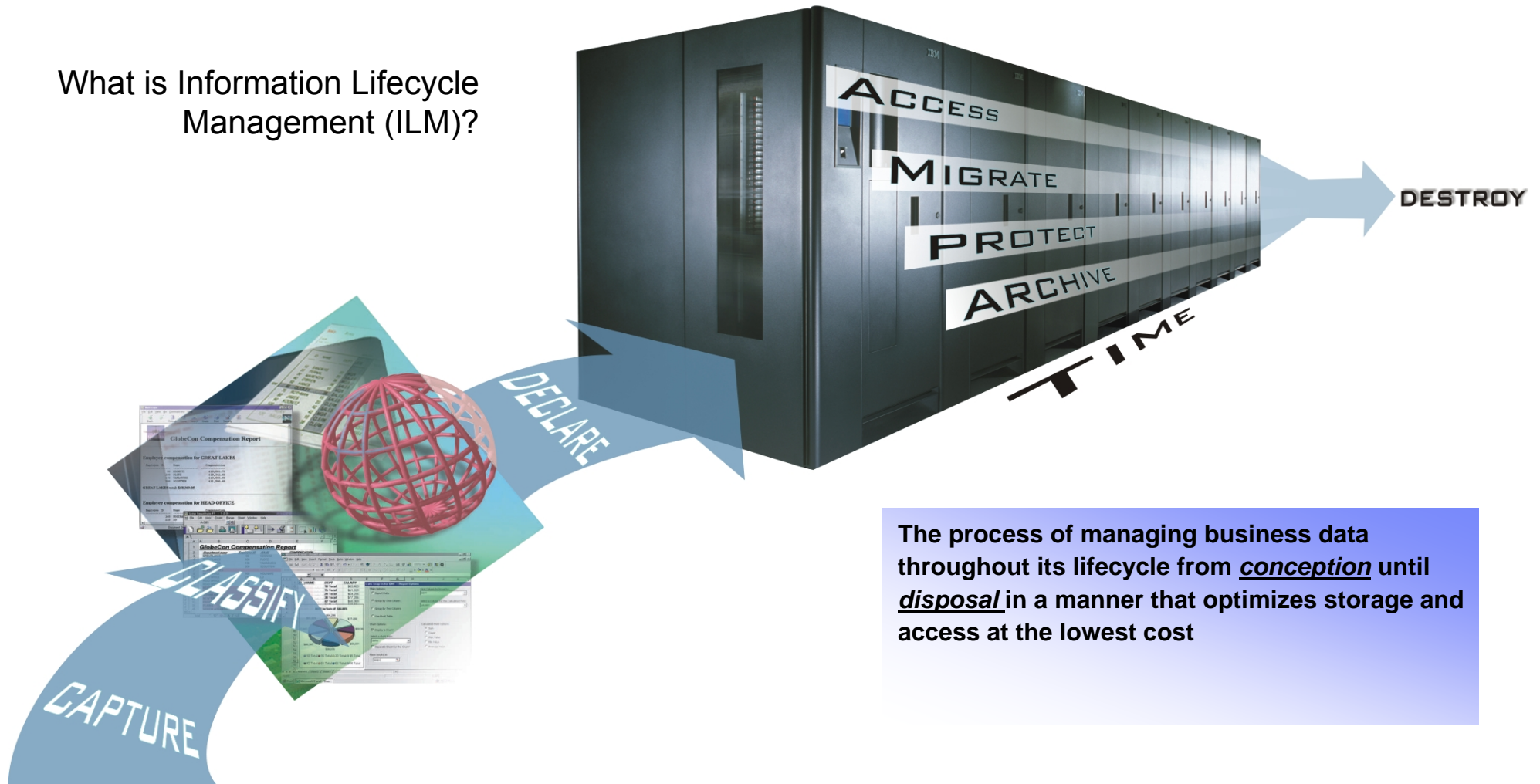
It's
complete

Objective: storage aligned with data's relative value

- ▶ **Improve ROI by matching resources to their relevance to core business**
- ▶ **Increase productivity and response to change by providing access to data, regardless of where it resides**
- ▶ **Reduce administrative cost through a policy-based approach to managing information—from creation to disposal**
- ▶ **Assists compliance and security**





In response to these challenges, many businesses are now focused on defining an information on demand strategy based in part on the information lifecycle

What is Information Lifecycle Management (ILM)?



The process of managing business data throughout its lifecycle from conception until disposal in a manner that optimizes storage and access at the lowest cost

Managing Information Value – Breakthrough to On Demand

	BETTER	BETTER	BETTER	BREAKTHROUGH
Information On Demand Capabilities:	<p>Infrastructure Simplification</p>  <ul style="list-style-type: none"> • Scale up and Scale out technology • Virtualization • Automated Management • GRID 	<p>Business Continuity</p>  <ul style="list-style-type: none"> • Privacy and Security • Data Protection • Replication Management • Automation 	<p>Information Lifecycle Management</p>  <ul style="list-style-type: none"> • Policy based Retention management • Tiered Storage Management • Content Management 	<p>On Demand</p>  <ul style="list-style-type: none"> • Orchestration • Application & Information Integration • Business Process Management
	Business Benefits:	<ul style="list-style-type: none"> • Improved TCO • Greater productivity • High application availability 	<ul style="list-style-type: none"> • Continuous processing • Protection of critical business data • Reduced cost due to downtime 	<ul style="list-style-type: none"> • Risk Management • Storage optimization • Help address compliance

