Operational Data Architecture

Part 2:

Architectural Data Management

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Module 0: About the Course (2 min)

Module 1: Distribution, Data Silos, and Data Conflicts (47 min)

- Managing Distributed Data
    - Section Overview
    - Scenario 1 – Distributed Global ODS
    - Scenario 2 – Bi-Directional
    - Scenario 3 – Uni-Directional Replication
    - Scenario 4 – Regional Distributed
    - Scenario 5 – Regional Two-Way Distributed
    - Managements Tasks
    - Summary
- Managing Homogenous & Heterogeneous Data
    - Section Topics
    - What are Homogenous & Heterogeneous Data?
    - What do They Look Like?
    - Rolling Variances for Heterogeneous & Homogenous Data
    - Population Variances for Heterogeneous & Homogenous Data
    - Normal Distribution for Heterogeneous & Homogenous Data
    - Management Tasks for Heterogeneous & Homogenous Data
    - Typical Architecture
    - Alternate Architecture
    - Revised Alternate Architecture
    - Summary
- Managing Conflicting Database Schema
    - Topics We Will Cover
    - Schema Integration Architecture
    - Schema Integration Flow Chart
    - Example Subject Area
    - Microsoft Common Data Model
    - References
    - Summary
- Module Summary

Module 2: Data Integration Architecture (51 min)

- Managing Master & Reference Data
    - Topics We Will Discuss
    - Tool Requirements
    - Master & Reference Data Processes
    - Example 1 – Product Management
    - Example 2 – Vendor Management
    - Example 3 – Customer Management
    - Example 4 – Location Management

- o Microsoft Master Data Services
- o Repository Management with MDS
- o Entity Management with MDS
- o Reference Data Repository
- o Attribute Management with MDS
- o Relationship Management with MDS
- o Management Tool Capabilities
- o Let's Not Forget Data Modeling Tools
- o Summary
- Managing Semantic Models
  - o Topics We Will Discuss
  - o What is a Semantic Model?
  - o Semantic Graph Databases
  - o What is an Ontology
  - o A simple Sales Ontology
  - o What is a Taxonomy?
  - o Knowledge Graphs
  - o How Do We Manage Semantic Models, Ontologies, & Taxonomies?
  - o Entity Relationships Data Modeling Tools
  - o Managing Conflicting Semantics
  - o Conflicting Semantic – Solution
  - o A Mockup of a Semantic Query Tool
  - o Semantic Data Modeling Tools
  - o Summary
- Module Summary

Module 3: Technical Operational Data Architecture (60 min)

- Operational Data Store
  - o Section Overview
  - o Physical ODS
  - o Virtual ODS
  - o Hybrid ODS
  - o Summary
- Publish/Subscribe Paradigm
  - o Message Broker Architecture - Internal
  - o Message Broker Architecture – Corp to Corp
  - o Summary
- Operational Data Hub
  - o What is a Data Hub?
  - o Data Hub – High Level Architecture
  - o Summary
- Service Oriented Architecture
  - o What is a Service Oriented Architecture?
  - o Service Broker Within a Corporate Architecture
  - o Service Broker With Companies as Subscribers

- o Service
  - o Business Logic
  - o Service Broker
  - o Service Catalog
  - o Service Subscribers
  - o Communications Interface
  - o Summary
- Related Data Integration Technologies
  - o Section topics
  - o ETL – Extract, Transform, & Load
  - o Bi-Directional Replication
  - o Combined Architectures
  - o Data Virtualization
  - o Data Federation, Federated Customer Data
  - o Data Federation – Vertical Partitioning
  - o Data Federation – Horizontal Partitioning
  - o Summary
- Module Summary

Module 4: The Physical Architecture (50 min)

- Case Study
  - o Topics
  - o Company Background – Acme Euro Sweets
  - o Current State Architecture (High Level)
  - o Current State Issue – Logistics (Redundant Routes)
  - o More Current State Issues
  - o Future State Requirements
  - o Future State – Logistics Consolidation & Price Reduction
  - o Future State – More Logistics (Europe)
  - o Summary
- Architecture Requirements
  - o Topics
  - o Objectives
  - o Global ETL Architecture
  - o Architecture Design Artifacts
  - o Zachman Framework
  - o Begin Process Design Artifacts
  - o Data Model Design Artifacts
  - o Global Data Quality and Governance Model
  - o Service Broker Architecture
  - o Service Broker Architecture Detail
  - o Summary
- Modeling Your Processes
  - o Topics
  - o Typical Processes
  - o Hierarchical Process Diagrams

- o Hierarchical Sales Process Diagrams
- o Process/Data Flow Diagrams
- o Sales Data Flow Diagrams
- o Sequence / Event Diagrams
- o Sales Sequence / Event Diagrams
- o Summary
- Module Summary

Module 5: Implementation & Management (40 min)

- Identifying Architecture Issues
  - o Topics
  - o Deeper Analysis Identifies Issues
  - o Current State Architecture Detail
  - o Current State FTP Detail
  - o Current State Deliverables
  - o Summary
- Current State, Future State, & Gap Analysis
  - o Topics Covered
  - o Project planning Strategy
  - o Current State, Future State, and Gap Analysis Report
  - o Current State Analysis Report
  - o Future State Analysis (Business Processes)
  - o Gap Analysis
  - o Future State Architecture
  - o Roadmap
  - o Summary
- Implementation Timeline
  - o Topics
  - o Let's Look at the Roadmap Again
  - o Roadmap – Part 1
  - o Roadmap – Part 2
  - o Project Plan – Implement Project Office
  - o Summary
- Managing the Architecture
  - o Many Systems, Many Databases
  - o What is Data Sprawl & Diversity?
  - o How do We Manage Data Sprawl & Diversity?
  - o How do We Maintain an Adaptable and Sustainable Architecture?
  - o Summary
- Module Summary

Module 6: Summary, Conclusions, & Next Steps (4 min)

- Course Overview
- Conclusions
- Next Steps