

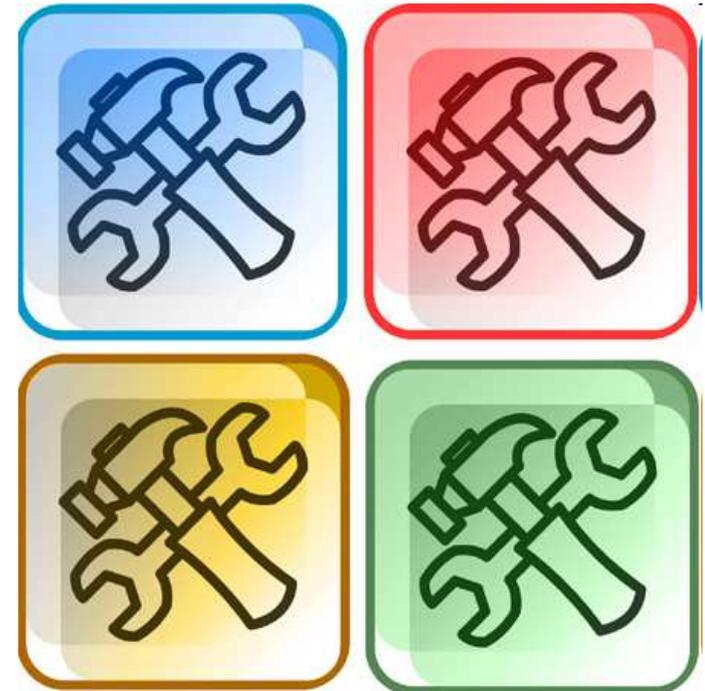


DB2 Tools for z/OS:

Principales novedades

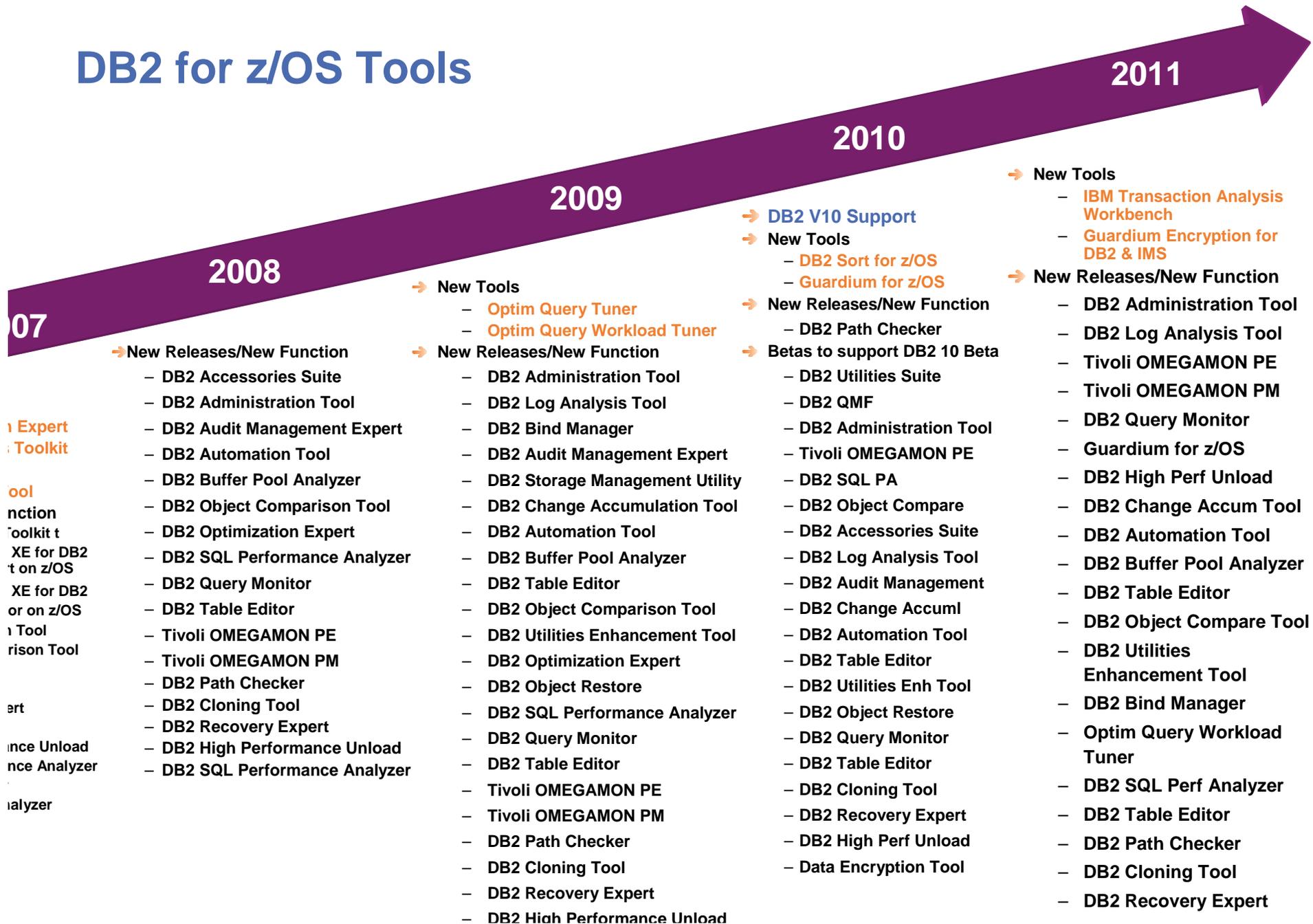
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Septiembre 2.011





