IBM DB2 ottimizzato per SAP
Technical Overview

Ivano Dallavecchia

Massimo Teratone

IM Data Management Tech Sales

Agenda

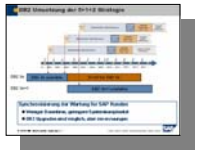
- Introduzione
- Unique DB2 Differentiatiors
- Case Studies
- Summary

I punti di forza del DB2 ottimizzato per SAP

Partnership

SAP e IBM lavorano in team presso I centri di sviluppo

- Risorse IBM “full time” presso i laboratori SAP di Walldorf
- Risorse SAP “full time” presso i laboratori IBM di Toronto



Integrazione di Prodotto

Singolo prodotto, Singola strategia di manutenzione, Singolo entry-point per il supporto

Innovazione Tecnologica

Condivisione di roadmap tecnologica a lungo termine

SAP runs DB2

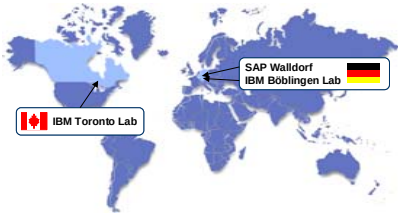
SAP è la maggiore referenza di cliente DB2,

Partnership UNICA tra SAP e IBM

Partnership tra SAP e IBM

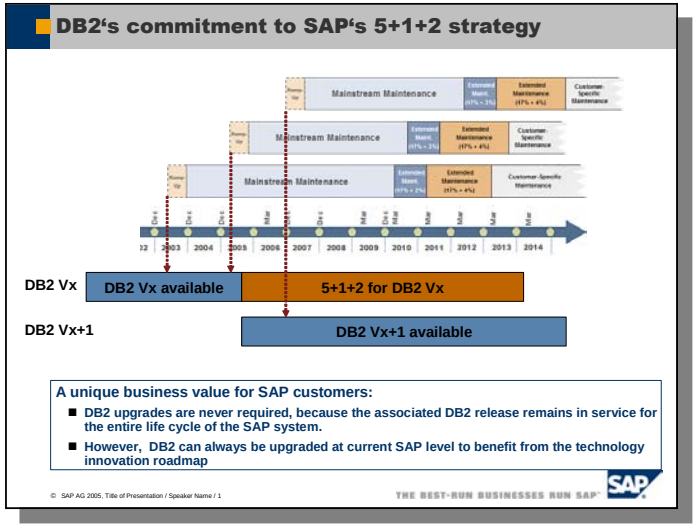
Il progetto di partnership inizia nel 1993

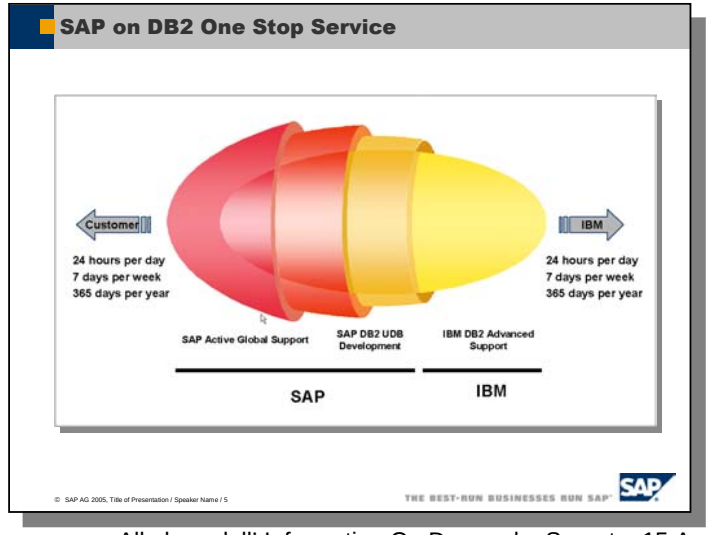
- Presenza di un team di sviluppo SAP+IBM presso il labs SAP di Walldorf
  - Sviluppo del codice nuove release SAP
  - Sviluppo del codice DB2 ottimizzato per SAP
  - Centro di Supporto ai clienti
- Presenza del Team SAP IBM INTEGRATION CENTRE presso il labs IBM di Toronto
  - Integrazione delle nuove release DB2 con le release SAP già esistenti
  - DB2 QA – tutte le fix pack e nuove release di DB2 vengono testate sul software SAP prima di passare in GA
  - Interfaccia con il team di sviluppo DB2
  - Condivisione delle roadmap di innovazione tecnologica
    - Meeting periodici
    - Pianificazione delle future release di DB2
    - SAP design REVIEW



