

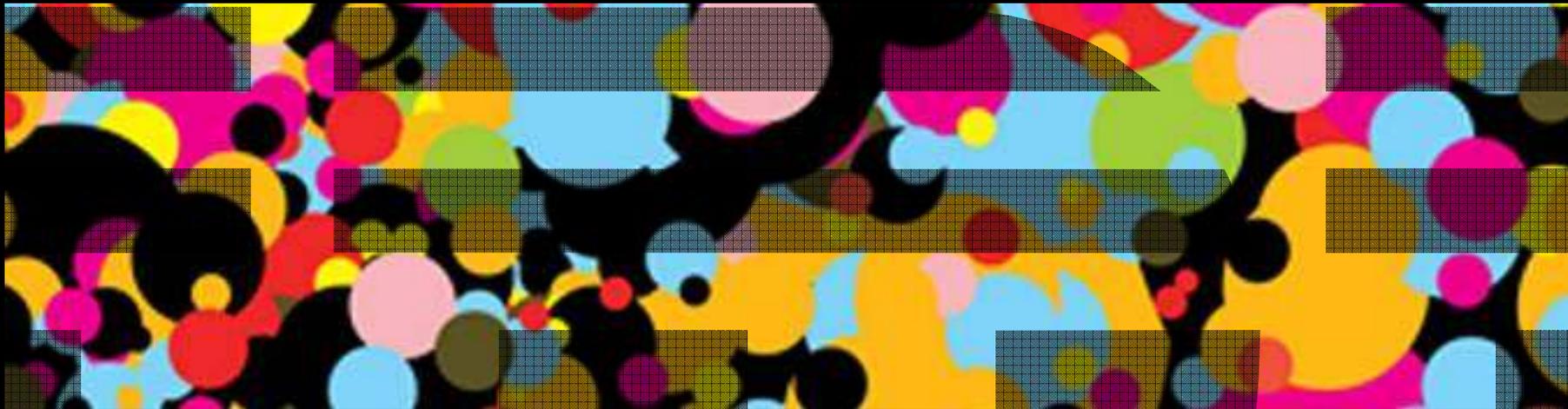
Dan POPA – IBM Systems Storage Principal, Romania & Rep. Moldova  
IBM Systems and Technology Group

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# Managing the Information Explosion with More Efficient Storage Solutions

September 13<sup>th</sup>, 2011  
Chisinau



# Managing the Information Explosion with More Efficient Storage Solutions

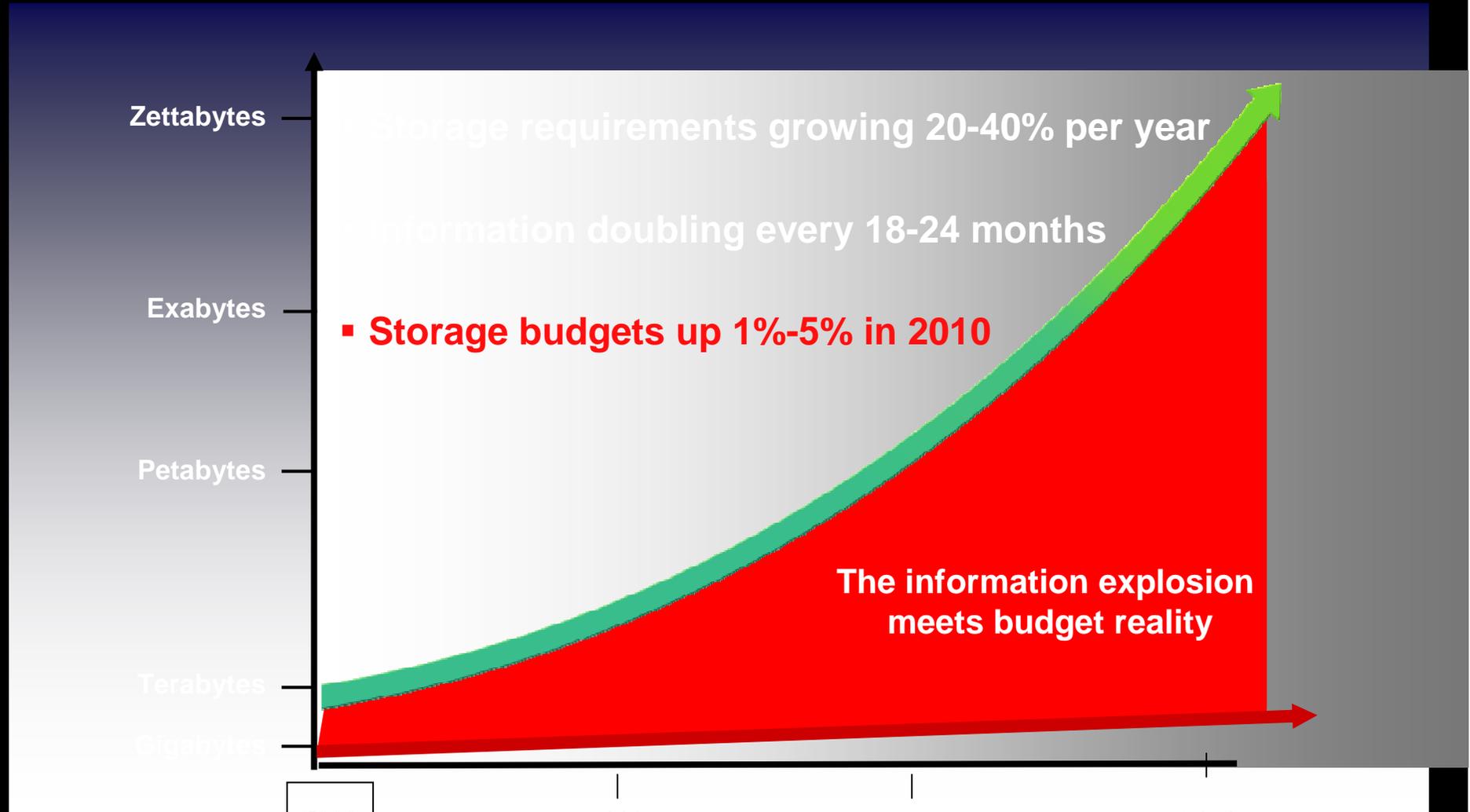
## Today's Agenda

- Information Explosion and the Challenges for MidMarket
- IBM focus on Storage Efficiency
- IBM Midrange Storage System – Storwize V7000
- IBM® Storwize® Rapid Application Storage
- Limited Customer value Program Offering