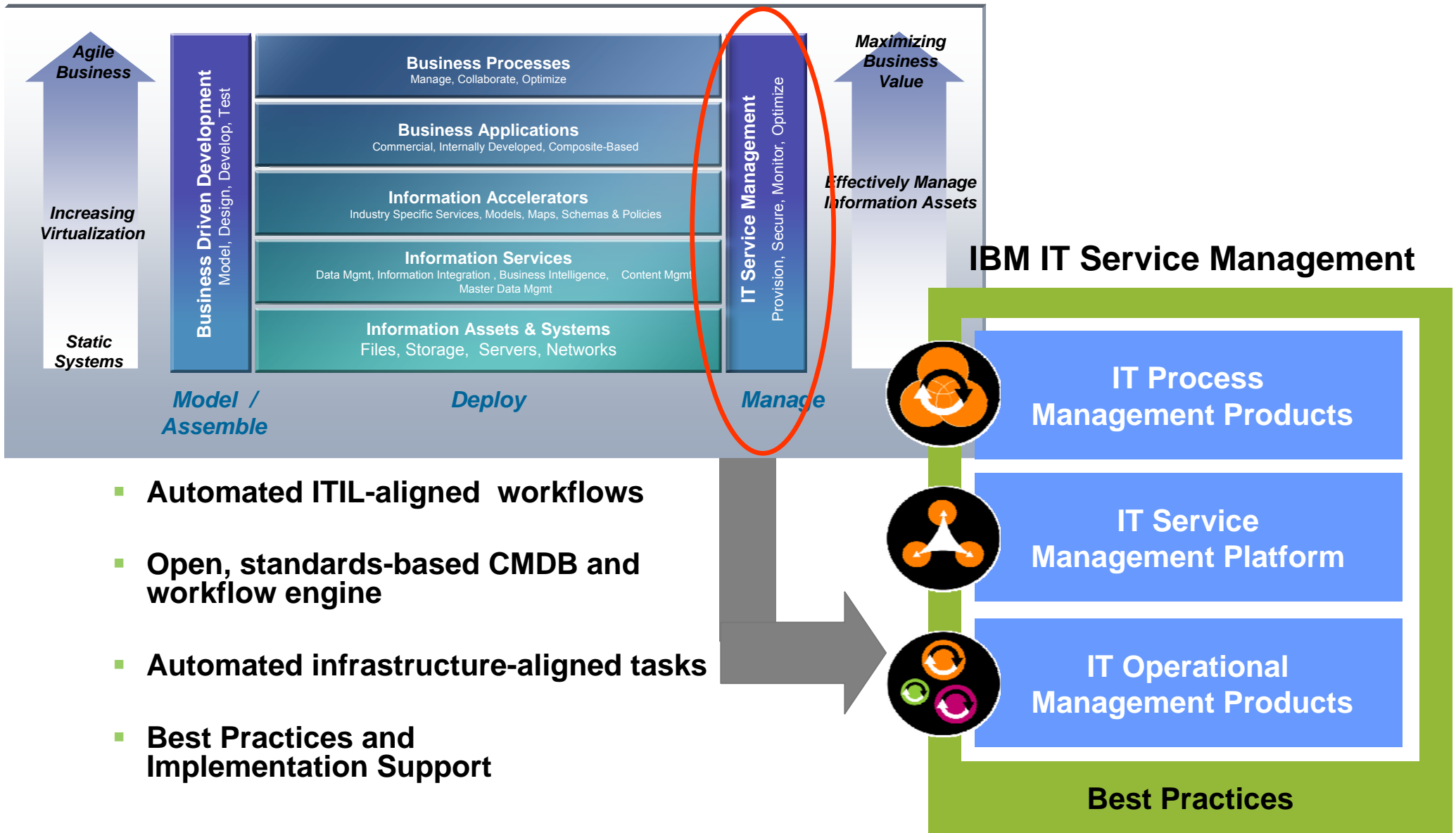


Service Management and How it Relates to Storage Solutions



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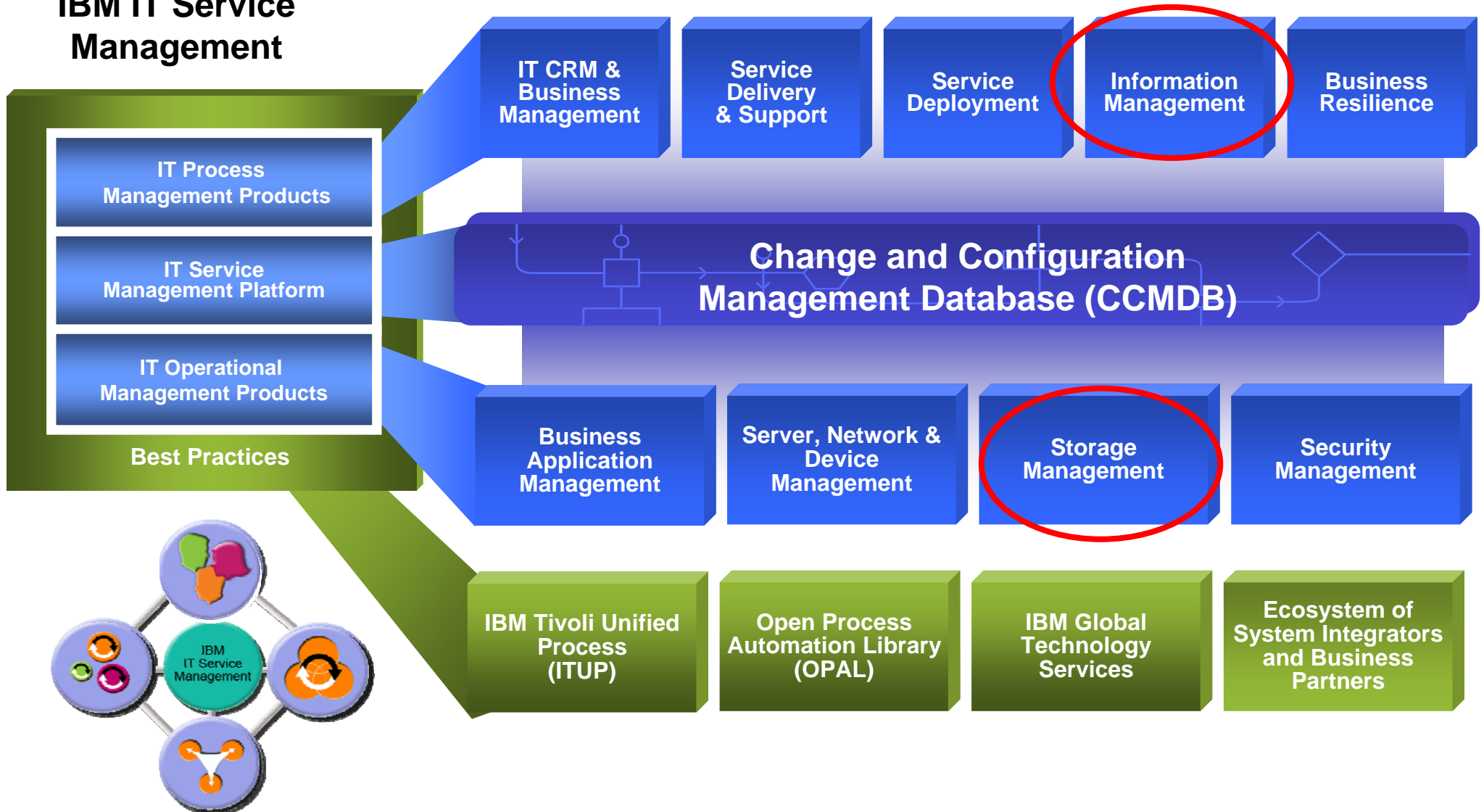
Information On Demand: IBM IT Service Management



- Automated ITIL-aligned workflows
- Open, standards-based CMDB and workflow engine
- Automated infrastructure-aligned tasks
- Best Practices and Implementation Support

