



Why Should I Be Interested in Analytics and Big Data?

Mark Rittman, CTO, Rittman Mead
October 2014

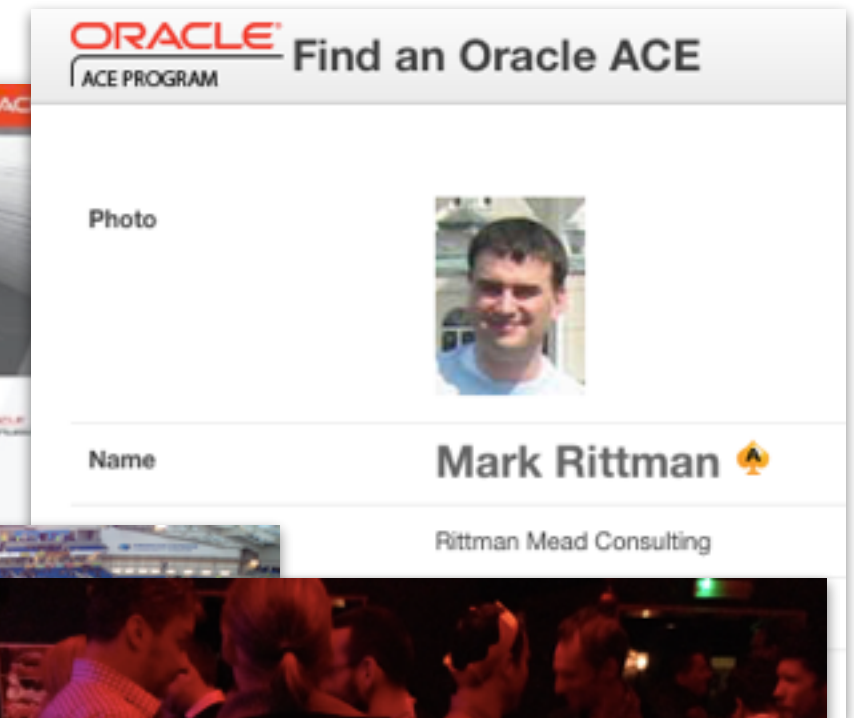
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INTEGRATED ANALYTICS

Who Am I?

- Mark Rittman, CTO, Rittman Mead
- Oracle ACE Director (BI and Analytics)
- Regular Columnist for Oracle Magazine
- Blogger (<http://www.rittmanmead.com>)
- Author of the Oracle Press book on OBIEE 11g
- Tottenham Hotspurs Fan
(...and Brighton & Hove Albion)
- Speaker at OOW, UKOUG, OUGN, ODTUG
and other regional OUG events
- Part-time DJ



15+ Years in Oracle BI and Data Warehousing

- Started back in 1997 on a bank Oracle DW project
- Our tools were Oracle 7.3.4, SQL*Plus, PL/SQL and shell scripts
- Went on to use Oracle Developer/2000 and Designer/2000
- Our initial users queried the DW using SQL*Plus
- And later on, we rolled-out Discoverer/2000 to everyone else
- And life was fun...

WORK IN PROGRESS BY TOM HAUNERT

Write It Down

Mark Rittman talks about working with Oracle technology and the benefits of writing about work.

Mark Rittman is a consultant, Oracle Business Intelligence expert, blogger, author, Oracle ACE Director, and frequent contributor to *Oracle Magazine*. Rittman recently sat down with *Oracle Magazine* Editor in Chief Tom Haunert to talk about how he got his start with Oracle technology, the benefits of blogging, and the evolution of business intelligence in the era of big data and cloud computing. The following is an excerpt from that interview. Listen to the full podcast at oracle.com/magcasts.

Oracle Magazine: How did you get started with Oracle technology?

Rittman: Many years ago, back in the late '90s, I used to work for a bank in the UK that was putting together a marketing project. My role at that point was to bring together lots of customer data and to analyze it, and pretty soon I reached the limits of what I could do on a PC with a spreadsheet.

Then I heard about a new project going on at the bank—an Oracle data warehousing project. It combined the worlds of marketing and analytics. Oracle was an impressive company even in those days, so I knew I had to get myself on that project as a business analyst.

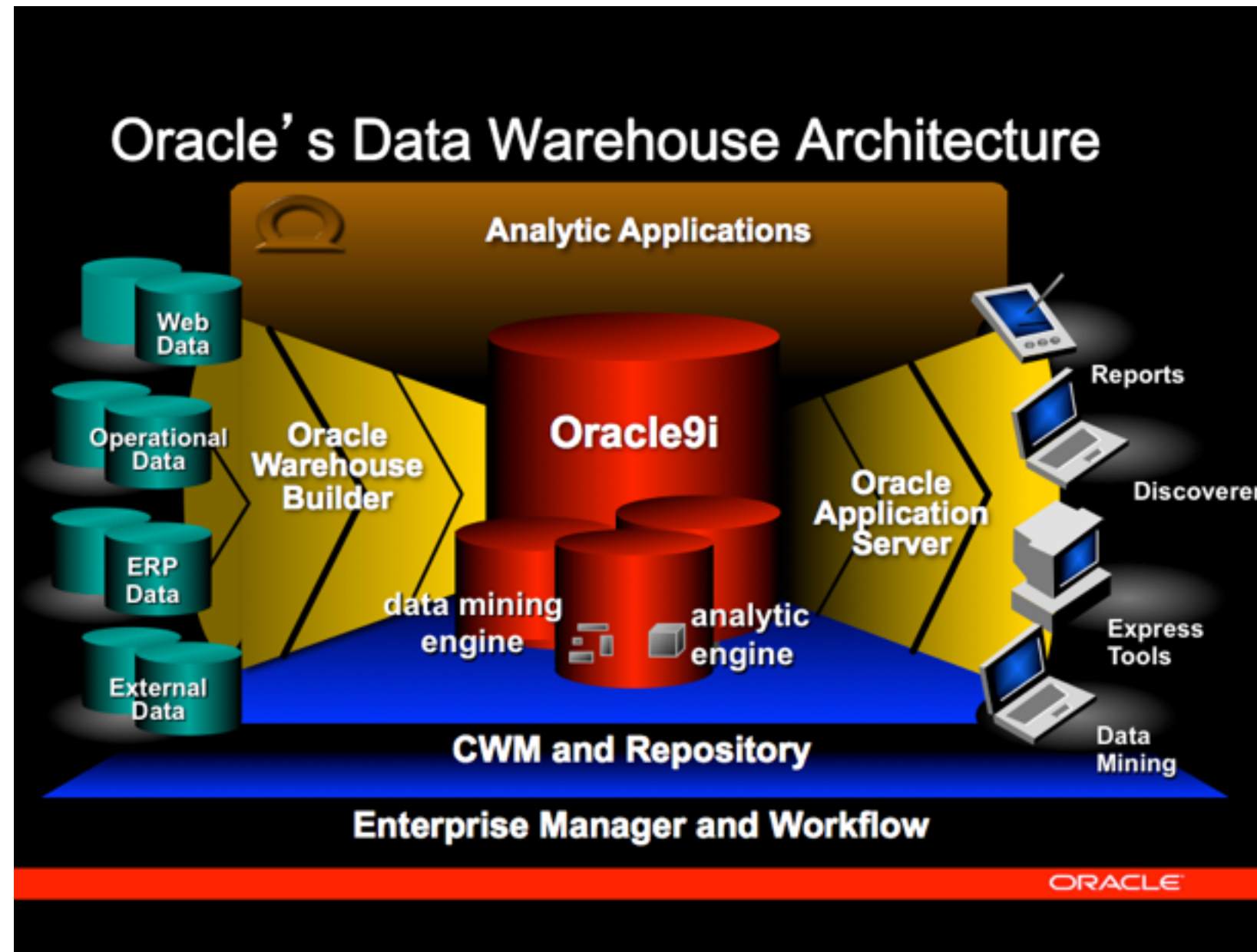
Over the next couple of years, I worked my way into doing SQL queries, data warehousing, and reporting. I started off working with Oracle Database and then got more into data warehousing, ETL [extract, transform, and load], developer tools, and so on. I ended up leaving there after a few years and working for an automotive company on its data warehouse project. And after that I got into consultancy.

I suppose that for about the last 15



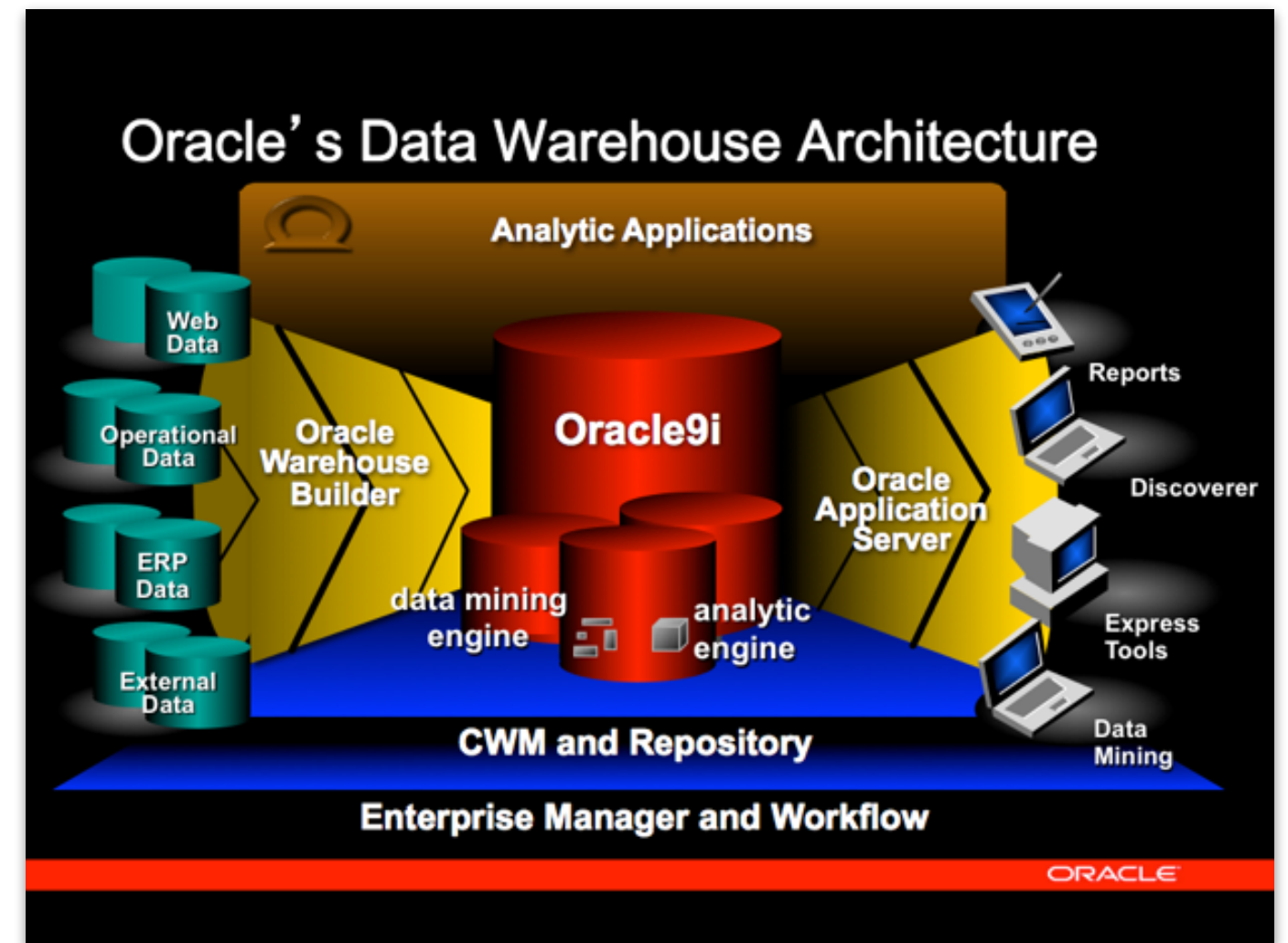
Oracle Business Intelligence expert, consultant, author, and Oracle ACE Director Mark Rittman reviews writings on Oracle technology.

