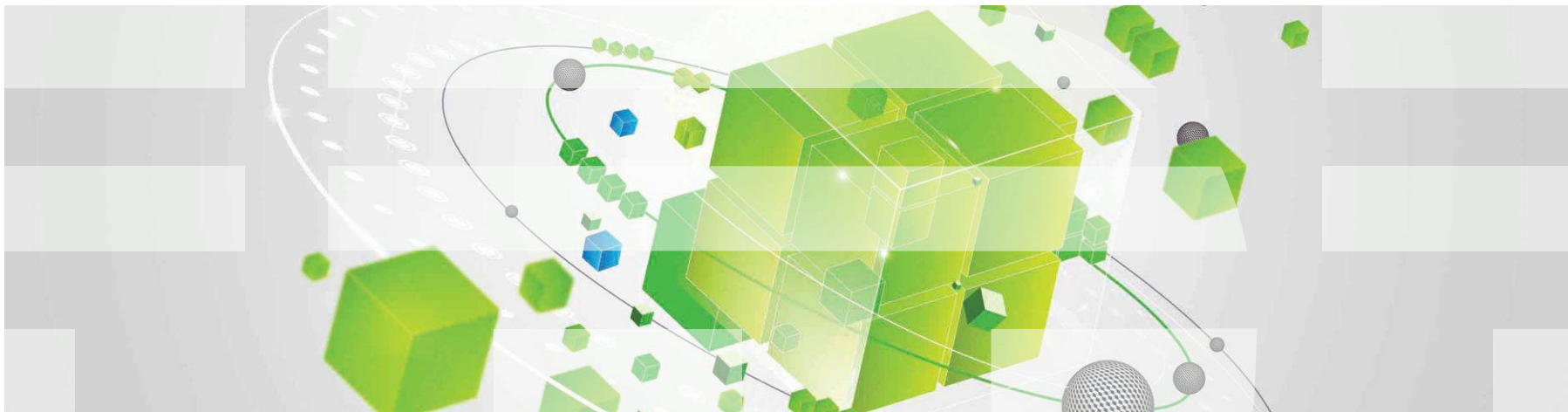IBM

Enhanced System z Storage Management with improved visibility and reporting

Kevin Hosozawa – Tivoli z/OS Storage Product Manager   (khosozaw@us.ibm.com)

IBM Tivoli System z Storage Management Reduce Costs, Increase Productivity & Fosters Collaboration

Key Takeaways

1. Tivoli z/OS Storage portfolio brings together a rich set of z/OS Storage management capabilities together including <u>hardware and software monitoring, HSM management, ICF Catalog management, Data Allocation to prevent costly outages and reduce CPU and storage hardware costs</u>

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 <u>make users more efficient</u>