A Comprehensive Approach to IT Service Management

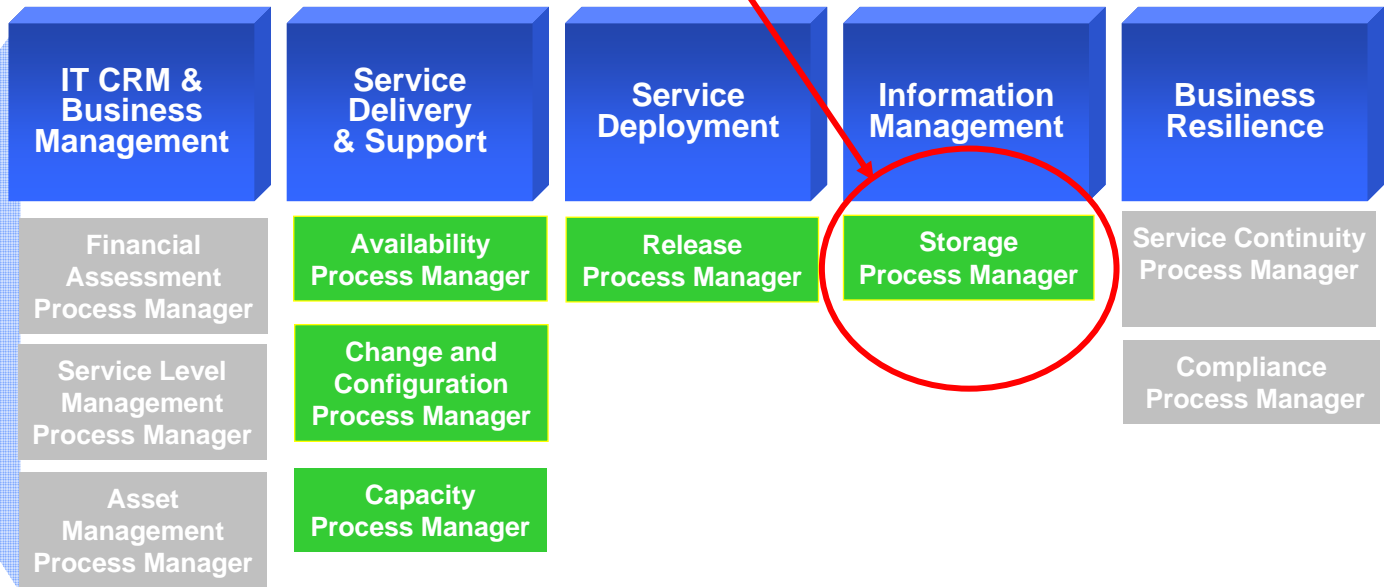
IBM IT Service Management



IBM Tivoli Storage Process Manager Release 1.1

General Availability: July 28th, 2006

IBM IT Service Management



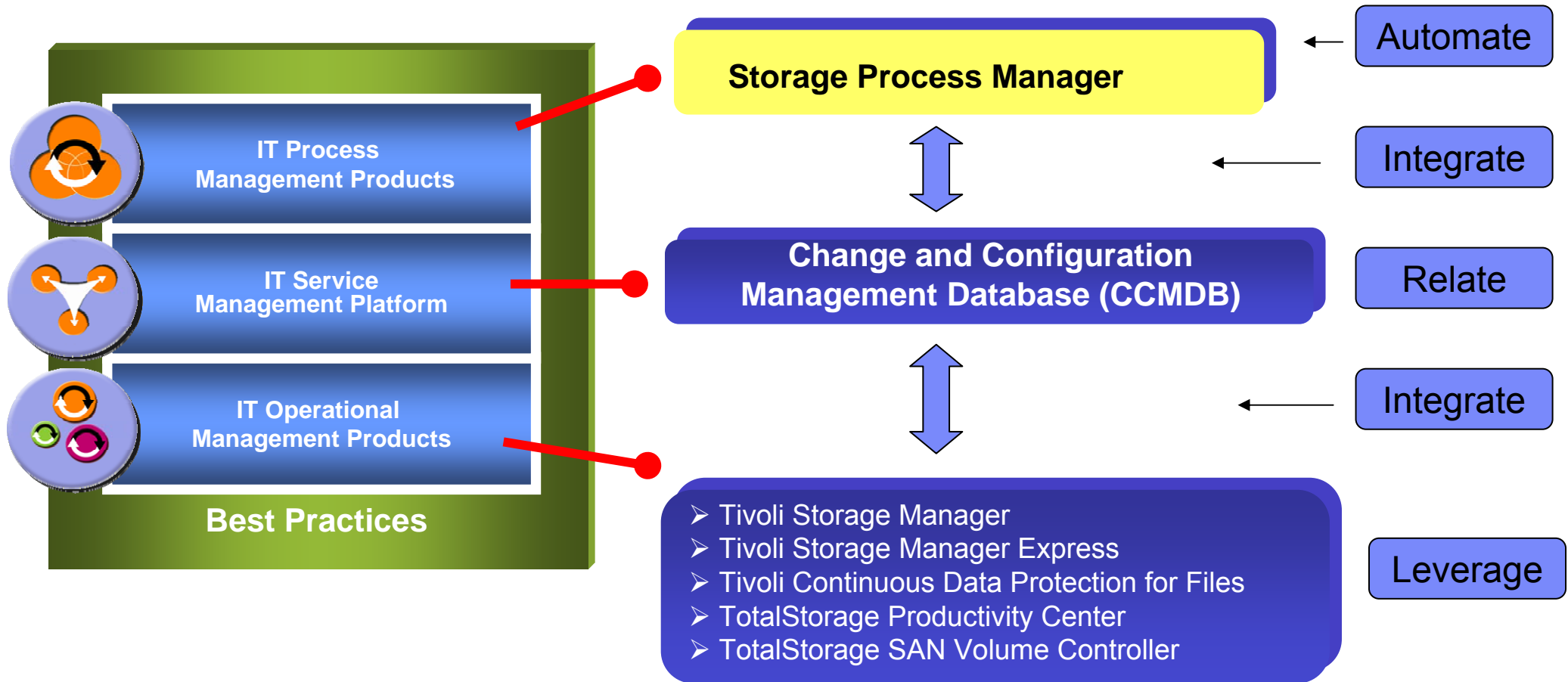
Available TODAY!

Future Directions

- Automates IT management processes for rapid responsiveness and greater flexibility
- Based on experience applying ITIL, eTOM, CoBIT and CMMI in customer environments
- Extends autonomic computing technology experience to people, processes and information

IBM IT Service Management (ITSM)