The Oracle-Centric DW Architecture c. 2004



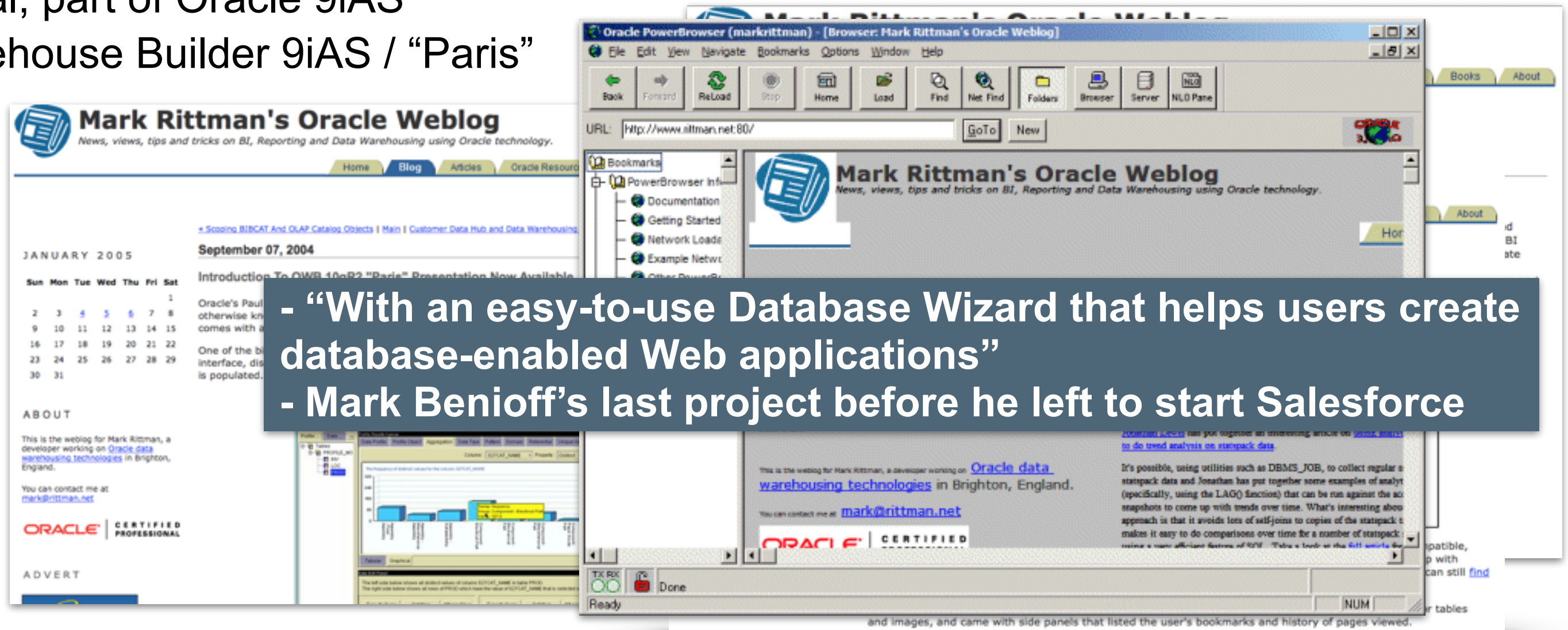
The Oracle-Centric DW Architecture

- Over time, this data warehouse architecture developed
- Added Oracle Warehouse Builder to automate and model the DW build
- Oracle 9i Application Server (yay!) to deliver reports and web portals
- Data Mining and OLAP in the database
- Oracle 9i for in-database ETL (and RAC)
- Data was typically loaded from Oracle RBDMS and EBS
- It was turtles Oracle all the way down...



The State of the Art for BI & DW Was This..

- Oracle Discoverer “Drake” - Combining Relational and OLAP Analysis for Oracle RDBMS
- Oracle Portal, part of Oracle 9iAS
- Oracle Warehouse Builder 9iAS / “Paris”



But then ... this happened

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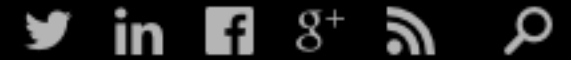
After 18-Month Battle, Oracle Finally Wins Over PeopleSoft

Ellison Rewrites Software Rules With \$10.3 Billion Pact, Vows More Deals to Come

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Who says Oracle
finished?

July 25, 2005

Siebel announces
first-ever stock



Larry Ellison, CEO,
Oracle

• "I think at one point Craig (Conway) thought I was going to shoot his dog. I love animals. If Craig and the dog were standing next to each other, trust me--I have one bullet--it wouldn't be for the dog."

Ellison on Conway's reaction to Oracle's offer.

July 10, 2003

"major beachhead" ag
world's largest business-applications seller.

Who says Oracle's

database giant said Tuesday.

DM

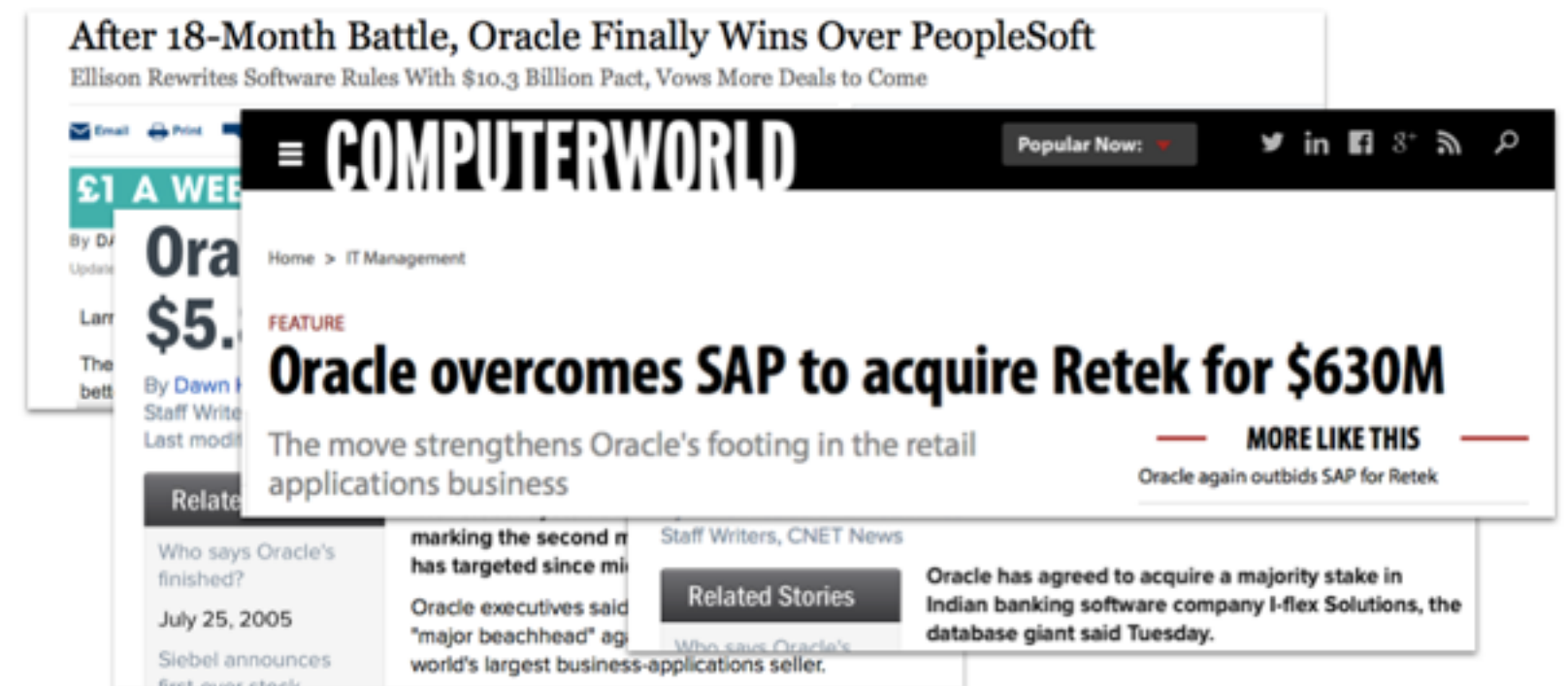
HIS

Retek


in
ons, the

Oracle Went on the Acquisition Trail

- Peoplesoft, Siebel, Retek, JD Edwards, Siebel, I-Flex and other ERP vendors
- BEA, Hyperion and other middleware tool vendors
- Many of their customers used databases other than Oracle
- And Oracle were looking to replace their mid-tier tools with the ones they'd just bought
- Clearly, a DW architecture that assumed Oracle-only wasn't going to work any more...



And Completely Replaced Their BI Toolset



Mark Rittman's Oracle Weblog

News, views, tips and tricks on BI, Reporting and Data Warehousing using Oracle technology.

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June 2006

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About

This is the weblog for Mark Rittman, a consultant working on [Oracle data warehousing technologies](#) in Brighton, England. You can contact me at mark@rittman.net with feedback and comments on this site. Please use the [forum](#) however if you want to ask a technical question, as I cannot answer or acknowledge those sent to to me directly.

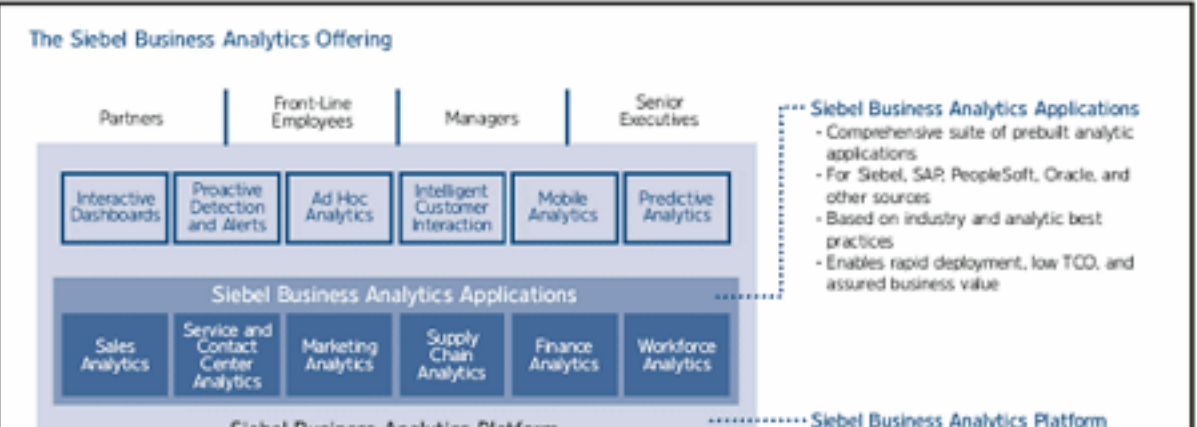
January 23, 2006

Siebel Analytics - The Jewel in the Project Fusion Crown?

