



proudly present:

SAP Big Data and Cloud Application Development

Mark Mummy
Director, Enterprise Architecture and Big Data
mark.mummy@sap.com

CLOUDDEVELOPERS

Mobile, Big Data & Service Models:
Critical Take-Aways for Cloud Developers

SUMMIT & EXPO 2014

Big Data Exploitation

A Business Imperative.....

“Big Data isn’t just one more technology initiative. In fact, Big Data isn’t a technology initiative at all; it’s a business program that requires technical savvy”

BAIN & COMPANY 

“The (effective) use of big data will become a key basis of competition and growth for individual firms.”

McKinsey&Company

Big Data means delivering solutions that take a business to the next level of success

Big Data

now an executive level responsibility

Use insights from big data to support both tactical operations and strategic decision making (to include planning and investment)

Become more sophisticated in the analysis and use of the data

Identify new sources or new combinations of data that can extend the value of existing business processes

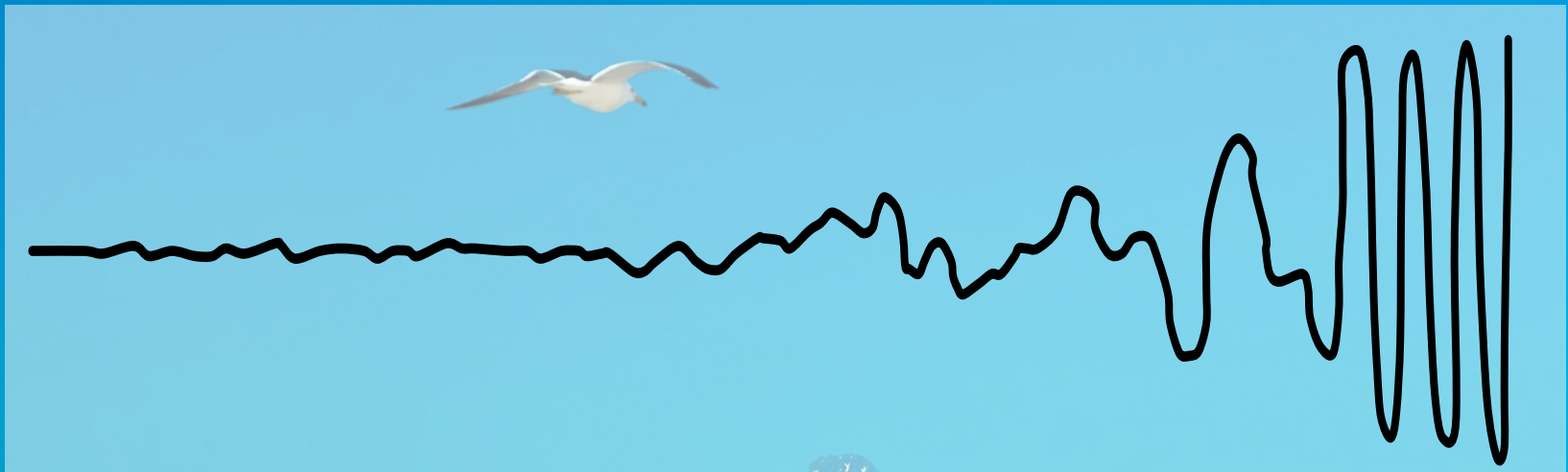
Identify new use case previously not possible with old technology and information that can revolutionize business processes



Data Growth

Needs an appropriate strategy

“velocity of insight”: Wave frequency represents the fact that more and more data driven insight is needed [more rapidly and frequently]



Each wave above represents demands for new data driven insight by the business

Wave height represents the need for handling growing data sets (not just volume but types of data) and advanced analytics needed to drive optimal insight

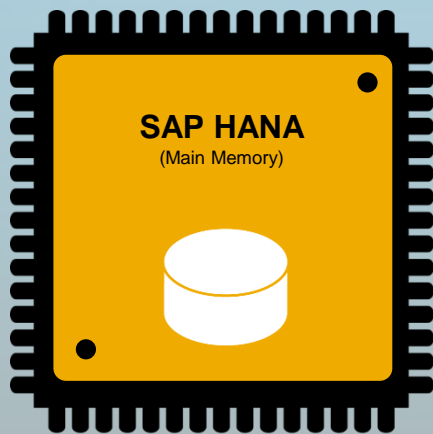
Wave frequency represents the fact that more and more data driven insight is needed as a business acquires more data, customers, partners, products, services, processes