# With the Information Explosion Comes a Value Gap

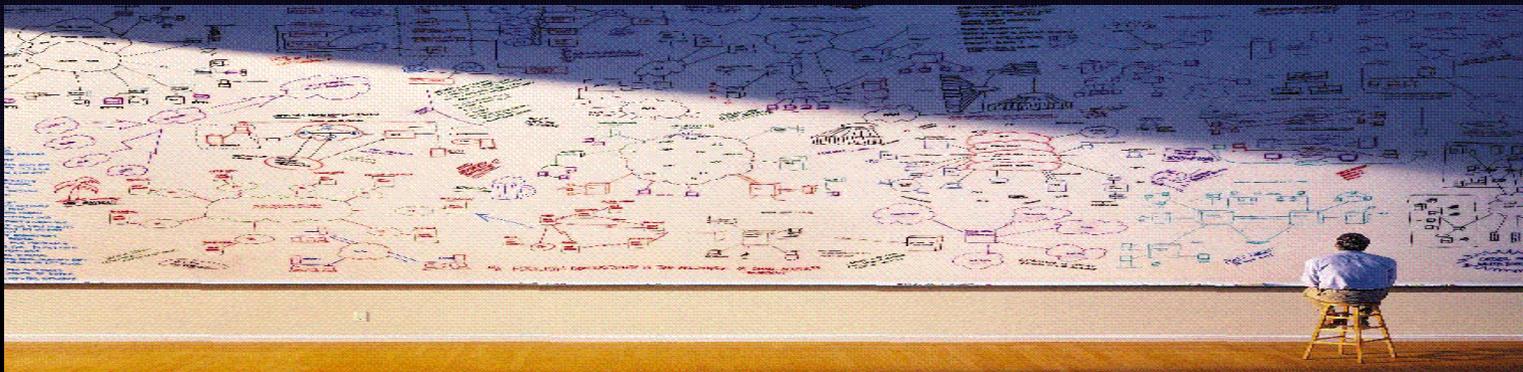
## Storage Requirement Growth Outpaces Storage Budget Growth



## The challenge for Midmarket Companies

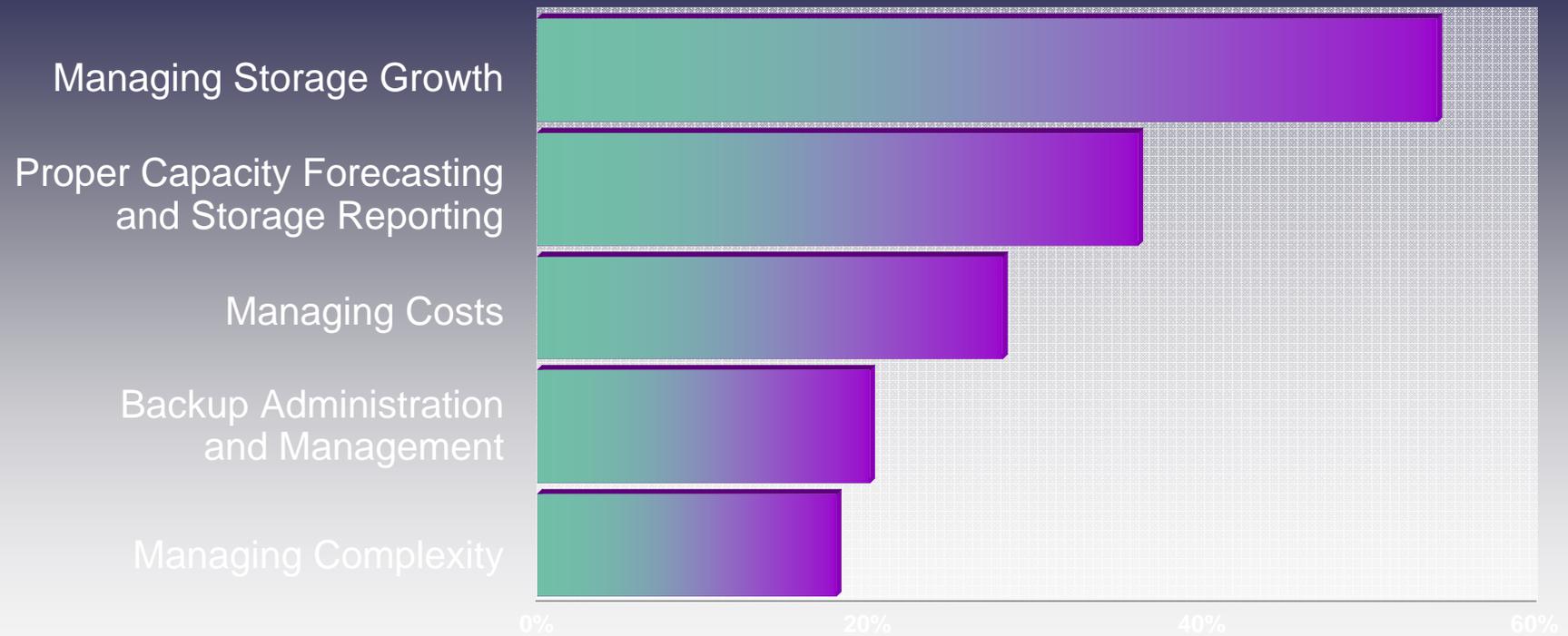
### Insight from the 2010 IBM Global CEO study

