Data and application integration

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Cloud is changing IT and the role of today’s CIO

WE’RE AT A TIPPING POINT IN IT

Increasing Demands from Users
Explosion in Mobile Devices, Data, and Risk
State Pressures on Business / IT

BUSINESS REQUIRES NEW SERVICES

By 2020, IT departments will need to manage:

10× more Servers
50× more Data
75× more Files
all with only 1.5× more IT Personnel
What Does A Business Need

- Continuous innovation
- Speed
- Full compliance
- Mobile Experiences
- 360-degree insights
- No code Solutions
Over 50% F500 Companies Disrupted since 2000

**Regulatory**
- COST | TIME | BRAND
- > 1/3 of companies expect to spend at least a day / week tracking regulatory changes
  - Source: *

**Technology**
- PACE OF CHANGE
- YEARS to achieve 25% penetration in US:
  - Telephones = 35
  - Internet = 7
  - Smartphones = 4
  - Source: **

**Customer**
- EVOLVING EXPECTATIONS
- Customers trust
  - Strangers = 70%
  - Product Ads = 25%
  - Source: ***

Sources:
- * Thomson Reuters Compliance Survey 2016
- ** US Census/Wall Street Journal
- *** Hubba Digital Trends Survey
Data is the Single Biggest Asset for Most Companies

“Computing hardware used to be a capital asset, while data wasn’t thought of as an asset in the same way. Now, hardware is becoming a service people buy in real time, and the lasting asset is the data.”

– Erik Brynjolfsson, Director, MIT Initiative on the Digital Economy

But **Data is Hard** for Most Business’

- 17 month average implementation time for a BI project; 5 months before there is any usable BI artifacts
- Average cost of an unplanned data outage at $7,900 a minute, a 41% increase from 2010, when the cost per minute was $5,600.
- Typical data outages last 86 minutes, totaling an average of $690,200 of costs.
- 72% of big data projects have issues with data integration reliability
- 42% of firms managing over $200B in assets do not have regular processes and procedures to control data usage.
- 36% confidence rate that the right data is available to the right people at the right time.
- <32% of BI projects are declared successful.
- 86 minutes average outage, totaling an average of $690,200 of costs.
- 72% of big data projects have issues with data integration reliability.
Capabilities a Data-Driven Business Needs

1. Make Data Always Available – No Outages
2. Get Data to Where it is Needed, at Right Time
3. Access Data in Any Format
4. Govern Data so that it can be Trusted
5. Stream Data so any Business SLA is Covered
Challenge - SaaS Explosion
Too fast for on-premises integration = lack of business continuity
Challenge – API Explosion
Leading to API chaos
Challenge - Slow Processes
Lack of process automation
Oracle Cloud Platform (PaaS)

- **Comprehensive**
  - Data Management
  - Application Development
  - Enterprise Integration
  - Data Integration

- **Open**
  - Analytics and Big Data
  - Content & Experience
  - Identity & Security
  - Systems Management

- **Integrated**

- **Hybrid**

**Built on High Performant Oracle Cloud Infrastructure**
Oracle Cloud Platform for Integration
Application and Data Integration
Introducing: Oracle Integration Cloud
Eliminate the barriers to integration, process, and analytics

TRANSFORM from APP-TO-APP integration to FULL PROCESS LIFECYCLE integration, automation, and visualization
<table>
<thead>
<tr>
<th>Large Pre-Built Adapter Library</th>
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<tbody>
<tr>
<td>Commerce Cloud</td>
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<tr>
<td>Eloqua</td>
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<tr>
<td>Oracle Utilities</td>
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<td>DocuSign</td>
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<td>ServiceNow</td>
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Introducing: **Oracle Data Integration Platform**

Integrate, Automate, Govern - Cloud and On Premise Data Lakes and Data Warehouses

...a **Unified** solution

...that’s **Easy** to use

...for **Powerful** data-driven solutions

**Solving These Challenges**

**Simplify Migrations**

Integrate Anywhere – Cloud, On-premises or Hybrid

**Prevent Outages**

**Deliver Trusted Data**
DIPC | Enhanced User Experience

Manage

Govern

Profile

Synchronize

Transform

Monitor

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NEW: Oracle Data Integration Platform Cloud

Key Capabilities:

1. Data High Availability
2. Data Migrations
3. Data Warehouse Automation
4. Databus & Stream Integration
5. Data Governance
Open Platform

Business Data
OLTP/Applications

Oracle Data Integration Platform Cloud

Runs on Oracle Cloud

Runs on Premise
(cloud machine or remote agent...)

Runs on Amazon
(remote agent on any cloud...)