Managing Storage as an IT Service



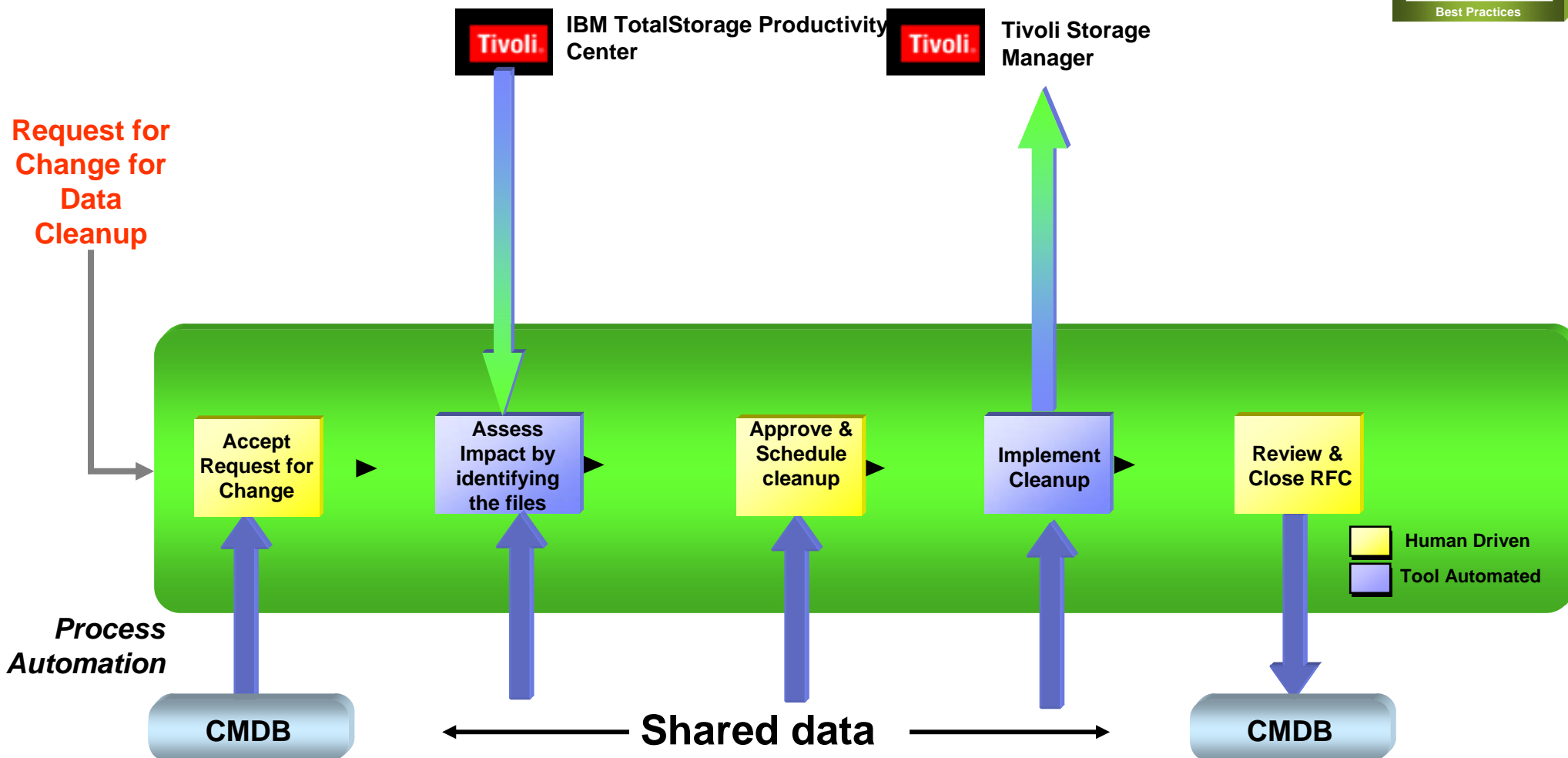
IBM Tivoli Storage Process Manager

IBM IT Service Management

- IT Process Management Products
- IT Service Management Platform
- IT Operational Management Products
- Best Practices

Example Scenario

Change Management – Data Clean up



IBM Tivoli Storage Process Manager

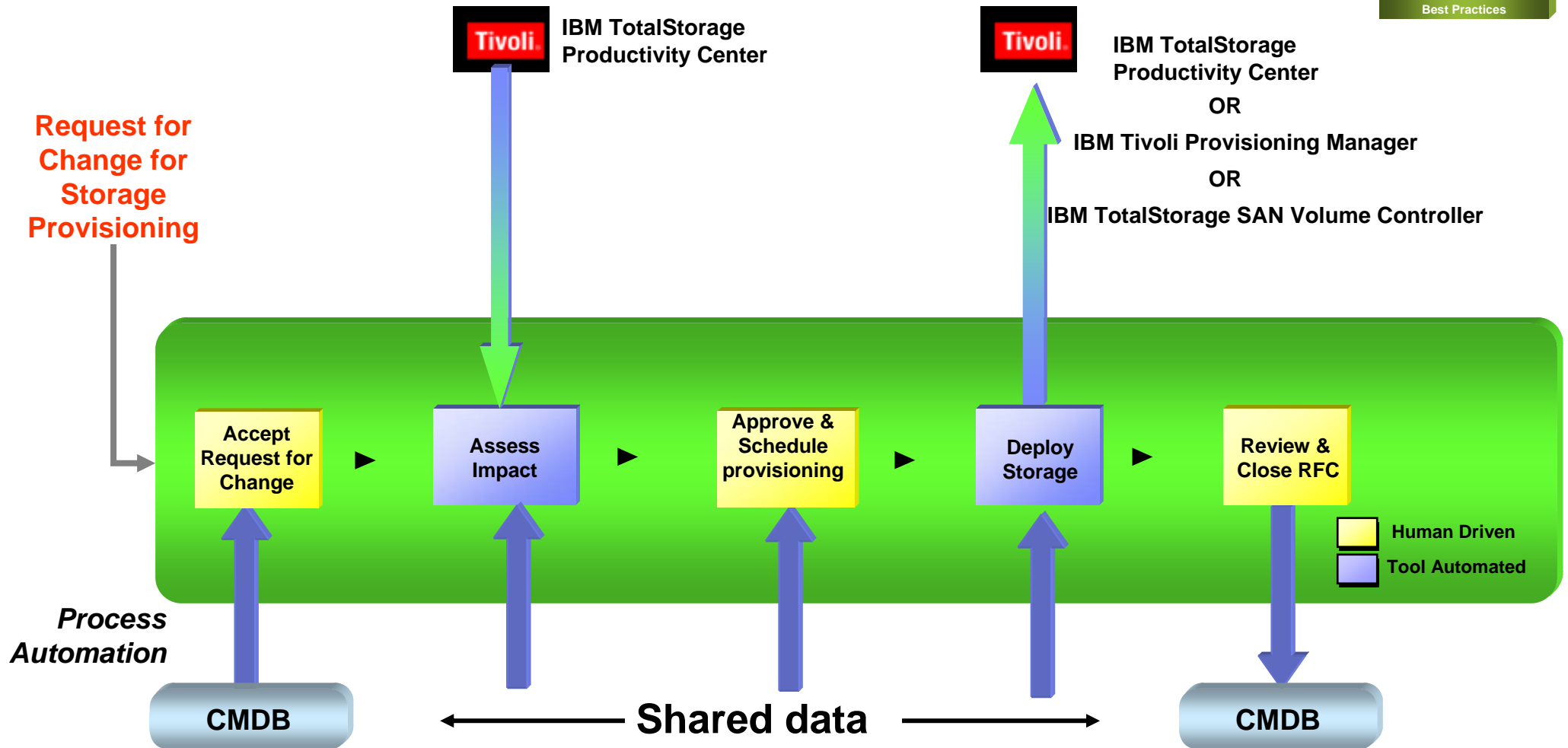
IBM IT Service Management

- IT Process Management Products
- IT Service Management Platform
- IT Operational Management Products

Best Practices

Example Scenario

Change Management – Storage Provisioning



IBM Tivoli Storage Process Manager Functionality

Storage Object and Management Policy creation

- Fully defined model of storage attributes and relationships in the CCMDB
- Stores information on configuration items in your storage environment and its relationships.

Automatic Storage Device Discovery

- Configuration Items can be populated by TotalStorage Productivity Center, Tivoli Storage Manager and Tivoli Provisioning Manager Discovery Library Adapters.

Data Cleanup Process Workflows

- Exploits *CMDB/Foundation and Change Management*
- Exploits TotalStorage Productivity Center for Data and Tivoli Storage Manager
- Includes best practices for assigning data to storage tiers

Storage Provisioning Workflows

- Allocate storage resources based on customer management policies using capabilities of TotalStorage Productivity Center and Tivoli Provisioning Manager.

