

WW IMz Technical Sales Enablement

DB2 10 for z/OS: Putting the Best Tools to Work for V-to-V Migrations



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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
- Data Studio
- Optim Development Studio
- Optim Data Growth
- Optim Query Tuner
- Optim Test Data Management
- InfoSphere Data Architect

Utilities Management

- DB2 Utilities Suite
- DB2 Sort
- 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
- DB2 Storage Management Utility

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
- DB2 Archive Log Accelerator
- Application Recovery Tool for IMS and DB2 Databases

Data Governance

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

Business Intelligence

- Cognos for Linux on System z
- DataQuant
- QMF

DB2 Migration Best Practices

- 1. Establish a project team and project plan**
 - Review the Installation Guide checklists
 - **Identify DB2 Tools and ISV DB2 10 support requirements**
 - **Upgrade tools to required levels before starting DB2 10 migration**
- 2. Develop conversion and coexistence goals**
 - How did your V8 / V9 test plans work?
 - Reuse and improve upon your experiences
- 3. Establish performance baselines**
 - **Identify Key Performance Indicators (KPI) with OMEGAMON for DB2**
 - **Proactive tuning with Optim Query Workload Tuner (OQWT)**
- 4. Create Pre-production test environment**
 - **Use DB2 Cloning Tool to iteratively refresh production data**
 - **Monitor KPIs to identify performance problems**
- 5. REBIND while in CMx**
 - **Path Checker identifies access path changes**
 - Use Plan Management (Package / Bind Stability)
 - **Invoke OQWT to resolve access path regressions**
- 6. Proactive tuning with OQWT**



Roadmap to Exploit DB2 10 for z/OS

Accelerate your ability to leverage compelling DB2 10 features

Administer DB2 Performance Savings

Optimize Dynamic Infrastructure Performance

Drive DB2 Efficiency and Productivity

Recover DB2 Advanced Technology

Safeguard DB2 Data

Visualize DB2 Data

Accelerate Time to Value



Visualize DB2 10 Data with QMF 10 Enterprise Edition

Enhanced to meet the challenges of today's Business Analytics requirements

• **Business Analytics with QMF for Workstation & QMF for WebSphere**

- 150 additional analytic functions (new)
- Executive dashboards & graphical reports (new)
- Enhanced metadata layer (new)
- Entity Relationship Diagrams (ERDs) make query creation simple (new)
- Easy mapping of data across the enterprise with new data source environments
- JDBC support access to any database (new)
- OLAP (MDX) support (new)
- Embed QMF content into 3rd party or in-house developed BI solutions (new)

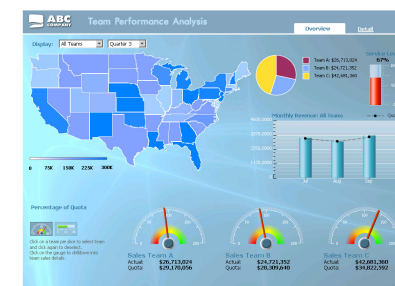
.. then

ID	NAME	SEPT	JOB	YEARS	SALARY	COMP
100	SMITH	11	REP	7	1400.00	..
101	JONES	11	REP	11	1500.00	..
102	BLAKE	11	REP	11	1600.00	..
103	CLARK	15	REP	11	1800.00	..
104	ADAMS	15	REP	11	1900.00	..
105	MARTIN	15	REP	11	2000.00	..
106	WATSON	15	REP	11	2100.00	..
107	SCOTT	15	REP	11	2200.00	..
108	JAMES	15	REP	11	2300.00	..
109	TURNER	15	REP	11	2400.00	..
110	WARD	15	REP	11	2500.00	..
111	PROUD	15	REP	11	2600.00	..
112	DESSA	15	REP	11	2700.00	..
113	SMITH	15	REP	11	2800.00	..
114	JONES	15	REP	11	2900.00	..
115	BLAKE	15	REP	11	3000.00	..
116	CLARK	15	REP	11	3100.00	..
117	ADAMS	15	REP	11	3200.00	..
118	MARTIN	15	REP	11	3300.00	..
119	WATSON	15	REP	11	3400.00	..
120	SCOTT	15	REP	11	3500.00	..
121	JAMES	15	REP	11	3600.00	..
122	TURNER	15	REP	11	3700.00	..
123	WARD	15	REP	11	3800.00	..
124	PROUD	15	REP	11	3900.00	..
125	DESSA	15	REP	11	4000.00	..
126	SMITH	15	REP	11	4100.00	..
127	JONES	15	REP	11	4200.00	..
128	BLAKE	15	REP	11	4300.00	..
129	CLARK	15	REP	11	4400.00	..
130	ADAMS	15	REP	11	4500.00	..
131	MARTIN	15	REP	11	4600.00	..
132	WATSON	15	REP	11	4700.00	..
133	SCOTT	15	REP	11	4800.00	..
134	JAMES	15	REP	11	4900.00	..
135	TURNER	15	REP	11	5000.00	..
136	WARD	15	REP	11	5100.00	..
137	PROUD	15	REP	11	5200.00	..
138	DESSA	15	REP	11	5300.00	..
139	SMITH	15	REP	11	5400.00	..
140	JONES	15	REP	11	5500.00	..
141	BLAKE	15	REP	11	5600.00	..
142	CLARK	15	REP	11	5700.00	..
143	ADAMS	15	REP	11	5800.00	..
144	MARTIN	15	REP	11	5900.00	..
145	WATSON	15	REP	11	6000.00	..
146	SCOTT	15	REP	11	6100.00	..
147	JAMES	15	REP	11	6200.00	..
148	TURNER	15	REP	11	6300.00	..
149	WARD	15	REP	11	6400.00	..
150	PROUD	15	REP	11	6500.00	..

.. Now!

