

# IBM Smarter Storage – new capabilities and vision: June cross-IBM announcements and statements of direction

## Efficient by Design

- Real-time Compression integrated into Storwize V7000, SVC
- TPC improved GUI, enhanced reporting, tiering optimization, cloud support
- SONAS TPC support
- TPC now supports XIV/Storwize V7000 GUI
- ProtecTIER file protocol support
- Storwize V7000U real-time compression for file workloads (SoD)

## Self-optimizing

- DS8000 Easy Tier extended to server based storage (SoD)
- DS8000 new high-density flash storage option (SoD)
- DS8000 Easy Tier support for application API (SoD)
- IBM SmartCloud Virtual Storage Center will introduce analytics-based storage tier recommendations and automation to migrate data to the right tier (SoD)



## Cloud Agile

- SONAS and Storwize V7000 file storage virtualization (SoD)
- SONAS and Storwize V7000 ACE enables global file collaboration with multi-writer support (SoD)
- SONAS and Storwize V7000 Unified, cloud storage self-service service portal (SoD)
- Storwize V7000 support for Active Cloud Engine (SoD)
- XIV clustering (SoD)
- XIV Gen3 GTS Implementation Services

## Overview of new/enhanced products and services

### Storwize V7000

- Increase system capacity up to 5x with IBM Real-time Compression

### SAN Volume Controller V6.4

- Increase system capacity up to 5x with IBM Real-time Compression

### IBM Tivoli Storage Productivity Center v5.1

- Offers an integrated, web-based user interface; includes Cognos-based reporting, analytics, and storage tiering optimization - offering visibility and optimization capabilities to storage management.

### IBM System Storage DS3500 Express

- Storage Efficiency features that include 50% more snapshots to help reduce backup times, and VAAI support to enhance storage management for VMware environments

### IBM System Storage DCS3700

- Storage Efficiency features that include 50% more snapshots to help reduce backup times, and VAAI support to enhance storage management for VMware environments

### SONAS R.1.3.2

- New enhancements enable more flexibility and provide management under TPC

## Overview of new/enhanced products and services

### IBM System Storage TS76xx ProtecTIER® - (includes 7620, 7650 & 7650G)

- **Key enhancements include FSI-CIFS support for broader connectivity in NAS environments, up to 25% increased performance for the Gateway and double the capacity for the SMB appliance**

### Real-time Compression v3.9

- **Increases usable primary storage capacity by up to 5 times, with no performance degradation - now includes new capacity planning tool**

### IBM LTFS Storage Manager Software V1

- **Provides storage lifecycle management of multimedia files using IBM's Linear Tape File System; reduces video archive software licensing costs while slashing video tape cartridge costs up to 98%**

### IBM Tape System Library Manager Software v1

- **Expands and simplifies the use of IBM TS3500 tape libraries by providing a consolidated view of multiple libraries capable of storing up to 2.7 Exabytes and reducing tape pathing maintenance and definitions up to 50%**

### IBM System Storage DS8000®

- **New 33% larger SSD option, along with self-encrypting SSD and nearline drive options to support Easy Tier for fully-encrypted systems**

### XIV Gen3 and N series 3220 / 3240 Services

- **IBM Implementation Services enables clients to tap into a global pool of highly skilled storage specialists who can help plan, implement, configure and test their Storage System.**

