

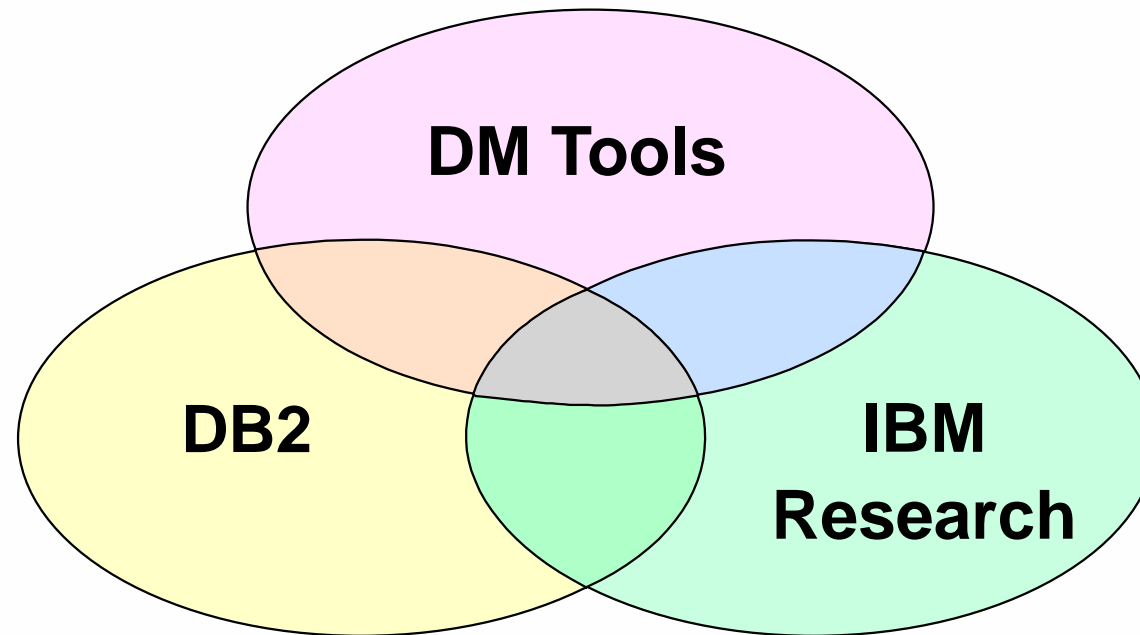
# Extending the DB2 Solution with Tools for Linux, UNIX, and Windows from IBM



# IBM Data Management *DB2 Solutions*



*From the company that builds  
world class databases*



**Not just a database tools vendor**

# IBM Data Management *Overview*



- Offering a unique model in the database tools industry
  - ▶ combining engine, research & tools
  - ▶ testing tools w/ same configurations & workloads as DB2
- Making large investment in tools to support customer needs
- Providing x-platform support via common x-platform interfaces & cross-tool integration
- Delivering tools independently & more frequently than database servers

**Not just a database tools vendor**

# IBM Data Management Tool Offerings

## *Clarifying terminology*

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IBM offers tools that run in the following environments:

- z/OS (os/390)
- iSeries
  
- **Multiplatforms (MP)**
  - ▶ MP tools include support for Windows, HP-UX, Sun's Solaris Operating Environment, IBM AIX and Linux
  - ▶ MP tools are sometimes also referred to as Distributed, Workstation, UNIX & Windows and LUW

# Latest DB2 Tools Announcements!

DB2 Recovery Expert for Multiplatform, V1.1

DB2 Administration Tool for z/OS, V4

DB2 Change Accumulation Tool for z/OS, V1.2

DB2 High Performance Unload for Multiplatform, V2.1

DB2 High Performance Unload for z/OS, V2

DB2 Object Comparison Tool for z/OS, V2

DB2 Performance Expert for z/OS, V1

DB2 Performance Expert for Multiplatform, V1.1

DB2 Query Monitor for z/OS, V1.2

DB2 SQL Performance Analyzer for z/OS, V2

DB2 Table Editor for Multiplatform, V4.3

DB2 Table Editor for z/OS, V4.3

DB2 Table Editor for iSeries, V4.3

DB2 Web Query Tool for Multiplatform, V1.3

DB2 Web Query Tool for z/OS, V1.3

DB2 Web Query Tool for iSeries, V1.3

# Extending the DB2 solution with New Multiplatform Tools from IBM



- DB2 Performance Expert
  - DB2 Recovery Expert for Multiplatforms
  - DB2 High Performance Unload
  - DB2 Table Editor for Multiplatforms, Version 4.3 *new release*
  - DB2 Web Query Tool for Multiplatforms, Version 1.3 *new release*
- ★ *Multiplatform (MP) Tools support DB2 UDB on Windows, HP-UX, Sun's Solaris Operating Environment, IBM AIX & Linux*
- ★ *All products support DB2 Version 7 and beyond*
- ★ *All products Generally Available July 2002*  
*(except Recovery Expert with GA of September 2002)*

# DB2 Multiplatform Tools

## *Top Priorities*

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- Operate in synergy with DB2 engine to produce an enhanced, cost-effective, **total DB2 solution**.
  - ▶ Respond to top customer requirements
  - ▶ Focus on scalability, manageability & ease-of-use
- Run on most DB2 server platforms and OSs
  - ▶ AIX, Linux, HP-UX, Sun's Solaris Operating Environment
  - ▶ Win 98, Win NT, Win 2000, Win XP...
  - ▶ "SQL-based tools" also support Informix IDS 9.x
- Simplify DBA cross-platform operations w/ common user interface
  - ▶ Minimize training costs

# DB2 Multiplatform Tools

## *Top Priorities* (continued)



- Exploit new DB2 engine functionality immediately
- Participate in DB2 solution initiatives
  - SMART
  - High Availability
  - XML / XSL- enabled
  - Reduce Total Cost of Ownership (TCO)
- Package tools in the DB2 server boxes
  - 60-day evaluation code



# MP Tools Respond to Customers' *Business Challenges*



- Reduce costs
  - Control rising cost of maintaining skills
  - Improve ROI (return on investment)
- Improve productivity
- Minimize risk
- Respond to competition faster



# MP Tools Respond to Customer's *Technical Challenges*



- Reliability of IT Service
- Speed
- Scalability
  - ▶ Support end-user needs to expand use of applications & tools
  - ▶ Growth in number of platforms, complexity of network and hardware infrastructure
- Finding & maintaining skills



# DB2 Multiplatform Tools from IBM

## *Product Overviews*

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- Performance Management
- Recovery Management
- Utilities
- Application Management



# Performance Management

## *Customer Challenges*



- Need more efficient ways to assess and manage database performance
  - ▶ need reliable complete performance information
  - ▶ need to improve throughput or transaction response time
  - ▶ need to ensure DB2 performance is consistently optimized
  - ▶ need to manage and tune buffer pools more effectively
  - ▶ need easy access to summary and detail reports
  
- Need to control expense
  - ▶ without new hardware expense
  - ▶ without slowing growth of DBA skills

# Performance Management

## *DB2 Performance Expert*



### What it does?

- Provides a **CENTRALIZED, CONSOLIDATED** performance facility for parallel monitoring of several DB2 databases

