

IBM SolutionsConnect 2013

L'IBM TechSoftware nouvelle génération

28, 29 et 30 août
IBM Client Center Paris



#solconnect13



IM05: Réduisez vos coûts avec DB2 LUW pour SAP

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#solconnect13



Why DB2 ?

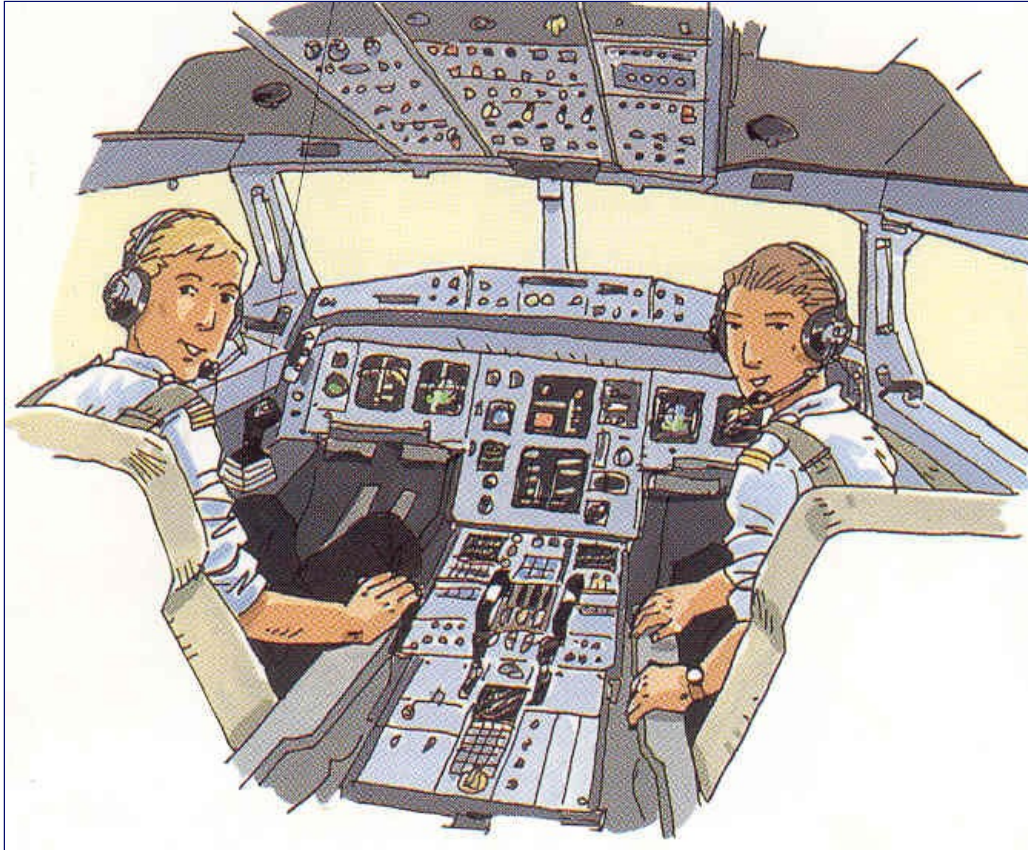
- >20%** reduction of annual OPEX (Operational Expenditure)
- >30%** improvement in SAP performance
- <18 months** to pay back
- Risk free** migration (we never failed)



Extract of customers who migrated to DB2



IBM / SAP Alliance



DB2 for SAP

- 1.Reduce overall cost
- 2.Strategic industry partnership
- 3.Innovative DBMS technology
- 4.Standard migration process
- 5.Many customer examples

<http://www.ibm.com/solutions/sap/us/en/landing/J233701A22235G06.html>



TCO reduction – Potential savings

Cost aspect	DB2 benefit	Typical potential savings
SW-Cost	<ul style="list-style-type: none"> Reduction of database-license and maintenance cost (compared to Oracle) through attractive DB2 prices No cost for additional database management tools based on comprehensive DB2 product bundle 	~ 25 - 40% (Maintenance 60%)
Storage	<ul style="list-style-type: none"> Reduction of storage cost through DB2 compression ~ 40 - 75% <ul style="list-style-type: none"> Smaller database size Less I/Os Smaller backup volume and faster backups 	~ 40 - 75%
Server	<ul style="list-style-type: none"> Reduction of server cost through better performance and scalability <ul style="list-style-type: none"> Efficient use of RAM due to compressed data in DB2 buffers 	~10 -15% at database server
Operation / Administration	<ul style="list-style-type: none"> Simplified administration, better patch/release-planning <ul style="list-style-type: none"> Better 24x7 HA&DR solution, easier achievement of SLAs 	
TCO	Sum of all DB2 benefits	~ 20-40%

Note: Numbers are calculate based on our actual customers during Proof of Concepts and actual migrations. They are validated in our customer testimonials included in this information set.



A Forrester total economic impact study

FORRESTER

The total economic impact of migrating a heterogeneous database environment to IBM DB2 for SAP and non-SAP environments

<http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=SA&subtype=WH&htmlfid=IML14275USEN>

ROI (3-Year Risk-Adjusted ROI/TCO)

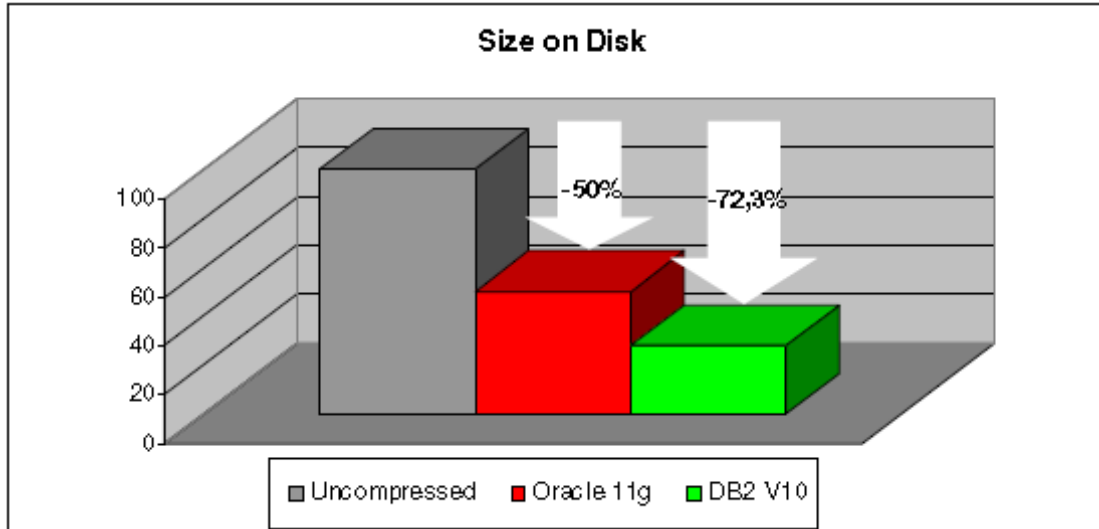
ROI	Payback period	Total benefits (PV)	Total costs (PV)	Net present value
192%	12 months	768,829	263,004	505,825

Key benefits

Reduction in storage growth due to compression (with compression rate up to 75%)	30% (per year)
Reduction in impact of backup and restore events on IT and end user organizations	20-30%
Reduction in maintenance cost	15%
Reduction in problem resolution time	15-30%
Reduction in growth of staffing	30%

