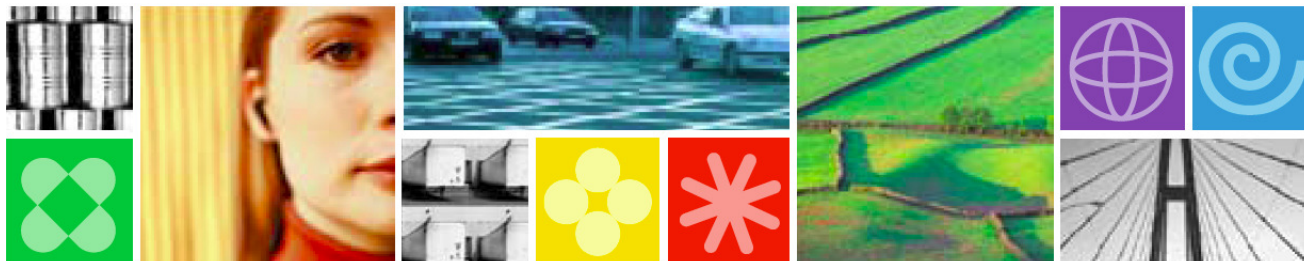




Improve Database ROI with a New Tools Strategy in this uncertain world





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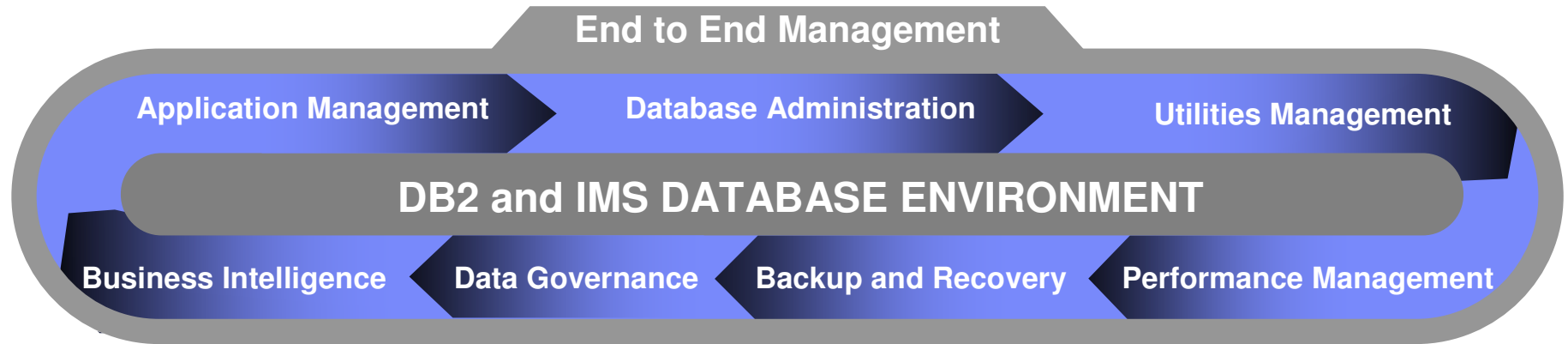
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Managing your business environment



Business Challenges

- Optimizing costs associated with maintaining existing applications
- Quickly responding to new business requirements and opportunities
- Ensuring that business and regulatory needs can be properly met
- Maximizing IT staff productivity to streamline business operations



DB2 for z/OS Tools

Today: Maximize
business value of
System z

Making your life easier ...

- ✓ Provide autonomic features to add capability and simplify operations
- ✓ Avoid tedious tasks and reduce errors
- ✓ Preserve your investment in z/OS applications and databases
- ✓ Free up valuable DBA resources to focus on business differentiators



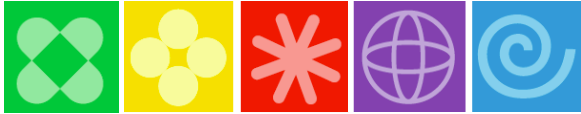
2000: Reduce TCO

2000-2004: Initial portfolio
■ DB2 V8 support

2005-2008: Portfolio
Expansion
■ DB2 9 support

2008-2010: Portfolio
Expansion & ROI Focus
■ DB2 X Support





DB2 for z/OS Tools Portfolio

Application Management

- DB2 Administration Tool
- DB2 Path Checker
- DB2 Bind Manager
- DB2 Query Monitor
- DB2 SQL Performance Analyzer
- DB2 High Performance Unload
- DB2 Table Editor
- Optim Development Studio
- Optim Data Growth
- Optim Query Tuner
- Optim Test Data Management
- InfoSphere Data Architect