SAP HANA PLATFORM

Breakthrough Data & Application Processing

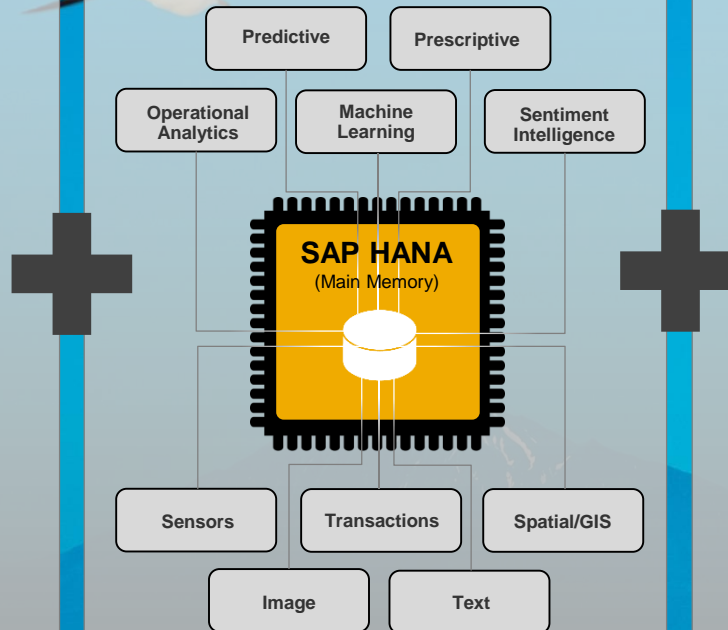
SIMPLIFIED

OLTP + OLAP
in Columnar database



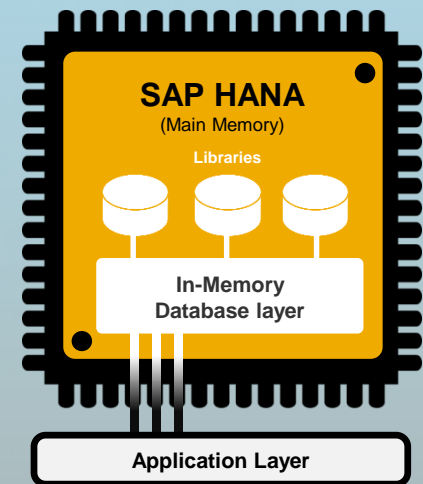
CONVERGED

End-to-end
Data Processing



OPTIMIZED

Application
Processing



- Database & data processing engines
- Application Server
- Integration Services
- Development, Deployment and Administration

SAP Big Data Portfolio

Enable customers achieve real-time business results

BIG DATA PLATFORM

Accelerate how you acquire, analyze and act on Big Data insights

- On premise or Cloud based
- In-Memory Platform
- Analytics Database
- Hadoop
- Event Processing
- Data Services

Experts to refine data into industry insights

BIG DATA ANALYTICS

Unleash the power of Big Data with collective insight across your business

- Predictive Analytics
- Visualization
- Text Analysis
- Business Intelligence

Applications to infuse insight into every person & process

BIG DATA APPLICATIONS

Adopt new business models and revenue streams with applications that deliver Big Data insights

- Big Data Applications
- Custom Applications

Platform + Tools to extract and analyze data

BIG DATA SERVICES

Achieve tangible results from your Big Data initiatives with services that apply advanced data science to your business

- Full Offering: Discover, Plan, Realize, Run
- **Data Science Experts: Predicting your business better than you can**

Key Components of a World Class Big Data Portfolio

SAP HANA

Text Analysis for Big Data

File Filtering

- Unlock text from binary documents
- Ability to extract and process unstructured text data from various file formats (txt, html, xml, pdf, doc, ppt, xls, rtf, msg)
- Load binary, flat, and other documents directly into HANA for native text search and analysis

Native Text Analysis

- Give structure to unstructured textual content
- Expose linguistic markup for text mining uses
- Classify entities (people, companies, things, etc.)
- Identify domain facts (sentiments, topics, requests, etc.)
- Supports up to 31 languages for linguistic mark-up and extraction dictionary and 11 languages for predefined core extractions



SAP HANA

Sentiment Analysis Example

Sentiment Analysis Information Views

- SAP HANA – UI and tool kit (HTML5) (Desktop, iOS, Android, Blackberry)
- Exploration Views in SAP BusinessObjects Explorer (optional)
- SAP Lumira (Visual Intelligence) (optional)

Access

- Sentiment Cockpit – overview dashboard
- SAP BusinessObjects Explorer – all categories on mobile (Apple iPad)
- Exploration view – sentiment details, including geolocations