### How it does it?

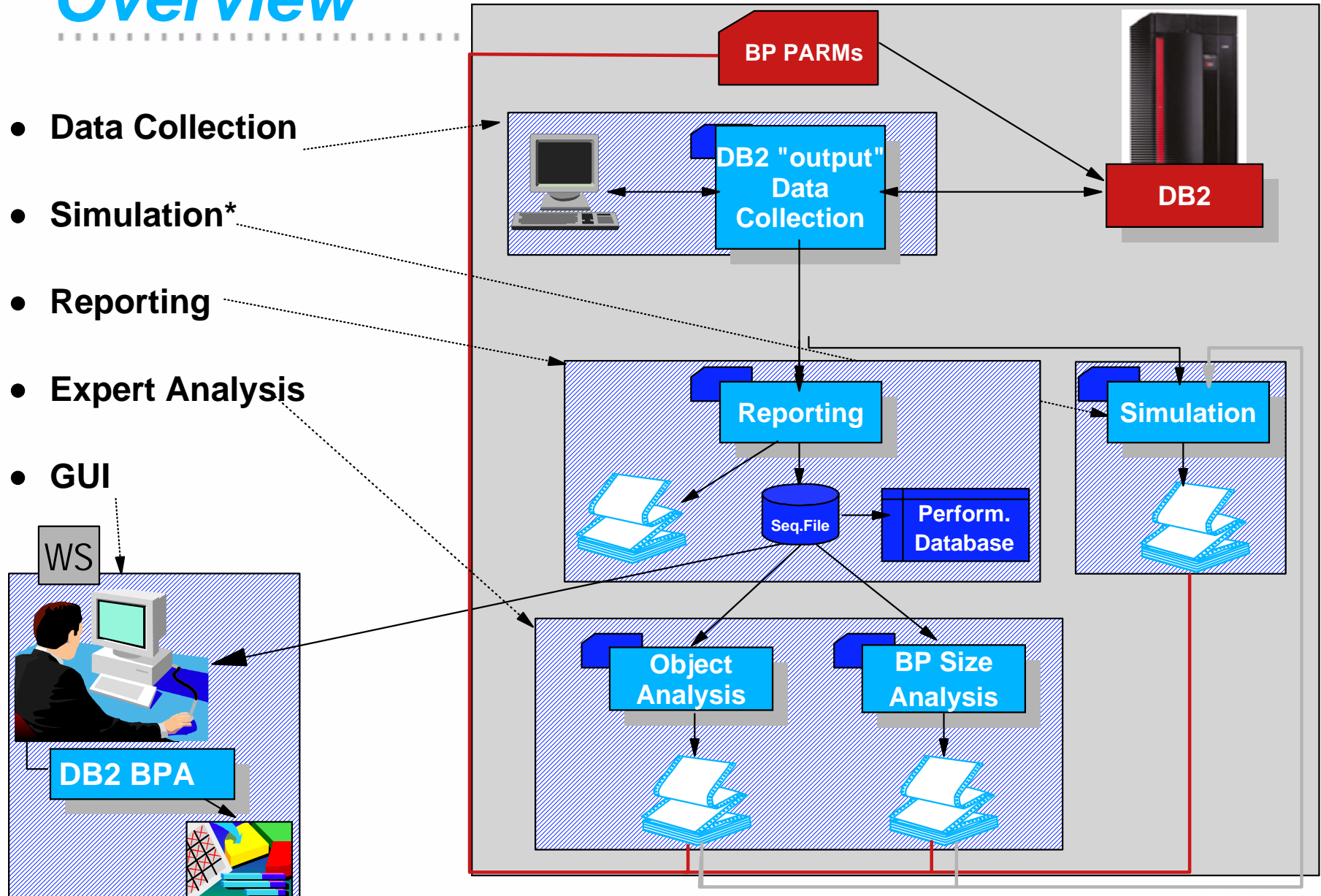
- Monitors for System Statistics - Applications - End2End - Bottlenecks (Locking conflicts, exceeded exception thresholds)
- Displays important performance data in graphical views
- Shows current activities and history data
- Provides event and "expert" reports
- Stores and manages performance data in *Performance Warehouse*

*\*functionality rolled out in staged delivery*

# DB2 Performance Expert

## Overview

- Data Collection
- Simulation\*
- Reporting
- Expert Analysis
- GUI



**DB2 Performance Monitor - System Overview**

Monitor Selected View Tools Window Help

**Monitored Objects**

- UWO
  - Systems
    - DSND
      - SG82**
      - Inst2
    - DSNI
  - Z/OS
    - Subsystems
    - Data Sharing Group
      - DSND
        - SGD2
        - SGD3

**Subsystem Information**

- Instance: SG82
- System Name: SYS2
- DB2: V7
- PM Server: V7
- User ID: DEA
- Logon: Logoff
- Exception: N/A
- Trace Status: N/A
- Description:

Applications  
Statistics Details  
Locking Conflicts  
System Parameters  
Performance Warehouse

platform dependent functions

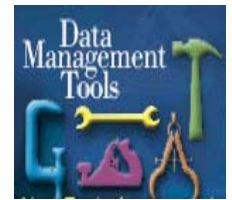
**Multiplatform**

Server...	Logon	Subsys...	Group	User ID	Exception	Trace Stat...	Session	Operating ...	System N...	DB2	PM Server
↓	×	S512	DSN3		N/A	N/A	0	Z/OS	SYS1	V5	V5
↓	×	S521	DSN3		N/A	N/A	0	Z/OS	SYS2	V6	V6
↑	×	SG51	DSN5		N/A	N/A	0	Linux	SYS1	V6	V6
↓	×	SG52	DSN5	DEA	N/A	N/A	0	AIX	SYS2	V6	V6
↓	×	SG52_2	DSN5	DEA	N/A	N/A	0	Linux	SYS2	V6	V6
↓	×	SG53	DSN5		N/A	N/A	0	AIX	SYS1	V6	V6
↑	×	SG81	DSN8	DEA	N/A	N/A	0	Z/OS	SYS1	V6	V6
↑	×	SG82		DEA	N/A	N/A	0	Linux	SYS2	V7	V7
↑	×	SG82_2	DSN8	DEA	N/A	N/A	0	AIX	SYS2	V6	V6



# DB2 Performance Expert

## *System Statistics - System Health*



- Shows important System Health counters in graphical form (Data Views)
- Drills down into more detail
  - ▶ database snapshot information (usage, caches, high water marks, locks, reads, writes, etc.)
  - ▶ Buffer pool (read, writes, I/O, etc.)
  - ▶ Tablespace snapshot
  - ▶ Table snapshot
  - ▶ Dynamic SQL snapshot
- Offers customization options
- Displays system parameters



# DB2 Performance Expert

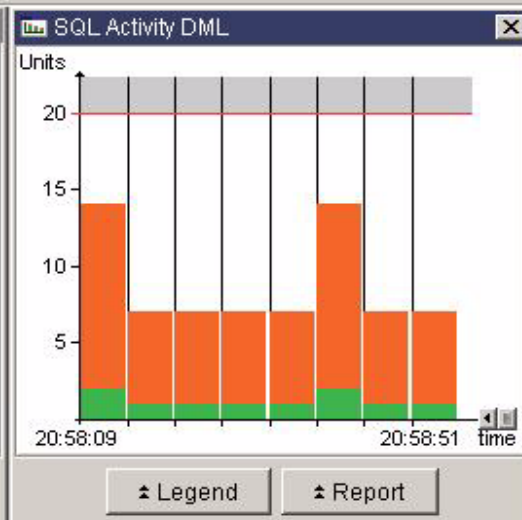
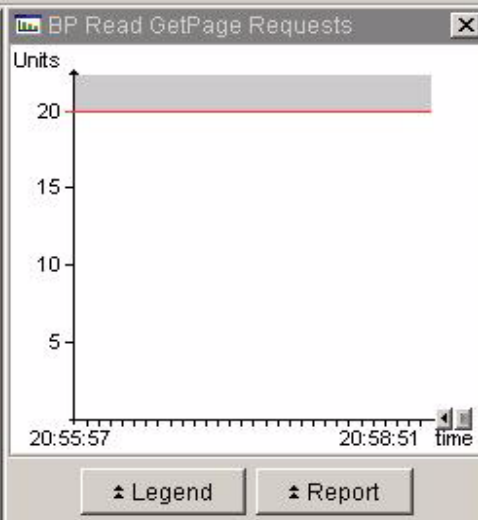
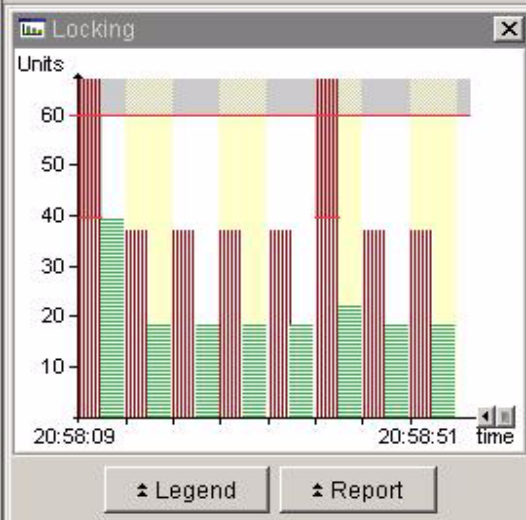
## *Application Monitoring*



- Provides an overview what's currently active
  - ▶ Sort, filter and customization capability
  - ▶ Display thread summaries & detail categories
    - ◆ Times
    - ◆ Locking
    - ◆ Locked Resources
    - ◆ SQL Activity
    - ◆ SQL Statement
    - ◆ Buffer Pools
- Autorefresh, History, and Print for application and system statistics snapshot functions

- Desks
  - Default Desk
    - DataViews
      - BP Read GetPage
      - SQL Activity DML
      - Locking
  - test
    - DataViews

Default Desk



Edit DataView

- 1. Category
- 2. Counters
- 3. Thresholds
- 4. Graphics

Specify the dataview name and the data category that should be shown in the data

Dataview name: SQL Activity DML

- Dataview category:
- Open / Close
  - Bind
  - Rebind / Autobind
  - Plan / Package / Routine
  - Log Manager
  - Subsystem
  - SQL Activity DML
  - SQL Activity DCL
  - SQL Activity DDL
  - SQL Activity Miscellaneous
  - Dynamic SQL Statements

Edit DataView

- 1. Category
- 2. Counters
- 3. Thresholds
- 4. Graphics

Specify the counters that should be displayed.