Analytics / OLAP
and Serving Layers

3rd Party
Data Sets

Access >125 Sources

Integrate >100 Targets
Solving Key Challenges
Oracle Data Integration Platform Cloud

**DBA & Architects (Replicate)**
- 3 click database migrations from Oracle 11g to 12c
- Quickly migrate off of Amazon RDS onto Oracle DBaaS
- Point and click multi-active database across Regions

**ETL Developer (Transform)**
- Generate a data mart in minutes without coding
- Quickly discover and connect to popular Databases
- Leverage hybrid environments

**Data Steward (Govern)**
- Create a comprehensive catalog of business terms
- Quick profile your data for data quality health check
- 1 click to see end-to-end lineage of data flows
Solutions

Data High Availability
- Active-Active Databases
- Multi-Region Cloud Availability (Oracle or Amazon)
- Database record level sharding

Data Migrations
- DW/Mart Automation
- Oracle Database Migrations into 12c
- Migrate from Amazon RDS to Oracle Cloud
- PeopleSoft or Workday into Fusion HCM

DW/Mart Automation
- Move a Data Warehouse into the Cloud
- Customer 360 from Salesforce or Sales Cloud

Marketing Analytics on Big Data Cloud

Serving Layer for Raw Data Access

Streaming ETL for Data Pipelines

Streaming Integration

Marketing Governance

Full Data Lifecycle Management

Governance of Enterprise Standards

Data Catalog and Data Lineage for LoB and IT Users

Data Governance

Serving Layer for Raw Data Access

Governance of Enterprise Standards

Data Catalog and Data Lineage for LoB and IT Users

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Solution 1: Heterogeneous & Global Data High Availability

Active-Active Databases
- Enable multi-directional transaction replication across two or more databases (Oracle or 3rd party)
- Replicate across your data centers, Oracle data centers or even 3rd party cloud data centers

Multi-Region High Availability for DBaaS
- When you need better than 99.95% uptime guarantees across your Database as a Service implementations
- Works with your data centers or to empower cross-Region availability across Amazon RDS databases

Enable Oracle Database Sharding
- Oracle 12.2 features for Database Sharding
- Use Oracle GoldenGate for logical row-level sharding in the Oracle database
Solution 2: Point-and-Click Database Migrations

Database Migrations
- Seamless data migration from older databases or poorly optimized Cloud services
- Take advantage of newest Oracle DB versions in a simple subscription model

Key Benefits – Online/Offline Migrations
- No data loss for phased / online migrations
- Strong automation around provisioning and billing
- Reliable and proven core GoldenGate technology

3rd Party Cloud Support
- Migrate older Amazon RDS instances to Oracle
- Data delivery from on-premise to 3rd party Clouds

Data Migrations
- Oracle Database Migrations into 12c
- Migrate from Amazon RDS to Oracle Cloud
- PeopleSoft or Workday into Fusion HCM
Solution 3: Self-Service Data Warehouse Automation

**Data Warehouse Integration**
- Operational or Advanced Analytics in the Cloud requires reliable data feeds
- Work with data coming from on-premise data sources or other cloud sources

**Key Capabilities: Comprehensive Solution**
- Prepare and Ingest data in realtime; built in support for replication and streaming ingestion to DW/Marts
- Transform and Cleanse data; innovative approach allows workloads to run on different PaaS resources

**3rd Party Cloud Support**
- Supports Amazon RDS databases and Redshift
- Big data support with Kinesis and EMR
Solution 4: Very Low Latency Streaming & Integration

Low Latency Data Distribution
- Keep transactions flowing continuously
- Eliminate need for batch extract on DB sources
- Minimize Latency and Impact on sources

Ingestion into Big Data Cloud (of your choice)
- Continuous streaming of DB Transactions into cloud
- Populate Oracle Cloud: Event Hub, Spark, Stream Analytics, or Oracle DBCS
- Populate Amazon Cloud: Kinesis, Redshift etc.

Databus (Kappa) Style Architecture
- Leverage Apache Kafka Topics for data pub/sub
- Stream Database transactions into Databus
- Populate “master” topics for canonical views
Solution 5: **Data Governance** for the Business or IT

**Proactive, Trusted Data**
- Instantaneous data quality insights according to approved business standards and terminology
- Clearly traceable data lineage and impact analysis for analytics and reporting

**Simplified Data Steward Application**
- Fully integrated data profiling and analysis
- Machine-assisted linkage from data assets to business glossary to business rules to trust metrics
- Identify, classify and fix bad data from anywhere
- Rich collaboration and change management features

**Governance Your Way, for Your Data**
- Flexible workflows, data classification and ownership
- Comprehensive auditing

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3 Kinds of Data Lineage for LoB and IT Users

Advanced Profiling and Cleansing

Business Catalog and Data Policies
Modular Footprint

Example #1: On Premise Integration

Example #2: Oracle Cloud Integration
Data Integration Customer Proof Points

Automate & Transform
- Intuit Migrated 100’s of DBs to Cloud and Loads TB’s of data into Streaming data fabric (Kafka)
- Tesla replicates databases and links their SaaS Applications to Enterprise Data Warehouse

