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)

Reference Architectures
- Forrester’s Data Architecture Reference Model
- Forrester’s IaaS Architecture
- Gartner’s Data Services Layer Architecture
- IBM’s BI Reference Architecture

Integration Architecture Examples
- Example 1 – Ministry Social Services Logical Architecture
- Example 2 – Energy Industry Logical Architecture
- Example 3 – Energy Industry Technical Architecture
- Example 4 – 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
- Data Warehouse Augmentation
- Data Warehouse Federation
- Hub and Virtual Spoke
- Complement ETL
- Data Warehouse Prototyping
- Data Warehouse Migration

Data Federation Use Cases
- Federated Views
- Data Services
- Data Mashups
- Caches
- Virtual Data Marts
- Virtual Operational Data Store (ODS)

MDM and EIM Use Cases
- Master Data Hub Extension
- Master Data Services
- Virtual Data Layer
- Enterprise Data Services

More Data Virtualization Applications
- Virtualization and Big Data
- Virtualization and Cloud Data

Virtualize or Materialize?
- Data Consumer Considerations Discussion

Module 4. Data Virtualization Platforms

Platform Requirements
- Data and Information Services
- Development Environment
- Management Functions

Platform Capabilities
• Access
• Delivery
• Transformation
• Abstraction
• Federation
• Query Optimization
• Caching
• Security
• Quality
• Governance

Platform Variations
• Stand-Alone Data Virtualization
• Extension of BI or Data Warehousing Platform
• Embedded and Appliances
• Some Vendors

Module 5. Implementing Data Virtualization

Analysis
• Goals and Purpose
• Scoping
• Data Source Discovery
• Source Data Analysis

Design and Modeling
• Data Source Layer
• Data Integration Layer
• Publish and Access Layer

Development
• Connect to Data Sources
• Build the Views
• Test and Validate
• Publish and Connect Applications

Deployment
• Acceptance Testing and Production

Operation
• Runtime Operations
• Management and Governance

Virtualize or Materialize?
• A Decision Tool
Module 6. Getting Started with Data Virtualization

Skills and Competencies
- Capabilities and Expertise

Human Factors
- People and Data Virtualization

Goals and Expectations
- DV Readiness
- Choosing a First DV Project
- Planning a DV Roadmap

Best Practices
- What Works in DV
- Mistakes to Avoid