

# Improve System z Storage Management with Integrated Storage Suite

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# IBM's Smarter Storage Management for z/OS

- Reduces Costs, Increase Productivity & Fosters Collaboration

## Key Takeaways



1. Tivoli z/OS Storage portfolio brings together a rich set of z/OS Storage management capabilities including hardware and software monitoring, HSM management, ICF Catalog management, Space Allocation & Tape management to prevent costly outages and reduce CPU and storage hardware costs
2. Common interfaces, standard methods of operation, built-in subject matter expertise, consolidated information views, intelligent alerting, and automation of routine tasks all combine to make users more efficient and reduce both training cost and 24X7 reliance on subject matter “gurus”
3. Tivoli OMEGAMON XE for Storage on z/OS is the hub that integrates with an array of powerful specialty management components to break down organizational silos, share expertise and foster collaboration in solving problems and optimizing the environment .

## Tivoli Storage Management provides integrated end-to-end integration and simplification

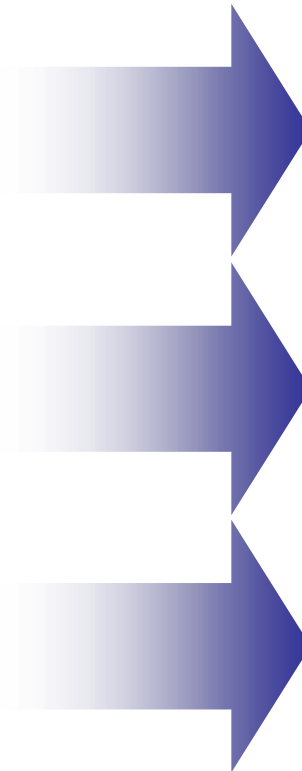
- Issues in z/OS Storage management
- Tivoli z/OS Storage Management portfolio and value
- IBM Tivoli Advanced Storage Management Suite
- New OMEGAMON XE for Storage V5.1
- IBM Tivoli z/OS Storage Management enhancements



# Tivoli's z/OS Storage solution meets today's challenges

## Customer Challenges

- ***Simplifying management of multi-vendor storage devices***
- ***Minimizing outages & managing changes in storage environment***
- ***Growing workloads vs. Tight staffs, skills & budgets***



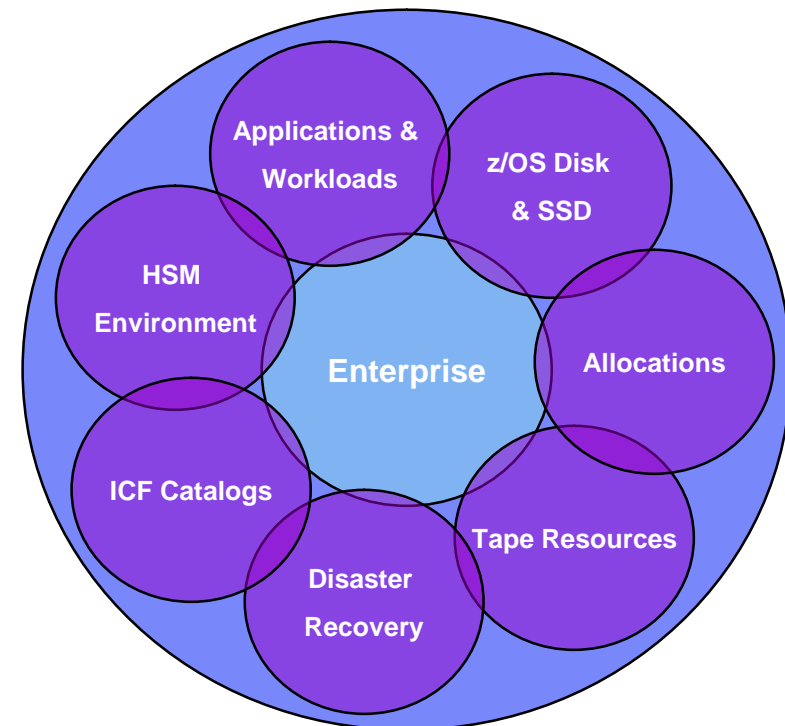
## Overcoming Challenges

- ***Common set of tools across many storage systems***
- ***Tailored alerts and automation of tasks and preplanned corrective actions***
- ***Comprehensive, enterprise-wide view of storage infrastructure to support resource management, risk mitigation, cost savings and compliance***

