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The Power of Data Virtualization

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The Business Inflexibility Trap

Inflexibility: The essential business problem

With agility most (technical) problems are solvable

“With enough eyes, all bugs are shallow”

Agility is Key

Because change is the only constant

Technologies
Requirements
Regulations
Standards
Models
Processes
???

What is the Single Most Important Problem that Prevents Agility?

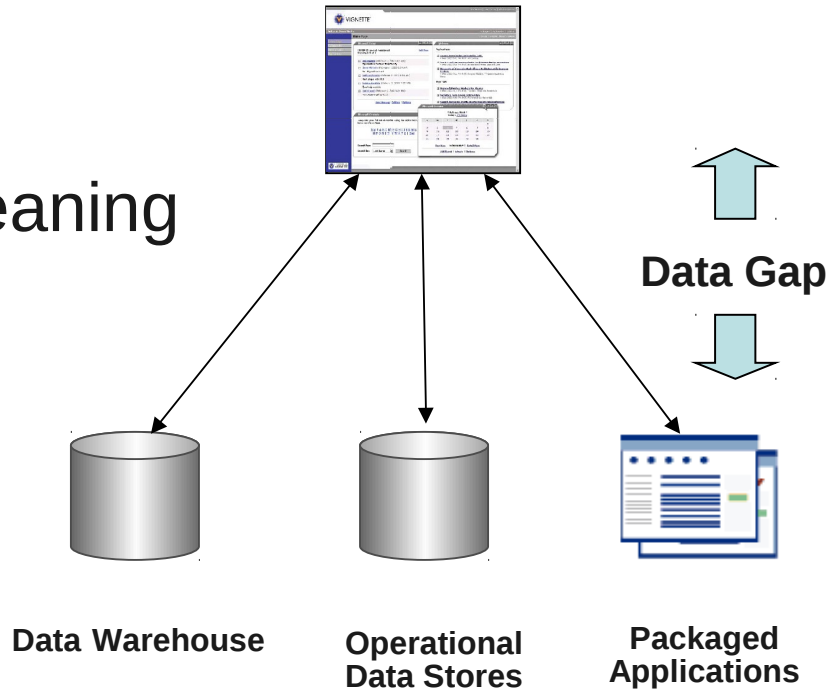
Legacy Data!

Who has their enterprise data stored in legacy systems?

Legacy Data Integration is THE key

Why is Data so hard?

- Different physical structure
- Different terminology and meaning
- Different interfaces
- Different owners (policy)
  - Security

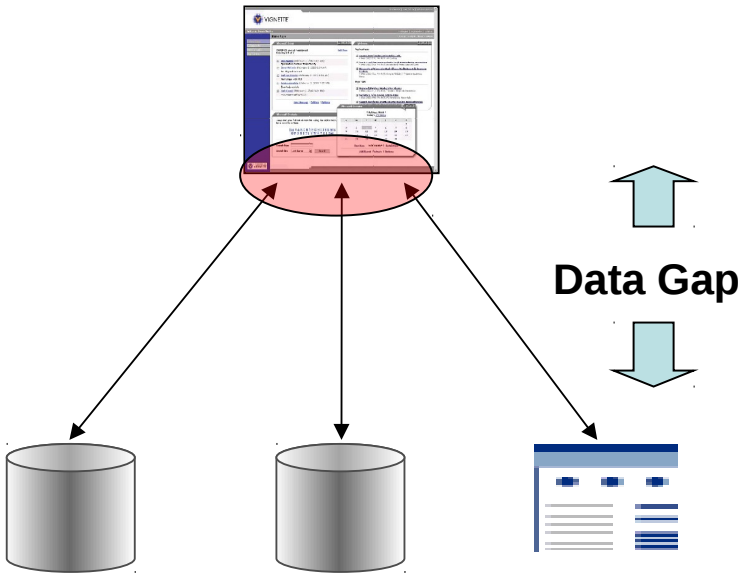


Tremendous value in existing assets, but...