Counter selection

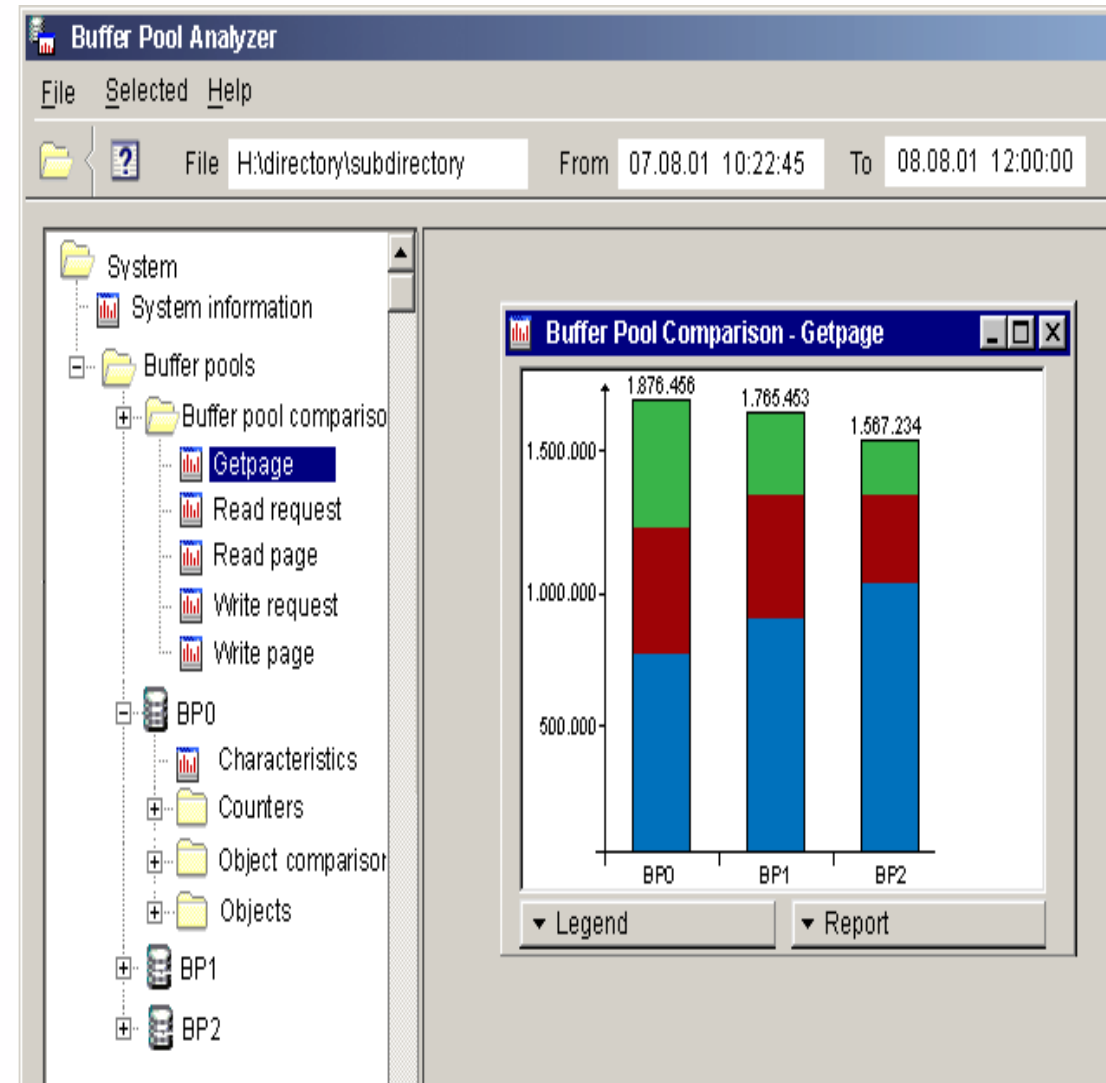
- Total DML
- Select
- Insert
- Update
- Delete
- Prepare
- Describe
- Describe table
- Open cursor
- Close cursor
- Fetch

# DB2 Performance Expert

## *Bufferpool Analyzer Capability*



- Makes it easy to tune your buffer pools
  - ▶ Collects & summarizes detailed buffer pool data
  - ▶ Generates various reports & displays results in multiple formats (including graphical end-user interface)
  - ▶ Provides expert knowledge and recommendations
  - ▶ Recommends BP size & threshold changes
  - ▶ Allows iterative buffer pool simulation\*\*



# Recovery Management

## *Customer Challenges*



- Recovery can be incredibly complex
- Today, most "bad data" is logical damage caused by application error
- Unidentified problems can have large financial impacts
- Maintenance windows are shrinking
  - Downtime is becoming more expensive and less acceptable
  - Data volumes and application complexity are growing

# Recovery Management

## *Customer Challenges* (continued)



- Manual database problem detection and correction is time consuming, and error-prone
  - ▶ Standard "whole database" disaster recovery is overkill for many errors such as bad data or dropped objects, it keeps too much offline
  
- Once a problem is identified often only a trained DBA can handle it
  - ▶ Novice errors may require production downtime and expert assistance
  - ▶ Improperly altered data or dropped database objects, increase as workloads and new staff increase
  - ▶ Training new DBAs is time consuming & expensive

# Recovery Management

## *DB2 Recovery Expert*



### What it does?

- Simplified, comprehensive, automated recovery with extensive diagnostic and "SMART" techniques to minimize outage duration
  - Provides expert recovery analysis and assistance
  - Offers selective point-in-time recovery via roll forward or backout
  - Reclaims previous states of objects and data

### How it does it?

- Recovers/changes only objects or data you need
  - Much faster & more specific than disaster recovery
  - Data change reporting
- Leverages & coordinates existing DB2 recoverable assets...
  - Backup files/images, Logs, Catalogs...with additional assets introduced by Recovery Expert (Mini-logs, Object Restore repositories, generated undo/redo SQL)

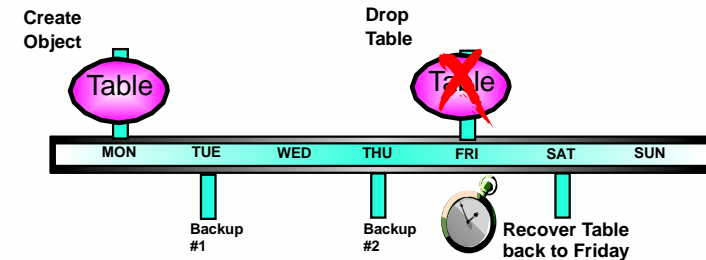




# DB2 Recovery Expert

*Provide tools to recover DB2 objects to a point in time in the event of system outage or application failure*

- Assisted point in time recovery
  - Precisely restores database objects with minimal disruption
  - Recover to LSN, Quiesce point, copy, or specify exact time to recover to (only committed data recovered)
- Analyze logs and undo errant transactions
- UNDROP objects and data
- Provide reporting & audit capabilities
- Expedited Recovery functions
  - Create mini-logs without impacting production systems to be prepared for a recovery
  - Create new "backup" w/o accessing table data\*\*\*
  - Lowers cost of database maintenance and minimizes downtime
  - Offline cycles -- a good tradeoff