- Midmarket leaders today face the largest complexity gap seen in the study's eight-year history
- 78% expect business complexity to grow significantly over the next 5 years, but only 54 percent believe they know how to deal with it successfully
- Better performers manage complexity simplifying operations and products, and increasing dexterity to change the way they work
- As a result, 52% of Midmarket CEOs are focusing on changing their business models to manage complexity effectively



# The Explosion of Information needs to meets Budget Realities

## Top Issues for Storage Managers



# Changing the Storage Cost Equation

## IBMs new focus on Storage Efficiency

### Getting the most from your Storage Resources

#### ■ Tiered Storage

- Build out an **tiered storage** architecture to **maximize performance and reduce operating expenses**

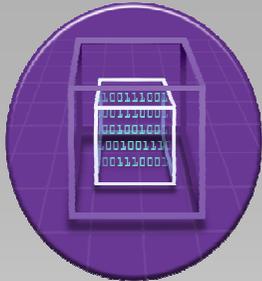
#### ■ Consolidated Storage

- **Modular and Scalable** storage for data consolidation to **reduce administrative costs and improve cycle time**

#### ■ Virtualized Storage

- Increase **utilization** of existing storage, quickly provision storage, support virtualized servers and **increase flexibility**

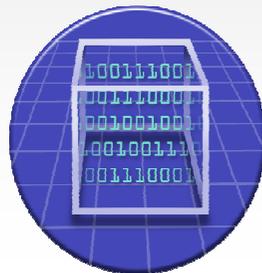
## Storage Efficiency strategies and best practices



Stop storing so much

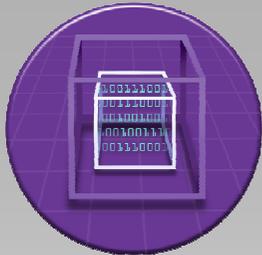


Move data to the right place



Store more with what's on the floor

## A set of essential technologies enables Storage Efficiency



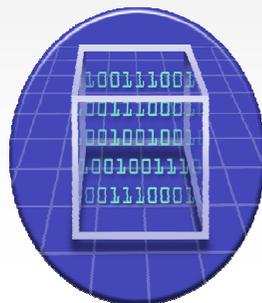
### Stop storing so much

- Data Compression
- Data Deduplication



### Move data to the right place

- Automated Tiering
- Automated Data Migration



### Store more with what's on the floor

- Storage Virtualization
- Thin Provisioning



## Stop storing so much

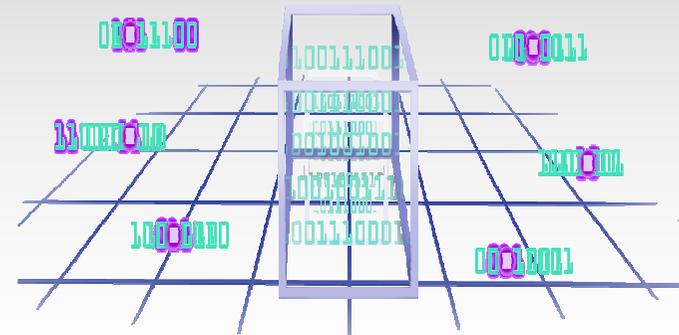
### 1 email sent = 120 copies stored

- Companies store **12 copies** of every email and its attachments
- Weekly and monthly backups can generate **10x** more copies



### Compression and Deduplication use less physical storage

- Store data more efficiently
- Lower Operating Expenses: Power, cooling, floor space
- Keep more data online for analytics and fast restores

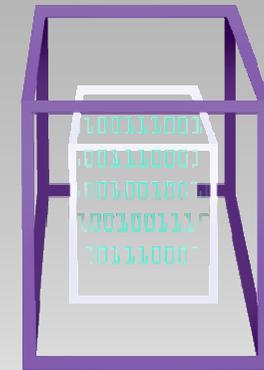




## Stop storing so much

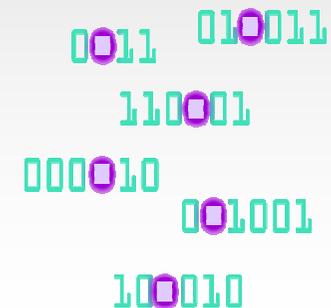
### IBM Real-time Compression Appliances shrink active data

- Shrinks active data up to **80%** without degrading performance
- **Supports active data**, unlike other storage compression solutions
- **Improve performance** of I/O-bound applications
- Helps keep more data online for **improved analytics and decision making**
- 35 Patents granted or pending



### IBM ProtecTIER Deduplication optimizes backups and restores

- Unmatched Efficiency: Shrink backup data on disk up to **25 to 1**
- Unmatched Performance: Up to **1000MB/sec**
- IBM ProtecTIER™ TS7610 Appliance priced and packaged for mid-sized environments



*“Our **backup window shrank immediately**. Now, the typical restore request takes five minutes.”*

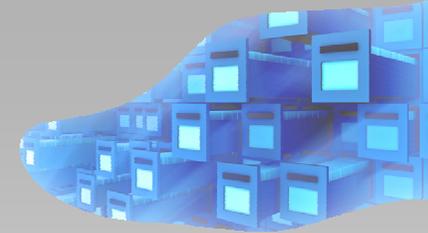
Karl Barth, Director of Systems and Operations



## Move data to the right place

70% of data hasn't been accessed in 90 days or more

- Storing that 70% in the same place as critical data, increase costs and impacts performance