• **Key benefits:**

- Rapid development/easy deployment of enterprise Business Analytics solutions
- Lightweight installation and administration
- Minimal learning curve - zero coding, drag-drop authoring model
- New QMF content remains fully compatible with existing QMF objects
- Embeddable BI – can be integrated into web and Java apps
- Database-based licensing model – not user or application server-based
- Now available as QMF-VUE, a feature of DB2 VUE 9 and 10



Administer DB2 10 Performance Savings

DB2 Administration Tool 10.1 Exploitation

- Exploit DBA-managed Performance Improvements
 - Include additional Columns in Indexes to Exploit Index Only Access
 - Convert LOBs to in-line to boost performance
 - Convert existing tables to Hash Access
- Extend Administration Capabilities
 - Manage new Security models
 - Reduce Schema change overhead
 - Manage Autonomic Statistics collection
- Time Travel with Temporal Data – “as of”
 - Record changes in history – System Time
 - Define, update and query events in past or future – Business Time
 - Browse Temporal Data “as of” a point in time with DB2 Table Editor 4.3
- Plus New Features for DB2 V8, 9 & 10
 - New “ALT” command to intelligently drive schema changes
 - Recover from Access Path regressions with DB2 9 & 10 Plan Management

IBM

Managing IBM DB2 10 for z/OS
Using the IBM DB2 Administration
Tool for z/OS Version 10

Use with IBM DB2 10 for z/OS from
Day 1

Simplify the database
administration functions

Adapt your data with the new
change capabilities



Paolo Bruni
Tom Crocker
Elsie Morelli
Richard Schaufuss
Jane Yang

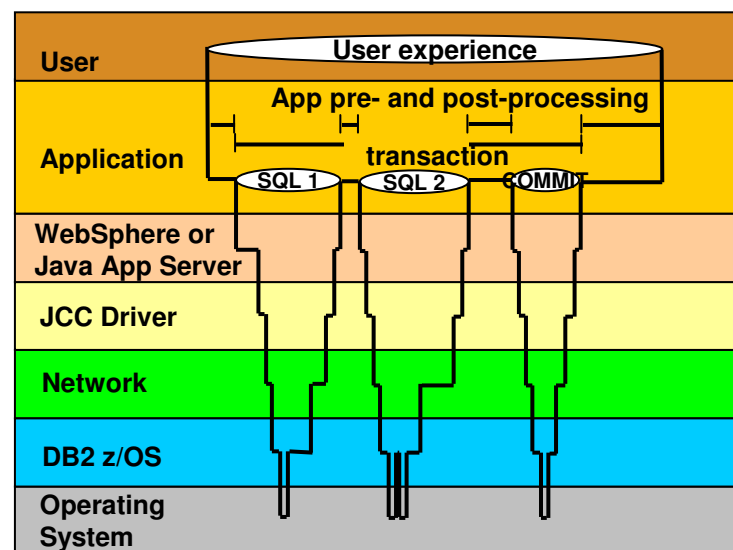
Redbooks[Link](#)

“IBM DB2 Tools were critical to our successful DB2 10 Beta”

Optimize Dynamic Infrastructure Performance

OMEGAMON XE for DB2 Performance Expert 5.1 Exploitation

- Extended Insight
 - Surface DB2 for z/OS end-to-end response time metrics
 - Visibility to **all** the components that make up end-user response time
 - Facilitates platform-agnostic identification of response time bottlenecks
 - Enables near-instantaneous response to and prevention of application slowdowns
 - Leverages Tivoli Enterprise Portal GUI
 - Support DB2 9 & 10
- Summary SQL Reporting
- Manage thousands of Threads
- Support new DB2 10 Monitoring Data
- Lower Monitoring Overhead
- zIIP offload of Near Term History



“Thankfully we had OMEGAMON or we could not have measured DB2 10 Performance improvements”

Drive DB2 9 & 10 Efficiency & Productivity

DB2 Sort 1.1

- Significant CPU and Elapsed Time reduction in Sort
 - LOAD, REORG, RUNSTATS, REBUILD INDEX, CHECK INDEX, CHECK DATA, CHECK LOB
 - Presort from DB2 Utilities Enhancement Tool for LOAD REPLACE
- Unique API to allow authorized utilities to invoke the sorting software
- Valuable for customers with large amount of data and aggressive SLA's

Internal Format for up to 4x Load Performance Improvements

- DB2 UNLOAD & LOAD Utilities
- DB2 High Performance Unload 4.1
- Exploit with DB2 Utilities Enhancement Tool 2.1 Constant & Valuelf Options

Unload and Load DB2 Data via USS Pipes & TCP/IP

- DB2 UNLOAD & LOAD Utilities
- DB2 High Performance Unload 4.1

Fast XML Data Unload

- DB2 High Performance Unload 4.1

Recover DB2 10 Advanced Technology

DB2 Recovery Expert 2.2

- Exploit FlashCopy Image Copy
 - Take Consistent Online Image Copies in seconds
 - Reduce CPU and Batch-windows
 - Improve Recovery Times
 - Automate Recovery Jobs
 - Native EMC Storage-based copies
- Exploit RECOVER BACKOUT for faster recoveries
- Undo and Redo Temporal Data