As the [proposed Oracle purchase of Siebel draws closer](#), and Oracle announce that they're [half way there to producing the first Fusion applications](#), it's worth taking a look at what could perhaps be the jewel in the set of technology that Oracle has purchased, the business intelligence element of Siebel's product line known as "[Siebel Analytics](#)".

Siebel Analytics is a business intelligence platform build on a Service Orientated Architecture (SOA) that is usually run alongside Siebel CRM, but can also be run standalone.

Siebel Analytics consists of two main product lines, the first of which is Siebel Business Analytics Applications, a set of industry-specific applications such as "Sales Analytics", "Marketing Analytics" and "Supply Chain Analytics" that are analogous to the old Oracle Sales Analyzer and Oracle Financial Analyzer products, and the Enterprise Planning & Budgeting and other CPM products that Oracle now offer. There are also options for building custom dashboards, doing ad-hoc analysis and doing predictive analytics using a Siebel data mining engine.



The diagram illustrates the Siebel Business Analytics Offering. It is structured as follows:

- Partners:** Interactive Dashboards
- Front-Line Employees:** Proactive Detection and Alerts
- Managers:** Ad Hoc Analytics, Intelligent Customer Interaction
- Senior Executives:** Mobile Analytics, Predictive Analytics

These are all part of the **Siebel Business Analytics Applications** layer, which sits on top of the **Siebel Business Analytics Platform**. The platform includes:

- Sales Analytics
- Service and Contact Center Analytics
- Marketing Analytics
- Supply Chain Analytics
- Finance Analytics
- Workforce Analytics

Key features of Siebel Business Analytics Applications include:

- Comprehensive suite of prebuilt analytic applications
- For Siebel, SAP, PeopleSoft, Oracle, and other sources
- Based on industry and analytic best practices
- Enables rapid deployment, low TCO, and assured business value

The Oracle BI & DW World Changed

- Siebel Analytics replaced Oracle Discoverer
- Oracle Data Integrator replaced Oracle Warehouse Builder
- Hyperion Essbase Replaced Oracle OLAP
- You were as likely to be loading from SQL Server as from Oracle
- They made us do things we didn't like to do ...
 - ▶ Add a mid-tier virtual DW engine on top of the database
 - ▶ Export data out of Oracle into an OLAP server
 - ▶ Improve query performance using tools outside of the Oracle data warehouse
 - ▶ It was all a bit scary...
 - ▶ ... Not to mention that WebLogic stuff

Mark Rittman's Oracle Weblog
News, views, tips and tricks on BI, Reporting and Data Warehousing using Oracle technology.

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The Siebel Business Analytics Offering

Partners	Front-Line Employees	Managers	Senior Executives
Interactive Dashboards	Proactive Detection and Alerts	Ad Hoc Analytics	Intelligent Customer Interaction
Sales Analytics	Service and Contact Center Analytics	Marketing Analytics	Supply Chain Analytics
		Finance Analytics	Workforce Analytics

Siebel Business Analytics Applications

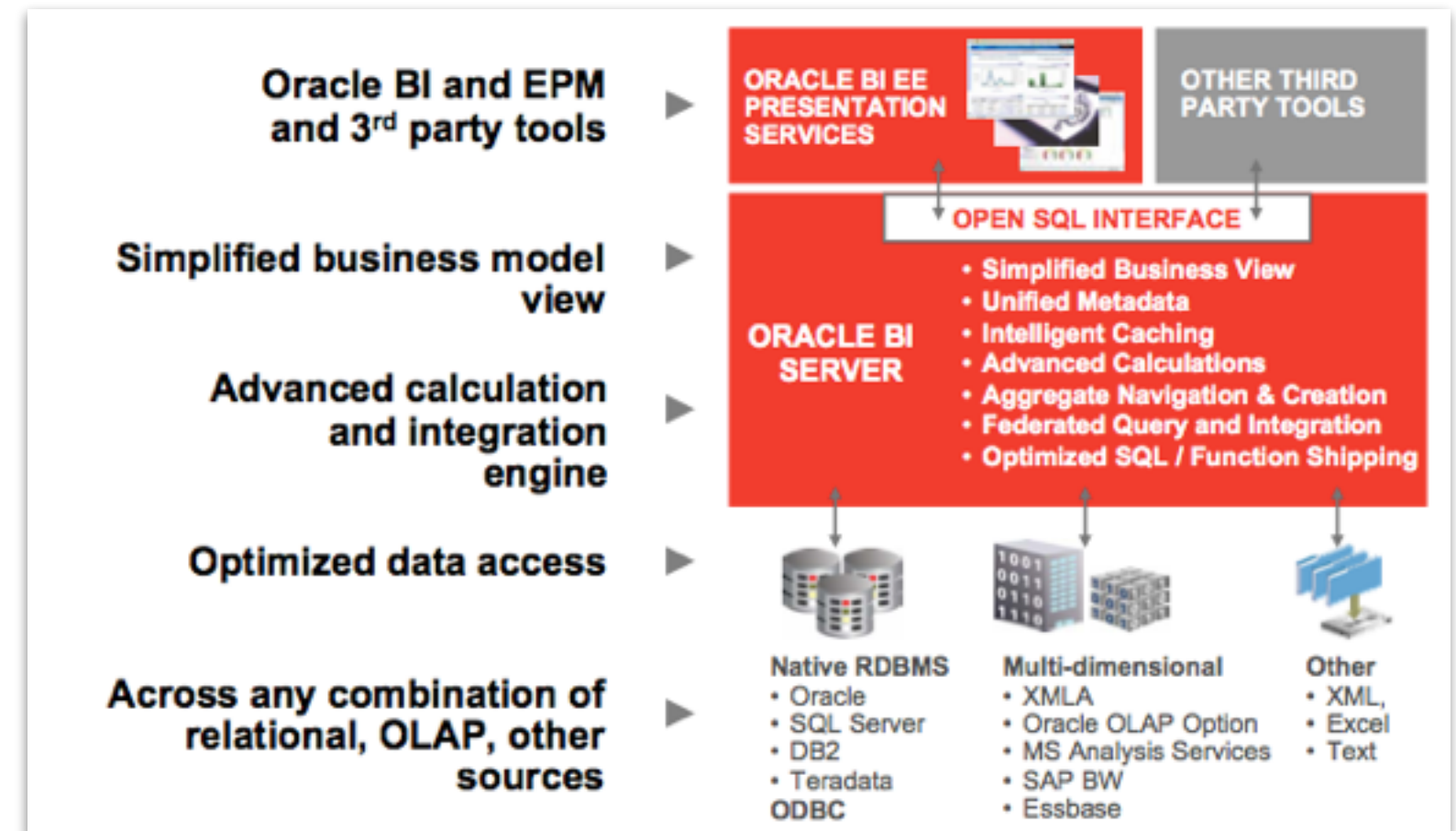
Siebel Business Analytics Platform

Siebel Business Analytics Applications

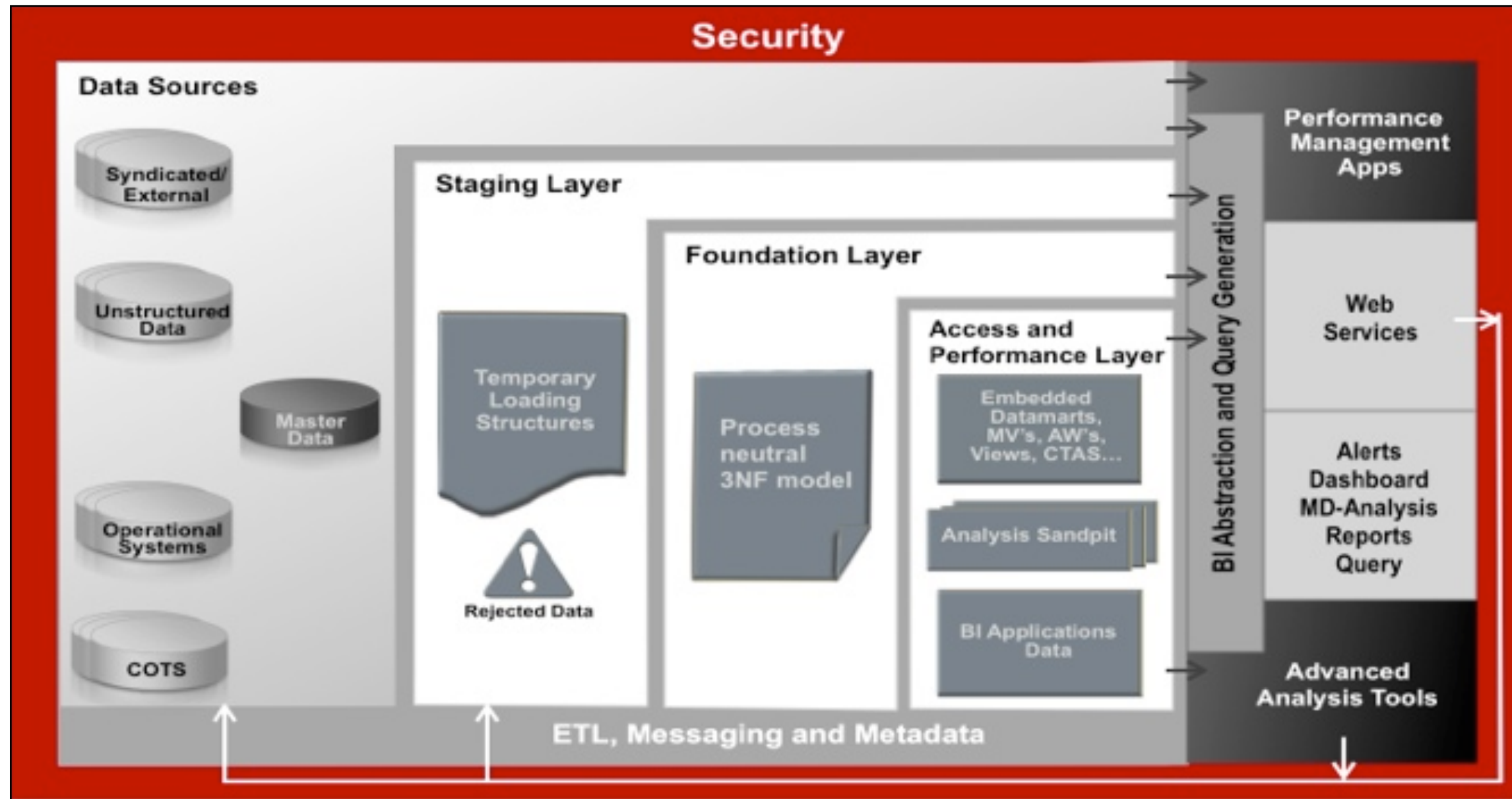
- Comprehensive suite of prebuilt analytic applications
- For Siebel, SAP, PeopleSoft, Oracle, and other sources
- Based on industry and analytic best practices
- Enables rapid deployment, low TCO, and assured business value