Time consuming and costly to access

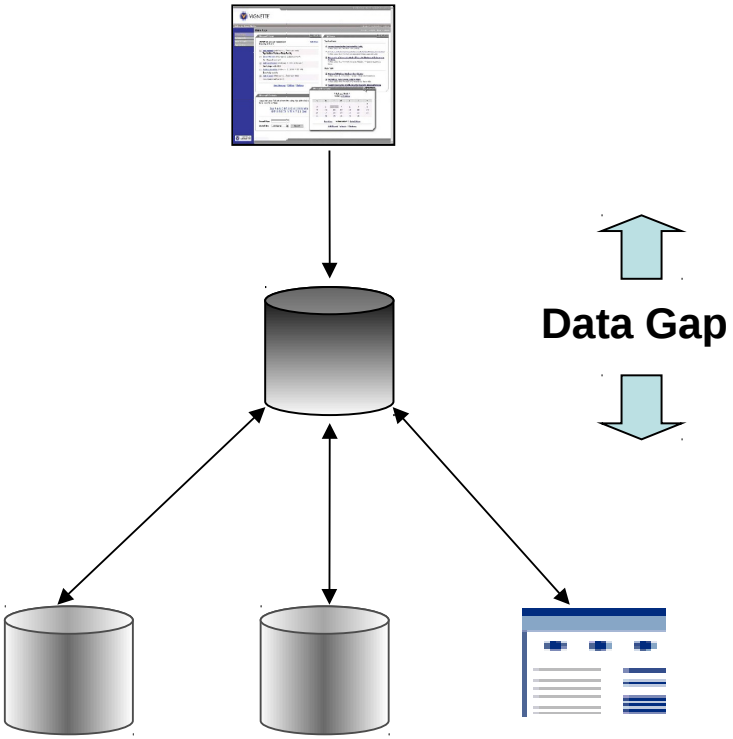
Traditional Solutions

Custom Coding



- Time consuming – difficult/costly
- No re-use of data logic
- Any changes break the application