DB2 Log Analysis Tool 3.2

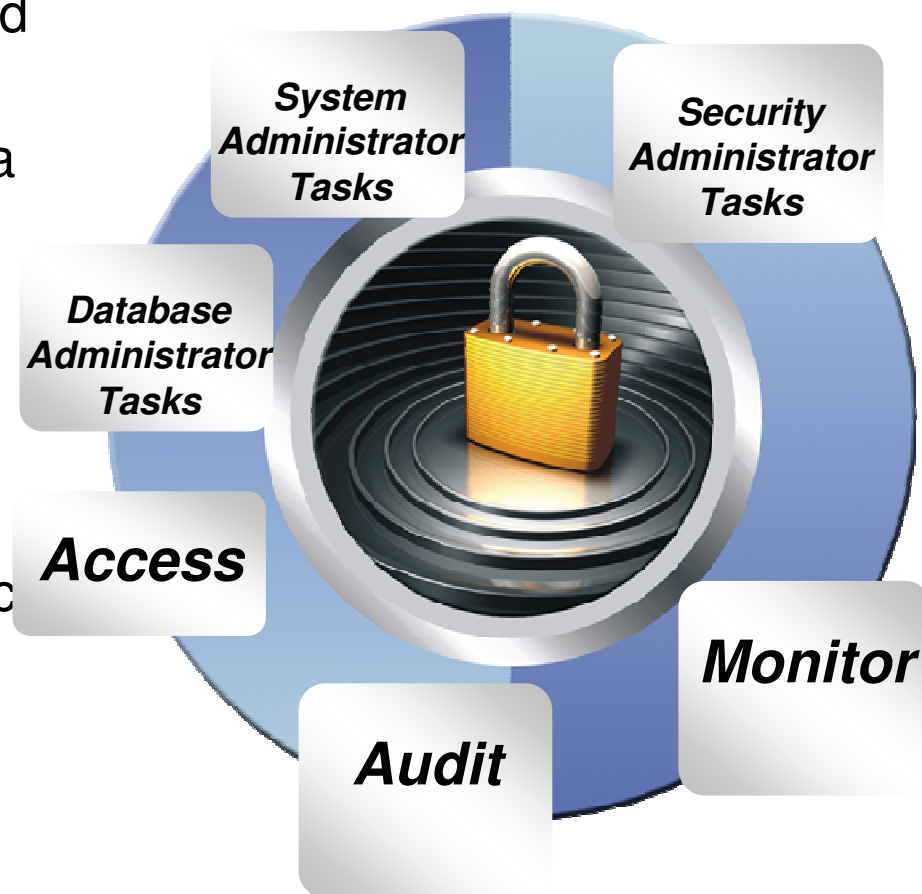
- Undo and Redo Temporal Data
- Support FlashCopy Image Copy
- Support all new DB2 10 Log changes

Further Exploit FlashCopy Image Copy

- DB2 Administration Tool 10.1
- DB2 Automation Tool 3.2
- DB2 Change Accumulation Tool 2.1
- DB2 High Performance Unload 4.1

Business Security & Compliance

- Protect sensitive data from privileged users & improve productivity
 - SECADM & DBADM without data access
 - Usability: DBADM for all DB
 - Revoke without cascade
- Separate authorities to perform security related tasks, e.g. security administrator, EXPLAIN, performance monitoring and management
- Audit privileged users
- Row and column access control
 - Allow masking of value
 - Restrict user access to individual cells



What is the problem we are addressing here?

- How do we protect our most important asset?

Our Data!

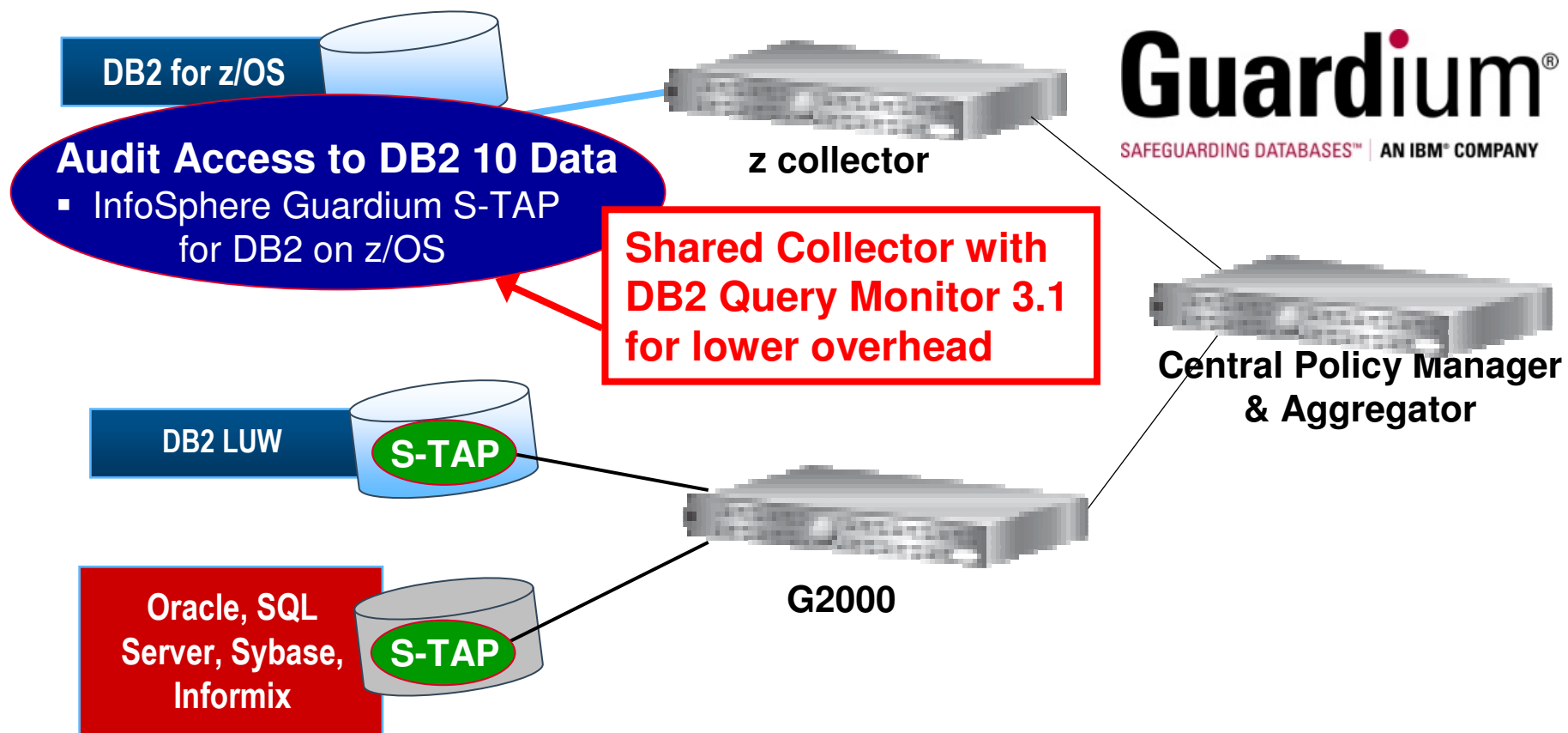


- o How do we prevent unauthorised access?
- o How can we tell if our data has been 'stolen'?
- o Who are we protecting our data from?

