Business Intelligence in a Hybrid Cloud Environment

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Agenda

• Evolution of Hybrid Cloud
• Business Intelligence in Hybrid Cloud
  – Oracle Business Intelligence Enterprise Edition (OBI-EE)
  – Oracle Business Intelligence Cloud Services (BICS)
• Why Data Lakes
  – Oracle Big Data Discovery (BDD)
• Planning for Hybrid Cloud
• Questions and Answers
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About Apps Associates

• Global Reach for Global Customers
  – Founded in 2002 – 650+ employees
  – HQ in Massachusetts
  – US (East, Central, West)
  – Europe, India, Middle East

• Oracle BI Journey Started in 2007 – Represents 40%+ of Our Business
  – BI Pillar Partner & Specialized
  – Oracle Platform Technology Solutions BI/EPM
  – Oracle BI Applications Leadership Board
  – Beta Program for ODI 12c
  – First Oracle Exalytics Certified Delivery Partner
  – Analytics in a Box (Co developed H/W S/W bundle offering with Oracle)
  – **One of the first partners selected for BI Cloud Services (BICS)**
  – AWS Certified for Oracle on AWS (only 2 partners worldwide)

• Over 125 consultants (all employees) delivering OBI services
• Proprietary data lineage and migration tools
Dedicated Oracle Cloud Experience

- Dedicated On Prem and Cloud practices related to BICS, PBCS, Big Data, ERP, HCM, Sales Cloud, and CPQ Cloud
- Oracle Certified consultants
- Functional business analysts lead the onsite team
- BI and Hyperion skill sets help round out the team for the embedded tools
- Integration teams support data movement between Oracle Cloud and non-Oracle systems
What is Hybrid Cloud
We are Back Where We Started (Sort of)
Evolution of Hardware

1970 – 80
Academic, large enterprises

1980 – 90
Most companies, home use

1990 - 2005
Getting personal

2005 - 2015
Explosion of data, devices, everywhere

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### Evolution of Software -> Hybrid Computing

<table>
<thead>
<tr>
<th>Period</th>
<th>Events</th>
</tr>
</thead>
</table>
Hybrid Cloud Framework

Enterprises

Cloud Service Providers

Bridging

Private Cloud
Operated solely for an organization, typically within the firewall

Hybrid Cloud
Composition of 2 or more interoperable clouds, enabling data and application portability

Public Cloud
Accessible over the Internet for general consumption

Common Platform, Security Model, & Management Model
Which Architecture to Choose

No good answer
Cost of integration
Cost of data movement
Cost of building framework

Business Intelligence – an integration approach
Mega Vendors In Hybrid Cloud

- Started in cloud: IaaS
- Moving into applications: SaaS
- Databases
- Relational
- Columnar
- Big Data

- Started Applications On-Prem
- Moving to cloud
- Both IaaS and SaaS
- Core On-Prem S/W on Cloud
- Database
- ERP
- BI
BI in Hybrid Cloud
BI in Hybrid Cloud: Why

- Over 75% - 80% of reporting needs are departmental
- Majority of BI users do not need cross departmental
- Those who do, are used to Excel
  - Single tool that made all integration specialists
- Distributed ERP with distributed BI is OK
- Cost of integration, not a barrier

- Need to stay competitive
- Need to retain employees
- Need customer loyalty

- Data is growing
- Users are growing
- Devices are growing
- Security needs are growing

- BI no longer optional
- Need to be 24x7 like ERP

- Some Big Data plan in next 18 to 24 months
- Want to dip their toes into ‘Data Lakes’
- Infrastructure needs
BI in Hybrid Cloud: Options

### Bring your own license

1. Oracle Business Intelligence Ent Edition (OBIEE)
2. Oracle Business Intelligence Applications (OBIA)
3. Oracle Hyperion Applications
4. Oracle Big Data Discovery (BDD)