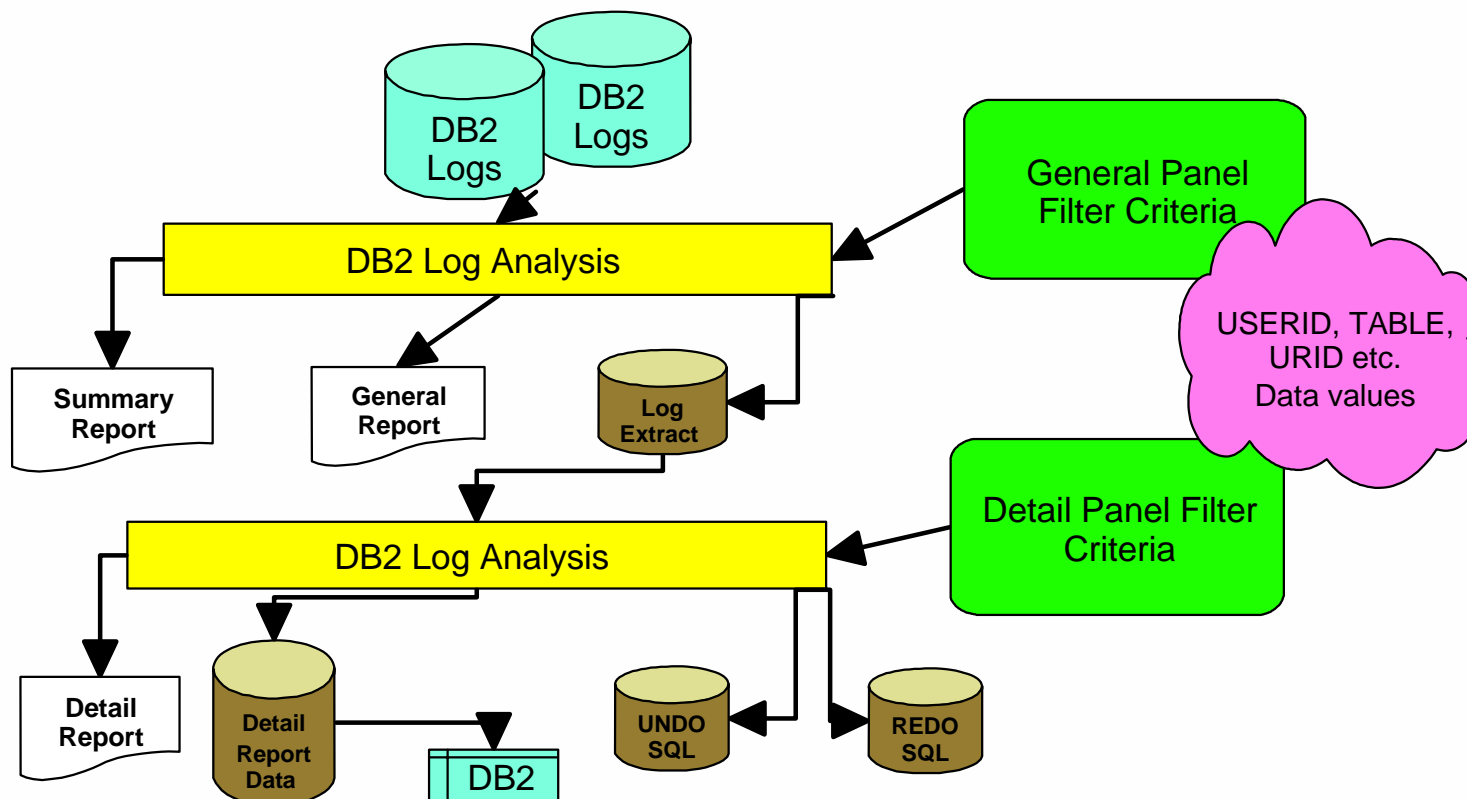
# DB2 Recovery Expert

## Log Analysis



Log Analysis provides summary reports and multiple filtering options

- ▶ Generates SQL for undo and/or redo records (some restrictions)
- ▶ Expanded Filter Criteria includes . . . .





# DB2 Recovery Expert: *Log Analysis*



**DB2 Log Analysis Transactions**

General Report Filters

Database: SAMPLE      Action: IUD

Start: 2002/05/14 00:00:00      Tablespace: USERSPACE1

End: 2002/05/14 23:59:59      Options: Ignore Catalog Tables

URID	Date	Time	Nodegroup	Tablespace	Table Owner	Table Name	Updates	Inserts	Deletes
00000000017F	2002/05/14	09:41:32	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	DEPARTMENT	1	2	2
00000000017F	2002/05/14	09:41:32	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	ORG	1	1	0
00000000017F	2002/05/14	09:41:32	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	PROJECT	4	0	1
00000000017F	2002/05/14	09:41:32	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	SALES	13	1	0
00000000017F	2002/05/14	09:41:32	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	STAFF	4	0	0
000000000180	2002/05/14	09:41:33	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	3	2	4
000000000186	2002/05/14	09:48:16	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	0	1
000000000201	2002/05/14	09:48:16	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	0	1
000000000202	2002/05/14	09:48:16	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	1	0	0
000000000203	2002/05/14	09:48:16	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	1	0	0
000000000204	2002/05/14	09:48:16	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	1	0	0
000000000205	2002/05/14	09:48:16	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	1	0

Details    Undo SQL

ACTION	ROW STATUS	EMPNO	FIRSTNME	LASTNAME	WORKDEPT	PHONENO	JOB	SALARY	BONUS	COMM	SE
INSERT	POST-CHAN...	001100	Bryan	Smith	Z99	3474	demoguy	60000.00	1000.00	0.0	M
	PRE-CHANGE	-	-	-	-	-	-	-	-	-	-
INSERT	POST-CHAN...	001200	Dan	Wardman	Z99	4574	toolman	1500000.00	100000.00	0.0	M
	PRE-CHANGE	-	-	-	-	-	-	-	-	-	-
UPDATE	POST-CHAN...	000010	CHRISTINE	HAAS	A01	3978	PRES	52750.00	1000.00	4220.00	F
	PRE-CHANGE	000010	CHRISTINE	HAAS	A00	3978	PRES	52750.00	1000.00	4220.00	F
UPDATE	POST-CHAN...	000110	VINCENZO	LUCCHESSI	A01	3490	SALESREP	46500.00	900.00	3720.00	M
	PRE-CHANGE	000110	VINCENZO	LUCCHESSI	A00	3490	SALESREP	46500.00	900.00	3720.00	M
UPDATE	POST-CHAN...	000120	SEAN	O'CONNELL	A01	2167	CLERK	29250.00	600.00	2340.00	M
	PRE-CHANGE	000120	SEAN	O'CONNELL	A00	2167	CLERK	29250.00	600.00	2340.00	M
DELETE	POST-CHAN...	-	-	-	-	-	-	-	-	-	-
	PRE-CHANGE	000100	THEODORE	SPENSER	E21	0972	MANAGER	26150.00	500.00	2092.00	M
DELETE	POST-CHAN...	-	-	-	-	-	-	-	-	-	-

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# DB2 Recovery Expert: *Undo/Redo*



**DB2 Log Analysis Transactions**

General Report Filters

Database: SAMPLE      Action: IUD  
 Start: 2002/05/14 00:00:00      Tablespace: USERSPACE1  
 End: 2002/05/14 23:59:59      Options: Ignore Catalog Tables

URID	Date	Time	Nodegroup	Tablespace	Table Owner	Table Name	Updates	Inserts	Deletes
00000000022B	2002/05/14	12:19:35	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	STAFF	1	0	0
0000000002...	2002/05/14	12:19:35	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	STAFF	1	0	0
000000000233	2002/05/14	12:19:35	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	1	0
000000000234	2002/05/14	12:19:35	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	1	0
000000000235	2002/05/14	12:19:35	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	1	0
000000000236	2002/05/14	12:19:35	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	0	1	0
00000000029E	2002/05/14	12:23:30	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	DEPARTMENT	1	2	2
00000000029E	2002/05/14	12:23:30	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	ORG	1	1	0
00000000029E	2002/05/14	12:23:30	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	PROJECT	4	0	1
00000000029E	2002/05/14	12:23:30	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	SALES	13	1	0
00000000029E	2002/05/14	12:23:30	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	STAFF	4	0	0
00000000029F	2002/05/14	12:23:30	IBMDEFAULTGRO...	USERSPACE1	TLEAMON	EMPLOYEE	3	2	8

Details    Undo SQL

```
-- UNDO INSERT INTO TLEAMON.EMPLOYEE IN URID 00000000029F
DELETE FROM TLEAMON.EMPLOYEE
  WHERE EMPNO = '001100' AND
         FIRSTNME = 'Bryan' AND
         MIDINIT = 'F' AND
         LASTNAME = 'Smith' AND
         WORKDEPT = 'Z99' AND
         PHONENO = '3474' AND
         HIREDATE = '2002-05-14' AND
         JOB = 'demoguy' AND
         EDLEVEL = 19 AND
         SEX = 'M' AND
         BIRTHDATE = '1966-05-18' AND
         SALARY = 60000.00 AND
         ...
```

