A Universal Approach to Integration Using UNIVERSAL DATA MODELS
“No (person) is an island, entire of itself; every (person) is a piece of the continent, a part of the main”

John, Donne, English poet (1572-1631)
Agenda

- What are Universal Data Models?
- The need for Universal Data Models
- Examples of Universal Data Models
- How Universal Data Models can be used
- Application of Universal Data models
What are Universal Data Models?

- Best practice, template data models
  - Generally applicable to most enterprises
- Integrated data structures
  - Illustrating broad way to view data relationships
- Common ways to model information for:
  - General constructs
    - E.G. people, organizations, contact info, demographics, products, orders, shipments, invoicing, budgeting, accounting
  - Various industries
    - E.G., manufacturing, telecommunications, financial, travel, e-commerce, insurance, government,
Why Universal Data Models?

■ Why re-invent the wheel?
■ Why make the same mistakes?
■ Need a common language for storing and passing information
■ Need proven structures that have been through several iterations
■ Need integrated perspective
■ Need to produce business value!
A Practical Solution

“Universal Data Models”

- Common, re-usable data structures
- Facilitates common understanding of data
- Proven models for production systems
- 60% of common constructs apply
- Saves time and increases quality
Examples of Universal Data Models
People, Organizations, Parties and Roles
Storing information about a party once!

1. PARTY ROLE
   # PARTY ID
   # ROLE TYPE ID
   * FROM DATE
   o THRU DATE

2. PERSON ROLE
   - CUSTOMER CONTACT
   - SUPPLIER CONTACT
   - EMPLOYEE
   - CONTRACTOR

3. ORGANIZATION ROLE
   - SUPPLIER
   - PARTNER
   - INTERNAL ORGANIZATION

4. CUSTOMER
   - BILL TO CUSTOMER
     o CREDIT RATING
   - SHIP TO CUSTOMER
   - END USER CUSTOMER
   - PLACING CUSTOMER
   - PROSPECT
   - WEB VISITOR

5. PARTY
   # PARTY ID

6. PERSON
   - CURRENT LAST NAME
   - CURRENT FIRST NAME

7. ORGANIZATION
   - NAME
Integrated party data for government

**PARTY ROLE**
- # PARTY ID
- # ROLE TYPE ID
- # FROM DATE
  - o THRU DATE

**PERSON ROLE**
- WATCH LIST SUSPECT
- CRIMINALFELON
- ORGANIZATION MEMBER
- IMMIGRANT
- OTHER PERSON ROLE

**ORGANIZATION ROLE**
- TERRORIST ORGANIZATION
- NATION
- GOVERNMENT AGENCY
- COMMERCIAL ENTERPRISE
  - TRANSPORTATION ENTERPRISE
    - AIRLINES
    - CARGO
  - FINANCIAL ENTERPRISE
    - BANK
    - OTHER FINANCIAL INSTITUTION
- ASSOCIATION
- REGULATORY AGENCY
- ORGANIZATION UNIT
  - DEPARTMENT
  - DIVISION
- SUBSIDIARY
- PARENT ORG
- OTHER ORG UNIT
- OTHER ORGANIZATION ROLE

**PARTY**
- # PARTY ID

**PERSON**
- CURRENT FIRST NAME
- CURRENT LAST NAME
- SOCIAL SECURITY NUMBER

**ORGANIZATION**
- NAME
- FEDERAL TAX ID NUMBER

Proprietary information of Universal Data Models, LLC
Imagine knowing all communication events for a party together!

**EVENT**
- # EVENT ID
- o FROM DATETIME
- o THRU DATETIME
- o NOTE

**COMMUNICATION EVENT**
- CORRESPONDENCE
- TELE-COMMUNICATION
- INTERNET COMMUNICATION
- IN-PERSON COMMUNICATION
- OTHER COMMUNICATION EVENT

**TRANSACTION EVENT**
- FINANCIAL TRANSACTION
- TRANSPORTATION TRANSACTION
- CRIMINAL TRANSACTION
- SUSPICIOUS ACTIVITY
- LICENSING TRANSACTION
- OTHER TRANSACTION EVENT

**EVENT ROLE**
- # FROM DATE
- o THRU DATE

**PARTY**
- # PARTY ID

**PERSON**
- o CURRENT FIRST NAME
- o CURRENT LAST NAME
- o SOCIAL SECURITY NUMBER

**ORGANIZATION**
- * NAME
- o FEDERAL TAX ID NUMBER
Getting a Complete Picture!
All Activity for a Party!
How can these models be used?

