Solving Logistics Inventory Control Problems

(Database Schema Aggregation)

Course No. 467 (formerly 373)

FOR WHOM INTENDED This course is for individuals who are involved in logistics inventory control or general database development. It is applicable to such areas as Defense, Manufacturing, Utilities, Electronics, Automotive, Medical, Telecommunications, Computers, Aerospace and Universities.

BRIEF DESCRIPTION OF COURSE Large organizations may encounter problems with multiple database systems that use schema instances that lack interoperability and visibility. The source of this problem can frequently be traced back to organizational mergers and/or prior budget constraints that prevented the migration and merging of existing datasets. This then leads to a database instance with a standalone schema for each functional area of the organization. It is not uncommon to find a variety of database application server types (Oracle, SQL Server and MySQL) distributed among the functional areas of the organization.

Database schema aggregation provides a short and long term solution to this problem. Schema aggregation enables the organization to focus on the high value data sets by creating an optimized and amalgamated view of the data. This view is realized through traditional tables that hold ephemeral instances of the data that have been pulled from the source databases and transformed into the aggregate tables. The design of an aggregate schema provides an opportunity to sub-model the datasets that are currently organized by functional area into a comprehensive data hierarchy that avoids ambiguity.

In the short term, aggregation creates a unified data view while working with the existing database systems. In the long run it provides a road map for the eventual migration of the datasets to a global instance that requires less overhead to maintain.

CERTIFICATE PROGRAMS This course may be used as an elective for any TTi specialist certificate program.

PREREQUISITES There are no definite prerequisites for this course. However, this course is aimed toward individuals involved in a related technical field.

TEXT Each participant will receive a bound set of course notes, which contains most of the viewgraphs used during the presentation.

COURSE HOURS, CERTIFICATE AND CEUs Open courses meet seven hours per day. Upcoming presentation dates can be found on our current open course schedule. Class hours/days for on-site courses can vary from 14–35 hours over 2–5 days as requested by our clients. Upon successful course completion, each participant receives a certificate of completion and one Continuing Education Unit (CEU) for every ten class hours.

For schedules, general information and registration forms, see TTi's web site.

Course Outline

Overview of the problem
- Heterogeneous Databases
  - Oracle
  - SQL Server
  - MySQL
  - M204
  - Desktop Databases
- Overlapping Data Sets
  - Schema Ambiguity
- Missing Business Logic
  - Needed: modular business logic units that abstract inventory control
- Missing Work Flow
  - Needed: work flow that drives business logic for full inventory life cycle

Table and Attribute Inventory
- Data Center Surveys
  - Where is the data?
  - What is the state of the data?
- Access Control
  - Database security credentials
  - Subnet access
  - Router rules or tunnels
- Data Drops
  - Are read only data exports available?

Table and Attribute Aggregation
- Logical Integration
  - Logical Data Organization
- Global Schema
  - Abstract schema view
- Normalization
  - Eliminating Ambiguity

Data Migration
- Schema Transformation
  - Scripting
  - Middleware
- Extension Transformations
  - Deriving Constructs

Data Return
- Phone Home
  - Reverse transformation
- Equivalence-Preserving
  - Defining rules that preserve equivalence in abstracted data

Summary, Discussion

Award of Certificates for Successful Completion

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