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Taming the Information Explosion

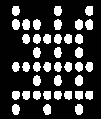


Welcome to the decade of Smart

Every decade or so in computing, there is a chance to redefine the playing field.

We are in that phase of redefinition now

Welcome to the decade of smart



Data is changing the game



Scale and complexity bring new challenges



Smarter systems for a smarter planet

Today's data center is under pressure



7 out of 10 companies
in the Global 1000 will need to modify
their data centers to meet increased
power and cooling requirements.



70 cents per dollar
is spent maintaining current IT
infrastructures rather than adding new
capabilities.



78% of CIOs
want to improve the way they
use and manage their data.

1. "Best Practices to Consolidate IT infrastructures" Gartner, 2007
2. <http://www.cioupdate.com>, New-Initiatives-Spending-Versus-Keeping-the-Lights-On, 2008
3. Source: Accenture CIO Data Management Survey, 2007

Scale and complexity bring new challenges

A smarter planet requires real-time data analytics and security for unprecedented scale and complexity



Terabytes
of structured
online data



Petabytes of
unstructured data
including real-time
streams



Simple online
transactions with
back end
processing



Complex transactions
integrated with real time
analytics



Online data
security and
intrusion
detection

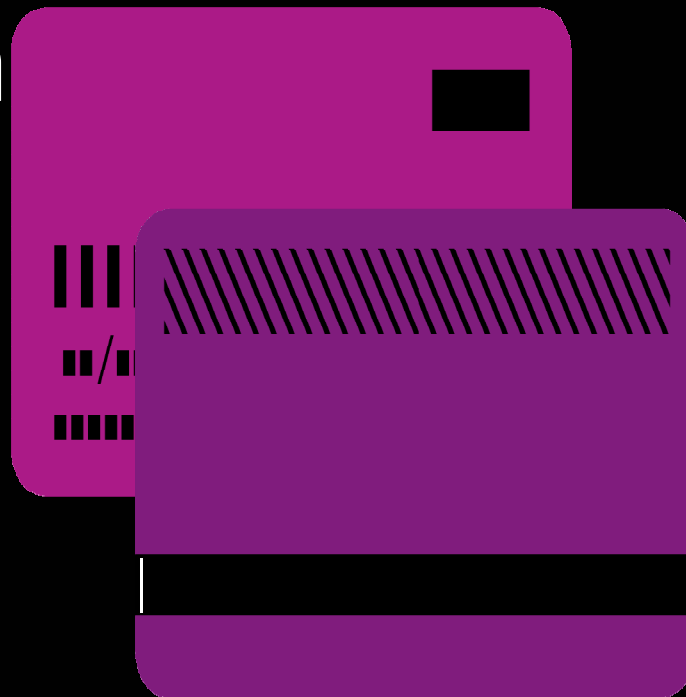


Security analytics for
intrusion prediction and
prevention

Traditional workloads are changing

Korean credit card company BC Card has **40M cardholders** generating **3B transactions a year** – and processes **10M authorizations a day**.

40 million
cardholders



3 billion
transactions per year

Traditional workloads are changing

Two catalysts will dramatically change workload:
Real-time fraud analytics and the addition of billions of mobile devices.

BC Card needs to extract more value from data:

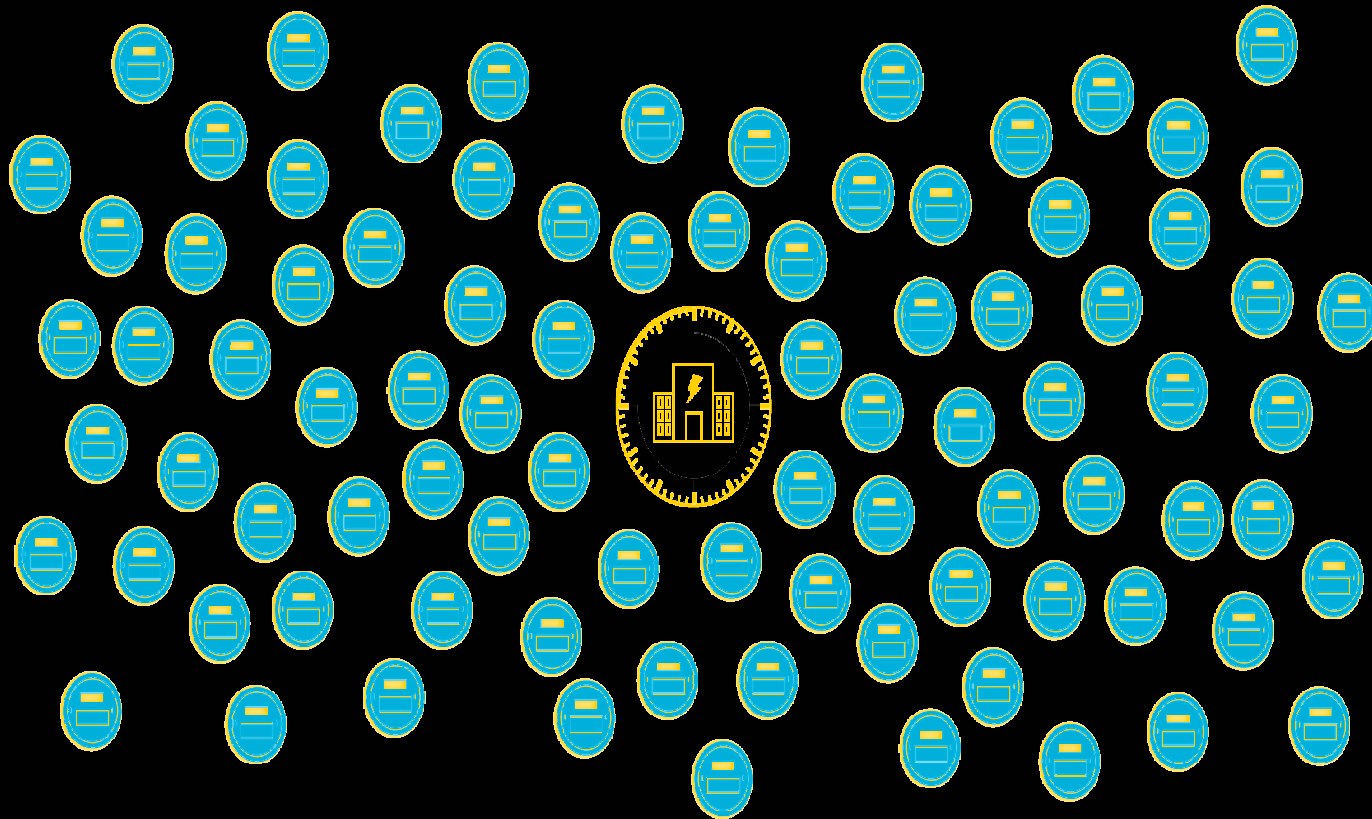
- Predict and prevent fraud
- Improve customer loyalty
- Lower cost per transaction by an order of magnitude

**Real-time
fraud analytics**

**Mobile
devices as
credit cards**

New workloads are emerging

CenterPoint, a Houston-based utility, is ramping up to read **2.4 million smart meters at 15-minute intervals.**



New workloads are emerging

Using Tivoli & WebSphere on BladeCenter, CenterPoint is migrating to **Power Systems** to handle operational analytics and scale.