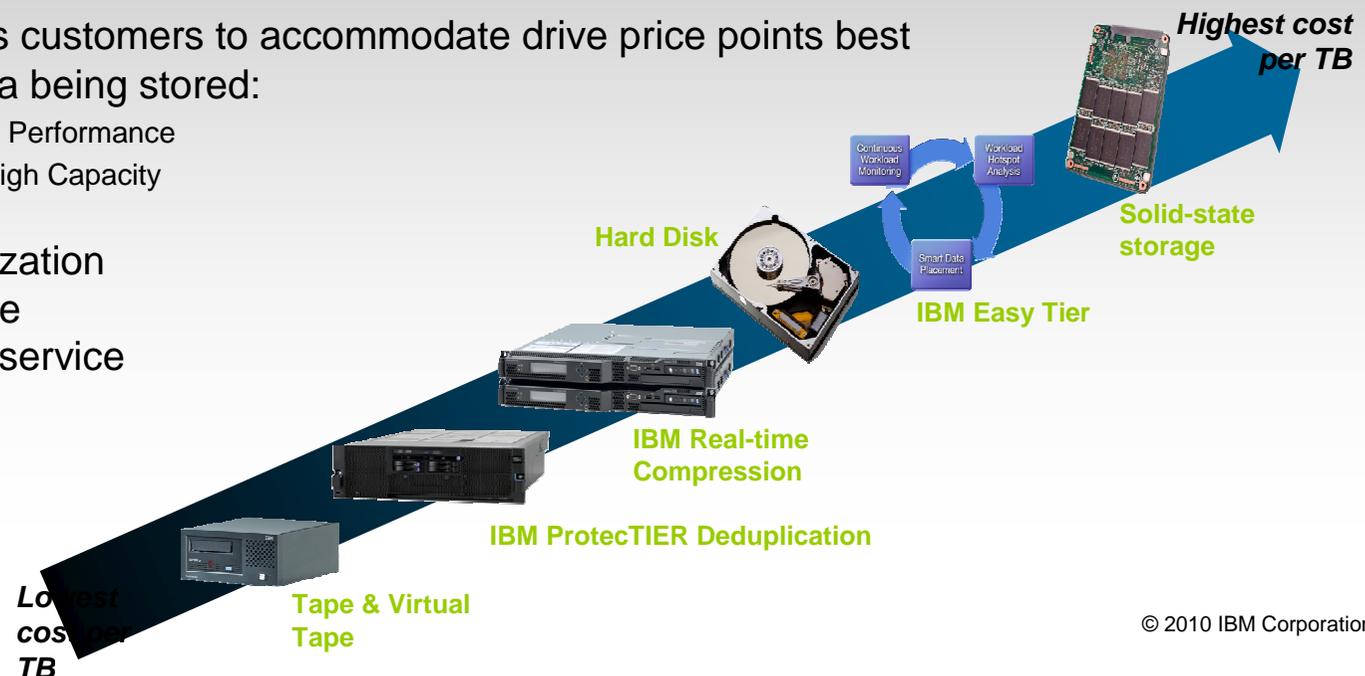


Store on various types of media based on performance, availability and recovery requirements

- Tiered storage enables customers to accommodate drive price points best suited to the type of data being stored:

- Primary Storage on High Performance
- Secondary Storage on High Capacity

- Efficient resource utilization
- Improved performance
- Enhance the storage service experience for users





## Move data to the right place

### IBM Easy Tier™ delivers optimized high performance

- Improve performance up to 3x
- Busiest data extents are identified and automatically relocated to highest performing Solid-state Disks

#### IBM Storwize V7000 midrange storage

- Easy tier, DAS and SAN tiering

#### IBM System Storage DS5020/DS3950 lower midrange

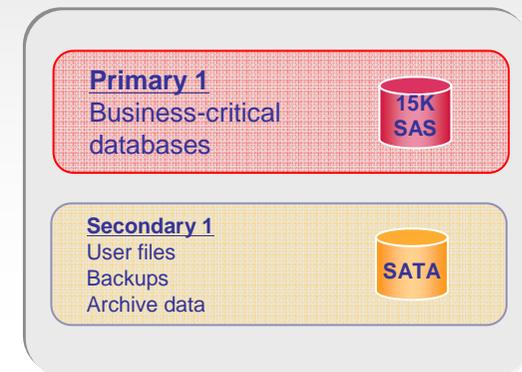
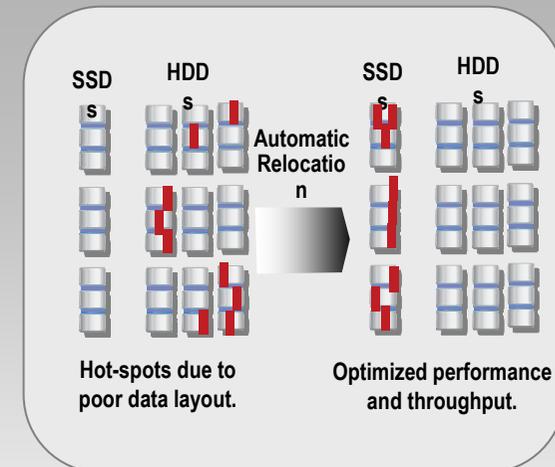
- SAN tiering
- Supports intermixing FC/SED/SATA drives for enclosure-based tiering

#### IBM System Storage DS3500 entry-level

- DAS and SAN tiering
- Supports intermixing SAS/NL-SAS/SED drives for enclosure-based tiering