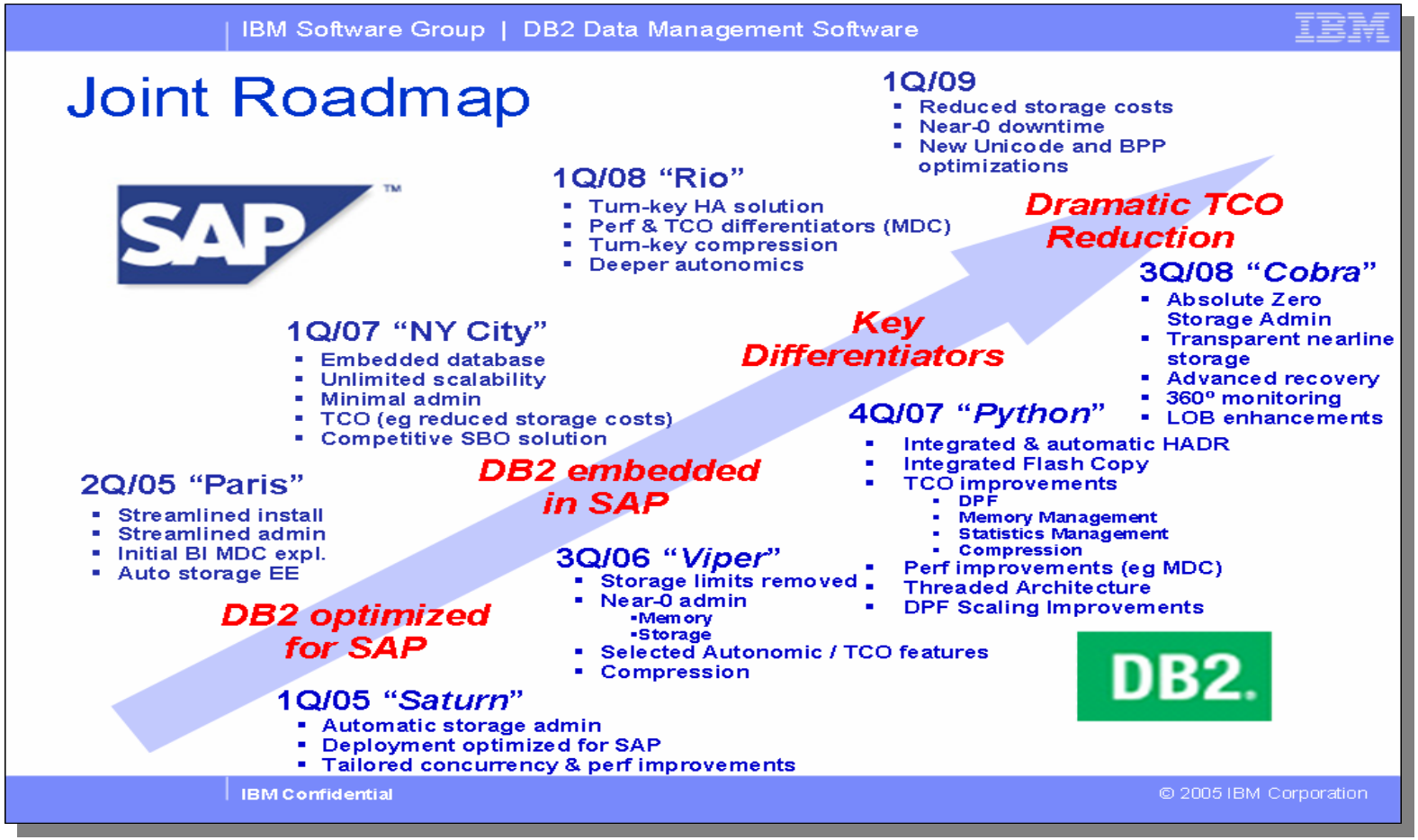
Integrazione di Prodotto

- **SAP-DB2 è un singolo prodotto completamente integrato**
  - I Clienti ricevono il **servizio one-stop** direttamente attraverso SAP
  - Configurazione DB2 in un unico step: **DB2_WORKLOAD=SAP**
  - IBM e SAP testano e validano tutte le release e fix pack DB2 per garantire la massima qalità (Integration Center Toronto)
  - Disponibilità in GA pressochè immediata delle nuove release DB2 per SAP
  - La manutenzione del DB2 è allineata con la strategia di manutenzione SAP 5+1+2: **UPGRADE DI DB2 NON NECESSARI** durante il ciclo di vita di manutenzione SAP





Innovazione Tecnologica a partire dalla Roadmap ....



