Enterprise Data Modeling

(Chapter 12)

Introduction

- Enterprise Data Model (aka EDM, Corporate Data Model): covers entire enterprise
- Used to:
  - Classify or index existing data
  - Provide a target for planning
  - Provide a context for new databases
  - Support evaluation of packages
  - Guide application data models
  - Specify common data formats and definitions
  - Specify organization-wide database (e.g. DW)
- Many have ended up on the shelf, perhaps due to lack of clear idea for how to use it

Problems of Data Mismanagement

- Application-centric database development
- Inconsistent data definitions by modelers working on different projects
- Duplication and inconsistency across multiple systems
- Poor overall data organization

Data Management

- Aim is to address data management issues organization-wide
- Early efforts suggested a single shared database or an integrated set of subject databases
- Today, most organizations have too many legacy systems to realistically contemplate replacing them all

Data Management (2)

- Role evolved to the equivalent of a town planner
  - Define a long term plan and ensure that new projects contribute to realization of that goal
  - Require that developers observe common data standards and definitions
- Package software generally works against the goal

Data Management (3)

- Recent change in philosophy:
  - Accept duplication, especially where packages such as CRM are involved
  - Implement mechanisms to ensure data synchronization (e.g. messaging systems)
- EDM is a central component
- Avoid radically new, innovative EDMs

Classification of Existing Data

- Lack of a centralized register of data is perhaps the greatest impediment to data management
- Just finding relevant data and adequate documentation can be a challenge
- Commercial data dictionaries or metadata repositories have been used with mixed success

Planning Target

- Choose a future point (typically 3-5 years out) and create an EDM of how it should be at that time
- Accept that large portions of EDM may not be implemented

Implementation Issues

1. Natural reluctance to replace current database that are working reasonably well
2. Building new applications that share data with existing ones perpetuates the old structures; yet building new databases compliant with the EDM increases redundancy
3. Packaged software may be the most cost-effective solution, and packages seldom match your EDM

Defining Scope and Interfaces

- What is included in EDM?
- What is excluded from EDM?
- With what must the EDM coexist?
- A conceptual-level EDM can aid in determining scope and overlap

Incorporating EDM into Development Life Cycle

- Develop “first cut” system data model that is a subset of the EDM
- Resolve data sourcing issues: reuse vs. “rolling your own”
- Project data model can be very helpful in planning and budgeting

EDM Guidance for Database Design

- Starting point for project data models
- Standard names and definitions for common entity classes and attributes
- Promotes adoptions of standard data values for common reference data
- Genuine consistency demands a high level of rigor

EDM Specification

- EDM often divided in subject areas to allow parallel development and simplified views
  - Difficulty lies in how to partition, particularly for intersection data
  - Alternative is to divide by subtype
- Development of master reference databases is not often successful (they get built and then are underutilized if used at all)

EDM Characteristics

- Level of detail depends on role in the data management strategy
- Typically 50-200 entity classes
- Easily becomes too complicated for business analysts to understand

Developing the EDM

- Usually a progressive process over a long time period
- Correct EDM for inconsistencies found in project models, and augment as missing elements are discovered
- Partition by subject area or subtype
- Avoid getting stalled looking for the perfect solution

EDM Inputs

- Existing models and databases
- Business objectives
- Subject Matter Experts
- External Standards (ISO, FIPS, industry, etc.)