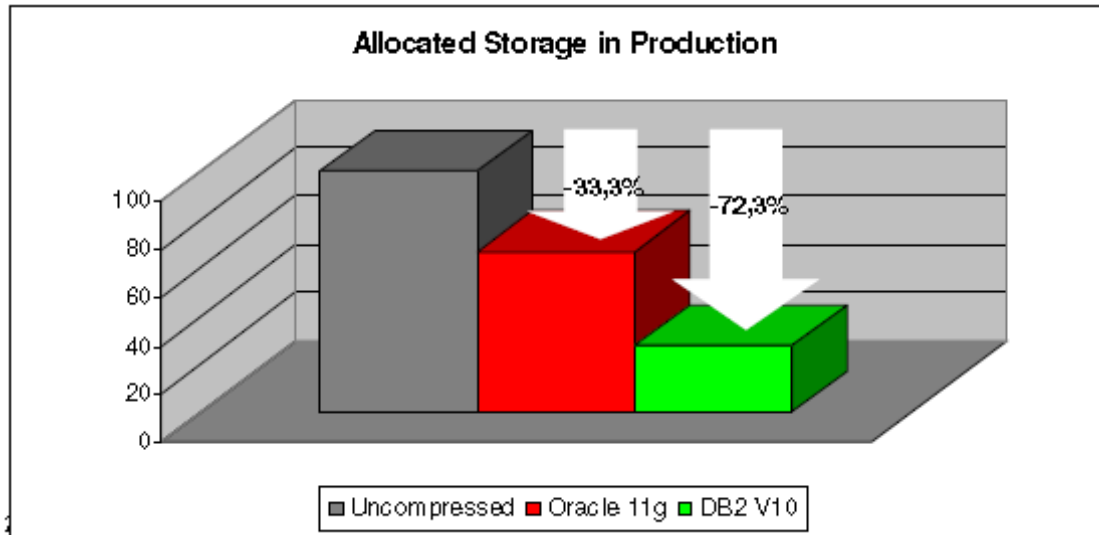


PoC at German utility compagny: compression results



DB2 size reduction on disc

- DB2 V10: 72,3%
- Oracle 11g: 50%

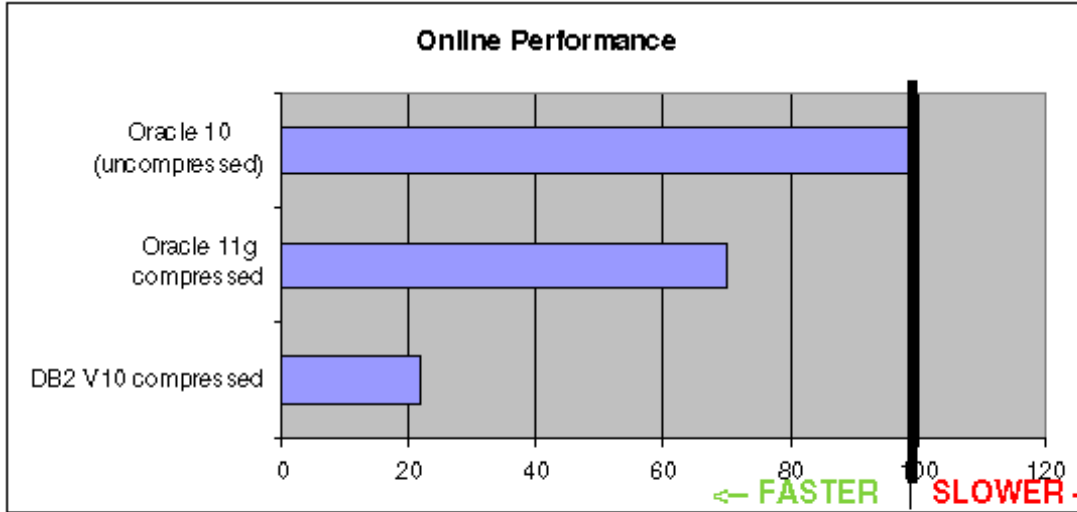


Allocated DB Storage reduction in production

- DB2 V10: 72,3%
- Oracle 11g: 33,3%

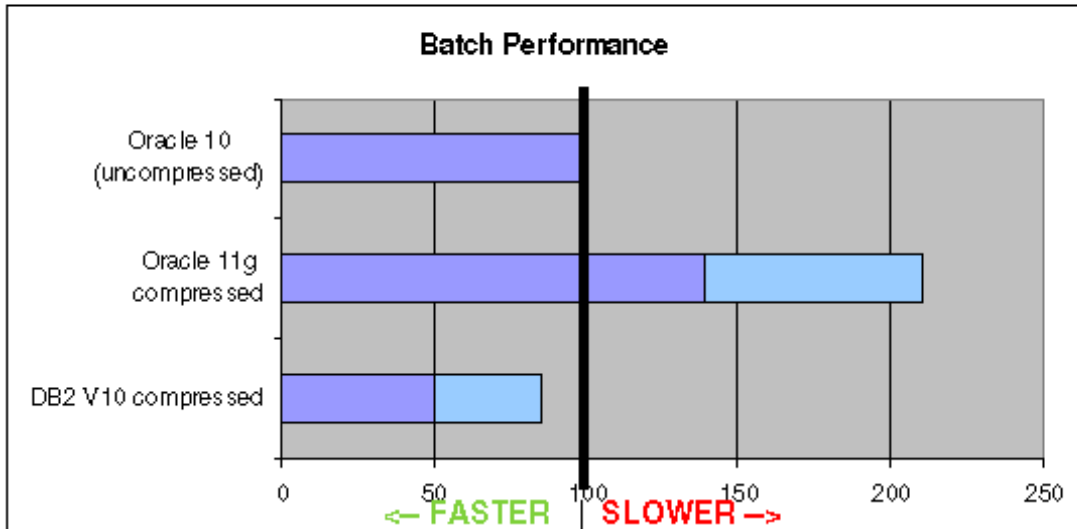


PoC at German utility company: performance results



Online Performance (vs. Oracle 10 uncompressed)

- DB2 V10 - 78% FASTER
- Oracle 11g - 30% FASTER

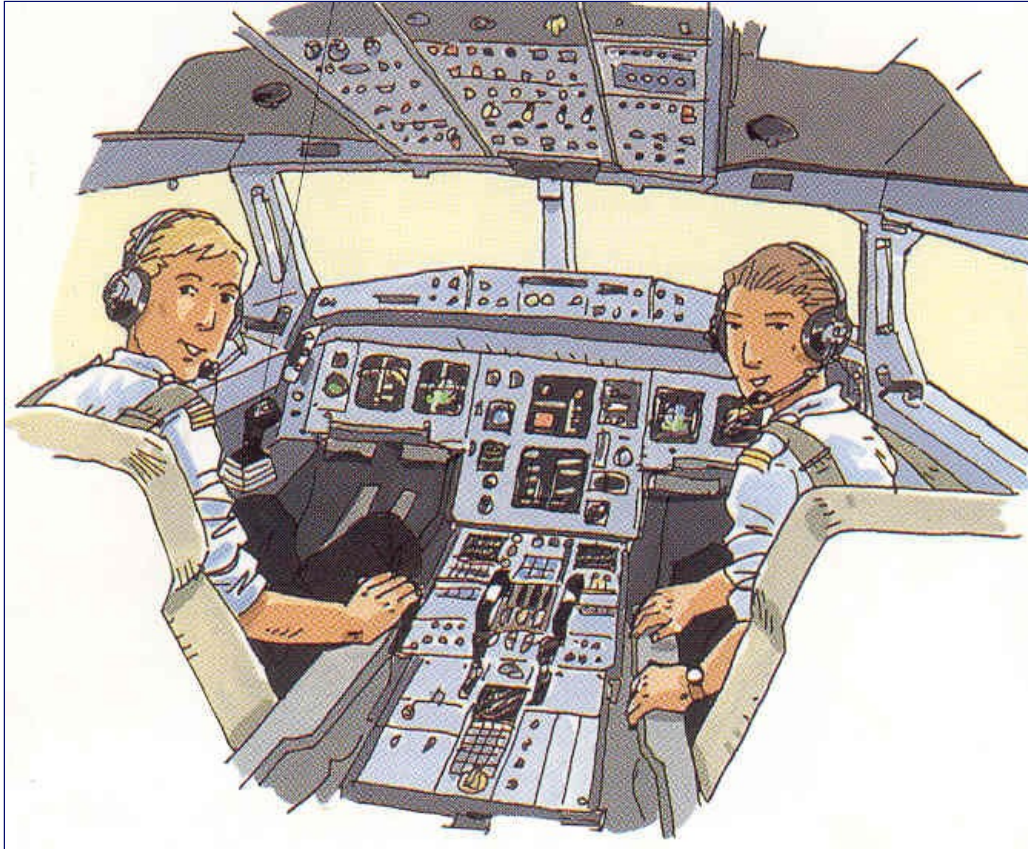


Batch Performance (vs. Oracle 10 uncompressed)

- DB2 V10: 15% to 50% FASTER
- Oracle 11g: 39% to 110% SLOWER



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IBM & SAP relationship

IBM and SAP: Partnership that makes a difference



SAP on DB2 platform team

Jointly staffed platform team at SAP AG
 Jointly staffed integration and support team at IBM Toronto Lab
 Platform team at SAP develops code that ships with DB2



IBM and SAP Development Cooperation

IBM reserves a very significant portion of the DB2 development plan exclusively for SAP requirements
 SAP design review and mandatory sign off for all SAP-relevant developments in DB2
 DB2 code levels are tested and validated with SAP software prior to the DB2 GA date.
 DB2 releases are typically certified for use with SAP applications within 6-8 weeks after IBM GA



Maintenance Offering

24x7 one-stop support through SAP
 DB2 follows SAP's support strategy: Underlying DB2 release remains in service for complete 5+1+2 or 7+2 maintenance of the SAP system



Use at SAP and IBM

DB2 is a major development platform at SAP
 SAP runs DB2
 IBM runs SAP on DB2



IBM DB2 10.5 BLU Integration into SAP BW



Jointly staff development team

SAP on DB2 Development

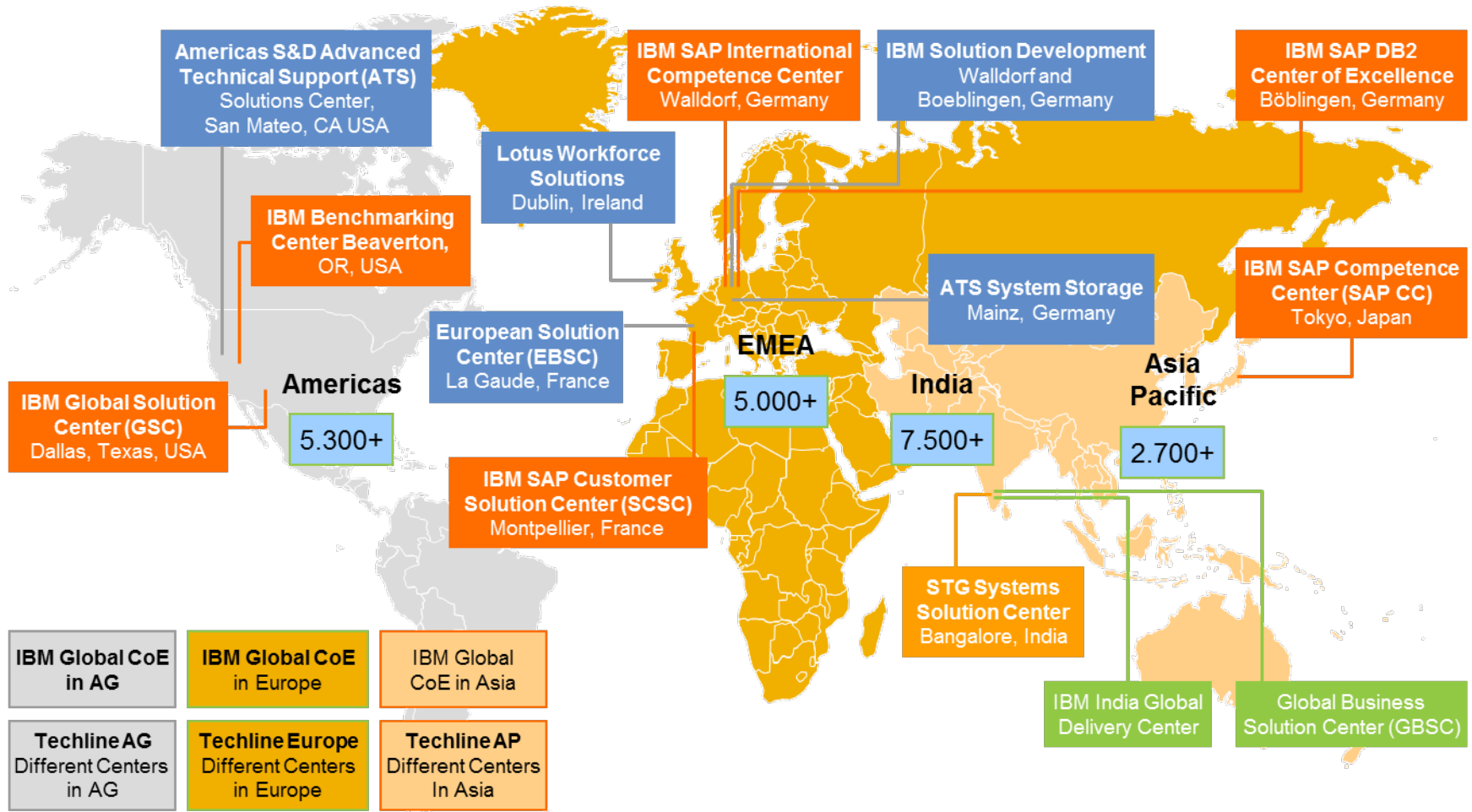
- Development of SAP code
- Development of DB2 code for SAP-specific line items
- SAP Development support
- Cooperation with DB2 Service
- Jointly staffed by IBM and SAP