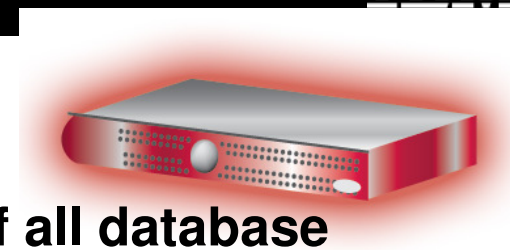
Safeguard DB2 10 Data

Encrypt DB2 10 Data

- InfoSphere Guardium Data Encryption Tool for DB2

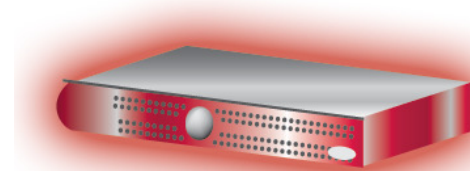


Guardium for z



- **Provides a unified view and secure audit trail of all database activities**
 - Across *both* mainframe and distributed environments
 - Enterprise-wide compliance reporting, alerting, analytics & forensics
- **Best Database Activity Monitor Technology from Guardium**
 - Leverage all Guardium functionality off host
- **Best DB2/z event capture technology**
 - Lightweight deployment
 - Audited data streamed to Guardium appliance, not stored in DB2/z
 - DB2 trace not used for high volume SQL events
 - Class 4 / Class 5 audit traces NOT used
 - Ongoing performance and collection enhancements
 - Optimal performance for customers using IBM Query Monitor
 - Query Monitoring and Audit requirements leverage a single collector process

Guardium for z - Components



- **Guardium Collector appliance for System z**
 - Securely stores audit data collected by mainframe tap
 - Provides analytics, reporting & compliance workflow automation
 - Integrated with Guardium enterprise architecture
 - Centralized, cross-platform audit repository for enterprise-wide analytics and compliance reporting across mainframe & distributed environments

- **S-TAP for DB2 on z/OS event capture**
 - Mainframe tap
 - Collects audit data for Guardium appliance
 - Leverages existing IBM DB2/z collection technology
 - DB2/z event capture policy editor

Jump into DB2 10! The water's fine.



DB2 V8

DB2 9

DB2 10

Key Questions are WHEN? and HOW?

Accelerate DB2 10 Time to Value

Optim Query Workload Tuner 2.2.1 Fixpack 1

- Tune applications/queries created against DB2 V8, 9 & 10
- Support of new workload explain format in DB2 10
- Identify Indexes not being used as candidates for elimination
- Provide advice on modifying existing indexes to reduce CPU
- New DataMart Advisor (Accelerated Query Table)
- Identify potential Access Path regressions after Migration based on cost
- Support all of the new access types introduced in DB2 10
 - hash access (H), range list access (NR), and in memory access(IN)
- Generate DB2 10 RUNSTATS TABLESAMPLE control statements
- Capture SQL from Query Monitor

SQL Performance Analyzer 4.1

- Support for DB2 10 Explain format
- Support new DB2 10 access types
- New Tabular Report
- Improved ISPF interface
- Initial release of Tools Customizer for z/OS (TCz)

What value do testing tools deliver?

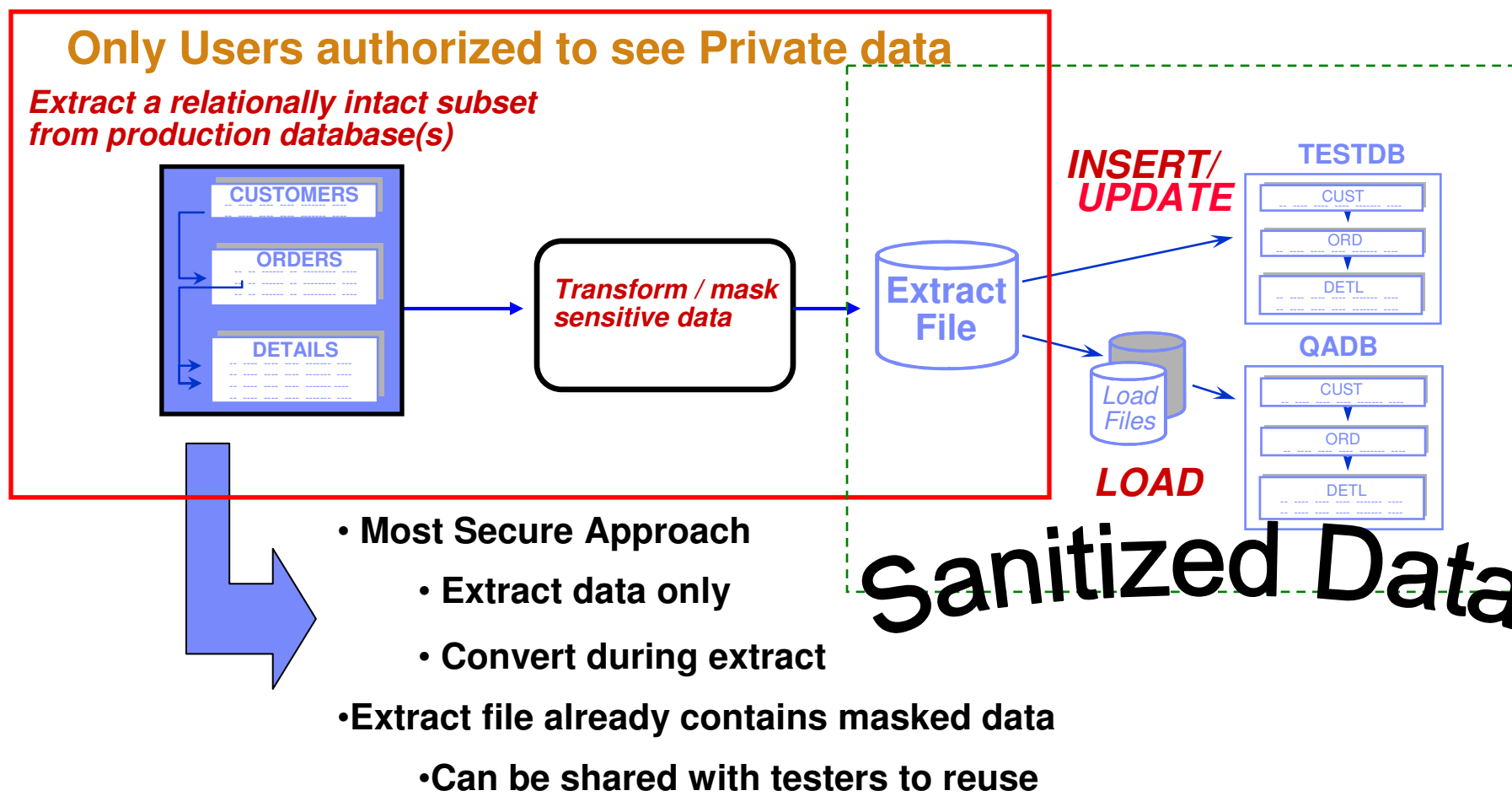
Optim Test Data Management Solution for z/OS

