SAP HANA™

Understanding In-Memory Computing

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DCS Federal

DCS Federal

Who We are

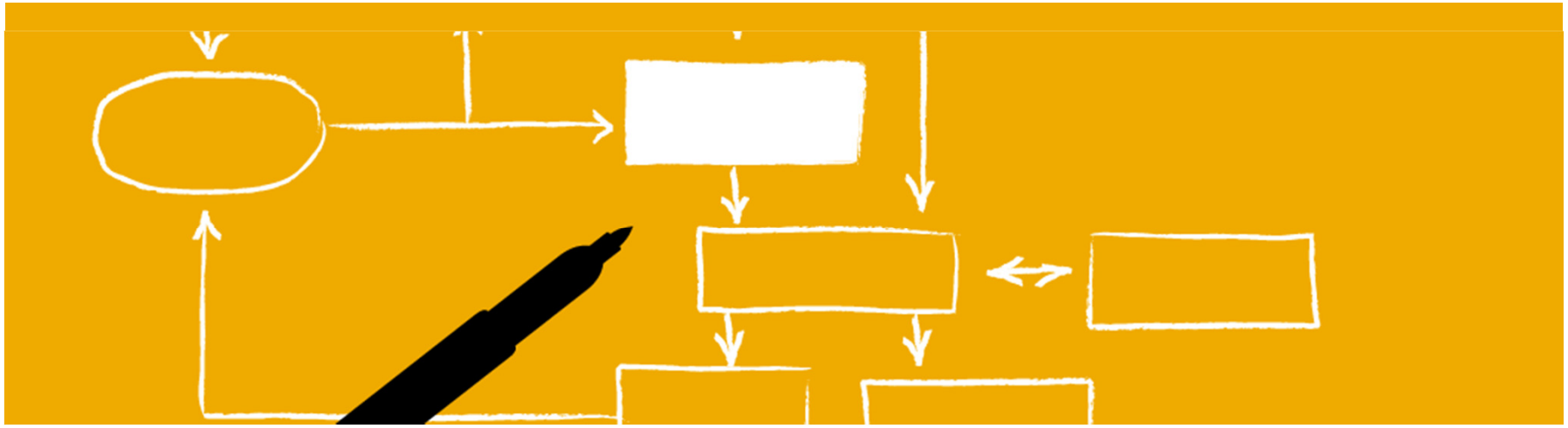
- DCS is a Business Intelligence (BI) and Data Warehousing (DW) firm specializing in providing highly experienced consultants that will guide you through the delivery of your solution.
- DCS was founded in January 2011 by 15+ year industry experts in business Intelligence.

What we do

- Our roots are in creating and maintaining reporting, dashboarding, budget, and financial performance solutions. Our specialty is the government financial department (Office of the CFO).

Agenda

- How did HANA evolve?
- What is SAP HANA?
- What SAP HANA is not?
- What is Business Case for HANA?
- How can I leverage HANA with Business Objects?
- How do I acquire data into Hana?
- What is the process to create BI from HANA?
- How do I size the HANA Appliance?
- Where do I find more information on HANA?



How did HANA evolve?

Information Explosion

VELOCITY

Worldwide digital content will **double in 18 months, and every 18 months thereafter**.

IDC

VOLUME

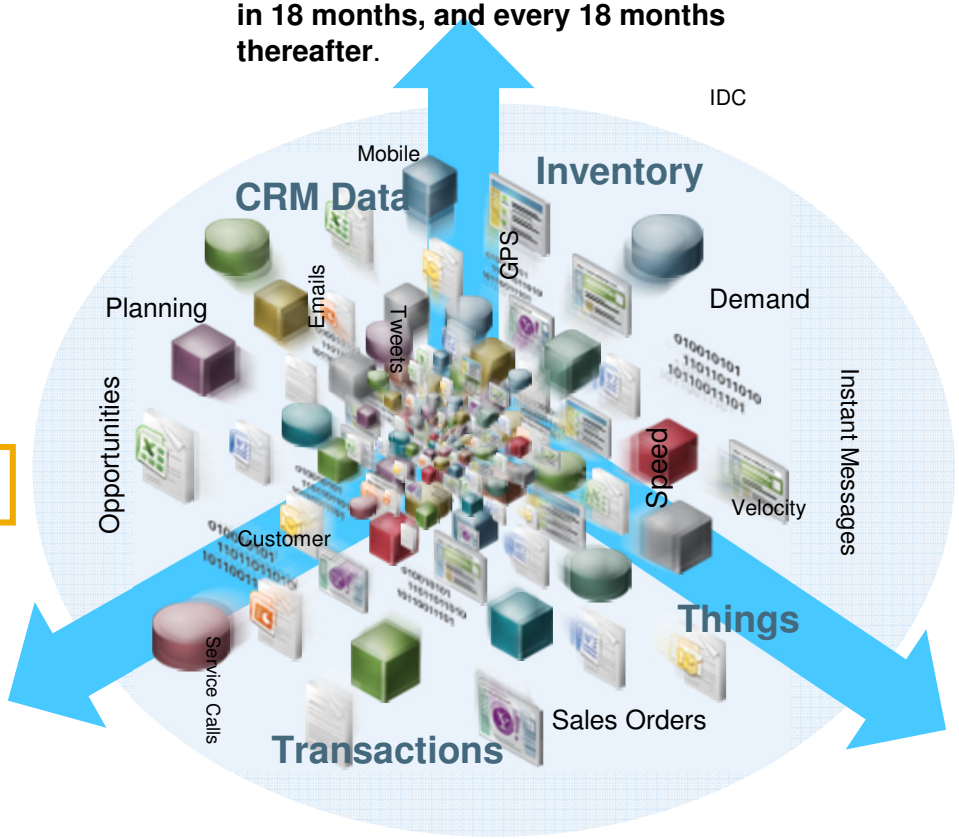
In 2005, mankind created 150 Exabyte of information. In 2011, **1,200 Exabyte's will be created**

The Economist

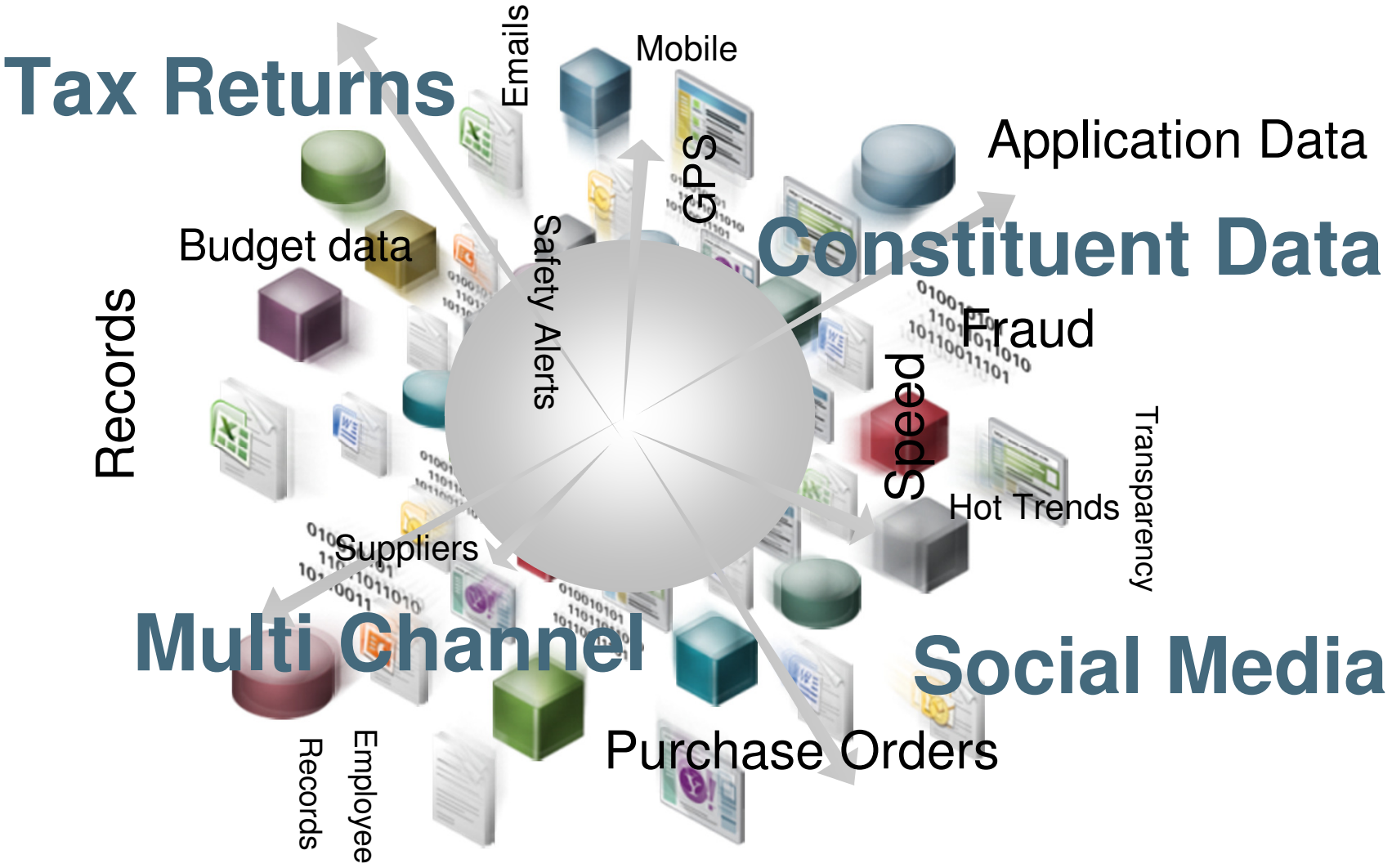
VARIETY

80% of enterprise data will be unstructured spanning traditional and non traditional sources

Gartner



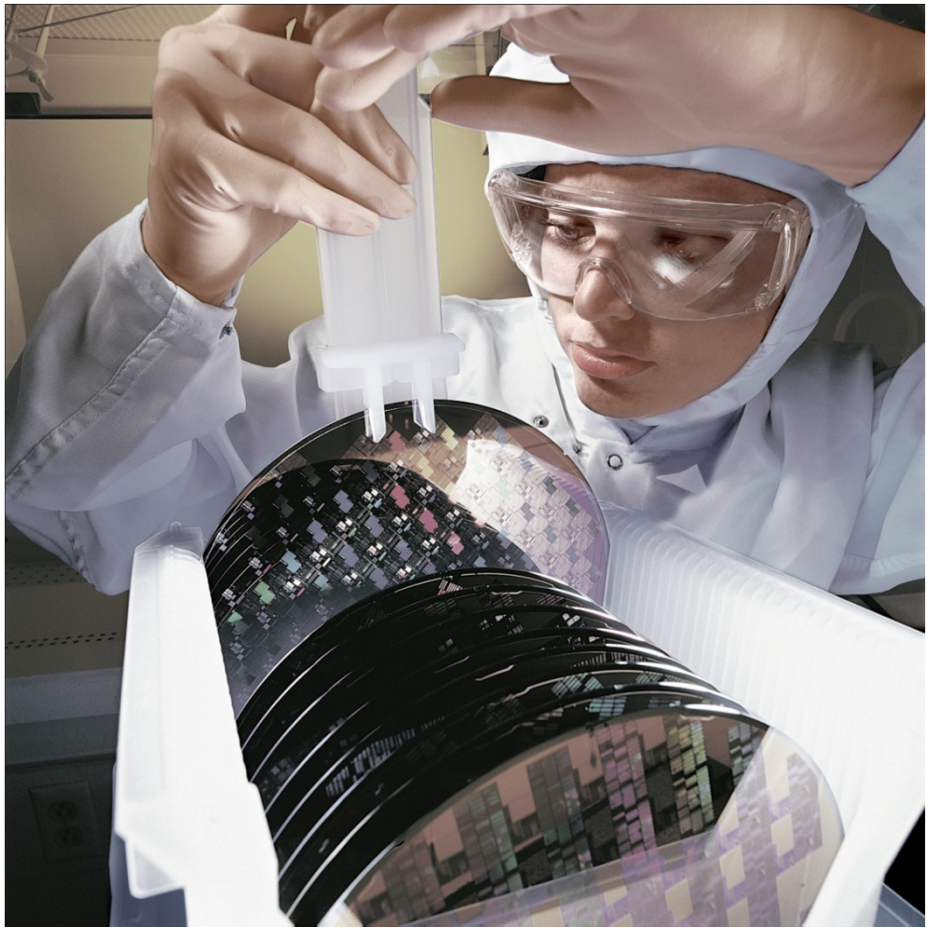
Public Sector Information is Exploding



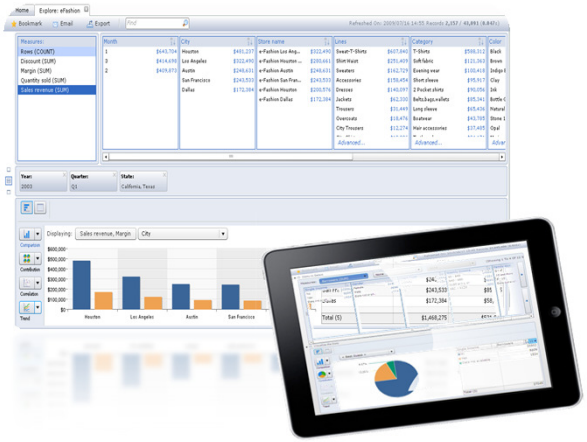
A Shift of Frontiers in Computer Science