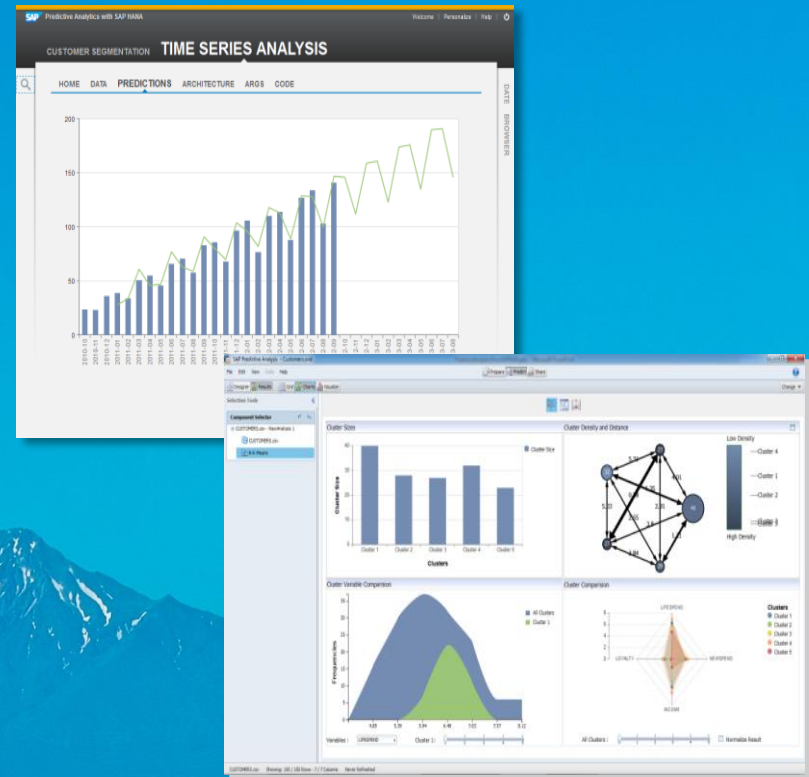


SAP HANA

Predictive & Machine Learning

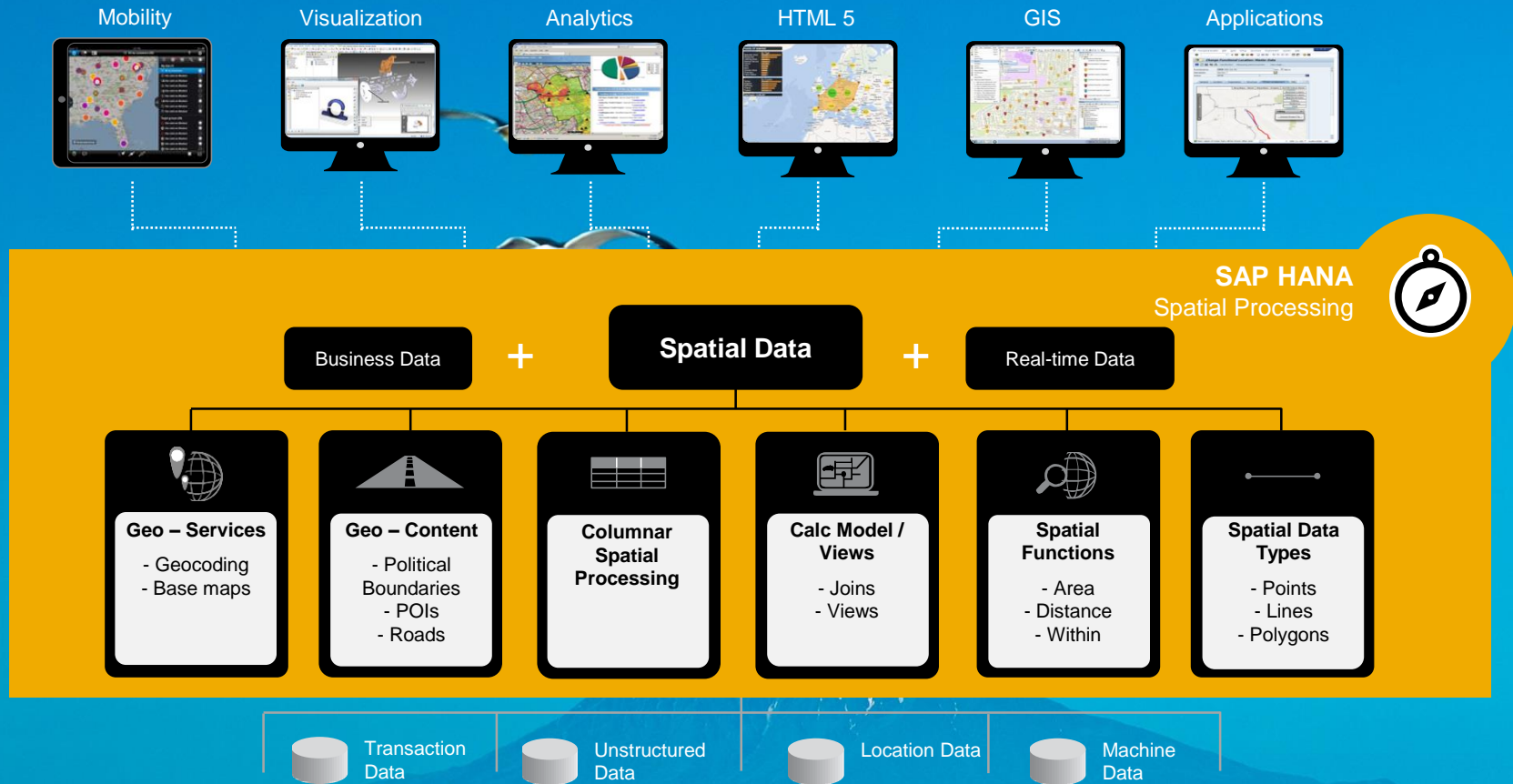
Provide Business Analysts with sophisticated algorithms to take the next step in understanding their business and modelling outcomes

- Perform statistical analysis on your data to understand trends and detect outliers in your business.
- Build models and apply to scenarios to forecast potential future outcomes
- Combine, manipulate and enrich data to apply it to your business scenarios. Self-service visualizations and analytics to tell your story



SAP HANA

Spatial Processing



Real-time Spatial Processing

High-performance algorithms analyze massive amounts of spatial data in real-time

Spatial Analytics Optimization

Columnar storage architecture eliminates need to create spatial indexes, tessellation, or other optimization techniques.

Spatial Data Types & Functions

Store, process, manipulate, share and retrieve spatial data directly in the database

Geo-content & services

Maps, geo-content and geospatial services open integration for seamless application development and deployment

SAP Event Stream Processor (ESP)

Streaming **Big Data**

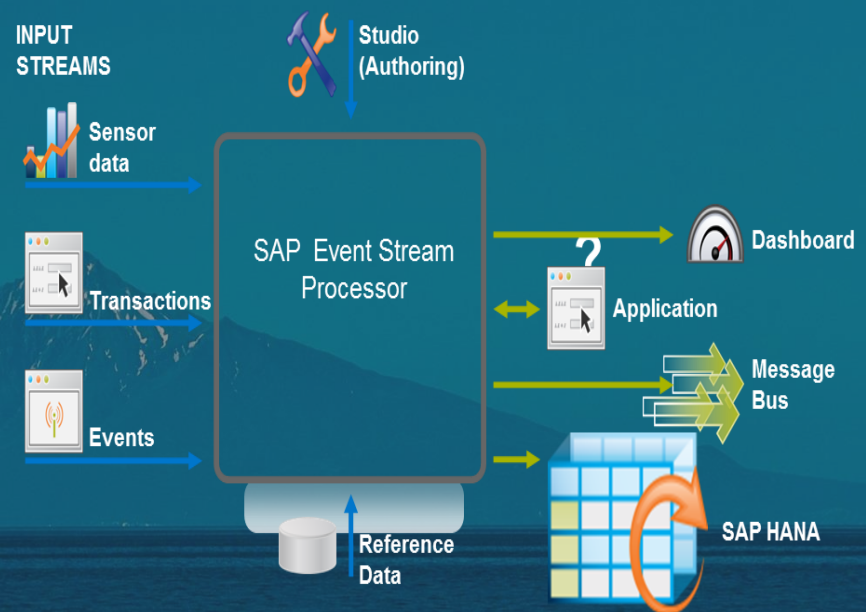
Analyse and act on events as they happen – by relying on real-time event-driven analytics. With our award-winning complex event processing (CEP) platform, you can develop and deploy business-critical applications that give you the agility you need to make quick, profitable decisions.