85 billion
meter reads per year



8 terabytes
of data

New workloads are emerging

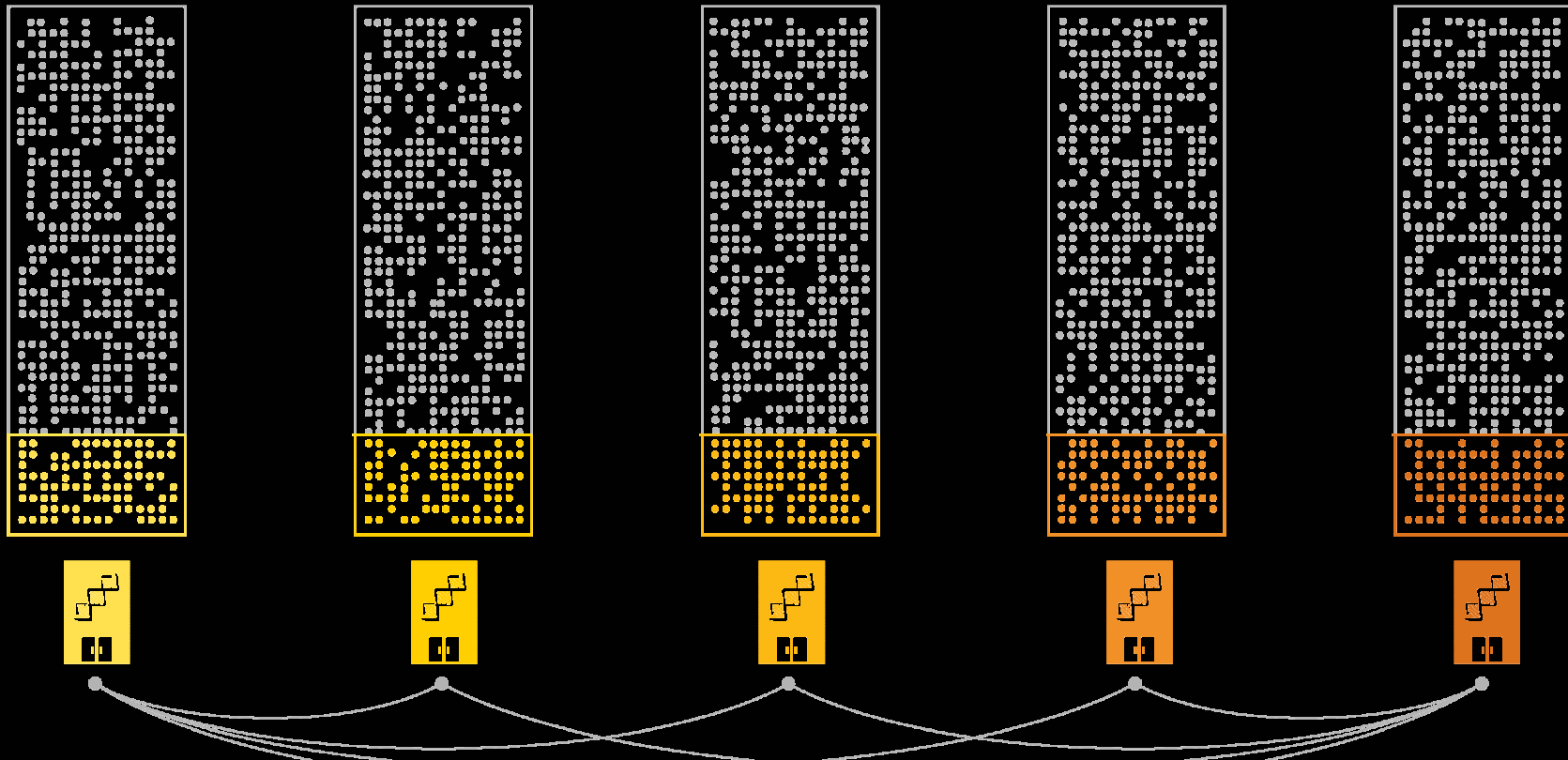
Using Tivoli & WebSphere on BladeCenter, CenterPoint is migrating to **Power Systems** to handle operational analytics and scale.

The insights generated will:

- Immediately detect outages
- Lower operational costs
- Allow consumers to adjust consumption for optimum rates