Replicate/Data Mart

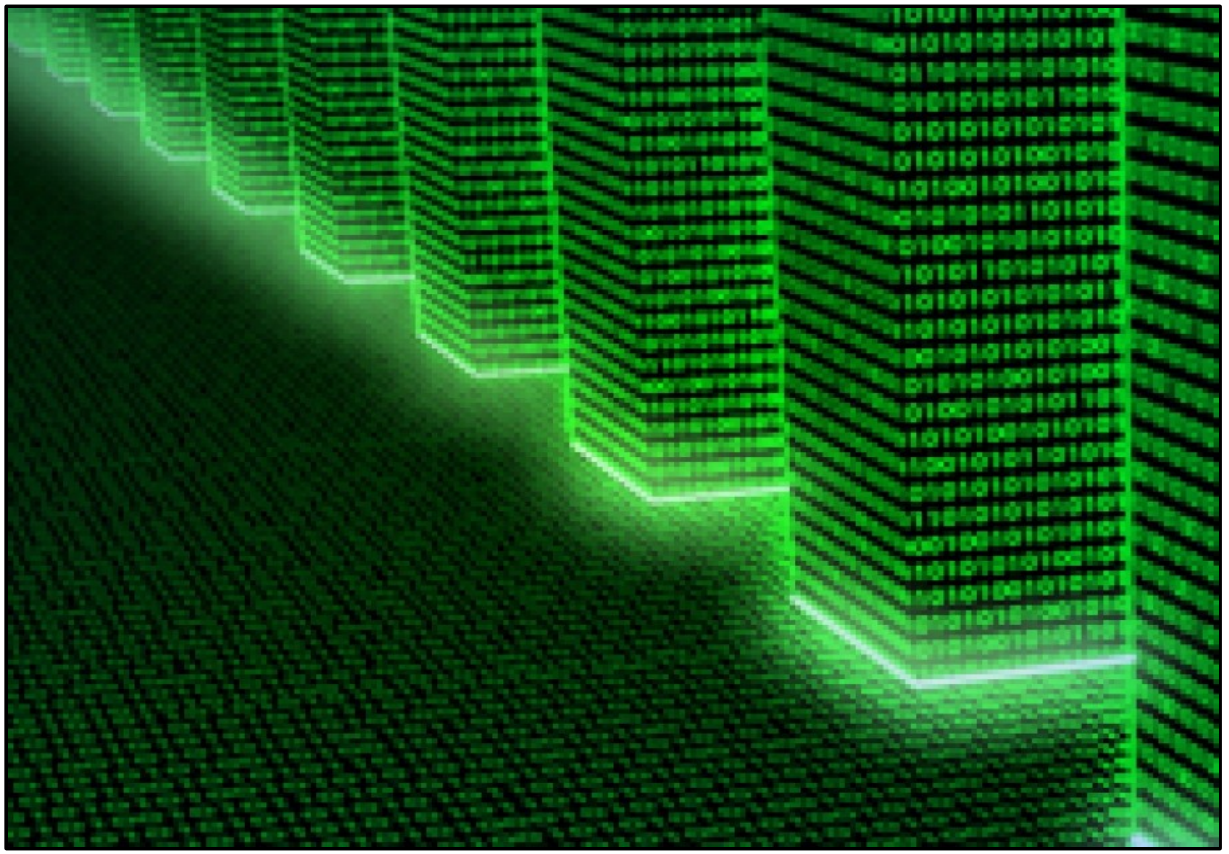


- Data not fresh
- Costly – additional licenses
- More copies of data = more silos
- Governance/security