- Common language to communicate
  - Within an enterprise
  - Across enterprises
- Common data structures to either store or pass information
- Overall data management – same data structures used across applications
- Jump-start database design efforts
- Jump-start data warehousing efforts
Application vendors beginning to use PARTY model

- Siebel 7.5 logical data model
  - Has PARTY and PARTY RELATIONSHIP construct
- Oracle Financials 11i
  - Uses PARTY and PARTY RELATIONSHIP construct
- Peoplesoft’s latest version
  - Uses PARTY and PARTY RELATIONSHIP constructs
- JD Edwards
  - Uses Address Book concept – very similar to PARTY
Application of Universal Data Models

- **Government**
  - Integrated information for counter-terrorism
  - Sharing government information for efficiencies
- **Corporate**
  - CRM - relationship development
  - Managing enterprise data as a corporate resource
Terrorism: A Call for Integration

- Terrorism: feeds on fear and disorganization
- Integrated data is a key
  - For example, an integrated Govt database
- National leaders focused on integration
- Terrorist Research Center
  - Most crucial defense is current and accurate information
Is Our Government Sharing Information?

- FBI Watchlist Info not shared
  - 2 hijackers were on this list
- Immigration not available to airlines
  - 2 hijackers had overstayed visas
- Leader have commented that information is in dozens of different databases (or more)
- Data not shared between FBI, CIA, NSA, INS, local enforcement, and more
- Many efforts underway
  - Foreign Terrorist Tracking Task Force established to help
Common National Data Model

Data model for common understanding.

How can agencies share if their data is so different?

Sharing of people and organization profiles

Key entities

- PARTY, PARTY ROLE, PARTY RELATIONSHIP, EVENT
Possible Common National Data Model

PARTY ROLE
- PERSON ROLE
  - WATCH LIST
  - SUSPECT
- ORGANIZATION ROLE
  - TERRORIST
  - ORGANIZATION
- NATIONAL
- GOVERNMENT AGENCY
- COMMERCIAL ENTERPRISE
- AIRLINES
- CARGO

EVENT ROLE
- PARTY ROLE
  - for
  - acting as

ROLE TYPE
- in
- of
- within the context of

PARTY RELATIONSHIP
- TERRORIST AFFILIATION
- GOVERNMENT AGENCY
- WATCH LIST
- SUSPECT

EVENT
- COMMUNICATION EVENT
- TRANSACTION EVENT

IMMIGRANT
- CRIMINAL
- FELON

NATION
- GOVT

MEMBERSHIP
- ORGANIZATION

# PARTY ID
- PERSON
- ORGANIZATION

Proprietary information of Universal Data Models, LLC
Universal Data Models Applied for Commercial Enterprises
Data Architecture used at Financial Services Organization

1 COMMON, INTEGRATED DATABASE

BASED UPON UNIVERSAL DATA MODELS

- TRANSACTION
- PARTY RELATIONSHIP
- PARTY ROLE
- PARTY

DATA Marts
- HR DATA MART
- FINANCIAL DATA MART
- SALES DATA MART
- DATA WAREHOUSE

FOR ANALYSIS

WEB INTRANET

INFORMATION DIRECTORY

APPLICATIONS
- CUSTOMER SERVICE
- SALES
- ACCOUNTING
- ORDER PROCESSING
- PRODUCT CONFIGURATION
- OTHER DATA

SYNCHRONIZATION, INTEGRATION

DATA ISSUES

Data Stewards

Proprietary information of Universal Data Models, LLC
Manufacturing enterprise
Used Virtual Enterprise Data Architecture

- Synchronized customer and product info
- Universal method for passing info

ACCOUNTING
CUSTOMER
SERVICE
SALES
ACCOUNTING
ORDER
PROCESSING
PRODUCT
CONFIGURATION
OTHER
DATA
STORES

APPLICATIONS

INFORMATION
DIRECTORY

SYNCHRONIZATION INTEGRATION LAYER, BASED UPON UNIVERSAL DATA MODELS

DATA ISSUES

Resolutions of data issues

Data Stewards

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Questions???

- Universal Data Models
  - [www.universaldatamodels.com](http://www.universaldatamodels.com)
  - info@univdata.com
- Books [www.wiley.com/compbooks](http://www.wiley.com/compbooks) or [silverston.wiley.com](http://silverston.wiley.com)
  - Electronic products for generic models and for each industry
- 2002 DM Review article series on Universal Data Models
- Seminars - public course “Universal Data Models”
- Software- Universal Data Models repositories for Erwin
- Consulting- 10 day jump-starts – an enterprise data model in 10 days