DB2 for z/OS Tools





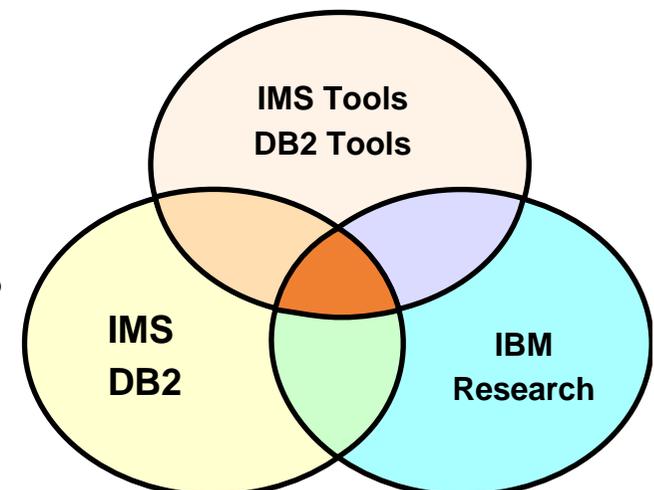
DB2 Tools for z/OS: puntos clave



- **Tolerar y explotar las nuevas versiones de DB2 desde el primer día.**
 - Todas.

- **Ayuda para la reducción de costes (CPU y elapsed time)**
 - DB2 SORT...

- **Seguridad y privacidad de los datos**
 - Guardium...





DB2 Tools: Estrategia

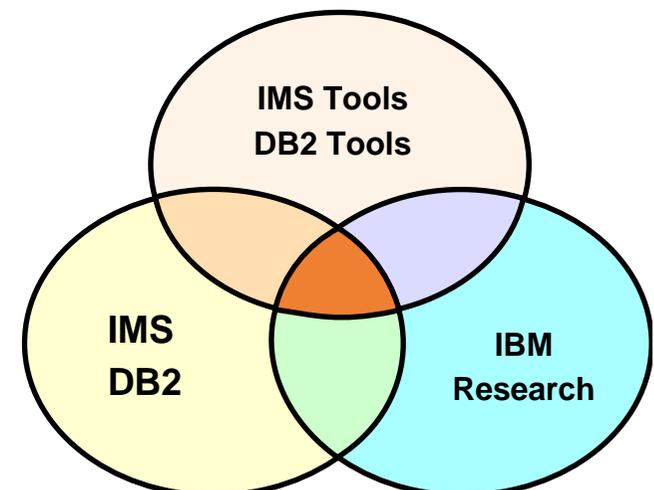
→ Tolerar y explotar las nuevas versiones de DB2 desde el primer día:
ADMIN TOOL, Table Editor , Automation Tool...

→ Reducir costes derivados de IT:

(aquí hay dos aspectos; el consumo de las propias tools(Guardium, OMPE...) y el ahorro con las tools (todas las de rendimiento: QMcon la info de Ziip, QWT cambio de imagen,DB2 Sort y utilities y OMPE y Guardium zIIP offload

- Ahorro de CPU y elapsed time
- Simplificar las tareas derivadas de la administración de DB2
- Reducir riesgos
- Alta disponibilidad
- Ayuda a la migración (cloning tool, SQLPA...)

- » SAP (?) Optim TDM /Masking/Data Growth
- » Guardium
- » Optim System Analyzer for SAP
- » Cloning





DB2 Admin/OC 10.1

Explotar las novedades de DB2 10 for z/OS



Mejoras no relacionadas con DB2 10:

- ALT como único comando para realizar los cambios simples y complejos de ddbb, ts, tablas, índices y vistas consolidando ALC, Redefine Tablespace, Redefine Index, and Rename Database)
- Autonomic utilities
- Soporte NOPAD para UNLOAD
- Versionado de paquetes de V8, 9, 10
-