#### IBM TS2250/TS2350

- Disk and Tape tiering





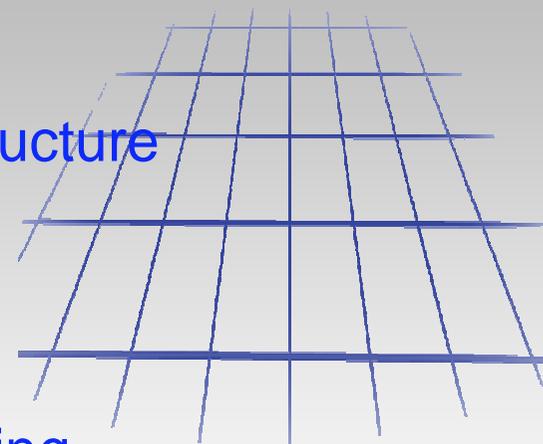
## Store more with what's on the floor

### Increase storage utilization. Shrink floor space requirements

- Increase the effective capacity of your storage
- Increase data density in your data centers
- Control both Operating and Capital Expenses

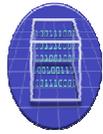
### IBM builds virtualization into the storage infrastructure

- Improve utilization up to **30%** by pooling storage
- Extend advanced functionality to your existing storage
- Online data migration virtually eliminates downtime



### Smarter use of the capacity with Thin Provisioning

- Proper capacity allocation can reduce future storage acquisitions up to 20%
- Simple to use - Easy to monitor
- Reductions in electrical energy use, heat generation and space requirements



# Store more with what's on the floor

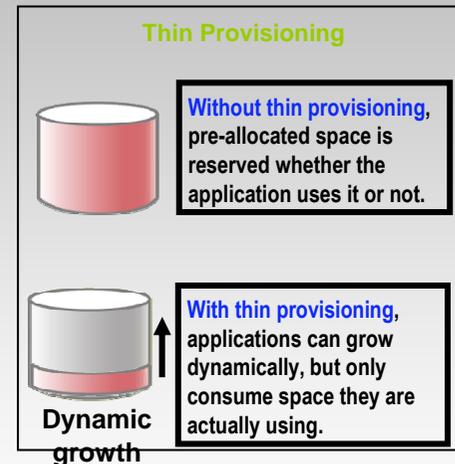
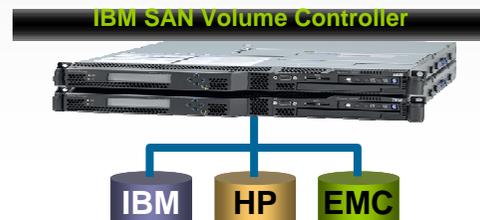
## IBM Storwize V7000

- Integrated Thin Provisioning and Storage Virtualization
- Helps you reduce the growth of storage costs, increase storage administrator productivity, improve service levels, and reduce the risk of losing data.
- Easy to use and is designed to offer all the advanced capabilities that you need including dynamic volume expansion
- 100% virtualized storage enables flexible provisioning from a central storage pool
- High-performance thin provisioning frees up pre-allocated space
- Multiple internal mirroring options – RAID levels – increases flexibility



## SAN Volume Controller Entry Edition: (SVC EE)

- Simplify management of your storage infrastructure with a single easy-to-use point of control to improve administration productivity as storage needs grow



## NEW! IBM Storwize® V7000: A New Era in Midrange Storage

- **Scalable storage that grows as needs grow**
  - Scales up to 240 per control enclosure; 480 per clustered system
  - SSD, SAS, and Nearline SAS drives
  - Drive capacities can be intermixed in an enclosure
- **Enterprise capabilities at a midrange price**
  - Storage Virtualization, Thin provisioning, Disaster Recovery, Solid State Drive support, Easy Tier
- **Easy to set up and manage**
  - Innovative and simple GUI management
  - Clients can grow capacity without adding more administrators
  - Key tasks are simplified – eg. storage configuration, provisioning, storage tiering, data protection



Modular Hardware  
Building Blocks in 2U

# IBM Storwize V7000

## Modularity and Advanced Software Functions

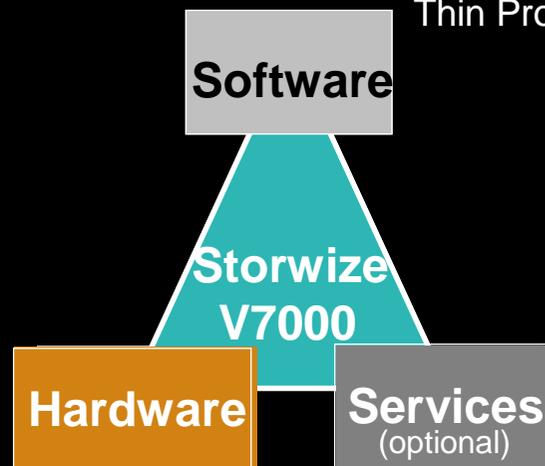
*Software inherited from prior offerings plus enhancements*

### New advanced software functions

- New GUI (*easy-to-use, web based*)
- RAID & enclosure RAS services and diagnostics
- Additional Host, Controller and ISV interoperability
- Integration with IBM Systems Director
- Enhancements to TPC, FCM and TSM support