# IBM Tivoli System z Storage Solution – Leading Edge

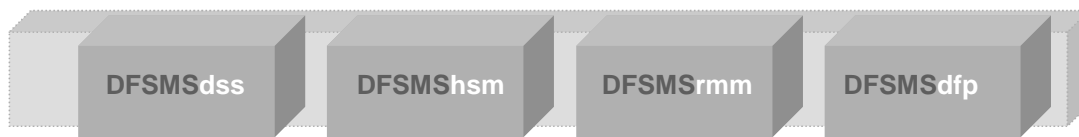
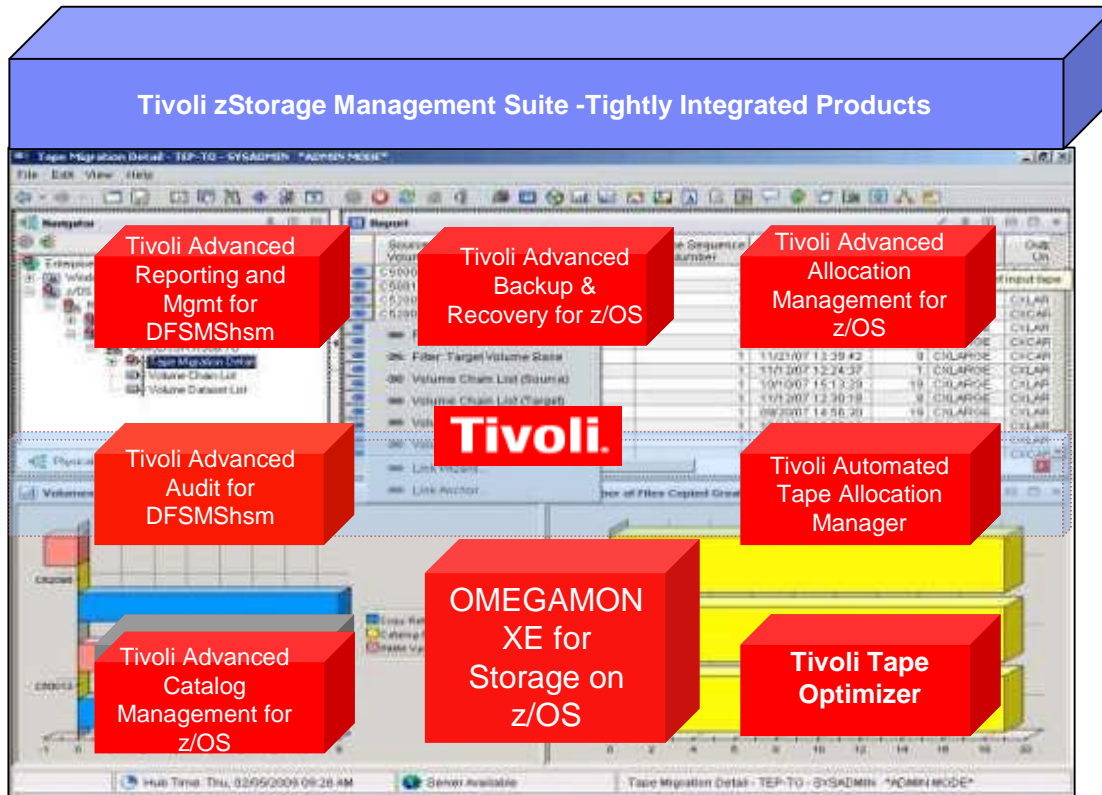
- Unmatched breadth and depth of z/OS storage management capability
- Powerful integrated storage monitoring
- Heterogeneous HW/SW environments
- Flexible reporting options & analytics
- Intelligent alerts & automated problem responses (manage by exception)
- Reduce resource consumption and cost
- Increases efficiency and staff productivity
- Reduce dependency on ‘gurus’
- Common interface and linkage to ISM components, breaks down functional “silos”, reduces issue research & resolution time