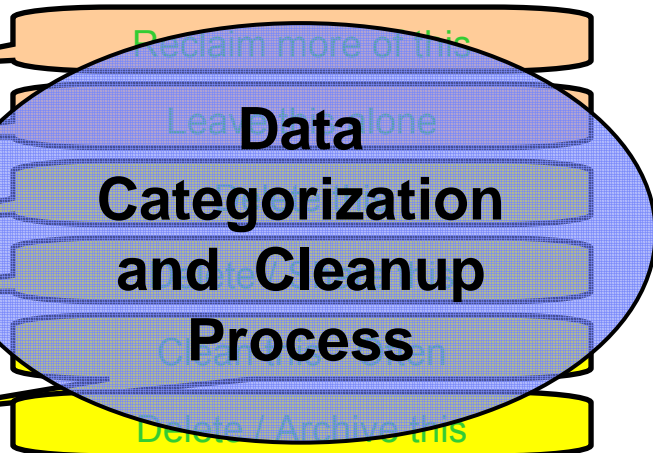
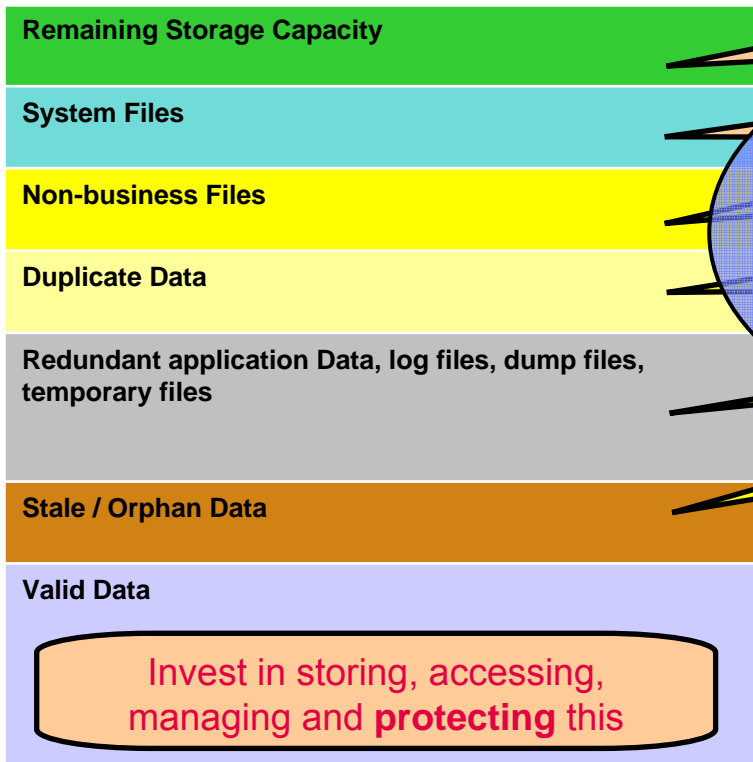
Backup Incident Prioritization

- Categorize and evaluate backup errors & alerts based on customer management policies
- Provides Integration with Help Desk and *Availability Management*.

Audit Report Capabilities

- Reporting around who can and does access storage systems
- Changes to the storage configuration and associating them with the respective RFCs