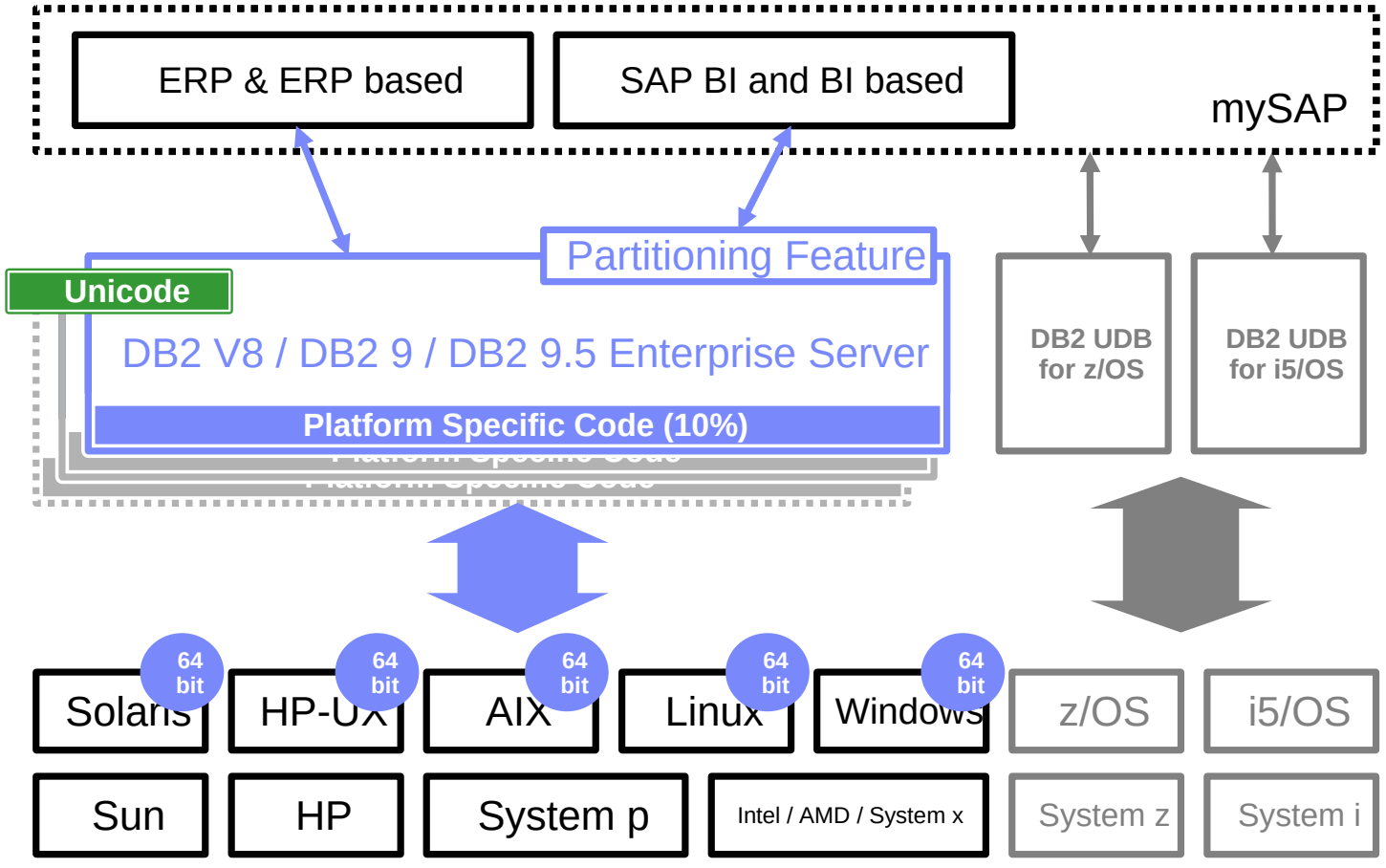
… fino alla fase di shipment !