SAP on DB2 Integration Center

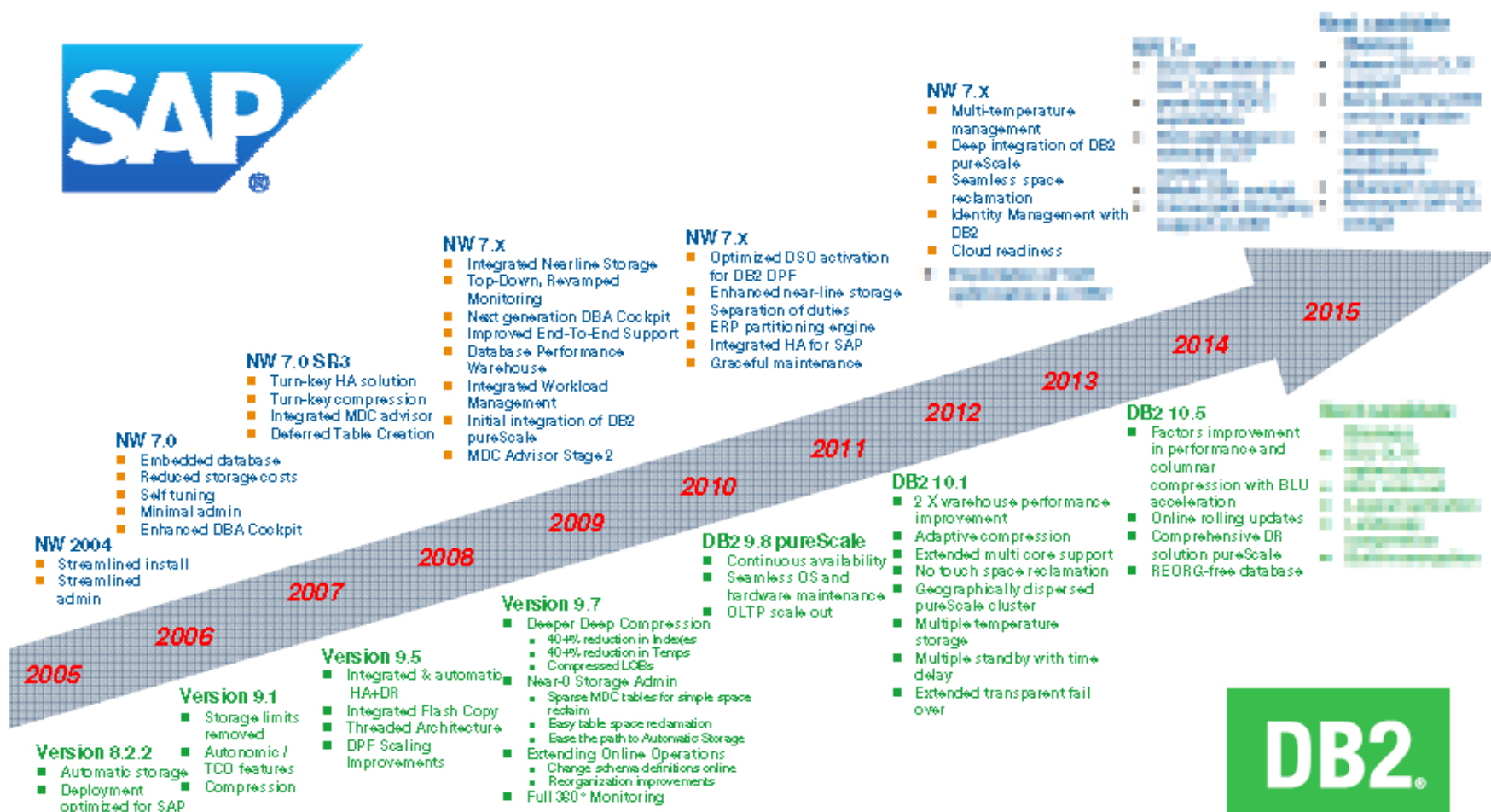
Integration of new DB2 code with existing GA level SAP releases
 DB2 QA for every new DB2 code level with SAP applications far before IBM GA
 SAP Development support
 Cooperation with DB2 Service
 Jointly staffed by IBM and SAP



IBM SAP investments & support centers, a truly global team



DB2 Roadmap



Aligned release, maintenance and support cycle

One Maintenance Strategy

- Unmatched business value: **No forced or undesired database upgrades**
- DB2 remains in service for the 7+2 and 5+1+2 years of SAP maintenance period *
- As a result you have the **freedom of choice**
 - You can stay on your current DB2 version if you desire
 - You can upgrade to the next DB2 version on your current SAP release to benefit from the technology innovations provided by IBM and SAP

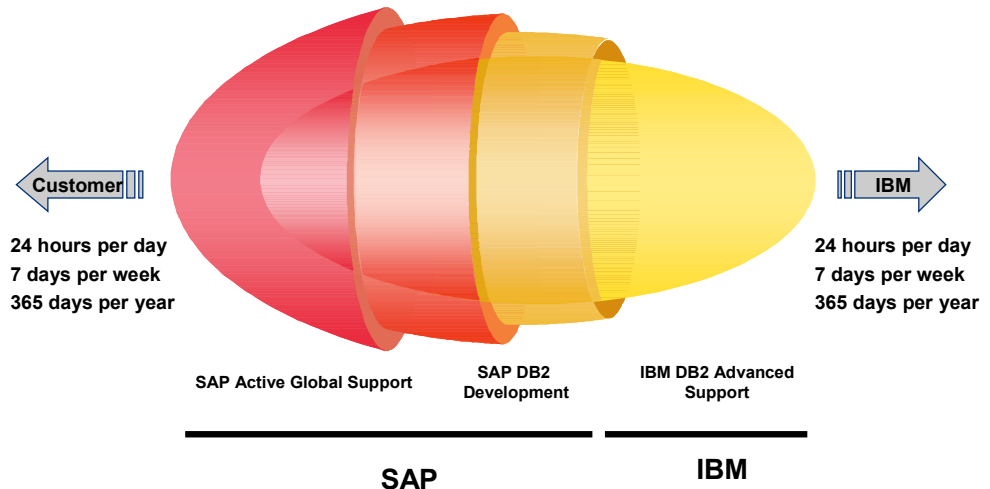
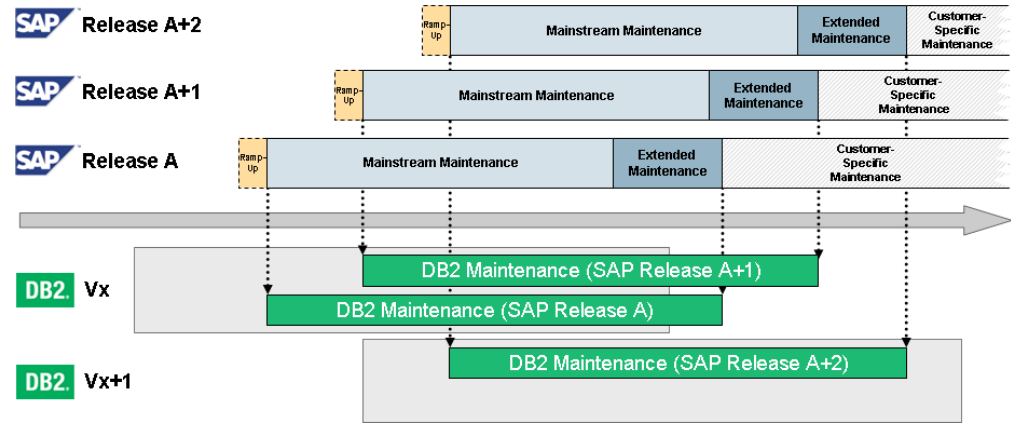
Near-concurrent Releases

- Eliminates delays in adopting new technology

One Support Vendor

- Eliminates vendor conflict during problem diagnosis

* Applies to customers who have purchased DB2 from SAP. (see SAP note 1168456 and IBM TechNote 1051638). Customers with other DB2 entitlement need to obtain a DB2 Service Extension from IBM