But It Seemed to Work for Oracle

- OBIEE saw Oracle gain BI marketshare and mindshare
- Hyperion was far more popular with the Finance department than Oracle OLAP
- WebLogic, compared to 9iAS, actually worked
- We now had nice looking dashboards
- The customers seemed to like it ...
- ... but the architecture wasn't too clear, mistakes were being made, and the BI cart was leading the DW horse

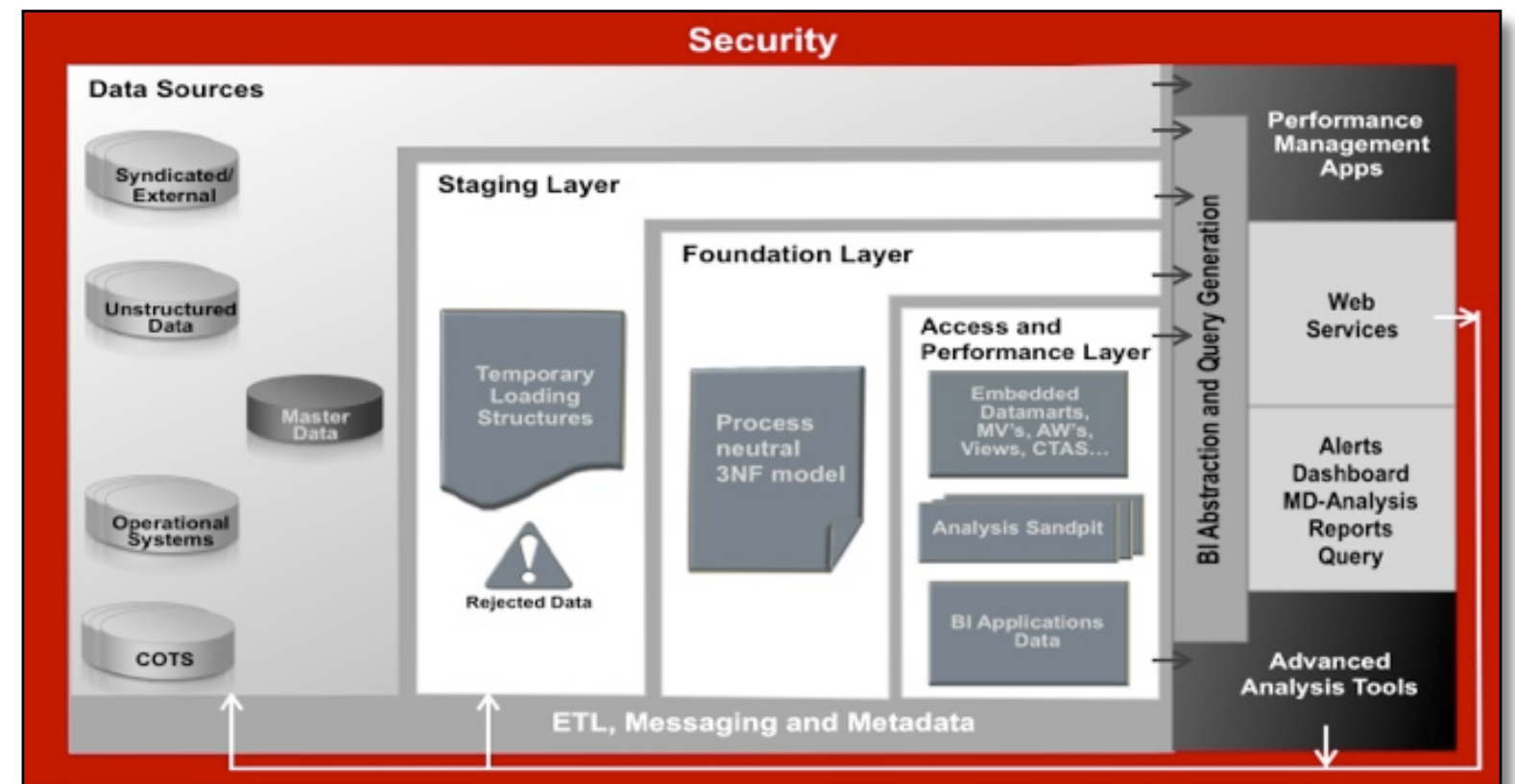


Introducing - The Oracle Reference DW Architecture



Introducing - The Oracle Reference DW Architecture

- Recognizing the difference between long-term storage of DW data (the “foundation” layer)
- And organizing the data for queries and easy navigation (the “access + performance layer”)
- Also recognising where OBIEE had been game-changing - federated queries
- ... Things are good again



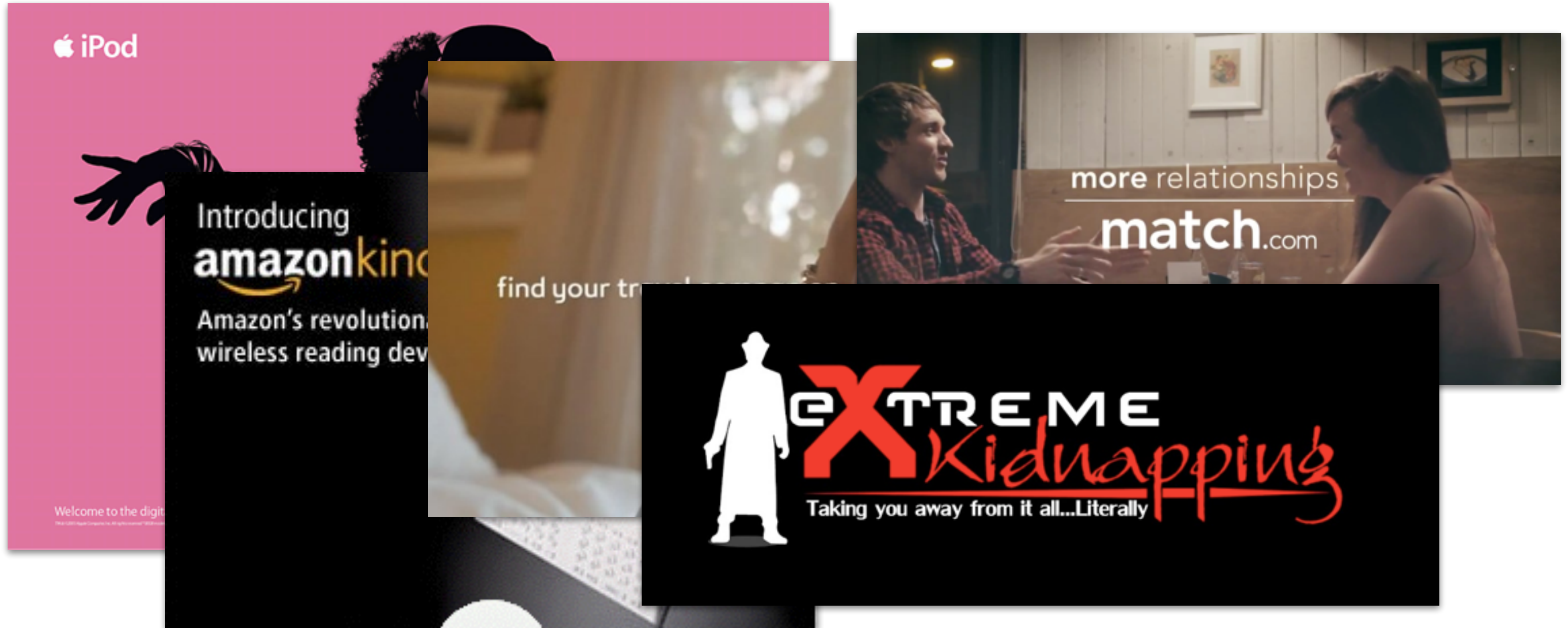
But now ... **this** happened

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Everything Went Digital...



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Everything Was Recorded and Instrumented

The collage consists of several overlapping screenshots:

- Fitbit Flex Product Page:** Shows the 'fitbit flex' logo, navigation tabs (Features, Gallery, Raves, Specs), and a 'BUY NOW | \$9995' button. The main heading is 'Discover your trends' with subtext: 'Flex comes with free online tools and a mobile app that allow you to set goals and follow your progress through awesome graphs and charts. Log food, workouts and much more and get the scoop on your health. Knowing how close you are to reaching your goals gives you the motivation to keep going and aim higher.'
- Tweet:** From Robin Moffatt (@rmoff) dated 03/10/2014 19:57. Text: 'My first post-#oow14 beer, one of the best of British! - Drinking a Wainwright by @Daniel_Thwaites - untpd.it/s/c119133454'. It shows 2 favorites and two replies from Thwaites Brewery and Wainwright GoldenAle.
- Restaurant Search:** A mobile app search for 'eggs benedict' showing a map of New York City with pins and restaurant listings like Balthazar Restaurant (9.6 rating), NoHo Star (8.9 rating), and Five Points (9.4 rating).
- HE DAY TUM:** A graphic with the text 'HE DAY TUM CATE YOUR' and 'START USING DAY TUM TO BEGIN COLLECTING DATA TO REVEAL THE B...'

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... someone will be pleased.



THE TOM KYTE BLOG

THURSDAY, JUNE 30, 2005

Instrumentation

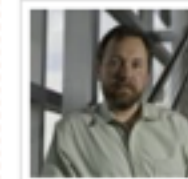
Talking about instrumentation of code and introducing two more blogs I've been reading on a regular basis. One of them describes a really [nice utopia](#) today.

Code instrumentation, what is it? To me, it is the fine art of making approximately every other line of your developed code "debug" of some sort. Trace information. With timestamps. And meaningful information.

Code instrumentation, why is it? Because poor performance is not always a "database problem". It is many times an application issue and when the application is spread over 14 tiers of complexity, tracking down the bottleneck is grievously hard. If you just whip together an application and throw it out there without any thought to monitoring it over time, be prepared to have poor performance and no clue as to why or where.

Commonly requested information – Tom, can you tell me what my average transaction response time is? Answer: nope, no clue, not a single clue. The only thing I can tell you from the database is on average how long individual bits of SQL might have taken. I don't know what a transaction is to you and besides, I would tell you only about the database component – no network, no application time, just the database.