**Tivoli System z Storage Solutions address many key disciplines**



**Reduce Costs, Increase Productivity & Foster Collaboration**

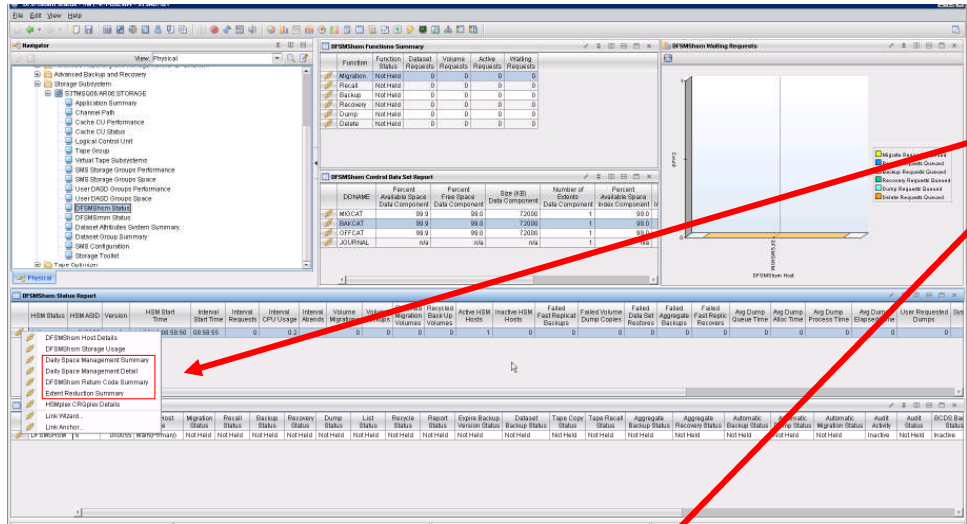
# Tivoli zStorage Integration - Unmatched Capability



## Differentiators

- Seamless Integration with other IBM/Tivoli management and automation offerings
- Application view of I/O Performance and Cross System support
- Deep availability & performance capability
- Situations – Manage by Exception
- Best in class HSM reporting, audit & error correction
- Allocation Management provides more preventive/corrective function
- IBM exclusive capability for fast replication in Backup & Recovery management
- Suite packaging and pricing advantages

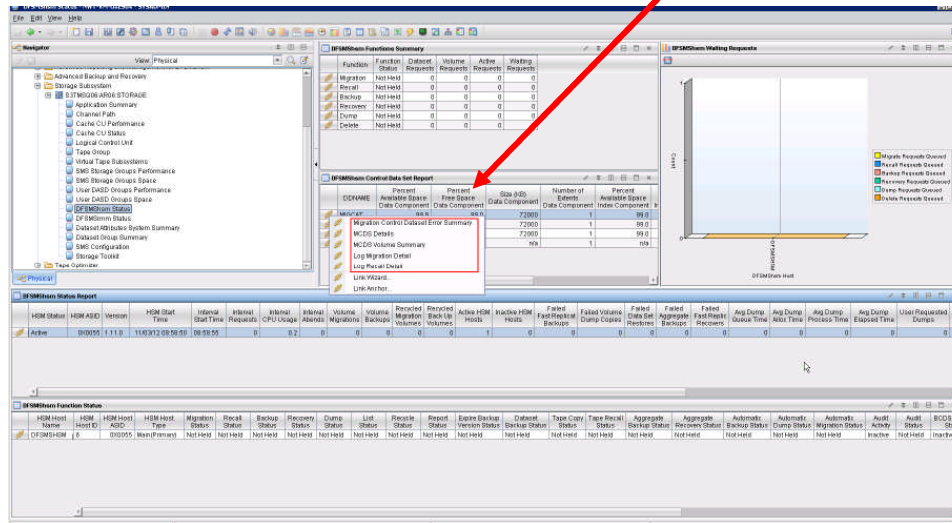
# Integration – Leveraging the Tools



- Seamless linking
- Linking in context

## Value and Benefit

- Common look and feel
- Leveraged common information
- Easy to use
- Automatically establishes link
- Customizable
- Reduces training time
- Increases efficiency
- Greater utilization of SW