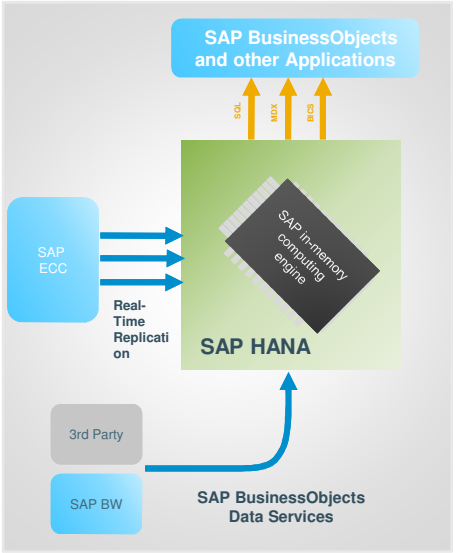
Freely Adapted from Jim Gray, Turing Award Winner 1998

- **Tape is Dead**
- **Disk is Tape**
- **Main Memory is Disk**
- **CPU Cache is Main Memory**



SAP In-Memory Evolution





SAP BWA

Accelerate BWA

Explorer

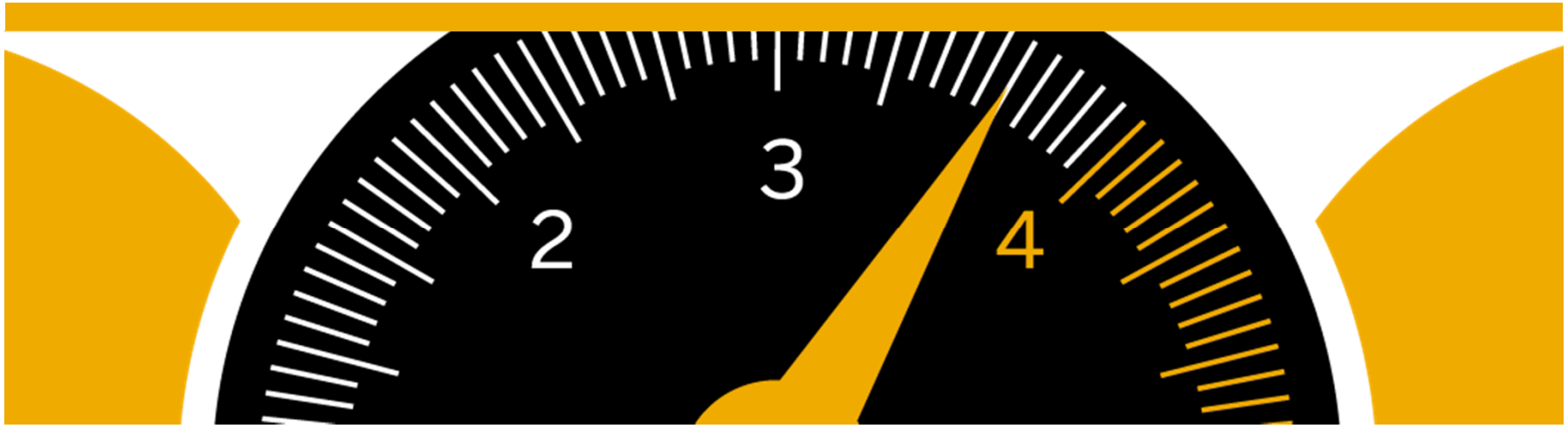
Open Acceleration

Self-Service BI

SAP HANA

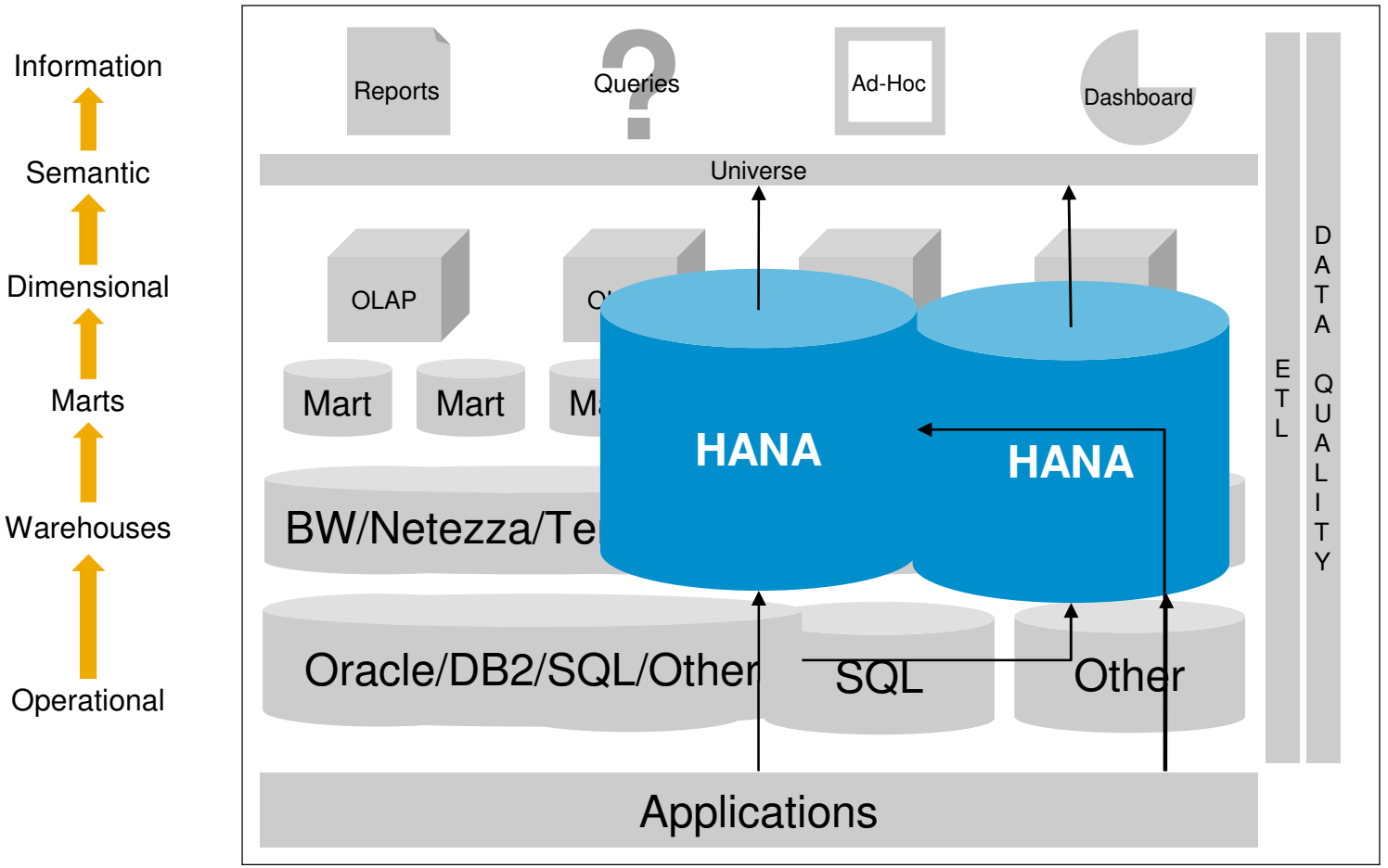
In-Memory Platform

2007 **2009** **2010+**



What is SAP HANA?

The Value of an Enterprise Data Landscape



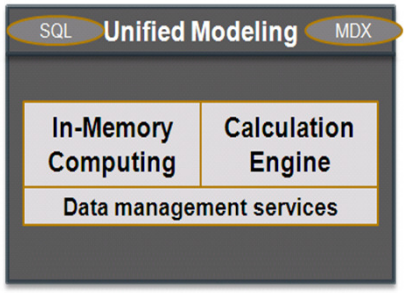
What is SAP HANA?

SAP HANA is a modern platform for real-time analytics and applications. It enables organization to analyze business operations based on large volume and variety of detailed data in real-time, as it happens. In addition to real-time analytics, SAP is also delivering new class of real-time applications, powered by SAP HANA platform. The platform can be deployed as an appliance or delivered via a cloud. SAP in-memory computing is the core technology underlying SAP HANA platform.

What is SAP HANA appliance?

SAP HANA appliance is a flexible, multi-purpose, data-source-agonistic in-memory appliance that combines SAP software components optimized on hardware provided, and delivered, by SAP's leading hardware partners such as Dell, Cisco, IBM, HP, Fujitsu, and Intel. It includes a number of integrated SAP software components including the SAP HANA database, real-time replication services, data services, data and lifecycle management, support for multiple interfaces based on industry standards and easy to use data modelling tool called SAP HANA studio.

HANA Combines Software and Hardware



In-Memory Computing Engine (Software)

\+

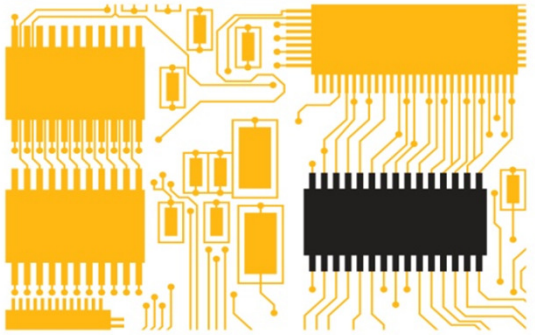
Pre-Installed Systems (Hardware)

SAP In-memory computing can transform your business

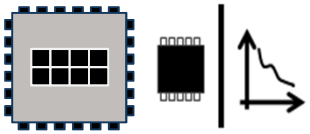
In-memory computing is a technology that **analyses massive quantities of data in local memory** so that the results of complex analyses and transactions are available at your fingertips – and business decisions can be executed without delay

With in-memory technology integrated in your business, you'll see immediate benefits

- **Immediate answers** – with up to 3600x faster analytics
- **Real-time access** – when it happens, you know it
- **Deeper insight** – interrogate more granular data
- **Simpler and more cost-effective** – manage large data volumes while reducing IT complexity

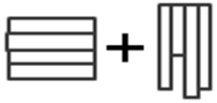


What is SAP HANA?



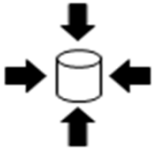
Multi-Core CPUs
Large Memory Footprint

Computational Power
1M x Faster Access than Disk
1 TB server, ~ 64 cores



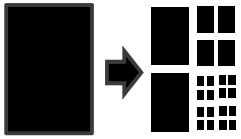
Row and Column Store

Columnar = Fast Queries



Compression

5x Compression
1 TB Data, ~ 200GB Memory

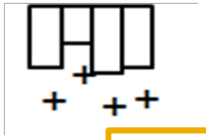


Partitioning
In-Database Computing

Analyze Large Data Sets
Complex Computations

No Aggregate Tables
Non-Materialized Views

Flexible Modeling
No Data Duplication

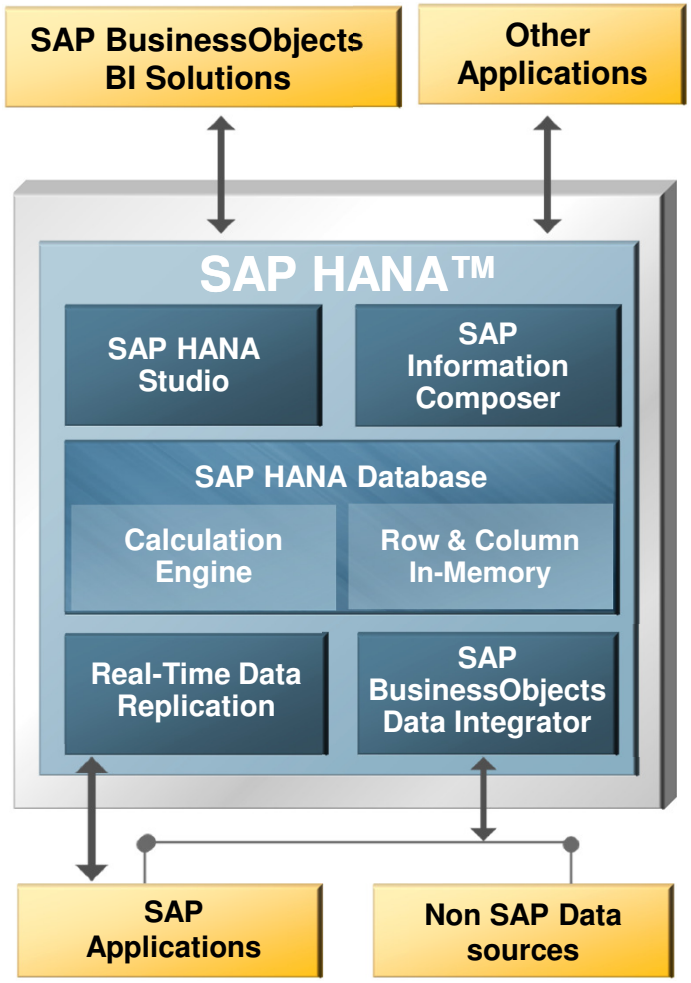


Real-Time Replication
Insert Only on Delta

Fast Data Loads

Convergence of improved hardware economics and technology innovations enables SAP to deliver on its vision of the real-time enterprise with in-memory business applications

SAP In-Memory Appliance (SAP HANA™)