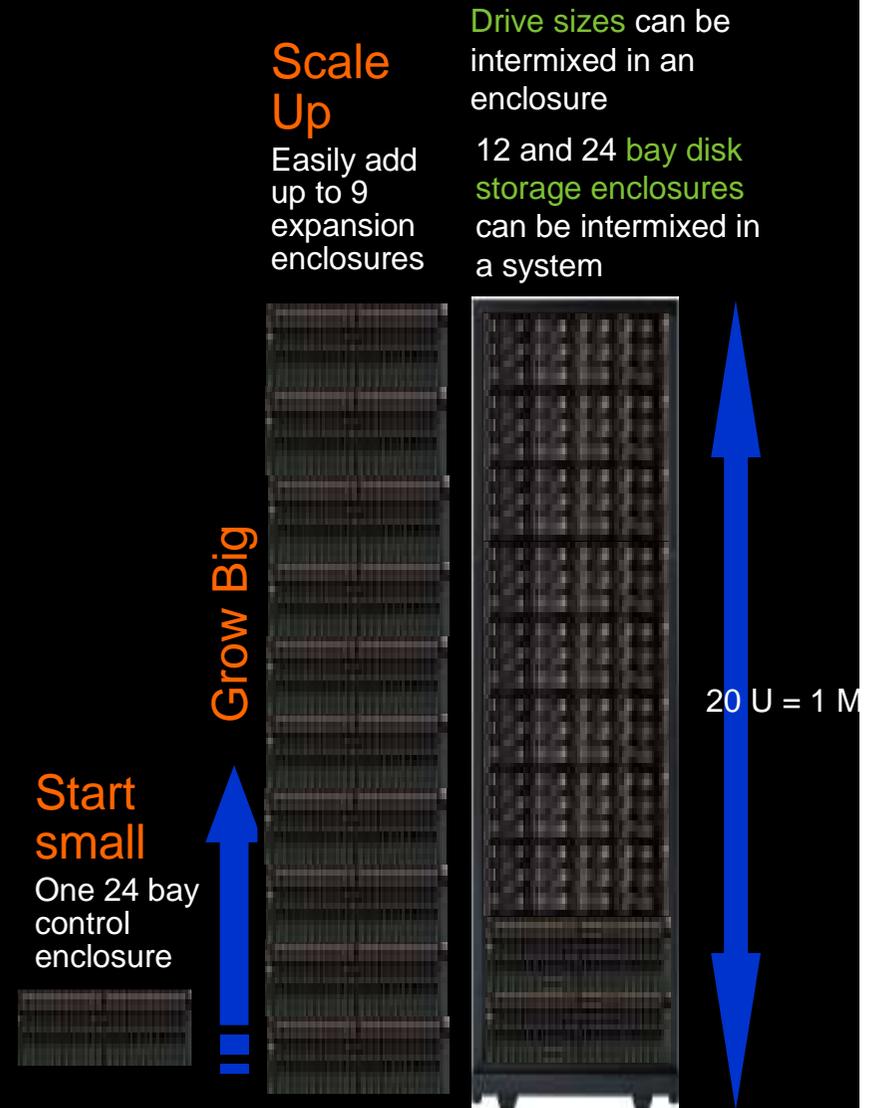
### Proven IBM software functionalities

- Easy Tier (*dynamic HDD/SSD management*)
- RAID 0, 1, 5, 6, 10
- Storage Virtualization (*local and external disks*)
- Non-disruptive Data Migration
- Global & Metro Mirror
- FlashCopy up to 256 copies of each volume
- Thin Provisioning



# For Clients who Need to Start Small and Easily grow

- **Control enclosure can be purchased with 12 or 24 drive bays**
    - Includes dual controllers and drives
  - **Expansion enclosures can be purchased in 12 bay or 24 bay**
    - Maximum 9 expansion enclosures
    - Expand capacity up to 240 SFF or 120 LFF
- Still only Half a Rack ~1m tall
- **Solid State drives can be included in 24 bay enclosures**
    - Replaces spinning disk drives
    - Enables use of Easy Tier functionality
  - **Drive sizes can be intermixed in an enclosure**
  - **12- and 24-bay enclosures can be intermixed in a system**



# IBM Storwize V7000 Storage Efficiency Features

## Thin Provisioning

Traditional volumes, reserve physical capacity of the entire capacity even if it is not used

### Thin provisioning



Without thin provisioning, pre-allocated space is reserved whether the application uses it or not.



Dynamic growth

With thin provisioning, applications can grow dynamically, but only consume space they are actually using (on demand)

- ✓ More productive use of available storage
- ✓ Across all supported host platforms

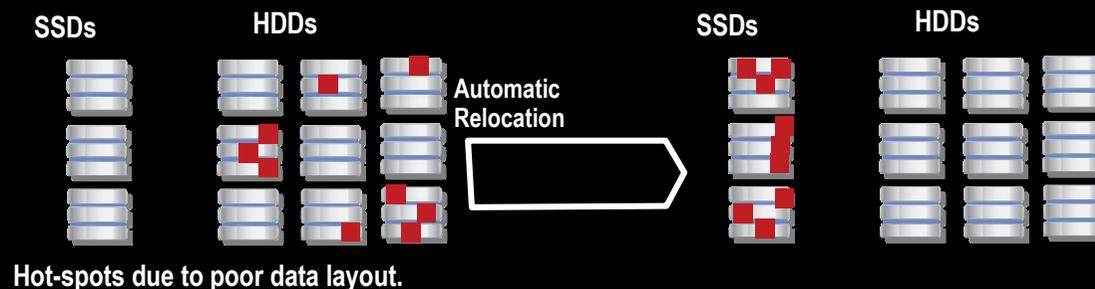
### Benefits

- System allocates and uses physical disk capacity *when data is written*
- Proper capacity allocation can reduce future storage acquisitions up to 20%
- Fully integrated thin provisioning function- No extra software needed
- Improves efficiency of storage use
- Reduces manual effort
- Simple to use - Easy to monitor
- Reductions in electrical energy use, heat generation and hardware and space requirements.