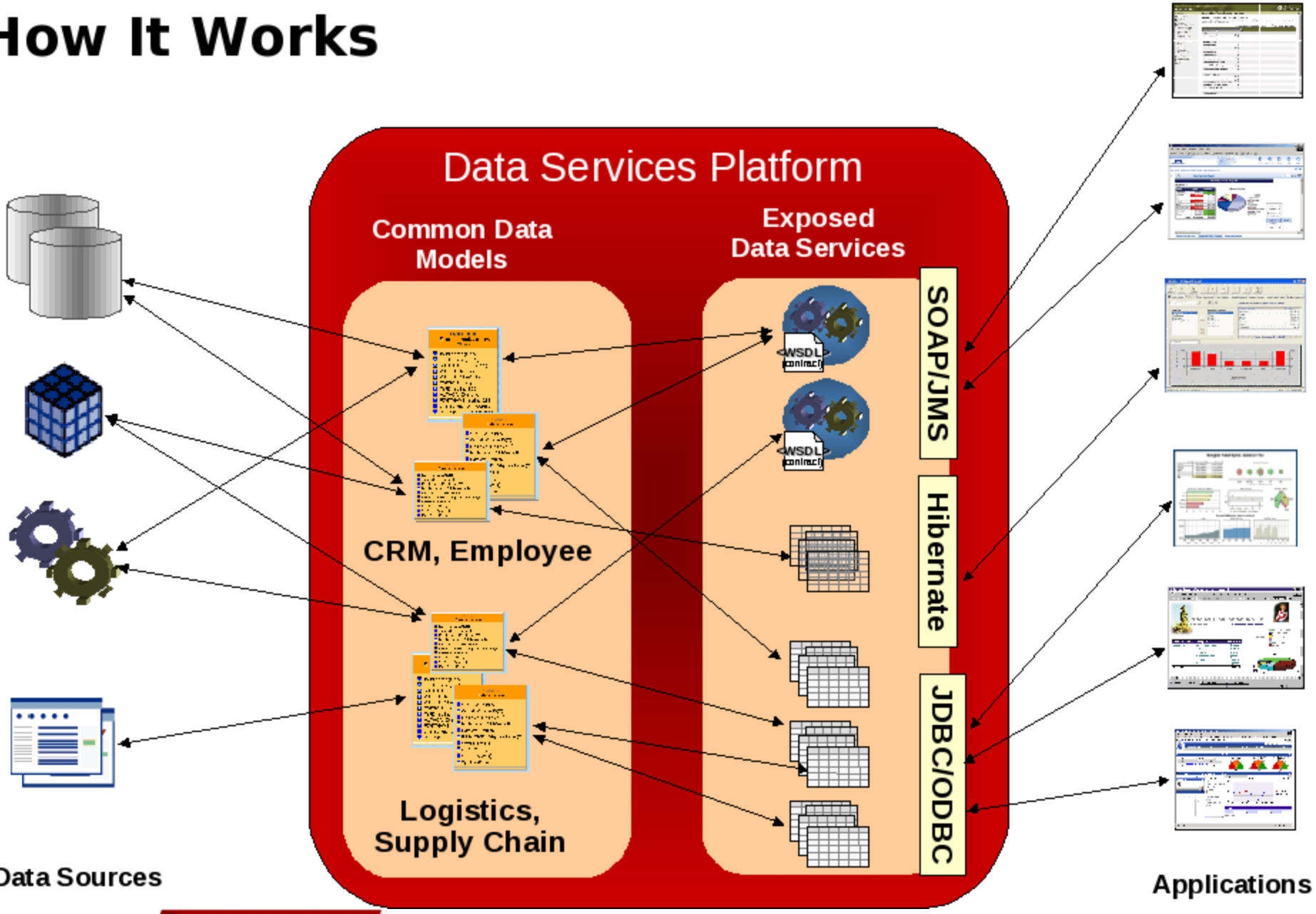
Don’t move the data, *virtualize* it

Agility at its BEST!

What is Data Virtualization?



How It Works


Data Services Platform
Common Data Models
Exposed Data Services
SOAP/JMS
Hibernate
JDBC/ODBC
WSDL contract
WSDL contract
CRM, Employee
Logistics, Supply Chain
Data Sources
Applications

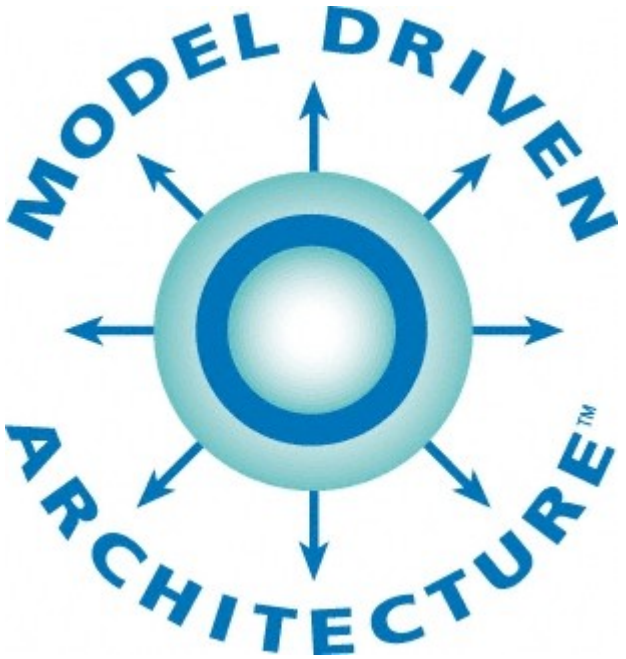
Essentials of Data Virtualization System and Use Cases

Essentials of Data Virtualization System

- Exposes the non-relational sources as relational
- Standard SQL based data access
- Consumable as web service
- Encapsulates access, transform and view creation in one
- Real time access to legacy data
- Performance is comparable

It is not database virtualization

To be truly Agile, you also need...