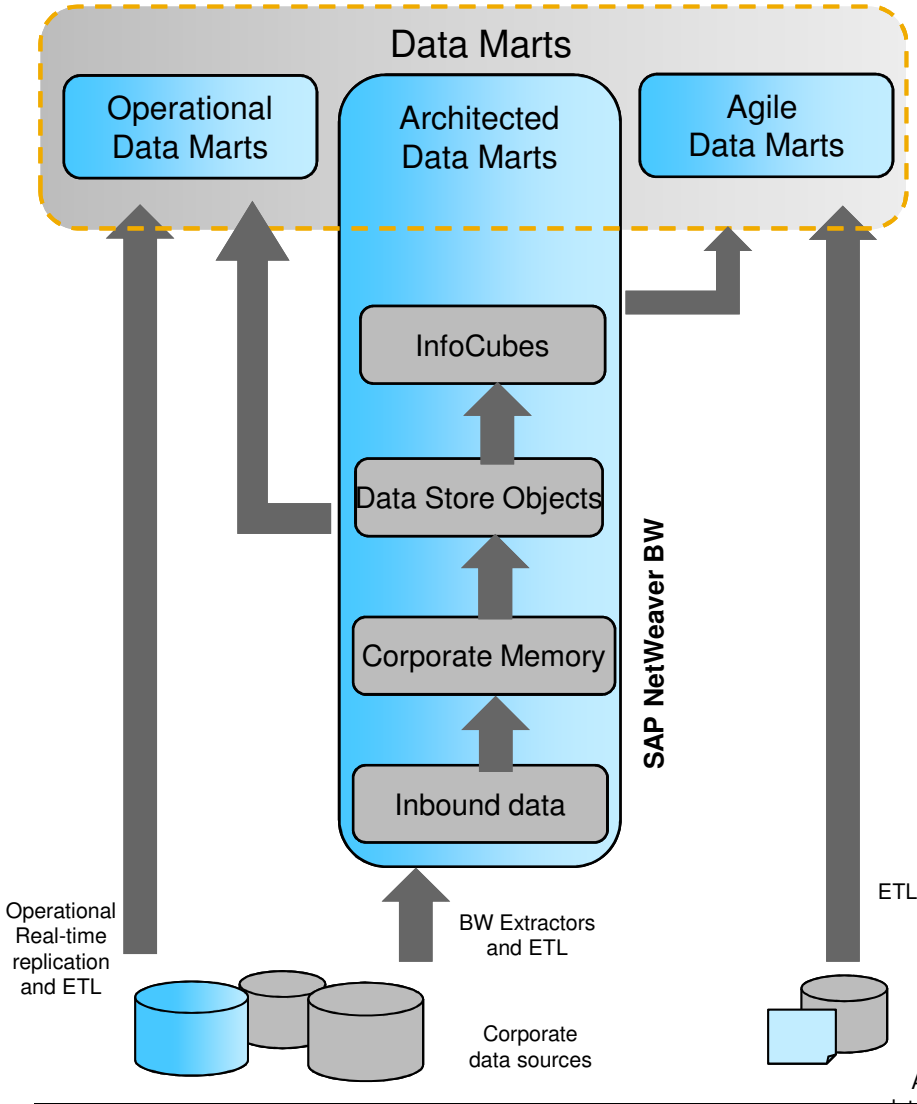
SAP HANA™

- In-Memory software + hardware (HP, IBM, Fujitsu, Cisco, Dell)
- 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
- **Minimize data duplication**

Different needs …
Different types of Data Marts



Architected Data Marts:

- Consolidated and integral part of EDW & LSA supporting decision making on corporate data
- Centrally managed by IT, standardized data models on corporate information
- Long term requirements in terms of stability and consistency
- Typically time aggregated data

Operational Data Marts:

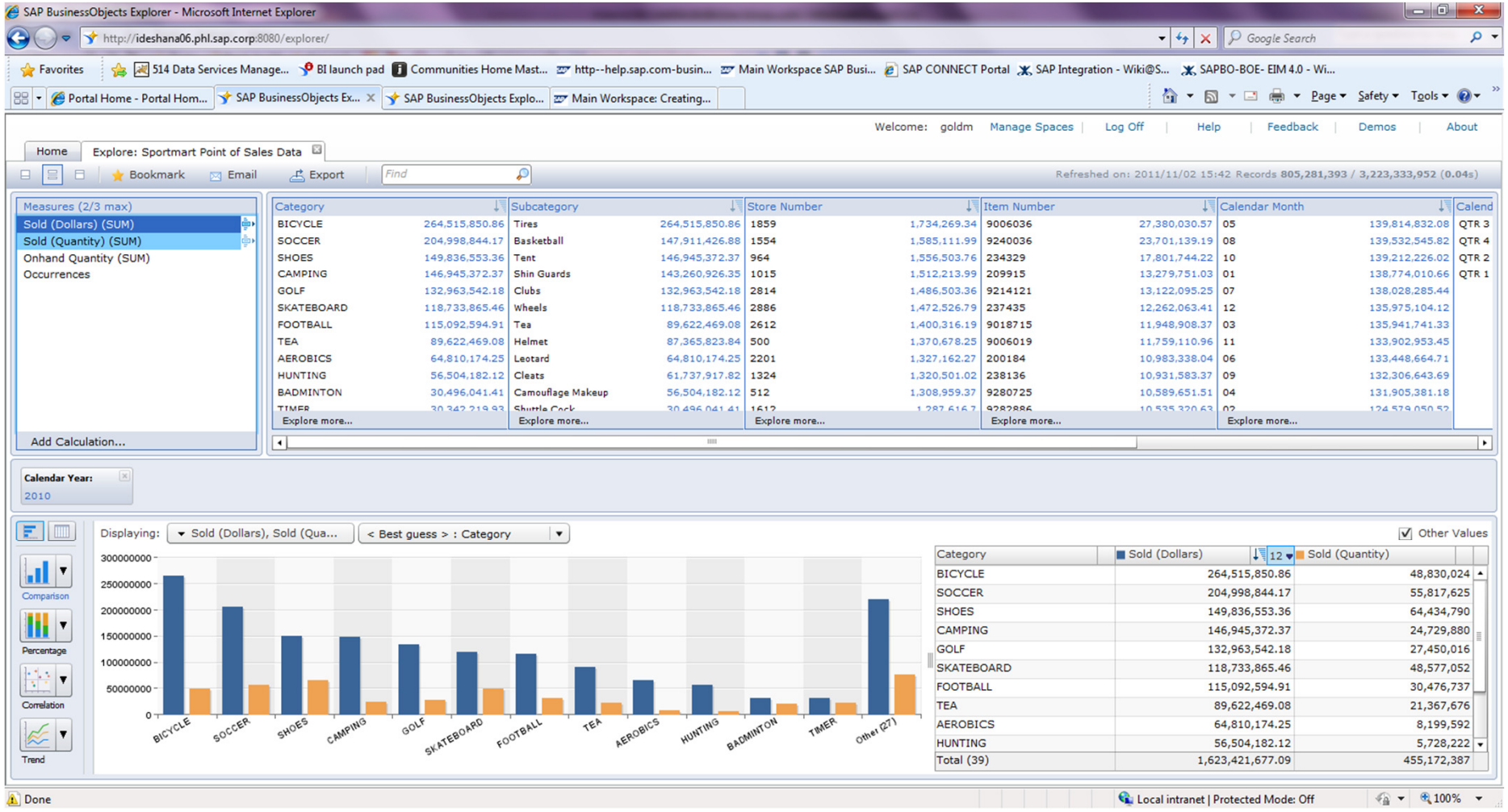
- Real Time Data and timeliness centric
- Reporting on large volumes of granular, transactional data
- Supporting local business execution
- Higher data volatility

Agile Data Marts:

- Independent of the highly governed centralized corporate EDW layers
- Maximum flexibility for LOBs in data modeling and integration of LOB specific data
- Support strategic decision making in LOBs
- Volatile and historical data with fluid data models

HANA Demo

SAP Explorer on HANA – 3.2 Billion Records

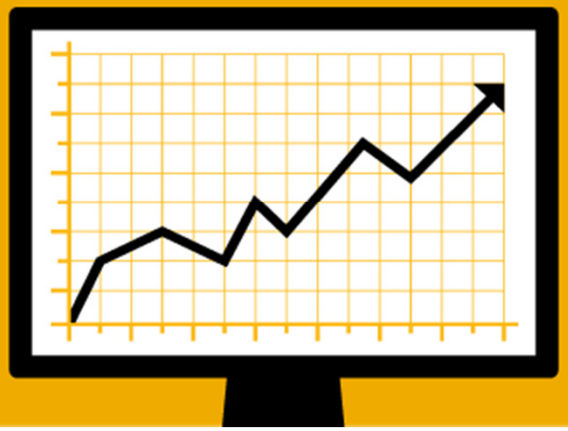


Mobility on Hana

Mobile BI

- New engaging, interactive experience for business users
- Native applications that leverage mobile form factors, touch interfaces ,intuitive gestures and augmented reality
- Stunning new interactive visualizations
- Live connections to in-memory data to drive extreme speed
- Instant access to relevant information with Smart Search
- Simple to setup and manage

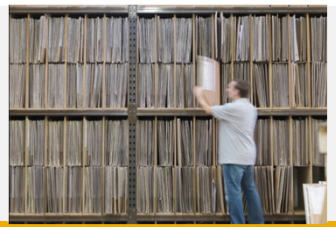
SOLUTION TODAY



What is the Business Case for HANA

How SAP HANA Helps the Public Sector

Opportunities for your Public Sector Organization



Finance and Human Resources

- Understand cost and revenue streams instantly to streamline processes
- Rapidly access budget and personnel data
- Provide real-time insight into spending and contracts
- Real-time insight into GL with ability to quickly perform financial close

Operations

- Understand fully the marketplace of suppliers to leverage insight, scale and quality to procure in the best interest of the organization
- Make procurement decisions based on immediate access across huge vendor information lists.
- Real-time assessment of earned value on massive programs with multiple agencies

Information Technology

- Provide new transformational capabilities for the business to better serve its constituents and employees
- Immediate insight and visualization of the most relevant data
- Reduce costs of large hard drives and storage
- Maintain online instant access to huge amounts of data

Constituent Services & Tax and Revenue Management

- Prevent non compliant payments and streamline processes
- Optimize revenue collection and streamline processes
- Manage contribution data and support benefit decisions

Public Security

- Obtain actionable insight as events occur
- Provide situational awareness with multiple sensor feeds
- Enable immediate access to huge amounts of records for historical analysis of investigations

SAP BusinessObjects Strategic Workforce Planning

Line of Business: Human Resource

Provides powerful capabilities to manage and optimize workforce planning processes

Solution Available Today

Capabilities

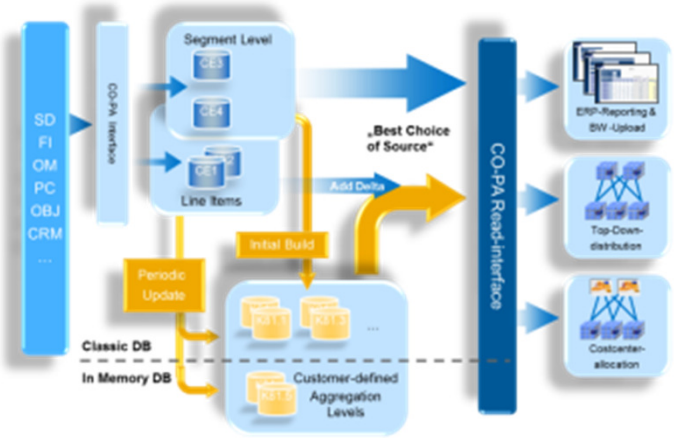
- Gain immediate and flexible insights into workforce composition and dynamics (e.g., skills, demographics)
- Perform real-time simulations on workforce plans to understand impact of business scenarios and support key decisions
- Translate business strategy into workforce demand, identify talent gaps, and develop action plans

Key Benefits

- Enable collaborative and insight-driven workforce planning across the organization
- Develop action plans to ensure proper workforce support for strategic goals and mission-critical operations
- Close strategic gaps while keeping personnel costs in check to boost profitability

SAP CO-PA Accelerator

Line of Business: Finance



Provides real-time, flexible insights into customer & product profitability

Solution Available Today

Capabilities

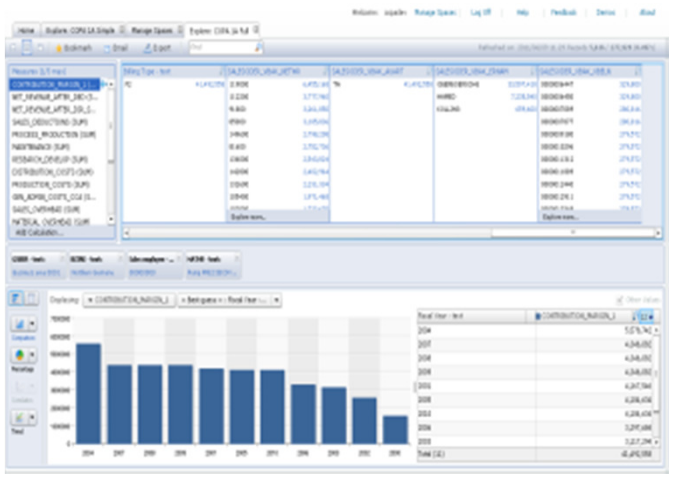
- Real-time access to massive amounts of profitability data
- Unlimited multi-dimensional analysis of CO-PA data
- Accelerated cost allocation process
- Flexible and unconstrained profitability reporting through CO-PA and SAP BusinessObjects BI tools
- Rapid, non-disruptive deployment