# IBM Storwize V7000 Storage Efficiency Features

## IBM Easy Tier

### IBM Easy Tier SSD Management



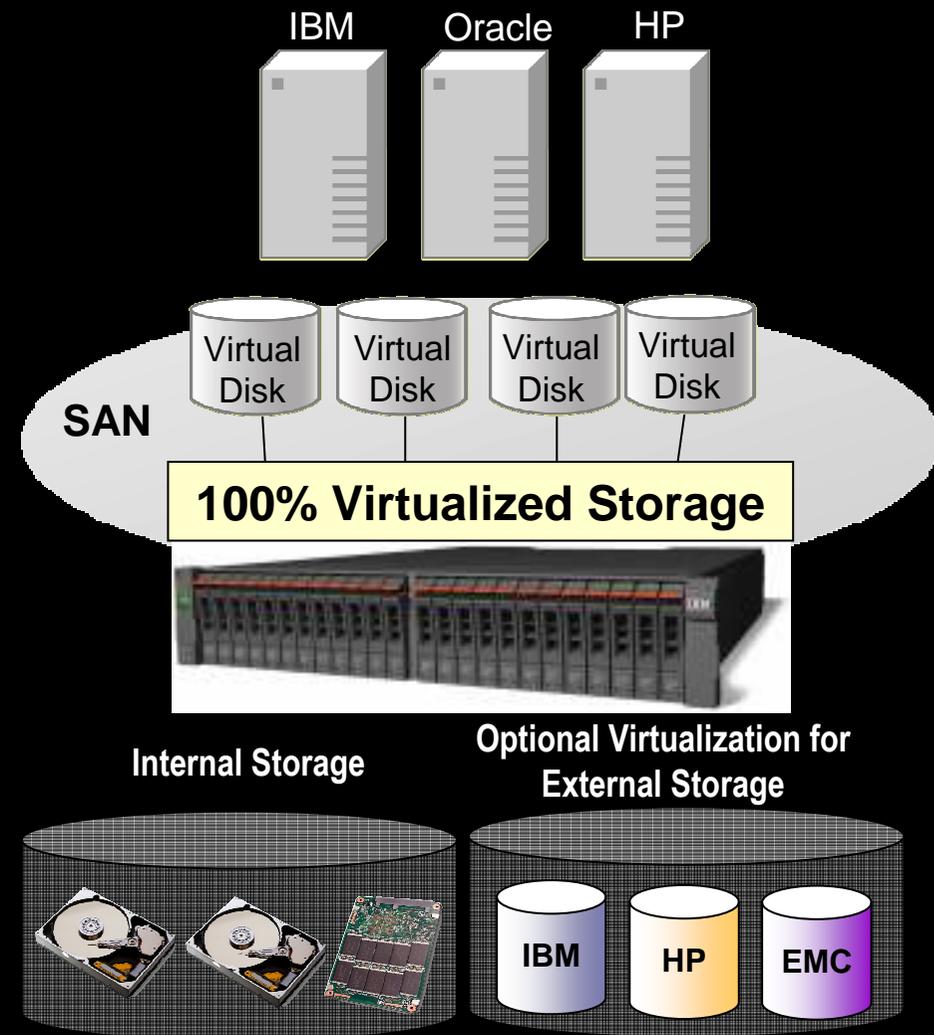
- ✓ “Easy Tier” pools identify the busiest data extents and automatically relocate them to highest performing Solid-state Disks
- ✓ Remaining data extents can take advantage of higher capacity, price optimized disks

### Benefits

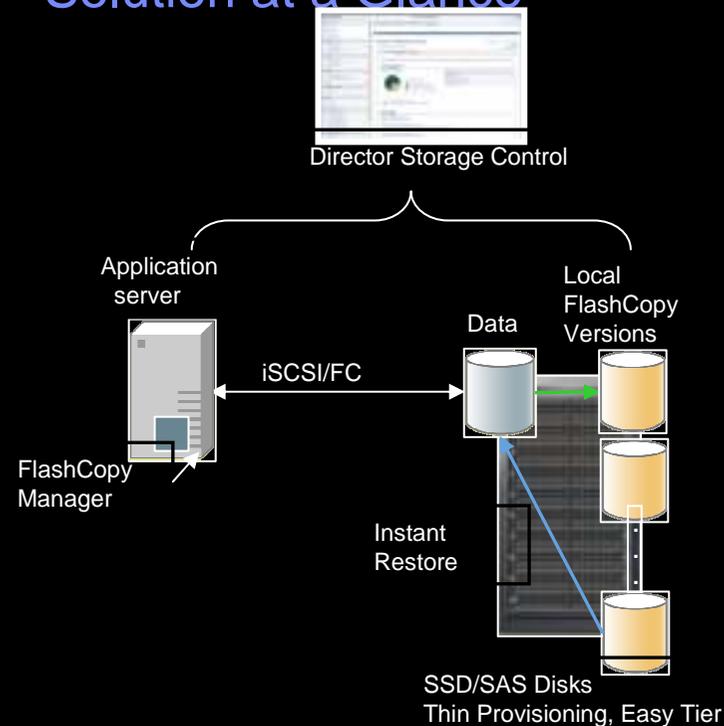
- Deploy SSDs in an optimal manner- improve performance and avoid unnecessary expenses
  - Reduces administrative effort and costs
  - Setup takes Minutes
- Higher performance with 50% of the footprint and 40% energy consumption
- Virtually no administrative effort: No need to bother with tiering policies that must be manually set to accommodate changing workload dynamics

## Integrated Virtualization Brings a New Level of Efficiency and Flexibility to Midrange Disk Systems

- Increase service levels by enabling near-continuous data access
- Increase disk utilization up to 30%
- Increase Administrator productivity with easier
  - Provisioning
  - Data Migration
  - Load Balancing



# IBM Storwize V7000 Solution at a Glance



- For clients looking for easy-to-use, scalable storage with intelligent support for their business applications

– IBM offers an integrated solution formed from extraordinary building blocks

- Scalable Storage
- Efficient utilization of space
- Application-integrated data protection
- Simple manageability
- For clients with both IBM servers and storage, a single point of management

→ Backup path  
→ Restore path

# IBM<sup>®</sup> Storwize<sup>®</sup> Rapid Application Storage

*IBM Introduces a New Era in Storage Solutions*

# IBM Storwize Rapid Application Storage

## 3 Year Maintenance on HW/SW

Consistent 3 year, 24x7 support for the entire solution – HW & SW (SW Sev 1)