- **DB2 v8.2.2 (“Saturn“)**
  - *First* DB2 ottimizzato per SAP
  - Rilasciato per tutti i prodotti SAP in Aprile 2005

- **DB2 v9 (“Viper“)**
  - *Next* DB2 ottimizzato per SAP
  - SAP è stato il primo cliente ad adottare DB2 9 con + 380 sistemi
  - Rilasciato per tutti i prodotti SAP in Settembre 2006

- **DB2 9.5 (“Python“)**
  - *Third* DB2 ottimizzato per SAP
  - Rilasciato per R/3 4.6C e superiore in Dicembre 2007

DB2 Platform Availability



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DB2 Performance

DB2 è leader in performance nei Benchmark standard di SAP:

- SD 3-tier benchmark: 168300 utenti
- SAP BI 3-tier benchmark

CERTIFICATION

SAP Standard Application Benchmarks

The SAP SD standard R/3 Enterprise 4.70 application benchmark performed on May 11, 2005 by IBM in Beaverton, OR, USA was certified on May 13, 2005 with the following data:

Number of benchmark users & comp.:	168,300 SD (Sales & Distribution)
Average dialog response time:	1.95 seconds
Throughput:	
Fully Processed Order Line items/hour:	16,896,670
Dialog steps/hour:	50,690,000
SAPS:	844,830
Average DB request time (dia/upd):	0.026 sec / 0.028 sec
CPU utilization of database server:	99%
CPU utilization of application servers:	85% (dia: 85%, upd: 85%, msg/enq: 44%)
Operating System all servers:	AIX 5.3
RDBMS:	DB2 UDB 8.2.2
SAP R/3 Release:	4.70
Total database disk space:	2,240 GB

Configuration:

Database server: IBM eServer p5 Model 595, 32-way SMP, POWER5, 1.9 GHz, 32 KB(D) + 64 KB(I) L1 cache per processor, 1.92 MB L2 cache and 36 MB L3 cache per 2 processors, 256 GB main memory

12 Application servers:

11 Dialog/Update servers: IBM eServer p5 Model 595, 64-way SMP, POWER5, 1.9 GHz, 32 KB(D) + 64 KB(I) L1 cache per processor, 1.92 MB L2 cache and 36 MB L3 cache per 2 processors, 256 GB main memory

1 Message/Enq. server: IBM eServer p5 Model 570, 8-way SMP, POWER5, 1.9 GHz, 32 KB(D) + 64 KB(I) L1 cache per processor, 1.92 MB L2 cache and 36 MB L3 cache per 2 processors, 64 GB main memory

Certification Number. 2005021

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CERTIFICATION

SAP Standard Application Benchmarks

The SAP Business Information Warehouse 3.5 Standard Application Benchmark suite performed on September 22, 2005 by IBM in Toronto, On, Canada was certified on October 19, 2005 with the following data:

The scenario for 64 GB main memory, which corresponds to 934,400,000 records in fact table, was used.

Step 1: Load Phase - Part 1	
Average throughput (rows/hour):	168,360,360
In detail:	
Load from PSA into InfoCube (rows/hour):	218,317,757
Repair secondary indexes on fact table (rows/hour):	2,712,774,194
Create statistics on fact table:	7,768,683,603
Rollup of aggregates (rows/hour):	1,160,344,947
Step 2: Load Phase - Part 2	
Average throughput (rows/hour):	6,511,120
In detail:	
Load from PSA into ODS (rows/hour):	157,262,272
Activate ODS (rows/hour):	6,792,343
Average throughput total step 1+2 (rows/hour):	6,268,687
Step 3: Query Phase	
Throughput/hour:	311,004 query navigation steps
Average CPU utilization of servers:	30%

The software configuration for all steps of the SAP BW benchmark:

Operating System:	SuSE Linux Enterprise Server 9 (64-bit)
RDBMS:	DB2 UDB 8.2.3 (64-bit)
Platform Release:	SAP NetWeaver '04 (64-bit)

Configuration:

Cluster of 32 servers. Each server:
IBM x346 Model 884041U, 1 processor/ 1 core/ 2 threads, Intel XEON 3.6 GHz, L1 Execution Trace Cache, 2 MB L2 cache, 2 GB main memory