ABOUT ME



THOMAS KYTE
ROUND HILL,
VIRGINIA

The views
expressed are my

own and not necessarily those of Oracle and its affiliates. The views and opinions expressed by visitors to this blog are theirs and do not necessarily reflect mine. I've been using Oracle since 1988. I've been working at Oracle since 1993 (version 7.0). I spend way too much time working on [asktom.oracle.com...](#)

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PREVIOUS POSTS

Digitization
× Datafication

Big Data
Disruption

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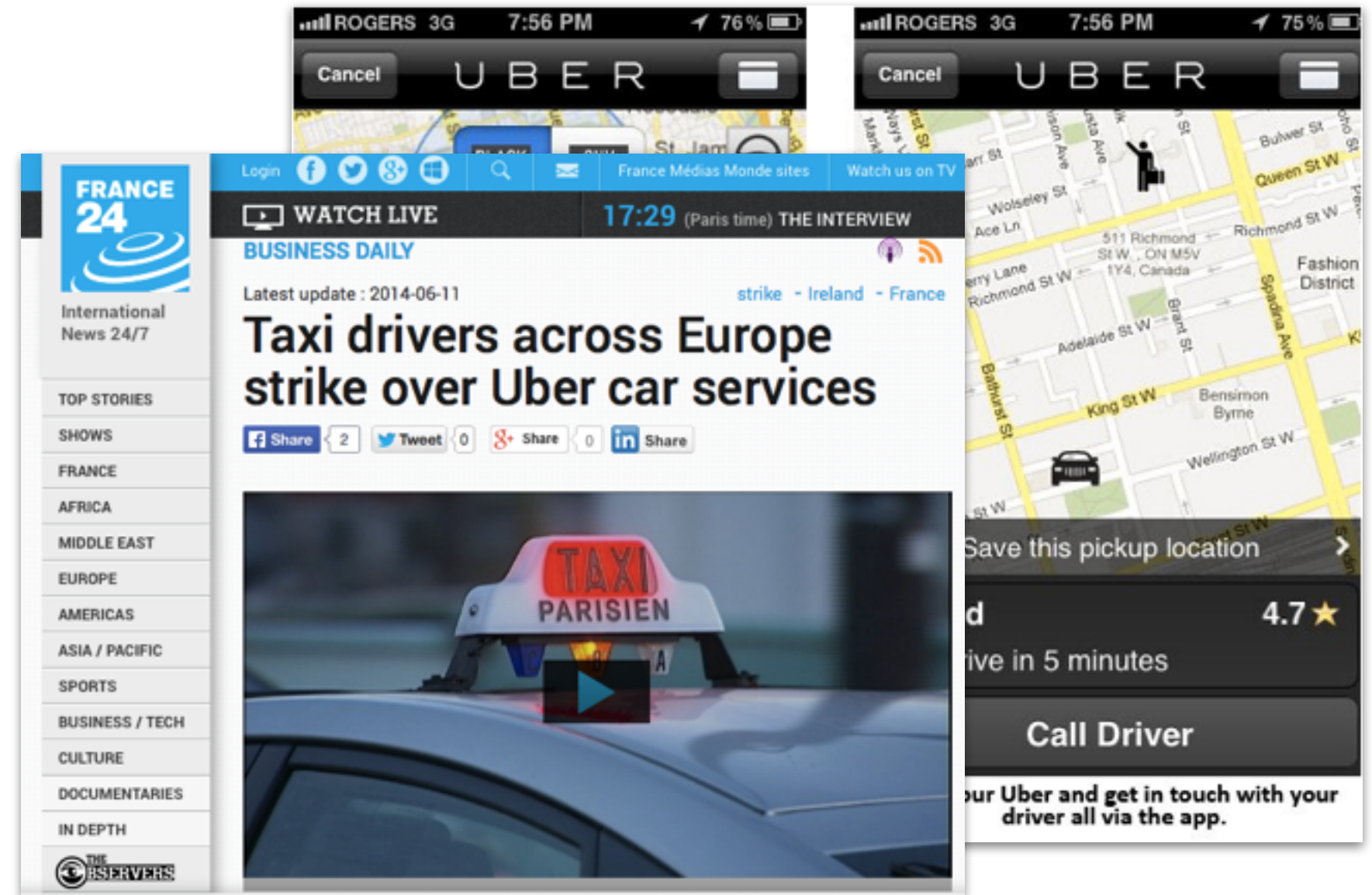
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The Digitization and Datafication of Society

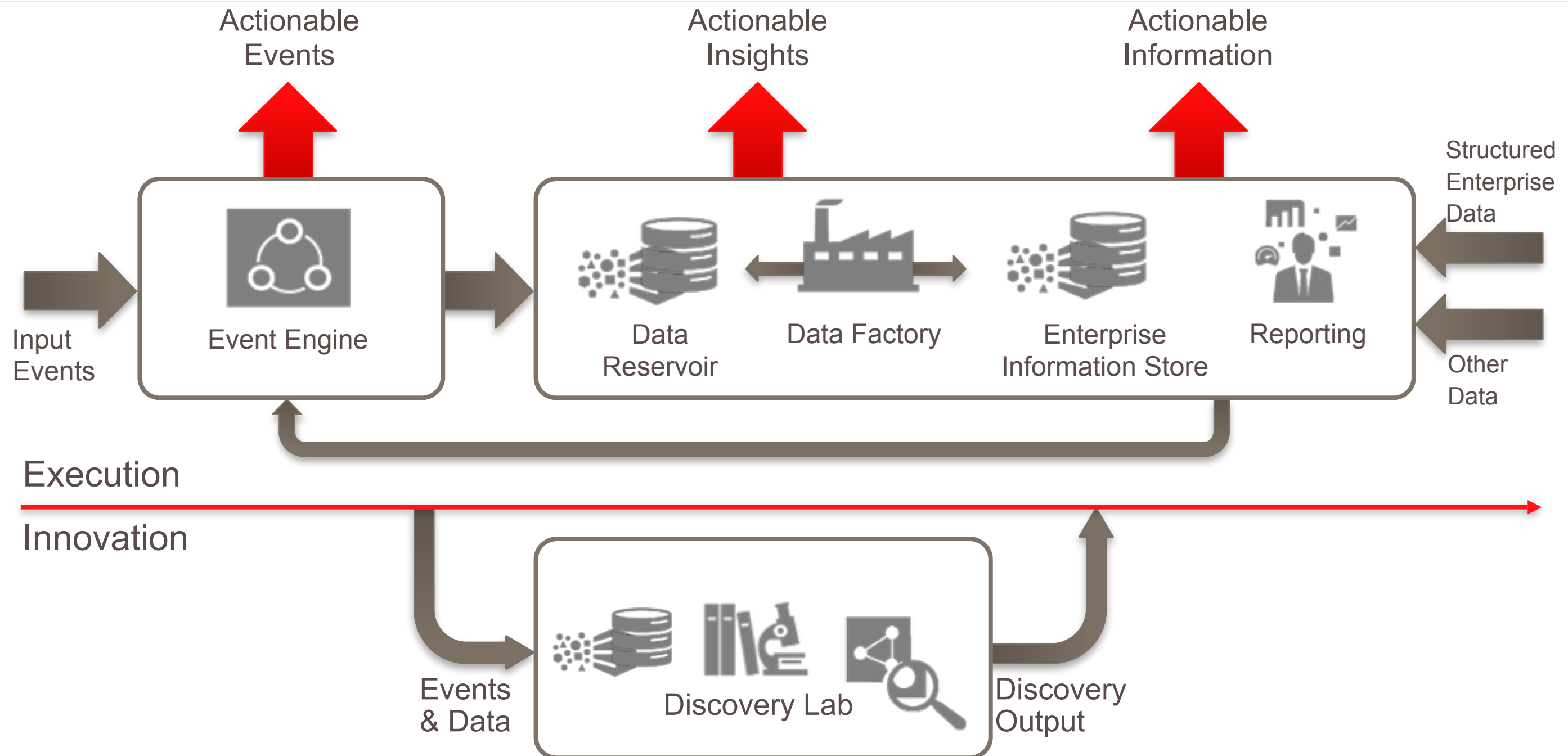
- Digital is the new norm
- Companies are creating unique data-driven value in a unique way
 - ▶ Datifying more activities
 - ▶ Creating proprietary data assets
 - ▶ Using data to make more data
 - ▶ Achieving network effects to monetise their work

Businesses Built-off of Derived Data - uber.com

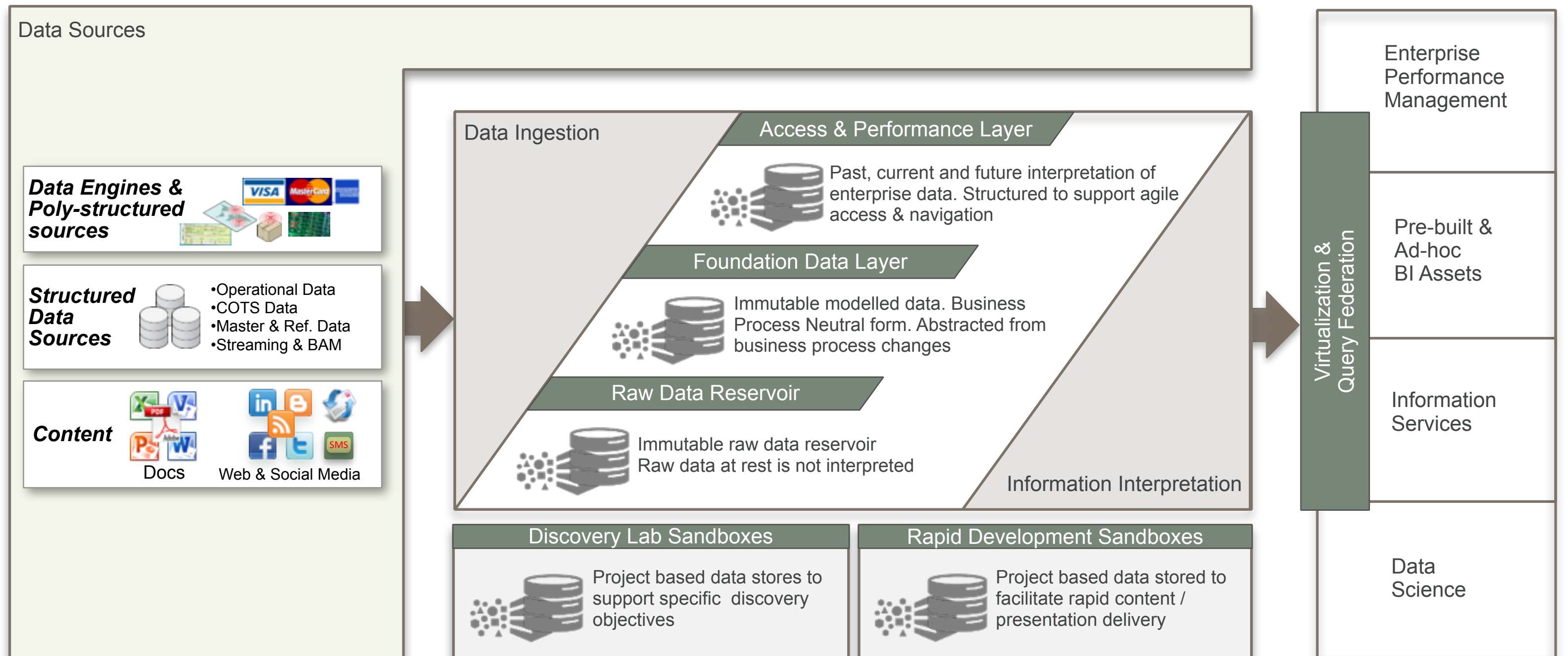
- Uber.com - disrupting the taxi business
- Combining public information - maps, demographics, travel data - with their mobile apps, and usage data collected over time



Today's Oracle Information Management Architecture



Today's Layered Data Warehouse Architecture



The Data Reservoir

- A reservoir is a lake than also can process and refine (your data)
- Wide-ranging source of low-density, lower-value data to complement the DW



Also known as: “Data Lake” – “Data Pool” – “Enterprise Data Hub” and “Data Swamp” (!)