Aligned release, maintenance and support cycle

Database version	Database GA	SAP DB GA	Delay between database and SAP GA (in months)	SAP DB support until
DB2 8.2	29.04.2005	03.06.2005	1	31.12.2015*
DB2 9.1	28.07.2006	31.08.2006	1	31.12.2017*
DB2 9.5	31.10.2008	20.12.2008	2	31.12.2017*
DB2 9.7	26.06.2009	28.08.2009	2	31.12.2022*
<i>DB2 10.1</i>	<i>03.04.2012</i>	<i>17.07.2012</i>	<i>3</i>	<i>31.12.2022*</i>
MSSQL08R2	21.04.2010	Q4/2010	~8	08.01.2014
<i>MSSQL12</i>	<i>06.03.2012</i>	<i>Exp. Q3-Q4</i>	<i>~6-9</i>	<i>10.07.2017</i>
Oracle 10g	January 2004	Q3/2006	31	31.07.2011
Oracle 11g	July 2007	Q2/2010	33	January 2015

Status: 7th June 2012,

Source: SAP hint 1168456, 1174136, 1177356

Joint DB2 & SAP development: Early tests during the implementation in Toronto + Walldorf

- DB2 between 1-2 months delay supported by SAP
- DB2 supports existing database version for a long time (DB2 8.2 support ends after Oracle 11.2g de-support)

Relaxed long-term project planning combined with usage of most current DB2 technology

Database patch comparison for current versions

Database	# Patches	# Months
DB2 8	18	113
DB2 9.1	11	70
DB2 9.5	9	53
DB2 9.7	5	33
SQL2008R2*	25*	26
Oracle 10.2g	213	68
Oracle 11.2g	112	26

Status: 7th June 2011

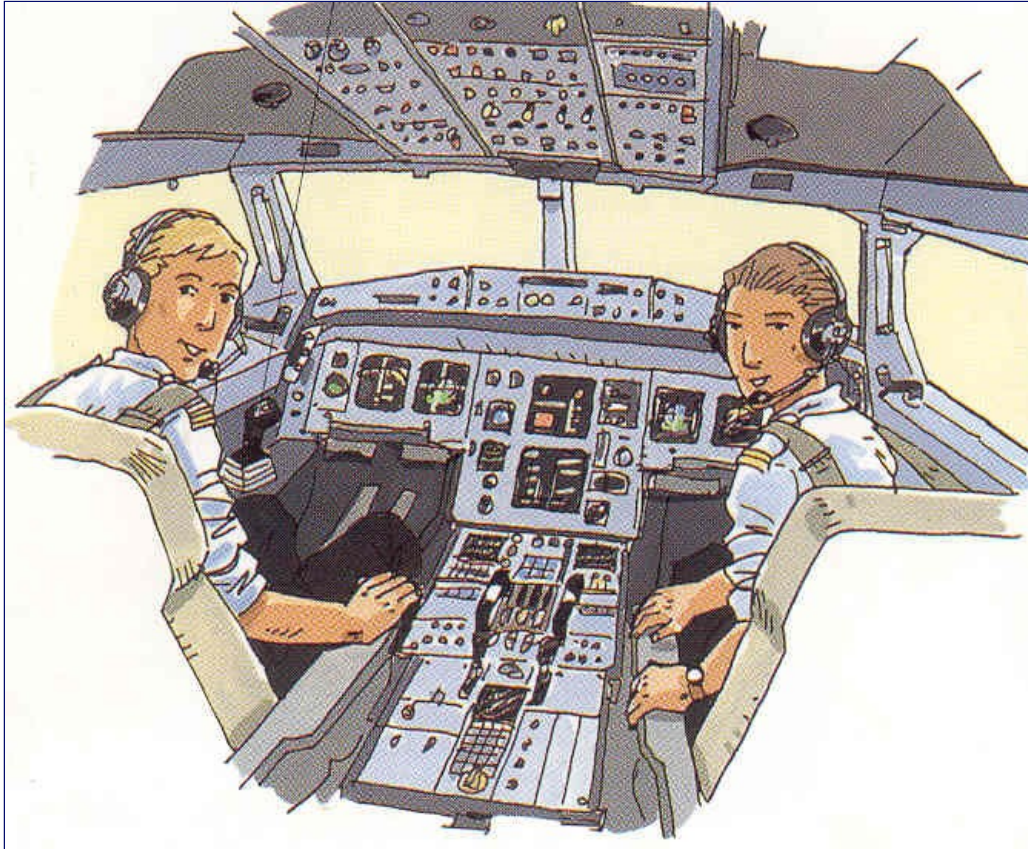
Source: SAP hint 101809, 1137346, <http://support.microsoft.com>, <http://blogs.msdn.com/b/sqlreleaseservices>
SAP Marketplace → Downloads → Database Patches

* Cumulative updates 25 with 297 fixes. Not included security and hot fixes

- SAP's '7+2' maintenance strategy fully supported by DB2
- DB2 9.1, 9.5 und 9.7 - average 1 patch per 6 months
- Oracle 10.2g - average 3 patches per 1 months
- Oracle 11.2g - average 6 patches per 1 months
- Oracle databases must be patched at least with the critical patches, which are provided 4 times per year (usually January, April, July and October)
- **Oracle 11.2g patches for 26 months is more than the patches for all DB2 versions together**
- **DB2 provides much more reliable and stable operating**



IBM / SAP Alliance



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SAP on DB2 key differentiators help deliver lowest TCO

DB2_WORKLOAD=SAP

- One-step out
 - Tailored
 - Covers all
 - A safe bet for
 - Tested during
 - Checked by

DB2 Built-In High Availability

- Built-in near-update capabilities
- Integrated
- Integrated in
- Fully supported
- Included in

DB2 Database Partitioning Feature (DPF)

- Shared-nothing
- Mature technology
- Fully supported
- Integrated into
- Included in

DB2 Automatic Maintenance

- Most DBA activities
 - Memory
 - Storage
 - Collector
 - And many
- Up to 60%
 - Deferred to
 - Substantial
 - Fully integr
 - Included in

SAP on DB2 Deferred Table Creation

- Guaranteed
- SAP NetWe
- Fast roll-in
- Zero admin
- Fully supported
- Fully integr
- Included in

DB2 Multidimensional Clustering

- Prioritize an
 - SAP pro
 - End use
 - Applicat
 - Integrated i
 - Included in

DB2 Workload Management (WLM)

- Collection of
 - I/O behav
 - CPU usag
- Flexible data
- Integrated int
- Included in

Database Performance Warehouse

- Overall Workload Performance: Business Data vs. Operational Data

DB2 Deep Compression

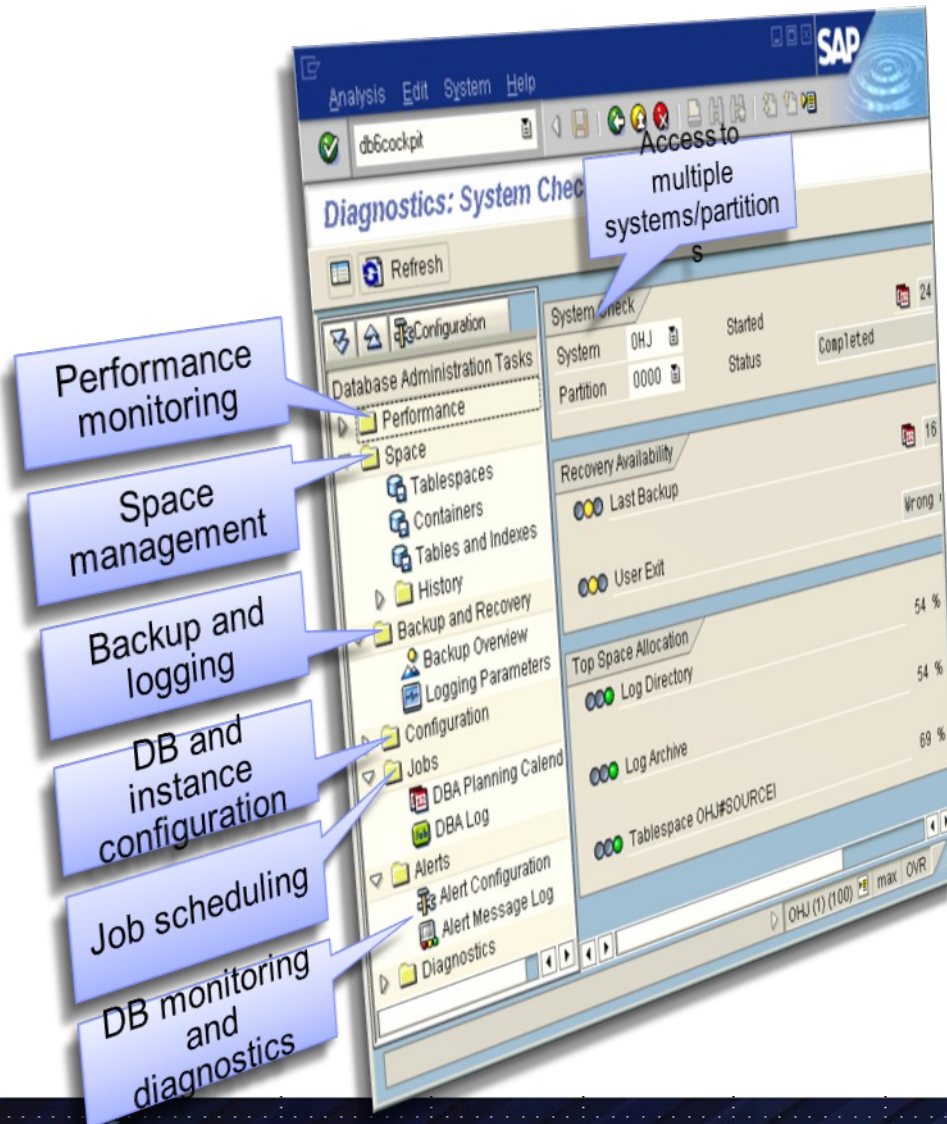
- Fully transparent compression of table data, indexes, inline LOB data, and intermediate results*
- Typical savings: 40-65% on entire database size
- Up to more efficient I/O and cache utilization
- Fully supported for all SAP releases and applications
- Integrated into SAP installation and DBACOCKPIT
- Included in SAP DB2 OEM license at no extra cost