3. Tivoli Storage portfolio integrates to provide an array of powerful management components that <u>break down organizational silos, share expertise and foster collaboration</u> in solving problems and optimizing the environment .
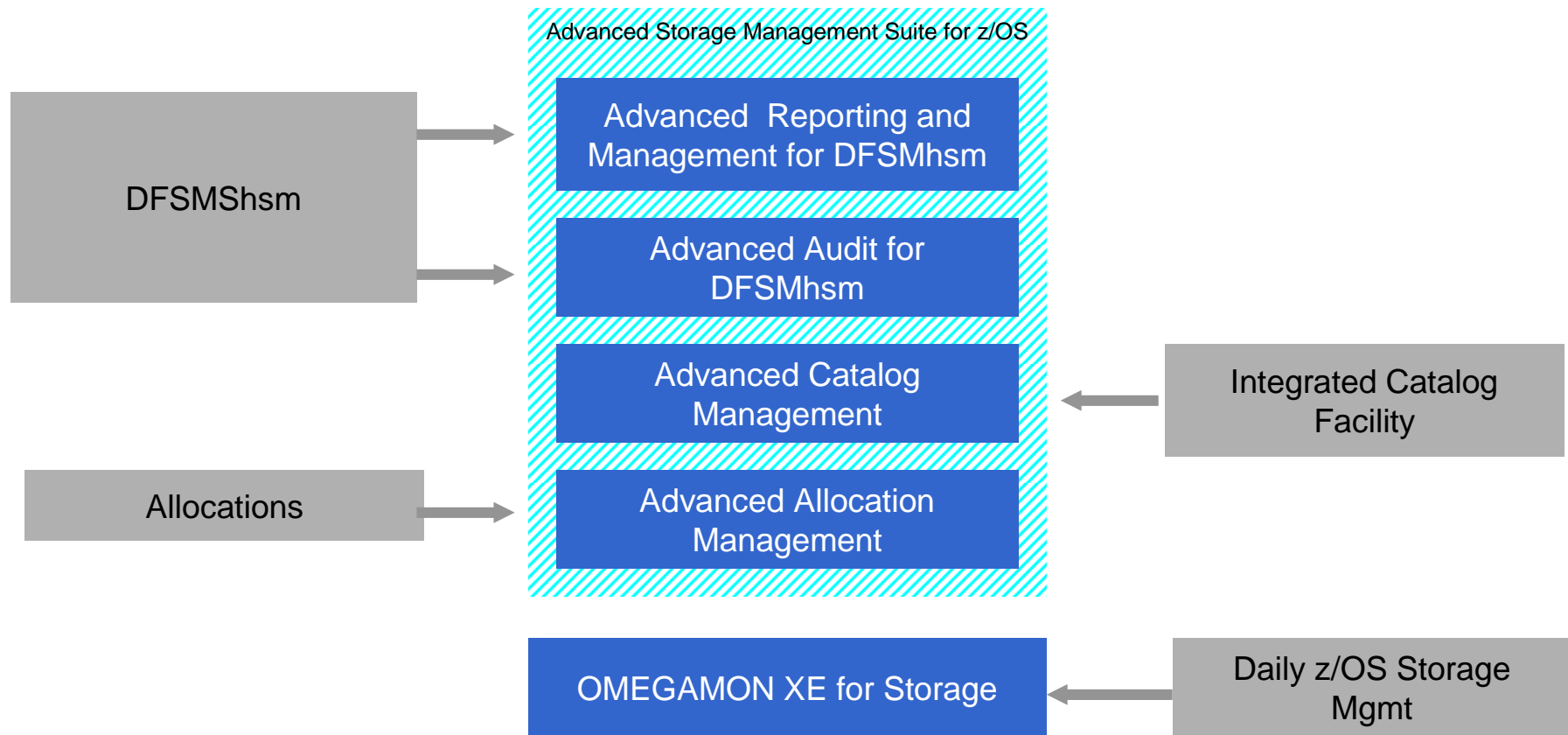
So, what happens when there is a problem at your site?

- Is there an end user complaint?
- Are you notified by operations?
- Shotgun approach to the problem?
- How many folks get involved?
- Is there a War room involved?
- How long does it take?
- What tools are you using?

- What can I do to maximize efficiency and effectiveness?