Key Benefits

- Speed of profitability reporting helps accelerate financial performance and efficiency
- Powerful insights unlock opportunities to maximize profitability
- Empowered users with access to trusted data to optimize profitable business decisions
- Instant time-to-value with low cost of ownership

SAP ERP Operational Reporting

Cross-Lines of Business



Real-time, flexible reporting for sales, finance, shipping, procurement, and master data

Solution Available Today

Capabilities:

- Real-time, flexible reporting and analytics for the following SAP ERP scenarios:
- Financial Reporting (e.g., days sales outstanding, new general ledger line items)
- Sales Reporting (e.g., sales order analysis, fulfillment rate)
- Purchasing Reporting (e.g., purchase order analysis)
- Shipping Reporting (e.g., stock overview)
- Master Data Reporting (e.g., customer list, vendor list)

Key Benefits

- Gain transparency in business operations
- Improve speed and quality of decision making and execution
- Rapid deployment and time-to-value

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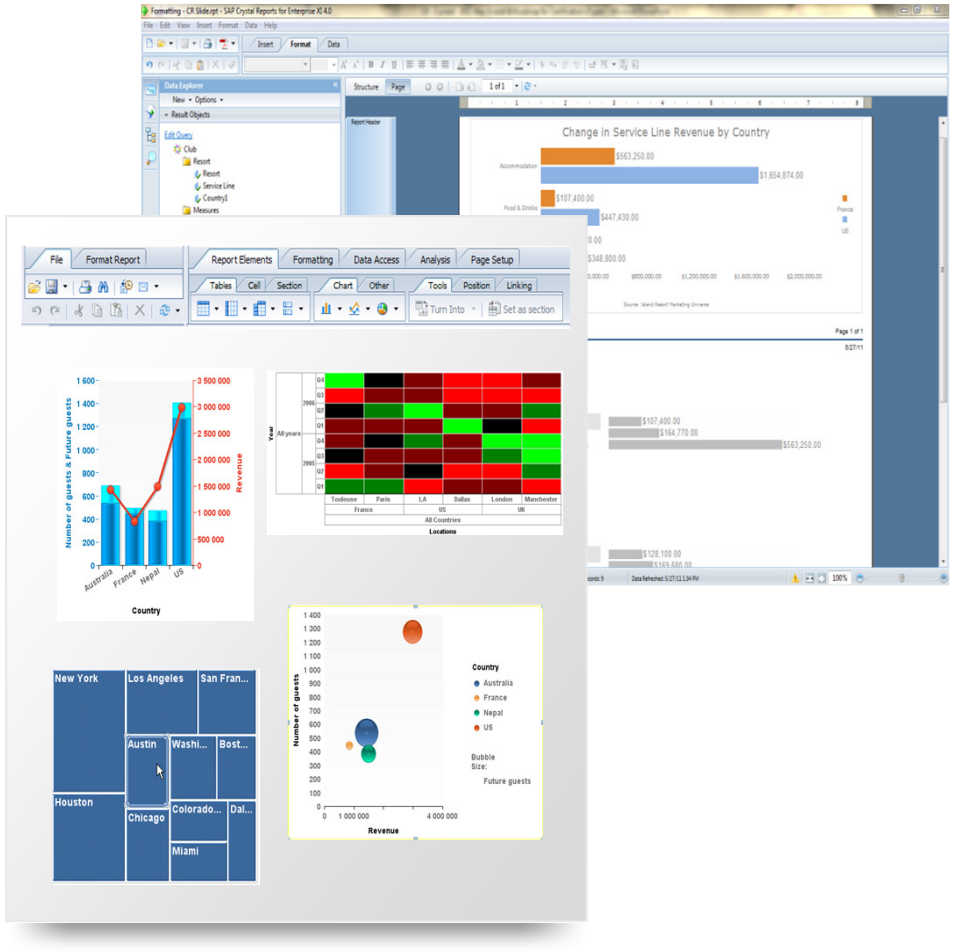
HANA on BOBJ

Across entire BI Suite

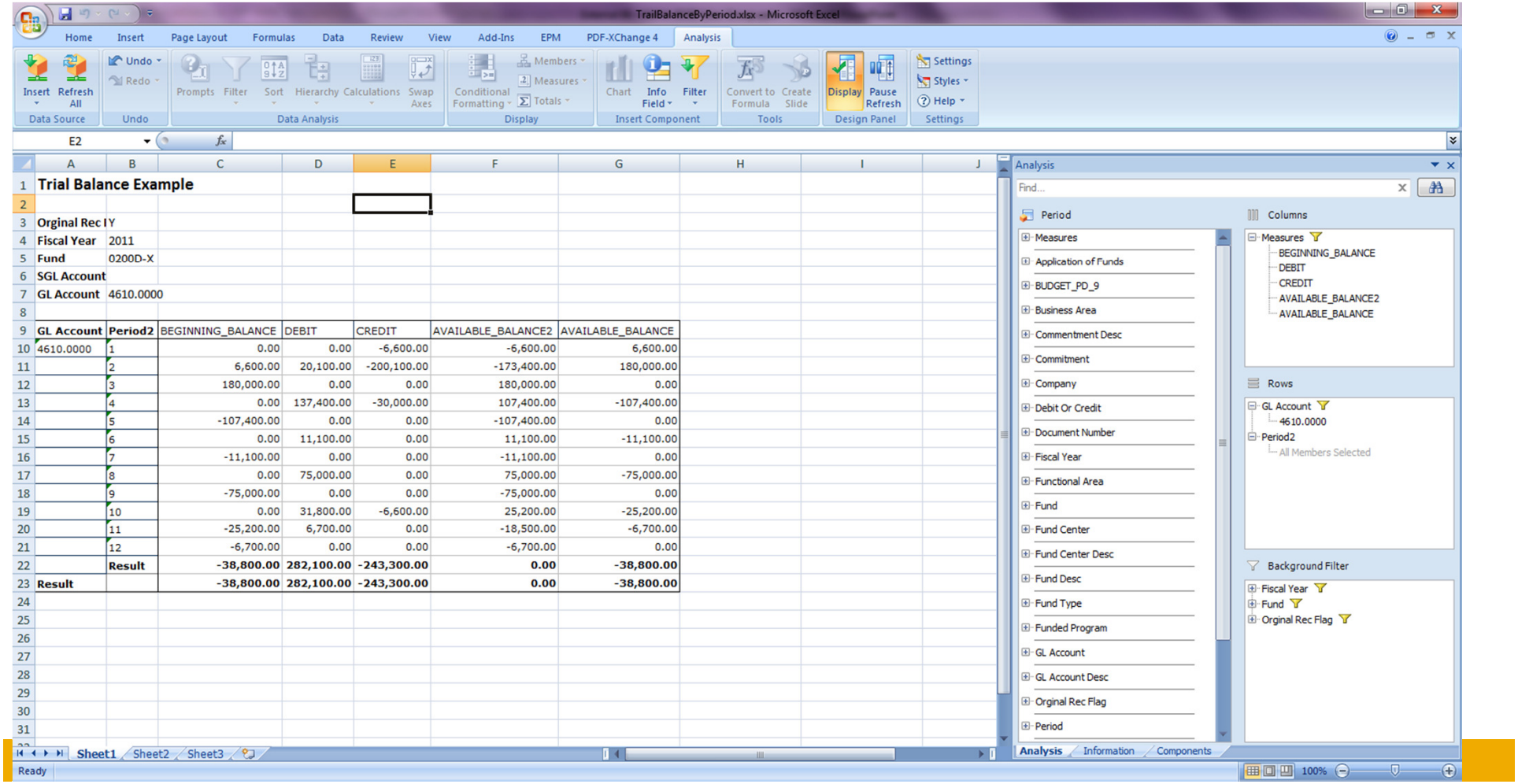
Business Objects is the only supported BI tool certificated on HANA

- 4.0 fully supports HANA including SAP Explorer on HANA and SAP Analysis Clients
- 3.1 SP4 supports HANA as a Universe source and direct connections with Crystal Reports