How to Store and Manage Data Through its Lifecycle



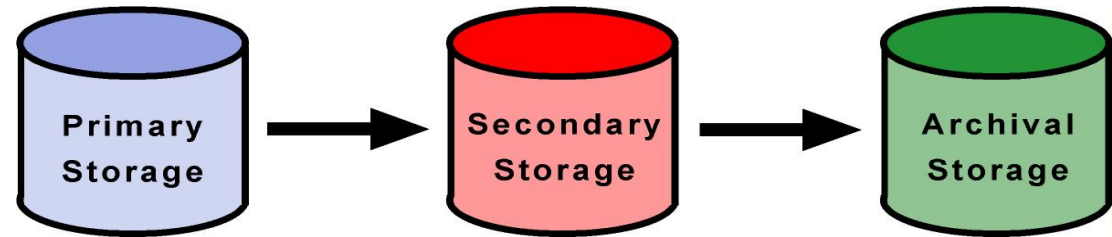
All data has a lifecycle

- From acquisition through disposal

Parameters Differ over time

- Retention Requirements
- Access Requirements
- Business value
- Best Practices

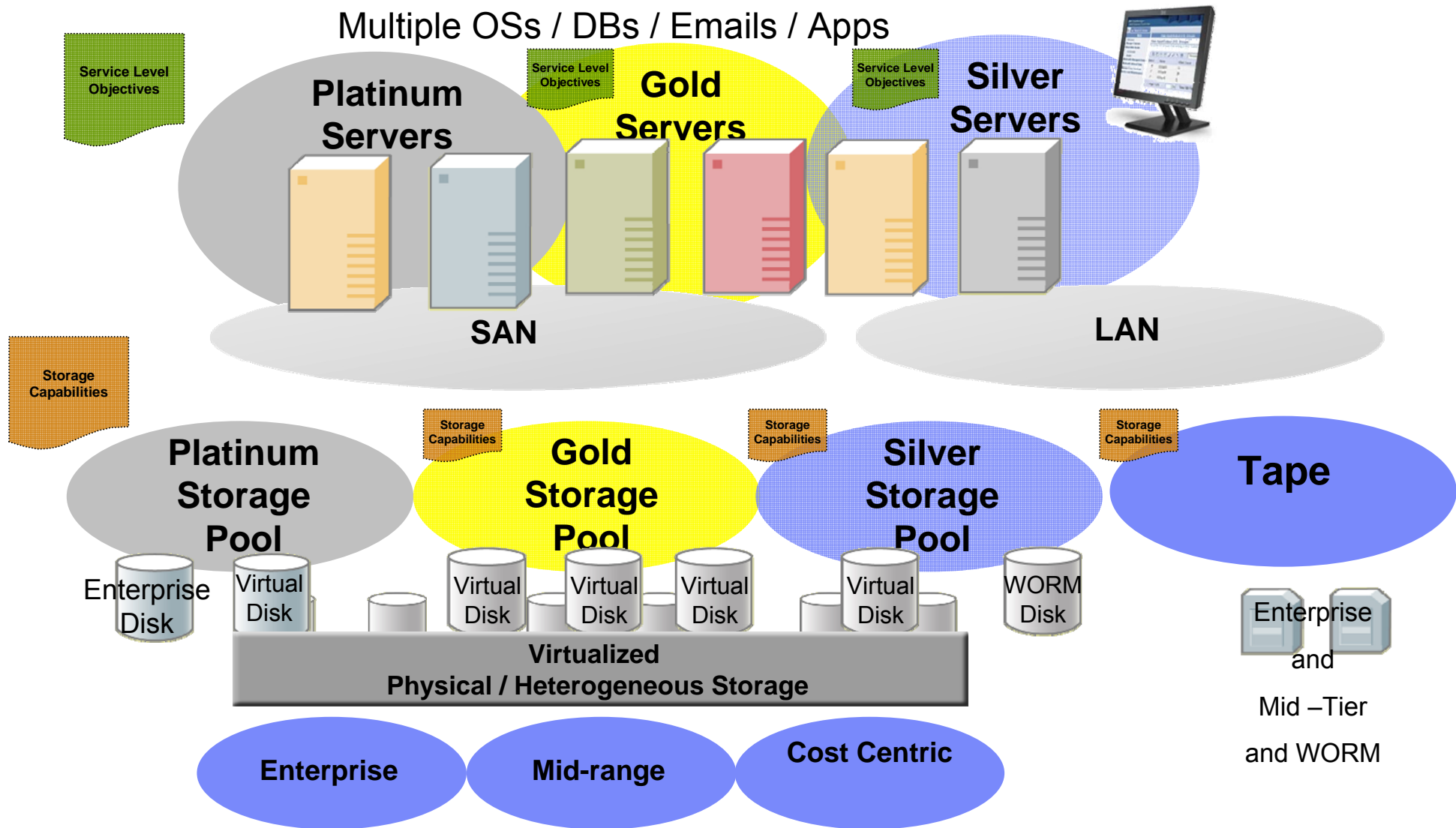
Store and manage accordingly



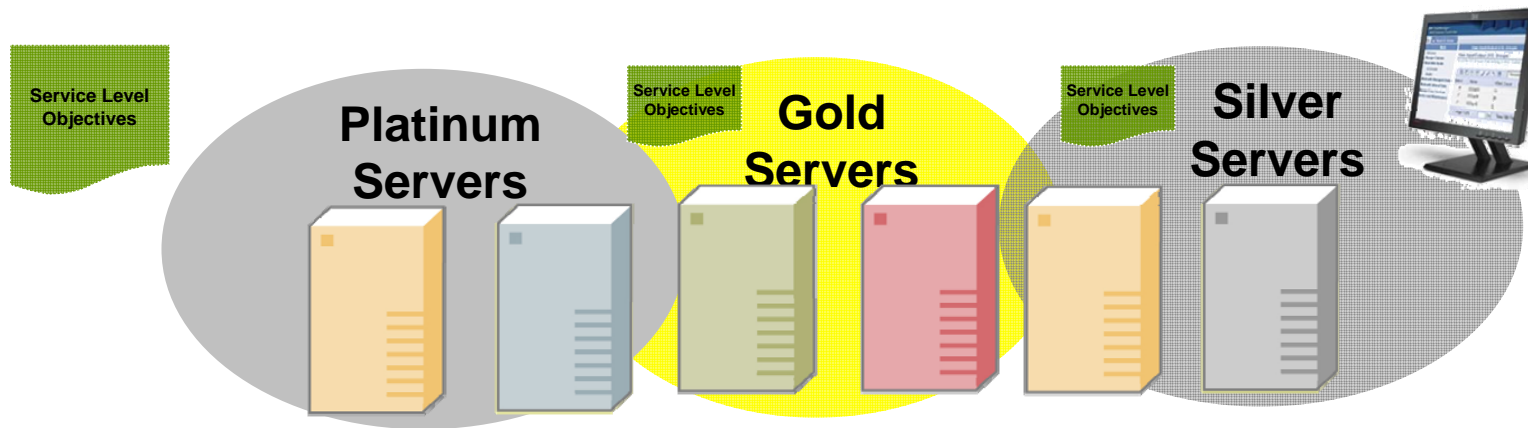
Primary media	FC disk	SATA disk	Tape/Other
Price	Most expensive	"Affordable"	Least expensive
Service Level	Highest	Minimal	NA
MB/s performance	Highest	Lower / acceptable	Lowest
Throughput	Immediate	Immediate	Prolonged
Media reliability	Highest	"Good enough"	Good
Uptime	7 x 24	< 7 x 24 OK	< 7 x 24 OK
RTO	15 minutes	8 hours	24 hours
RPO	5 minutes	12 hours	24 hours
Typical applications	Tier 1 - Production	Tier 2 - Production/Test	Archive/ Retrieval



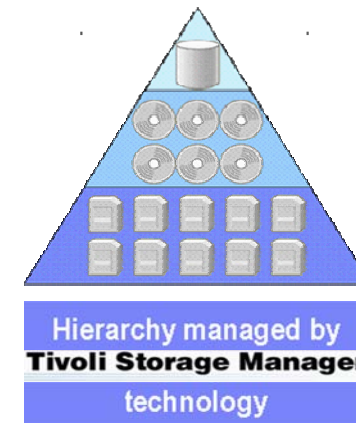
Service Level Policies – Mapping from Servers to Storage



Backup Incident Prioritization



Which backup incidents should I resolve first?

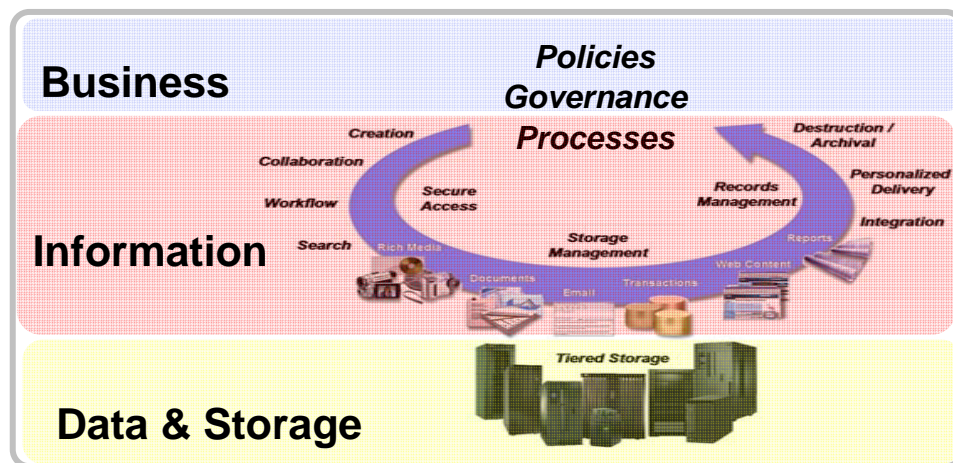


- Backup failure
- Backup warning

ILM Aligns with Service Management Disciplines

ILM is comprised of the *policies, processes, practices, and tools used to align the business value of information with the most cost effective IT infrastructure* from the time information is conceived through its final disposition. Information is aligned with business processes through *management of service levels* associated with applications, metadata, information, and data.

- *Storage Networking Industry Association - SNIA*



ILM in On Demand Storage Environment

- ✓ Categorizing Data
- ✓ Managing Active Data
- ✓ Managing Inactive Data
- ✓ Managing Changes with no disruptions
- ✓ Reduce Human Errors

Manage your information more effectively and efficiently!