Delivery models are expanding

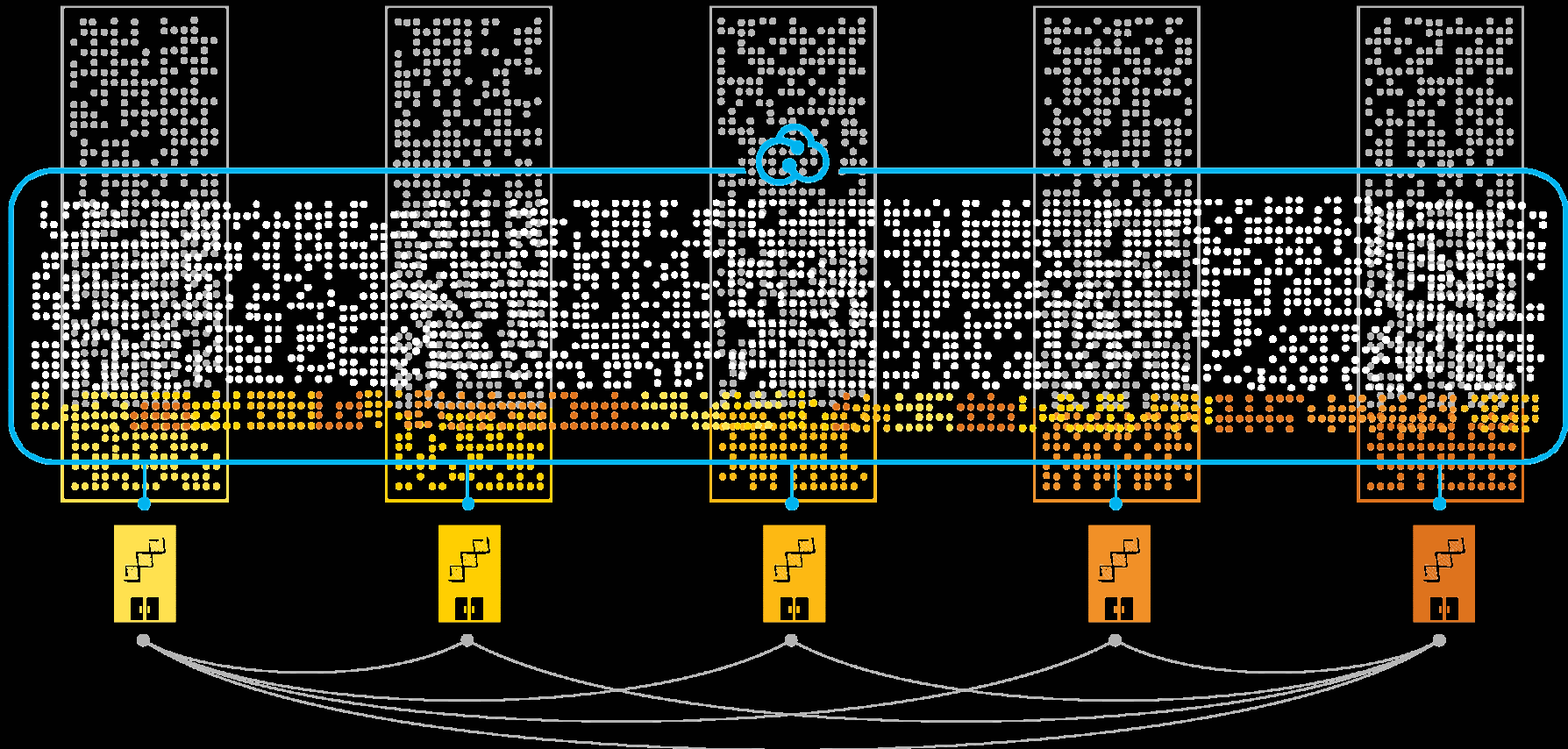
McGill University Health Centre recently announced a five-year contract with IBM to implement a private storage cloud to secure and store a growing amount of patient data



Centre estimates clinical images and electronic files from nearly 1M patients will consume 500 terabytes of data – that must be available 24/7 across multiple sites

Delivery models are expanding

IBM will centralize and virtualize data into single storage environment.



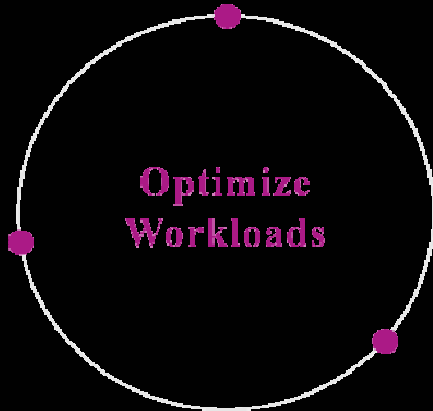
Delivery models are expanding

IBM will centralize and virtualize data into single storage environment.