Streamline Test Data Management to improve application quality & solution delivery

- **Applies selection criteria to ensure complete test coverage with targeted data**
- **Simplifies editing data within its relational context to create error and boundary conditions**
- **Enables comparison of baseline data against successive test run results to identify errors and improve application quality**
- **Consolidates data from multiple interrelated applications to create a “production-like” test environment that accurately reflects end-to-end business processes**
- **Saves data extracts to quickly and easily refresh test environments**

Value: Aligns application data management with business objectives to optimize performance, control costs and reduce risk

Data Privacy in Application Testing



Accelerate DB2 10 Time to Value

DB2 Query Monitor 3.1

- Track SQL Performance before and after Migration

DB2 Path Checker 4.1

- Identify potential Access Path regressions
- Export SQL to Optim Query Workload Tuner or Data Studio for tuning
- Selectively save packages in DB2 9 & 10 (CM8,CM9,NFM) with Plan Mgmt

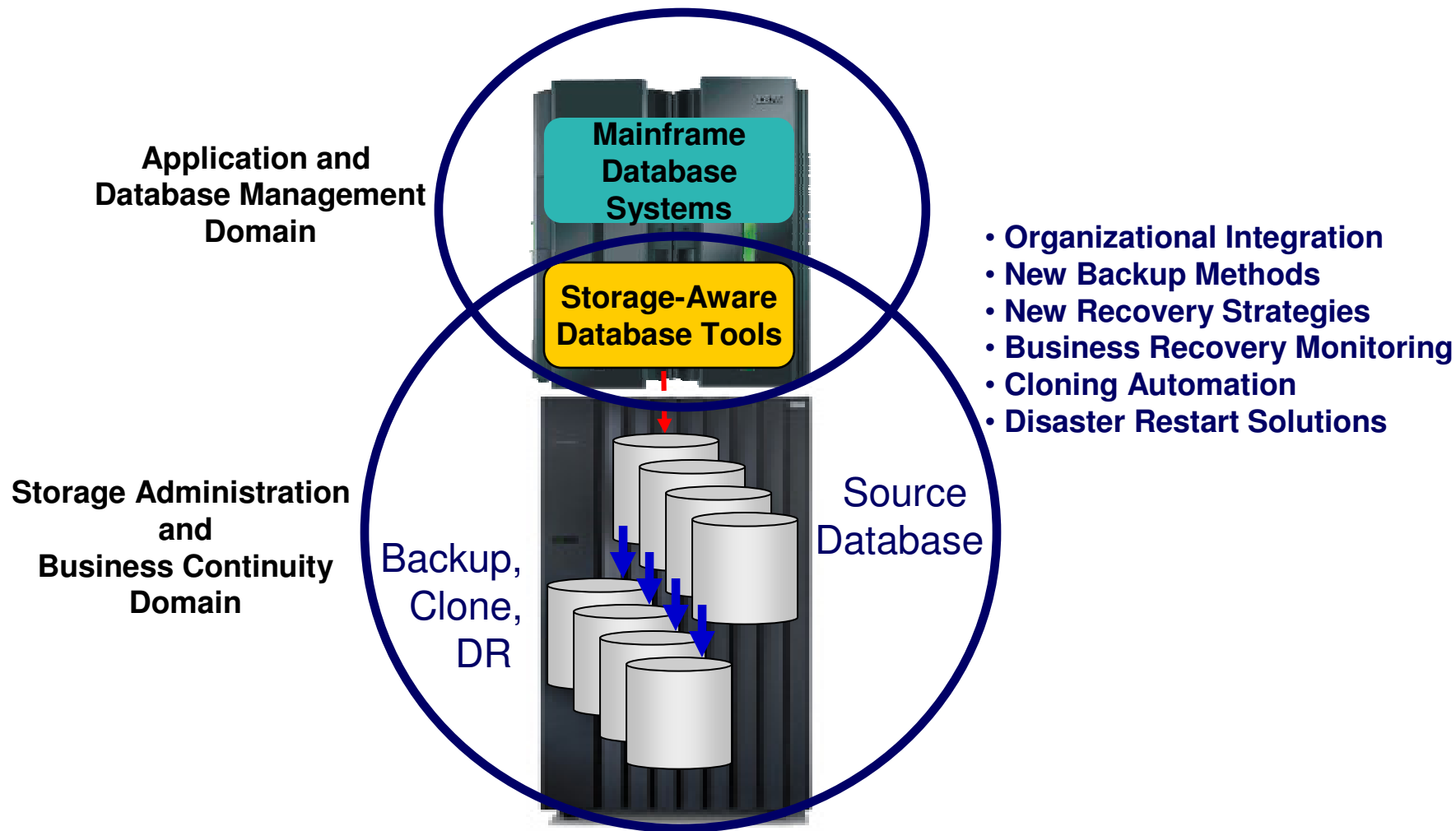
DB2 Bind Manager 2.4

- Identify and Free unused Packages
- Reduce Bind impacts

DB2 Cloning Tool 2.2

- Exploit Storage-based copies to drastically reduce CPU and outages
- Create Subsystem and Object Clones to test DB2 10 with minimal effort
 - Automatically reduce number of Data Sharing Members
 - Convert Data Sharing to non-Data Sharing
 - Create Subsystem Clone from System Level Backup
 - Mask sensitive production data
- Supports native IBM, EMC and Hitachi Storage-based copies