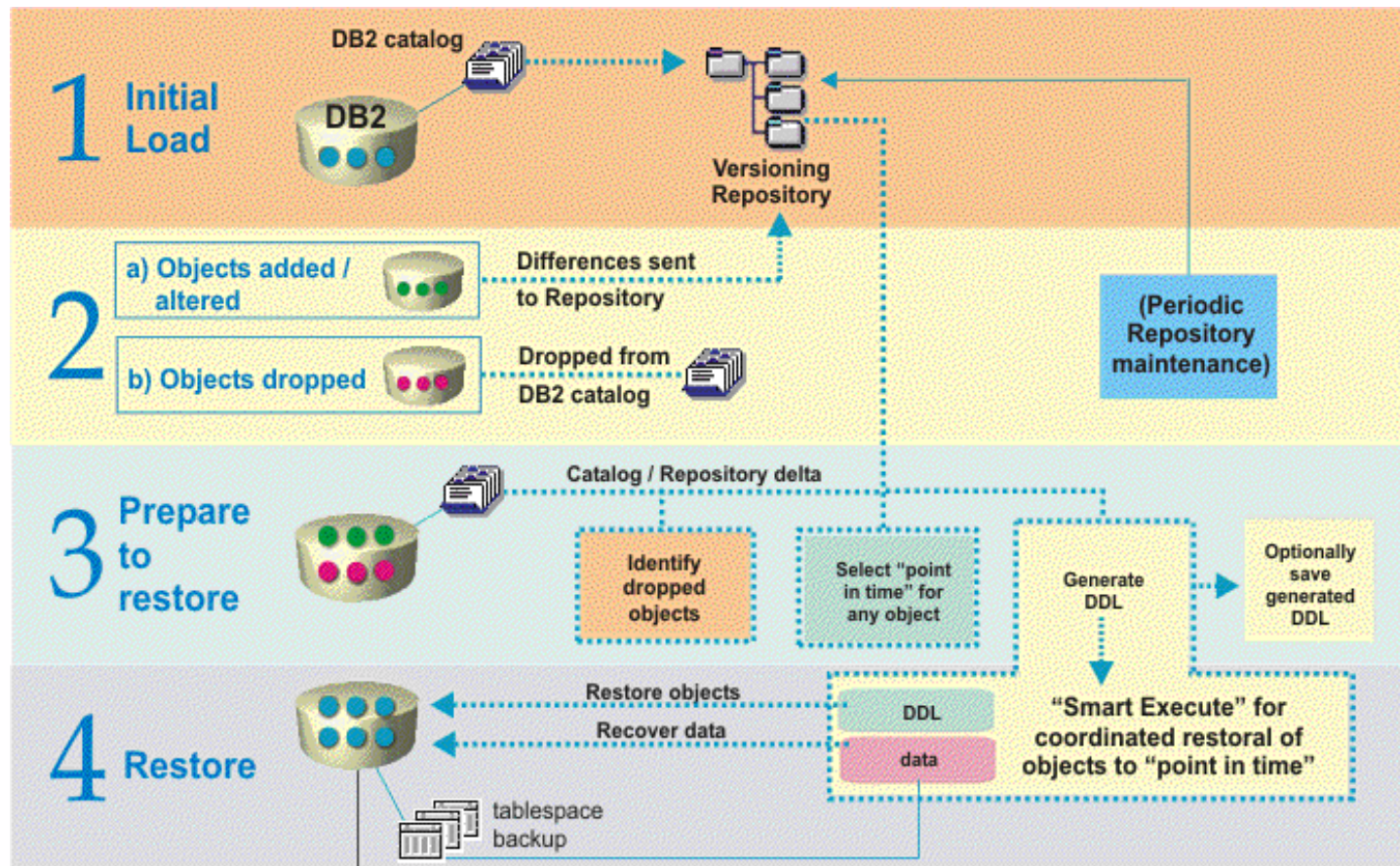
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Until Announced

Copy SQL    Run SQL    Close

# DB2 Recovery Expert: *Object Restore*

## Object Restore Component

- ▶ Rapid recovery of dropped objects, data and related dependencies
- ▶ Point in time recovery with menu-driven interface - - integrated with Log Analysis capability
- ▶ More objects and their dependencies restored



- Databases
- Tablespaces
- Tables
- Indexes



# DB2 Recovery Expert: *Object Restore*

The screenshot shows the 'DB2 Recovery Expert - SAMPLE' application window. The 'Object Selection' tab is active, displaying instructions for selecting an object to restore. The 'Database' radio button is selected, and the 'Enter a date and time' checkbox is checked. The date is set to 03/26/2002, with time options of 12, 30, and 48. Below this, there are input fields for 'Table spaces' and 'Tables', each with a 'Retrieve' button. Two empty tables are shown below the input fields, one for table spaces and one for tables. At the bottom, there are navigation buttons: '<< Back', 'Next >>', and 'Finish'.

**Select the object to restore.**  
If you choose Database, an entered timestamp applies when changing tabs, and only the applicable image is shown in Available Recovery Assets. If you choose Table spaces or Tables, however, entering a timestamp applies along with the filters when you click Retrieve. In this case, for each object returned, you will see only the version that existed at the point in time entered.

Database  Enter a date and time 03/26/2002 12 30 48

Table spaces  
Enter a tablespace name:  Enter a definer:  Retrieve

Name	TID	Definer	Nodegroup Name	Bufferpool ID	Drop Recovery	Dropped	Object Create Time
------	-----	---------	----------------	---------------	---------------	---------	--------------------

Tables  
Enter a table owner:  Enter a table name:  Retrieve

Owner	Name	Table space	FID	TID	Nodegroup Name	Dropped	Object Create Time	Ve
-------	------	-------------	-----	-----	----------------	---------	--------------------	----

<< Back Next >> Finish

# Customer Challenges

## Utilities



- Maintenance windows are shrinking
- Sequential reading of DB2 tables can be time intensive
  - difficult to schedule unloads of large tables
  - relocating data, large reorganizations & repartitioning is slow
- Impact on online-operation may be unacceptable
- Large scan performance becomes critical when several unloads have to read the same tablespace concurrently
  - performance symptoms can be caused by multiple reads of the same DB2 pages
  - sometimes there are I/O conflicts

# DB2 High Performance Unload



## What it does?

- Quickly and easily unloads and extracts data from DB2 Universal Database Enterprise Edition (EE), Version 7, & DB2 Enterprise Extended Edition (EEE), Version 7 for movement across enterprise systems or for reorganization in place

## How it does it?

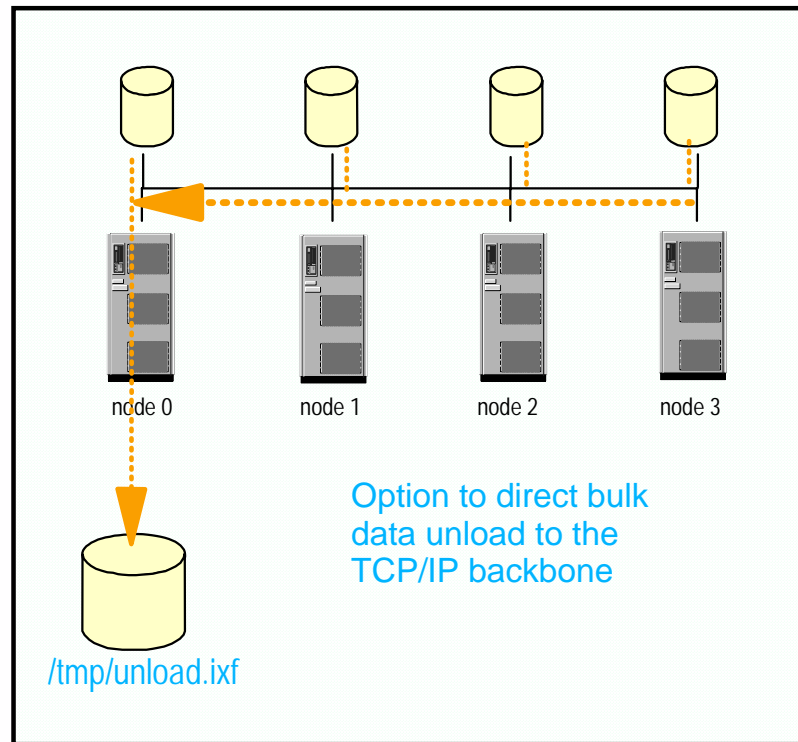
- Accesses tablespace files directly & provides parallel processing for fast unloads
- Offers versatile processing options
  - ▶ Sources: tablespaces, tables, selected or all partitions
    - ◆ Full Backups
    - ◆ Fast SQL-like SELECT capability (i.e. filter columns / rows)
      - Unload a sampling of data (i.e. every n rows)
  - ▶ Unloads DB2 data to files in same formats as DB2 export
    - ◆ IXF, Delimited and ASCII, user formats, tape devices, named pipes
  - ▶ Offers both command line interface & control center plugin (GUI)