Certification Number. 2005043

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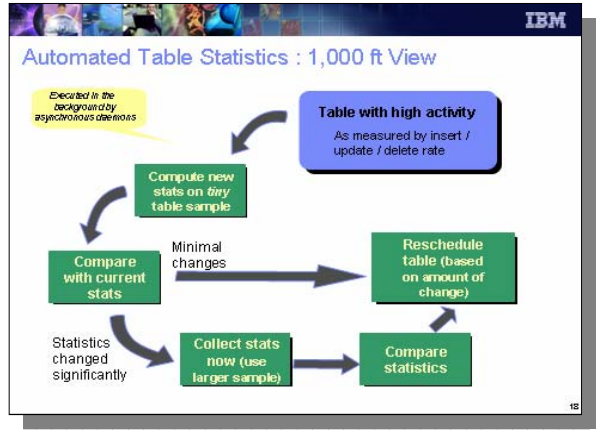
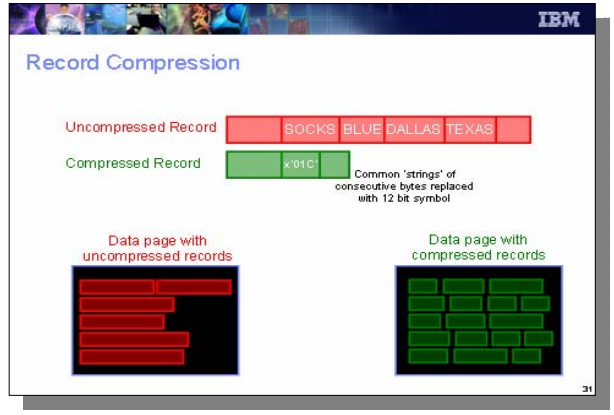
Unique DB2 Differentiators

- **Automatizzazione delle attività DBA**
  - Attività automatiche:
    - Collezione delle statistiche del DBMS
    - Riorganizzazione di tabelle e indici
    - Configurazione del DBMS e Memory Tuning
    - DB2 Log File Management
  - Pienamente certificate e supportate da SAP



- **Data Compression (da DB2 9+)**
  - Compressione delle tabelle completamente trasparente
  - Fino a 80% di *saving* di spazio disco
  - Notevole riduzione delle operazioni di accesso a disco (I/O *saving*)
  - Maggiore efficienza nell'utilizzo della memoria



Unique DB2 Differentiators (2)

DB2 Built-in Recovery

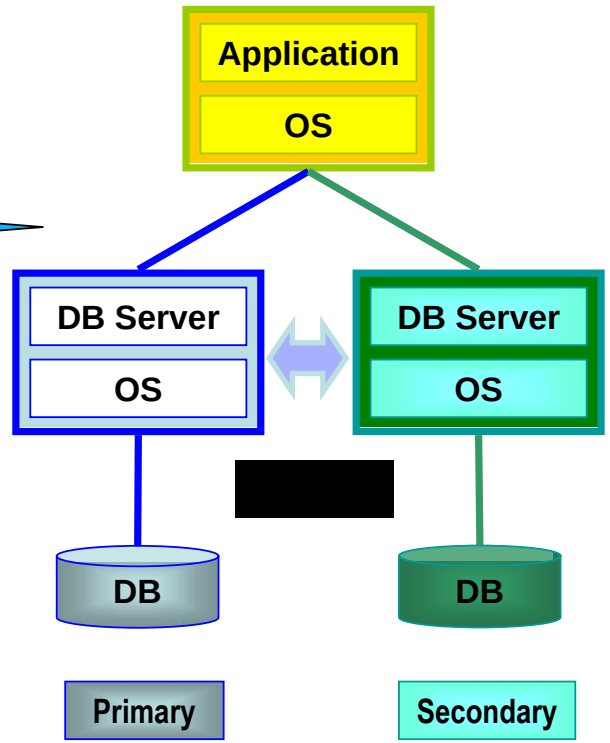
- Backup, Restore, Recovery e Log File Management sono comprese in DB2
  - Nessuna dipendenza da tool esterni

DB2 HADR

- Funzionaniltà di HA-DR completamente integrata
- Senza costi aggiuntivi
- Comprende anche a *no cost* una licenza TSA (DB2 9+ su AIX e Linux)