Process and analyse multiple streams of high-speed, high-volume complex event data in real time

Get actionable information from event streams and generate alerts for events needing quick action

Initiate automatic responses to changing conditions based on one or a combination of events

Develop applications quickly for fast ROI with the high-performance CEP engine

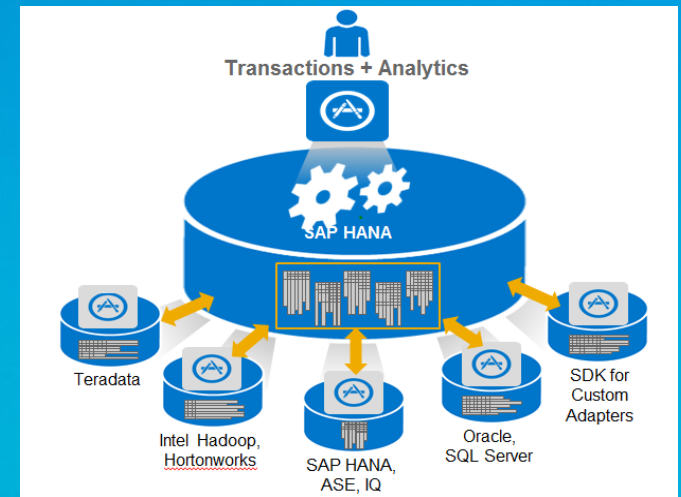


SAP HANA Smart Data Access

Rethinking the Agile Data Mart

Non-disruptive intelligent architecture to provision enterprise-wide data from heterogeneous systems such as Hadoop, Teradata, Oracle and SQL*Server.

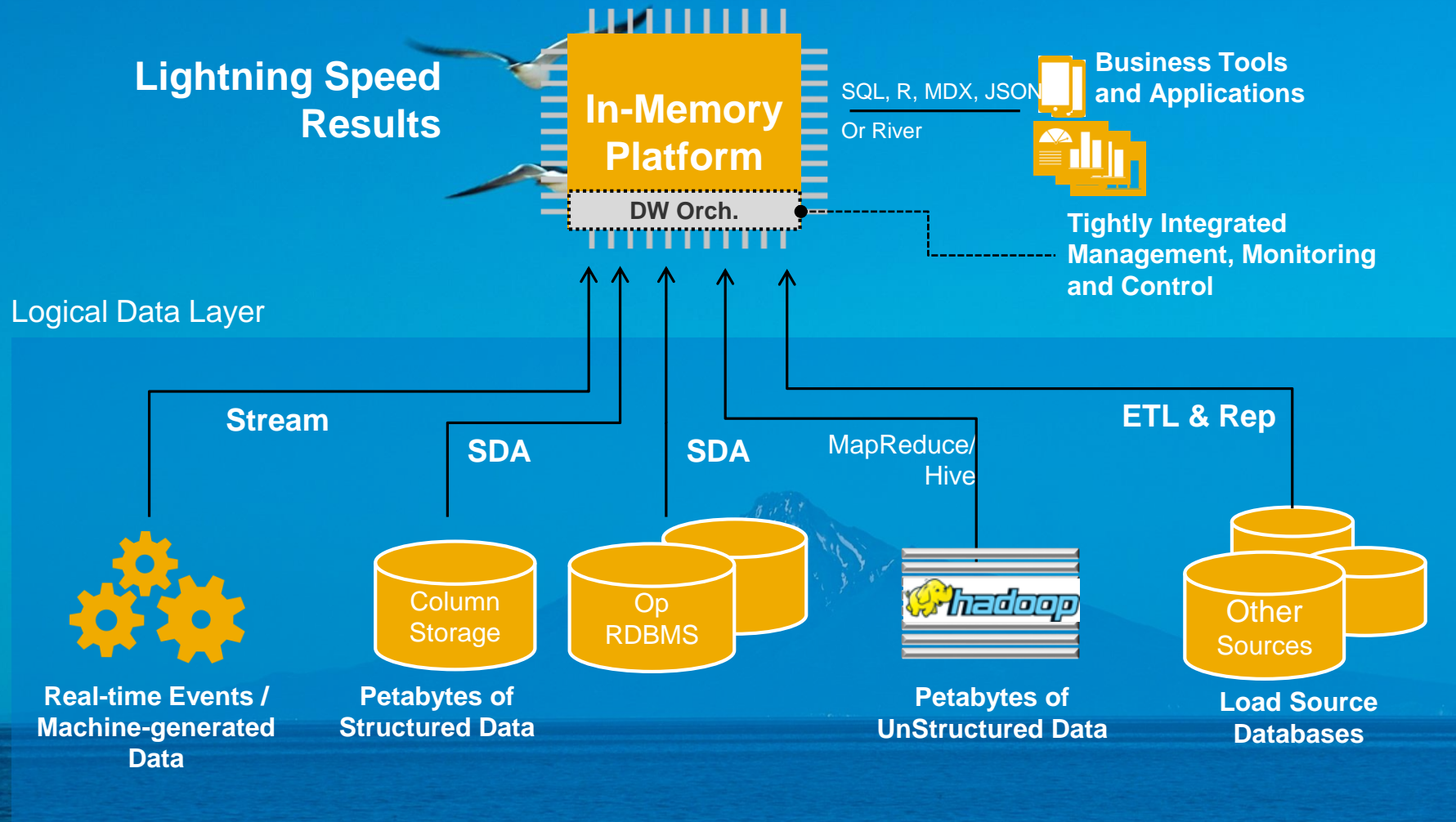
- Enables access to remote data access just like “local” table
- Smart query processing including query decomposition with predicate push-down, functional compensation
- No special syntax to access heterogeneous data sources
- Support of Insert, Update and Delete (except Hadoop)