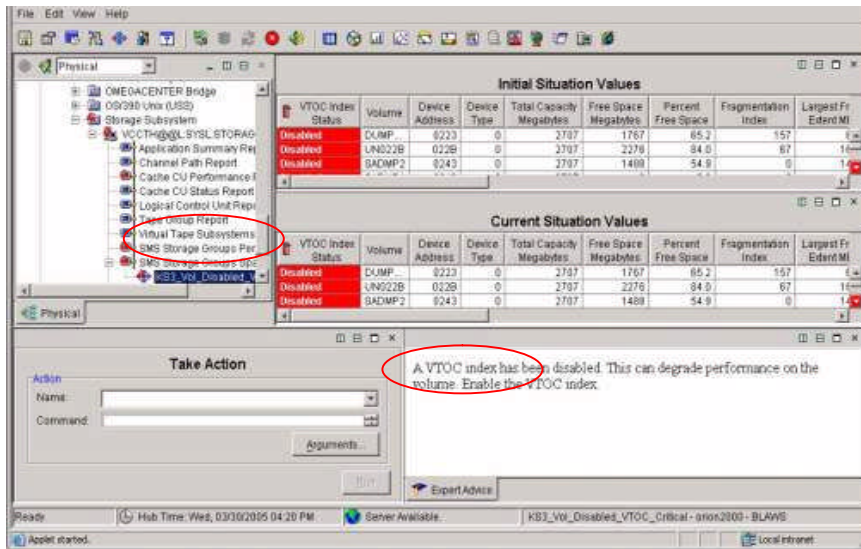


# Focus Visibility and Control on key areas – Maximize efficiency

Manage by exception – monitor key applications and limit visible information to what is needed

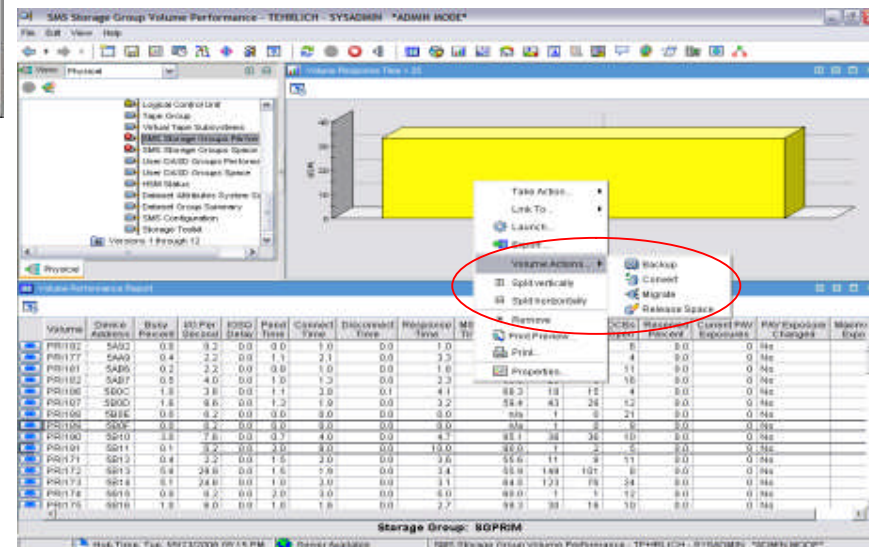
When situations “fire” quickly see both what initially caused the alert, and the current status of the situation.

Pre-programmed actions can respond automatically to situations – or enable subject matter expert to choose appropriate action.



**“Reduce time in manual tasks, e.g. reading reports, physically monitoring environment”**

Issue commands for HSM, DSS, IDCAMs, ICKDSF, RMM and JCL - Generate automated or manual batch job responses directly from your monitoring activity



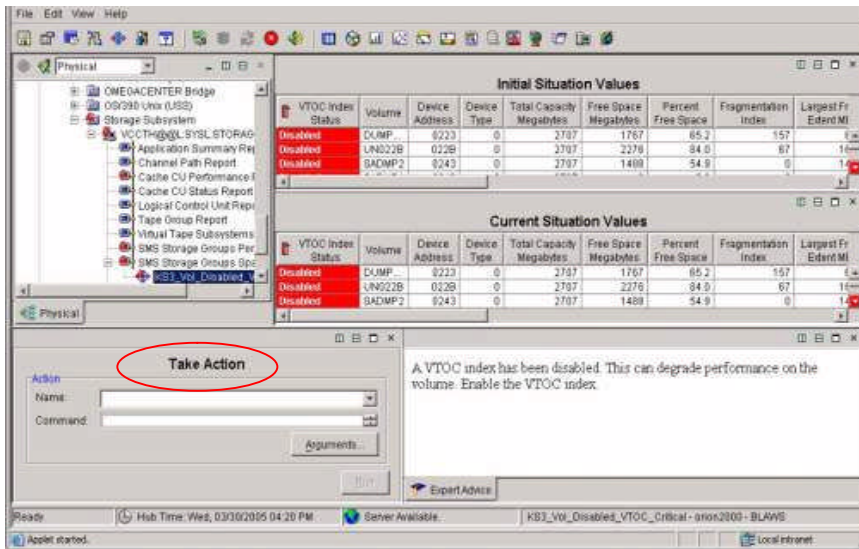


# Foster teamwork and efficiency – Break down silos

Quickly identify the problem, exploit Expert Advice, and Take Action to reduce meantime-to-resolution and knowledge transfer