R3load utilizza DB2 Load

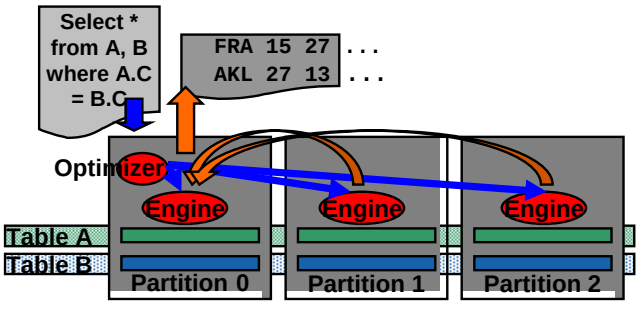
- Data loading 10 volte più veloce
- Supportata a parire da R3load 4.6
- Abbattimento tempi di migrazione



Unique DB2 Differentiators per SAP BI

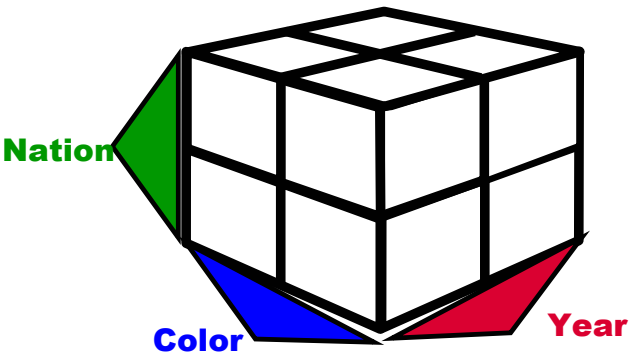
DB2 Database Partitioning Feature

- Architettura Shared Nothing con scalabilità lineare
- Pienamente supportata da SAP a partire da SAP BW 2.0



DB2 Multi Dimensional Clustering

- Miglioramenti prestazionali: query SAP BI fino a 8 volte più veloci
- Nessuna necessità di amministrazione



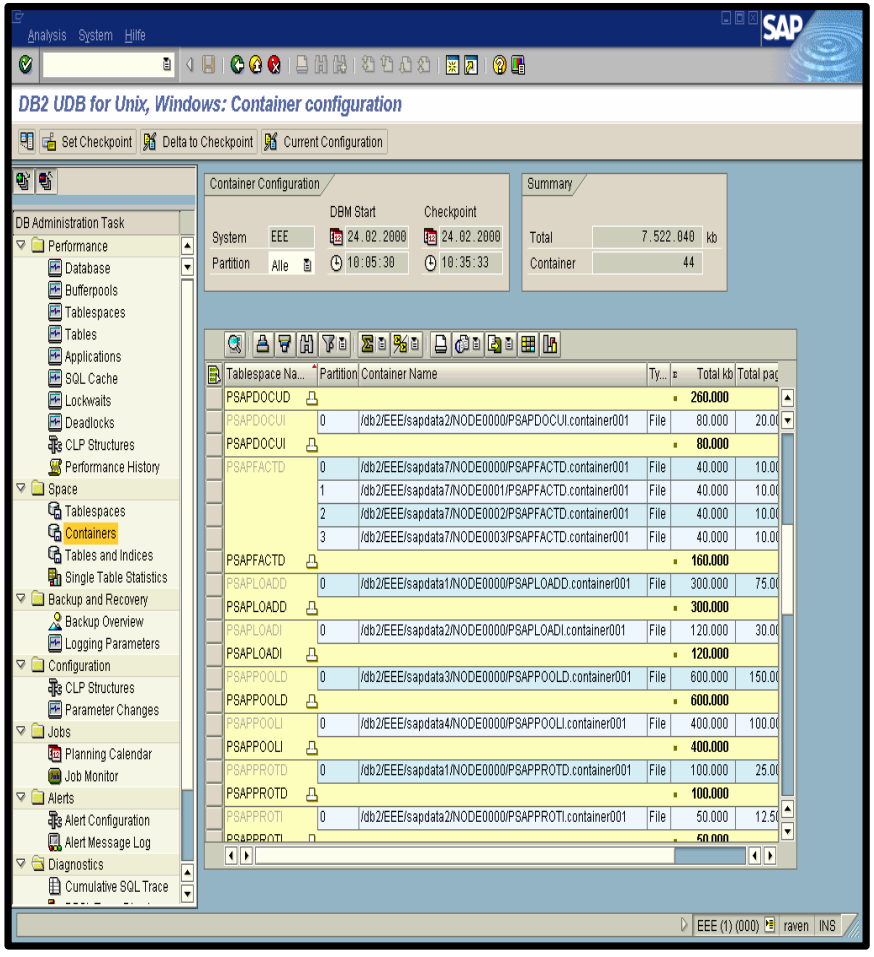
Ulteriori punti di forza di DB2

Architettura Multi Thread (da DB2 9.5)