## IBM Smarter Storage: Full text of Statement of Direction – 1 of 2

Product	Statement
Easy Tier on DS8000	<p>IBM intends to deliver Advanced Easy Tier capabilities on selected IBM storage systems, including the IBM System Storage DS8000, designed to leverage direct-attached solid-state storage on selected AIX and Linux servers. Easy Tier will manage the solid-state storage as a large and low latency cache for the “hottest” data, while preserving advanced disk system functions, such as RAID protection and remote mirroring..</p> <p>An application-aware storage application programming interface (API) to help deploy storage more efficiently by <b>enabling applications and middleware to direct more optimal placement of data</b> by communicating important information about current workload activity and application requirements.</p>
DS8000	<p>IBM intends to deliver A new <b>high-density flash storage module</b> for selected IBM disk systems, including the IBM System Storage DS8000. The new module will help increase performance dynamically for workloads across the disk system by packaging high-density solid-state drives (SSDs) in a very cost effective way.</p>
Storwize V7000 Unified	<p>IBM intends to enable <b>Real-time Compression for block and file workloads on Storwize V7000 Unified</b> systems. This enhancement is designed to help clients experience the same high-performance compression for active primary block and file workloads on Stowize V7000 Unified that is being announced for block workloads on Storwize V7000. IBM Storwize V7000 Real-time Compression is designed to deliver enhanced storage efficiency with potential benefits including lower storage acquisition cost (because of the ability to purchase less hardware), reduced storage growth, and lower rack space, power, and cooling requirements.</p>
SONAS, Storwize V7000 Unified	<p>IBM intends to extend IBM Active Cloud Engine capabilities to:</p> <p>Allow files on selected <b>NAS devices to be virtualized by SONAS and Storwize V7000 Unified</b>. Virtualization capabilities provide access across a unified global namespace, while facilitating transparent file migrations in parallel with normal operations. This capability provides customer investment protection as clients continue to leverage their existing NAS assets while exploiting the capabilities of IBM Active Cloud Engine.</p> <p>Enable file collaboration globally via IBM Active Cloud Engine. This capability will help enhance productivity where users at geographically dispersed locations can <b>both share and modify the same file</b>.</p>
SONAS, Storwize V7000 Unified	<p>IBM intends to extend NAS data retention enhancements for IBM Storwize V7000 Unified and IBM SONAS to provide <b>file “immutability”</b> to help support file integrity from the time the file is designated as immutable through its lifecycle. Immutability is intended to secure files from inadvertent or malicious change or deletion.</p>
SONAS, Storwize V7000 Unified	<p>IBM intends to deliver Cloud features to SONAS and Storwize V7000 Unified to support:</p> <p><b>Web Storage Services</b>, a standards based object store and API that implements the Cloud Data Management Interface (CDMI) standard from SNIA to support the implementation of storage Cloud services.</p> <p><b>Self-service portal</b> designed to speed storage provisioning, monitoring and reporting.</p>

## IBM Smarter Storage: Full text of Statement of Direction – 2 of 2

Product	Statement
XIV	<p>IBM intends to support increased scalability of capacity, performance, and host bandwidth by <b>clustering IBM XIV Gen3 systems together</b> and providing the capability to migrate volumes across the cluster without disrupting applications. Management of the cluster will remain simple with consolidated views and shared configurations across the systems. These capabilities are intended to help clients address the scalability and management requirements for <b>effective cloud computing</b>.</p>
TPC, TSM	<p><b>IBM SmartCloud Virtual Storage Center:</b> IBM intends to release a new storage software offering that combines storage virtualization, storage resource management, and application aware snapshots. IBM also intends to provide enhancements to these capabilities that will can generate recommendations, and enable <b>automated movement and placement of data across storage systems</b> based on policy and intelligent algorithms to better optimize for price, performance, and access needs across the storage environment.</p> <p>IBM intends to adapt its <b>advanced administration GUI to IBM Tivoli Storage Manager and related products</b>, dramatically simplifying administration. This breakthrough intuitive GUI approach is already being used across the IBM storage portfolio of software and systems: Tivoli Storage Productivity Center, IBM System Storage SAN Volume Controller, IBM XIV Storage System, IBM Storwize V7000 Unified, IBM Scale Out Network Attached Storage (SONAS), and IBM System Storage DS8000. This single management interface approach will can drive consistency across unified recovery, enterprise storage administration, and individual storage systems.</p>
Power – SSD Ultra Drawer	<p>IBM plans to expand the integration of IBM Power Systems with the #5888 EXP30 Ultra SSD I/O Drawer and with selected IBM storage solutions such as the IBM Storage System DS8800. With this planned advanced integration configuration, the <b>Ultra Drawer would provide an extremely low latency cache for the IBM SAN</b>, improving overall I/O performance while maintaining the SAN's advance capabilities such as FlashCopy and Metro/Global Mirroring and supporting Power Systems Live Partition Mobility capability.</p>

## Introducing IBM Technical Computing for mainstream business

- Unleashing the transformational power of high-performance technical computing across the entire business spectrum
- Expanding from a hardware-centric supercomputing supplier to technical computing solutions provider to meet the needs of the broader market
- IBM Technical Computing can help clients accelerate time to value with
  - **Powerful** innovative products optimized for compute and big data
  - **Comprehensive** offerings tuned to the task, easy to manage
  - **Intuitive** integrated solutions for clusters, grids, and HPC Clouds

### Announcing IBM Platform Computing

Technical Computing systems management for your compute- and data-intensive needs

