

# Deciphering Data Architecture

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## DA-05 Deciphering Data Architectures

### Module 0: About the Course (2 min)

### Module 1: Big Data and Data Architectures (23 min)

- Big Data
  - What is Big Data and How Can It Help You?
  - The Six “Vs” of Big Data
  - Big Data Processing
  - Enterprise Data Maturity Stages
- Data Architectures
  - The Importance of Data Architecture
  - Data Architecture Defined
  - Comparison of Data Architecture
  - Conducting an Architecture Design Session (ADS)

### Module 2: Common Data Architecture Concepts (85 min)

- Relational Data Warehouse (RDW)
  - Relational Data Warehouse Overview
  - What a Relational Data Warehouse is Not?
  - What is a Relational Data Warehouse?
  - Definition
  - Not for OLTP
  - Based on Relational Model
  - Called a Data Warehouse
  - SVOT
  - Data Pipelines
  - Why Use a Relational Data Warehouse? – Part 1
  - Why Use a Relational Data Warehouse? – Part 2
  - Why Use a Relational Data Warehouse? – Part 3
  - Top-down Approach
  - Relational Data Warehouse Drawbacks
- Data Lake
  - What is a Data Lake?
  - Why Use a Data Lake?
  - Bottom-up Approach
  - Data Lake Design
- Data Storage Solutions
  - Data Marts
  - Operational Data Storage (ODS)
  - Data Virtualization and Data Federation
  - Data Virtualization as Alternative
  - Data Virtualization Use Cases
- Approaches to Design



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- OLTP vs OLAP
- Operational and Analytical Data
- Approaches to Data Modeling
  - Relational Modeling: Part 1
  - Relational Modeling: Part 2
  - Dimensional Modeling: Part 1
  - Dimensional Modeling: Part 2
  - Star Schema
- Approaches to Data Ingestion
  - ETL vs ELT
  - Batch vs Real-Time Processing: Part 1
  - Batch vs Real-Time Processing: Part 2

### Module 3: Modern Data Warehouse (24 min)

- MDM Architecture
  - MDW Range of Analytics
  - MDW High-level Architecture
  - FIVE MDW Stages
  - Data Lake with Data Warehouse Use Cases
  - Modern Data Warehouse Use Cases
  - Pros and Cons of the MDW Architecture
- Stepping Stones to the MDW
  - Enterprise Data Warehouse Augmentation
  - Temporary Data Lake Plus EDW
  - All-in-one

### Module 4: Data Fabric (14 min)

- What is Data Fabric? – Part 1
- What is Data Fabric? – Part 2
- Data Fabric High-level Architecture
- Why Data Fabric?
- Data Fabric Drawbacks
- Data Fabric Architecture
- Intelligent Data Fabric

### Module 5: Data Lakehouse (20 min)

- Data Lakehouse Historical Timeline
- Data Lake: Part 1
- Data Lake: Part 2
- Data Lakehouse High-level Architecture



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- Use Cases for Data Lakehouse
- Data Lakehouse Architecture
- Data Lakehouse Needs a Relational Serving Layer
- Concerns Skipping Relational Data Warehouse: Part 1
- Concerns Skipping Relational Data Warehouse: Part 2

### Module 6: Data Mesh Foundation (41 min)

- Data Mesh Foundation
  - Traditional Centralized vs Data Mesh Decentralized
  - Data Mesh
  - Data Mesh in Hype Cycle
  - Data Mesh – Domain Ownership
  - Data Mesh – Data as a Product
  - Data Mesh – Self-Serve Data
  - Federated Computational Governance
  - Data Mesh Architecture
  - Use Cases for Data Mesh
  - Minimum Viable Mesh (MVM)
  - What are Data Domains?
  - What are Data Products?
- Data Mesh Foundation cont.
  - Example Healthcare Domains and Products Within Them
  - Domain-oriented Analytical Data Types
  - Data Mesh – Logical Architecture
  - Data Mesh Topologies
  - Data Mesh vs Data Federation

### Module 7: Should You Adopt a Data Mesh (25 min)

- Data Mesh Myths
- Data Mesh Myths: Example
- Data Mesh Concerns
- Common Data Mesh Exceptions: Part 1
- Common Data Mesh Exceptions: Part 2
- Should You Adopt a Data Mesh?
- Keys for a Successful Data Mesh
- Data Mesh Future: Part 1
- Data Mesh Future: Part 2
- When to Use Each Architecture?
- Contact Info