# DB2 High Performance Unload

*EEE Support - Unload data With Only One Command!*

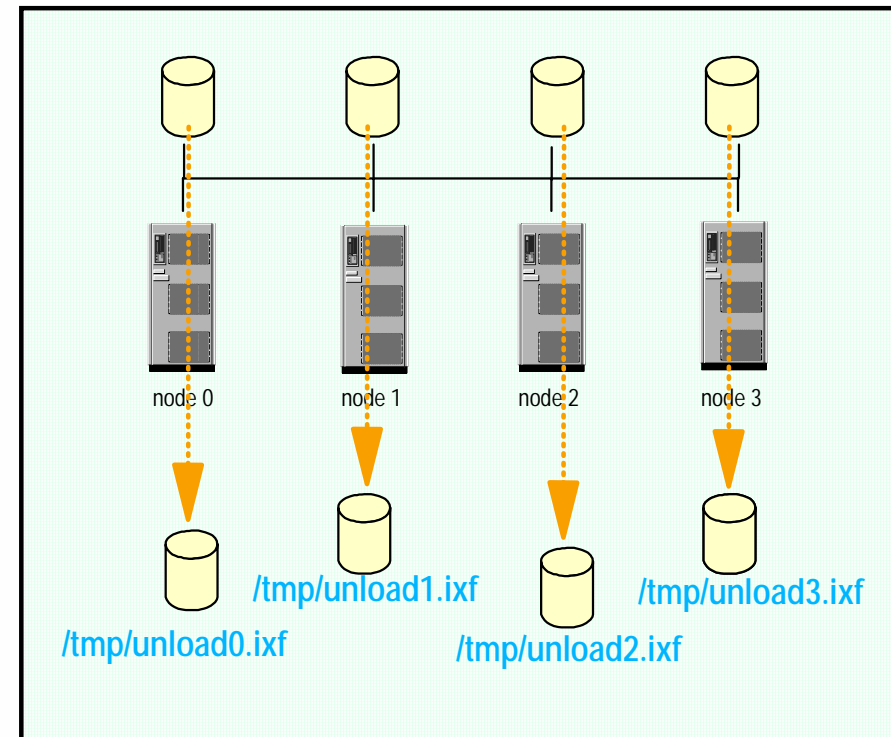
## Single Output Location

- Data from all (or selected) partitions can be unloaded to a single file, tape or pipe
- Data will be unloaded to the current node (the node where the command is executed)



## Multiple Output Locations

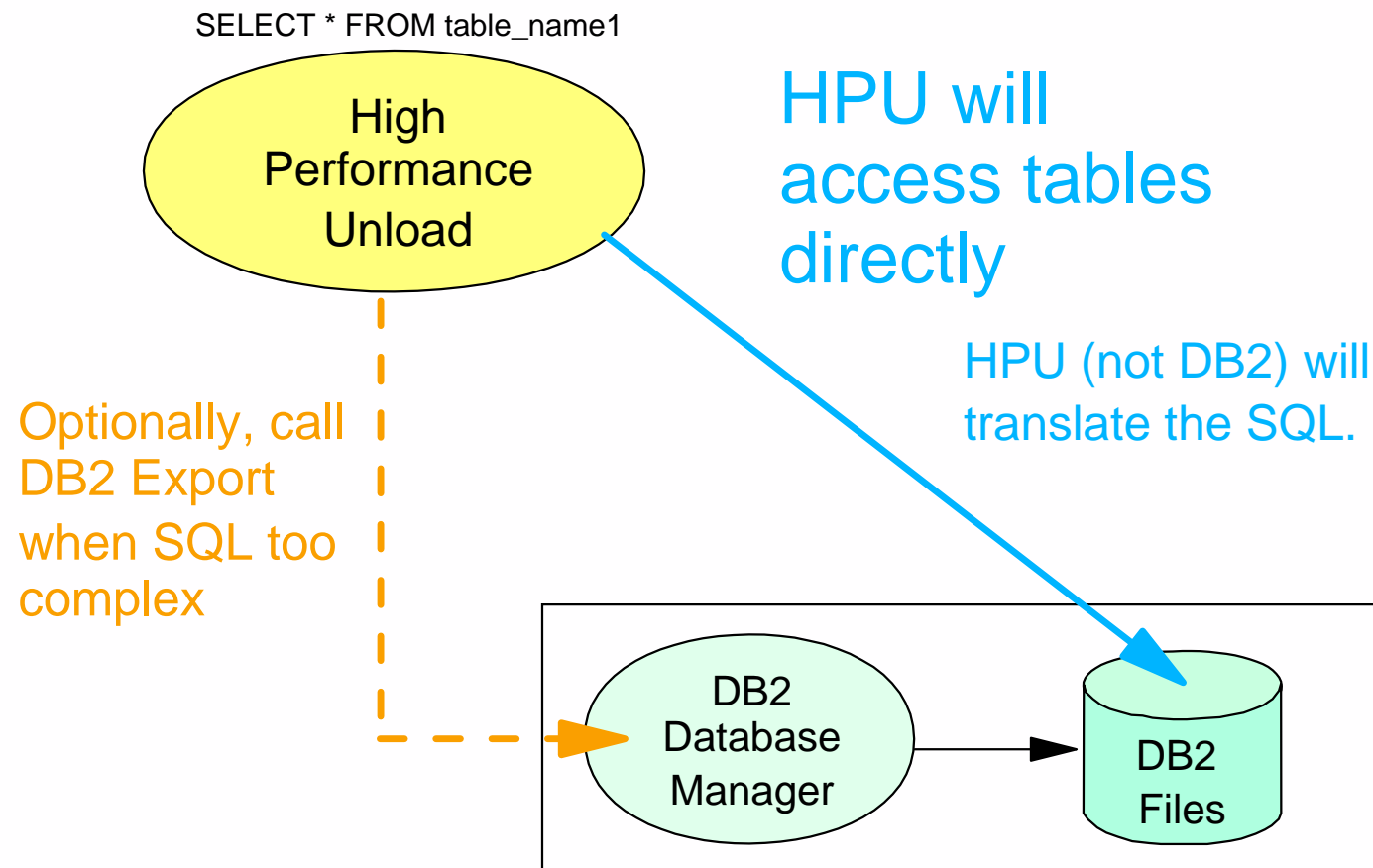
- Can selectively unload partitions (i.e. node 0, node 2 only)
- HPU preserves partition header blocks so DB2 Load Utility can be used to load data





# DB2 High Performance Unload

## Conceptual Overview





# DB2 High Performance Unload

## Support Parameters unique to EEE



For partitioned databases, you can select all nodes to process, the current node or a subset.

Specify the DB2 configuration name if different than the default.

This is where HPU retrieves information about partitions.

Fast Unload Table - EMPLOYEE

system - instance - database - tablespace - schema - table

Unload process Options Output Options Large Objects

Nodes selection

All

Current

For selected nodes

Continue unload when nodes in error

Select blocks list

Block	Select clause
1	Select * Table_Employee

Add...  
Change...  
Remove  
Move Up  
Move Down

Message file

Configuration file (db2nodes.cfg)



Fast Unload Table - EMPLOYEE

system - instance - database - tablespace - schema - table

Unload process Options Output Options Large Objects

Allow DB2 unload if HPU can not handle unload command

No - Ignore unload task

Yes - Use DB2 export when statement is too complexe for HPU

Force - Use DB2 export in any case

Partitions to process

All

Selected partitions

Lock during unload

Quiesce against table

Quiescecat against catalog

Maximum unload tasks in parallel

Stop unload when return code >= 01

OK Show Command Cancel Help

Call DB2 if SQL can not be processed by HPU

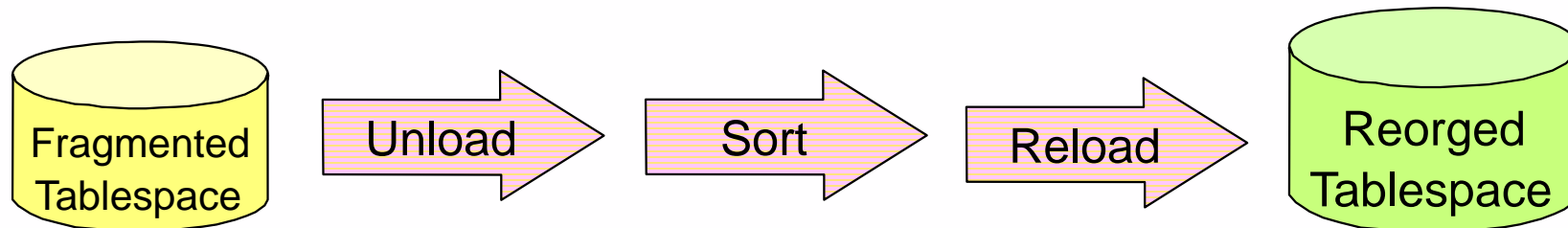
Can control locking so you can ensure that the unloaded file is consistent.