Separate teams using common tools and processes can collaborate easily, breaking down the silos

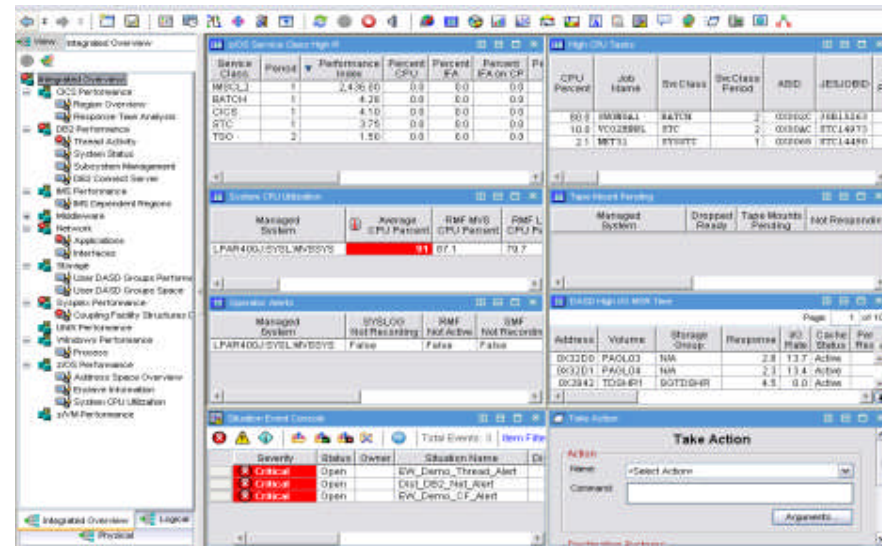
Intelligent tooling and knowledge capture reduces off-hours reliance on experienced “gurus”.



Storage is a common entity with any z/OS workload, affecting CICS, DB2, IMS, middleware, networking and z/OS operating system

Integration at this level:

- Increases ability to identify and address problems
- Fosters greater communication
- Prevents issues from impacting service levels
- Reduces down time and business impact

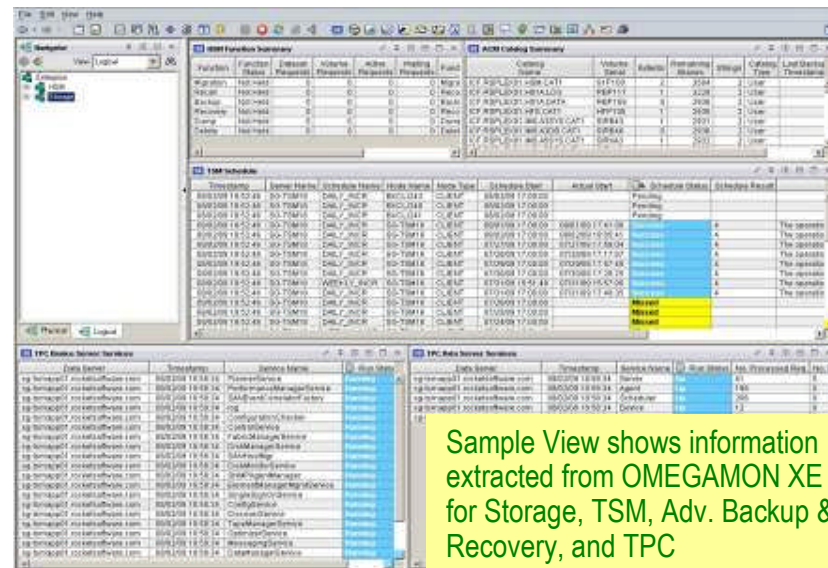


# Enterprise wide Storage – z/OS and Distributed storage for End-To-End management

Create views of storage information spanning System z, Distributed and Cloud with integration across the enterprise

Increasingly, storage administrators are being tasked with managing enterprise storage