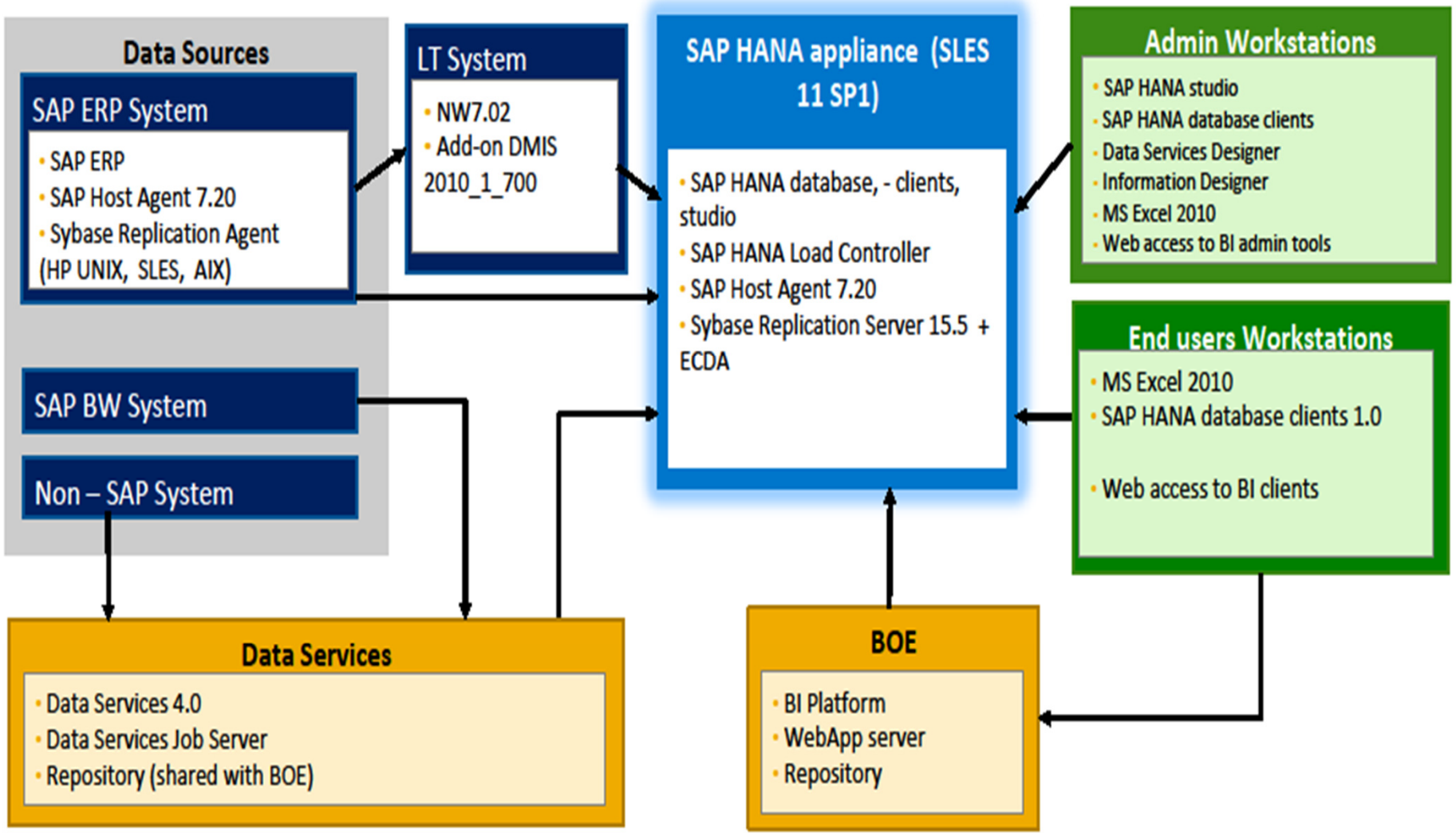


SOLUTION TODAY

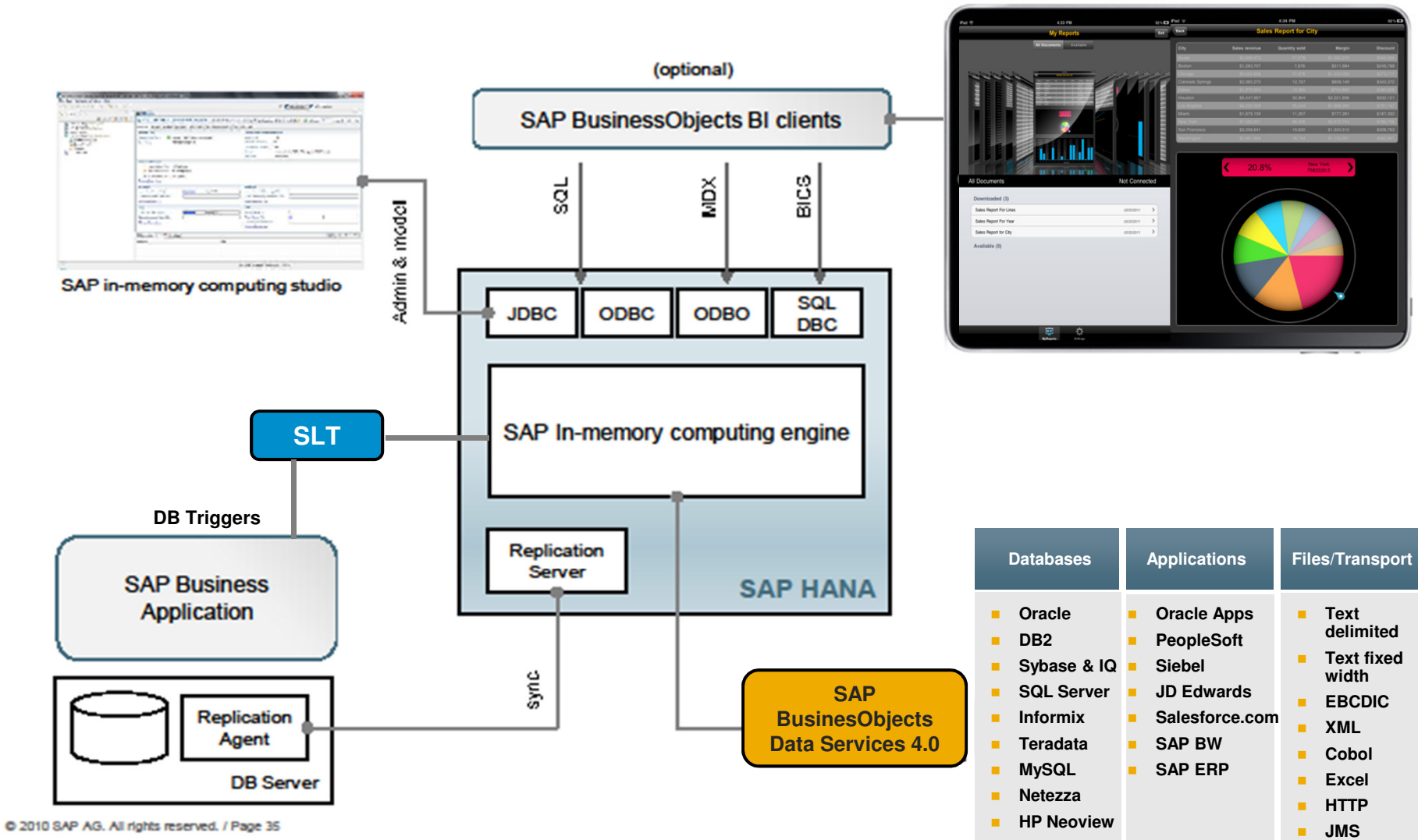
SAP Analysis Office on HANA



SAP HANA System Landscape

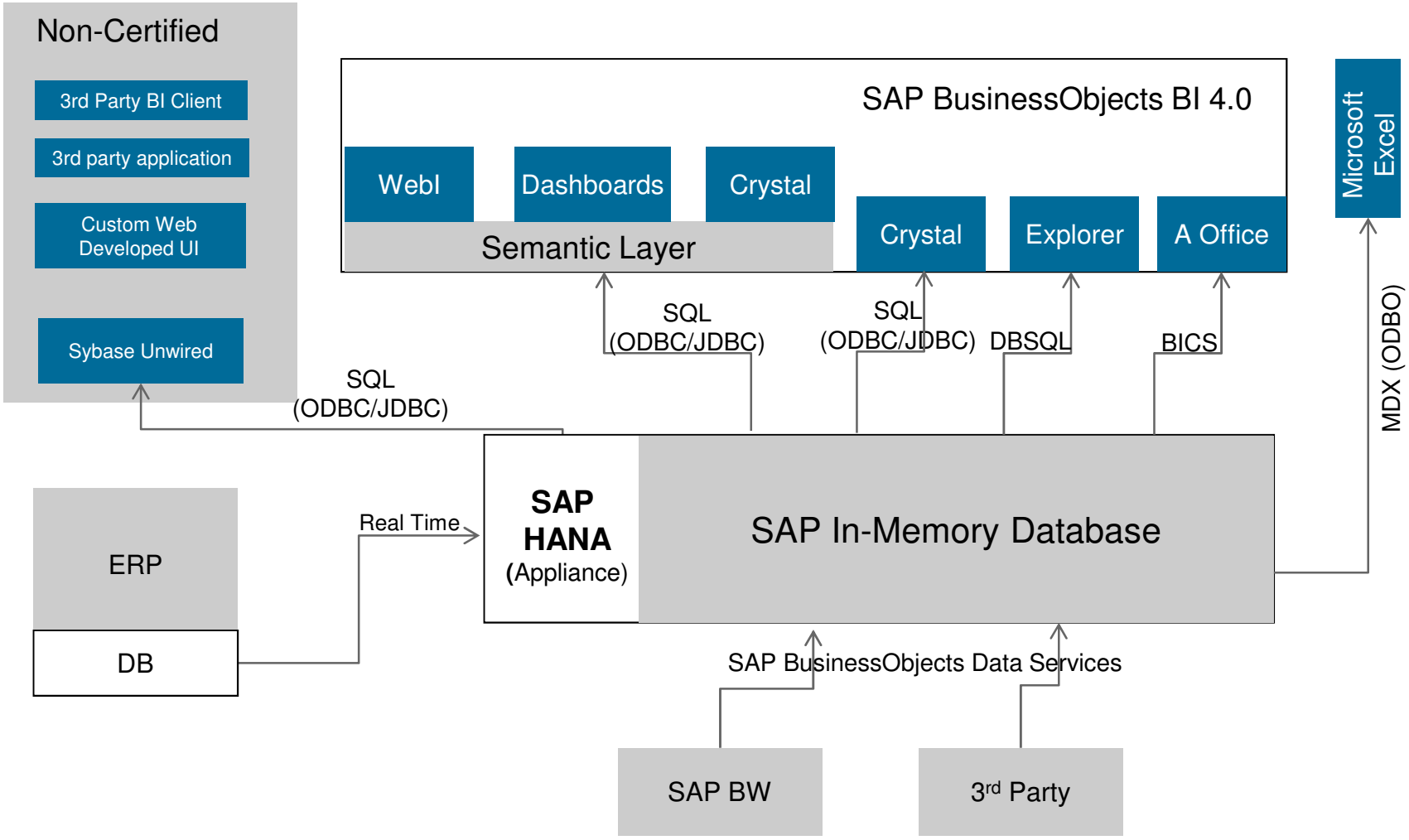


SAP HANA: Architecture



Databases	Applications	Files/Transport
▪ Oracle ▪ DB2 ▪ Sybase & IQ ▪ SQL Server ▪ Informix ▪ Teradata ▪ MySQL ▪ Netezza ▪ HP Neoview ▪ ODBC	▪ Oracle Apps ▪ PeopleSoft ▪ Siebel ▪ JD Edwards ▪ Salesforce.com ▪ SAP BW ▪ SAP ERP	▪ Text delimited ▪ Text fixed width ▪ EBCDIC ▪ XML ▪ Cobol ▪ Excel ▪ HTTP ▪ JMS ▪ SOAP

Business Intelligence Clients and SAP HANA 1.0

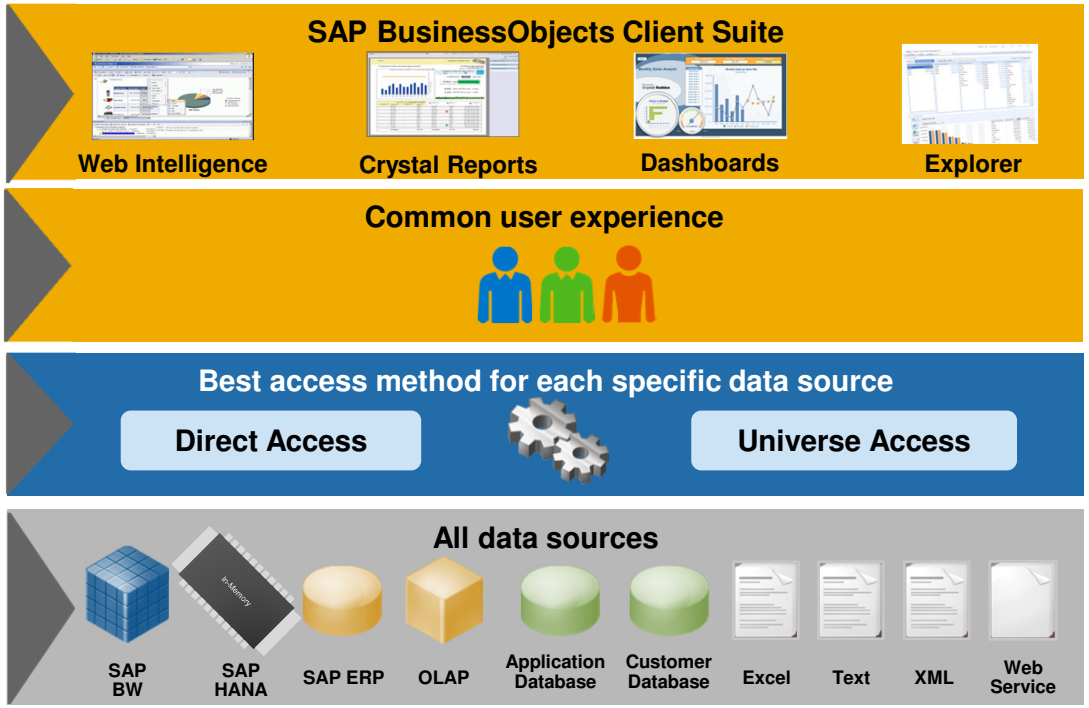


Semantic Layer and HANA

Exposing all business data under a single umbrella

New Semantic Layer

- Consistent business user experience
- Trusted access to information
- Heterogeneous access over all major data sources
- Hierarchical queries and reports
- Real time multi-source access



BI 4.0 SOLUTION TODAY

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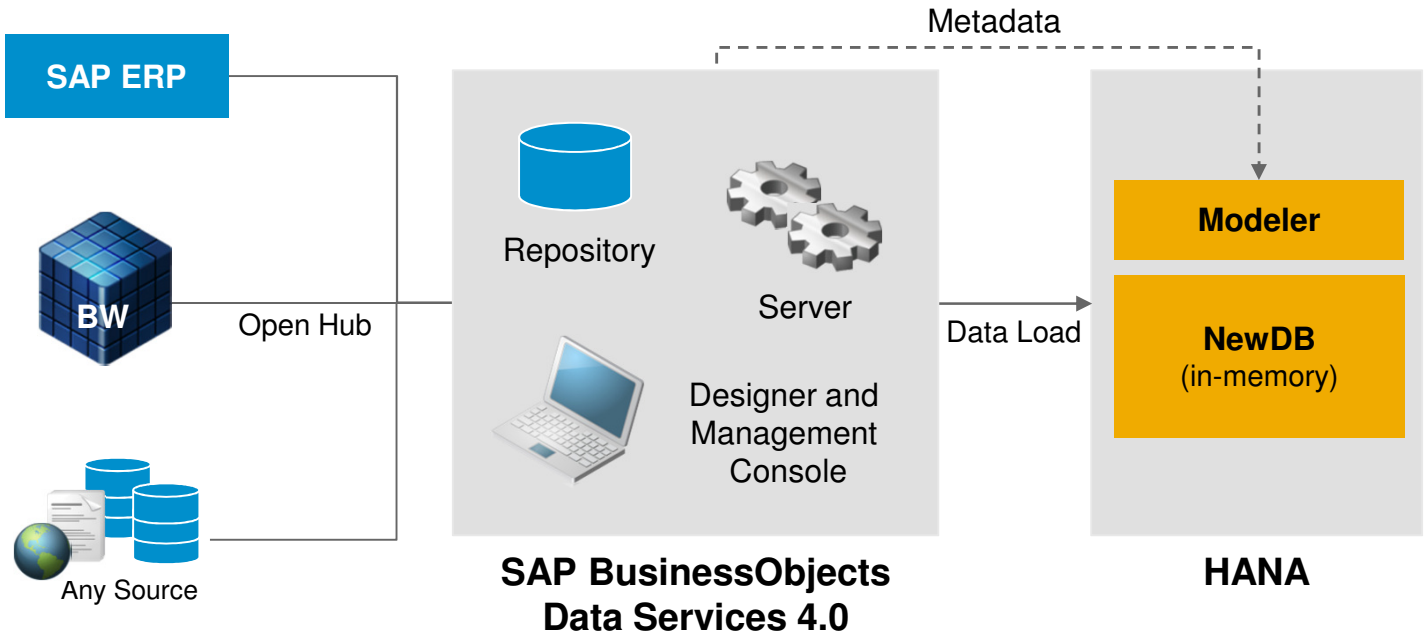
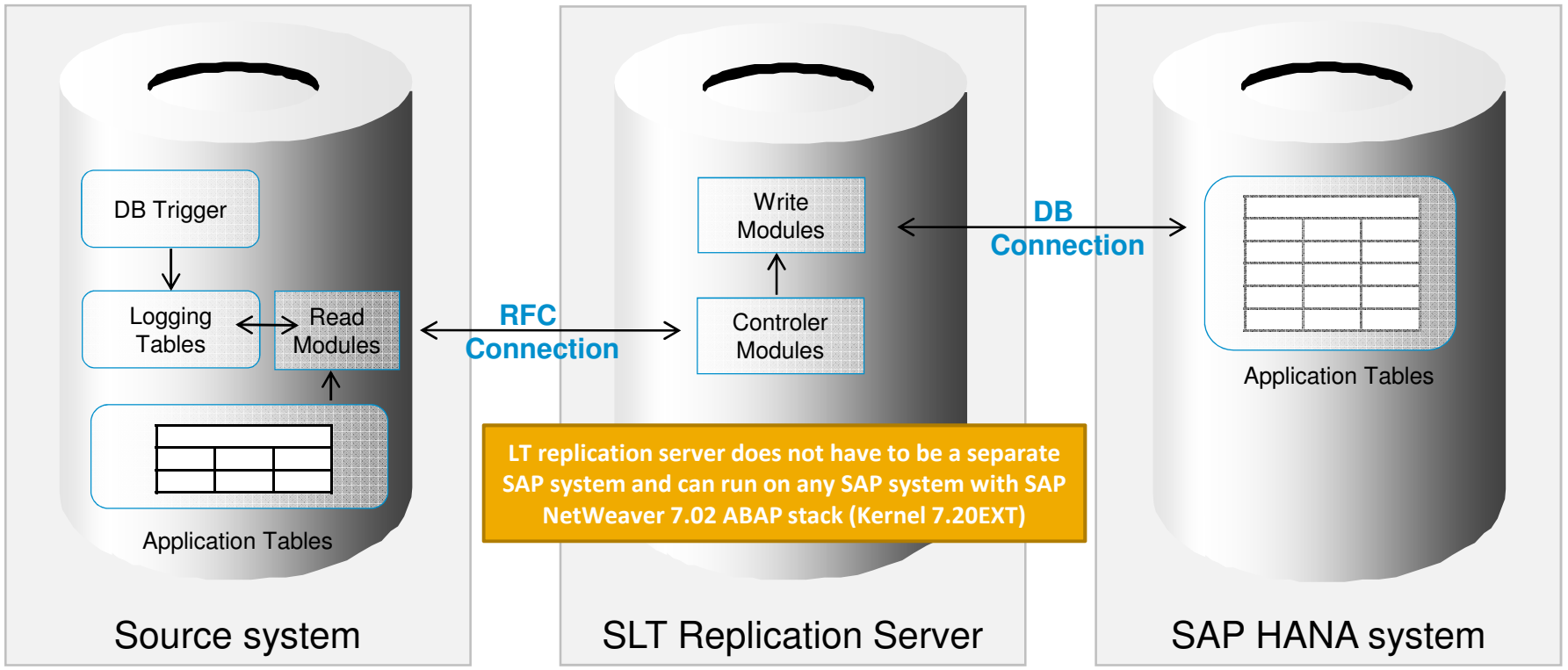
SAP BusinessObjects Data Services and SAP HANA