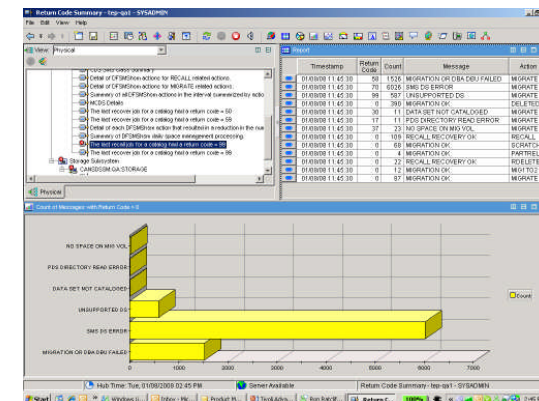***Maybe status quo is no longer good enough?***
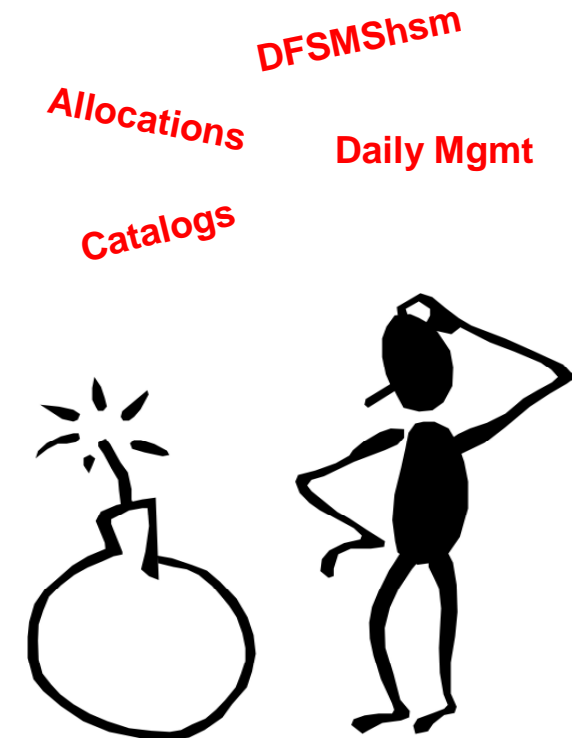
Tivoli's offerings to address core z/OS Storage issues

IBM Tivoli.
z/OS Storage Solution

Advanced Storage Management Suite for z/OS

DFSMShsm → Advanced Reporting and Management for DFSMhsm

Advanced Audit for DFSMhsm

Advanced Catalog Management ← Integrated Catalog Facility

Allocations → Advanced Allocation Management

OMEGAMON XE for Storage ← Daily z/OS Storage Mgmt

"IBM Tivoli Advanced Reporting and Management for DFSMShsm" Maintain a healthy, efficient environment. it delivers:

- Daily reporting, filtering, masking, and analysis tools

- Capability to reorganize CDSs while they are open

- What-if capability, see the effects of changes

- Trending charts of critical DFSMShsm data movement

- Provides cost for DFSMShsm activity

- Helps improve productivity with speed and flexibility

- Helps ensure that data integrity of DFSMShsm

Migration/Backup/Recall Failure Summary

- Migration Failed for Unknown DSORG
- Failed Backup
- Failed Magration Due to Other Errors
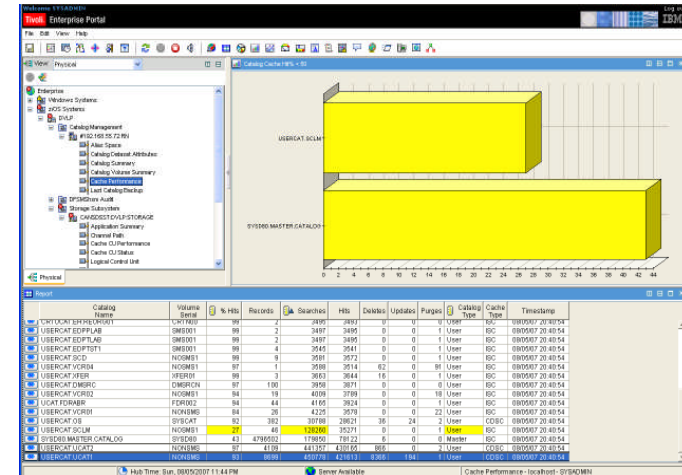- Migrations w/ Critical Errors
- Failed Recall

IBM
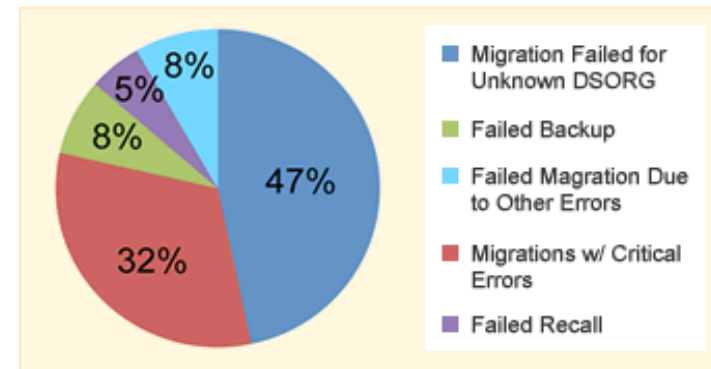
IBM Tivoli Advanced Audit for DFSMShsm

- Audits, repairs, and ensures integrity of the DFSMShsm - including tape rebuilds.