- Minor consumo di risorse CPUs
- Ottimizzato per prestazioni elevate
- *DB2 Memory Model* completamente automatizzato con Minor consumo memoria RAM

Integrazione con applicazioni SAP

- Tutte le funzionalità del DB2 sia amministrative che di Performance Monitor sono completamente integrate in SAP DBACOCKPIT



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Reference: rku.it

- rku.it provides outsourced IT services to customers in the utilities industry.
- Customer is migrated its SAP systems (~60) from Oracle to DB2
- rku.it
  - reduces database cost of ownership by 30 %
  - decreases SAP response times by 33 %

Reference: Inter Versicherungen

"Our database is now 43 per cent smaller than before, and some of the largest tables have been reduced by up to 70 per cent. Despite the compression, there has been no impact on batch performance, and our most important online transactions are actually 20 per cent faster with the new version of DB2."

Roland Heim, SAP Basis Administrator, INTER Versicherungen

- R/3 4.7 + IS-Insurance
- Migration to DB2 9 - Nov. 2006
- Enabling Deep Compression - 1 week later

- Overall DB size: 266 GB → 151 GB (43 % savings)
- Average dialog response time: 247 ms → 183 ms
- CPU user time: average 18,3 % → 19,6 %

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SAP and IBM - Partnership that makes a difference

		ORACLE	DB2
SAP Platform team setup and tasks	Joint platform team at SAP	**Yes**	**Yes**
	Joint platform team at database vendor	**No**	**Yes**
	SAP platform team develops code for database code base	**No**	**Yes**
Development Cooperation	Regular interlock meetings between SAP and database vendor	**Yes**	**Yes**
	Database vendor reserves very significant portion of development plan exclusively for SAP requirements	**No**	**Yes**
	SAP design review and mandatory sign off for SAP relevant developments in the database code base	**No**	**Yes**
	Database vendor alignes database release schedule with SAP release schedule	**No**	**Yes**
	New database releases tested and validated by SAP prior to database vendor's GA date	**No**	**Yes**
	New database releases certified for use with SAP within 4-8 weeks of database vendor's GA	**No**	**Yes**
Maintenance Offering	All database patch sets and releases tested and validated by SAP prior to database vendor's GA date	**No**	**Yes**
	One-stop defect support offering	**Yes**	**Yes**
	SAP Active Global support available 24x7	**Yes**	**Yes**
	SAP Development support available in multiple time zones	**Yes**	**Yes**
	Database vendor's support strategy follows SAP's support strategy: Underlying database release remains in service for complete 5+1+2 maintenance of SAP system	**No**	**Yes**
Database use at SAP	Database is development platform for new SAP NetWeaver releases	**Yes**	**Yes**
	Database is development platform for future SAP applications and new releases of existing SAP applications	**No**	**Yes**
	Database is used to run SAP's Business Systems	**Yes**	**Yes**

Alcuni SAP DB2 Customers on Linux, Unix and Windows

Fujisawa
Arla Foods
Cameco
AGCO
Fendt
Publix
ÖBB
Banco Urquijo
Grupo KBL
Teleflex
Komatsu
ESB
Farmers Insurance Group
Farmers 75 Years Serving America
Ball
Fresenius
E.G.O.
DuPont
Kone
Bang & Olufsen
B&O
Efes Pilsen
Ball Packaging Europe
rkuit.
Entegris
Reiff
LG Household & Health Care
Hartmann
Danone
Ergon
Mahle
Driven by performance
Fazer
Douglas
JAB Anstoetz
Liechtensteinische Landesbank Aktiengesellschaft
teckcominco
Bohnacker Ladeneinrichtungen
Fossil
Zuger Kantonalbank
IWKA InformationsSysteme
Peek & Cloppenburg
Rolf Benz
Zürich
Thomson West
Warner Bros.
UD Nissan Diesel
McCormick
SC Johnson
Freightliner LLC
Акционерный коммерческий инновационный банк Укрсиббанк
Nestlé
Pick 'n Pay
U of T
Caterpillar
Windmöller & Hölscher
Grohe Water Technology

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