Business Intelligence for Better Business

- Business Intelligence is using your data assets to help making better business decisions
  - Gain insight via accessing, analyzing, uncovering, and reporting new opportunities

- Example questions business intelligence can answer
  - What subjects our CSR discuss with customers on calls? How to improve value of our CSR’s call time?
  - How do we identify more prospective customers for an effective marketing campaign?
  - How do we align our resource with customer buying trends?
Business Intelligence is Mission Critical

**Yesterday’s Practice**
- Only for executives and few specialists
- Point in Time Business Intelligence
- Batch Data Warehousing
- Separation of Warehouse and Transaction Systems
- Self-contained Historical Data Warehouses

**Today’s Requirements**
- Easy to use, readily available to everyone
- Real-time Business Intelligence
- Active Data Warehousing
- Consolidation of Warehouse and Transaction systems
- Information Integration with other data sources

Business Intelligence Needs a Foundation

- Business Intelligence services provide capabilities to applications and tools
- Processing intensive queries need a data warehouse
  - Separates queries from transactional workloads
  - Parallelism to process queries faster
  - Large capacity and high performance
- Data warehouses need support to assemble the data from a variety of sources

![Diagram of Business Intelligence Components](D2 - 06 DB2 Business Intelligence.ppt)
DB2 Data Warehouse Edition

An Integrated and Optimized Business Intelligence Foundation

- IBM business partners supply applications and tools
- Open, standard based integration
- Foundational Business Intelligence Services in the database
- Integration to heterogeneous data sources

Foundational Business Intelligence Services

Online Analytic Process (OLAP) and Reporting

- Cube Views models and metadata management
- Fast response, easy to use, customized reports for everyone’s need

Intelligent Data Mining

- Discovers patterns, trends, associations, predictions, …
- IBM Intelligent Miner (IM) and Easy Mining Procedures
  - Sophisticated, mature, and time tested algorithms
  - Data Mining model optimization
  - Ease of use
    - Modeling, analysis, and result deployment

Services

OLAP
Analysis

Report
Results

Mining
Deep
Analysis
Real Time Business Intelligence

Our line of business managers are looking for opportunities to improve revenues and customers satisfaction. Can you help us?

With Alphablox and Cube Views, business managers can have customized insight into business performance, in real time.

On Demand Insurance

CIO

IBM

Online Analytical Processing (OLAP)

- OLAP involves the processing of large quantity of data
  - e.g. What is the average sales of each of our 10,000 stores every January over the last three years
  - e.g. What product is often the most expensive in sales over $500
  - e.g. How many accidents involve 8-cylinder cars during the summer

- Conventional database approaches don’t work
  - Would require millions of requests to gather the data
  - Extensive processing by an application to gain a result

- DB2 Data Warehouse Edition is optimized for OLAP requests
  - Processing is done inside DWE
OLAP Characteristics and IBM Solution

OLAP tasks have dimensional characteristics
- Associated with specific business dimensions, e.g.
  - Show me the average claim costs over the last three months by policy type

Challenge
- High speed processing of multi-dimensional OLAP queries
- Full multi-dimensional data storage (“cubes”) is not practical

IBM solution
- Create Cube Views (a virtual multi-dimensional data cube)
- Business specific cubes (assembled from slices of the Cube Views)
- Optimized for fast response
- Link the data in the cubes to other data in the database (drill through)

DB2 Cube Views for OLAP Inside Data Warehouse Edition

- Mapping of “cubes” to source data “facts”
- Materialized Query Tables (MQT) is a cache for high speed access
- Well defined interfaces for applications and management
DB2 Cube Views -- Advantages

- Neither Microsoft nor Oracle have Cube Views
- SQL Standards based - no proprietary languages
  - Widespread access to skills, tools, & maintainable code
  - Microsoft OLAP does not support standard SQL
- A single unifying API for all data accesses
  - OLAP analysis is now fully accessible through SQL & ODBC
  - 1 programming interface, 1 set of skills, 1 system to manage
- Federated access to non-DB2 data in MQTs
  - Hybrid sources of data feeding into cubes from many servers
- Integration with APIs and metadata bridges
  - Access to multi-dimensional, structured & unstructured data
  - Microsoft and Oracle do not have bridges to leading ISV Business Intelligence tools
- DB2 UDB and model based optimizations inside Data Warehouse Edition
  - Performance, scalability, reliability, parallelism from DB2 UDB
  - Microsoft and Oracle do not have corresponding MQT optimizer
- DB2 unifies OLTP with real time Business Intelligence
  - OLAP can be added to online or web applications

Analytics Delivered Two Ways

- Traditional Business Intelligence Tools
  - Client side applications that access DB2 Data Warehouse Edition
- New Alphablox reporting
  - Thin client, J2EE based
  - Customized analytic information and applets delivered to a browser

Both enable OLAP Services (including Cube Views) to applications, tools, and end users
Alphablox: Analytic Information Delivered to Browsers

- Extends DB2 Data Warehouse Edition solutions with J2EE infrastructure tools
- Can be embedded in other applications or stand alone
- Real time, interactive, with dynamic insights
- Simple, easy and highly customizable