Compression example (100% business database)

Item	Uncompressed (GB)	Compressed (GB)	Savings
Table	100.000	40.000	-60%
Index	10.000	4.000	-60%
LOB	10.000	4.000	-60%
Temp	10.000	4.000	-60%
Total	130.000	52.000	-60%

You can find more information about SAP on DB2 in SDN: <http://www.sdn.sap.com/irj/sdn/db6>

Database Administration Workbench – DBACOCKPIT




A Single SAP admin interface

- From one GUI access:
 - SAP and DB2
 - Multiple systems (remote admin)
- Integrated into:
 - SAP shipping system
 - SAP installation
- Benefits include:
 - Admin productivity
 - Usability
 - Better DB2 remote admin
 - No external tools needed

DB2 comes with built-in and ready to use HA and DR

HADR: High Availability Disaster Recovery

- High Availability Disaster Recovery for
 - Ultra-fast failovers (no instance restart)
 - Rolling upgrades
- Two active machines
 - Primary
 - Processes transactions
 - Sends log entries (not log files) to the other machine
 - Secondary
 - Catches from the primary
 - Receives and stores log entries from the primary
 - Re-applies the transactions
- If the primary fails, the secondary can take over the transactional workload
- If the failed machine becomes available again, it can be resynchronized
- Various Operation modes:
 - Asynchronous
 - Near-synchronous
 - Synchronous



Failover in 11 seconds demonstrated in test of SAP environment with 600 users /

The facts:

-HADR is an easy to set up integrated HA and DR solution with ultra-fast failover.

-Complemented by a free 2-node license for Tivoli System Automation (AIX/Linux)

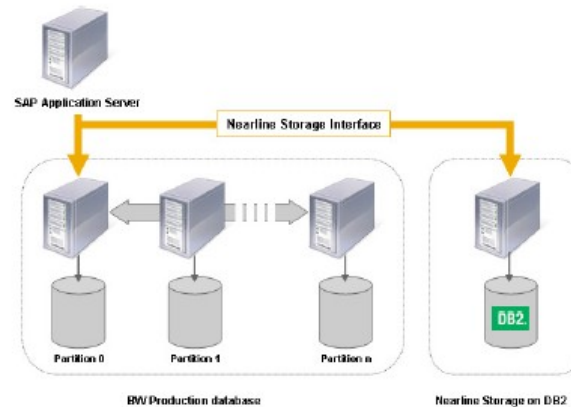
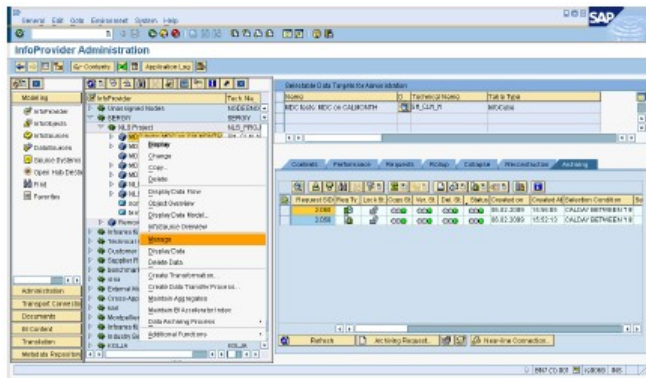
-Fully supported and tested by SAP

Customer benefits:

- Out of the box HA and DR solution
- One-stop support through SAP for your HA+DR solution

SAP NetWeaver BW Nearline Storage on DB2

- Offloads less frequently used data from SAP BW
- Reduces load and size of your production BW
- Takes full advantage of DB2 compression
- Fully exploits DB2's self managing capabilities
- Integrated into SAP's tools for installation, administration and monitoring
- Included in SAP DB2 OEM license at no extra cost



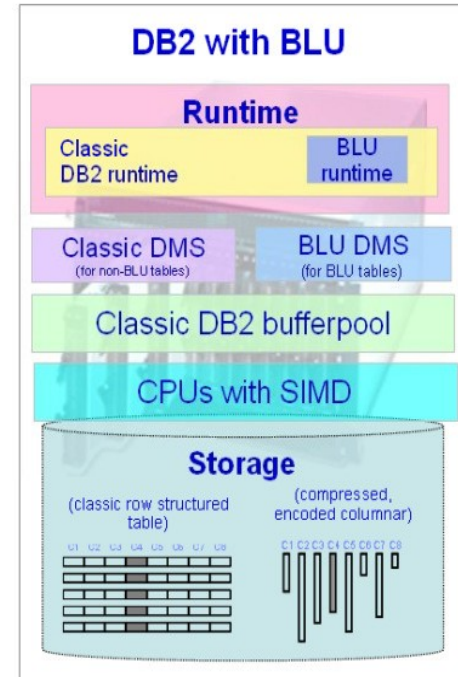
IBM In-memory technology

- Blink accelerator technology developed by IBM Almaden Research since 2007
 - 2007: IBM acquires solidDB
- Goal of Blink
 - Predictably fast, interactive and ad hoc querying
 - Any query should run in about the same time
 - Without requiring tuning of indexes, materialized views, etc.
 - **User need not to change SQL or apps**
- Products offered by IBM based upon Blink:
 - IBM Smart Analytics Optimizer for DB2 for z/OS V1.1 – GA'd Nov. 2010
 - Informix Warehouse Accelerator (IWA) – GA'd March 2011
 - DB2 BLU - GA'd June 2013



DB2 BLU Acceleration

- **Dynamic In-Memory**
 - In-memory columnar processing with dynamic movement of unused data to storage
- **Actionable compression**
 - Data compression preserves order so that the data can be used without decompressing
- **Parallel Vector Processing**
 - Multi-core and SIMD parallelism (Single Instruction Multiple Data)
- **Data Skipping**
 - Skips unnecessary processing of irrelevant data



Super Fast, Super Easy - Create, Load and Go!

No Indexes, No Aggregates, No Tuning, No SQL changes, No schema changes

How fast is DB2 BLU ?

Results from DB2 10.5 customer tests

Workload	Speed-up over DB2 10.1
Investment Bank	180.0x
Large Financial Services Company	46.8x
Global ISV Mart Workload	37.4x
Analytics Reporting Vendor	13.0x
Global Retailer	6.1x
Large European Bank	5.6x

Average

10x-25x improvement is common



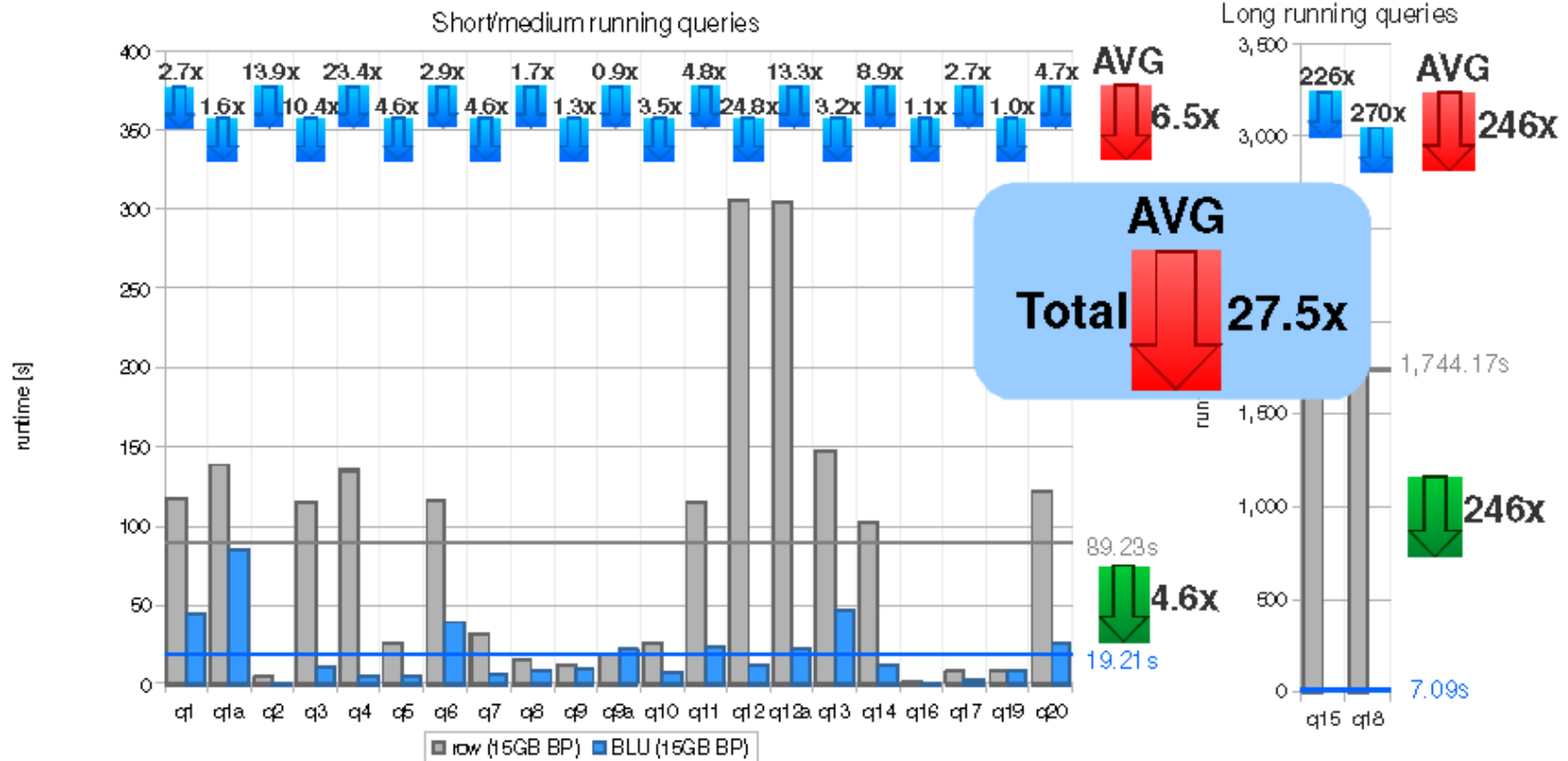
BW support on DB2 10.5 BLU – BW query performance