# DB2 High Performance Unload

## Usage Scenario - High Speed Reorg



- ✓ HPU provides an alternative to DB2 reorg process
- ✓ HPU unload up to 6 times faster than Export
- ✓ Tablespace can be in read mode to avoid locking and contention



## Sample Reorg Script

```
mkfifo named_pipe -- make a pipe for unload and sorting

(db2hpu -f control_file | sort > named_pipe )& -- Use HPU control file to
                                                specify unload parms
DB2 load from named_pipe .... -- specify appropriate load parameters

rm named_pipe -- we're done, delete the named_pipe
```

# Customer Challenges

## *Application Management*

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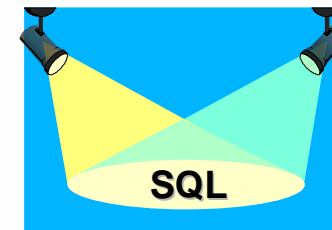
- Limited number of end users able to update/reconcile data
  - ▶ end users can't get direct access to data
  - ▶ non-experts updating data is causing problems
- Need to put business processes (i.e. data entry) on the Web but don't know how, don't have the resources
- Users resist learning complex applications just to do simple tasks
- Alternate solutions investigated are expensive, complex to maintain, hard to train for
- End-user is using ERP or CRM applications and there aren't any tools for maintaining data integrity
- IT staff is already overwhelmed with existing tasks



# DB2 Table Editor

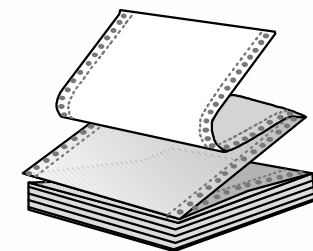
## What it does?

DB2 Table Editor quickly and easily accesses, updates, and deletes data across multiple DB2 database platforms including the Informix Dynamic Server 9.x



## How it does it?

- Full screen table editor (data)
- Windows, Java front-end applications
- Referential Integrity support
- SQL Command button (stored procedures)
- Large Object Support (Windows and Java only)
- Forms





# DB2 Table Editor

ID	NAME	DEPT	JOB
10	SANDERS	20	MGR
20	PERNAL	20	SALES
30	MARENGHI	38	MGR
40	O'BRIEN	38	SALES
50	andy	15	MGR
60	QUIGLEY	38	SALES
70	ROTHMAN	15	SALES
80	JAMES	20	CLERK
90	KOONITZ	42	SALES
100	PLOTZ	42	MGR
110	MCAN	15	CLERK

Select a State:

Select a City:

Pizzerias in your area:

Name	Add

DB2 Forms - [Fire7: DEMO.W4\_DEMO]

File Edit View Window Help

Form **W-4** Emp

Department of the Treasury  
Internal Revenue Service

1 Type your first name

Home address (number and street or rural)

City or Town  State

5 Total number of allowances you are claim

ny, you want withhe  
withholding for 199  
ht to a refund of Al

```

Cmd S ID      N NAME      N DEPT  N JOB  N YE
---- - - - - -
11 N SANDERS  N  20  N MGR  N
21 N PERNAL   N  20  N SALES N
12 N MARENGHI N  38  N MGR  N
41 N O'BRIEN  N  38  N SALES N
61 N QUIGLEY  N  38  N SALES Y
71 N ROTHMAN  N  15  N SALES N
81 N JAMES    N  20  N CLERK Y
91 N KOONITZ  N  42  N SALES N

```





# DB2 Table Editor

*Easy-to-use features for locating, selecting & updating data*

- Edit tables on multiple DB2 database platforms from one GUI client
  - Quickly search for & locate specific rows, filter rows displayed, or immediately jump to tables of related data
  - Use find-and-replace for large-scale changes
  - Save specifications of a table editing session (such as row filtering) and call up the same table-editing layout in the future
  
- Access large objects in DB2 databases
  
- Easily locate and launch previously saved Java-based forms
  - including from links in Web pages or e-mail messages
  
- Launch the standard DB2 Table Editor interface from DB2 Control Center or DB2 Web Query Tool

# DB2 Table Editor

## Forms



*Administrative and forms building for Java or Windows*

- Drag & drop
  - ▶ Design unlimited numbers of table editing forms to deploy for specific tasks and/or on specific data
  - ▶ Save the forms for Java or Windows deployment
  - ▶ Embed business rules, data validation, and command buttons into forms, including command buttons that launch any SQL
  - ▶ Build sets of forms and link them with parent/child relationships
  - ▶ Embed forms into Web pages as tightly controlled data access and data entry applications
  
- Store forms on DB2 databases
  - ▶ restrict access by end users
  - ▶ perform other centralized administrative tasks for enhanced control





# DB2 Table Editor, Version 4.3

## New & enhanced features!

- Informix IDS 9.x Support - Read & Write
- Edit with formulas
  - apply a formula to change a column value in one or more rows
- Usability enhancements:
  - Input text size limited by the column data-type and definition when editing data
  - Thousands separator now displayed in numeric columns
  - Ability to migrate forms from test to production environment (list and change tables used)
  - Position on last row of result set after reaching the end for form layout forms
  - Ability to lock columns for list control
  - Ability to work with tables with ROWID columns
  - Object list window that can stay open (Windows only)
  - Support for refer back in validation rules
- Enhanced Support for Large Objects (LOBs)
- Java player now supports the Previous Row button.
- Support for New Types of Forms

# Customer Challenges

## *Application Management*

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- Difficulty seeing single global view of all database assets
- Impossible for remote users to get crucial data on demand
- Users wait too long to get crucial data from multiple systems
- Improvements take too long to implement
- Can't afford to connect everyone with existing tools
- No budget available to add to head count
- Existing tools too complex, don't support reading multiple DB brands
- Don't want to support multiple proprietary solutions requiring PC installations, maintenance, and training



# DB2 Web Query Tool

## What it does?

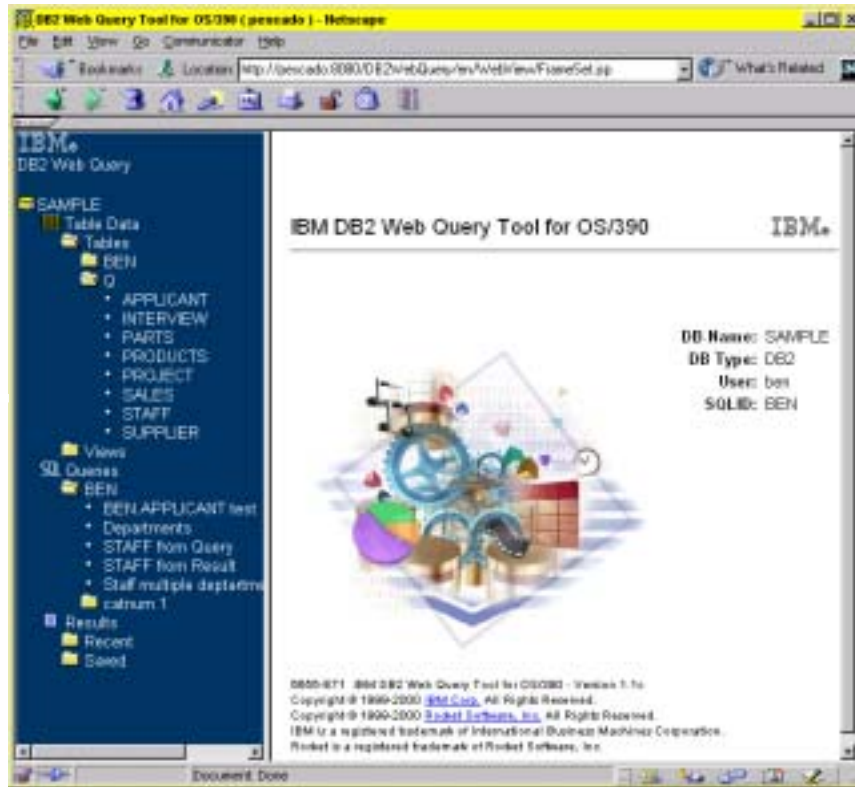
Connects users directly to multiple enterprise databases, securely & simultaneously, regardless of database size, hardware, operating system or location and now includes support for the Informix Dynamic Server 9.x