res·er·voir
/ˈrezə(r),vwär,-,v(w)ɔr/

noun
noun: reservoir; plural noun: reservoirs

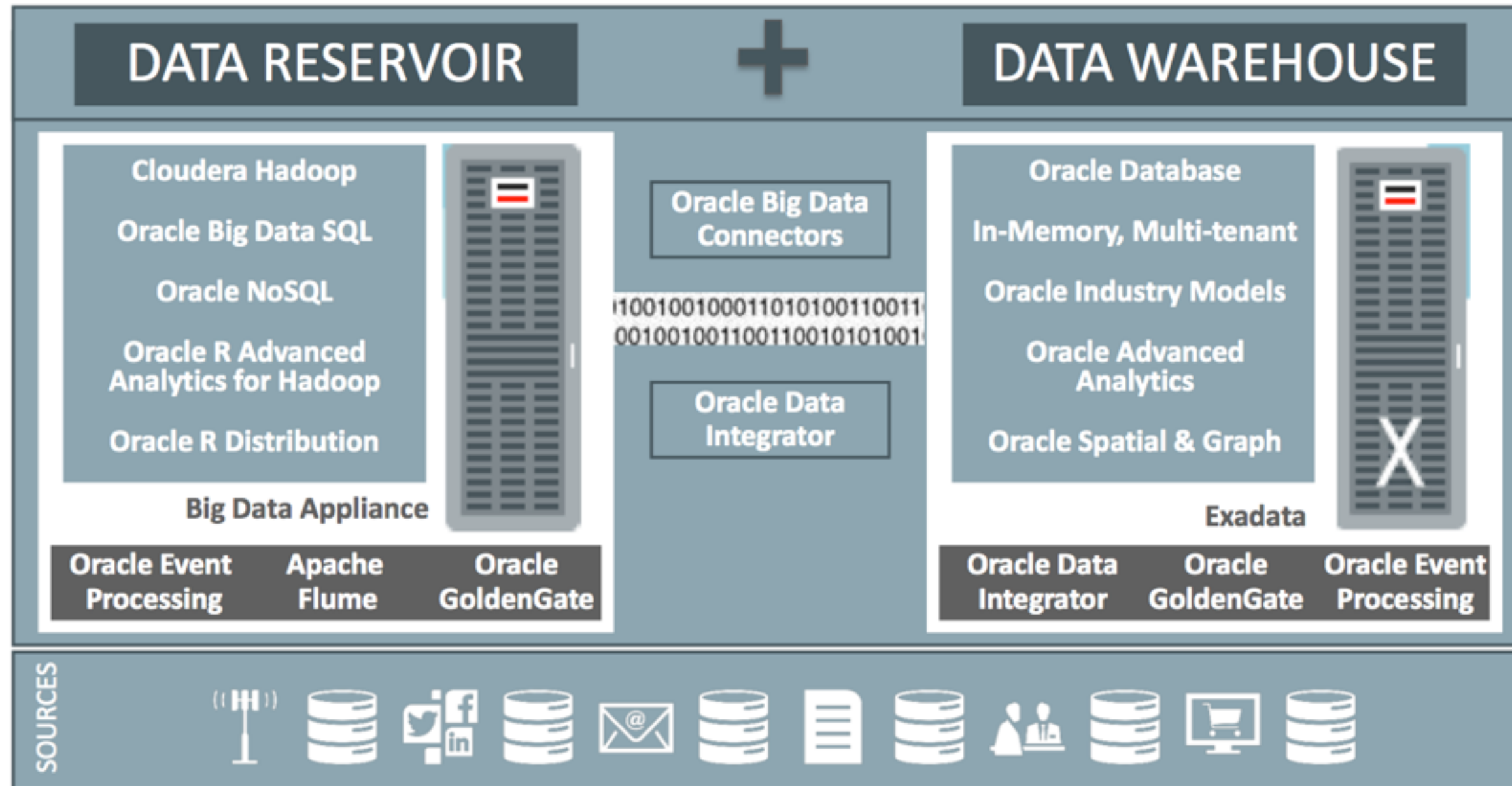
- a large natural or artificial lake used as a source of water supply.
synonyms: pool, pond, More
- a supply or source of something.
"tapping into a universal reservoir of information"
synonyms: stock, store, stockpile, reserve(s), supply, bank, pool, stable, fund
"the reservoir of managerial talent"
- a place where fluid collects, especially in rock strata or in the body.
- a receptacle or part of a machine designed to hold fluid.
synonyms: receptacle, container, holder, repository, tank
"an ink reservoir"
- **MEDICINE**
a population, tissue, etc., that is chronically infested with the causative agent of a disease and can act as a source of further infection.

Origin

FRENCH FRENCH
réservoir → réservoir → reservoir
to reserve, keep mid 17th century

mid 17th century: from French *réservoir*, from *réserver* 'to reserve, keep.'

The Oracle Data Warehousing Platform - 2014



But ... this is actually great news

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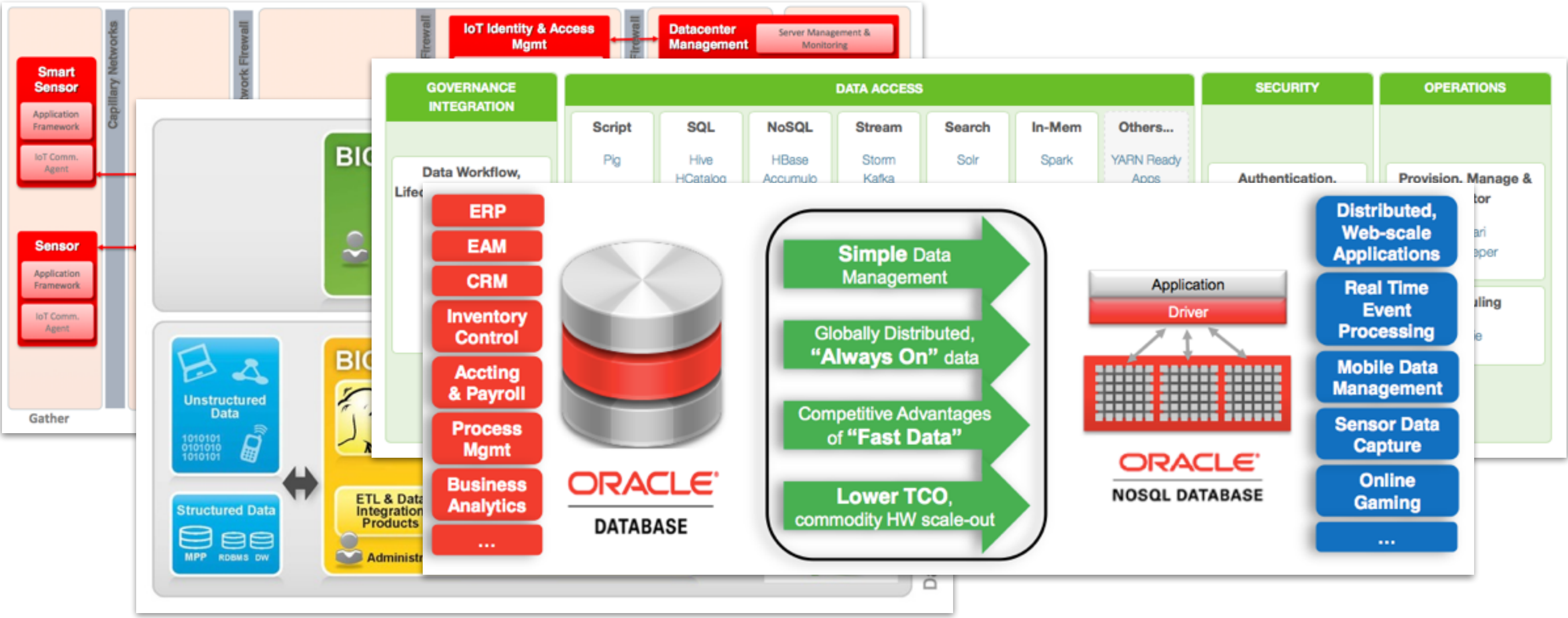
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Customers Are Now Taking Data Seriously

The screenshot shows a Forbes article page. At the top, there is a blue navigation bar with the text 'SMART FOCUS' on the left and 'SOLUTIONS', 'CUSTOMERS', and 'RESOURCES' on the right. Below the navigation bar, the article is displayed. On the left side of the article, there is a profile picture of Samantha Sharf, a woman with long blonde hair, and her name 'Samantha Sharf' followed by 'Forbes Staff'. Below her name is a blue 'FOLLOW' button. To the right of the profile picture, the article's category 'INVESTING' is shown in a grey box, followed by the date and time '8/05/2014 @ 9:16AM' and the view count '16,526 views'. The main headline of the article is 'Target Shares Tumble As Retailer Reveals Cost Of Data Breach' in a large, bold, black serif font. Below the headline are two red buttons: '+ Comment Now' and '+ Follow Comments'. At the bottom of the article, there is a photo of a person's head and shoulders, and a caption that reads 'May 2011 | by James Manyika, Michael Chui, Brad Brown, Jacques Bughin, Richard Dobbs, Charles Roxburgh, Angela Hung Byers'. In the bottom left corner of the screenshot, there is a search bar with the word 'Search' and a magnifying glass icon.

Data Architecture is Now a Hot Topic



People Now Understand Why DBMSs Are Important

- Referential integrity
- Information Lifecycle Management
- Why data warehouses are very useful for long-term storage of important data
- Why there's value in schema-on-write, as well as schema-on-read
- Data often outlives the application, and may even be useful later when we don't know what to do with it now

Hadoop  <ul style="list-style-type: none">• Change the Business<ul style="list-style-type: none">– Disrupt competitors– Disintermediate supply chains– Leverage new paradigms– Exploit new analyses	NoSQL  <ul style="list-style-type: none">• Scale the Business<ul style="list-style-type: none">– Meet mobile challenges– Accelerate developer agility– Scale-out economically– Serve data faster	 Relational <ul style="list-style-type: none">• Run the Business<ul style="list-style-type: none">– Integrate existing systems– Support mission-critical tasks– Protect existing expenditures– Insure skills relevance
--	---	--

And This Hadoop Stuff is Very Interesting

- New capabilities in terms of horizontal scalability, distributed computing
- Some very smart people are putting their minds to next-generation DW, BI + computing
- The world is now interested in analytics, data-driven decisions and what we do



The image shows a screenshot of a LinkedIn post. The post is by Gil Press, a contributor, and is titled "Data Scientists: The Definition of Sexy". The post is categorized as "TECH" and was posted on 9/27/2012 at 10:49PM, with 28,686 views. The post includes a profile picture of Gil Press and a "Recommend" button with a count of 1. The post content includes a list of specifications: "4000 nodes", "2 quad core Xeons @", and "4x1TB SATA disks per". The background of the screenshot shows a blurred view of a website with various elements like "iPod", "Obama the warrior", and "ge".