<http://www.redbooks.ibm.com/redbooks/pdfs/sg247916.pdf>

Administer DB2 Performance Savings

DB2 Admin Tool V10.1 INCLUDE Index non-key Column

```
DB2 Admin ----- DSNT Redefine Index ----- Row 1 to 5 of 5
Command ==>                                           Scroll ==> PAGE

Commands: CONTINUE ORIGINAL
Line commands: nnn A|D - Sequence & order R - Remove the column I - Include
A - Ascending D - Descending RA - Random U - Update expression/XML pattern
B - Business Time without overlaps

CREATE INDEX TEAM76 . TD76XA32_LCN >
      ON TEAM76.TD76TB32_LCN
Unique . . . . . YES      Where Not Null . . . . . Cluster . . . . . YES
Buffer Pool . . . . . BP16  Close Rule . . . . . YES      Copy Allowed . . . . . NO
Piece Size . . . . . 2097152 Define . . . . . YES      Defer . . . . .
Partitioned . . . . .      Padded . . . . .      Compress . . . . . NO

Select Column Name      Col Type      Length      Scale N      ColSeq Ord OldSeq Ord
      *              *              *              * *              * *              * *
-----
      LOC_NO          SMALLINT          2          0 N          1 A          1 A
      LOCATION        CHAR              20          0 N
      ADDRESS         VARCHAR           30          0 N
      TOWN            VARCHAR           30          0 N
      POSTCODE        CHAR              10          0 N
I
```

***** END OF DB2 DATA *****



DB2 Admin Tool V10.1 INCLUDE Index non-key Column

```
DB2 Admin ----- DSNT Redefine Index ----- Row 1 to 5 of 5
Command ==> Scroll ==> PAGE

Commands: CONTINUE ORIGINAL
Line commands: nnn A|D - Sequence & order R - Remove the column I - Include
A - Ascending D - Descending RA - Random U - Update expression/XML pattern
B - Business Time without overlaps

CREATE INDEX TEAM76 . TD76XA32_LCN >
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Unique . . . . . YES      Where Not Null . . . . . Cluster . . . . . YES
Buffer Pool . . . . . BP16  Close Rule . . . . . YES      Copy Allowed . . . . . NO
Piece Size . . . . . 2097152 Define . . . . . YES      Defer . . . . .
Partitioned . . . . . Padded . . . . . Compress . . . . . NO

Select Column Name      Col Type      Length      Scale N      ColSeq Ord OldSeq Ord
      *              *              *              * *              * *              * *
-----
      LOC_NO          SMALLINT          2          0 N          1 A          1 A
* POSTCODE          CHAR              10          0 N          30 I
      LOCATION          CHAR              20          0 N
      ADDRESS          VARCHAR           30          0 N
      TOWN             VARCHAR           30          0 N
-----
***** END OF DB2 DATA *****
```



DB2 Admin Tool V10.1 Temporal Table

```
DB2 Admin ----- DSNT Alter Table ----- 13:53
Command ==>

Table schema . . . : TEAM76 >
Table name . . . : TD76TB11_PARTTB >

AUDIT . . . . . NONE (None, Changes, or All)
DATA CAPTURE . . . . . NONE (None/Changes)
VALIDPROC . . . . . NULL (NULL/Program name)
RESTRICT ON DROP . . . . . NO (Yes/No)
VOLATILE . . . . . NO (Yes/No)
APPEND . . . . . NO (Yes/No)

ALTER TABLE with any of the above changes OR select one of the options below

More: -

- DROP FOREIGN KEY ADD PARTITION
  ADD CHECK constraint ADD CLONE
  DROP CHECK constraint DROP CLONE
  ADD UNIQUE constraint ADD VERSIONING
  DROP UNIQUE constraint DROP VERSIONING
  ADD PERIOD ACTIVATE COLUMN ACCESS CONTROL
  ACTIVATE ROW ACCESS CONTROL DEACTIVATE COLUMN ACCESS CONTROL
  DEACTIVATE ROW ACCESS CONTROL
```



DB2 Admin Tool V10.1 INCLUDE Index non-key Column

```
DB2 Admin ----- Edit Statement ----- Columns 00001 00072
Command ==> _                               Scroll ==> CSR

***** ***** Top of Data *****
000001 -- Created by DBA104 on 2011/01/13 at 10:15
000002 -- Generated by apply exec by DBA104 on 2011/01/13 at 10:15
000003 --#ADMIN PROCESS ALTER
000004 ALTER INDEX TEAM76.TD76XA32_LCN
000005     ADD INCLUDE COLUMN (POSTCODE) ;
000006 COMMIT ;
000007 --#ADMIN PROCESS REBUILD
000008 LISTDEF ADBLD1
000009 INCLUDE INDEXSPACES
000010 INDEX "TEAM76"."TD76XA32_LCN";
000011 REBUILD INDEX LIST ADBLD1;
000012 -- End of Apply statements
***** ***** Bottom of Data *****
```



DB2 Admin Tool V10.1 Temporal Table

```
DB2 Admin ----- DSNT Tables, Views, and Aliases ----- Row 1 from 2
Command ==> _                                           Scroll ==> PAGE

Commands: GRANT  MIG  ALL
Line commands:
C - Columns  A - Auth  L - List  X - Indexes  S - Table space  D - Database
V - Views    T - Tables P - Plans  Y - Synonyms  SEL - Select prototyping
? - Show all line commands

Sel  Name                Schema  T DB Name  TS Name  Cols  Rows  Chks  C
      *                  *      * *      *      *      *      *  *
-----
POLICY                IOD07S  T DSN00330 POLICY    8      5      1
POLICY_HIST           IOD07S  H DSN00331 POLICYRH  8      7      0
***** END OF DB2 DATA *****
```