The center can:

- Give doctors a comprehensive view of all patient data stored in multiple repositories and in many formats
- Centrally manage and consolidate storage resources
- Scale storage capacity easily and efficiently to meet future demands

Organizations need to rethink technology strategies



Performance

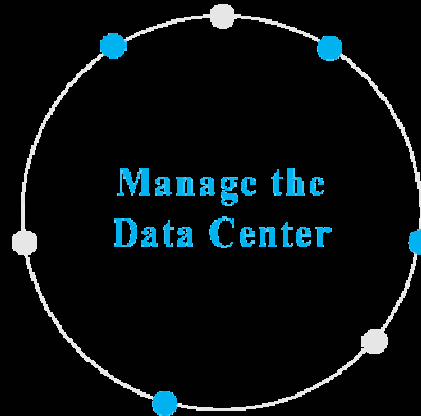
- Integration and optimization
- System accelerators
- In memory and flash

Scaling

- Dynamically adjust capacity at sustained performance

Data Efficiency

- Analytics
- Encryption
- Compression
- De-duplication
- Archive



Virtualization

- Integration of servers, storage and networking

Management

- Intelligent workload placement and mobility

Security

- Trusted cloud and secure virtual infrastructure

Availability

- High availability across data center



Managed Services

- Managed Resiliency
- Server Managed

Outsourcing

- Data Center
- End User Support

Cloud

- Storage
- Development and Test

Pre-integrated

- Smart Analytics System
- PureScale Application System



Data is changing the game



Scale and complexity bring new challenges



Smarter systems for a smarter planet

IBM Smarter Systems

Broadest systems portfolio with leadership offerings in every segment



February

Power Systems

Deep integration and optimization at every level for 5X performance and 7X power efficiency with POWER7



March

System x

System level innovation for x86 computing through 5th generation of Enterprise X-Architecture



July

zEnterprise

Highly virtualized, inherently resilient, secure environment and industry's first multi-architecture platform



October

System Storage

Extensive block, file and tape capabilities for smart movement and management of data

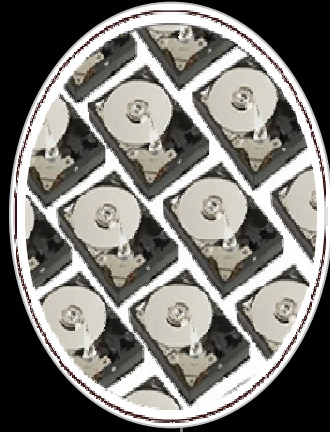
Builds on IBM heritage of innovation and leadership in storage



1956

First magnetic hard disk drive

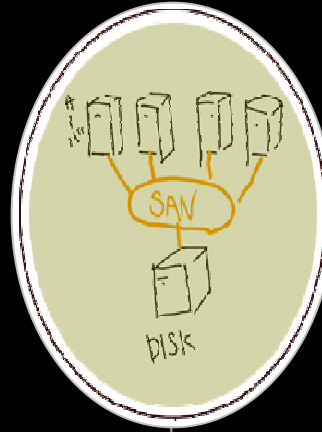
IBM 305 RAMAC (Random Access Method of Accounting and Control). Capacity of the 305's 50 two-foot diameter disks was 5 megabytes.



1993

Distributed storage

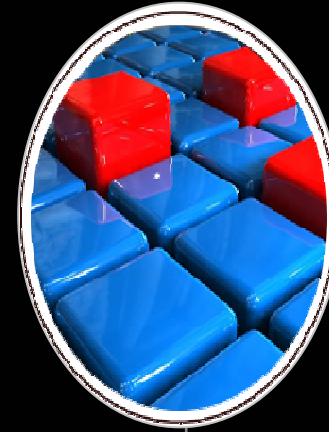
IBM 9337 Disk Array Subsystem is first reliable storage system using multiple, low-cost disk drives as single logical unit.



2003

Storage network virtualization

IBM SAN Volume Controller provides single, centralized point of control over data in heterogeneous storage environments.



2010

First Intelligent data placement

IBM System Storage Easy Tier first to automatically move most active data to faster solid-state drives for real-time analysis and less urgent data to tape.