- Automates data collection and <u>corrective actions</u>

- Proactive notification and alerts to critical problems

- Finds and can correct 100% of DFSMShsm errors

- Operates many times faster than native DFSMShsm commands

- Ease-of-Use and performance permits regular audits

- Maintaining DFSMShsm environment reduces CPU cost

- Prove integrity of DFSMShsm environment

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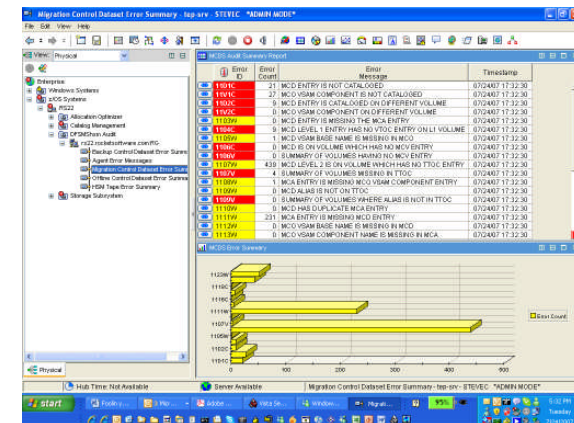
Advanced Catalog Management for z/OS

- Provides powerful, safe, reliable, and easy ICF catalog and VSAM backup and _fast_ forward recovery

- Protects a catalog's complex structural integrity, alerts for potential errors, and reduces recovery time

- Reduces application down-time by permitting catalog maintenance (reorganize, repair) while open

- Merge-while-open capability is key for Customers who are undergoing merger activity or datacenter consolidation,

- Allows "what-if" simulation to preview effects of actions

- Seamless integration capabilities with other Tivoli z/OS Storage Management products
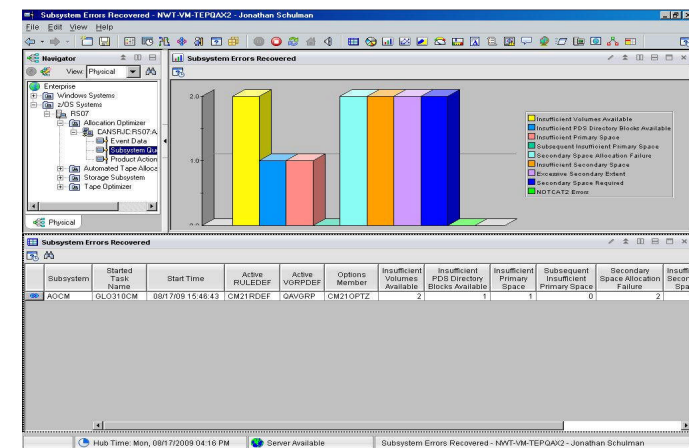
Advanced Allocation Management for z/OS

- Greater control with SMS and non-SMS

- Enables users to avoid and recover from X37 type abends and NOTCAT2

- Provides ability to simulate changes before implementing

- Handles all DASD data sets

- Maximizes use of the current volume before attempting to allocate additional volumes

- Limits fragmentation of a data set on a single volume and across multiple volumes

- Dynamically increases the directory space within a partitioned data set when a directory full condition occurs

- Features comprehensive event recording and reporting options

- How much does allocation problems cost you?