- Examples:
  - Monitor cross platform backups
  - Monitor storage configuration
  - Monitor performance
  - Identify bottlenecks
  - Monitor Storage space availability

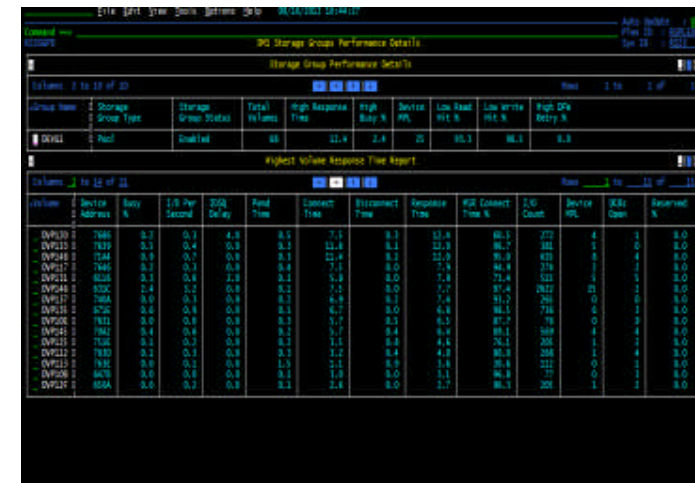
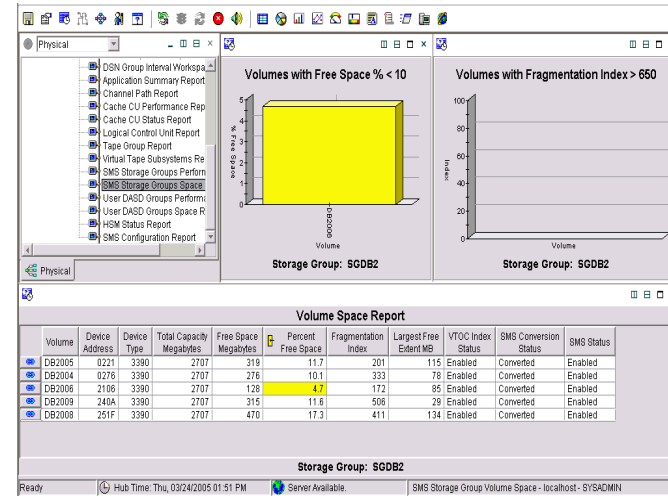


## New Offering: “IBM Tivoli Advanced Storage Management Suite for z/OS”

- A new **consolidated offering** containing 4 Tivoli z/OS Storage Management products:
  - Advanced Reporting and Management for DFSMSHsm
  - Advanced Audit for DFSMSHsm
  - Advanced Catalog Management
  - Advanced Allocation Management
- **Addresses reducing costs and maximizing administration and personnel efficiency:**
  - HSM administration, reporting and management capability
  - ICF Catalog management and integrity
  - z/OS Storage allocation and availability
- **Benefits:**
  - Maximize efficiency of HSM environment
  - Lower CPU operating cost of HSM
  - Increase availability of DASD storage, Catalogs, and HSM
  - Maximize catalog integrity and availability
  - Increase daily productivity of storage administrators
  - Links to “OMEGAMON XE for Storage on z/OS” for general storage management
  - Single vendor solution meeting all your needs for z/OS Storage Management
  - Easier to order / pricing benefit
  - Expand and integrate at the enterprise and business levels with other IBM Tivoli solutions
  - Unmatched management for HSM, Catalog, and Allocation disciplines

# OMEGAMON XE for Storage on z/OS V5.1 - Overview

- Mainframe storage monitor, real-time and historical
- Powerful alerting and “Take Action” capability
- Daily Storage management capability
- Wide range of mainframe storage info:
  - Space and Performance management
  - Tape / VTS
  - Channels (FICON), Control Units, CACHE
  - DFSMSHsm support
  - DFSMSHsm / DFSMSdss / ICKDSF / IDCAMS online toolkit
  - Batch JCL creation from toolkit – any JCL
  - Ability to see all logical volumes on a physical disk
  - Powerful applications and data views
  - Integration capabilities from TEP interface
  - DFSMSrmm reporting and toolkit functions



