Oracle Communications Data Model – Product Overview
Program Agenda

- Market Opportunities & Data Challenges
- Oracle Communications Data Model Overview
- Oracle Communications Data Model Options
- Customer Successes
- Q&A
Service Provider Data Challenges

- Scale: Networks and systems produce billions of events per day; largest data warehouses tripling in size every 2 years.
- Complexity: Hundreds of systems and multiple lines of business; often result in multiple data marts & data warehouses.
- Change: Service providers exist in a world of constant change; network technologies, regulatory, & business model.
Drive for Unification

Increasingly we are seeing Communications Service Providers who are investing in unifying their analytic data

– Need for comparative metrics – a single source of “truth”
  ▪ A South American CSP: “Each LOB has defined a unique methodology for calculating core metrics such as customer value, network value, and churn probability. We need a single standard formula.”

– Changing data requirements making existing tools obsolete
  ▪ A European CSP: “We are rolling out LTE this year. This means much more data from many more sources... Our old data warehouse simply won’t do.”

– Desire for more comprehensive metrics which span multiple organizations
  ▪ A North American CSP: “We need to integrate our network reliability data with our customer data – so we can measure the impact of reliability on churn.”
What the Analysts are saying

IDC

- Data volumes growing, but actionable insight still lacking
- CSPs must begin more aggressive deployment of business analytics in 2013
- Must ensure proper, holistic integration of OSS/BSS platforms and processes
- Vendors continue to invest in analytics in 2013 and beyond
What the Analysts are saying

Ovum

- IT trends suggest big changes in how telcos deal with customer and operational data
- Telcos investing in BI and advanced analytics to improve efficiency and decision making
- Report analyzes market and evaluates vendors

“OCDM is rated among the top solutions in our technology assessment…”

Shagun Bali, Ovum – “Ovum Decision Matrix: Business Intelligence and Analytics for Telcos” January 9, 2013
Evolution of Analytics

Intelligent Interactions
- Predictive analytics based on data mining models
- Who might churn next month?

Fact-Based Actions
- Weigh possibilities and make strategic decisions
- Based on subscriber growth prediction; how should I plan network expansion next year?

Performance Management
- More advanced statistical analysis
- How is the business doing compared to last year? Compared to the plan or forecast? What if . . .

Slice/Dice, Ad-hoc, Query, BI Tools
- More comprehensive ad hoc querying and analysis
- How much revenue did each product produce per region and customer segment?

Transactional Reporting
- Predefined reports on what has happened
- How are current products performing?
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- **Oracle Communications Data Model Overview**
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Oracle Communications Data Model (OCDM)

- Enterprise wide data model for communications industry
  - Over 1,500 tables and 30,000 columns
  - Over 1,000 industry measures and KPIs
  - TMF SID conformance aligned
- Prebuilt mining models, OLAP cubes and sample reports
- Automatic data movement across layers
- Easily extensible and customizable
- Usable within any source application
Answering Business Questions

**Business Areas Covered**

- Network
- Product Management
- Cost & Contribution
- Customer Management
- Provisioning & Activation
- Revenue
- Marketing
- Partner Management

**Sample Analytics**

- What is the usage behavior by customer or customer segment?
- What is the dropped call rate and/or call failure rate across different regions and network elements?
- Who are my top x customers from a revenue, profitability, and usage perspective? What products or offers are they using?
- What is the average revenue per user (ARPU)? What is the average margin per user (AMPU)?
- What percentage of order fallout has been occurring? What are the main causes?
- Which agents are making the most refunds or adjustments? Which customers have had multiple refunds/adjustments?
- What has been the impact of campaigns on target revenue? How are current campaigns performing?
- How does my roaming and interconnection income align with my interconnection costs?
Interactive Dashboards and Reports

Understand customer acquisition and churn rates by LOB, customer type, product, etc.

Monitor revenue and sales growth over time, by LOB, customer type, product, etc.

Monitor dropped calls and call failures by network element, city, time, etc.

Analyze order fallout and order volumes over time, by product type, order type, status, etc.
### Churn Prediction by Customer Segment

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<th>Month Revenue</th>
<th>Debt Value</th>
<th>LTV Band</th>
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Communications Analytic Applications

- Analytic applications developed to run on OCDM
- Provide in depth analysis for core business process or topic
  - Social Network Analytics
  - Billing Analytics
- Applications may include one or more of the following:
  - Additional (more comprehensive) dashboards and reports
  - Additional or extended dimensional models at analytic layer, and extended/new intra-ETL scripts
  - Additional data mining models
  - Feedback mechanism to source applications
Social Network Analytics

- Analytic application optimized for social network analysis across large volumes of CDR data
- Integrated with OCDM, OBIEE, and leveraging Oracle Data Mining with specialized SNA code
- Features include:
  - Identification of social network communities
  - Network metrics characterizing the social graph
  - Network distribution information
  - Predictive scores for churn and influence at a node level, as well as potential revenue/value at risk
  - User interface targeted at business users and flexible ad-hoc reporting
Billing Analytics