## Solution Implementation Services

*IBM GTS or BP provided*

Faster deployment of solution while minimizing impact on applications and administration staff

## Tivoli Storage Productivity Center

*For Disk Midrange Edition*

Performance monitoring, measurement, analysis and reporting

## Tivoli Storage FlashCopy Manager

Minimize or eliminate application downtime for near instantaneous backup and restore of critical data

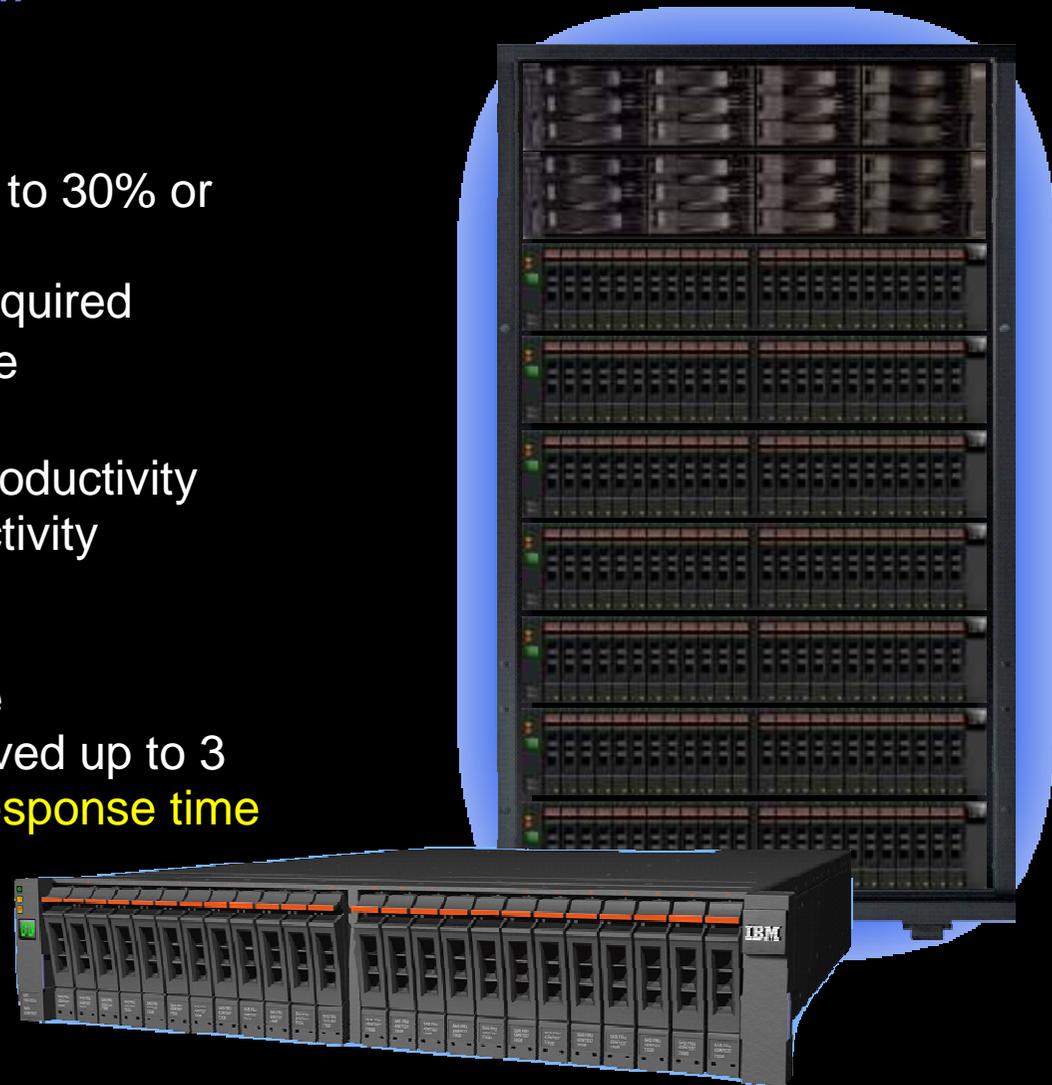


**IBM Storwize V7000**

Improve storage efficiency with breakthrough ease of use and advanced efficiency technologies like Easy Tier, and storage virtualization

## IBM Storwize V7000 for Storwize Rapid Application Storage *A Storage Solution Designed to...*

- Increase storage utilization
  - Improve disk utilization by up to 30% or more
  - Reduce amount of storage required for snapshots by 75% or more
- Increase storage administrator productivity
  - Improve administrator productivity **up to 2 times**
- Increase application performance
  - Application throughput improved up to 3 times, **up to 60% improved response time**
- Increase application availability
  - Migrate data with minimal application downtime



## Customer Value Program

**Sell an eligible  
Storwize V7000  
Controller  
before end of  
September 2011,  
migrating or  
externally virtualizing  
customer data  
and order up to  
3 management licenses  
(5639 EV1 or 5603 VM1)**

**FREE OF CHARGE!**

**Transition your storage capacity to the  
IBM Storwize V7000  
and potentially save up to \$57.780 in  
license charges\*!**



- Purpose of the promotion is to offer via the BP's a customer promotion that credits the software charge when migrating competitive capacity or "old iron" into or externally virtualised behind a Storwize V7000 controller system.
- BP must certify that the customer is migrating from competitive platforms.
- Only eligible in conjunction with Value Seller orders.
- Available on the first 50 transactions across CEE.
- Customer must agree to be a quotable reference
- Refer to announcement letters ZU11-0273, ZV11-0254 or ZW11-0263 for full terms and conditions.

IBMers Value



Dedication to every client's success.

Innovation that matters—for our company and for the world.

Trust and personal responsibility in all relationships.

# Thank You