- Easiest Migration
- Lift and Shift

### SaaS

1. Oracle Business Intelligence Cloud Services (BICS)
2. Oracle Transactional Business Intelligence (OTBI)
3. Oracle Transactional Business Intelligence – Ent (OTBI-E)
4. Oracle Planning and Budgeting Cloud Services (PBCS)
5. Oracle Big Data Discovery Services (coming)

- Better TCO
- Faster ROI

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<th>Public Cloud (SaaS)</th>
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<td>Big Data</td>
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**BI in Hybrid Cloud: OBIEE**

- **Transactional Data**
  - On Prem Traditional DW
  - Cloud Hadoop DW

- **Transactional Data**
  - Cloud Hadoop DW

- **File Data**
  - On Prem or IaaS OBIEE

- **Streaming Data**
  - On Prem or IaaS OBIEE

- **Intermediate Data**
  - OBIEE
  - Financial Reporting
  - Interactive Reporting
  - OSGR Production Reporting
  - Web Analysis

- **Common Enterprise Information Model**
  - Oracle BI Server
  - Packaged ETL Maps
  - DW Schema

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BI in Hybrid Cloud: BI Cloud Services (BICS)

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- **Private Cloud / On Prem**
  - Transactional Data

- **Public Cloud (SaaS)**
  - Transactional Data

- **Public Cloud (IaaS) / Oracle Big Data Appliance**
  - Transactional Data
  - File Data
  - Streaming Data

**Key Components**

- **Visual Analyzer**
- **Common Enterprise Information Model**
- **Oracle BI Server**
- **Cloud Connector**
- **SaaS Database as a Service**
- **SaaS BI as a Service**

**Data Types**

- **Transactional Data**
- **File Data**
- **Streaming Data**

**Integration**

- Integration between **ERP**, **Salesforce**, and **Workday** with data sources like **Hadoop DW**, **BI as a Service**, and **Database as a Service**.

**Tools**

- **Interactive Dashboards**
- **Ad hoc Analysis**
- **Proactive Detection and Alerts**
<table>
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<th>OBIEE (2007)</th>
<th>BICS (Oct 2014)</th>
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<tbody>
<tr>
<td>Great for on-prem BI (if majority of reporting)</td>
<td>Written grounds up for cloud</td>
</tr>
<tr>
<td>Any source, direct integration</td>
<td>Designed and optimized for cloud (all browser)</td>
</tr>
<tr>
<td>Data warehouse not a must (but recommended)</td>
<td>Designed with business user focus. Less complex</td>
</tr>
<tr>
<td>Native integration with Hadoop</td>
<td>No native integration with Hadoop</td>
</tr>
<tr>
<td>Native integration with Essbase</td>
<td>No native integration with Essbase</td>
</tr>
<tr>
<td>ODBC / JDBC Connectors for DB running on Cloud</td>
<td>Cloud connector for on-prem on its way</td>
</tr>
<tr>
<td>Keep close to ERP</td>
<td>Data load options optimized for cloud</td>
</tr>
<tr>
<td>Option to ‘Bring your Own License’ to Cloud</td>
<td>Very rapid implementation</td>
</tr>
<tr>
<td>Building metadata and model – complex</td>
<td>New features pushed, No patching / maintenance</td>
</tr>
<tr>
<td>Not written for cloud / hybrid – thick admin client</td>
<td>Visual Analyzer – rich, interactive, Tableau / Qlik like</td>
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Data Lakes and Oracle Big Data Discovery
BI in Hybrid Cloud: Problem with This

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- Transactional Data
- File Data
- Streaming Data

On Prem Traditional DW

Cloud Hadoop DW

On Prem or IaaS OBI-EE

Common Enterprise Information Model

Oracle BI Server

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# What is a Data Lake

## Structured
- Store all data
- No need to model
- Define relationship when needed
- Allow access thru tools
- Store results back or into D/W

## Unstructured
- Build on low cost storage
- Cloud best suited
- Scalability and Performance
- Can be just Structured
- Achieve or Staging for D/W

## Process

## Visualize

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When You Think About Data Lake / Big Data
Two situations

**Type I : Swimming in the lake**

*I have data lake but*

1. Have the objective met beyond Phase I?
2. What new business problems (changed)?
3. What worries you, people or technology?
4. Investment not paying off?
5. Business not getting value?
6. Long time for analysis’ results?