- Data Services is the engine to load all data into HANA
- The HANA Modeler will generate initial loading jobs
  - Modeler will use Data Services to browse and 'import' external metadata
  - Modeler will generate initial flows to load data into HANA tables
  - Further modifications to flows done via Data Services Designer

LT Replication Concept: Trigger-Based Approach
Architecture and Key Building Blocks



Efficient initialization of data replication based on DB trigger and delta logging concept (as with NearZero downtime approach)

Flexible and reliable replication process, incl. data migration (as used for TDMS and SAP LT)

Fast data replication via DB connect LT replication functionality is fully integrated with HANA Modeler UI

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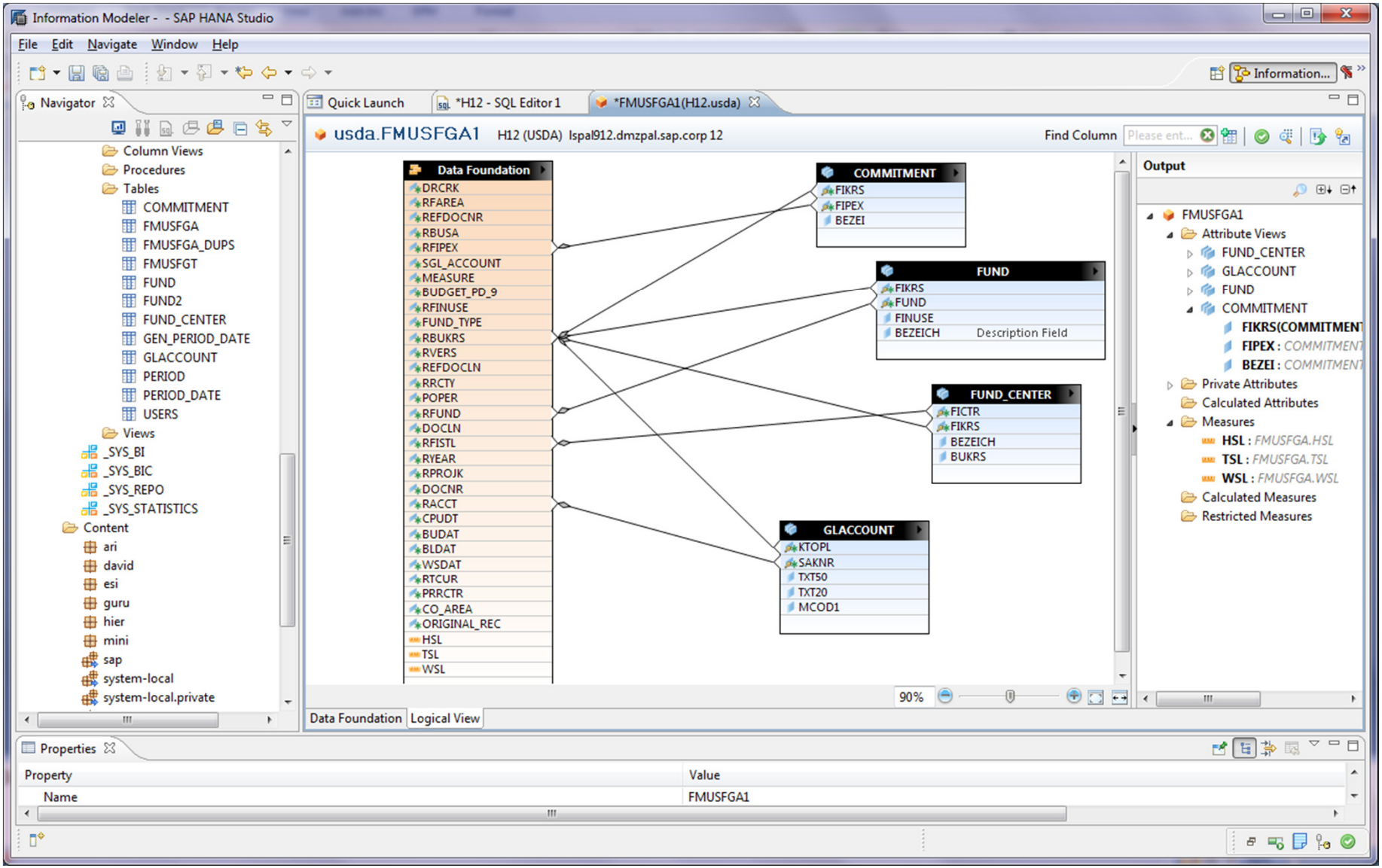
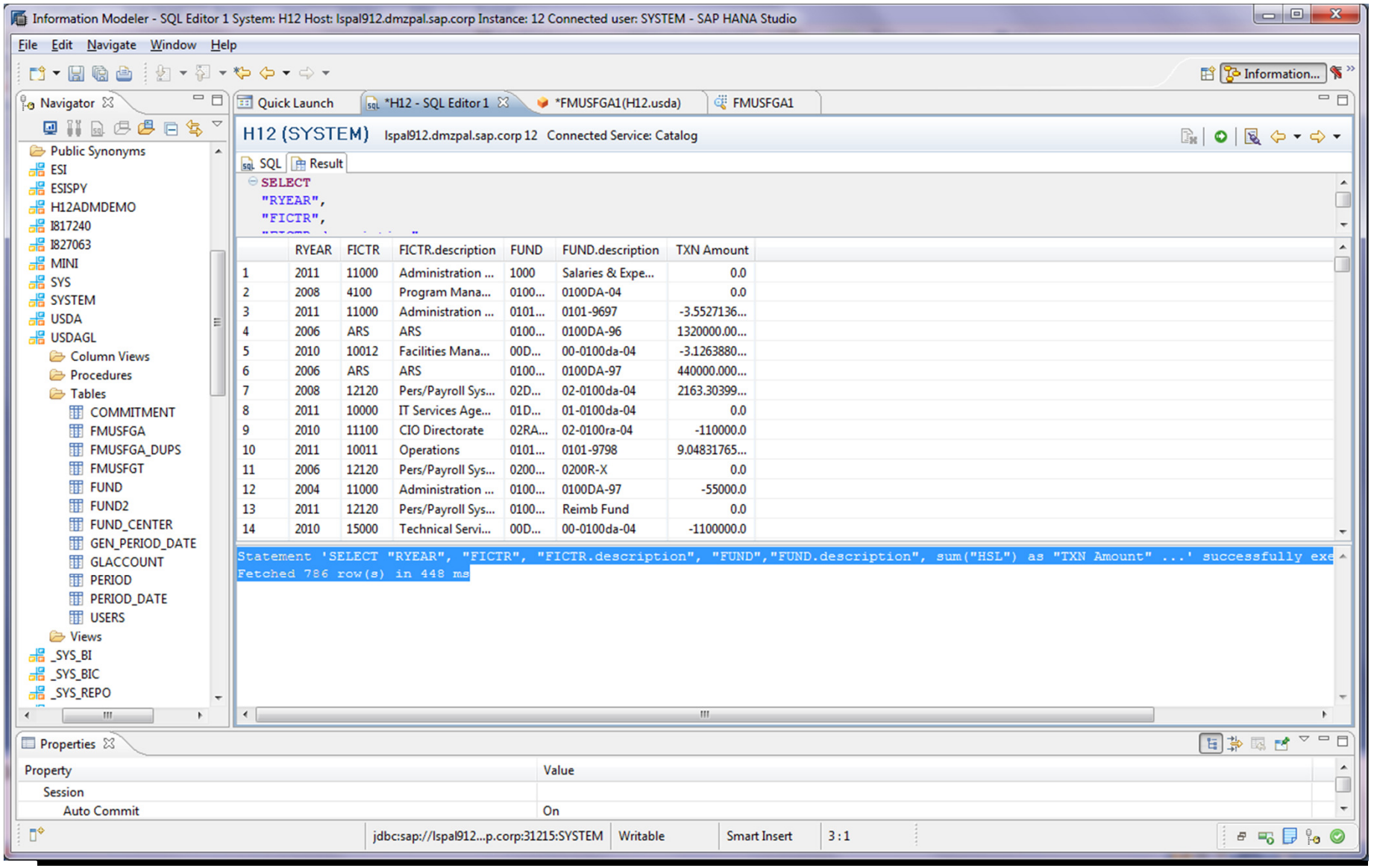
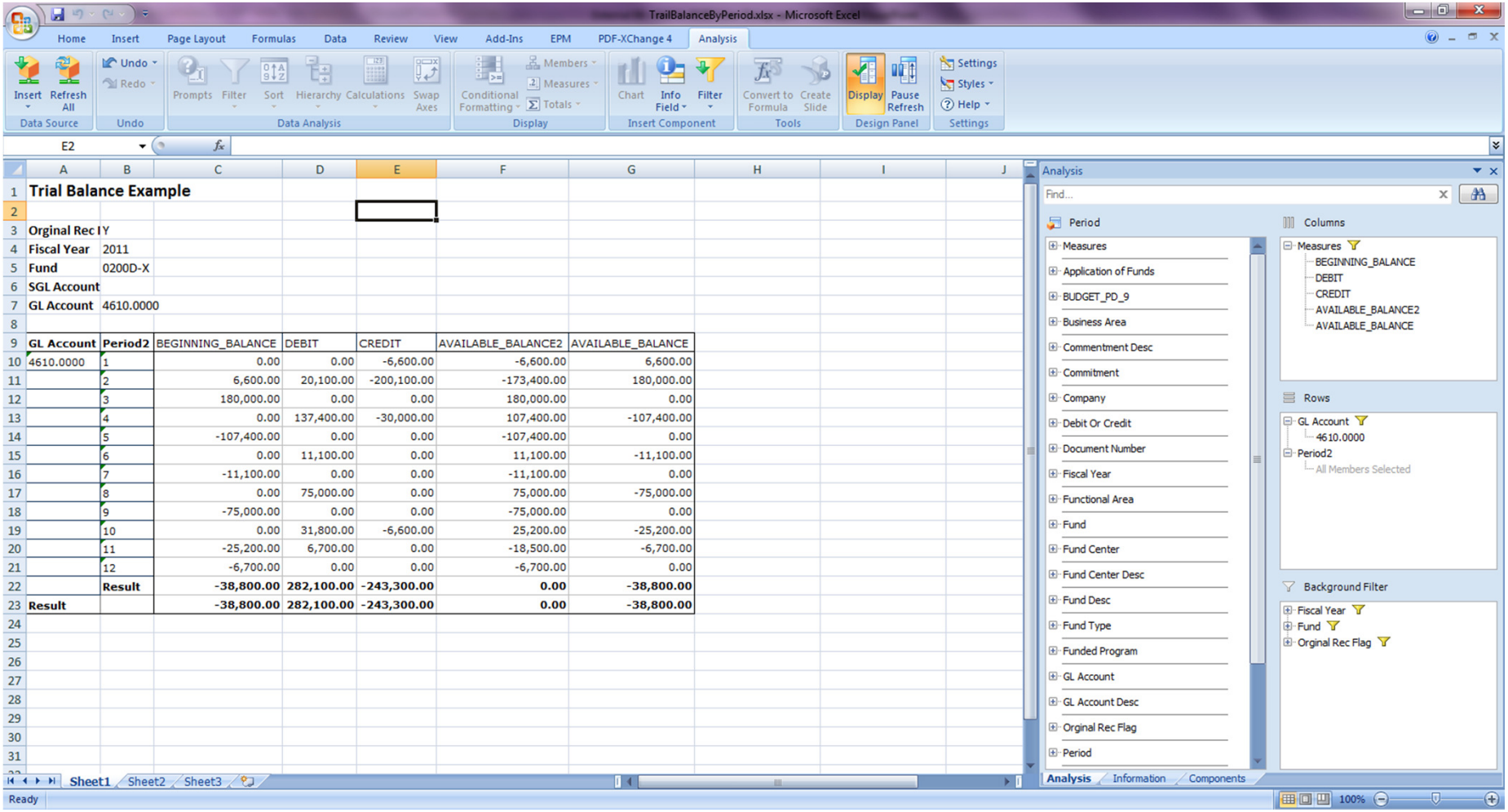
Federal GL Model