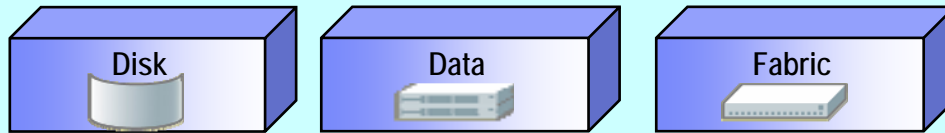
IBM TotalStorage Productivity Center



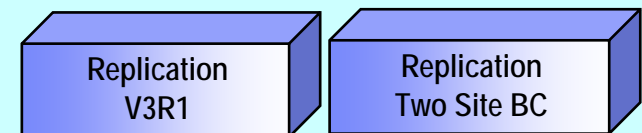
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IBM TotalStorage Productivity Center

Standard Edition



Replication



Productivity Center for Disk

Administration and Operations management for storage (Disk, Tape, Virtualization)

Productivity Center for Data

Asset and Capacity Reporting
File systems and Data base management

Productivity Center for Fabric

Administration and Operations management for fabric switches and directors)

Productivity Center for Replication

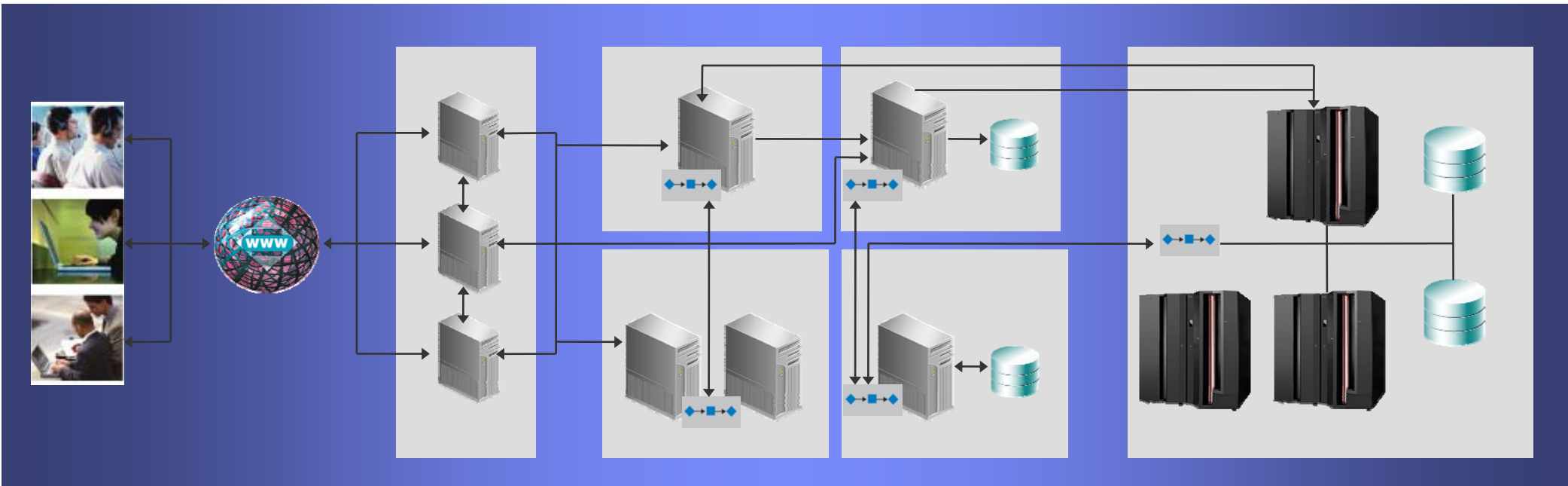
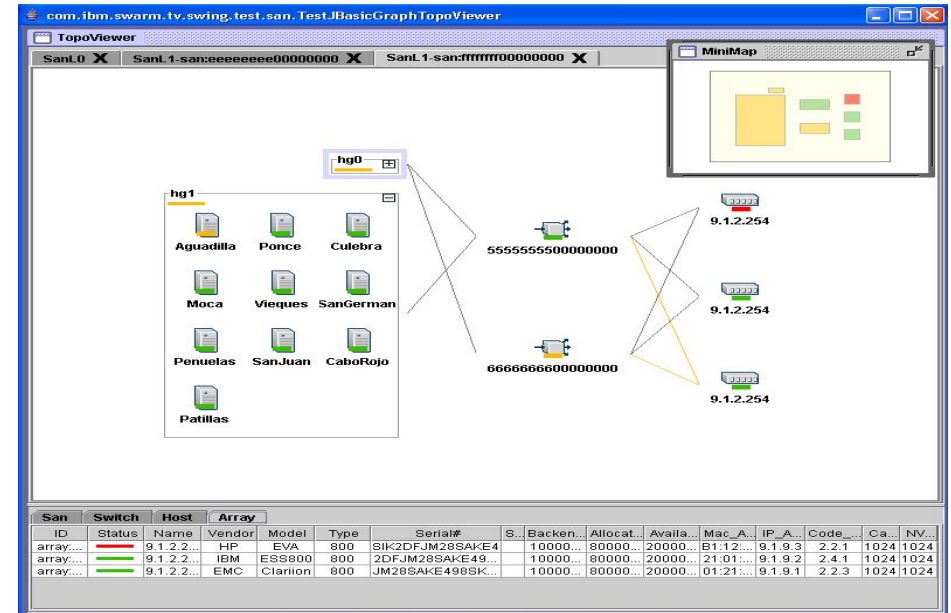
Administration and operations management for advanced copy services (ESS, DS8000, DS6000, SVC)

Productivity Center for Replication Two Site BC

Disaster Recovery Mgt. including Failback function

TotalStorage Productivity Center Vision

- Centralized Management With Focus on User Experience
- Host to Disk Drive Performance Analysis
- Single monitoring/data repository for storage infrastructure (capacity, SAN, Disk)
- Linkage to ILM Processes – both at data and device levels



TPC Manages IBM and non-IBM Storage *Centrally*

So users can:

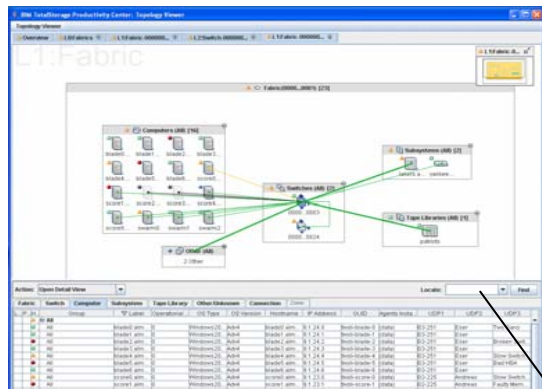
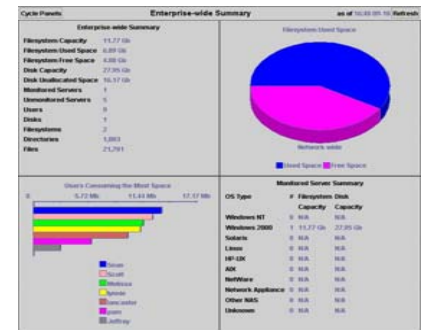
- Improve SAN and storage array performance and service levels
- Enhance capacity utilization for better efficiency
- Automate manual tasks



<p>DS8000</p> <p>DS6000</p> <p>DS4000</p> <p>Enterprise Storage Server</p> <p>SAN Volume Controller</p> <p>HP Network Appliance</p> <p>EMC² where information lives</p> <p>HITACHI DATA SYSTEMS</p> <p>SMIS Certified</p>	<p>3584 Tape Library</p> <p>3494 Tape Library</p>	<p>SAN140M</p> <p>SAN Director M14</p> <p>SAN256B</p> <p>Cisco MDS 9509</p> <p>Cisco MDS 9506</p> <p>SAN256M</p>
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IBM TotalStorage Productivity Center

