

DB2 for z/OS  
Version 9  
Independent  
Overview  
(aka "DB2 9")



**GUIDE Share France**

Une Association Indépendante d'Utilisateurs IBM



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*Réunion du Guide DB2 pour z/OS France  
Jeudi 22 novembre 2007  
Immeuble CA, Paris-La Défense*



Transforming  
IT Management

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# Agenda

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- > The Announcements
- > DB2 9 Pre-reqs
- > Overview of DB2 9
- > DB2 and XML

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# Important Notes

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- > CA is still subject to a non-disclosure agreement with IBM
- > I CANNOT speak about anything covered by that agreement
  
- > HOWEVER
  
- > I CAN speak about those DB2 9 items that are already in the public domain thanks to IBM presentations, web papers etc
- > Bear this in mind when asking questions....

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# Announcements

## > May 2<sup>nd</sup> 2006

- IBM announces closed beta program for Version 9
- Announces when first shipment to beta customers will occur

## > June 9<sup>th</sup> 2006

- First code shipment

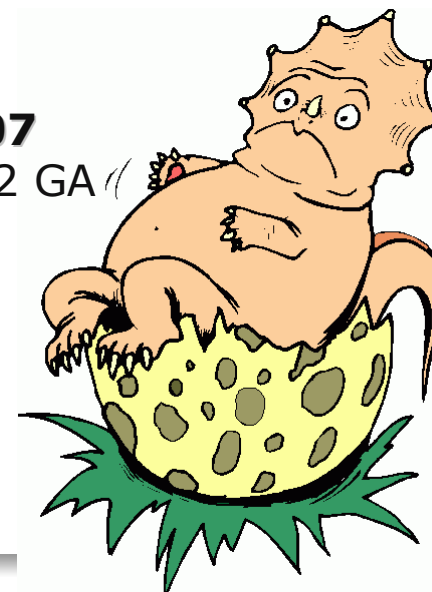
## > March 6<sup>th</sup> 2007

- IBM announces DB2 9 for z/OS will be GA on **March 16<sup>th</sup> 2007**
- CA announces support for DB2 9 as of the DB2 GA date

## > February 6<sup>th</sup> 2007

- DB2 7 End of Service on **June 30<sup>th</sup> 2008**

**Congratulations  
It's a hybrid!**



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# Version 9 Pre-Reqs

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- > z/OS V1.7 in 64 bit mode
- > A z/Architecture machine
- > And DB2 Version 8 (**in NFM**) if you are migrating
- > No Migration path from V7
  - or anywhere other than V8 NFM
- > And yes, this a yet another **Big Release**
  - The basic docs are 145M
  - But the changes are perhaps not as pervasive as DB2 V8

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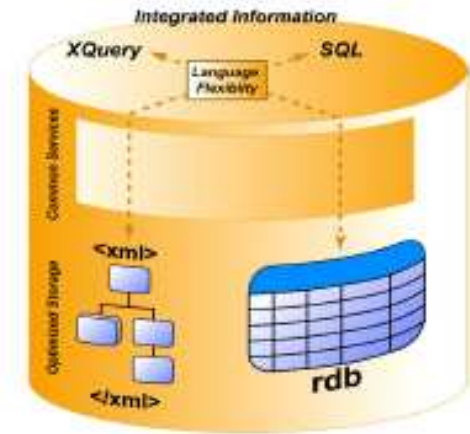
# Still worried about V8 ?

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- > 70% of Top 100 DB2 sites are on V8
- > Over 50% of DB2 sites are on NFM
- > Fewer Severity 1 APARs than V7
- > Fewer outages
  
- > Don't get stuck in a hole .....



# DB2 9 - What's New ?



## > A True Hybrid Database

- Relational AND XML in the same database

## > **Business Innovations**

- Changes to help your business benefit from DB2

## > **Optimizing Innovations**

- Changes to make managing applications and DB2 easier and less expensive

## > **Resiliency Innovations**

- Changes to decrease impacts of planned and unplanned outages

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# Business Innovations

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- > **Native XML storage**
  - As well as relational
- > **More commonality across DB2 family**
- > **New SQL capabilities**
  - See later
- > **New datatypes**
  - BIGGER datatypes...