Utilities Management

- DB2 Utilities Suite
- DB2 Automation Tool
- DB2 Automation Toolkit SAP Edition
- DB2 Utilities Enhancement Tool
- DB2 High Performance Unload

Database Administration

- DB2 Administration Tool
- DB2 Object Comparison Tool
- DB2 Administration Toolkit SAP Edition

Performance Management

- OMEGAMON XE DB2 Performance Expert
- OMEGAMON XE DB2 Performance Monitor
- DB2 Query Monitor
- DB2 SQL Performance Analyzer
- DB2 Buffer Pool Analyzer
- DB2 Performance Toolkit SAP Edition
- **Optim Query Workload Tuner**
- Optim Development Studio
- **Optim pureQuery Runtime**

Information Integration

- InfoSphere Information Server
- InfoSphere Classic Data Event Publisher
- InfoSphere Classic Federation Server
- InfoSphere Classic Replication Server
- InfoSphere DataStage
- InfoSphere Replication Server
- InfoSphere Change Data Capture

Backup and Recovery

- **DB2 Recovery Expert**
- DB2 Log Analysis Tool
- **DB2 Cloning Tool**
- DB2 Change Accumulation Tool
- DB2 Object Restore Tool
- Application Recovery Tool for IMS and DB2 Databases

Data Governance

- **DB2 Audit Management Expert**
- **Guardium**
- **Optim Data Growth**
- **Optim Data Privacy**
- **Optim Test Data Management**
- **Data Encryption for DB2 and IMS**

Business Intelligence

- Cognos for Linux on System z
- DataQuant
- QMF



In the Spotlight Today

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- **Next Steps**





Top data protection challenges

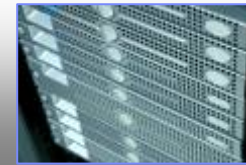
Where is my sensitive data located
& who is using it?



How can I enforce access & change control policies for critical databases?



How do I check for vulnerabilities
& lock-down database configurations?



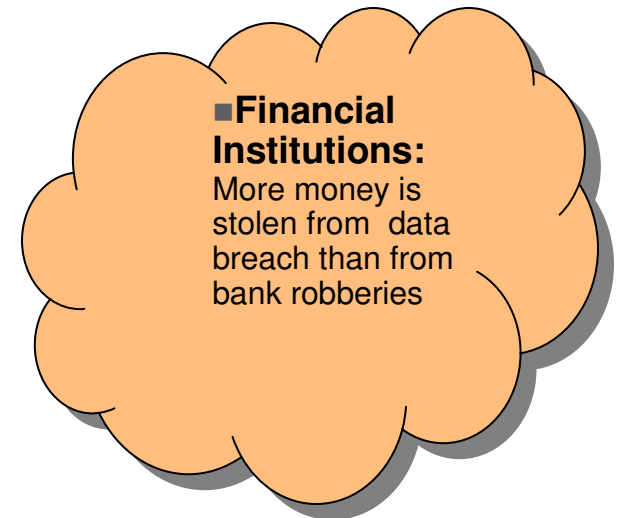
How do I monitor and enforce compliance in real-time?





Why Focus on Enterprise Data Governance?