Nivel de Seguridad DB2 Admin Tool 10.1

```
ADBP6CPM ----- DSN& Create Row Permission ----- 13:49
Command ==>

Commands: EDIT COPY CREATE

CREATE PERMISSION
Schema . . . . . J148286 > (default is J148286)
Name . . . . . T14676_PERMISSI > (? to look up)
ON (Table)
Schema . . . . . J148286 > (default is J148286)
Name . . . . . T14676 > (? to look up)
AS (Correlation)
Name >
FOR ROWS WHERE Search condition: (first 6 lines displayed, use EDIT to modify)
C1 = 1
```

Row Level Security

```
ADBP6CCM ----- DSN& Create Column Mask ----- 13:50
Command ==>

Commands: EDIT COPY CREATE

CREATE MASK
Schema . . . . . J148286 > (default is J148286)
Name . . . . . LI827MK1 > (? to look up)
ON (Table)
Schema . . . . . J148286 > (default is J148286)
Name . . . . . LI827TB1 > (? to look up)
AS (Correlation)
Name >
FOR COLUMN
Name . . . . . C1 (? to look up)
RETURN (Expression): (first 5 lines displayed, use EDIT to modify)
CASE
  WHEN (SESSION_USER = 'PAUL') THEN
    J148286.LI827TB1.C1
  ELSE
    J148286.LI827TB1.C1 - 10
ENABLE/DISABLE
Initial state . . ENABLE (Enable/Disable)
```

Masking de los datos de una columna

ENFORCED FOR ALL
ENABLE/DISABLE
Initial state .



DB2 Admin Tool V10.1 Pending definition changes

DB2 Admin ----- DB12 System Catalog ----- 07:43

Option ==> _

More: +

Object options:

AO - Authorization options

G - Storage groups

D - Databases

S - Table spaces

T - Tables, views, and aliases

V - Views

A - Aliases

Y - Synonyms

X - Indexes

C - Columns

N - Constraints

DS - Database structures

PDC - DB2 pending definition changes

P - Plans

L - Collections

K - Packages

M - DBRMs

H - Schemas

E - User defined data types

F - Functions

O - Stored procedures

J - Triggers

Q - Sequences

DSP - DS with plans and packages

DB2 System: DB12

DB2 SQL ID: DMMAD

Enter standard selection criteria

Name ==> >

Owner ==> >

In D/L/H ==> >

And/or other selection criteria (op

Commands: DIS UTIL DROP

Line commands:

T - Tables D - Database X - Indexes S - Table spaces UTIL - Utilities

DIS - Display object DROP - Drop changes SQ - Statement text I - Interpret

? - Show all line commands

Select	Name	Qualifier	T	S	Keyword	Value	Timestamp
*	*	*	*	*			
-----	-----	-----	-----	-----	-----	-----	-----
	SS12DPT	SSEMDBB	S	1	MAXPARTITIONS	20	2010-11-09-14
	SS12DPT	SSEMDBB	S	2	BUFFERPOOL	BP8KO	2010-11-09-14

***** END OF DB2 DATA *****



Retos fundamentales en la gestión de rendimiento de las bases de datos

- El aumento en el volumen de datos impacta enormemente en las infraestructuras, SLAs y en el rendimiento
 - Media de crecimiento de datos por año es de aprox. 30%
- En los últimos 10 años el número de objetos a gestionar ha aumentado:
 - El número estimado de objetos por DBA se ha multiplicado por 4
- El SQL dinámico ocasiona un rendimiento impredecible y aumenta la complejidad de su análisis.
- Las aplicaciones paquetizadas representan un reto especialmente complejo.
- Falta de herramientas integradas que nos permitan ver las transacciones end-to-end





Query Workload Tuner

Capturar

1. Status

- Text Sources
 - Input Text
 - File
 - SQL Category
 - Exported Workload

2. Capture

- DB2 for z/OS Sources
 - Statement Cache
 - Catalog Plan or Package
 - QMF
 - QMF HPO
 - SQL Procedure
 - Plan Table
 - Statement Table
 - Function Table
 - View, Trigger, or SQL UDF
- DB2 for Linux, UNIX, and Windows Sources
 - Package
 - SQL Procedure
 - View, Trigger, or SQL UDF

3. Manage

4. Invoke

5. Review



Ejecutar Advisors

1. Status

- Single Query
- Workload
 - Set Advisor Options
 - Run Workload Advisors
 - Generate Workload Table Report
 - Open Schedule

2. Capture

3. Manage

4. Invoke

5. Review

Select Query-Tuning Activities

- Workload Statistics Advisor
- Workload Query Advisor
- Workload Index Advisor
- Workload Report

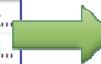
Select All Clear All



Analizar los consejos

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.