Database and Storage Integration



Database and Storage Integration Operational Advantages

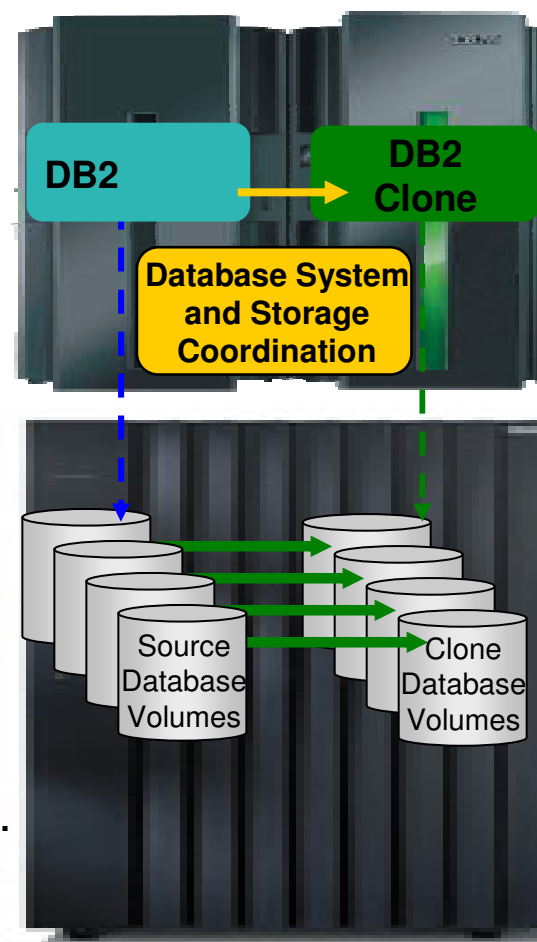
- **Reduce backup, recovery, and cloning administration costs**
- **Reduce host CPU and I/O resource utilization**
- **Perform backups and create clone copies instantly**
- **Fast restore and parallel recovery reduces recovery time**
- **Simplify disaster recovery operations and procedures**
- **DBMS and storage-based fast-replication integration**
 - Leverage storage processors and fast-replication investments
 - IBM, EMC, HDS, STK
 - Expose fast-replication capabilities to the DBAs *safely and transparently* using “*storage-aware*” database utilities
- **Provide a sophisticated infrastructure and metadata to manage the DBMS and storage processor coordination**

Cloning Database Management Systems Using DB2 Cloning Tool

- **Performs DBMS cloning automation**
 - Simplifies database system cloning processes
 - Reduces cloning time and administration costs
- **Leverages fast-replication facilities to clone data**
 - Data can be cloned while online or offline
- **Performs rapid volume reconditioning and data set renaming on cloned database volumes**
 - Critical component of the database system cloning process
- **Adjusts target database system to accommodate and accept the cloned data**
 - DB2 catalog, directory, BSDS, active / archive log, etc.

“It used to take 2-3 days to clone a DB2, now it takes less than an hour”

Production Database



Version to Version Migration Saved

■ Challenge

- Performance regression discovered across range of QMF workloads
- Client had been using a “trick” to affect optimizer choices that was not available in the new version
- Expected 6-8 months delay plus additional staff costs
- Delay in promised value of new database version

■ Solution – Optim Query Workload Tuner

- Handled complexity of queries and workloads
 - 30 table joins nested behind several layers of views
 - Column names changed in views
 - 100s of queries in multiple workloads
- Saved hours of time formatting, annotating, and analyzing queries
- Recommended additional statistics and predicates for better performance
- Reduced migration from months to weeks



Order of magnitude reduction in query workload analysis. All workloads as good as or better than prior version.

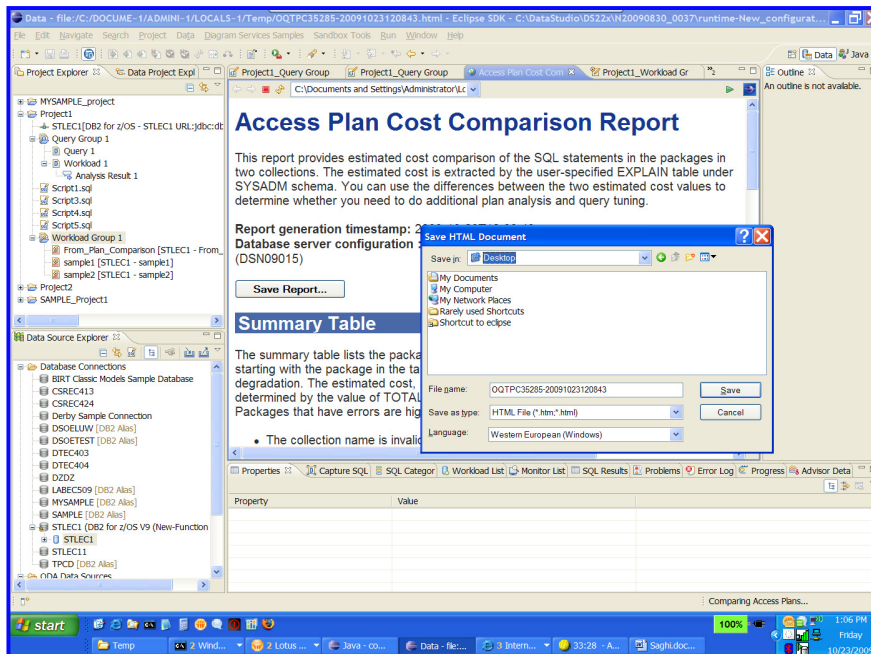
Preventing the problem: Proactively closing the loop

Workload : Multiple SQL statements defined by user

- **The effort for tuning the whole application with good performance by evaluating every statement is overwhelming . Optimization decisions are based on tradeoffs**
 - Statistics – CPU costs vs. query savings
 - Indexing – query speed vs resource and transaction
- **Sometimes performance improvement for one statement in an application may regress other statements in the application**
- **When application data grows, allows you to do proactive application health check periodically to find potential problems earlier before costly application outages**
- **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**