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# Business Innovations

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## > **MERGE**

- Multi-row support with alterable behaviour
- Can define scope of ROLLBACK if some ROWS fail
- Aka UPSERT

## > **TRUNCATE**

- Mass DELETE from a TABLE
- Not for VIEWS, XML tables, Catalog or AUX, and Parent tables
- If using MLS, SECLABELS may be checked for each row

## > **SELECT** from **UPDATE**, **DELETE** and **MERGE**

## > **SKIP LOCKED DATA**

- Don't confuse with UR

## > **INSTEAD OF** triggers

- Trigger action replaces the action defined in the SQL statement for a VIEW

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# Business Innovations

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- > **BIGINT, VARBINARY, BINARY, DECIMAL FLOAT** datatypes
  - BINARY = CHAR ... FOR BIT DATA
  - VARBINARY = VARCHAR ... FOR BIT DATA
  
- > **Native SQL Procedures**
  - Complete SQL Procedure implemented internally in the DB2
  
- > **FETCH FIRST with ORDER BY** in subselect

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# Business Innovations

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## > **More built in functions**

- Mostly XML and Unicode related
- Some text related
- And some additional Arithmetic/Datetime

## > **Case-less comparisons, cultural sort**

- Variable collation orders for ORDER BY

## > **Index on expression**

- Index on data that is not directly in the table

## > **CLONEd tables**

- Tables that are identical to the base tables (hot live backup)  
ALTER TABLE ADD/DROP CLONE

## > **SMS support in STOGROUPs**

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# Business Innovations

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- > **NOT LOGGED** table spaces
  - XML TS inherits from the base TS
- > **UNIVERSAL** tablespaces
  - Segmented/Partitioned hybrid TS
  - Partitioned by growth (for a single table)
    - Too much data? Have another partition!
  - Partitioned by range
- > **APPEND** option on table for INSERT/LOAD
- > **FETCH CONTINUE** to aid fetching of LOB/XML data
- > **IP V6 support**

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# Security, Security, Security

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## > **Trusted Context**

- A trusted network link between DB2 for z/OS and an external (to z/OS) entity

## > **Roles**

- An ability to give users in a trusted context specific extra authorities

## > **Improved Auditing**

- Better filtering of traces to minimise unwanted audit data

## > **Secure Socket Layer between Subsystems**

- Again, better network security

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# Optimizing Innovations

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## > **Faster reorg**

- And probably faster utilities all around

## > **Elimination of BUILD2 phase**

- Rebuild of entire NPI instead

## > **Global query optimization**

- Optimize queries across a data sharing group

## > **Faster processing of variable length data**

- "Reordered Row Format" data

## > **Index Compression**

- Follows on from table space compression, but not quite to straight forward

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# Optimizing Innovations

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## > **Data encryption**

- Support for z/OS data encryption

## > **Use of zIIP processors**

- Remember a zIIP MIP is free to use

## > **Randomized index key**

- Supports random partitioning

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# Resiliency Innovations

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## > **More Online Schema Stuff**

- RENAME COLUMN
- RENAME INDEX
- CHECK DATA/LOB
- REBUILD INDEX

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# Resiliency Innovations

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- > **Recovery of objects from volume level backups**
  - Provides the “best of both worlds” – Fast backup and granular restore
- > **Faster and automated DB2 restart**

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# XML and your Database

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## > Can native XML be the Database ?

- Inefficient
- Verbose (need to parse every document to access the data)
- No indexes
- No Security
- No Logs
- No RI

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# Halfway XML database solutions

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## > XML enabled DB

- Data is parsed into rows / columns (shredding)
- Documents are constructed from rows / columns (publishing)
- No need to change the existing data model and existing applications

## > Native XML DBs

- XML documents are stored as records in a DB
- Data from the document can be stored on various tables according to the XML data model

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# XML Enabled DB

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## > XML Enabled DB – using XML to exchange data

- No change to existing applications/data model
- Uses DB extensions to transfer data between XML and DB data model
- Limited to the existing design of the DB
- Only retains data that the relational model considers important (data can be lost and the original document cannot be restored).

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# DB2 for z/OS and XML

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- > I feel an entire presentation coming on
- > For this topic alone!
  - Far too much detail for this session

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# Bibliography

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> Look out for GC18-9856

“DB2 Version 9.1 for z/OS – What’s New”

# Questions?