Prevent X37 type of abends and NOTCAT2s

….Identify repeat offenders to correct underlying allocation issues

Advanced storage mgmt, audit, and reporting with:
Tivoli Advanced Storage Management Suite for z/OS

Consolidated offering of four key IBM Tivoli z/OS storage management, audit, and reporting products

- Allocation Management
- Monitor and maintain z/OS storage management with strong, flexible policy-based allocation controls
- Reporting and Management for DFSMShsm
- Optimize DFSMShsm to prevent and recover from costly space-related abends
- Catalog Management for z/OS
- Reorganize, repair, split, and merge catalogs while they are open
- Audit for DFSMShsm
- Audit and automatically correct errors to reduce outages
- Combining this offering with OMEGAMON XE for Storage on z/OS will provide a powerful efficient overall z/OS Storage management capability

OMEGAMON XE for Storage on z/OS

- Real-time and historical mainframe STORAGE monitoring

- Powerful alerting and "Take Action" capability

- Daily Storage management capability and functions

- New e3270ui user interface

- A wide breadth of mainframe storage information:

  - **Space and Performance management (storage groups all the way down to data set groups, define your own for reporting)**

  - **Tape / VTS / DFSMSrmm**

  - **Channels (FICON), Control Units, CACHE**

  - **DFSMShsm (View and administer your active HSM queues, control Datasets, etc.)**

  - **DFSMShsm / DFSMSdss / ICKDSF / IDCAMS online toolkit**

  - **Batch JCL creation from toolkit – any JCL**

  - **SMS constructs**

  - **DASD & Tape drive physical device support**

  - **Ability to see all logical volumes on a physical disk**

  - **Powerful applications view**

  - **Powerful dataset view and action capability**

  - **Integration capabilities from TEP interface to**
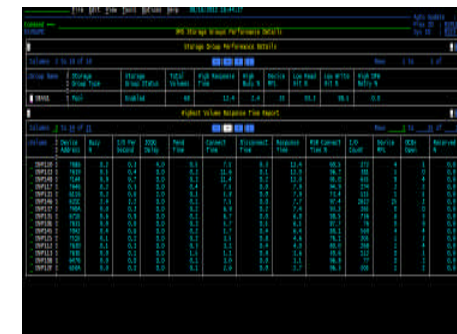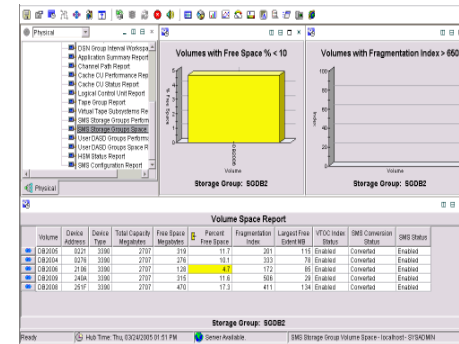
Cornerstone for every zStorage management Tool box!

Focus Visibility and Control to key areas – Maximize efficiency

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

When situations "fire" quickly see what caused the alert, and compare current status of the situation to the initial condition that caused this alert

Pre-programmed actions can respond automatically to situations – or - Take Action by issuing commands

"Reduce time in manual tasks, e.g. reading reports, physically monitoring environment"

From monitoring you can issue commands for HSM, DSS, IDCAMs, ICKDSF, RMM and JCL, use the Tools to generate automated or manual batch job responses directly from your monitoring activity

