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Emerging Trends in Data Management

Andy Mendelsohn
Executive Vice President
Oracle Database Server Technologies
Emerging Trends in Data Management

• Rapid Innovation
• Managing Structured and Unstructured Data
• SQL is hot again
Oracle Database Innovations

Continuous evolution to meet the needs of each new Computing Era

- Stored Procedures
- Partitioning
- Unstructured Data
- Object Relational

- Resource Management
- Real Application Clusters
- Data Guard
- XML

- Exadata
- Multitenant
- In-Memory
- Big Data SQL
- JSON

Source: IDC - Annual Worldwide RDBMS Vendor Shares from 1993 to 2013 by Carl W Olofson
Oracle Database Support for All Data

- **Structured Data**
  - Numeric, String, Date, ...
  - Row and column formats

- **Unstructured Data**
  - LOB
  - Text
  - XML
  - JSON
  - Spatial
  - Graph
Oracle Support for Any Data Management System

Hadoop
- Change the Business
  - Scale-out, low cost store
  - Collect any data
  - Map-reduce, SQL
  - Analytic applications

NoSQL
- Scale the Business
  - Scale-out, low cost store
  - Collect key-value data
  - Find data by key
  - Web applications

Relational
- Run the Business
  - Scale-out and scale-up
  - Collect any data
  - SQL
  - Transactional and analytic applications for the enterprise
  - Secure and highly available

Oracle Support for Any Data Management System

BIG DATA APPLIANCE

NOSQL DATABASE

DATABASE
SQL is Critical

“….the complexity of dealing with a non-ACID data store in every part of our business logic would be too great, and there was simply no way our business could function without SQL queries.”

Google, VLDB 2013

“[Facebook] started in the Hadoop world. We are now bringing in relational to enhance that. ... [we] realized that using the wrong technology for certain kinds of problems can be difficult.”

Ken Rudin, Facebook, TDWI 2013

https://www.linkedin.com/groups/Find-out-why-Google-decided-4434815.5.273792742

http://tdwi.org/articles/2013/05/06/facebooks-relational-platform.aspx
SQL on Hadoop is Rampant

“When it comes to querying data in Hadoop, we’ve seen overwhelming demand from customers for SQL.”

Mike Olson, Cloudera

oracle.com/press
“Oracle Extends Big Data Portfolio with Oracle Big Data SQL”
July 15th 2014
Introducing Oracle Big Data SQL

Oracle SQL

Hadoop

NoSQL Database

Oracle Database
Breakthrough: Smart Scan on Hadoop and NoSQL

• Powerful, high-performance SQL on Hadoop and NoSQL
  – Oracle SQL Smart Scan local to data nodes
  – Massively parallel SQL across all data

• Simple Integration of Hadoop, NoSQL and Oracle Database
  – Full Oracle SQL dialect and query processing
  – Extends Oracle Database Security to Hadoop and NoSQL data

• Optimized hardware
  – High-speed Infiniband network between Big Data Appliance and Exadata
Oracle Database Roadmap for Calendar 2014

Rapid innovation across all initiatives

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Oracle Data Management Strategy

• Continuous Innovation in the Oracle Database to meet the needs of each computing era **with no application changes**
  – Cloud and Big Data solutions with Oracle Database 12c

• Embracing new technologies is an opportunity for Oracle
  – In-Memory, Hadoop, JSON

• Only Oracle manages all your data
  – On Premise and on the Cloud
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Hardware and Software
Engineered to Work Together