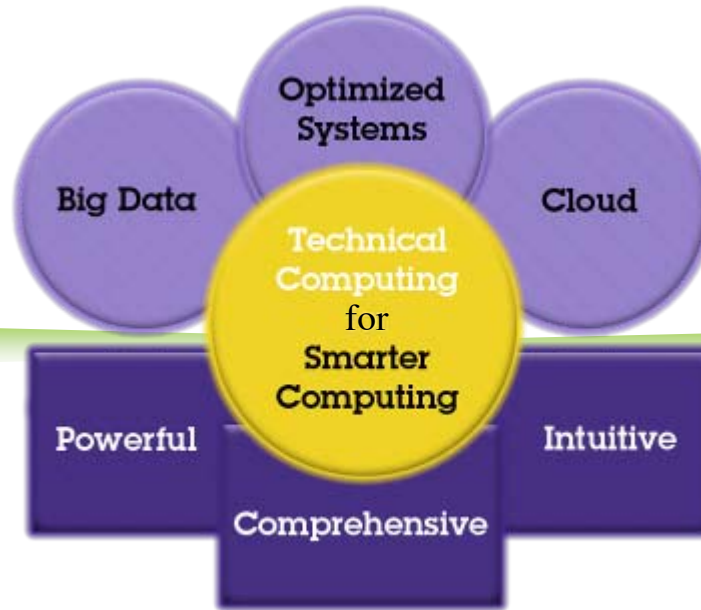
- Marketed and sold by IBM and IBM Business Partners
- Integrated offerings (hardware, software, services) for complete IBM platform
- Optimized Solutions: HPC Cloud, Engineering Solutions for Cloud, Big Data Analytics.



# Delivering a technical computing foundation for Smarter Computing

## Powerful

- **Platform™ LSF®** and **Platform Symphony** enabling up to 100% server utilization
- **Platform Cluster Manager** for dynamic resource, HPC cloud management
- **System x® iDataPlex®** for high-performance, energy-efficient scalability
- **GPFS™, System Storage® DCS3700** for robust parallel file management & storage



## Comprehensive

- **Platform LSF family** and **Platform Symphony family** for high-performance, workload and resource management with full suite of add-ons (from end user portal to analytics)
- **HPC Cloud** and **Big Data** offerings optimized for compute and data intensive jobs
- **Platform Computing Services, Support & Training** to streamline your path to realized value

## Intuitive

- **Platform HPC** for easy, turn-key cluster and workload management
- **Intelligent Cluster™** an optimized, high-performance platform delivered, installed and supported as a single solution



# Technical Computing products to help accelerate transformation

Powerful. Comprehensive. Intuitive.

## IBM Platform LSF

Workload and cluster management that optimizes performance and delivers faster insights

## IBM Platform Symphony

Unify compute and data-intensive resources to create a scalable, low-latency environment

## IBM Platform HPC

Easy to use, turn-key management solution with a self-service portal for improved productivity

## IBM Platform Cluster Manager

Create dynamic, flexible clusters and HPC cloud environments



*Accelerate time to value , lower costs by deploying workload and resource optimized platforms*

## IBM General Parallel File System (GPFS)

Industry leading high performance, low latency access to data, any time, any place

## IBM System x iDataPlex dx360 M4

Extraordinary performance for your most-demanding applications

## IBM Intelligent Cluster™ integrated solutions

Fully tested “all-in-one” high-performance cluster complete with delivery, on-site setup and support



# Trademarks

•The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.

- |               |                |                   |              |
|---------------|----------------|-------------------|--------------|
| •AIX*         | •FICON*        | •POWER7*          | •System z*   |
| •BladeCenter* | •IBM*          | •PR/SM            | •Tivoli*     |
| •CICS*        | •IBM (logo)*   | •Smarter Banking* | •WebSphere*  |
| •Cognos*      | •POWER*        | •System p*        | •zEnterprise |
| •DataPower*   | •Power Systems | •System x*        | •z/OS*       |
| •DB2*         | •POWER4        | •System z10*      | •z/VM*       |

\* Registered trademarks of IBM Corporation

•The following are trademarks or registered trademarks of other companies.

- Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.
- IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.
- Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
- Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.
- Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.
- Windows Server and the Windows logo are trademarks of the Microsoft group of countries.
- ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.
- UNIX is a registered trademark of The Open Group in the United States and other countries.
- Java and all Java based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.
- Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.
- Linear Tape-Open, LTO, the LTO Logo, Ultrium, and the Ultrium logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

\* Other product and service names might be trademarks of IBM or other companies.

•Notes:

- Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprocessing in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.
- IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.
- All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.
- This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.
- All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.
- Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.
- Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.