Scaling Hadoop
By aanand – Tue, Sep 30, 2008 10:04

Recommend 1 Tweet

We recently ran Hadoop ever:

- 4000 nodes
- 2 quad core Xeons @
- 4x1TB SATA disks per

Gil Press
Contributor

TECH 9/27/2012 @ 10:49PM | 28,686 views

Data Scientists: The Definition of Sexy

+ Comment Now + Follow Comments

Oracle's Product Strategy

Simplify access
to all data



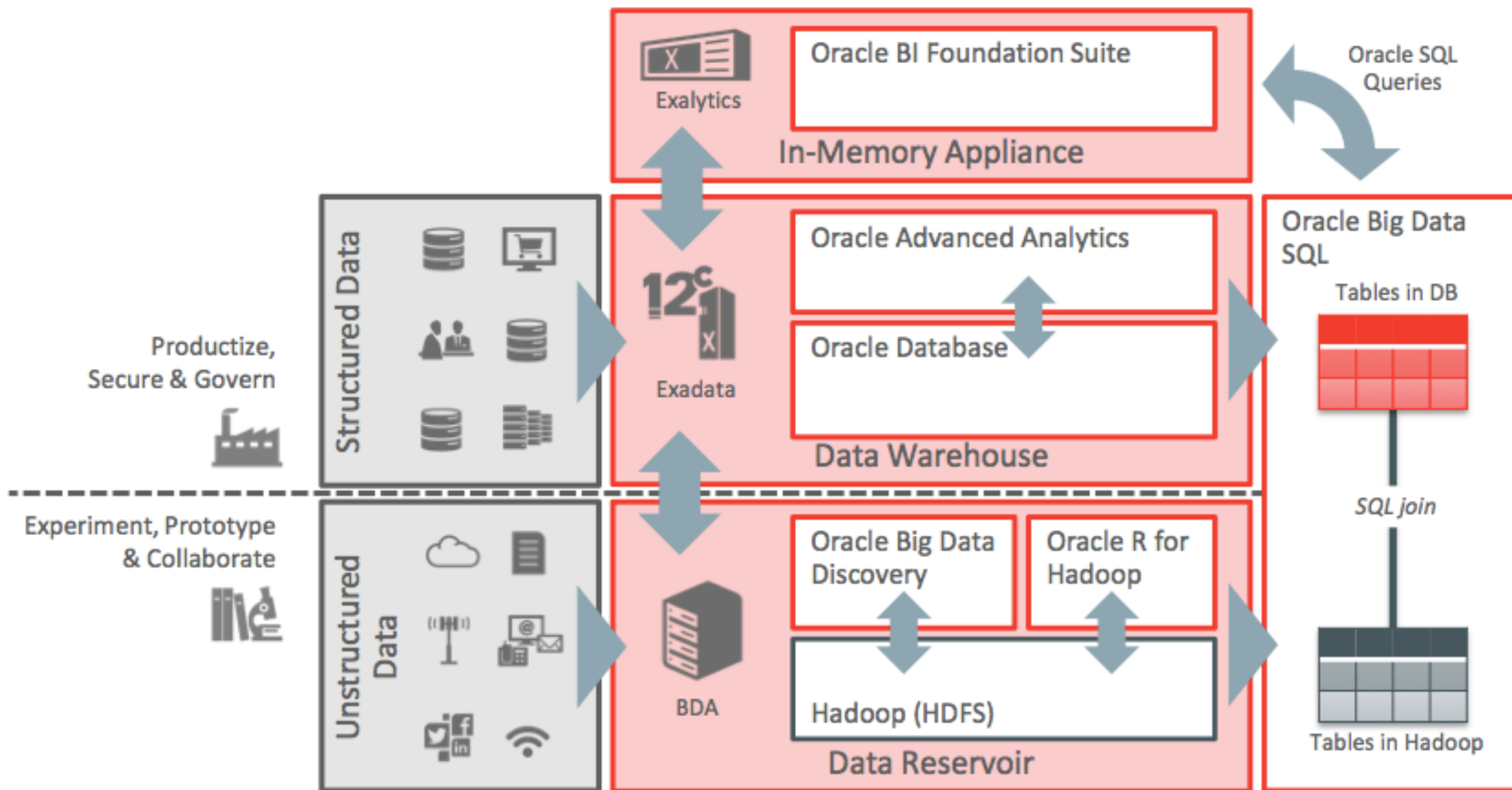
Discover and
predict, fast



Govern and
secure all data



Productising the Next-Generation IM Architecture



- **Experiment, Prototype, Collaborate**
 - Quickly find, explore, transform, discover and share in BDD
 - Publish results to HDFS
 - Use to build predictive models with Oracle R for Hadoop
- **Productize, Secure, Govern**
 - Connect published HDFS files to secure Oracle DB using Oracle Big Data SQL
 - No data movement required
 - Seamlessly extends existing DWH and BI investments with non-traditional data in Hadoop
- **Available as Engineered Systems**

Oracle Big Data Discovery - Hadoop on Big Data / Spark

The image displays the Oracle Big Data Discovery user interface, which is divided into several functional areas:

- Top Left:** A dashboard showing 9 projects and 89 data sets. It includes filters for usage, content, and metadata.
- Top Right:** A detailed view of a data set with various charts and filters. The charts include 'Date reviewed', 'Score', 'Region', 'Price', and 'Zipcode'. A map of the United States is also visible.
- Bottom Left:** A 'Sales Analysis: Customer Churn' chart showing 'Record Count' on the y-axis and 'Record Count' on the x-axis. The chart features a series of colored bubbles representing different data points.
- Bottom Right:** A data table with columns for 's_name', 's_year', 's_description', 's_ahhability', 's_winery', 's_region', and 's_price'. The table contains several rows of data, including wine names and their associated details.

In the center of the interface is a circular diagram with four quadrants, each representing a step in the data discovery process:

- Find:** Represented by a magnifying glass icon.
- Explore:** Represented by a globe icon.
- Discover:** Represented by a bar chart icon.
- Transform:** Represented by a gear icon.

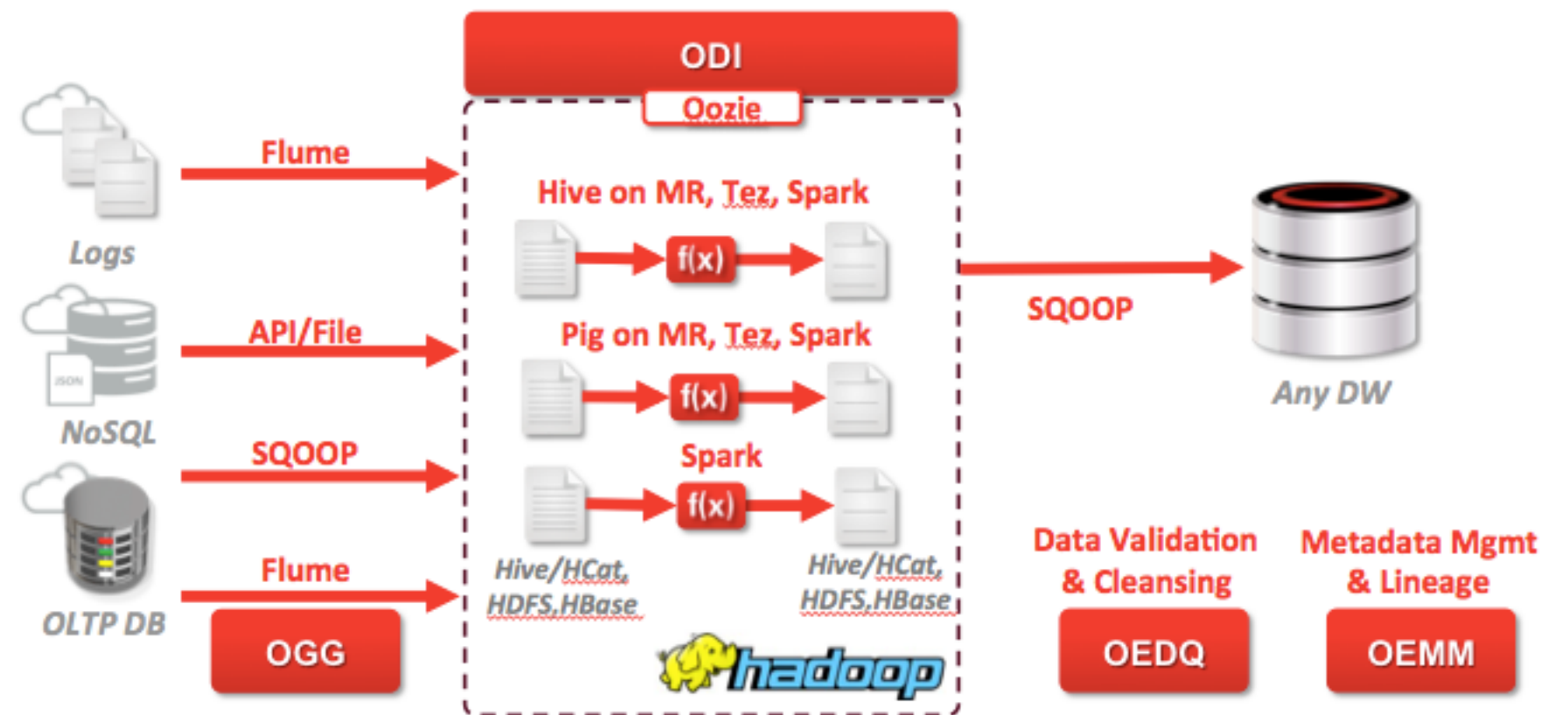
Arrows indicate a clockwise flow between these steps, suggesting a continuous and iterative process.

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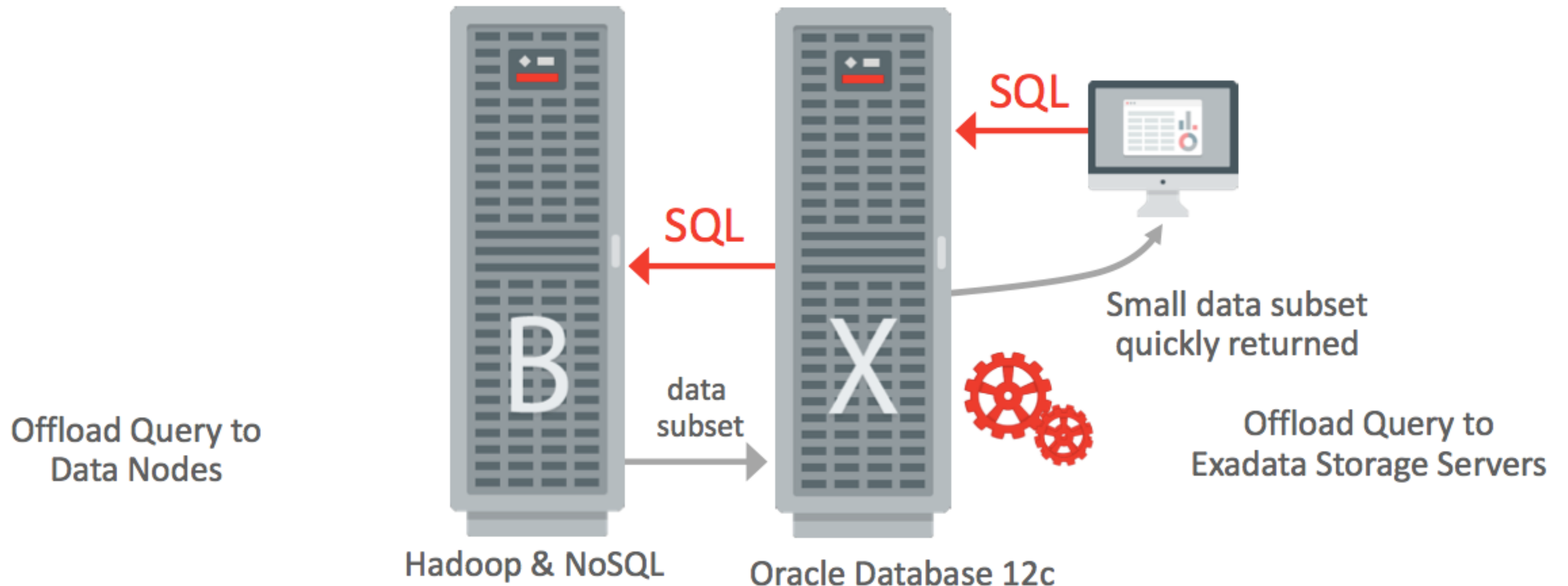
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Oracle Data Integrator for Hadoop-Native ETL