Model Driven Development

- Enables tool driven development
- Faster
- Cost effective
- Increased quality
- Less error prone
- Captures the domain knowledge
- Focus on problem than technology

Data Vitualization Use Cases

- Legacy Data Integration
- Virtual Views
- Materialization
- Dynamic Views

Reports, Dashboards, BI Integration

Most common use cases

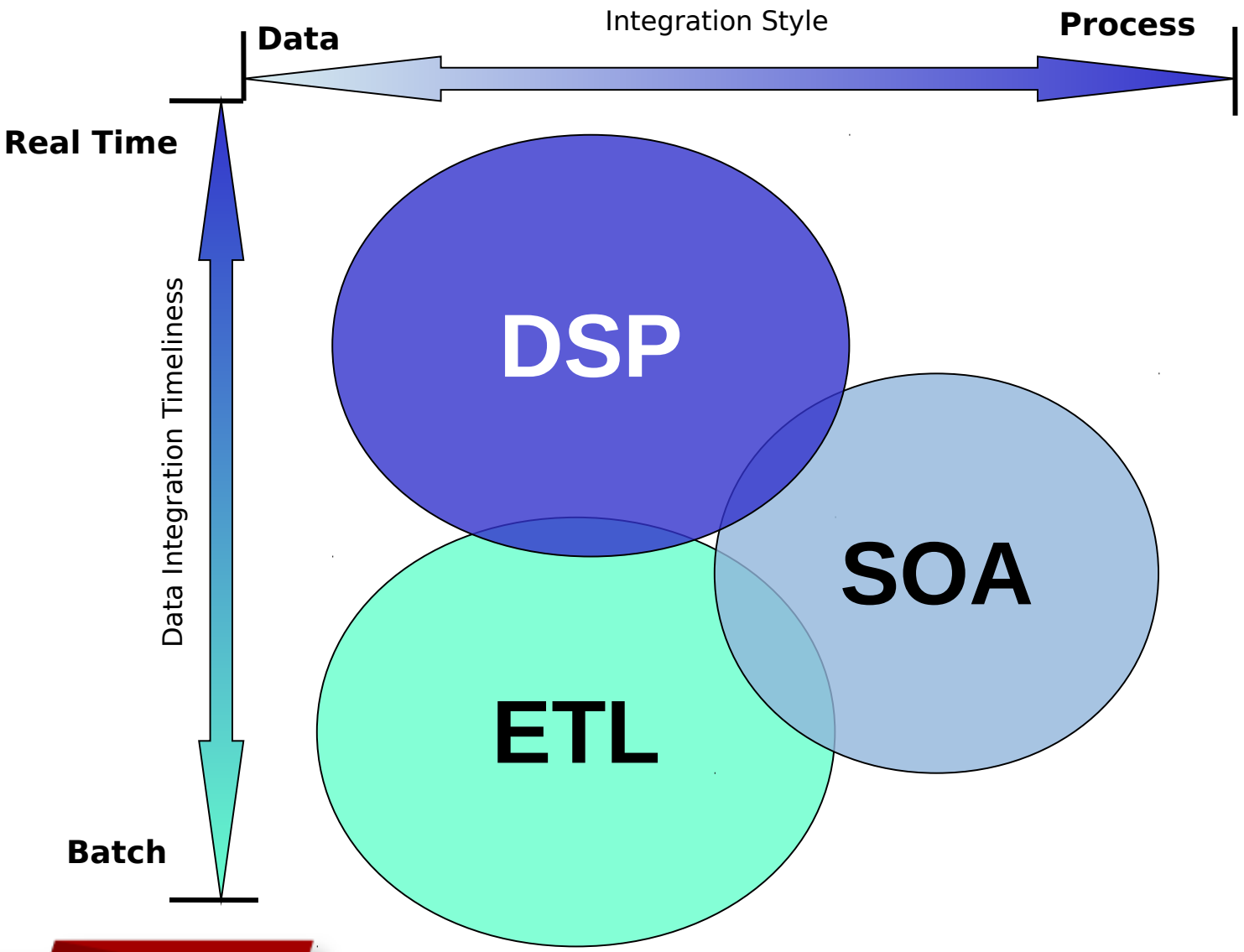
- Tremendous value in integrating legacy and real time data
  - Cross business reports
  - Operational Analytics
  - Business Intelligence
  - Dashboards/KPIs
- Data warehouse extension