Validar las mejoras

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



Mejora de la calidad de las estadísticas recolectadas

- Consejos sobre estadísticas
- Como resultado se obtiene:
 - Estimación de costes más reales
 - Mejora performance de las queries
 - Menos consumo de CPU

“Half of access path PMRs could be resolved by statistics advisor before calling IBM support.” – IBM Support



Statistics Recommendation Detail

Recommendations

RUNSTATS Control Statements

RUNSTATS INDEX(SYSADM.PXS@SKNK FREQVAL NUMCOLS 1 COUNT 15)
SHRLEVEL CHANGE REPORT YES UPDATE ALL HISTORY NONE

RUNSTATS TABLESPACE DB4LINEI.TSLINEI
TABLE(SYSADM.LINEITEM) SAMPLE 40
COLUMN(L_SHIPMODE)
COLGROUP(L_SHIPDATE) HISTOGRAM NUMQUANTILES 25
COLGROUP(L_RECEIPTDATE) FREQVAL COUNT 15 HISTOGRAM NUMQUANTILES 25
COLGROUP(L_SHIPMODE) FREQVAL COUNT 15
COLGROUP(L_RETURNFLAG) FREQVAL COUNT 15
SORTDEVT SYSDA SORTNUM 4
INDEX(SYSADM.SXL@PKSKOKEPDSQN KEYCARD,

Table, index, column, and column group details

O_ORDERKEY
Cardinality: 4.5E7
Uniform statistics collection time: 0001-01-01 00:00:00.0
Uniform statistics status: conflicting
Frequency statistics collection time: 2001-10-04 13:01:28.076475
Frequency statistics status: conflicting
Histogram statistics collection time: null
Histogram statistics status: missing
Possibly point skewed: No
Possibly range skewed: No

O_ORDERPRIORITY
Cardinality: 5.0
Uniform statistics collection time: 0001-01-01 00:00:00.0
Uniform statistics status: OK
Frequency statistics collection time: null
Frequency statistics status: missing
Histogram statistics collection time: null
Histogram statistics status: missing
Possibly point skewed: Yes
Possibly range skewed: No

Conflicts detail

TABLE SYSADM.LINEITEM
One of the frequency records (-1.0) of the L_ORDERKEY column group is out of range [0,1]
Tolerance: 0.0010

The maximum frequency of the column group or column (L_ORDERKEY), (0.0), is less than the average frequency, or 1 divided by the greater than the average unless only least-frequently occurring values are being collected.
Tolerance: 0.0010

Genera RUNSTATS control statements

Indica estadísticas en conflicto o inexistentes

Explicación de los conflictos



Captura

DB2

- Plan table
- Statement table
- Catalog plan o package
- Statement cache

Optim Development Studio

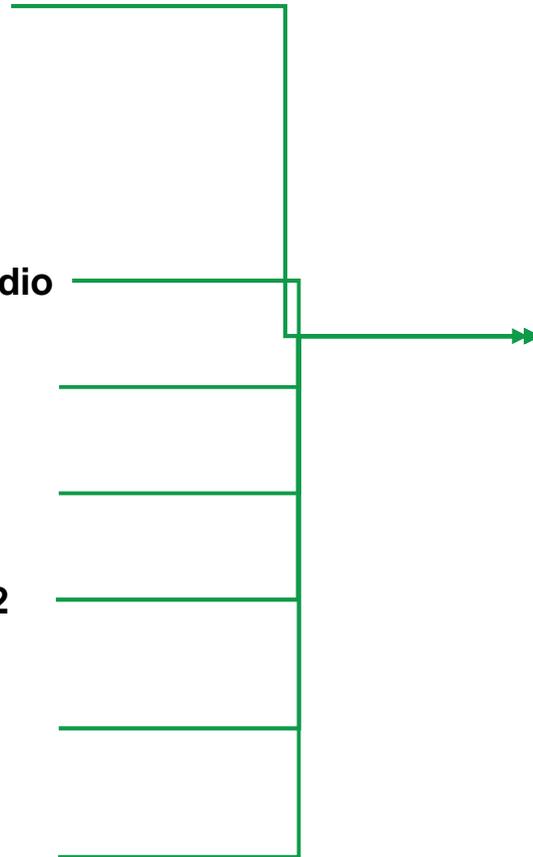
QMF and QMF HPO

DB2 Query Monitor

OMEGAMON XE for DB2

File, text, or exported workload

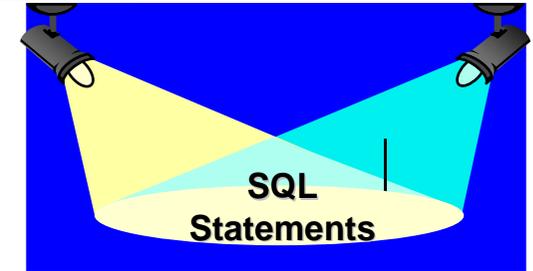
User defined category



Definir o seleccionar workload



DB2 Query Monitor V3.1



→ **Data Sharing Group desde ISPF**

- Permite ver los datos con la perspectiva del grupo de data sharing en los paneles ISPF

→ **Informes batch preparados** – que ayudan a la identificación de los SQLs que son candidatos a ser mejorados.