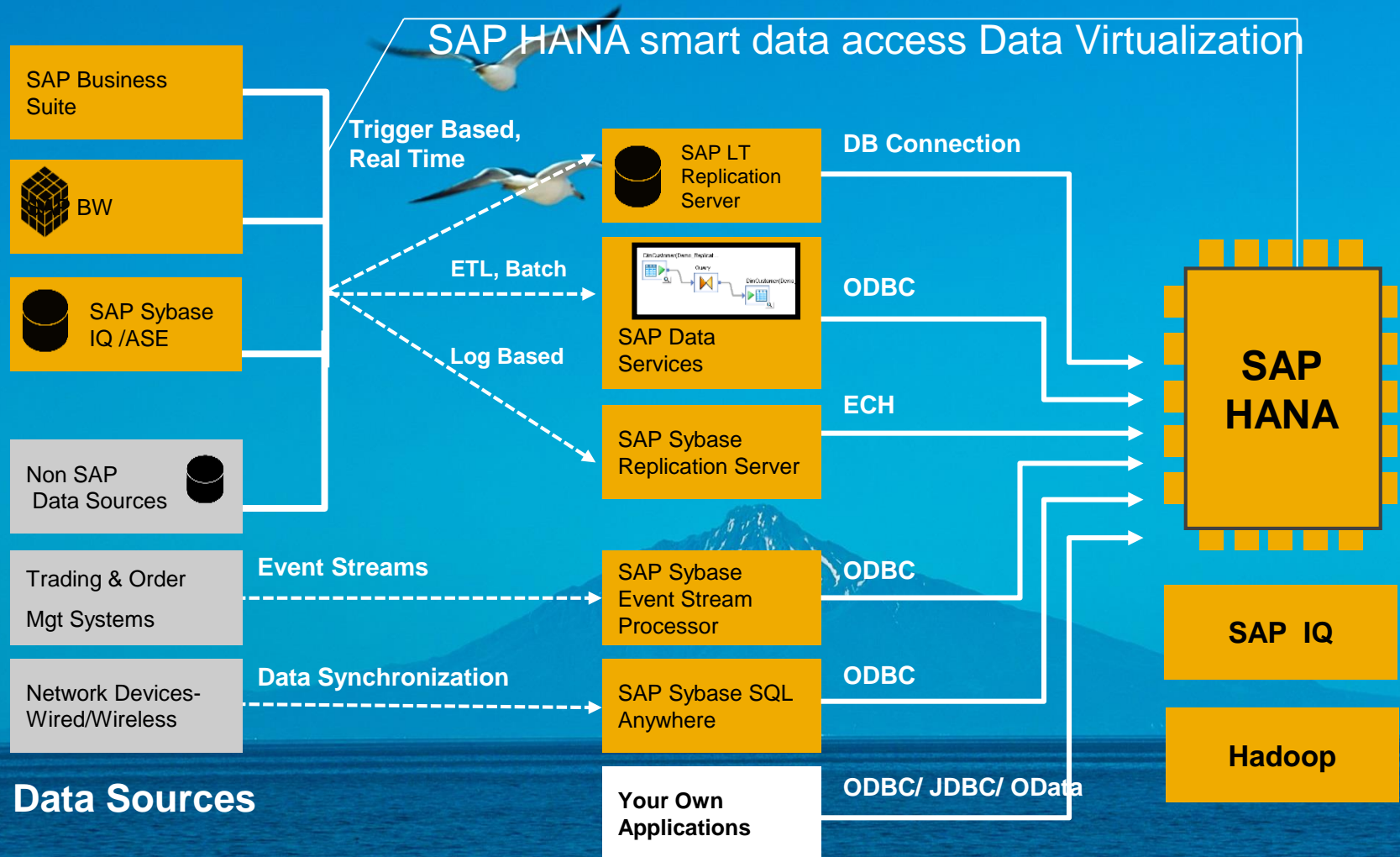
Logical Design is more agile - less ETL, less recon, less maintenance and more time for value add activities