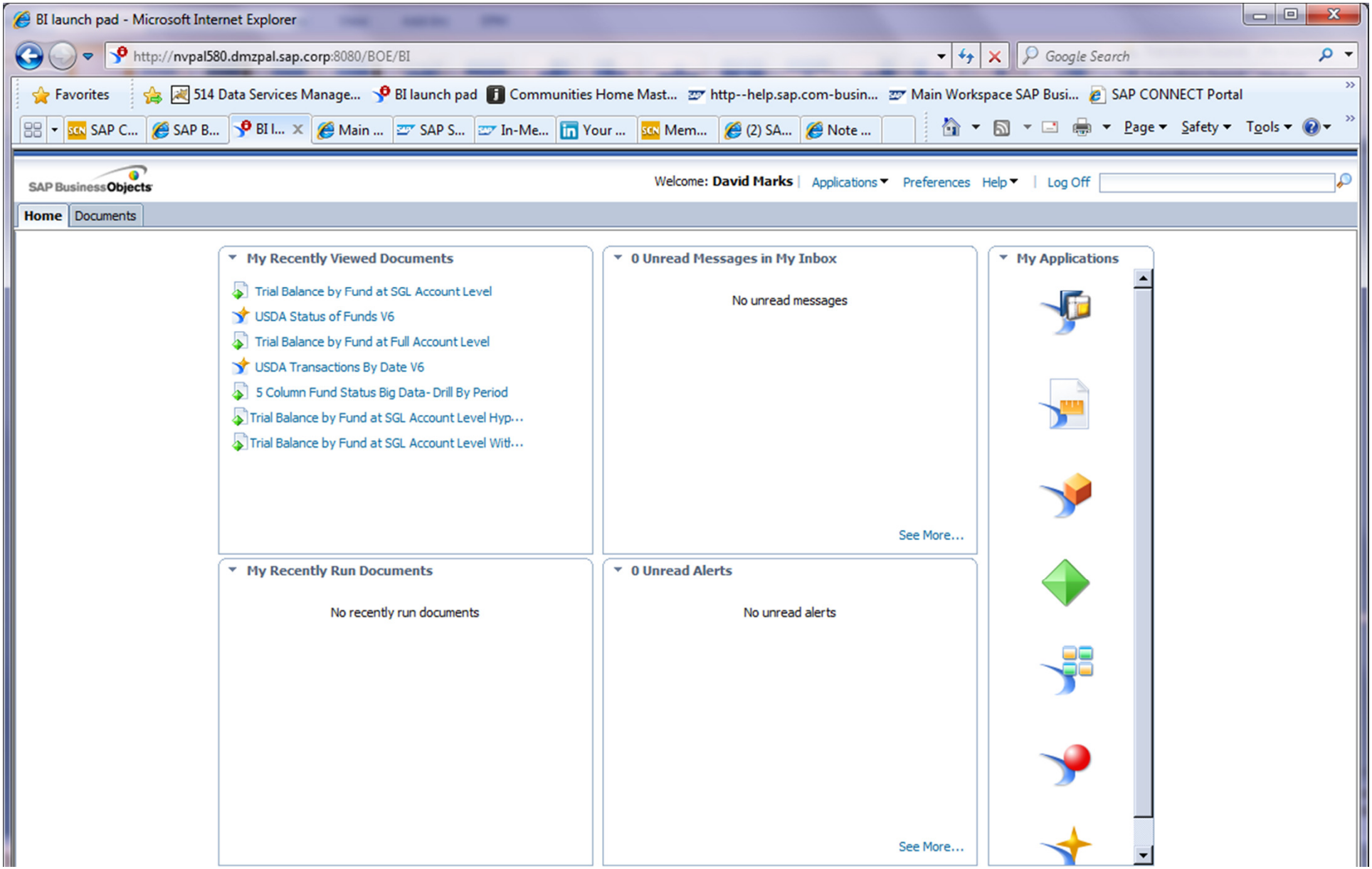
SQL Example – 230 million records aggregated in less than a second



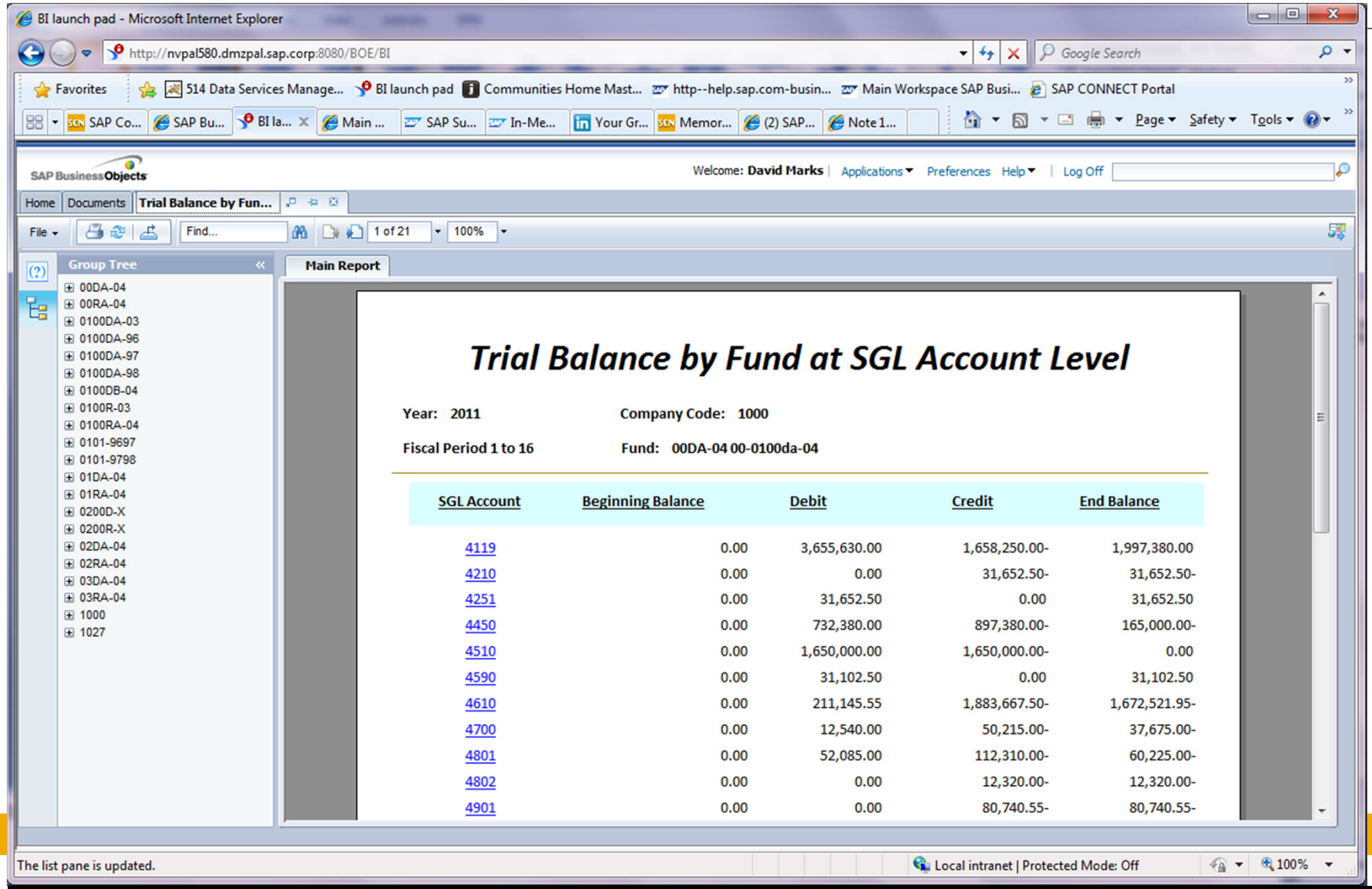
SAP Analysis Office on HANA – 230 million records



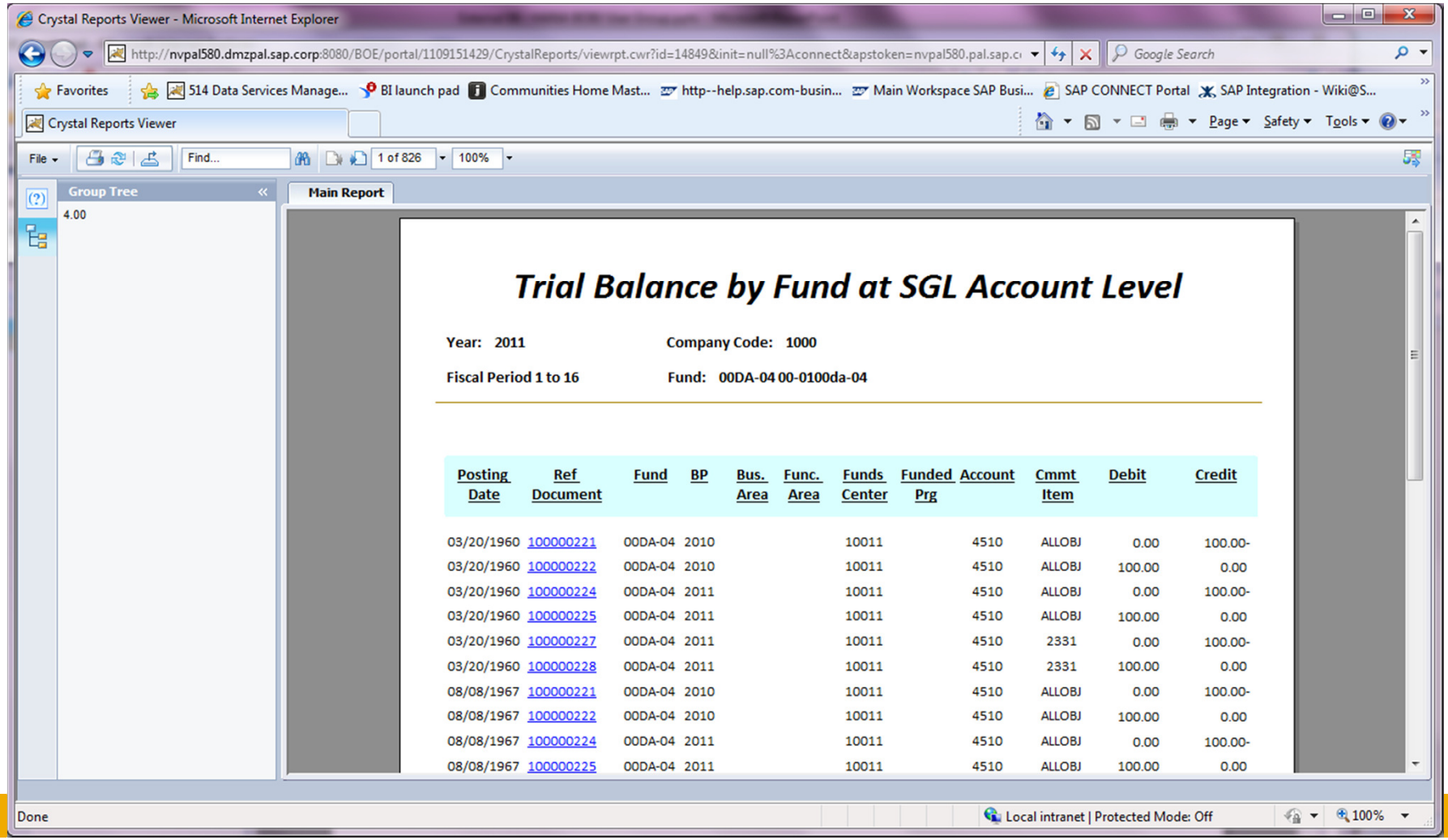
BI 4.0 – Explorer and Crystal GL Example



GL Trial Balance



Trial Balance Transaction Level
Link to Transaction Application

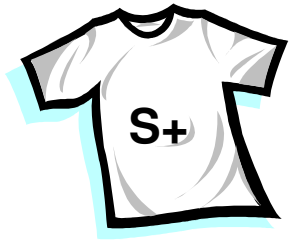


Agenda

- How did HANA evolve?
- What is SAP HANA?
- What SAP HANA is not?
- What is Business Case for HANA?
- How can I leverage HANA with Business Objects?
- How do I acquire data into Hana?
- What is the process to create BI from HANA?
- How do I size the HANA Appliance?
- Where do I find more information on HANA?