- U.S Justice department indicted 8 Russian and Eastern European computer hackers for breaking into ATM's across 100's of cities and stealing \$9M in hours
- Hackers cracked into a computer at the US payment processing division of a world bank
 - Data on **1.5M cardholders** was compromised
 - **1.1M social security** numbers may have been compromised
- The hackers targeted payroll debit cards that companies issue to employees
 - Broke into system and reverse engineered encrypted data to get PIN #'s
 - Boosted the maximum amounts that could be withdrawn
 - Network of "cashers" (i.e., they keep half of proceeds) received information and began withdrawing money over a 12 hour period across cities from Atlanta to Hong Kong

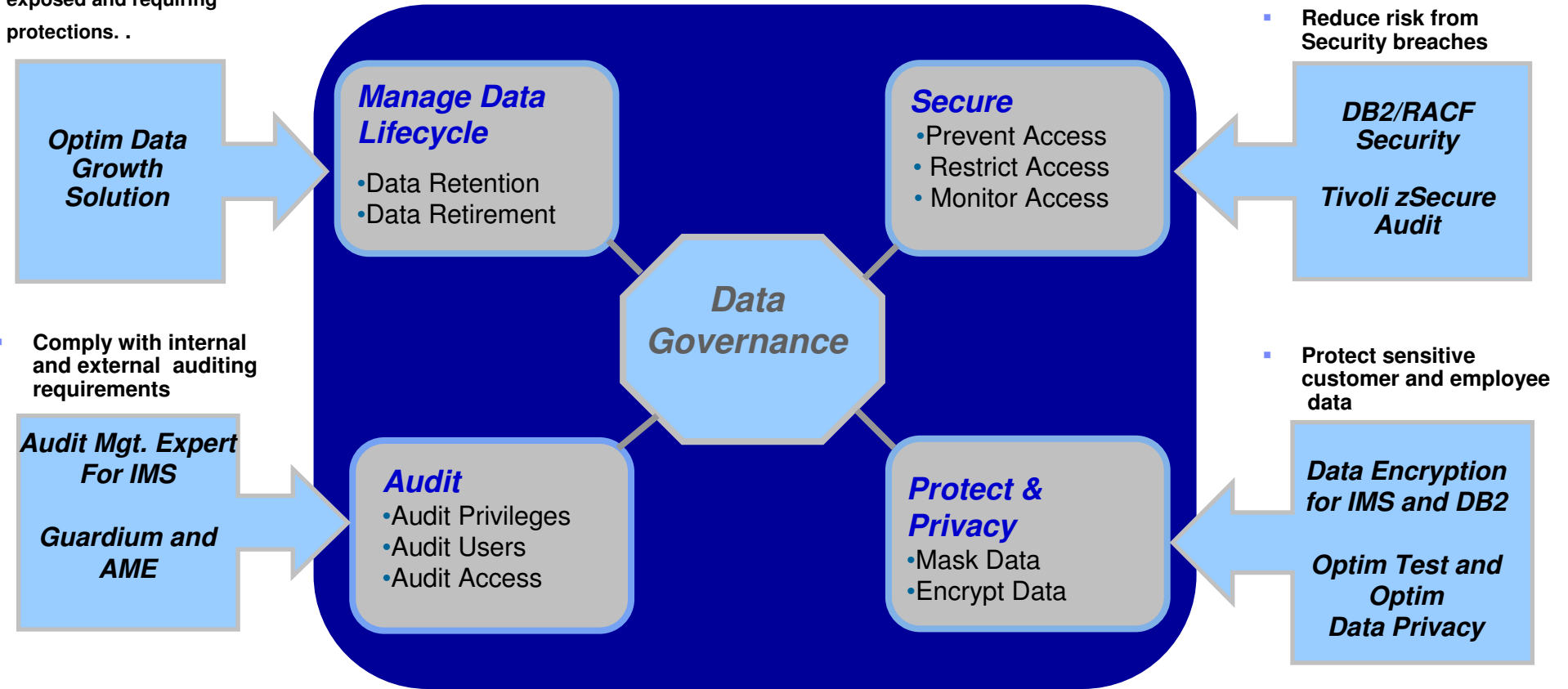


"Hackers Indicted in Widespread ATM Heist"
WSJ November 11, 2009



Enterprise Data Governance for System z

Archive inactive data and reduce amount of data exposed and requiring protections. .