Fostering teamwork and efficiency – Break down the silos
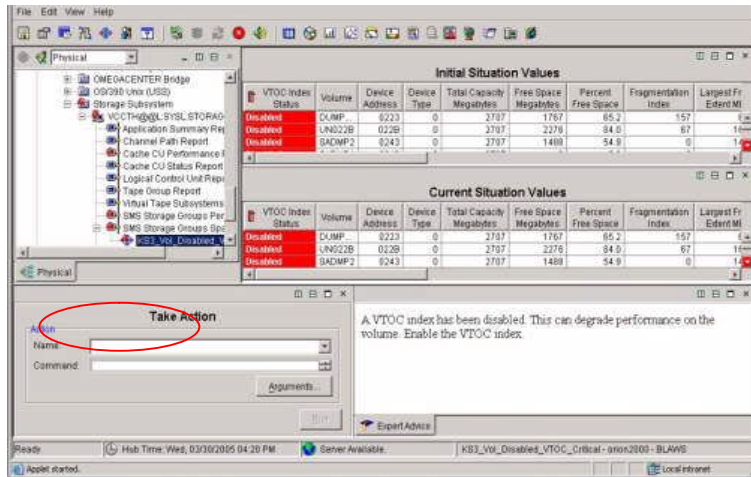
Quickly identify the problem, exploit Expert Advice, and Take action to reduce meantime–to-resolution and knowledge transfer
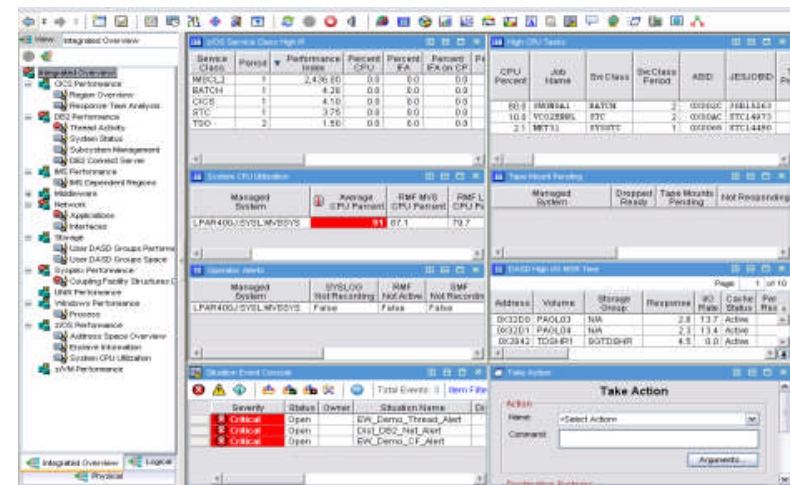
Separate teams using common tools and processes can collaborate easily on problem determination and resolution, breaking down the silos

Intelligent tooling and knowledge capture reduces 24x7 reliance on experienced "gurus".
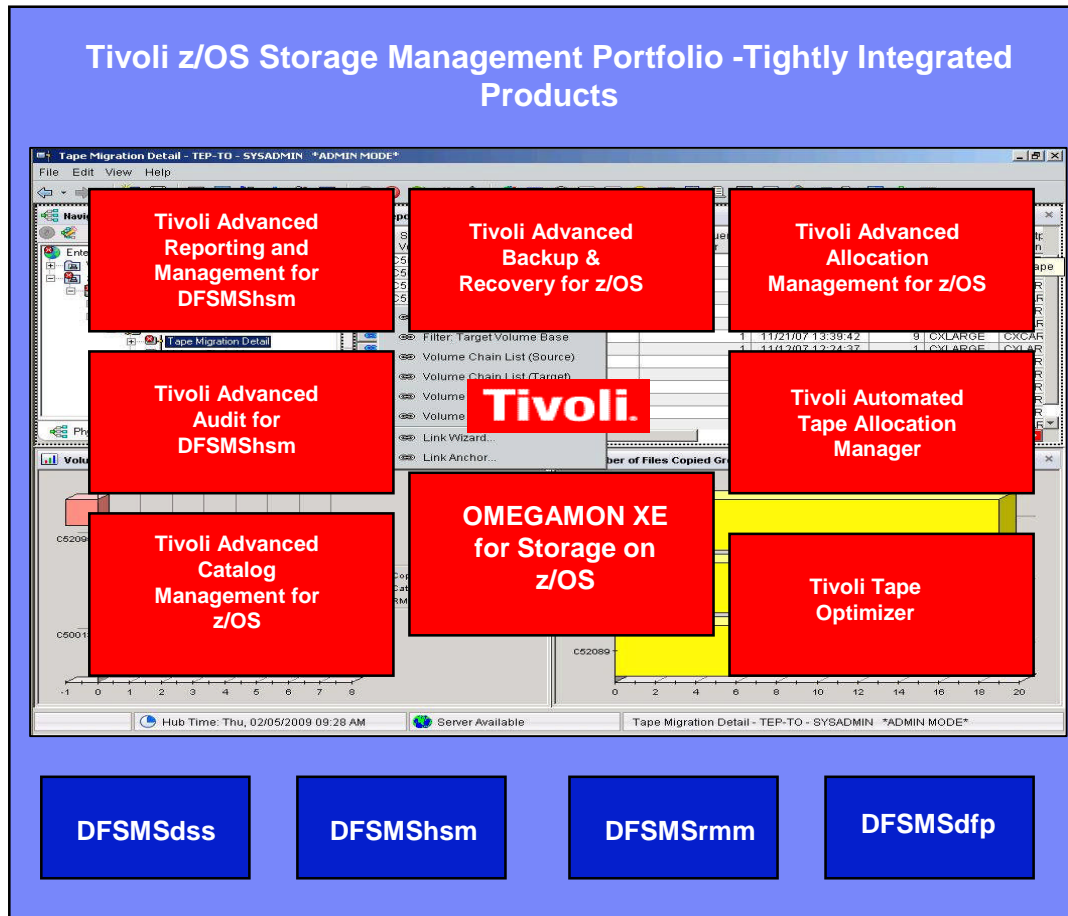
Storage is a common entity with any z/OS workload, regardless spanning CICS, DB2, IMS, middleware, networking and z/OS operating system information