## How it does it?

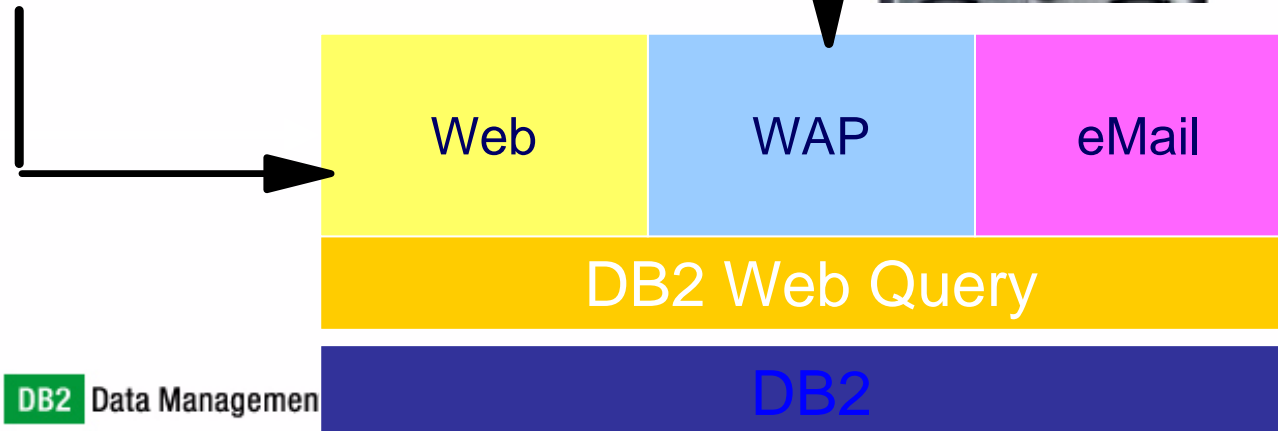
- Provides extensive support for DB2 server platforms
  - ▶ Multiplatforms (AIX, Linux, HP-UX, Sun's Solaris Operating Environment, Windows)
  - ▶ WQT also offered on z/OS (OS/390) and iSeries via a different license
- Supports a wide array of interfaces and multiple end-user devices
  - ▶ WAP- enabled devices (phones, PDAs, text pagers)
- Does "not" require scripts, Web server gateways, or other workarounds that can shrink performance and inflate maintenance costs
- Enables complex querying, data comparisons and customized presentation
- Supports variable viewing options (XML/XSL, .txt, .csv)
- Eliminates the purchase of additional licenses when adding new users
- Focuses on data management instead of the overhead associated with connectivity

# DB2 Web Query Tool

New Release



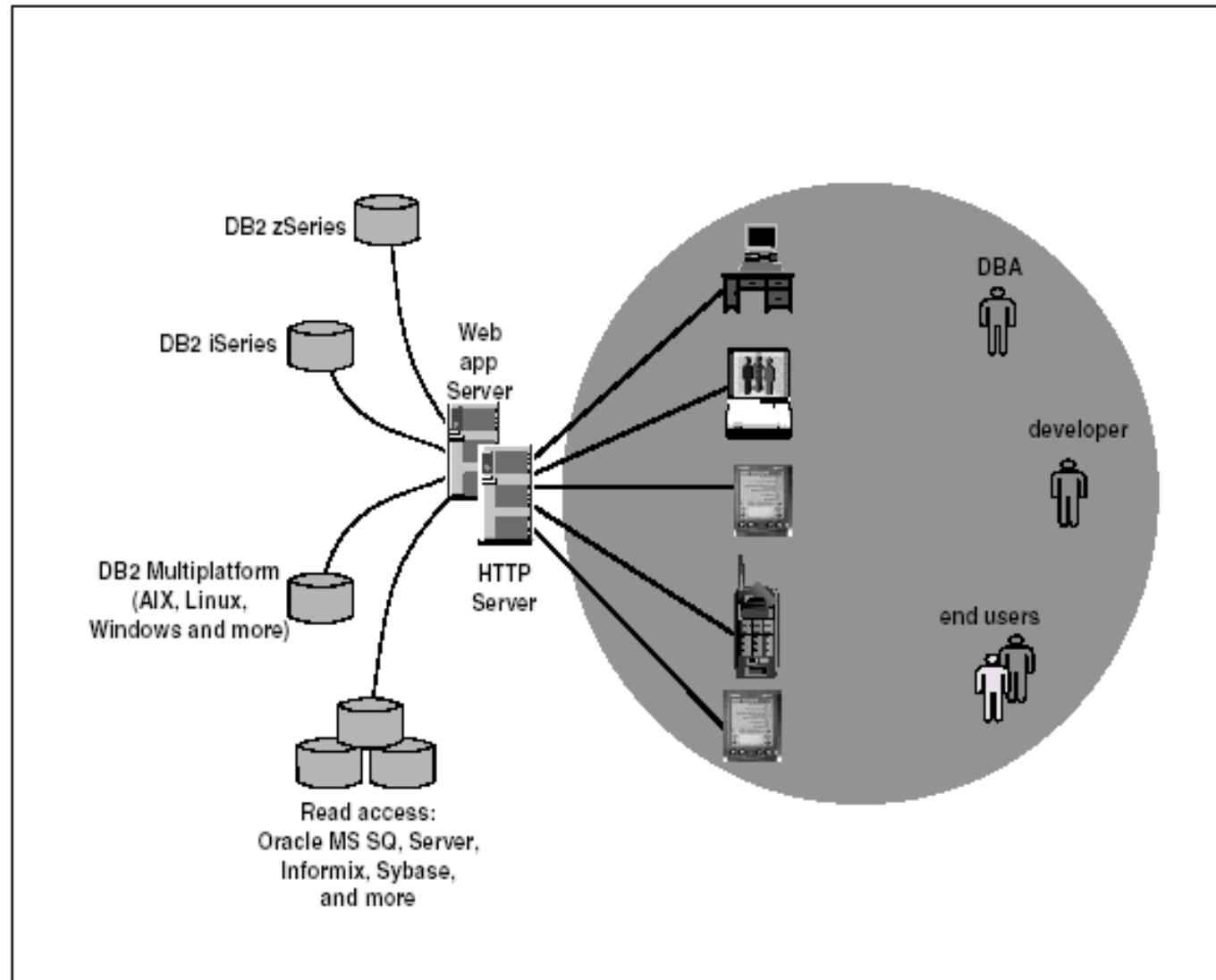
## Client Environments



IBM Confidential  
Until Announced



# DB2 Web Query Tool





# DB2 Web Query Tool, V1.3

## New and enhanced features!

- Informix IDS 9.x support - read & write
- WebSphere 4.0 support
- Server side XSL translations
- Stored procedure support
- Publishable results/queries
- Mark saved objects as Web publishable:
  - WQ assigns a url for direct access
- SOAP services
- Scalable vector graphing
- Large Object (LOB) Support
- BEA Weblogic & Sun™ ONE (formerly IPlanet) support *(included in Fixpak1)*

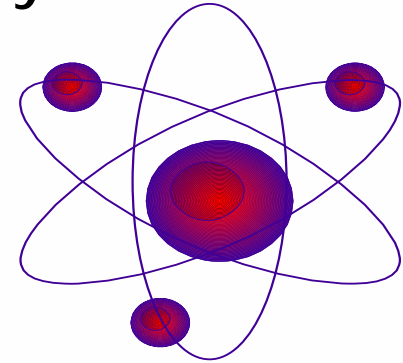
# DB2 Multiplatform Tools

*Future Direction: High Priority Requirements*



Fully automated point-in-time recovery

- Hardware based data backups
- Full application family backups
- Disaster Recovery assistance
  - Provide support for building remote sites
- Additional non-disruptive functions
- Continued Autonomic Computing direction
  - SMART







# Next Steps

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- IBM offers a rich DBMS solution that addresses key business and technical challenges
- IBM is investing to extend all the DB2 facilities
  - We have a strong foundation - more is coming
  - We are engaging in customer programs to refine and prioritize future enhancements
- How can IBM help you apply these new facilities to your enterprise to meet your goals?
  - What are the next steps?



# Learn More!

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- DM Tools Homepage
  - <http://www.ibm.com/software/data/db2imstools>
  - ▶ Overview presentations
  - ▶ Fact sheets
  - ▶ Product downloads
  - ▶ Newsgroup support
  - ▶ Self-running feature/function demos with scripts
- Red books (and more coming!)
- DM Tools teleconference series