- End-to-end analytic application developed on OCDM
- Leverages data fed via BRM & NCC Adapters
- Provides comprehensive and visually appealing dashboards built w/ OBIEE
- Enables users to:
  - Understand existing business customers across all their products and services
  - Predict and analyze customer behavior to increase revenue and retention
- Reduces time, cost, risk and complexity of custom solutions
BRM & NCC Adapters for OCDM

- Productized integrations to OCDM
  - Provides a comprehensive ELT as an installable, configurable product
  - Extracts data from BRM and NCC applications & loads to OCDM

- Supports two options for data loading
  - Standard - data is loaded in customer-defined intervals
  - Real-time - data loaded into OCDM staging as transactions complete in source applications (BRM or NCC)

- Data mapped includes:
  - BRM: Accounts, Plans, Deals, Products, Discounts, “Subscriptions”, CDRs, Balance Impacts, Invoices, Payments
  - NCC: CDRs, EDRs, Vouchers, Accounts, Wallets, Balances
Application adapters leverage ODI for transformation to OCDM
- GoldenGate supported as optional component for real-time feed to staging
  - Enables staging layer to be used as ODS for near real-time reporting
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Etisalat Nigeria

Solutions

- Nigerian Mobile Operator
  - Customer base of 15 million subscribers
- Previous BI system lacked functionality, performance and scalability
  - Data inconsistency was critical business issue
  - Lacked a holistic view of the business
- New solution consists of Exadata, OCDM and OBIEE
  - Data loading now every 5-10 minutes, compared to 6-8 hours previously for a day’s worth of CDRs
  - Retrieval of data improved by 97%
“Oracle Communications’ integrated technology has greatly improved our ability to quickly and efficiently retrieve and act upon data from a variety of sources.

Transactional data is processed in near real-time - taking about 45 minutes to process data for a full day, a significant improvement on the previous system that took up to eight hours.

Oracle has also enabled us to offer customers relevant and personalized services, which we can make available quickly and efficiently.”

**Ajibola Ajia**  
Business Intelligence Specialist,  
Etisalat
Turkish Mobile Operator
- Nationwide customer base of 12 million subscribers
- BI/DW environment based on Oracle
- Implemented industry model based on OCDM
  - Provided base benchmark to help understand data requirements
  - Helped define their telco vision
  - Enabled them not to have to “reinvent the wheel”
  - Dramatically reduced time required to implement the model
“Oracle offers the best tools for data integration and data access. We rely on Oracle’s software and expertise in each step of our process. Oracle enabled us to focus on what we really do- transform data, apply business rules, and ultimately help our customers.”

Mustafa Sabri Çikrikci  
BI and DW Team,  
Avea
Hong Kong Broadband

Solutions

- Fastest growing and second largest service provider in Hong Kong
- Leveraged OCDM for centralized analytics of customer & market data
- Realized key productivity improvements
  - Improved reporting times
  - Enabled more targeted promotions
  - Reduced churn to less than 1%
  - Increased average revenue per user

Hong Kong Broadband Network Enhances Data Warehouse System with Oracle Communications Data Model

Leading Provider Grows Subscriber Base by 37% in Six Months and Reduces Customer Churn to less than 1%

TM Forum Management World, Nice, France – 18 May 2010

News Facts

- Hong Kong Broadband Network Limited (HKBN) is the fastest growing and second largest broadband service provider in Hong Kong. It enhanced its data warehouse using Oracle Communications Data Model. The implementation, completed in three months, helps support rapid time to market over custom-built solutions and scales for continued growth.
- HKBN is the fastest growing broadband service provider in Hong Kong today. In the six-month period from 1st August to 30th January 2015, it added 73,000 new subscribers to its existing base of 454,000 – an annualized growth rate of 37 percent. HKBN’s customer churn is less than one percent per month – below half of global carrier norms, which is evidence that its customer retention is exceptionally strong.
- HKBN expands its communications industry-specific schema enables HKBN to track key metrics such as customer behavior, competitor pricing and marketing campaign results. The Oracle technology behind the system delivers the performance and scalability needed to support rapidly growing data volumes.
- Prior to the implementation, HKBN’s reporting environment was siloed. Each service had its own data structure and there was no visibility across multiple services within one customer account. Now HKBN has a unified repository for historic and current data, as well as access to timely, actionable intelligence.
"We needed a versatile, integrated data warehouse architecture to improve our decision-making processes and enable our ongoing success. Oracle Communications Data Model enables our users to spend time analyzing data rather than collecting it. The results are clear in accelerated market share gains and reduced churn."

Jesse Chan
Director,
Hong Kong Broadband Network
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Hardware and Software
Engineered to Work Together