

CH06 - Data Architecture



หลักสูตร วน.ม.เทคโนโลยีธุรกิจดิจิทัล มหาวิทยาลัยราชภัฏจันทรเกษม



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AGENDA

- Introduction to Data Architecture
 - History and Evolution of Data Architecture
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 - Hybrid Dimensional-Normalized Model
 - Master Data Management (MDM)
 - Balancing Data Warehousing and Application-Specific Reporting
- ผู้ช่วยศาสตราจารย์ ดร.สุรชาติ บัวชุม

Introduction to Data Architecture

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- **Definition:** Data architecture serves as a blueprint for aligning an organization's data assets with its business strategy.
- **Purpose:** Ensures effective data management practices to support business goals and decision-making.

History and Evolution of Data Architecture

History and Evolution of Data Architecture

- **Historical Perspective:** Understanding the evolution of data architecture helps appreciate modern practices and their importance in BI.
- **Development Over Time:** From simple data storage solutions to complex, integrated systems.

Types of Data Architecture

Types of Data Architecture

- **Analytical Data Architecture:** Focuses on organizing data to support business analysis and decision-making.
- **Operational Data Stores (ODS):** Used for routine tasks and reporting, storing operational data temporarily.

Key Components of Analytical Data Architecture

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- **Data Warehouses:** Central repositories for integrated data from multiple sources.
- **Data Marts:** Subsets of data warehouses tailored for specific business lines or departments.
- **BI and Analytics:** Tools and applications for data analysis, reporting, and visualization.

Data Workflows and Management

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- **Data Flow:** From source systems to transformation processes, storage in data warehouses, and consumption in BI applications.
- **Workflow Types:** Different workflows manage how data is processed, transferred, and utilized within the architecture.
- **Workflow Optimization:** Techniques for improving efficiency and accuracy in data workflows.

Operational Data Stores (ODS)

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- Definition: Databases designed for integrating and consolidating data from multiple sources for operational use.
- Functionality: Supports real-time data integration and routine operational reporting.

Hybrid Dimensional-Normalized Model

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- Concept: Combines elements of both dimensional and normalized models to leverage the strengths of each.
- Advantages: Offers flexibility, supports complex queries, and enhances data integrity.

Master Data Management (MDM)

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- Role of MDM: Ensures consistency and accuracy of key business entities across the enterprise.
- Benefits: Maintains data quality and provides a single view of critical data.

Balancing Data Warehousing and Application-Specific Reporting

Balancing Data Warehousing and Application-Specific Reporting

- **Approach:** A balanced approach that blends data warehousing and application-specific BI environments.
- **Objective:** Ensures consistent information and avoids redundant data sourcing, providing accurate and comprehensive business insights.

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Q&A

