SAP HANA er svaret
hva er spørsmålet?

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Real-time in Real-life. Why not Real-time business?

- real-time analysis
- real-time information processing
- real-time decision making
- real-time execution

Why wait?
The age of impatience

Expectation to make decisions in Real Time

Operational excellence requires being able to make decisions at moments of risk

Product leadership require being able to make decisions at moments of adoption

Customers expect business experience to be as satisfying as personal experience

Both expect instant, correct answers to any question

“Requires shift in thought from transactions to interactions. Need to make and deliver offers in real-time.”

Geoffrey Moore

In-Memory Computing

Technology that allows the processing of massive quantities of real time data in the main memory of the server to provide immediate results from analyses and transactions.
Hardware + Software Innovation = Game-Changing

Hardware Innovation

- Multi-Core Architecture (8 x 8core CPU per blade)
- Massive parallel scaling with many blades
- One blade ~$50.000 = 1 Enterprise Class Server
- 64bit address space – 1TB in current servers
- 100GB/s data throughput
- Dramatic decline in price/performance

SAP Software Innovation

- Row and Column Store
- Compression
- Partitioning
- No Aggregate Tables
- Insert Only on Delta
Some early numbers

Volume tests ran with **460bn records**.

Scan speed – 1 million records / ms / core

Aggregation speed – 10m records / sec / core

Data Loading – 100m records / 80 sec

200x price performance improvement
SAP In-Memory Appliance (SAP HANA™)

Architecture

**SAP HANA™**
- In-Memory software + hardware (HP, IBM, Fujitsu, Cisco, Dell, Hitachi)
- Data Modeling and Data Management
- Real-time Data Replication
- SAP BusinessObjects Data Services for ETL capabilities from SAP Business Suite, SAP NetWeaver Business Warehouse (SAP NetWeaver BW), and 3rd Party Systems

**Capabilities Enabled**
- **Analyze information in real-time** at unprecedented speeds on large volumes of non-aggregated data
- **Create flexible analytic models** based on real-time and historic business data
- **Foundation for new category of applications** (e.g., planning, simulation) to significantly outperform current applications in category
- **Minimizes data duplication**
SAP HANA Proof-Points

SAP High Performance Analytic Appliance (SAP HANA)

SAP HANA is the engine of the real-time enterprise. It provides a foundation on which to build a new generation of applications, enabling customers to analyze large quantities of data from virtually any source, in real time. The example below showcases actual customer performance of a core reporting process.

Experience the real-time Enterprise in action

A live analysis by a consumer products company reveals how SAP HANA analyzes current point-of-sale data in real time—empowering this organization to review segmentation, merchandising, inventory management, and forecasting information at the speed of thought.

Runs 350x faster

77 minutes
Before SAP HANA

13 seconds
With SAP HANA

0.04 seconds
analysis response time
on any device, anywhere, anytime

70
retailers

460
billion records

50 *
terabytes of data

* Please refer to the latest HANA Hardware sizing for the latest certified hardware sizes for maximum storage size on HANA 1.0. Above tests were done in the SAP Lab with customer data-sets. © 2011 SAP AG. All rights reserved.
Usage scenarios of SAP HANA appliance
### Application Types & Definition

<table>
<thead>
<tr>
<th>Technology Platform</th>
<th>Content</th>
<th>Accelerated Apps</th>
<th>Products on In-Memory</th>
<th>Next Generation Applications</th>
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<tbody>
<tr>
<td>Customer specific development.</td>
<td>Reports that are re-built on HANA using a BI frontend.</td>
<td>Speed up existing business suite functionality/applications through a side-by-side scenario with HANA.</td>
<td>Existing applications and strategic investment areas that may be disruptive.</td>
<td>New applications that we have not delivered before. Native in-memory applications.</td>
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- RDS ERP operational reporting (RTC July 2011)
- RDS CRM Pipeline Analytics (RTC Q3/11)
- RDS ERP advanced op. reporting, incl. Financial Spend and Customer Factura Analysis (RTC Q3/11)
- RDS Banking Analysis incl. transaction history and financial reporting (RTC Q4/11)
- RDS CO-PA (RTC Q3/11) (may also include Material ledger, General Ledger, Product costing)
- RDS CRM Segmentation (RTC Q3/11)

- Customer Analysis: CRPM, Customer 360, Predictive Customer segmentation, Account Intelligence
- Trade Promotion Management
- Demand Signal Repository

- E.g. Nomura Research Institute was able to use SAP HANA to analyze traffic information in Tokyo, and gained the ability to search through **360 million** data records in **approximately 1 second**.