Reports, Dashboards, BI Integration

Advantages

- Unified Access to all the data
- Access to real time data
- Reduced cost of development and maintenance
- Data Governance

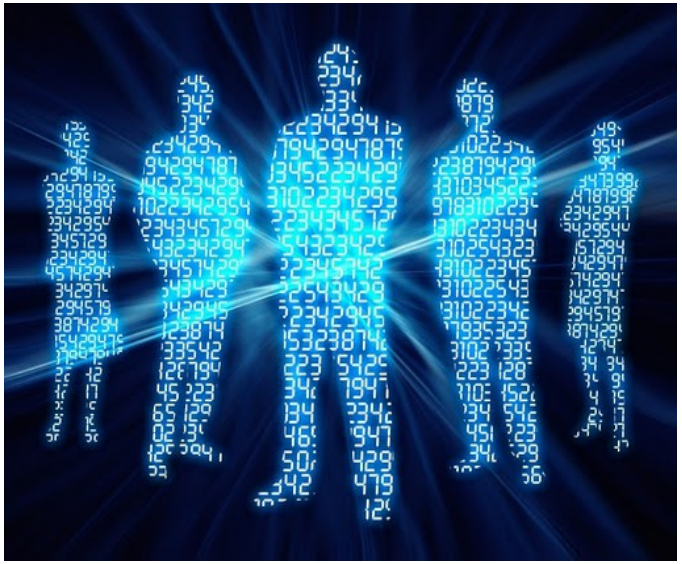
Topology of Data Integration



Virtual Views

Issues

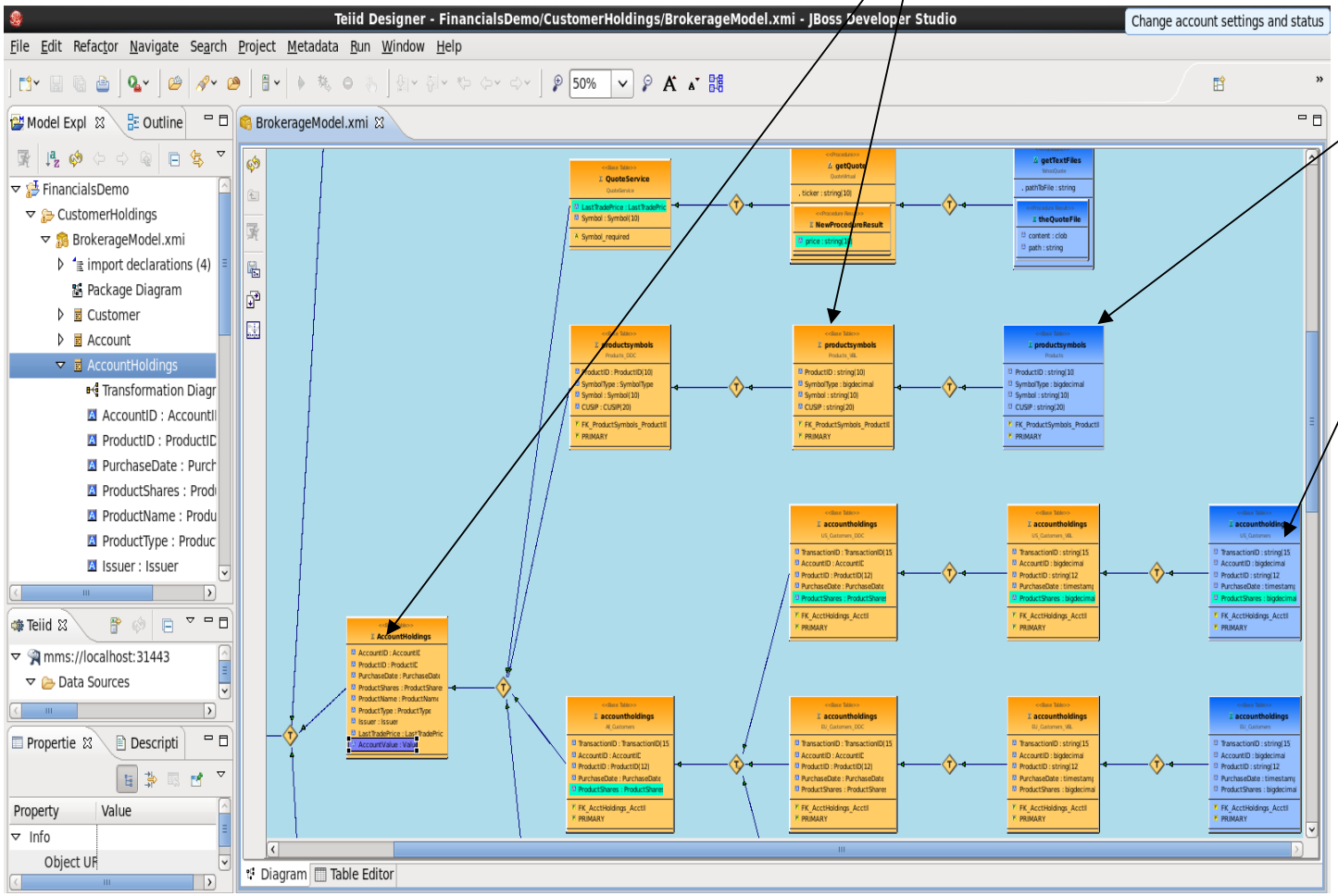
- How to grow organization while leveraging investments in the current systems (reuse)
- How to support M & A
- Data Standards/Dictionary
- Reduce redundancy in data
- Single View of Data