Today's most complete line up of storage offerings



Tape Storage

Library Systems
Media and Drives
Virtualization
Encryption



Entry / Mid-range

DS5000
DS3000
N Series



High End

DS8000
XIV
SONAS

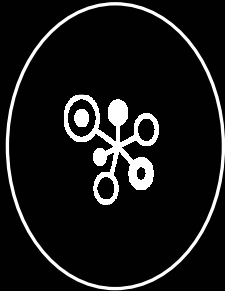


Appliances

ProtecTIER
 Deduplication
 Real Time Compression
 SAN Volume Controller
 Easy Tier

Underpinned by continuous investments and innovation

IBM investments in capabilities that unlock vast potential of data



Analytics

Largest commercial math department

\$12B since 2005 on 20 acquisitions

IBM Smart Analytics System - all platforms

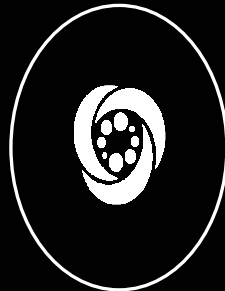


Encryption

Tivoli Key Lifecycle Manager

IBM Institute for Advanced Security

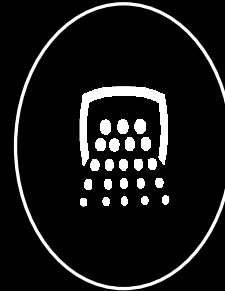
Homomorphic encryption



Compression

Real-time data compression from Storwize acquisition

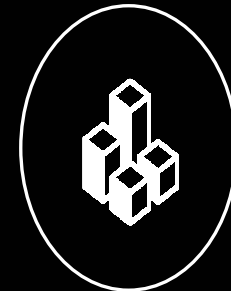
Deep Compression for DB2



De-duplication

ProtecTIER from Diligent acquisition

HyperFactor algorithms and in-line processing



Archive

Intelligent Archive integrated system appliance

Global Archive Solutions Center

Storage-related acquisitions: 2007 Softek, Princeton Softech and Novus Consulting Group
2008 XIV, FilesX and Diligent
2010 Storwize, Inc.



New Announcements!



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 **Enhanced!** time
- IBM System Storage™ SAN Volume Controller has an updated Graphical User Interface and support for up to 256 storage systems.



“As a managed service provider, we can take advantage of the IBM System Storage SAN Volume Controller’s ability to cater to each customer’s requirements individually, according to SLAs”