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 from issues

Tivoli z/OS Storage Integration Unmatched Capability

Tivoli z/OS Storage Management Portfolio -Tightly Integrated Products

Tivoli Advanced Reporting and Management for DFSMShsm

Tivoli Advanced Backup & Recovery for z/OS

Tivoli Advanced Allocation Management for z/OS

Tivoli Advanced Audit for DFSMShsm

Tivoli Automated Tape Allocation Manager

OMEGAMON XE for Storage on z/OS

Tivoli Advanced Catalog Management for z/OS

Tivoli Tape Optimizer

DFSMSdss   DFSMShsm   DFSMSrmm   DFSMSdfp

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

Tivoli z/OS Storage Updates: Continuing Drum Beat

<u>Within the last 18 months:</u>

- Advanced Catalog V2.4
  - Expanded tracking of catalogs backed up by different tools

- Advanced Backup & Recovery V2.3:
  - Uses storage controller fast replication, eliminating CPU overhead
    - Make backups instantaneous.
    - Frequent backups and faster recovery
  - Additional backup utilities supported

- Advanced Allocation Mgmt V3.2
  - New ease of use and flexibility enhancements with additional filtering

- Advanced Audit for DFSMShsm V2.4
  - Enhanced reporting of HSM
  - Rebuild HSM managed tape data
  - New HSM auditing reports

- IBM Tivoli Advanced Storage Management Suite for z/OS V1.1
- Advanced Allocation Mgmt V3.2
  - Additional filtering capability
- OM XE for Storage on z/OS v5.1.0
  - New Toolkit / Situation / Action
  - New Hardware support, and historical reporting, introduction of e3270ui
  - Self Describing Agent and Parmgen support
- Advanced Reporting & Mgmt V2.5 (GA- Feb 22, 2013)
  - New HSM critical reporting capability
  - New SRECOVER command
  - Self Describing Agent and Parmgen support
- IBM Tivoli Advanced Storage Management Suite for z/OS V1.1.1 (GA-Feb 22, 2013)

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System z Storage Management Solution Benefits

- Solve Storage management issues maximizing resources and minimize costs:
  - Space, Performance, Administration, DFSMShsm, ICF Catalogs, Off Line Storage, Problem Avoidance, Resources (DASD, Channel, Cache, Tape Drives, etc.)

- Reduce problems
  - Precise alerts tailored to your environment
  - Avoid catastrophic outages
  - Automated actions based on alerts

- Maximize efficiency
  - Dramatically reduce time to audit and correct DFSMShsm errors
  - Efficiently utilize resources (online and offline storage)
  - Perform maintenance without taking key subsystems like DFSMShsm or ICF catalogs offline and impacting application up-time

- Productivity through integration
  - Offerings complement each other and will become more tightly integrated
  - Seamless integration to other TEP enabled IBM products
  - Break down silos between managing groups / organization

Reduce Costs, Increase Productivity & Foster Collaboration

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IBM Tivoli System z Storage Management Reduce Costs, Increase Productivity & Fosters Collaboration

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