SAP Big Data Portfolio

Re-Thinking the Data Warehouse



Big Data provisioning with SAP



SAP HANA

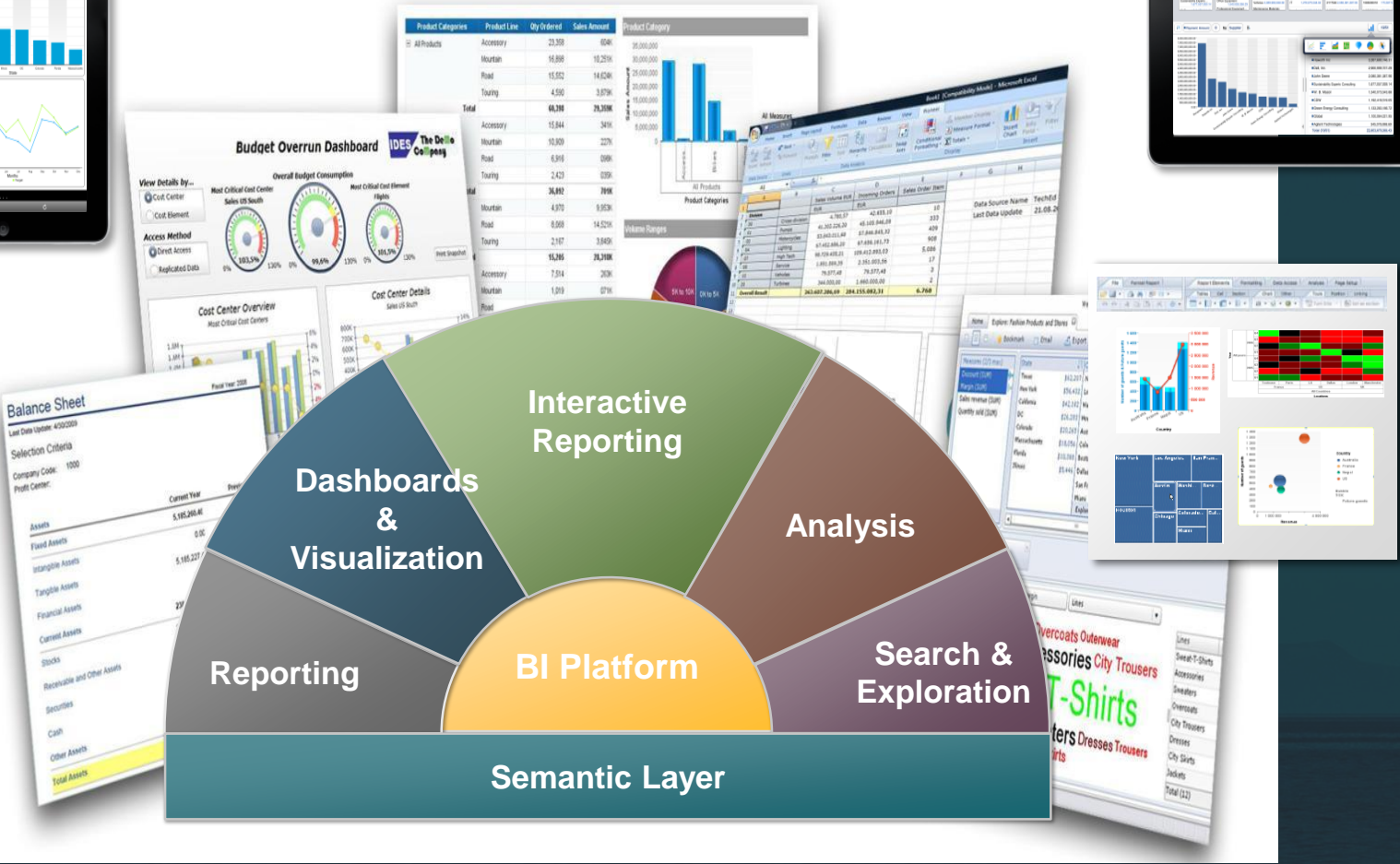
Agile Mobile Access

Rapidly design cost-effective, innovative apps with the most open and standards-based mobile application development platform

- Simplify IT with integrated device connectivity and management, data analysis, and business processes
- Inspire loyalty and reduce support costs by offering intuitive, user-centric apps – faster
- Engage users in a direct, two-way conversation with apps that work on any mobile device
- Improve operations by giving employees and partners anytime, anywhere access to mission-critical data



SAP Business Objects Analysing Big Data



SAP Lumira: Visualizing Big Data

unleash analyst creativity

Provides the freedom to understand your data, personalize it, and create beautiful content

Self Service for
Analysts

Download and install on your desktop
in less than 5 minutes

Insight from many data sources

Combine, manipulate and enrich data
to apply it to your business scenarios

Self-service visualizations and
analytics to tell your story

Optimized for SAP HANA for real-time
on detailed data



SAP InfiniteInsight: Using **Big Data** end user predictive analytics

Revolutionizing the way companies use predictive analytics to make better decisions on petabytes of data.



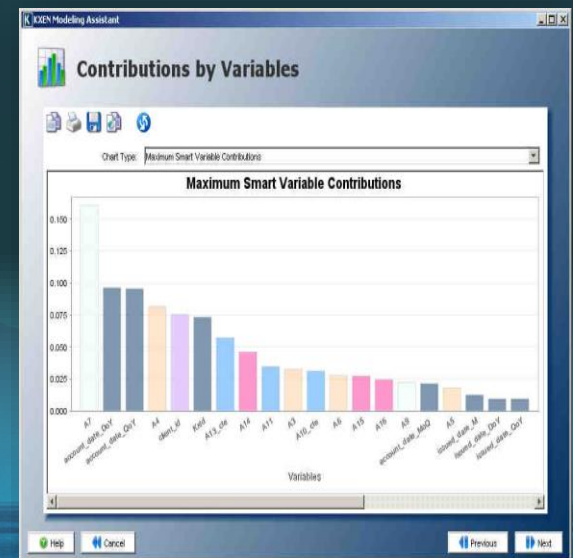
Predictive analytics' first-ever semantic layer

Automates the building of sophisticated predictive models for every data mining function.