Alphablox is an infrastructure
- A set of Blox components, an application framework, and development tools
- Leverages standard J2EE application servers for run time
- For quick / easy assemble and deploy custom analytics applications

Quick, Easy, and Customized Applications

Customized analytical applications
- Business performance and KPI dashboards
- Self-service reporting and analysis
- Financial reporting and analysis
- Operational analysis and planning

Heterogeneous information sources
- OLTP, OLAP, DWH, EIS, others

Pre-built Blox capabilities
- Interactive and real time
- Web-based spreadsheets
- Guided analysis and alerts
- Personalization and customization
- Sharing and collaboration
- Real-time planning through write-back

Web browser deploy and mgmt
- No client to download or install
DEMO: Alphablox

- End user customize the look and feel
- End user analysis: drill down, aggregate

Alphablox Advantages

- Open architecture integrate with existing IT infrastructure
- Analytic capability customized to individual user and role
- Optimized for rapid application delivery and deployment
- Numerous customization options for front-end interfaces
- Leading enterprises rely on it…
Data Mining

What actions can we take to reduce the number of service calls?

IBM Data Mining can give you the insight you need to take action.

Project Manager

IBM

Intelligent Miner (IM) Services for Professional Users

- Intelligent Miner Modeling: Building intelligence
  - Association - relationship among events
  - Clustering - groups of similar records
  - Regression – predict a behavior or a variable value
  - Classification - records to predefined classes

- Intelligent Miner Visualization: Visualize results
  - Present, understand, and analyze results

- Intelligent Miner Scoring: Apply model results
  - Apply intelligence in business applications
  - Automatic real time decision making

1. Develop and train a model
2. Analyze results visually
3. Apply model insight in applications
DEMO: Visual Analysis of Customer Calls

- Visual representation of the customer call mining result
  - Type of calls
  - Repetitive calls
  - Reasons of the calls
- Visual analysis lead to a plan of action
  - An accurate, real time prediction of payment date
  - Easy mining without the need of BI experts

IBM Easy Mining Makes it Simple

Easy Mining  ➔  Better Decision

- Problem solved
  - Easy and quick mining
- Customer Value
  - Extremely accurate
  - Everyone can use
- Tech. Advantages
  - Embodies deep R&D results
  - No parameters required
  - Uses DB2 parallelism
DEMO: On Demand Insurance Easy Mining

- How long will it take to pay a given claim?

- Regression analysis of historical claims information
  - Create a model (e.g. formula) that relates the claim payment time to these characteristics
  - Decide what characteristics of previous claims were most predictive of claim’s payment time.
  - Tool uses model to produce Java bean that will calculate a claim’s payment (time) estimates

- Use Java code to produce estimate for new claims

IBM Easy Mining has given our Customer Service Representatives the information they need to answer customer questions the first time.

Project Manager
Cellway Wireless Phone Services

- **Business need**
  - A Churn model to predict before a 'good' customer discontinue service
  - Discover cross-selling and up-selling opportunities

- **Solution**
  - DB2 Intelligent Miner clustering, classification and predictive models
  - These models assigns a probable attrition value to each customer
  - Use real time and historical data to understand various customer groups

- **Benefits**
  - Insight into different customer groups and their Churn probability
  - Devise marketing strategies for different groups
  - A flexible, scalable BI solution that provides the desired capabilities

"We are very satisfied with the solution and really astonished with how quickly Intelligent Miner is providing us with impressive results."

- Eric Nagel, Manager of Competence Center, Cellway GmbH

Clients are Choosing IBM for Their Business Intelligence Solutions

**Financial Services**
- experian
- HSBC
- Dresdner Bank
- Wachovia
- HSBC

**Distribution**
- Pepsi
- Procter & Gamble
- Target
- Cendant
- Carrefour

**Telecommunications**
- Sprint
- Brasil Telecom
- United
- Compaq
- DNP

**Other**
- UPS
- IBM
- GM
- Cognizant
- Ingenix

"Clients are Choosing IBM for Their Business Intelligence Solutions."
IBM Business Intelligence Advantages

<table>
<thead>
<tr>
<th>Essential Business Intelligence Capabilities</th>
<th>IBM</th>
<th>Microsoft</th>
<th>Oracle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. End-to-end Data Warehouse and platform</td>
<td>Yes</td>
<td>Limited</td>
<td>Limited</td>
</tr>
<tr>
<td>2. Availability, scalability, and performance</td>
<td>Yes</td>
<td>limited</td>
<td>Limited</td>
</tr>
<tr>
<td>3. Heterogeneous Platform support</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>4. Common Criteria security certification</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>5. Comprehensive data transfer Management</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>6. Real time support for heterogeneous data sources</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7. Designed for maximum parallelism</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>8. Optimized for best-of-the-breed query, OLAP, and reporting</td>
<td>Yes</td>
<td>Limited</td>
<td>Limited</td>
</tr>
<tr>
<td>9. Easy mining for average users</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>10. Deep mining for professional users</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

IBM: DWE 8.2.1  Microsoft: SQL Server 2000  Oracle: 10g

Be as Efficient as You Can Be