**Cornerstone of every z/OS Storage management Tool box!**

## Key Enhancements to OMEGAMON V5.1

**OMEGAMON v5.1 enhancements that provide more cost savings, efficiency and collaboration**

- Self Describing Agent & Parmgen technology
- Dynamic dataset attribute groups
- Dynamic DASD user groups
- Additional historical reporting enabled for TDW
- DFSMSHsm common recall queue support
- Define application groups via menu
- Execute storage toolkit requests from situation
- Support for Hitachi Data Systems storage facilities
- Initial support for STK (Oracle) tape devices
- New e3270 User Interface





# Redesigned and simplified e3270 UI in OMEGAMON v5.1

```

    EITe Edit View Tools Options Help 06/16/2012 13:59:08
    Command ==>
    KS3SGSD
    SMS Storage Group Space details
    Auto Update : off
    Plex ID : RSPLEX01
    Sys ID : RS23
  
```

**Storage Groups Space Details**

Group Name.....	SGD9X2	Storage Group Status.....	Enabled
Storage Group Type.....	Pool	Non-Enabled Volumes.....	No
Total Volumes.....	1	VTOC Index Status.....	Enabled
Low Volume Free Space %.....	0.0	High Volume Fragmentation Index.....	846
Largest Free Extent MB.....	1	Free Space MB.....	2
Free Space %.....	0.0	Total Space MB.....	2707
Track Managed Low Volume Free Space %.....	0.0	Track Managed High Volume Frag Index.....	846
Track Managed Largest Free Extent MB.....	1	Track Managed Free Space MB.....	2
Track Managed Free Space %.....	0.0	Track Managed Total Space MB.....	2707
Used Space %.....	100.0	Track.....	100.0

**Volume Space Report**

Volume Address	Device Address	Device Type	Total Capacity Megabytes	Free Space Megabytes	% Free Space	Fragmentation Index	Largest Free Extent MB	VTOC Index Status	SMS Conversion Status	SMS Status	+Extend Address
222222	67A0	3390	2707	2	0.0	846	1	Enabled	converted	Enabled	No

**Lowest Volume Free Space**

Volume Address	Device Address	Free Space Megabytes	Device Type	Total Capacity Megabytes	% Free Space	Fragmentation Index	Largest Free Extent MB	VTOC Index Status	SMS Conversion Status	SMS Status
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**Lowest Volume Free Space Percent**

Volume Address	Device Address	% Free Space	Total Capacity Megabytes	Free Space Megabytes	Fragmentation Index	Largest Free Extent MB	VTOC Index Status	Device Type	SMS Conversion Status	SMS Status
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**Highest Volume Fragmentation Index**

Enhanced 3270 user interface for SMEs – Leverage valuable information



- Built-in Problem Solving Scenarios
- Increased availability via faster problem resolution
- Improved Productivity through integration
- Customizable / Flexibility



## Tivoli z/OS Storage: Continuing Drum Beat

### Within the last 18 months:

- Adv Reporting & Mgmt for HSM v2.4 – provide capability to do maintenance while CDS is active allows for greater availability of HSM to applications
- Adv Cat Mgmt v2.4 – utilization of multiple tools provide greater flexibility
- Adv Backup and Recovery v2.3 – Fast Replication reduces general CP cycles by taking advantage of control unit functions
- Adv Allocation Mgmt v3.2 – more flexibility and easier to use
- Adv Audit for HSM v2.4 – unique rebuild of tapes
- OM XE for Storage (Interim Feature) – Toolkit take action from a situation for easier automation by the Storage admin
- Adv Storage Mgmt Suite for z/OS v1.1 – consolidated suite of z/OS Storage management capabilities, price benefit and easier to order.
- Adv Allocation Mgmt (Interim Feature) v3.2 – Increased filtering and easier to use
- OM Storage v5.1.0 – New e3270 UI and increased capabilities

### Moving into 2013 and beyond - Themes:

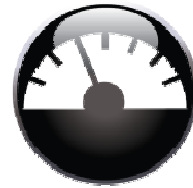
- Customer driven enhancements
- Greater integration
- Exploitation of emerging storage technologies
- Improve Time-To-Value
- Improve Total Cost-of-Ownership
- Improve hardware/software resource utilization
- Improve IT management personnel efficiency



## IBM's Smarter Storage Management Solutions for z/OS Provide:



**VISIBILITY**



**CONTROL**



**AUTOMATION**

**React with  
agility to  
diverse IT  
landscape**

**Execute with  
reduced  
risk & cost**

**Achieve  
desired  
business  
outcomes**

**Enabling Business Leaders to drive business agility through IT**

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