With clicks, not code, InfiniteInsight Scorer can deploy optimized scoring equations

End-to-end social network analysis capabilities

Powerful visualization capabilities and graph exploration



SAP Big Data Portfolio

Big Data enabled Applications



Sentiment Intelligence

Captures customer sentiment from unstructured data (e.g. social media) for real time monitoring on brand / company sentiment



Demand Signal Management

Integrates all relevant demand signals (internal and external – e.g. point of sale and market research data) for better demand forecasting and supply chain efficiencies



Predictive Maintenance

Helps customers to predict wear and tear of equipment proactively based on real time sensor data and schedule maintenance (e.g., aircraft components, tractors)



SAP Affinity Insight

Enable users to measure the strength of the relationship between products and understand the impact of the relationship on profit and revenue



Fraud Management

Helps financial institutions prevent, monitor, detect and investigate claims fraud incidents more efficiently based on real time monitoring of transaction data (e.g., credit card)



Customer Engagement Intelligence

Helps sales and marketing departments identify new market segments, personalize marketing offers, and manage customer relationships

The SAP logo is positioned in the top right corner of the image. It consists of the letters 'SAP' in a bold, white, sans-serif font, set against a blue, trapezoidal background that tapers to the right.The Pirelli logo is located in the top left corner of the image. It features the word 'PIRELLI' in a bold, white, sans-serif font, with a horizontal bar above the letters 'I' and 'L'.

BIG DATA
DIVERTS
DRIVERS
BEFORE
FATAL
ACCIDENTS
HAPPEN

SAP HANA Application Server

SAP HANA XS based UI using HTML5

The screenshot displays a web-based interface for an NBA game between the Houston Rockets and the Oklahoma City Thunder. The top section shows the game score: Houston Rockets 75, Oklahoma City Thunder 63. Below the score is a court diagram with player numbers and positions. The bottom right section shows a live video feed of the game in progress. The interface includes navigation tabs for 'Game Events', 'Game Video', and 'Search'. The court diagram shows the Houston Rockets logo and 'TOYOTA CENTER' branding. The video feed shows the game clock at 9:21 and the score at 53-73.