Stream & Replicate
- SFDC trickle Feeds Data to its corporate Data Warehouse ensures 24x7x365 availability
- Starbucks Streams Data from POS Systems into DW and Data Lake
- E-Bay streams 100B transactions per day into private cloud

Cleanse & Govern
- Allianz harvests from non-Oracle tools into enterprise data catalog for complete data lineage
- Cummins operates global Governance council with data quality and metadata tools
Customer Example: amazon.com

Recognizing Growth and Improving Financial Reporting

Modernization and Agility for Future Business Decisions

- EPM & BI solution for automated financial reporting & analytics to over 1,000 stakeholders
- Reduced Time to Complete Close by >50% - 10+ to 5 days & save 1,000s of hours per month in data analysis
- Oracle Data Integrator & Application Adapters along with BI, Essbase and Hyperion products
Customer Example: British Telecom

Real-time Data Use

Mission Critical Systems & Processes

• Daily real-time data replication
• Zero downtime server re-platforming & application upgrades w/ GoldenGate (Siebel)
• Heterogeneous data integration for BI: bulk & right-time w/ Oracle Data Integrator
• Enhanced customer experience & improved contact center agent productivity
Customer Example: CaixaBank
Changing the Business Model and Becoming a Data Driven Organization

Big Data and Business Analytics Fosters Growth and New Markets

• Leading Spanish retail bank and insurer

• Move to Big Data: leveraging Exadata, Exalytics, BI, ODI for discovering business patterns

• Enabled 360° understanding of customers to offer tailored, on-demand banking & insurance solutions

• 75 Big Data projects generating 5 Million + Euros
Customer Example: DirecTV

Oracle Data Integration and Kafka for Real-time Big Data

Real-time Big Data

• Real-time Streaming Analytics for determining success rate of programs
  ➢ Real-time loading of the change data from receiver collected on Oracle GoldenGate to Kafka and HDFS
  ➢ 180M–200M transactions
  ➢ Leveraged GoldenGate to Stream Change Data into Kafka and HDFS
  ➢ Downstream processing of data from Kafka and XML data using Data Torrent
Customer Example: LinkedIn
Synchronize User Data Across Distributed Data Centers and Big Data

User Profile Data Distribution

• Needed to sync user profile data across multiple physical locations in real-time as users change their profiles

• Database to Database & Database to Kafka

• Over 30 transactional databases kept in sync for Active-Active read optimized updates leveraging GoldenGate – 4 way replication: Virginia, Texas, Oregon, Singapore!

• Allows load balancing so that user application data is always fresh and analytic data is up to date with most recent user data
Customer Example: FedEx
Private Cloud Database Consolidation Using Oracle GoldenGate

Migration to Database Cloud

• Aims to reduce complexity & TCO, and increase agility for growing business
• Migrated OLTP database workloads onto private Cloud database without any interruptions using Oracle GoldenGate
• 480 databases in 5 data centers are moving onto this architecture with fallback option
• Maintenance and upgrades done with near-zero downtime
Customer Example: Netflix

Billing in the Cloud

The Cloud is Now

• Database migration in moving billing application to the Cloud
• Bi-directional replication: MySQL to Oracle – w/ tables in the 100s of GBs
• High availability & scalability to withstand infrastructure failures, zone and region outages, all w/ minimal downtime
• GoldenGate obvious choice for bi-directional, w/ data integrity, restart capabilities, performance, ease of use, etc
Customer Example: PayPal

Oracle Data Integration for Always on Transaction Processing

Managed Risk for Downtime

PayPal operates worldwide transaction processing systems that have to be available all the time, continuously

➢ Oracle GoldenGate decreases risk to the business by providing multi-active DB infrastructure for continuous availability
➢ Extremely demanding transaction loads are normal operations
➢ Core value to the brand and the business affects the top line when systems can be trusted
Customer Example: Telefonica
Transformational Project Providing Modernization and Cost Reduction

Big Data - Data Warehousing Providing Greater Flexibility

- Private Spanish telecommunications company
- Real-time, agile data ingestion environment to help provide agile BI, the solution leveraged Exadata, OGG & ODI
- Data is no longer duplicated in various systems, huge simplification in data loading processes and overall improved BI with 40,000 + reports generated by 1,000+ employees
Customer Success: Baťa

Analytical platform in the cloud

New reporting solutions in the cloud

- Analytical platform in the cloud
- Consolidate data from ERP, PoS, Loyalty program, etc.
- Interactive offers (next best offer)
- Oracle Data Integrator as a ETL for data transformation
- Oracle Business Intelligence for reporting as a service
- Oracle DB as a service