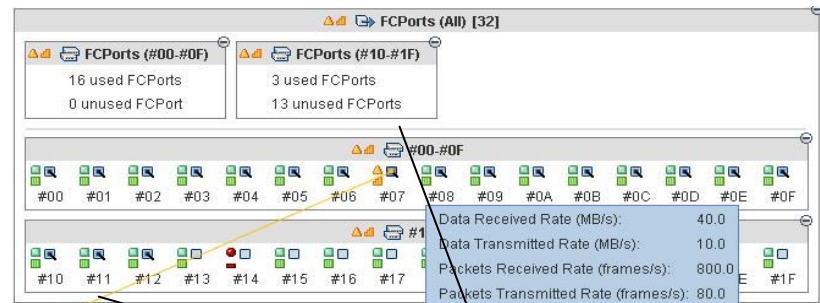
End to End Storage Management



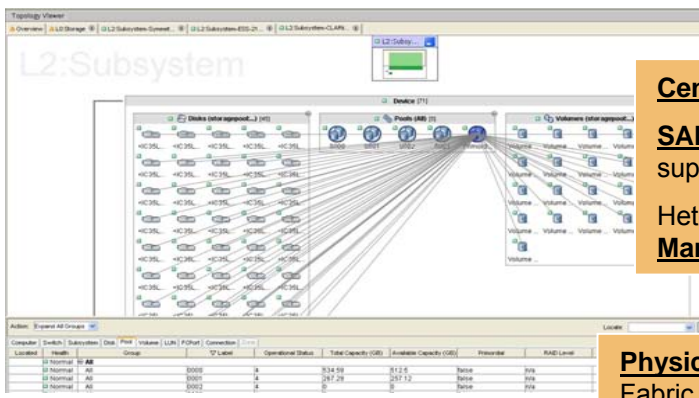
Automated identification of the storage resources in an infrastructure and analysis of how effectively those resources are being used.

Synchronized graphical and tabular views. Allows user to manipulate view by enlarging/reducing a view or closing one of the views

Locate function to search and find entities. Synchronized with graphical view



Overlays allow user to turn on/off aggregated status (e.g., health, performance) and membership (e.g., zone, zone set) information



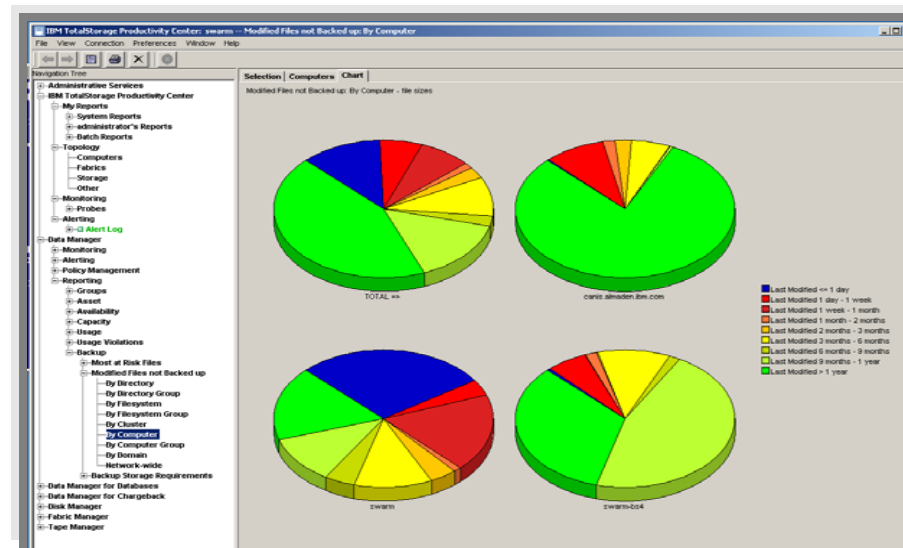
Centralized Management
SAN Management multi-vendor support
Heterogeneous **Disk Management**

Physical and Logical views of Fabric and Disk

Automated control through policies that are customizable with actions that can include centralized alerting, distributed responsibility and fully automated response.

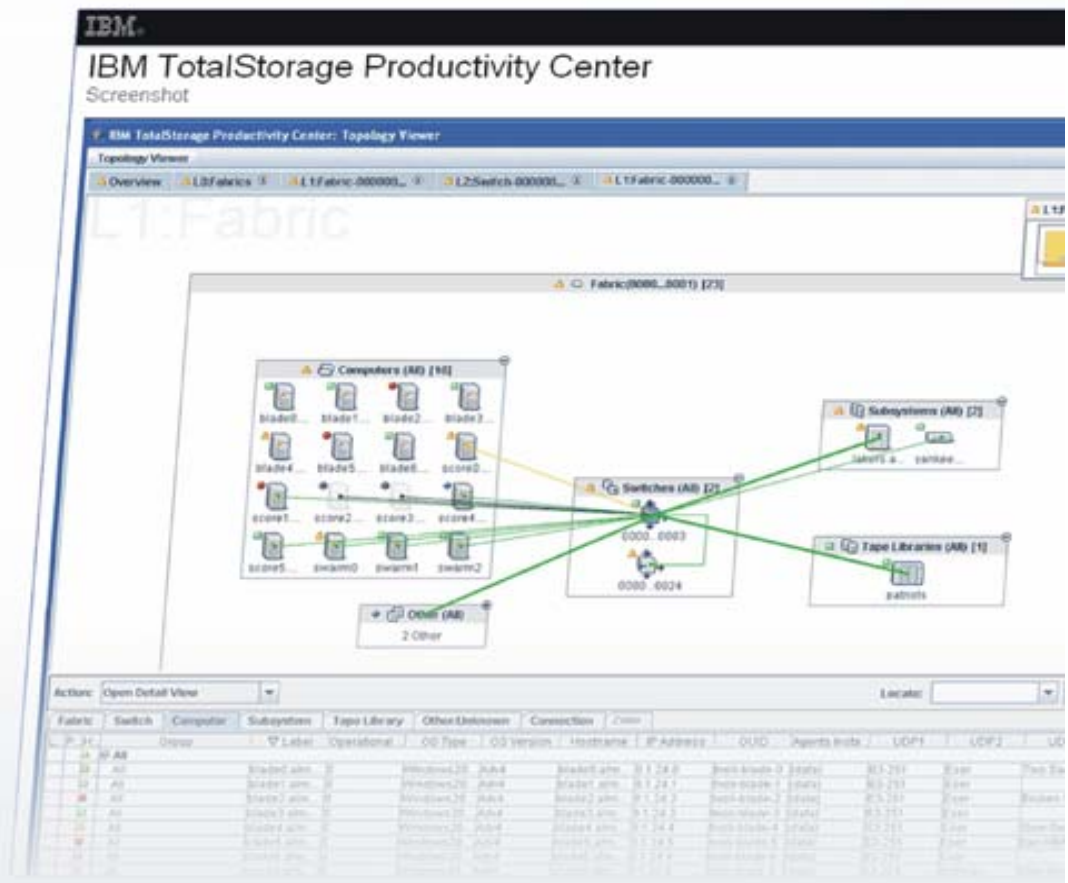
Improve storage utilization, performance and services

- Monitors and analyzes capacity utilization by user, department, file system or database
- Predicts storage growth based on trend analysis
- Establishes performance thresholds in storage systems and SAN fabrics in order to improve performance and service levels
- Integrates with other products in IBM's portfolio – including SVC and TADDM to group storage infrastructure by application
- Monitor TSM backups and archives for files not backed up



Value of IBM TotalStorage Productivity Center

- Enable end-to-end disk management with a single tool
- Centralize management of storage
- Improve storage utilization, performance and service levels for your applications
- Reduce storage complexity to make your team more productive







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