- Native processing using Hadoop framework, using Knowledge Module code templates
- ODI generates native code for each platform, taking a template for each step + adding table names, column names, join conditions etc
 - ▶ Easy to extend
 - ▶ Easy to read the code
 - ▶ Makes it possible for ODI to support Spark, Pig etc in future
 - ▶ Uses the power of the target platform for integration tasks
 - Hadoop-native ETL



Oracle Big Data SQL - Bringing Exadata SmartScan to Hadoop



Enhancing Oracle Database 12c for High-Value Analysis



Oracle Database In-Memory

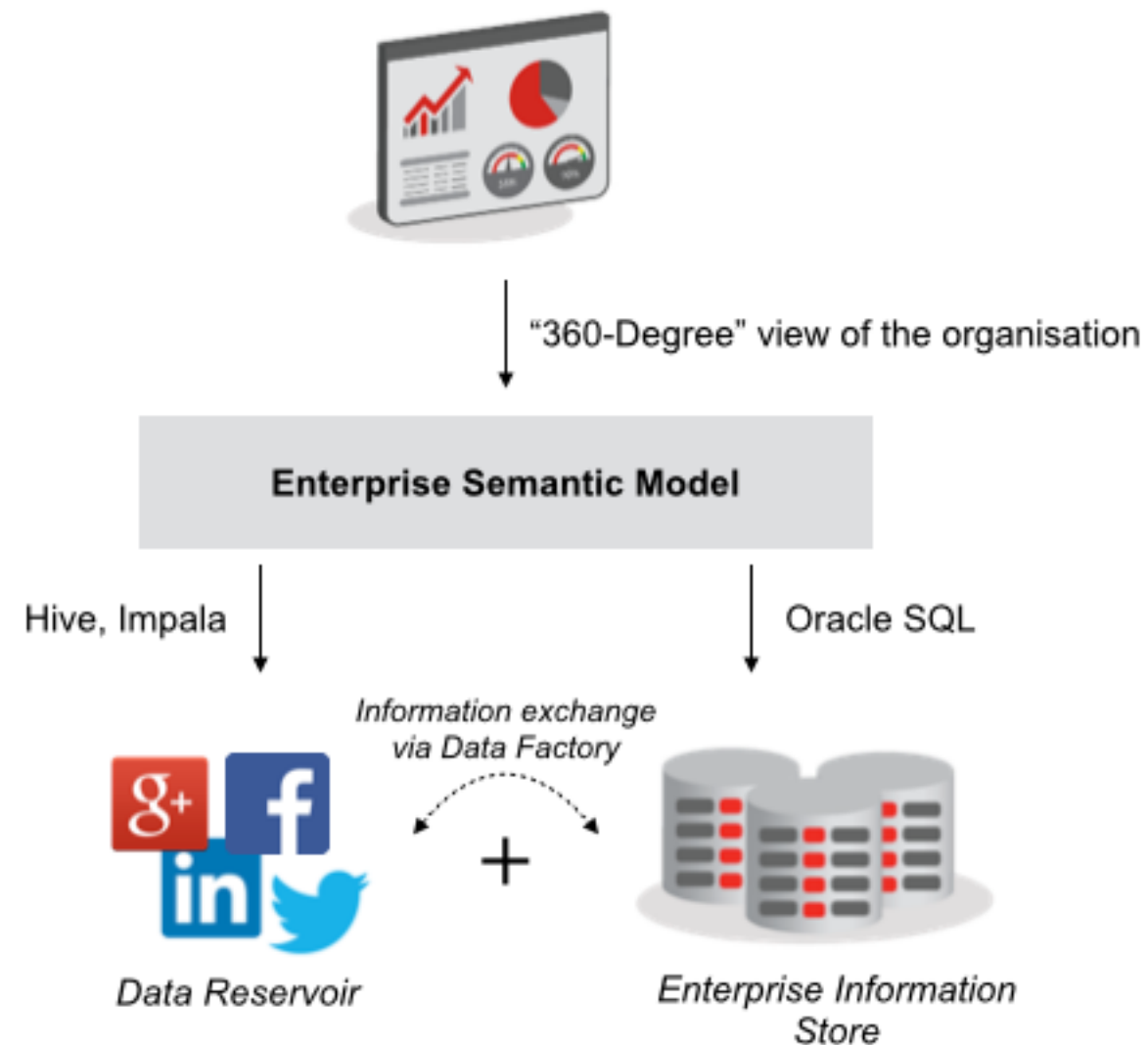
- SIMD Vector Processing
- Column-Store Storage Indexes
- In-Memory Aggregation

New SQL Capabilities

- Attribute Clustering
- Zone Maps for Exadata
- JSON SQL Functions
- Approximate Count Distinct

Big Data SQL

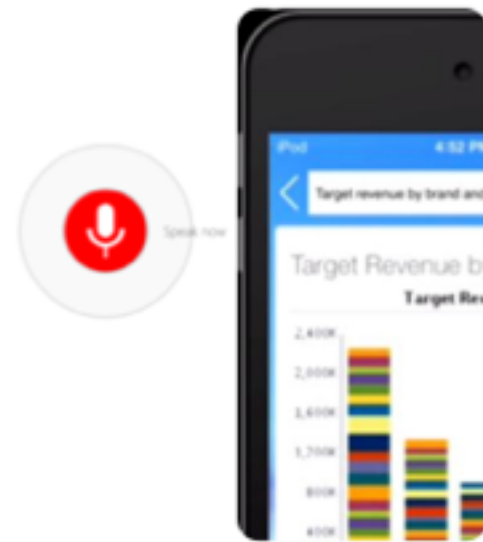
OBIEE as the Unified Reporting Layer over the Reservoir



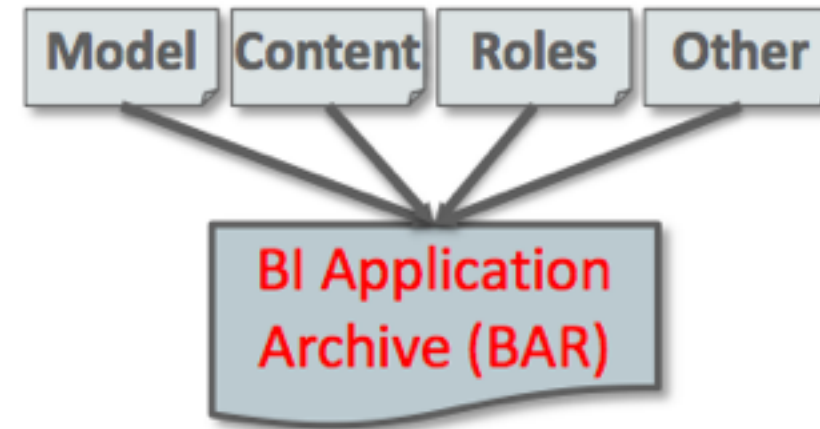
And Coming Soon with OBIEE 12c ...



Visual Analyzer



BI Ask



Lifecycle Management



One-click Advanced Analytics

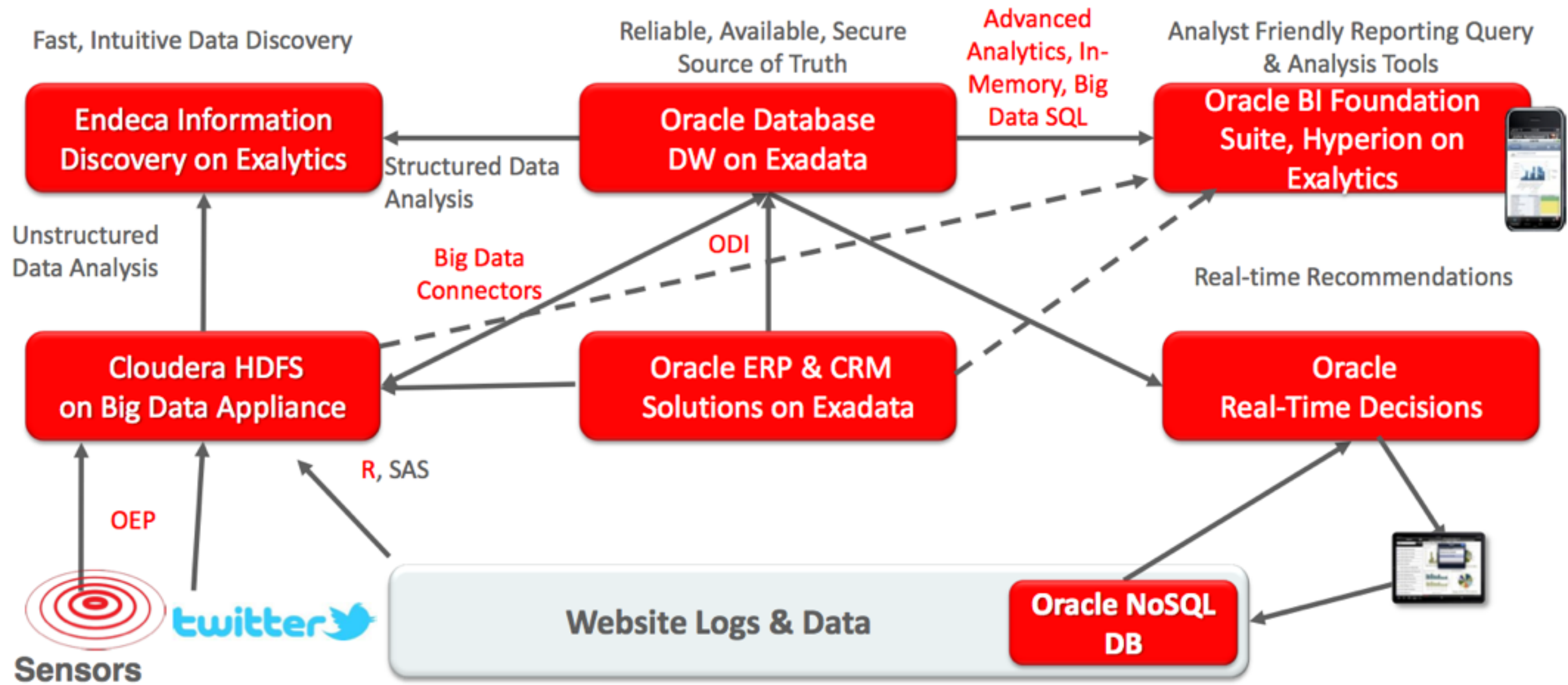
Single 12c release stream, supporting

- On-Premise
- Engineered Systems
- Cloud Offerings
- Embedding in applications



Pure In-memory Essbase

It's a Good Time to be a Developer With Oracle BI, DW + Big Data



**Come to my workshop next,
to find out more.**

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Why Should I Be Interested in Analytics and Big Data?

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