IBM is the only solution provider with an end to end comprehensive solution



Advantages of Guardium for the DB2 on z/OS environment (Note: some of these capabilities are currently not available on the z/OS platform)

- **Centralized management** of policies, report definitions, compliance workflow processes, and server settings
- **Role-based administration:** Restricts access to specific appliances, modules, policies, and audit data based on organizational roles
- **Lightweight Directory Access Protocol (LDAP) integration:** Supports auto population and maintenance of groups based on existing enterprise-wide directory services
- **Automatically detect Database sources** across the network to retrieve a list of table names and columns containing highly restricted data. The Guardium architecture allows DBAs to identify and analyze previously unknown activity on the databases, such as application errors, database time-outs, and legacy scripts causing login failures
- **Closed-loop change control** by integrating the Guardium platform with change-management systems (such as Remedy). This integration enables the review of reports and alerts comparing all observed database changes from the Guardium system with approved change requests from the change management system.
- **Vulnerability Assessment module**, which provides security vulnerability and configuration assessment reporting for databases, these reports are generated within the context of specific regulatory requirements such as SOX, HiPPA, PCI-DSS, etc
- **Specialized Guardium modules for monitoring** end users that interact with the database



Audit

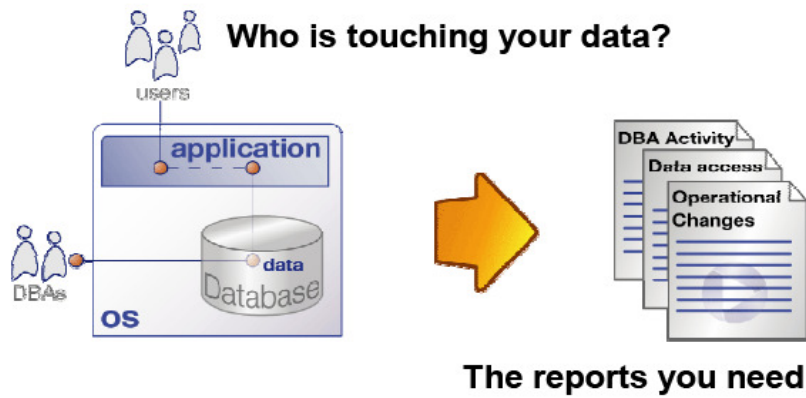
DB2 Audit Management Expert

What it offers

- Collects and correlates data access information from a variety of resources, such as DB2 stmt capture, DB2 logs and SMF, into a central audit repository

Benefits

- Assists in meeting data compliance required by government and industry regulations
- Auditor-friendly graphical driven report generator without the need for IT staff involvement
- Time saving comprehensive reporting facilities with multiple options to report on repository data





Secure

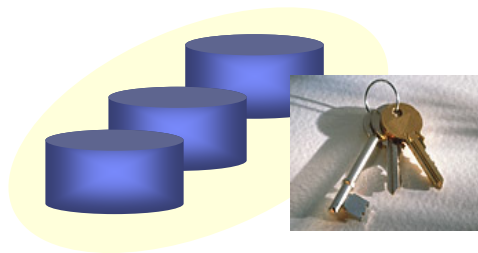
Data Encryption for IMS and DB2 Databases

What it offers

- Single tool for IMS and DB2, encrypts offline database backups without sacrificing performance
- Segment and table level encryption exploiting zSeries crypto hardware features

