


6/17/04

Imation's Data Warehouse




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May 17, 2004

Overview

- Who is Imation?
- A brief history & overview of Imation IT
- DW business case
- ROI
- Lessons learned
- Architecture overview
- Refreshing
- Staffing
- Successful examples
- Spreadmarts

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Imation Is.... 

- Leading worldwide supplier of removable data storage media with 50 years of experience
- 2003 revenue \$1.163 billion
- 54% of revenue outside the U.S.; market presence in more than 60 countries; 2,800 employees globally
- More than 300 technology scientists; more than 300 U.S. Technology patents
- New York Stock Exchange ticker symbol "IMN"
- Headquartered in Oakdale, Minnesota

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Imation Offers the Broadest Portfolio of Removable Data Storage Media 



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Brief History

- Imation spun off from 3M in 1996
- May 1998 Imation went live with:
 - 2 instances of Oracle Applications
 - Data Warehouse (sales) consisted of multiple ODSs, 2 data marts and Discoverer
 - OSA/Express
- June 1999 – Packaged DW Pilot – GL, AP and PO for US
- June 2000 – “Big Bang” – AR, Inv, OE, OM, PA for US
 - GL, AP, PO, AR, Inv, OE, OM, PA for Europe
- 2001 to present – tripled the size of the DW

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Recognizing the Need

1 year later - 1999

- Applications, reports and queries running slowly
- Use of browser very limited by DBAs
- Limited use of real time reporting
- People working weekends and evenings to get the job done
- Recognition of need to purge ERP data
- MFG implementation scheduled
- =>> Move reporting off OLTP systems

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ROI - The Business Case

1999 Pilot – GL, AP and PO for US

- The cost of building a DW
 - Software – 300K, Hardware – no incremental costs
 - People hours – 400
- The cost of not building a DW
 - Ability to purge ERP data was limited
 - Needed more horsepower for ERP systems
 - Continued need for more custom report development
 - Wasting thousands of hours/year on report creation/admin, etc.
- Benefits – too many to mention all
 - Month end close accuracy and timeliness
 - Improved cash mgmt – payables
 - Better leverage on spending & rationalize supplier base
- Looking back - what we missed
 - Longer term strategic benefits
 - Smart users will find a way to use DW in ways that can't be predicted
 - Head count reduction

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Implementing a Packaged DW Solution

- Why we chose a DW package
 - Low maintenance
 - Quick implementation
 - Minimal in house expertise in DW and ETLs
 - Low confidence in consultants
- Implementation approach
 - Incremental
 - Do it yourself as much as possible
 - Start with local users
- Looking back
 - Implementation was quick and easy
 - Developers learned a lot, confidence increased dramatically
 - Customizations are critical, numerous and fairly easy to implement
 - GL, AP and PO all different problems

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What we learned - big lessons

- Develop expertise in house
- Build and support it yourself
- Don't bite off too much
- Pick an "area" to start where you have a good chance of success
 - Single point of contact - centralized group
 - IT Savvy people within group
- Spreadmarts - acknowledge and strategize

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What we learned - little lessons

- Horsepower?
 - Determined by refresh load not user load
- Skills needed
 - PL/SQL, ERP knowledge, creative
- Getting requirements
 - Prototype
- Customizations
 - Expect a lot
- Competing for business resources
- Dedicated DBA
- Security – don't underestimate the complexity or effort

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Architecture today....



- 2 ERP systems (1 - North America, 2 - Europe and MOW) map to 2 Enterprise Data Warehouses
- Over 400 GB of DW data
- Over 75 Data Marts, numerous custom applications
- Several Global Data Marts
 - Populated with Materialized Views
- Data staging used for common dimensional data and performance
- RDBMS - HP Unix RP8400 (dev, sol, prod)
- Middle Tier - Unix and Linux

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Simple Architecture (x2)....



Oracle Applications

- GL
- AR
- AP
- HR
- OM
- PO
- Inv
- ...