**Type II : Dipping toe in the lake**

*I think I need data lake but*

1. What business problem are you trying to solve?
2. Why data lake/big data?
3. Do you have a roadmap for enterprise analytics?
4. Is the initiative business or IT driven?
5. Where to get the skill set?
6. Data Scientists and functional knowledge – hard?
Key Challenges in Managing Big Data

Informatica Study May 2013

“Through 2015, more than 85 percent of Fortune 500 organizations will fail to effectively exploit big data for competitive advantage.”

– Gartner
BDD Value Proposition

Note: Company logos and images are for illustration purposes only. Not a real use case for the company.
Big Data Discovery

- find
- explore
- transform
- discover
- share
Explore Data Sets
Transform Data Sets

- Smart Attribute Filtering
- Faceted and Record Level Views
- Interactive Transform History
- Visual Data Quality Summaries
- Full Guided Navigation
Behind the Scenes Components

Oracle Big Data Discovery. Technical Innovation on Hadoop

- Hadoop
- MapReduce
- HDFS
- Hive
- HCatalog
- Spark
- Impala
- Pig
- YARN
- Oozie

Oracle Big Data Discovery Workloads

- Studio
  - Web UI: Find, Explore, Transform, Discover, Share

- In-Memory Discovery Indexes
  - DGraph: Search, Guided Navigation, Analytics

- Data Processing, Workflow & Monitoring
  - Profiling: catalog entry creation, data type & language detection, schema configuration
  - Sampling: dgraph (index) file creation
  - Transforms: >100 functions
  - Enrichments: location (geo), text (cleanup, sentiment, entity, key-phrase, whitelist tagging)

- Self-Service Provisioning & Data Transfer
  - Personal Data: Upload CSV and XLS to HDFS

Other Hadoop Workloads

- MapReduce
- Spark
- Hive
- Pig
- Oracle Big Data SQL (BDA only)
Benefits of BDD for Data Lakes

- Give power of analysis on big data to power users
- Reduced dependency on Data Scientists
- Data Scientists can focus on core analysis
- Easy to define structure on data using GUI based
- GUI will answer over 70% of scenarios

- Allows to integrate RDBMS
- Allows to integrate ‘My Data’
- Allows to save results back in Hadoop
- Allows to save results in EDW
- Allows to perform full 360 degree analysis
  - Tie back key discovery from BDD to actual transaction for the company

- Works on commercial hardware
- Works on Oracle Big Data Appliance
- Works as a service (coming soon)
Closing
1. Define Business Problem First
2. Define Business value / desired outcome
3. Define Business Process
4. Build Roadmap
5. DO NOT FOCUS ON TOOLS – they change
6. Let tools not dictate strategy
7. Focus on ease of use for business users
8. Be in the business of your business and not in the business of data center management
9. Don’t get hung up on off the shelf integrated solution
10. Measure the cost of COTS vs. building point solution
11. New technology does not mean harder tools
12. Let business users focus on getting value from new platform than learning tools
1. Technology is in transition
2. No perfect answer
3. No vendor has comprehensive solution
4. Each has something that other does not

**Big Question:** Can you afford for technology to mature?

1. Can you wait for all the integrations in place
2. Customers are going to move to whoever provides best value
3. Identify a pilot project
4. Pilot should have a measurable business value
5. Use that to justify funding for subsequent projects
6. Be prepared – what you do in your pilot + 2 project will be different from what you did in pilot
7. Pick a vendor that will serve as your backbone
Think of Your Data as Natural Oil – Precious

Oil refineries are the best example of how they make best use of their resources. Use every part of data. Do not throw any of it away. Storage is cheap.
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