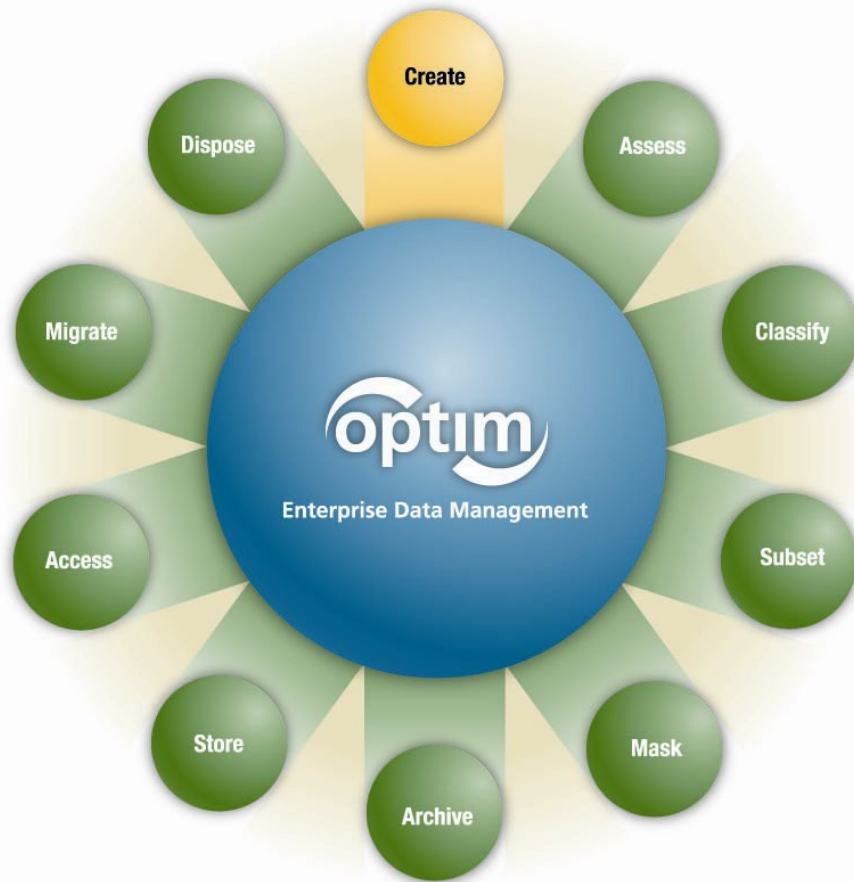
Benefits

- Helps maintain compliance with government and industry data privacy acts (like PCI)
- Protects data from exposure in the event of a data breach
- Minimizes the security risk of data backups and replicated data being exposed if lost or stolen





IBM Optim™ Solutions



- **Optim Data Growth Solution (Archiving)**

- Improve performance
- Control data growth, save storage
- Support retention compliance
- Enable application retirement
- Streamline upgrades

- **Optim Test Data Management Solution**

- Create targeted, right sized test environments
- Improve application quality
- Speed iterative testing processes

- **Optim Data Privacy Solution**

- Mask confidential data
- Comply with privacy policies



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The Costs of Backup and Recovery

- Safeguarding DB2 applications and data is critical!
- Many backup strategies incur a significant ongoing cost to guarantee a certain level of recoverability
- Actual recovery is rare
- So we are dedicating a lot of CPU, I/O, DASD, tape, and personnel resources to regular backup activities that create recovery resources that are seldom used
- Consider a new model:
 - DB2 Recovery Expert significantly reduces the CPU, I/O, and management costs associated with creating recovery assets, yet you retain the same level of recoverability you have today
 - Recovery time can be improved, while reducing the ongoing backup cost



An Expensive Insurance Policy

Backing up with image copies (aka. Traditional backups)

- Reliable--but time consuming
- Either tables/DBs are read-only or the backup is fuzzy
- Infrequent backups make for lengthy restores
- CPU cost can be an issue
- Thousands of files must be managed



DB2 Recovery Expert for z/OS



- Automated backup processing
- HW backups result in less overhead (CPU, I/O, elapsed time) compared to traditional Image Copies
- Less data unavailability during backup
- GUI interface to make users more productive
- Less people time involved in any recovery situation with expert capabilities
 - Usually a stressful situation
- Expert functions to recommend best recovery plan
 - Less error prone recovery plan creation
 - Less skilled people can be productive faster
 - Reduce errors through validation of recovery



DB2 Recovery Expert – Returning \$\$\$ On Your Investment



- **A small DB2 customer - Example**

- Compared CPU, I/O, and storage cost calculations based on their old model, versus using the DB2 Recovery Expert for backup and recovery

The following is the annualized savings:

- DB2 size = Approximately 0.5 TB

By performing daily image copy backup and volume based on fast replication:

- Total CPU and I/O cost savings = \$1,416,915
- Storage cost savings = \$192,355
- **Total generated CPU, I/O and storage savings= \$1,609,270**

- **The result was very significant savings for a rather small DB2 system**

- Larger DB2 systems could expect to see even more savings...



Reasons to Clone Data

Why Clone?