→ **Mejoras en la información sobre zIIP offload y offload de la propia tool**

- Nuevos campos con información sobre el uso de procesador zIIP



DB2 Query Monitor V3.1

→ Cliente Web

- Acceso vía Web browser UI
- Navegación por la formación sencilla y similar a los paneles ISPF
- Gráficos
- Vistas adaptables por el usuario
- Paneles de análisis con el desglose de la información de donde se ha invertido el tiempo (CPU, Delays, etc.)
- Acceso desde esta interfase a las tablas DB2

The screenshot displays the DB2 Query Monitor V3.1 web interface. At the top, there are navigation tabs: HOME, ACTIVITY BROWSER, ALERTS, CONFIGURATION, and TOOLS. The current view is 'Summaries: Plan(DSNSG)'. Below the navigation, there are filters for Source (QM Subsystems), Target (DSNSG), Perspectives (Summaries), and Initial Summary (plan). The status is 'Done (09:41:28 AM)' and the path is shown. The main table lists query plans with columns for Cmd, Plan, SQLCalls, Elapsed, %Elap, Avg Ela..., CPU, %CPU, Avg CPU, <%..., and Delay. The 'Elapsed' column is highlighted in blue. Below the table, there are controls for Start Row, End Row, Page Size, Full Record Count, and navigation buttons (First, Prev., Next). A pie chart shows the distribution of elapsed time across plans, with 'HAA310P2' being the largest slice at 62.8%. To the right, a 'Details' panel shows a hierarchical breakdown of delays, including Total Delay Time, Total Lock Delay, Global Contention Delays, L-Locks, P-Locks, Drain Lock Delay, Lock Latch Delay, Claim Release Delay, Page Latch Delay, Total IO Delay, Servtask Switch Delay, Other Delay, CPU time, and Unaccounted Time.

Cmd	Plan	SQLCalls	Elapsed	%Elap	Avg Ela...	CPU	%CPU	Avg CPU	<%...	Delay
	ADB	10,517	35.751289	17.71	0.003399	7.378016	19.78	0.000701	20.63	25.7322
	ADB27SPC	20	0.008542	0.00	0.000427	0.001809	0.00	0.000090	21.18	0.0066
	ADB2GEN	2,742	17.089571	8.47	0.006232	1.206131	3.23	0.000439	7.05	15.0138
	ADHPLAN1	65	0.033756	0.01	0.000519	0.015717	0.04	0.000241	46.56	0.0161
	KO2PLAN	12,534	20.429075	10.12	0.001629	12.883416	34.54	0.001027	63.06	6.3786
	HAA310P1	292	0.228765	0.11	0.000783	0.034031	0.09	0.000116	14.87	0.1915
	HAA310P2	1,291	1.593774	0.78	0.001234	0.384050	1.02	0.000297	24.09	1.1950

Elapsed Time: 0.008542

- Total Delay Time: 0.006689 (78.30%)
 - Total Lock Delay: 0.006423 (75.19%; 96.02%)
 - Global Contention Delays: 0.006423 (75.19%; 100.00%)
 - L-Locks Parent (DB,TS,TAB,PART): 0.006423 (75.19%; 100.00%)
 - L-Locks Child (PAGE,ROW): 0.000000 (0.00%; 0.00%)
 - L-Locks Other: 0.000000 (0.00%; 0.00%)
 - P-Locks Pageset/Partition: 0.000000 (0.00%; 0.00%)
 - P-Locks Page: 0.000000 (0.00%; 0.00%)
 - P-Locks Other: 0.000000 (0.00%; 0.00%)
 - Drain Lock Delay Time: 0.000000 (0.00%; 0.00%)
 - Lock Latch Delay Time: 0.000000 (0.00%; 0.00%)
 - Claim Release Delay Time: 0.000000 (0.00%; 0.00%)
 - Page Latch Delay Time: 0.000000 (0.00%; 0.00%)
 - Total IO Delay: 0.000265 (3.10%; 3.96%)
 - Servtask Switch Delay Time: 0.000000 (0.00%; 0.00%)
 - Other Delay: 0.000000 (0.00%; 0.00%)
 - CPU time: 0.001809 (21.17%)
 - Unaccounted Time: 0.000044 (0.51%)



DB2 Query Monitor 3.1 Browser Client

Query Monitor Data Browser - Windows Internet Explorer
https://nwt-l-rp01/webclient/dbrowse#
DB2 Query Monitor for z/OS v3.1
CQM Activity Browser
Source: QM Subsystems, Target: RS22:DB01, Perspectives: Summaries, Initial Summary: Initial Summary
Status: Done (03:20:01 PM), Path: [RS25:PM31] - Q9A4, QA1A... [RS25:Q7A2] - Q7A2
Filter: Intervals* Start: 01/19 - 03:45:15
Please select System, Subsystem