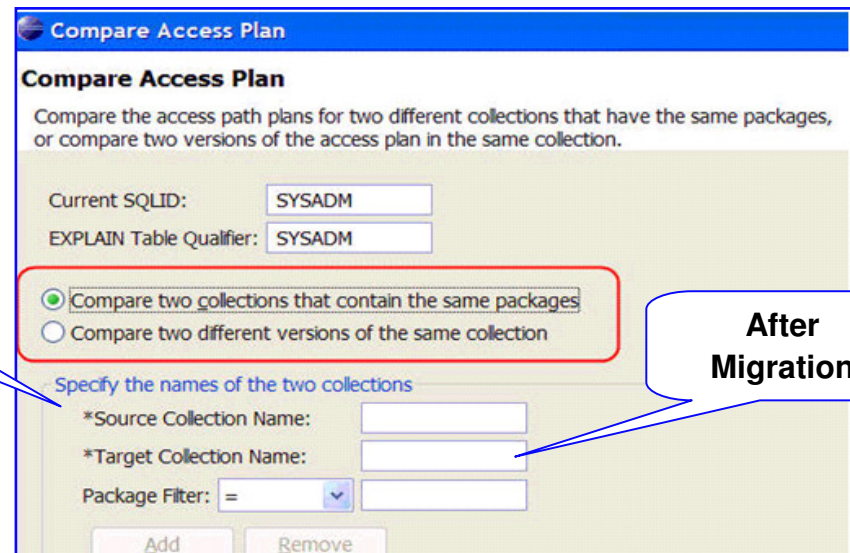
Accelerate DB2 10 Time to Value....



Optimize beyond the prior level of service.

Prior to Migration

Do you need to rebind selected collections?



After Migration

Reduce Risk of Performance Regression After Migration

- Compare access path cost of SQL statements in a package via HTML
 - Version to version migrations of DB2
 - Cases where a mass-rebind is needed
- Optimize beyond the prior level of service.
 - Determine whether the later version of the collection has degraded performance.
 - Determine whether any packages have errors.
 - Identify which packages have SQL statements that have degraded performance.

Obtain Access Plan information

Compare the access path plans for two different collections that have the same packages, or compare two versions of the access plan in the same collection.

Current SQLID: SYSADM
EXPLAIN Table Qualifier: SYSADM

Compare two collections that contain the same packages
 Compare two different versions of the same collection

Specify the names of the two collections

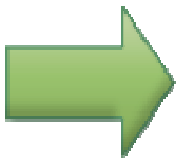
*Source Collection Name:
*Target Collection Name:
Package Filter: =

Add <> LIKE NOT LIKE

Source Collec... NOT LIKE Collectio... Package Filter

Filter Criteria

Generate Report Cancel



Run Access Plan Cost comparison report

Access Plan Cost Comparison Report

This report provides estimated cost comparison of the SQL statements in the packages in two collections. The estimated cost is extracted by the user-specified EXPLAIN table under SYSADM schema. You can use the differences between the two estimated cost values to determine whether you need to do additional plan analysis and query tuning.

Report generation timestamp: Database server configuration (DSN09015)

Save Report...

Save HTML Document

Save as type: HTML File (*.htm;*.html)

Language: Western European (Windows)

Summary Table

The summary table lists the packages starting with the package in the table degradation. The estimated cost, determined by the value of TOTAL Packages that have errors are high.

Property	Value

Comparing Access Plans...

Prevent Problems Before They Impact the Business

Identify Problematic Package Tables

View analysis summary based on TOTAL_COST

Package			Collection Name		Estimated Cost in Service Units (PROCSU)			Estimated Cost in Milliseconds (PROCMS)			Estimated Total Cost (TOTAL_COST)			
Name	Version	Number of Queries	Source	Target	Source	Target	Difference	Source	Target	Difference	Source	Target	Difference	Percentage Difference
CPRQG2	VERS2	1	ACCCOL1	ACCMGR1	2798205	2798205	0	313399	1063317	749918	550,950.500000	1,529,796.200000	978,845.750000	177.1
CPRQG1	VERS2	2	ACCCOL1	ACCMGR1	36560689	34966797	-1593872	4094795	13287382	9192587	27,743,196.000000	46,588,364.000000	18,845,168.000000	67.9

Packages that have errors are highlighted in **Red** indicate

- Collection name is invalid or no qualifying packages were found.
- Package content was different between the two collections.
- A package appears in only one of the collections.
- Explain entries are missing for a package in one or both of the collections.

What to do next ...

What to do next ...Guard against errors and oversights

Access Plan Cost comparison Report

REBIND

Identify Problematic SQL statement

Package ACCCOL1.CPROG2(VERS2)/ACCMGR1.CPROG2(VERS2)

Source bind time: 2009-10-15 23:49:50.070129
 Target bind time: 2009-10-15 23:58:51.677804
 Source member:
 Target member:

Query Number	Statement Type (STMT_TYPE)	Cost Category (COST_CATEGORY)		Estimated Cost in Service Units (PROCSU)			Estimated Cost in Milliseconds (PROCMS)			Estimated Total Cost (TOTAL_COST)			
		Source	Target	Source	Target	Difference	Source	Target	Difference	Source	Target	Difference	Percentage Difference
15	SELECT	A	A	2798205	2798205	0	313399	1063317	749918	550,950.500000	1,529,796.250000	978,845.750000	177.7

SQL statement with the highest % cost

Tune a single query or at a workload level

Package ACCCOL1.CPROG1(VERS2)/ACCMGR1.CPROG1(VERS2)

Source bind time: 2009-10-15 23:49:49.455751
 Target bind time: 2009-10-15 23:58:49.099411
 Source member:
 Target member:

Query Number	Statement Type (STMT_TYPE)	Cost Category (COST_CATEGORY)		Estimated Cost in Service Units (PROCSU)			Estimated Cost in Milliseconds (PROCMS)			Estimated Total Cost (TOTAL_COST)			
		Source	Target	Source	Target	Difference	Source	Target	Difference	Source	Target	Difference	Percentage Difference
26	INSERT	A	A	33569200	31975328	-1593872	3759750	12150624	8390874	25,356,948.000000	42,598,692.000000	17,241,744.000000	68.0
5	SELECT	A	A	2991469	2991469	0	335045	1136758	801713	2,386,247.250000	3,989,671.250000	1,603,424.000000	67.2