Markus Peltz, Configuration Manager, IDS Scheer





Store more with what's on the floor



New! IBM System Storage™ DS8800

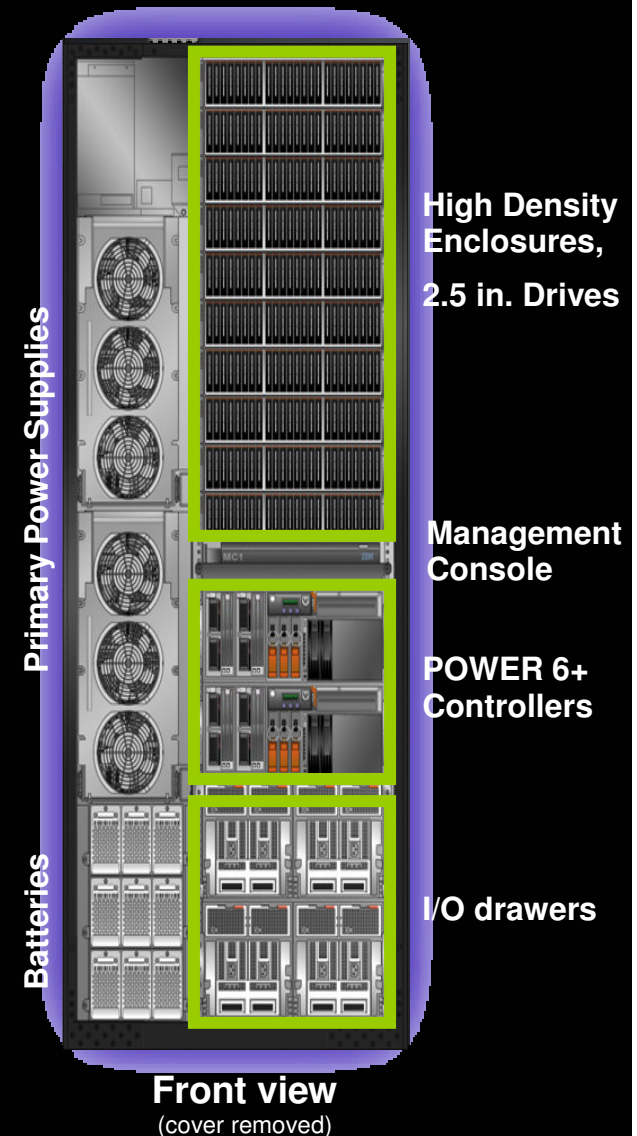
DS8800 Enhancements

- New 2.5" small form factor drives
- 50% more drives per enclosure
- IBM POWER6+ processors
- 8Gb/sec host and device adapters

DS8800 Benefits

- Up to **40% better performance**
- Save floor space with nearly **twice the drive density**
- Reduce costs with up to **36% less energy consumed**

Host over 1,000 drives on up to 40% less floor space than IBM DS8700 with 3.5 in. disks



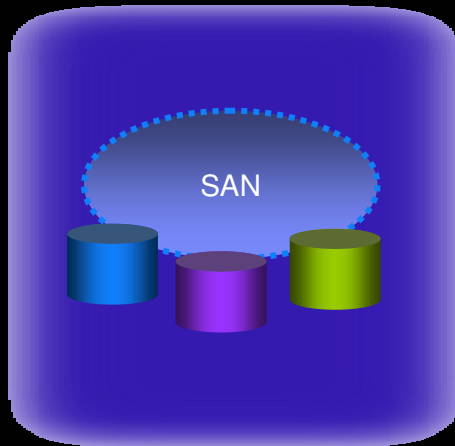
What if there was a Midrange Storage System that...

- **Grows** as your needs grow
- Combines **high performance** with **ease of use**
- Includes built-in advanced **storage efficiency** capabilities



Storwize V7000

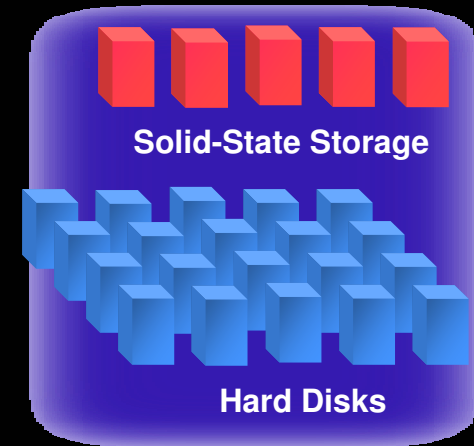
IBM investment in storage efficiency technologies ...



**Storage
Virtualization**



**Incredible
Ease of Use**



Easy Tier

Available for the first time in a midrange offering



IBM Storwize V7000

**Storage
Virtualization**

**Incredible
Ease of Use**

Easy Tier

IBM Storwize V7000

A new era in midrange storage begins today...

- **Modular** midrange storage that grows with you
 - 1 to 10 (2U) Enclosures

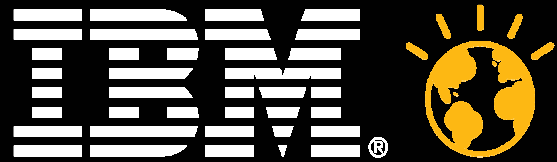
- **High performance** storage that is **Easy** to set up and manage
 - **Awesome GUI**

- **Advanced** storage efficiencies
 - Easy Tier
 - Thin Provisioning
 - FlashCopy
 - Transparent Data Migration
 - External Virtualization (Optional)
 - Mirroring – Metro & Global (Optional)



Summary

- The **data center** is being transformed by the explosion of data, number of transactions and increasing concerns about security.
- IBM offers a full line of **Smarter Systems** that address client's immediate needs and future demands.
- IBM's investments in **storage innovation** provide the technologies to help businesses efficiently and effectively manage data for competitive advantage.



IBM Storage Solutions Efficient. Powerful. Easy.

Smarter Systems for a Smarter Planet