Profundizar en el detalle de los problemas de rendimiento

Navegación por los distintos DB2 Data Sharing Groups y Subsystems

CQM summaries:Authid(DDS2GRP) - windows internet explorer
https://nwt-l-rp01/webclient/dbrowse#sort=DB2_ELAPSED&topN=CC
DB2 Query Monitor for z/OS v3.1
Summaries Summaries:Authid(DDS2GRP)
Source: QM Subsystems, Target: DDS2GRP, Perspectives: Summaries, Initial Summary: Initial Summary
Status: Done (03:45:05 PM), Path: N/A
Filter: Intervals* Start: 01/19 - 06:00:00, End: Current
Start Row: 1, End Row: 11, Page Size: 50, Full Record Count: 11

Cmd.	Authid	Elapsed	%Delay	%Elap	CPU	DB2 Commands
PDPITT		5:59.180208	38.12	61.06	33.82	2:01.50524
PDNUENA		1:51.662215	31.49	18.98	89.88	1:40.37146
PDNJEN		1:15.977833	22.23	12.91	93.27	1:10.86589
CSCARLA		18.714522	4.74	3.18	80.80	15.12306
PDDONAB		13.678537	1.94	2.32	45.27	6.19258
PDPENN		2.731617	0.08	0.46	10.33	0.28218
CSMARK		2.148502	0.39	0.36	58.59	1.25900
PDPITTA		1.327184	0.26	0.22	63.93	0.84858
CSBILL		1.049509	0.23	0.17	71.33	0.74864
PDGID		0.940236	0.26	0.15	90.30	0.84905
CSKUMA		0.511458	0.20	0.12	86.20	0.65644

Comandos idénticos a los de los paneles ISPF

CQM Summaries:Authid(DDS2GRP)
https://nwt-l-rp01/webclient/dbrowse#sort=DB2_ELAPSED&topN=CC
DB2 Query Monitor for z/OS v3.1
Summaries Summaries:Authid(DDS2GRP)
Source: QM Subsystems, Target: DDS2GRP, Perspectives: Summaries, Initial Summary: Initial Summary, Authid: authid
Status: Done (03:45:05 PM), Path: N/A
Filter: Intervals* Start: 01/19 - 06:00:00, End: Current
Start Row: 1, End Row: 11, Page Size: 50, Full Record Count: 11

Cmd.	Authid	SQLCalls	Elapsed	%Elap	CPU
PDPITT		8,882	5:59.180208	61.06	20.063732
PDNUENA		8,940	1:51.662215	18.98	2.400349
PDNJEN		6,895	1:15.977833	12.91	1.755561
CSCARLA		2,549	18.714522	3.18	1.073295
PDDONAB		167,612	13.678537	2.32	1.758370

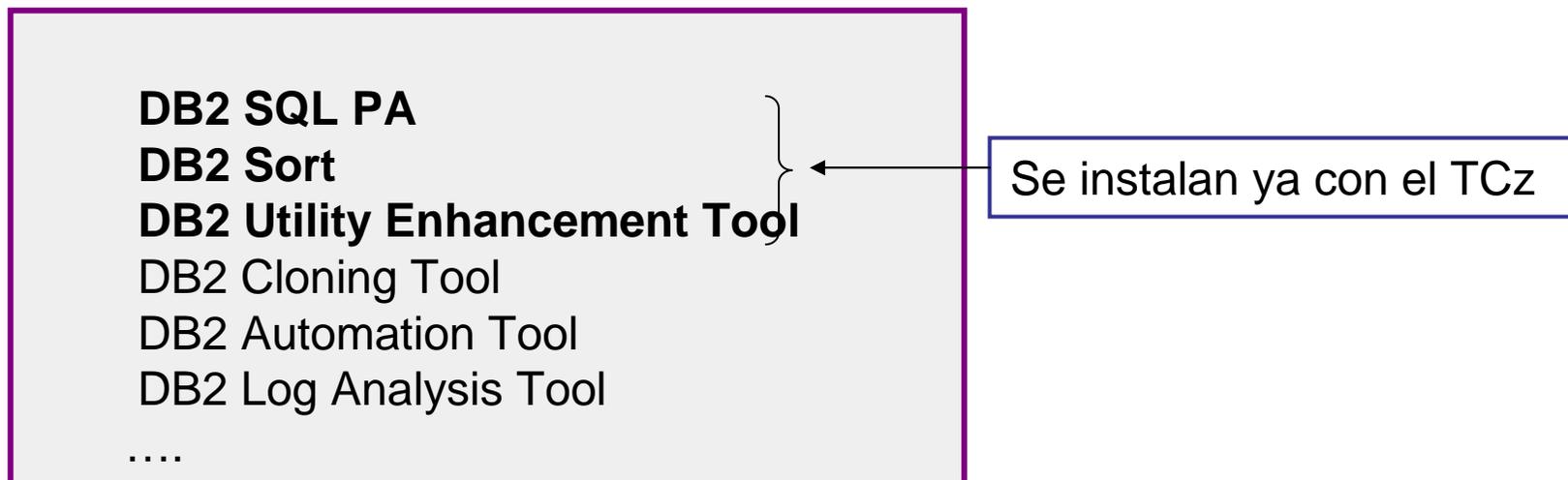
Details
General Delays Locks Buffer Pool Misc. Analysis
Delay Event Event Count Delay Time
Lock or Latch Delays 2,326 9,231900
Synchronous I/O Delay 6,483 1:04.647430
Database I/O Delay: 6,473 0:04.606105
Log Write I/O Delay: 10 0:04.1325
Other Read Delays 3,751 43.299018
Other Write Delays 3 0:050590