ETL

Subject Area Data Marts

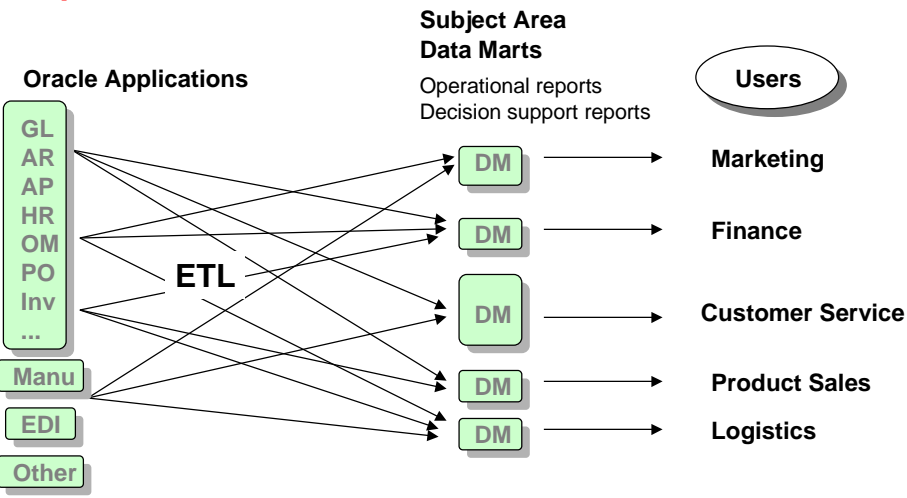
- Operational reports
- Decision support reports

Users


- Marketing
- Finance
- Customer Service
- Product Sales
- Logistics

Other Applications

- Manu
- EDI
- Other




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ETL Tools, Loading and Refreshing

- Tools
 - DPA (Decision Point Applications) Warehouse Administrator & Source Expert
- Methods
 - stage common data – balance performance and connect time to ERP VS space
 - Each data mart needs to be evaluated for what method of refreshing works best
 - Just started using "Materialized Views"
- Challenges
 - Test boxes smaller and shared
 - Balancing jobs that are constantly changing in size and number
 - Getting jobs complete before start of business

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Staffing and Maintenance

- Staff of 10
 - 7 developers
 - 1 developer/administrator
 - 1 manager/administrator
 - 1 full time DBA (assigned from DBA group)
- Developers have comparable IT skills. Workload divided by functional area
- 20-30% of time on maintenance
- 24* 7 support – rotate a primary and secondary cell phone

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Data Warehouse Delivers....



- Over 500 users globally (~20% of company)
- Customizations and custom reports from ERP minimized
- Purge ERP data without expensive archiving systems
- Automation of S&OP (Sales and Operations Planning) processes
- Rebate reconciliation processing
- DSO reduction
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Data Mart Examples....



- Non-working Inventory
- Demand Forecast Accuracy
- Customer Analysis
- Export Sales Creditation
- On Time, In Full
- Global Sourcing Metrics
- Global Net Sales Flash

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The Spreadmart Dilemma

Spreadmarts - those ubiquitous spreadsheets or "systems" created by users by downloading data from corporate systems. Data is extracted, transformed and turned into a data mart or corporate reporting engine.

Pros -

- good for solving niche problems or doing analysis

Cons

- once data is downloaded, no control over security, data integrity and report manageability
- clogging up NT shares
- Sarbannes/Oxley compliance
- Wayne Eckerson from TDWI - *"Spreadsheets make it too easy for groups to define their own metrics and to collect data from different sources at various levels of granularity at different times. Thus, each spreadsheet represents a unique view of the organization, an independent data mart or 'spreadmart' if you will whose data cannot be reconciled with other spreadmarts."*

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Dealing with Spreadmarts

- Recognize that deploying a data warehouse doesn't necessarily eliminate spreadmarts or the mentality that created them. Understand the problem from the start and devise a strategy to deal with it.
- Good BI/analytical tools - well integrated with Excel
 - The success of your BI tool is inversely proportional to the number of spreadmarts that are fed from the DW
- Good training and selling
- Executive support - CIO, corporate auditors, business executives

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Challenges ahead....



- Managing constant change
- DW must react quickly to support business
- Constant need for more and more corporate performance metrics & to integrate more and more data.
- Gross margin analysis by product and region to determine what is moving and what factors (promotions) contribute to sales.
- 24 * 7 availability globally - Timely data is critical to maintaining low inventory levels and reacting quickly to changing stock levels.
- Dashboard & better reporting capabilities to chip away at spreadmarts

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Questions??.....



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