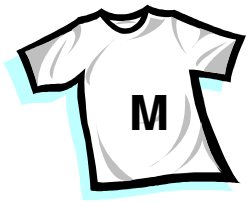
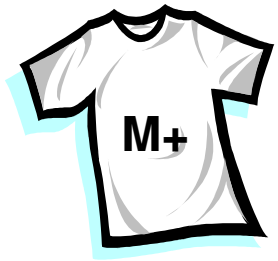
HANA Appliance "T-shirt" sizes

Specifications & Approximate Data Volumes

	• 2 x 8 core Intel Nehalem EX (2 socket system) • 128 GB Main memory • 160 GB PCIe-Flash / SSD for Log volume • 1 TB SAS / SSD for Data volume • 3 x 1 GB n/w or 1 x 10GB n/w (trunk) • Redundant n/w infrastructure	• **Uncompressed Data** ~ 256 GB to ~500 GB • **Replication Data load** 5GB / hr
	• 2 x 8 core Intel Nehalem EX (2 or 4 sockets system) • 256 GB Main memory • 320 GB PCIe-Flash / SSD for Log volume • 1 TB SAS / SSD for Data volume • 3 x 1 GB n/w or 1 x 10GB n/w (trunk) • Redundant n/w infrastructure	• **Uncompressed Data** ~ 500 GB to ~1.25TB • **Replication Data load** 5GB / hr
	• 2 x 8 core Intel Nehalem EX (4 sockets system) • 256 GB Main memory (expandable up to 512 GB) • 320 GB PCIe-Flash / SSD (expandable up to 640 GB) • 1 TB SAS / SSD for Data volume (expandable up to 2 TB) • 3 x 1 GB n/w or 1 x 10GB n/w (trunk) • Redundant n/w infrastructure	• **Uncompressed Data** ~ 500 GB to ~2.5 TB • **Replication Data load** 5GB / hr

Starts at **S** and scales up to **M**

HANA Appliance "T-shirt" sizes
Specifications & Approximate Data Volumes

	• 4 x 8 core Intel Nehalem EX (4 socket system) • 512 GB Main memory • 640 GB PCIe-Flash / SSD • 2 TB SAS / SSD for Data volume • 3 x 1 GB n/w or 1 x 10GB n/w (trunk) • Redundant n/w infrastructure	• **Uncompressed Data** ~1.25TB to ~2.5 TB • **Replication Data load** 5GB - 20 GB/ hr
 Starts at **M** and scales up to **L**	• 4 x 8 core Intel Nehalem EX (8 socket system) • 512 GB Main memory (expandable up to 1 TB) • 640 GB PCIe-Flash / SSD (expandable up to 1.2 TB) • 2 TB SAS / SSD for Data volume (expandable up to 4 TB) • 3 x 1 GB n/w or 1 x 10GB n/w (trunk) • Redundant n/w infrastructure	• **Uncompressed Data** ~ 1.25TB to ~5TB • **Replication Data load** 5GB – 20 GB / hr
	• 8 x 8 core Intel Nehalem EX • 1 TB Main memory • 1.2 TB PCIe-Flash / SSD • 4 TB SAS / SSD for Data volume • 3 x 1 GB n/w or 1 x 10GB n/w (trunk) • Redundant n/w infrastructure	• **Uncompressed Data** ~ 2.5TB to ~5TB • **Replication Data load** 5GB – 20 GB / hr

SAP HANA Sizing – Disclaimer

1. **Sizing recommendations apply for certified hardware only. These are included in SAP's Product Availability Matrix, but are changing constantly. Please contact hardware vendor for suitable hardware configuration.**

2. **SAP HANA is constantly being optimized. This might impact sizing recommendations, which will not be reflected in this document. Therefore, work with your SAP account team for recommendations.**

3. **The sizing guideline in this document refers to SAP HANA Platform only. Additional applications integrated with SAP HANA (e.g., Business Objects, Data Services) are not covered. Specific sizing guidelines for these are available elsewhere.**

SAP HANA Platform Sizing

Operational Reporting / Agile Data Mart Scenario [excludes BW on HANA]

1. **RAM***

RAM = (Source Data Footprint / 5) * 2

2. **SSD/Disk**

$Disk_{persistence} = 4 * RAM$

$Disk_{log} = 1 * RAM$

3. **CPU****

CPU: 0.2 CPU cores / active user

*** Source Data Compression varies based on data characteristics (e.g. cardinality)**
**** CPU on appliances currently ~1 core / 16GB on RAM**

SAP HANA PAM: Supported Hardware Platforms 1/3

HW Vendor	Server System	CPU	Log volume (1*Memory)	Data volume (4*Memory)	Memory	File System	Operating Systems
DELL	R910	2 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive Duo 640GB, configured as RAID 0	14 * 146 GB 15k rpm, configured as RAID 5	256 GB RAM	ext3 ,xfs	SLES11 SP1
Fujitsu	RX600 S5	2 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive 320 GB, configured as RAID 0	16* disks 146GB 15k rpm configured as RAID 10	128 GB RAM	ext3	SLES11 SP1
Fujitsu	RX600 S5	2 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive 320 GB, configured as RAID 0	16* disks 146GB 15k rpm configured as RAID 10	256 GB RAM	ext3	SLES11 SP1
Fujitsu	RX600 S5	4 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive 320 GB, configured as RAID 0	2 * (16 disks 146GB 15k rpm configured as RAID 10), configured as RAID 0	512 GB RAM	ext3	SLES11 SP1
Fujitsu	RX900 S1	4 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive Duo 640GB, configured as RAID 0	2 * (15 disks 300GB 10k rpm configured as RAID 10), configured as RAID 0	512 GB RAM	ext3	SLES11 SP1
Fujitsu	RX900 S1	8 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive Duo 640GB, configured as RAID 0	2* (15 disks 300GB 10k rpm configured as RAID10) configured as RAID 0	1 TB RAM	ext3	SLES11 SP1
HP	DL580 G7	2 *Nehalem EX Intel X7560 (2,26 GHz)	1 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 146 GB disks 15k rpm configured as RAID 5	128 GB RAM	ext3, xfs	SLES11 SP1
HP	DL580 G7	2 *Nehalem EX Intel X7560 (2,26 GHz)	1 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 146 GB disks 15k rpm configured as RAID 5	256 GB RAM	ext3, xfs	SLES11 SP1
HP	DL580 G7	4 *Nehalem EX Intel X7560 (2,26 GHz)	2 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 146 GB disks 15k rpm configured as RAID 5	512 GB RAM	ext3, xfs	SLES11 SP1
HP	DL980 G7	4 *Nehalem EX Intel X7560 (2,26 GHz)	2 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 300 GB disks 10k rpm configured as RAID 5	512 GB RAM	ext3, xfs	SLES11 SP1
HP	DL980 G7	8 *Nehalem EX Intel X7560 (2,26 GHz)	4 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 300 GB disks 10k rpm configured as RAID 5	1 TB RAM	ext3, xfs	SLES11 SP1
IBM	x3690 X5	2 *Nehalem EX Intel X7560 (2,26 GHz)	2 controllers with 4* 50GB SSD each, configured as RAID 0	8* 146GB 15k rpm SAS drives configured as RAID 5	128 GB RAM	GPFS	SLES 11 SP1
IBM	x3690 X5	2 *Nehalem EX Intel X7560 (2,26 GHz)	2 controllers with 4* 50GB SSD each, configured as RAID 0	8* 146GB 15k rpm SAS drives configured as RAID 5	256 GB RAM	GPFS	SLES 11 SP1
IBM	x3850 X5	4 *Nehalem EX Intel X7560 (2,26 GHz)	1* Fusion-io ioDrive Duo 640GB, using GPFS	8* 300GB 10k rpm SAS drives configured as RAID 5	512 GB RAM	GPFS	SLES 11 SP1
IBM	x3850 X5	8 *Nehalem EX Intel X7560 (2,26 GHz)	2* Fusion-io ioDrive Duo 640GB, using GPFS	16* 600GB 10k rpm SAS drives configured as 2* RAID 5	1 TB RAM	GPFS	SLES 11 SP1

SAP HANA PAM: Supported Hardware Platforms 2/3

HW Vendor	Server System	CPU	Log volume (1*Memory)	Data volume (4*Memory)	Memory	File System	Operating Systems
Cisco	UCS C460 M2	4 *Westmere EX Intel E7-4870 (2,4 GHz)	2* Fusion-io ioDrive 320 GB, configured as RAID 0	10* disks 300GB 10k rpm configured as RAID 5	512 GB RAM	ext3, xfs	SLES 11 SP1
Fujitsu	RX600 S6	4 *Westmere EX Intel E7-4870 (2,4 GHz)	2* Fusion-io ioDrive 320 GB, configured as RAID 0	8* 600 GB disks 10k rpm Configured as RAID-5 (incl. BBU)	512 GB RAM	ext3, xfs	SLES for SAP V2 (SLES11 SP1)
HP	DL580 G7	2 *Westmere EX Intel E7-4870 (2,4 GHz)	1 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 146 GB disks 15k rpm configured as RAID 5	128 GB RAM	ext3, xfs	SLES11 SP1
HP	DL580 G7	2 *Westmere EX Intel E7-4870 (2,4 GHz)	1 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 146 GB disks 15k rpm configured as RAID 5	256 GB RAM	ext3, xfs	SLES11 SP1
HP	DL580 G7	4 *Westmere EX Intel E7-4870 (2,4 GHz)	2 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 146 GB disks 15k rpm configured as RAID 5	512 GB RAM	ext3, xfs	SLES11 SP1
HP	DL980 G7	4 *Westmere EX Intel E7-8870 (2,4 GHz)	2 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 300 GB disks 10k rpm configured as RAID 5	512 GB RAM	ext3, xfs	SLES11 SP1
HP	DL980 G7	8 *Westmere EX Intel E7-8870 (2,4 GHz)	4 *Fusion-io ioDrive Duo 320GB, configured as RAID 0	24 * 300 GB disks 10k rpm configured as RAID 5	1 TB RAM	ext3, xfs	SLES11 SP1
IBM	x3690 X5	2 *Westmere EX Intel E7-2870 (2,4 GHz)	2 controllers with 5 * 200GB SSD each, configured as RAID 5	included in Log volume capacity	256 GB RAM	GPFS	SLES for SAP V2 (SLES11 SP1)
IBM	x3950 X5	2 *Westmere EX Intel E7-8870 (2,4 GHz)	1* Fusion-io ioDrive Duo 320GB, using GPFS	8* 600GB 10k rpm SAS drives configured as RAID 5	256 GB RAM	GPFS	SLES for SAP V2 (SLES11 SP1)
IBM	x3950 X5	4 *Westmere EX Intel E7-8870 (2,4 GHz)	1* Fusion-io ioDrive Duo 640GB, using GPFS	8* 600GB 10k rpm SAS drives configured as RAID 5	512 GB RAM	GPFS	SLES for SAP V2 (SLES11 SP1)
IBM	x3950 X5	8 *Westmere EX Intel E7-8870 (2,4 GHz)	2* Fusion-io ioDrive Duo 640GB, using GPFS	16* 600GB 10k rpm SAS drives configured as 2*RAID 5	1 TB RAM	GPFS	SLES for SAP V2 (SLES11 SP1)

SAP HANA PAM: Supported Hardware Platforms for SAP HANA Scale out 3/3

HW Vendor	Server System	CPU	Storage	Memory	File System	Operating Systems	Restrictions
IBM	x3690 X5	2 *Westmere EX Intel E7-2870 (2,4 GHz)	Local attached storage: Log volume: 1* Fusion-io ioDrive Duo 320GB, using GPFS Data volume 8* 600GB 10k rpm SAS drives, configured as RAID 5	256 GB RAM	GPFS	SLES for SAP V2 (SLES11 SP1)	Limited to 4 nodes, without HA
IBM	x3950 X5	4 *Westmere EX Intel E7-8870 (2,4 GHz)	Local attached storage: Log volume: 1* Fusion-io ioDrive Duo 640GB, using GPFS Data volume: 8* 600GB 10k rpm SAS drives, configured as RAID 5	512 GB RAM	GPFS	SLES for SAP V2 (SLES11 SP1)	Limited to 4 nodes, without HA

More information

Documentation
All Public Documentation
What's New – Release Notes
Installation and Upgrade Information
Security Information
System Administration and Maintenance Information
Development Information
End-User Information
Additional Information
Product Availability Matrix - HANA

Social Resources
LinkedIn Group for in-memory SAP HANA
Wiki Page for HANA
HANA forum on SCN
HANA on Facebook
in-memory Business Data Management Blog
SAP.com have a HANA blog area

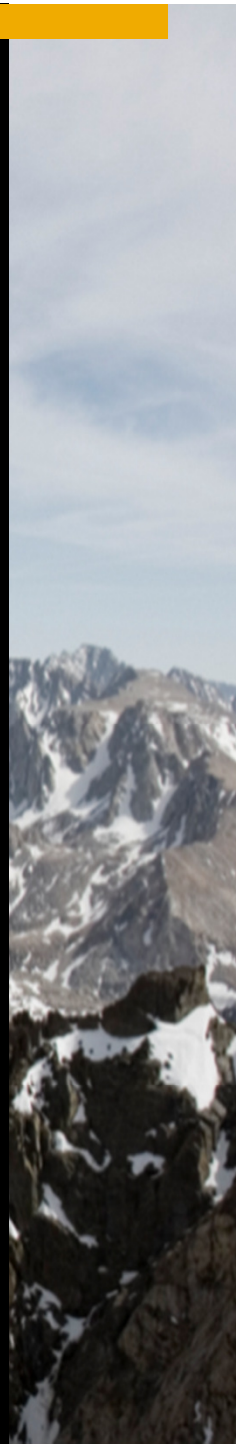
Overall resource locations
HANA SAP Community Network
SAP PartnerEdge Portal for HANA
SAP.com HANA
Training

Solution Resources
SAP HANA Overview & Roadmap
HANA Solution Brief
The SAP HANA FAQ
SAP HANA FAQ for Partners

https://www.experiencesaphana.com/welcome

No Limits

SAP In-Memory Computing



Thank you!

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