Slices 7
PDPITT 5:59.18 (61.0%)
PDNUENA 1:51.66 (18.9%)
PDNJEN 1:15.98 (12.9%)
Remainder (4 items) 4:08 (0.65%)
CSMARK 2:15 (0.36%)
PDPENN 2:73 (0.46%)
PDDONAB 13.68 (2.32%)
CSCARLA 18.71 (3.18%)
PDDONAB 13.68 (2.32%)
CSCARLA 18.71 (3.18%)
PDNJEN 1:15.98 (12.9%)



IBM Tools Customizer for z/OS (TCz)

- Ayudar en la configuración post-SMP/E de las DB2 e IMS Tools for z/OS. El objetivo es proporcionar una forma consistente, fácil de usar y simple para poder realizar la configuración de todas las tools de forma simultánea.
- Prerrequisito para las tools que tienen interface ISPF (excepto Omegamon)





TCz Beneficios

a. Instalación más rápida

- Opción de Discovery de los parámetros de configuración de las versiones anteriores (reducción de entrada manual de datos). Hay templates por productos y se crean JCLs con secuencia de ejecución.

b. Simplifica la configuración de varias tools simultáneamente

- Paso por Paso en paneles ISPF guiado permite la especificación de varios productos a la vez.

c. Rápida propagación a otras LPARs

- Los esqueletos resultantes de la configuración se pueden compartir o transmitir a otras LPARs.

d. Facilita las subidas de versión

- Los parámetros se guardan para que sean útiles en las instalaciones de las siguientes versiones o releases.



Protección de los datos desde el origen



Optim Data Privacy

- enmascara para proteger los datos sensibles

Optim Test Data Management:

- Generación de entornos de prueba

Guardium

- Análisis de Vulnerabilidades
- Monitoriza actividad
- Alertas y prevención de ataques
- Audit y report

Optim Database Encryption

Optim Data Growth Solution

- Retención de datos y archivo

Optim pureQuery:

- SQL dinámico convertido en estático

Módulos especiales para entornos SAP



Puntos estratégicos en el futuro de las Tools



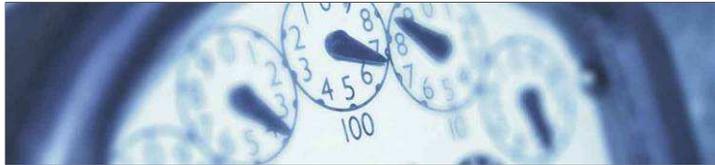
- **Introducir nuevos productos para solucionar los problemas de los clientes**
 - (nueva tools de análisis de los datos módulos específicos de SAP...)
- **Mantener el liderazgo tecnológico sobre otros proveedores**
 - Aumentar el offload a zIIP
 - Integrar con las soluciones de FlashCopy
 - Explotar las ventajas del entorno zEnterprise para la optimización de recursos
- **Mejorar la facilidad de uso de las soluciones IBM**
 - Convertir los clientes Windows en browsers
 - Implementación de funcionalidades nuevas en los productos basadas en el feedback de clientes.
- **Aumentar la integración de las soluciones y fomentar arquitecturas comunes**
 - Tools Customizer (TCz) para todo el porfolio DB2 Tools y otras.
 - Compartir los perfiles de objetos y utilidades.
 - Compartir colectores
- ...
- **Explotación desde el Día-1 de las nuevas versiones de DB2/IMS**



zIIP : IBM Utilities y Tools

- Funciones de las utilities de DB2 utility usadas para mantener la estructura de los índices en LOAD, REORG & REBUILD
- zIIP offload en la utilities al hacer sort con DFSORT
- Nuevo producto **DB2 Sort** para aceleración de la fase de sort
- zIIP offload de RUNSTATS en DB2 10
- **DB2 Utility Enhancement Tool**
- zIIP offload para el proceso de unload en REORG
- **Guardium S Tap for z/OS**
- **DB2 Query Monitor**
- **OMEGAMON for DB2**
 - Da información sobre el zIIP offload (desde 2006)
 - Hace offload def NTH en 5.1 release





Typical Utilization for Servers

Windows: 5-10% Unix: 10-20% **System z: 85-100%**

System z can help **reduce** your floor space up to **75%-85%** in the data center



Gracias



System z can lower your total cost of ownership, requiring **as little as 30%** of the power of a distributed server farm running equivalent workloads

The cost of storage is typically **three times more** in distributed environments