Rockets(92) vs Thunder(104) on 2014-01-16 at Toyota Center

Houston Rockets 75 : 63 Oklahoma City Thunder

ROCKETS.COM TOYOTA CENTER HOUSTON ROCKETS HOUSTON ROCKETS

Quarter: 3 Game Clock: 09:21 Shot Clock: 20

Ibaka Q3 Garcia Q4

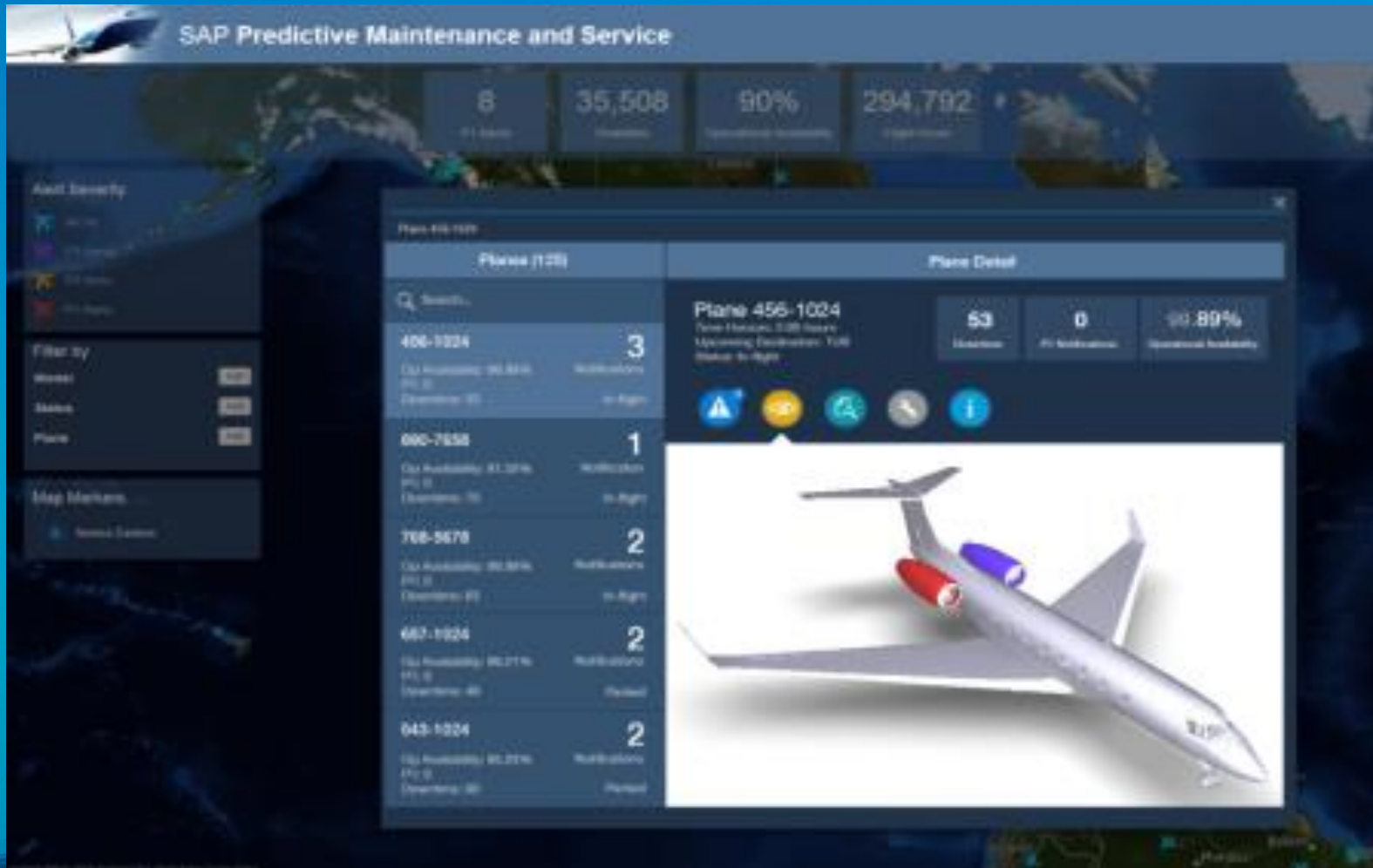
Game Events Game Video Search

DKC 53 HOU 73
JRD 9:21 20

NBA - Optimizing Player Performance

SAP HANA Application Server

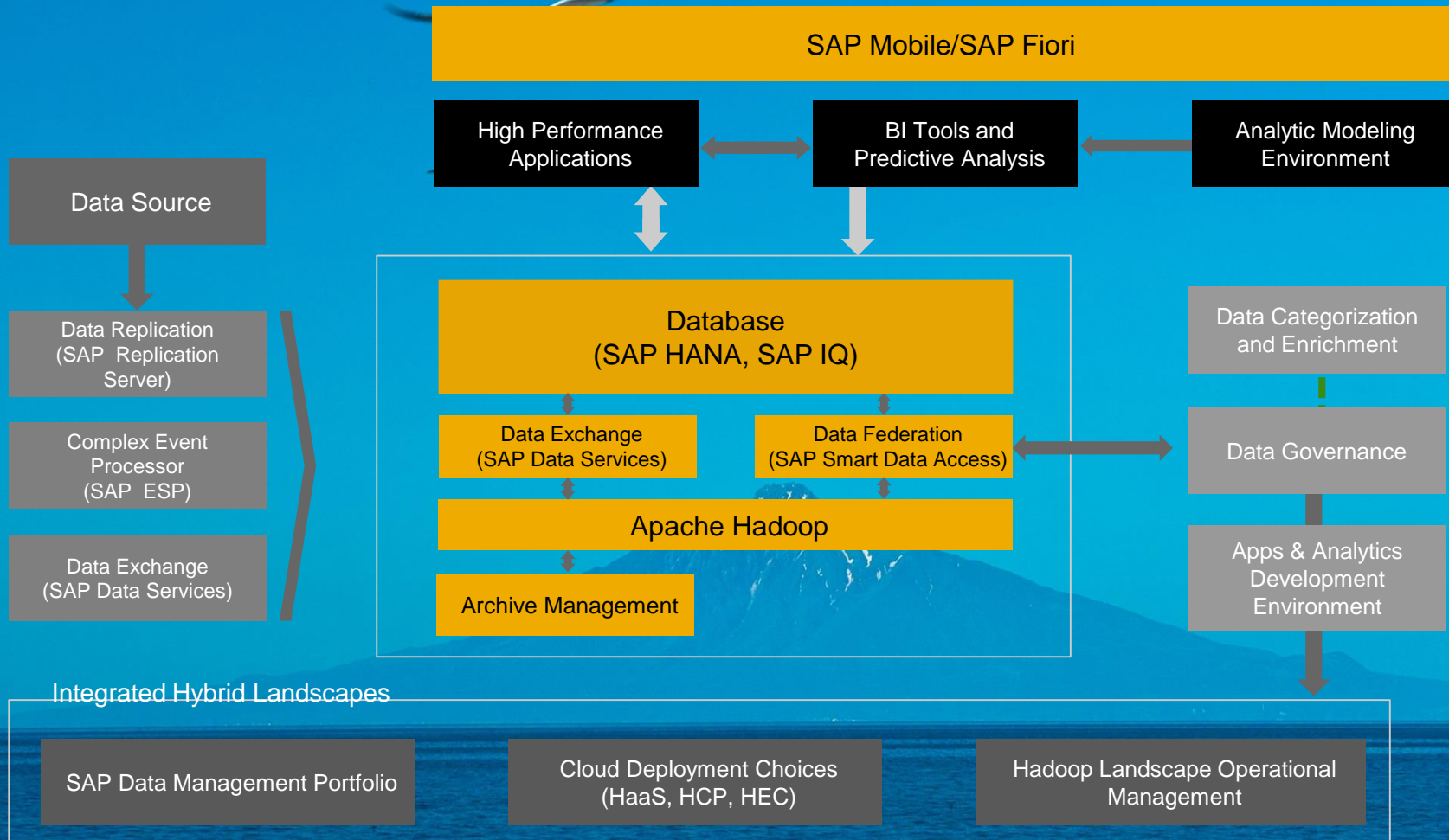
SAP HANA XS based UI using HTML5



Predictive Maintenance

SAP Big Data Portfolio

Big Data is operationalized with innovative architectures





Big Data

powered by **SAP**

- 1** The explosion in data Volume, Variety, Veracity, Velocity and Value is called Big Data – and if you can harness it, it will revolutionize the way you do business.
- 2** SAP's Big Data platform, applications, analytics, and services can help you dive into that ocean of information and extract real business value – in real time.
- 3** SAP offers a proven methodology and approach to discover breakthrough performance possibilities specific to your business and quantifies the value potential

Start with a SAP Big Data Innovation Workshop



Thank you

Contact information:

Mark Mummy

Director, Enterprise Architecture and Big Data

mark.mummy@sap.com

© 2014 SAP AG or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG or an SAP affiliate company.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG (or an SAP affiliate company) in Germany and other countries. Please see <http://global12.sap.com/corporate-en/legal/copyright/index.epx> for additional trademark information and notices.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

National product specifications may vary.

These materials are provided by SAP AG or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP AG or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP AG or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP AG or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP AG's or its affiliated companies' strategy and possible future developments, products, and/or platform directions and functionality are all subject to change and may be changed by SAP AG or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.