BW InfoCube scenario

- Fact table with 438 Million records
- Size (table + indexes)
 - Row based (adaptive compr.): 33 Gbyte
 - **BLU: 12 GByte**
- DB2 parallel query degree switched ON

Test environment

- 2 Intel® Xeon® processors (8 cores in total), 2.14GHz
- 32 GB RAM
- SUSE Linux Enterprise Server V11
- SAP BW 7.30
- DB2 10.5 pre GA, **15 GB Bufferpool**



SAP announcement to partners & customers

Open Choice and Full Support to Customers

SAP remains committed to support its customers' choice of database technologies and vendors. SAP will continue to provide innovation for all databases supported and work with its database partners to support these innovations, which may include in-memory optimizations.

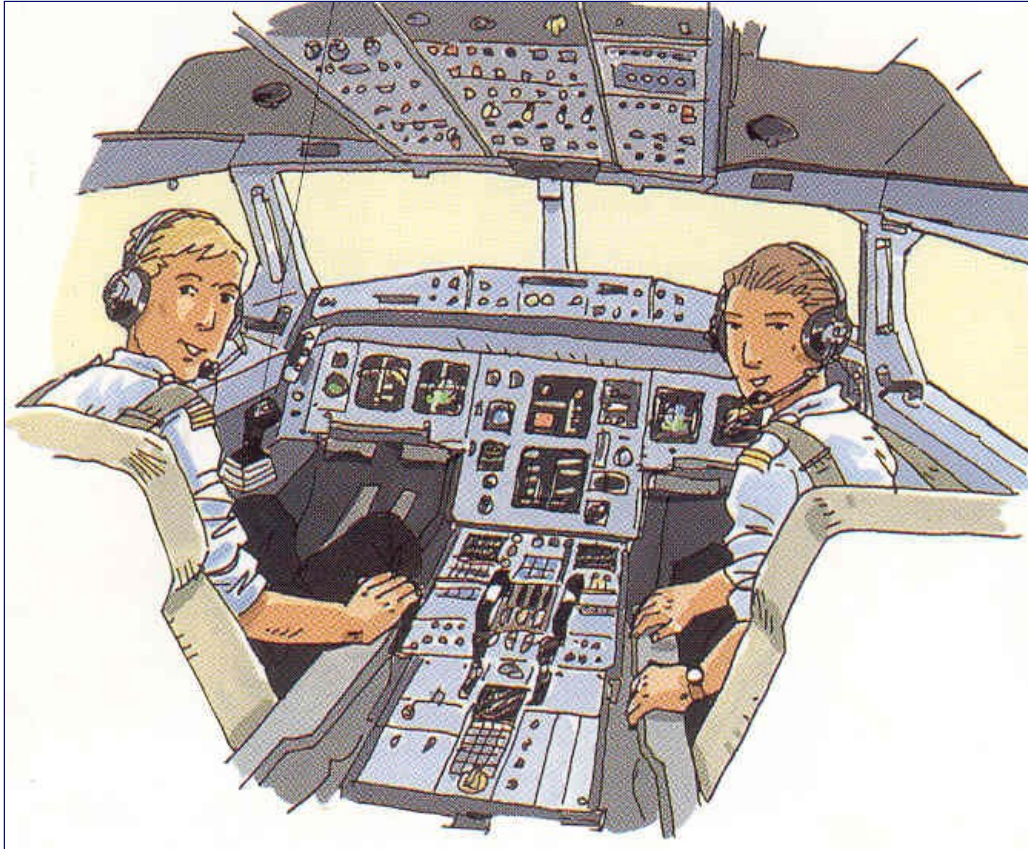
Taken from SAP Corporate Newsroom on January 10th, 2013
www.sap.com/corporate-en/news.epx?articleID=20221

<p>Hasso Plattner SAP founder</p>	<p>"... Thanks to the power of SQL we have only one version going forward. [...] We do not abandon - and that's very important - we do not abandon with this release the current database vendors. [...] Customers have the choice. [...]</p> <p>There are some features in the other databases missing. We will tell the database manufacturers what these features are, and if they can develop them we will also support them. If we don't have a certain functionality we simply keep for the traditional databases the current code. [...] So the customer has the choice..."</p>
<p>Vishal Sikka SAP CTO</p>	<p>"... as Hasso said, the Business Suite continues to run on all the databases it has run on. Not only continues to run. All the optimizations that we are doing because of the power of HANA we are also working with all our database partners to bring the same optimizations using their database technology as well. So this benefit comes not only because of HANA, it comes to everybody. And the choice is there for everyone..."</p>

SAP delivering HANA-inspired performance optimizations for DB2 for and others
 SAP Note 1835008 (released May 2013)



IBM / SAP Alliance



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DB2 migration a risk ?

■ NO RISK

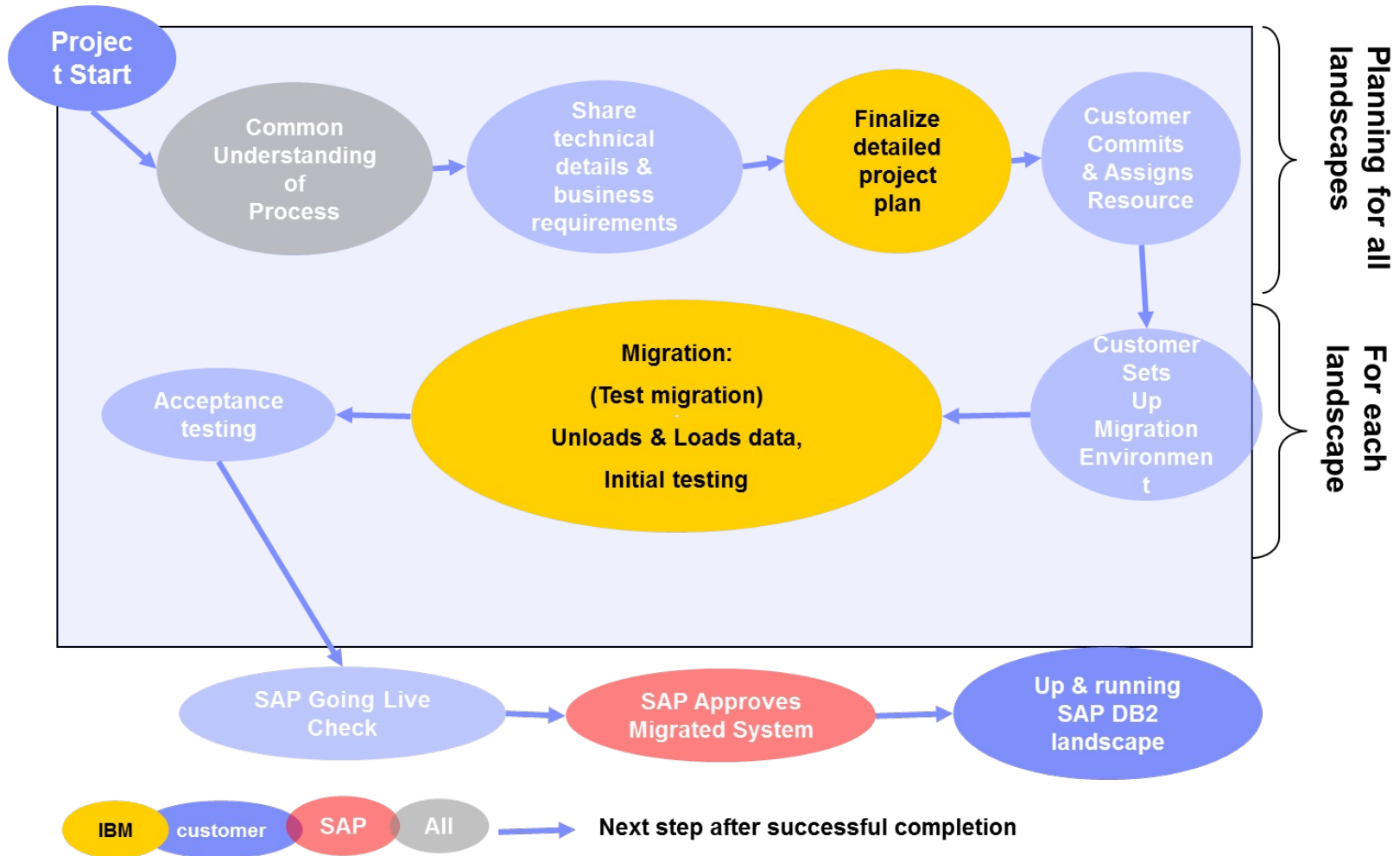
- During DB2 migrations only SAP certified tools and techniques are used
- DB2 migration is like the SAP system copy what customers are doing with the existing Oracle infrastructure
- DB2 migration can be integrated into SAP upgrade projects to save project time
- DB2 migration is done with the same technical approach
- DB2 migration can be integrated into SAP Unicode conversion projects to save time
- DB2 migration can be integrated into HW replacement projects to save project time
- DB2 migration can be done on the existing infrastructure and does not need HW expansions

