TDWI Data Virtualization
Solving Complex Data Integration Challenges
Course Outline

Module 1 - Data Virtualization Concepts and Principles

- Data Virtualization Basics
  - Data Virtualization Defined
  - Virtualization vs. Materialization
  - Virtualization vs. Synchronization
  - Virtualization vs. Federation
  - History and Evolution
- Why Data Virtualization?
  - Business Agility
  - The Data Virtualization Business Case
  - The Data Virtualization Technical Case
- The Data Virtualization Foundation
  - Views
  - Query Optimization
  - Data Services
  - A "Bird's-Eye" View
- Virtualize or Materialize?
  - Decision Factors
  - Business Considerations Discussion

Module 2 - Data Integration Architecture

- Integration Architecture Concepts
  - Integration Architecture Defined
  - Data Sources, Middleware, and Data Consumers
  - You Have It (Whether Defined or Not)
- Data Virtualization Architecture Examples
  - Ministry Social Services Logical Architecture
  - Energy Industry Logical Architecture
  - Energy Industry Technical Architecture
  - Financial Services Logical Architecture
- Virtualize or Materialize?
  - Data Source Considerations Discussion

Module 3 - Data Virtualization in Integration Architecture

- Virtualization in Data Integration Projects
  - Data Virtualization Use Cases
- Data Warehousing Use Cases

- o Data Warehouse Augmentation
- o Data Warehouse Federation
- o Hub and Virtual Spoke
- o Complement ETL
- o Data Warehouse Prototyping
- o Data Warehouse Migration
- Data Federation Use Cases
  - o Data Services
  - o Virtual Data Marts
  - o Virtual Operational Data Store (ODS)
- MDM and EIM Use Cases
  - o Master Data Hub Extension
  - o Master Data Services
  - o Virtual Data Layer
  - o Enterprise Data Services
- More Data Virtualization Applications
  - o Virtualization and Big Data
  - o Virtualization and Cloud Data
- Virtualize or Materialize?
  - o Data Consumer Considerations Discussion

Module 4 - Data Virtualization Platforms
- Platform Requirements
  - o Data and Information Services
  - o Development Environment
  - o Management Functions
- Platform Capabilities
  - o Access
  - o Delivery
  - o Transformation
  - o Abstraction
  - o Federation
  - o Query Optimization
  - o Caching
  - o Security
  - o Quality
  - o Governance
- Platform Variations

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- o Stand-Alone Data Virtualization
- o Extension of BI or Data Warehousing Platform
- o Some Vendors

Module 5 - Implementing Data Virtualization
- Analysis
  - o Goals and Purpose
  - o Scoping
  - o Data Source Discovery
  - o Source Data Analysis
- Design and Modeling
  - o Data Source Layer
  - o Data Integration Layer
  - o Publish and Access Layer
- Development
  - o Connect to Data Sources
  - o Build the Views
  - o Test and Validate
  - o Publish and Connect Applications
- Deployment
  - o Acceptance Testing and Production
- Operation
  - o Runtime Operations
  - o Management and Governance
- Virtualize or Materialize?
  - o A Decision Tool

Module 6 - Getting Started with Data Virtualization
- Skills and Competencies
  - o Capabilities and Expertise
- Human Factors
  - o People and Data Virtualization
- Goals and Expectations
  - o Data Virtualization Readiness
  - o Choosing a First Data Virtualization Project
  - o Planning a Data Virtualization Roadmap
- Best Practices
  - o What Works in Data Virtualization

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