Streamlined Analysis

Define or select a workload

Execute Advisors

Drill Down into advice

Recommendations - 1 In

Advisor	Number	Priority	Description
Recommendations			
Statistics Advisor	1	HIGH	Repair statistics problems for this query. Gather missing statistics. Recollect conflicting st...
Query Advisor	2	MEDIUM	Provide a join predicate based on the referential constraint between tables DSN8910.EM...
Query Advisor	3	MEDIUM	Provide a predicate on column WORKDEPT.
Access Path Advisor	4	LOW	Avoid reading all index keys on an index scan (QBLOCKNO = 1, PLANNO = 1).
Index Advisor	5	LOW	Index recommendations found.

Validate improvement

Name	Summary Status	Owner	Execution Time
WorkloadWithTypicalStats	ANALYZING	B3OSC12	CPU time: 97.32 (second...
WorkloadTunedWithStatsAdvisor	ANALYZING	B3OSC12	CPU time: 53.19 (second...
WorkloadTunedWithIndexAdvisor	ANALYZING	B3OSC07	CPU time: 40.67 (second...
AbsoluteCPUTimeExceptionMonitor	ENABLED/STARTED	SYSADM	N/A
NormalMonitor	ENABLED/STARTED	SYSADM	N/A

Exploit DB2 10 for z/OS with IBM DB2 Tools

Accelerate your ability to leverage compelling DB2 10 features with comprehensive Tools support

Data Encryption Tool for IMS and DB2 Databases
DB2 Administration Tool / DB2 Object Compare for z/OS
DB2 Automation Tool for z/OS
DB2 Bind Manager for z/OS
DB2 Change Accumulation Tool for z/OS
DB2 Cloning Tool for z/OS
DB2 High Performance Unload for z/OS
DB2 Log Analysis Tool for z/OS
DB2 Object Restore for z/OS
DB2 Path Checker for z/OS
DB2 Query Management Facility for z/OS
DB2 Query Monitor for z/OS
DB2 Recovery Expert for z/OS
DB2 SQL Performance Analyzer for z/OS
DB2 Table Editor for z/OS
DB2 Utilities Enhancement Tool for z/OS
DB2 Utilities Suite for z/OS
InfoSphere Change Data Capture
InfoSphere Data Event Publisher
InfoSphere Guardium S-TAP for DB2 on z/OS
InfoSphere Replication Server
Optim Data Growth Solution for z/OS
Optim Development Studio
Optim pureQuery Runtime
Optim Query Workload Tuner
Optim Test Data Management Solution for z/OS
Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS



Exploitation PTFs: <http://www-01.ibm.com/support/docview.wss?uid=swg21409518>

What tools work with what version of DB2?

DB2 Tools	VRM	DB2 10 Support			Comments
		NS	T	E	
Application Recovery Tool	1.2.0			X	PM22390
DataQuant	1.2.0		X		Fix Pack 9
Data Encryption	1.1.0		X		No PTF necessary
DB2 Administration Tool	10.1.0			X	PM22869, PM24212, PM27184, PM31030
	7.2.0	X			
DB2 Administration Toolkit for z/OS SAP Edition	2.2.0			X	PM22869, PM24212, PM27184, PM31030 PM22599, PM24220, PM27186, PM31034
	2.1.0	X			
DB2 Archive Log Accelerator	2.2.0	X			
DB2 Automation Tool	3.1.0			X	PM06653, PM12078, PM12464, PM16607
FEC Common Code	1.3.0			X	PM06651, PM19210
DB2 Automation Toolkit for z/OS SAP Edition	2.1.0			X	PM06653, PM12078, PM12464, PM16607
	1.1.0	X			
DB2 Audit Management Expert for z/OS	2.1.0			X	PM11639, PM18572, PM07579, PM21263
DB2 Bind Manager	2.4.0		X		PM10200, PM14873, PM14874, PM14866
	2.3.0	X			
DB2 Buffer Pool Analyzer	5.1.0			X	PM22628
	4.x.0	X			
DB2 Change Accumulation	2.1.0			X	PM06767, PM16560

Resources

- **Main DB2 Tools page**
 - <https://www-01.ibm.com/software/data/db2imstools>
- **What versions of tools needed for each version of DB2?**
 - <http://www-01.ibm.com/support/docview.wss?uid=swg21409518>
- **Integrated Data Management Community**
 - <http://www.ibm.com/developerworks/spaces/optim>
- **IBM Optim Query Workload Tuner web page**
 - <https://www-01.ibm.com/software/data/db2imstools/db2tools/optim-expert-zos/>
- **SQL Tuning, not just for hardcore DBAs anymore**
 - <http://www.ibmmdmmagazinedigital.com/dmmagazine/>
- **Redbooks at www.redbooks.ibm.com**
 - DB2 9 for z/OS Performance Topics SG24-7473
 - IBM DB2 9 for z/OS: New Tools for Query Optimization SG24-7421

Tuning SQL with InfoSphere Optim Query Workload Tuner , Part 1: Understanding access paths

- *Learn how to monitor and tune queries and workloads to improve application performance*
- **If you are a developer, DBA, or query tuning specialist, it is critical that you understand the basics of access paths so that you can precisely tune queries and query workloads before they cause problems in your production environment. This basic understanding, coupled with the visualization and tuning advice provided by IBM® Optim® query tuning solutions, can help make you more efficient at this task. This article provides conceptual background on access paths, shows you how to read an access path graph, and walks through the access path graph to demonstrate critical information regarding access path selection. The article concludes with a sample scenario that demonstrates how to use query annotation, a feature in InfoSphere Optim Query Workload Tuner that helps you with query analysis by providing vital statistical information directly in the SQL statement.**
- <http://www.ibm.com/developerworks/data/library/techarticle/dm-1006optimquerytuner1/index.html>

Thank
YOU