■ Customer examples with combined changes incl. OS/Unicode/SAP, release upgrade and DB2 database migrations:

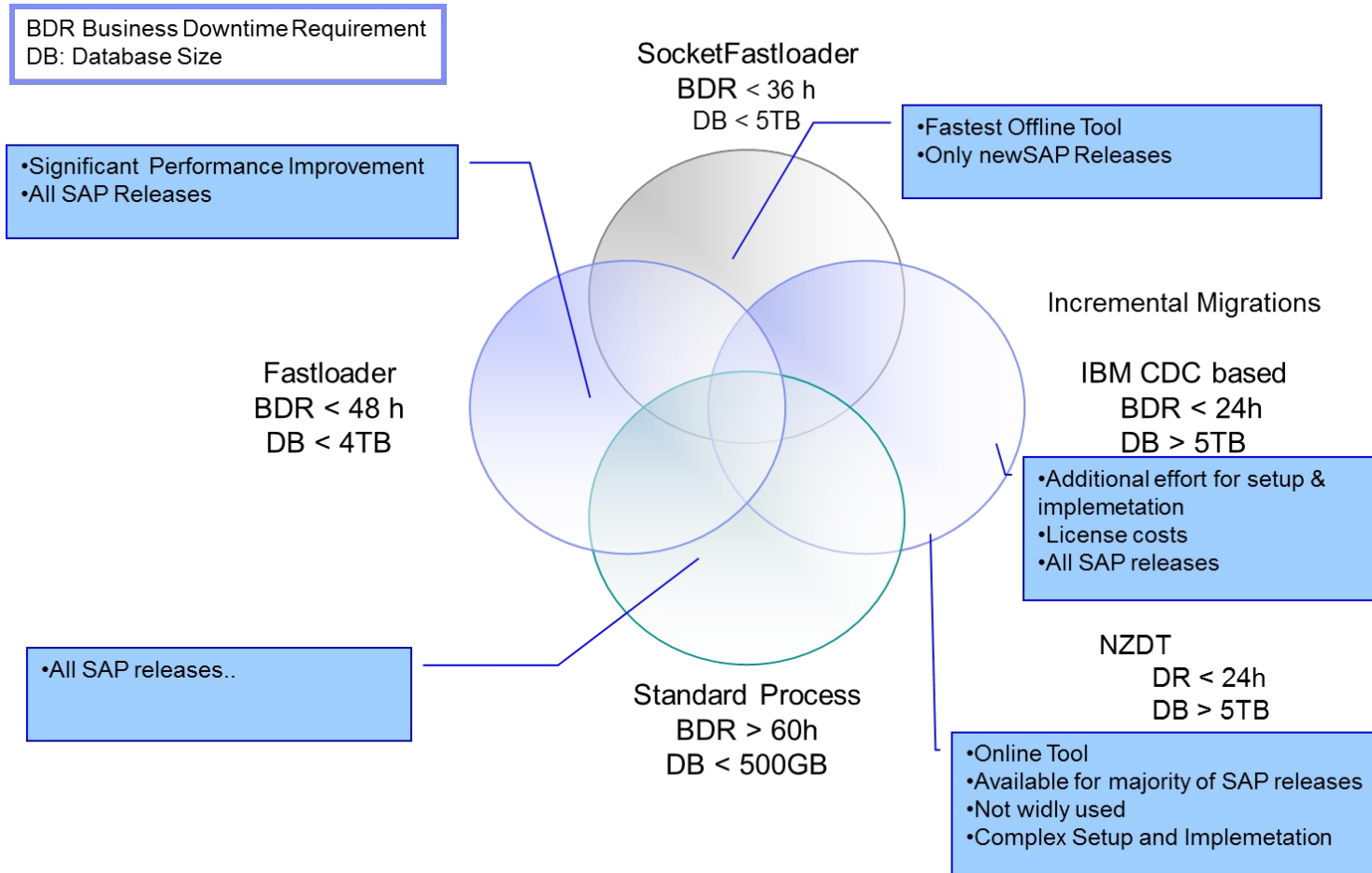
- **Audi:** OS + DB2 migration in one project
- **Coca-Cola:** Unicode conversion + DB2 migration in one project
- **Kali+Salz AG:** Unicode conversion + DB2 migration in one project
- **SAP:** Release-upgrade + Unicode conversion + DB2 migration in one project
- **ThyssenKrupp-Rasselstein:** Unicode conversion + DB2 migration in one project



SAP DB2 migration project



The right migration method per business downtime



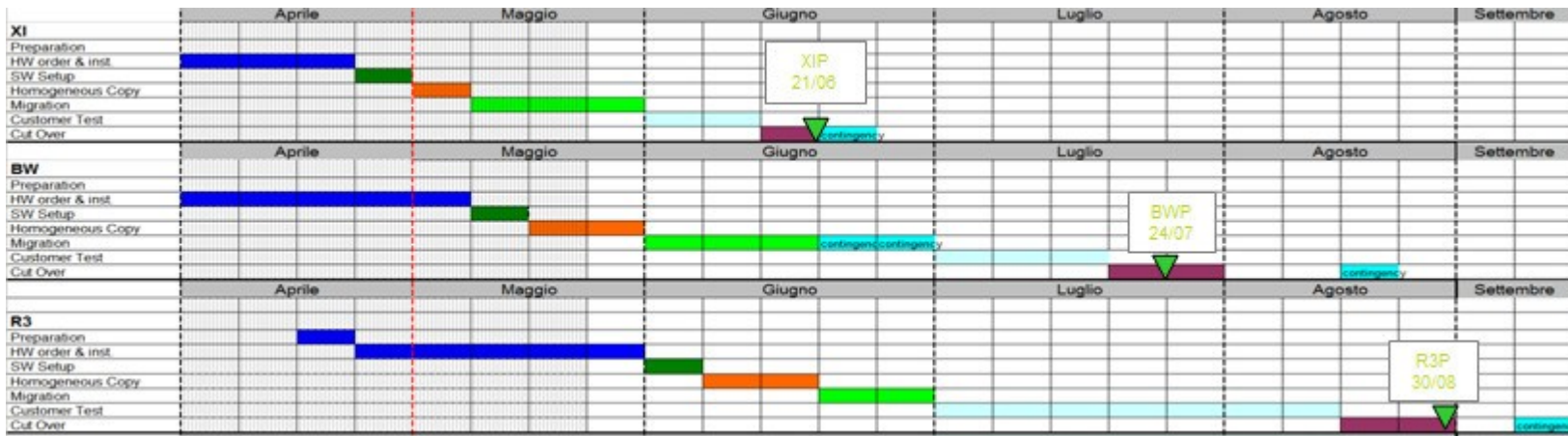
Customer migration experience

- Over 700 customers have switched to DB2
 - Includes many of the large CPG organisations
 - e.g. Unilever, Pepsi, Coca Cola, Eli Lilly etc. have all chosen DB2
- 80% of all migration project come along with a HW switch
- 70% of all migrations to DB2 have AIX as a target platform

Client	Source	Target	Project duration	# of systems
Barilla	Oracle/AIX	DB2/AIX	4 month	18
Audi	Oracle/Sun	DB2/AIX	6 month	95
Pepsi	Oracle/HP-UX	DB2/AIX	6 month	100
SAP IT	Oracle/HP-UX	DB2/HP-UX	4-8 months* (*Sub projects)	150



Exemplary DB2 for SAP migration project plan (Barilla Italy)



- Fixed price migration service offer from IBM
- Free DB2 Training for your experienced Oracle administrators
- Ongoing safeguarding through IBM lab advocat

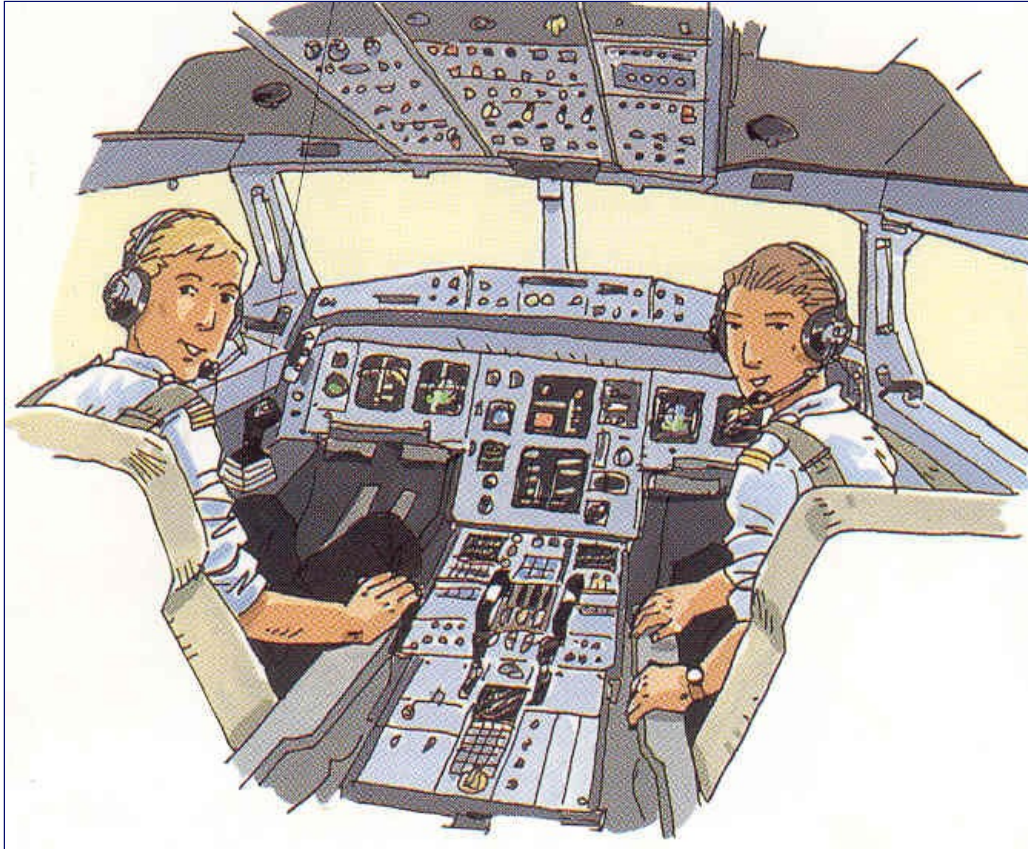


How IBM can help move to DB2: Migration delivery

- **IBM delivers FIX PRICE SAP DB2 migrations worldwide**
 - long track record of successful migration projects
- **Safe and reliable procedures to mitigate risk are in place**
 - includes code scan/evaluation for direct Oracle access
- **SAP migration process and tools owned by SAP & IBM**
- **SAP OS/DB migrations are business as usual**
- **Different migration methods available to address any business downtime requirements**
- **100% Migration Success Rate since 2006 !**