- Testing
 - DB2 version upgrades
 - Test new functions and features of packaged apps (like SAP)
 - Test new DW solutions
- Performance
 - Move users to cloned system
- Availability
 - Create read only copies of DB2
- Warehousing
 - Quickly clone data to populate
- Replication
 - Load initial replicate

Cloning Challenges

- Extended downtime is the norm, as most data is shut down during cloning
- The requirement for a separate image
- How to clone different types of data?
 - DB2 – PeopleSoft, SAP
 - CICS, IMS
 - Non-database
- How to simplify cloning when using multiple replication products
- How to quickly access replicas

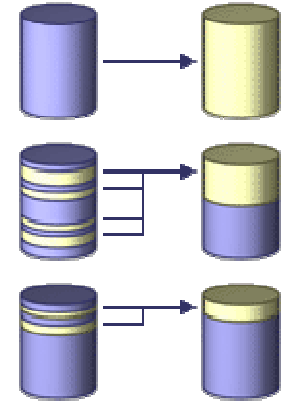
The Bottom Line:

▶ Cloning costs you excessive amounts of people time and system resources



DB2 Cloning Tool for z/OS

- Clones a DB2 subsystem AND clones at an object (data set level)
 - Renames and catalogs the data sets, fixes the volume internals, and optionally updates all DB2 internal control information
 - No requirement for a clone in a separate LPAR
 - Supports DB2, PeopleSoft, and SAP
- Is extremely fast and cheap!
 - Disk-vendor independent
 - Uses any snap, mirror or PIT copy, only volumes are eligible for cloning
 - Reduces production online downtime when cloning – takes just minutes
 - Dramatically reduces costs of traditional methods
 - Uses less personnel time
 - DB2 no longer needs to be shut down or conditioned the long traditional way
 - Provides virtually 24x7 access to the data





A Success Story - DB2 Cloning Tool



A large Insurance Company gains usable DB2 clones instantly, significantly reducing errors and costs

- Needed to provide multiple DB2 environments to different departments for testing
- Previously, DB2 administrators had performed this task manually, with a lot of effort, resulting in errors and problems
- IBM DB2 Cloning Tool for z/OS helped the company develop an effective testing environment for new applications, while reducing the errors and problems which were occurring when the DB2 cloning was done manually
- The company now has the software it needs to easily and quickly perform the complete DB2 subsystem cloning without interfering with its production environment
- IBM DB2 Cloning Tool for z/OS automates the cloning process to provide usable DB2 clones within minutes, improving business performance and reducing total cost



In the Spotlight Today

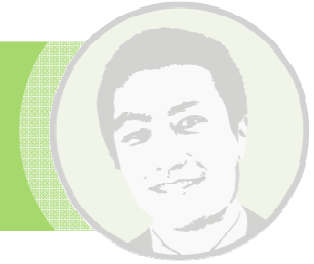
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IBM Optim Query Tuner Offerings

Optimize performance and reduce costs



■ **Optimize performance**

- Improve customer satisfaction
- Improve organizational productivity
- Satisfy service level objectives
- Fit workloads into maintenance windows

■ **Reduce costs**

- Increase overall system capacity
- Reduce chargebacks
- Simplify analysis for DBAs, developers, designers, and others
- Improve statistics collection efficiency
- Reduce time to respond



Single Query and Workload Offerings

Development Environment



Optim Query Tuner

Tune SQL pre-production while costs and impact are low

Production Environment



Optim Query Workload Tuner

Optimize workload for peak performance



Workload Tuning vs. Query Tuning

- **Optimization decisions are based on tradeoffs**
 - Statistics – CPU costs vs. query savings
 - Indexing – query speed vs resource and transaction
- **Workload tuning speeds up analysis**
 - Analyzes multiple queries at once
- **Workload tuning consolidates and optimizes recommendation for overall workload**
 - Statistics recommendations
 - Index recommendations

**Speed up analysis, optimize design,
and balance resource usage**



Query Tuner Architecture

Optim Query Workload Tuner Client

Query Tools

- Formatting
- Annotating
- Access plan graph
- Visual plan hints
- Reporting
- Environment capture