- Strategic Workforce Planning, Smart meter analytics, Medtronic integrated text, personal apps such as home electricity usage
- Next generation Suite FI, SCM, CRM, HCM …
Transformational Business Value

- **Retail** - Electronic Retailer provided with real-time information to improve productivity and decision-making -> **POC**: 1.47B rows of sales data + 1.4B rows of inventory data were processed in .078 sec

- **CPG** - Global CPG firm needed to analyze 460 Billion records (50 TB) for global POS analysis to predict demand -> **Business Value**: improved shelf turnaround from 5 days to 2 and eliminated out of stocks during promotions

- **IM&C** - Leading wind turbine manufacturing company plans to analyze large volume of machine generated data in real-time -> **Use-case**: optimize energy output + predictive equipment maintenance to decrease service costs and increase customer satisfaction

- **Automotive** – Premium manufacturer of Trucks & Buses plans to analyzes large volumes of data in full flexibility for Vehicle Fault Analysis -> **Business Value**: Reduce Warranty claims and improve Company Branding
BASF is the world’s leading chemical company.

“...The ability to load the entire database into memory, to optimize it, the move to column-based database technology, to be able to then have an environment where both the transactional applications and the analytics are both working off the same source of data; this entire package is extremely compelling. Cost analysis (CoPa) was the most interesting thing to look at in the first step. We saw response times reduce from about 620 seconds to about five seconds in one case.

*Andrew Pike, CIO*
Colgate-Palmolive is a leading global consumer products company

“For a global business selling products in more than 200 countries and territories, it is critical for us to understand sales trends at a high level as well as at a more actionable level by retail location and SKU to drive our business goals. Prior to SAP HANA*, we were unable to run full analytics in a reasonable timeframe. With SAP HANA, we will be able to run analytics at a local level on specific brands and locations, and at the lowest level of detail in real time.”

Tom Greene, CIO

* SAP’s In-Memory Appliance
Success with SAP HANA™
Across industries and across the globe

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<th>Logos</th>
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What about the other technologies SAP has:
- Business Objects, Sybase, etc

ANALYZE THE CUSTOMER NEEDS

- Use cases for the business is the starting point!
- ETL vs real time
- All data in-memory vs only some
- Ready content and accelerators from SAP vs custom built
- Accelerating already existing custom processes
- Using SAP HANA as the database for already existing applications
- Gaining the required depth of understanding the data

CREATE CUSTOMER ROADMAP

- SAP is able to create customer roadmaps based on the deliverables of new technology
- Customer, partner, SAP, service and hw providers need to work together
- Think big and think of things undoable before
CUSTOMER NEEDS

- Continue using familiar end user tools without disruption
- Combine SAP and non-SAP data in one uniform format / data warehouse
- Single point of truth
- Lower latency in data loads
- Real time information access
- Using raw data instead of aggregates
  - Aggregations are not predefined
  - Raw data allows in depth drilldown
- Better predictability of customer behavior
Putting it all together at a real customer part II/II
HANA – RDS Development Roadmap

Available (Q4-11)
- CO-PA Accelerator
- ERP Operational Reporting V1
- CRM Customer Segmentation
- ERP Ops Reporting V2 (successor for V1)
- Banking: Financial Reporting
- Banking: Transaction History
- RDS for accelerated finance and controlling
- Strategic Workforce Planning Analytics
- Sales Analysis for Retail
- CRM Pipeline Analysis

Available (Q3-11)
- ERP Operational Reporting V1

Short-Term (Jan’12)
- CRM Analytics w/ BW
- Sales & Op. Planning
- Net Margin Analysis
- Public Safety: Real-time Situational awareness (HANA & Mobile)
- GRC Global Trade Services
- SAP HANA becomes RDBMS for SAP BW

Short-Term (April’12)
- Utilities: Grid Analytics (HANA & Mobile)
- Offer-to-Cash : Customer Behavior Analytics
- Sentiment Anatomy
- Retail: Shopper Insight
- Banking: Ent. Risk Reporting 2.0 & Liquidity Risk management
- Banking: Financial Reporting 2.0
- GRC Access Control Accelerator
- IT: Data load from Legacy Apps into HANA

Mid-Term (July ‘12)

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* Analytic Application is priced content, while analysis & reporting content is free with Software purchase.
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No Limits
In-Memory Computing

Any Questions?