IBM / SAP Alliance



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Customer references



Audi

- ✓ DB2 9.7 on AIX and IBM DS8K storage from Oracle (PoC - same HW and db exports)
- ✓ Compression ratio: from **53% - 73 %**, backup time cut by factor 5 (from 10h to 2h)
- ✓ Dialog: top transactions ~ **40%**, average ~ 27%, Batch jobs: **runtimes cut by half**
- ✓ DB RAM: ~ 45% less, RAM-SWAP: 91%



Eli Lilly

- ✓ DB2 9.5 Red hat / HP servers, VMware and EMC storage, migration from non DB2/SUN POC results on same HW (Sun) and db exports
- ✓ Compression: > **62% storage savings** (Unicode conversion)
- ✓ Overall performance improvement >**11%**
- ✓ Demonstrated ease of DBA/BASIS administration using DB2 DBA COCKPIT



Super De Boer

- ✓ DB2 9.5 on AIX, migration from Oracle / AIX
- ✓ Compression: largest database size reduction **65%**, backup time **cut by half**
- ✓ Online performance: up to factors improvement in some cases
- ✓ Batch performance: **30% to 60%** improvement
- ✓ Payback period Approximately **6 months**, TCO savings > **€1 M in the first 2 years**



In 2010, 700+¹ customers successfully migrated to DB2

- ✓ Aircraft Manufacturer, dialog: **50%** improvement, batch: **66%** faster
- ✓ Cameron, dialog: **39%** better response times
- ✓ Maschinenfabrik Rheinhausen, **25%** reduction query times, batch: **44%** runtime reduction

¹ <http://www-03.ibm.com/press/us/en/pressrelease01867.wss>

- ✓ Coca Cola Bottling, batch: **65%** improvement of manufacturing runs

SAP runs DB2



SAP IT selects IBM DB2 as strategic database platform for internal business systems

- **Research and Development**
 - Almost every major SAP product is either developed or undergoes its QA on DB2
 - DB2 is a major R&D platform at SAP
- **Business systems**
 - SAP has migrated its major business systems to DB2
 - SAP's HR, ERP, CRM, BW all run on DB2
- **SAP runs over 1200 systems on DB2**

See what Dr. Bernhard Wallner (SAP IT) has to say about SAP running on DB2

<http://database-diary.com/2009/08/25/why-sap-chose-db2/>

SAP IT switched from Oracle to DB2 primarily because of:

- Cost Savings, better performance, and trust

Overview	
<p>■ The Challenge SAP IT (the IT department of SAP AG) wanted to be able to take advantage of new SAP software functionalities while reducing the complexity and operational costs of its IT landscape. The company also wanted to move to a new database platform to deliver optimal performance.</p>	<p>■ The Benefits Simultaneous upgrade/conversion/migration helps reduce business disruption without significantly increasing project complexity. Response times in the HCM environment have improved by around 40 per cent. Archiving and database reorganization have reduced the size of the ERP database by 22 per cent – and DB2 9 Deep Compression could provide further reductions. Conversion to Unicode has helped SAP IT introduce multiple-language applications, facilitating international operations. SAP's Business Intelligence system is now positioned for nearly unlimited scalability and massive growth with DB2.</p>
<p>■ The Solution In three separate projects, SAP IT upgraded its Human Capital Management (HCM), ERP and Business Intelligence applications, simultaneously performing Unicode conversion and migrating databases from Oracle to IBM DB2.</p>	<p>■ Key Solution Components Industry: Software Applications: SAP® ERP 6.0, SAP ERP Human Capital Management 6.0, SAP NetWeaver® Business Intelligence 7.0 Software: IBM DB2®</p>

SAP AG in Walldorf, Germany, is one of the world's leading business software providers. With more than 45,000 employees serving international enterprises of every conceivable type, SAP AG has people and offices on every continent, operating in multiple languages.

SAP uses its own software products to manage its internal business processes. SAP IT, the company's IT department, wanted to upgrade its existing software environment to take advantage of numerous functional enhancements in the latest versions of the SAP ERP and SAP ERP Human Capital Management (HCM) applications, as well as the SAP NetWeaver Business Intelligence component. The applications would help drive business efficiencies through advanced integration and enhanced information delivery.

"We decided to split this technology refresh into three separate projects," says Peter Boegler, Solution Architect at SAP IT. "We started with the upgrade from SAP ERP HCM 5.0 to version 6.0 in Autumn 2006, followed by the move of the main ERP systems





... if you were to come up to me and ask me would we do this again, migrate to DB2, the answer would be a clear yes.
- Jim Capraro, VP GIT Colgate-Palmolive

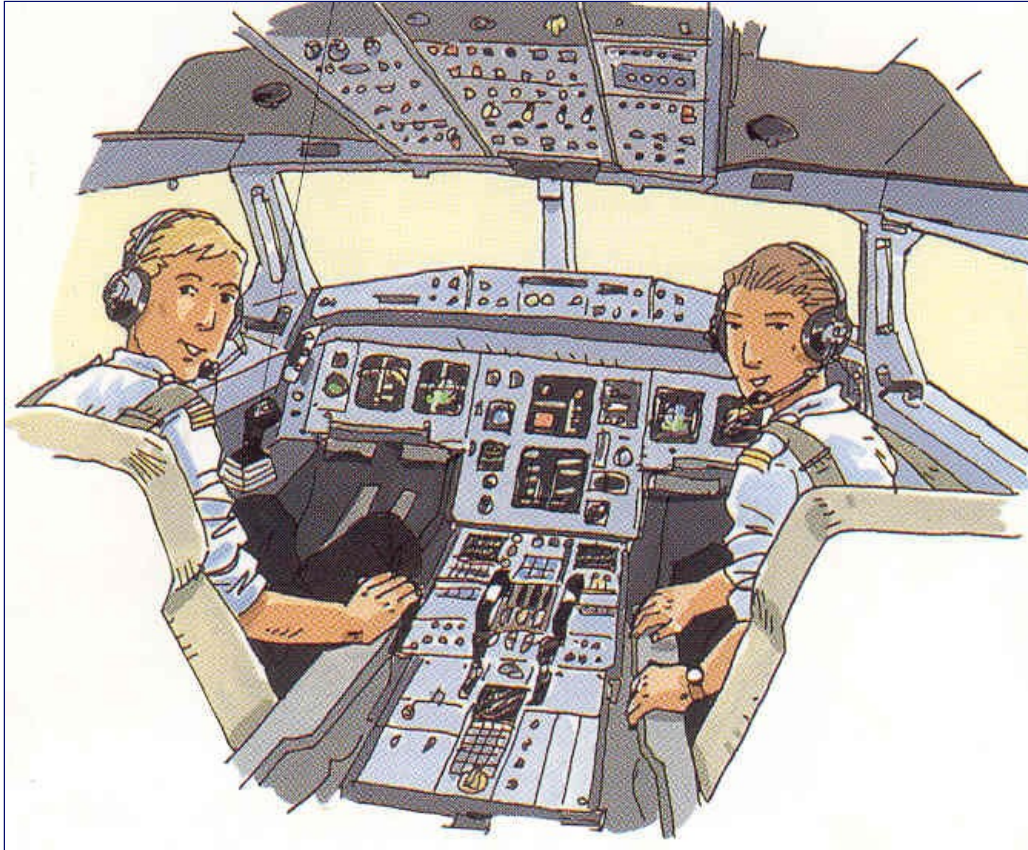
... We are beta testing DB2 version 10 right now and the compression has gotten better again, we are going to see another 20% increase..- Tom DeJueas, IT Team Manager, CCBC

Video: Colgate Migration to DB2 SAP Reference Interview

Video: Coca-Cola Bottling Co. Consolidated saves more than \$1 million with IBM DB2



IBM / SAP Alliance



DB2 for SAP

- 1.Reduce overall cost
- 2.Strategic industry partnership
- 3.Innovative DBMS technology
- 4.Standard migration process
- 5.Many customer examples

<http://www.ibm.com/solutions/sap/us/en/landing/J233701A22235G06.html>



IBM & SAP proposed next steps

- Evaluate IBM-DB2 as a strategic database for your SAP environments
- Perform joint TCO analysis to move to DB2 now
- Call or visit reference customer (EWE Germany, Nokia, Coca Cola, Audi, ...)
- Technical deep dive and architectural review
- Sign DB2 licensing agreement and start migration project
- Ongoing IBM executive sponsorship for your success with DB2



IBM SolutionsConnect 2013

Thank you.

Alexandre Grancher

Information Management, Technical Sales



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