Query Advice

- Statistics
- Query
- Index
- Access Path

Workload Advice

- Statistics
- Index
- Workload control center

Restricted use DB2 Connect

Windows XP or Vista



Catalog tables
QT tables
Profile tables

DB2 stored procedures
for use with Optim
Query Workload Tuner
products

DB2 for z/OS, V8 or later
with DDF enabled

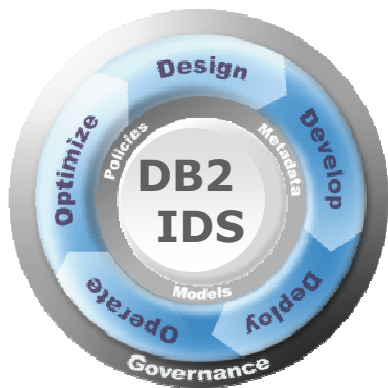


pureQuery



A high-performance, data access platform to simplify developing, managing, securing, and optimizing data access for new and existing applications

pureQuery Components:



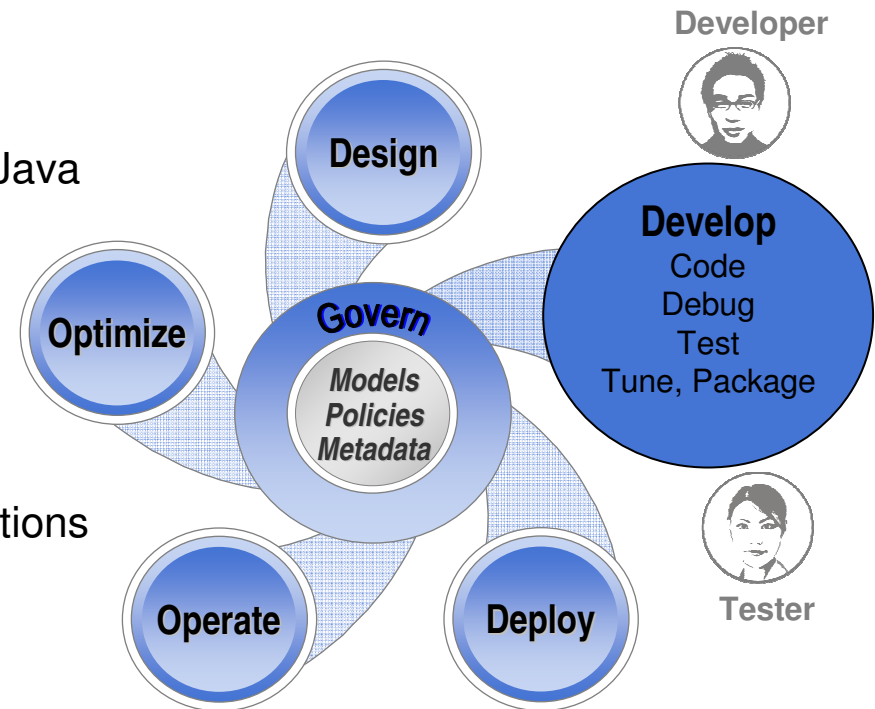
- Optim Development Studio
 - Integrated development environment with Java and SQL support
 - Improve problem isolation and impact analysis
- Simple and intuitive API
 - Facilitates JDBC best practices
 - Enables heterogeneous batching
 - Enables SQL access to databases or in-memory Java objects
- pureQuery Runtime
 - Flexible static SQL deployment for DB2
- Supports
 - DB2, Oracle (New 2.2) New and Existing Java Programs
 - .Net (2.1) Existing Programs





IBM Optim pureQuery Benefits

- Reduce costs
 - Increase system throughput
 - Move workload to zIIP and zAAP
 - Improve developer productivity
- Improve quality of service for new and existing Java applications
 - Improve performance
 - Lock in access plans
 - Speed up problem resolution
 - Exploit workload management features
- Reduce development time for new Java applications
 - Bridge Java and data
 - Balance productivity and control
 - Enhance developer and DBA collaboration
- Enhance security
 - Limit user access
 - Minimize SQL injection risk
 - Improve audit readiness





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Next Steps

- **Workshops:**
 - Data Governance
 - DB2 Performance
 - DB2 Recovery
 - Contact your zIM or z Software sales specialist
 - No cost except for your time
- **In depth discussion of IBM solution for DB2 on zOS**
 - Contact your zIM or z Software sales specialist



THANK
YOU