Virtual Views

Logical Models

Physical Models representing actual data sources



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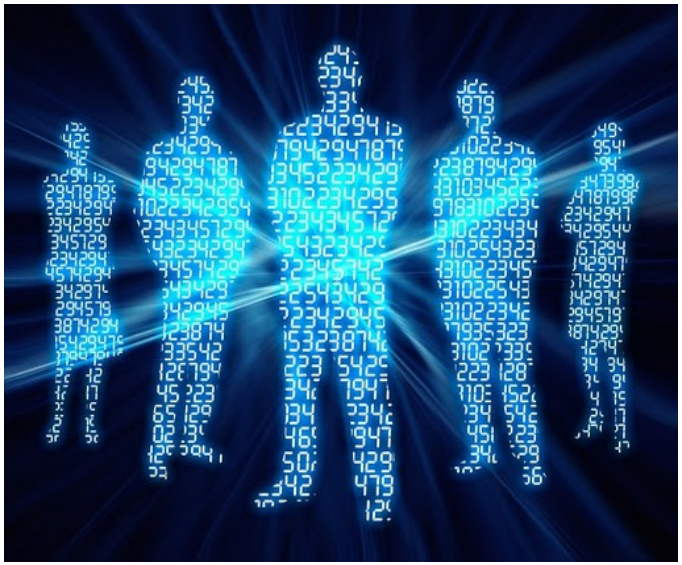
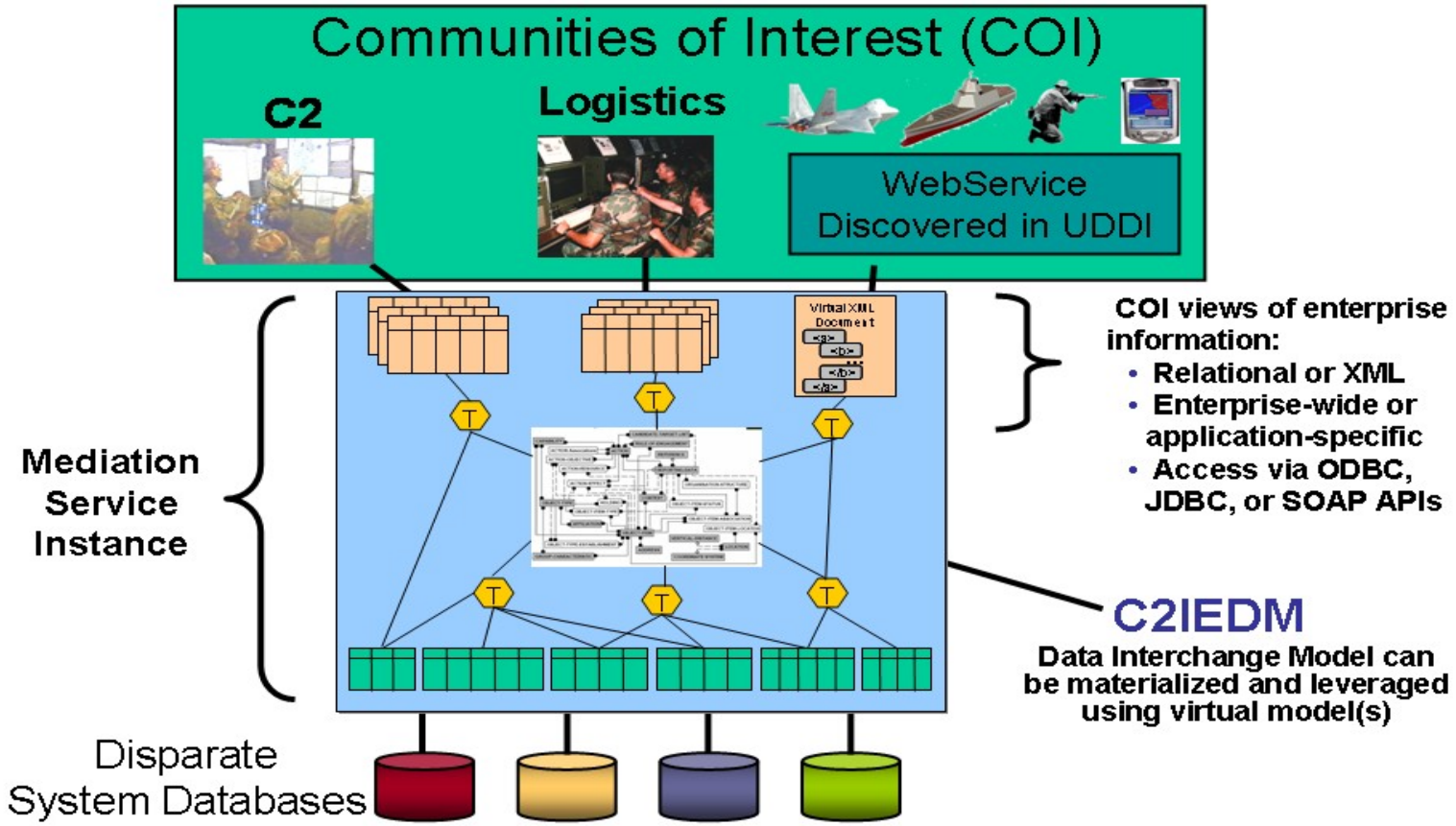
Also called “Logical Views”



Advantages

- Single view of data
- Keep your Data Integrity intact
- Abstraction Layer, decoupled from the source
- Hides complexity of data transformation
- Flexibility in defining the domain model that fits the business need
- Enables creation “Enterprise Data Layer”
- Developer productivity

Virtual Views



Materialization

Issues

- Performance
- Scalability
- Virtual Data Warehouse
- Complement Existing Warehouse

What Features Makes “JBoss Enterprise Data Services” Great ?

- Query Optimization
- Custom Source extensions
- XA Transactions
- JAAS
- Data Governance
- Repository for Metadata
- Enterprise Ready, Runs on JBoss AS
- Runtime Operational Support

Materialization

Types of Materialization

- Internal Materialization
- External Materialization

Dynamic View Creation

Issues

- Dynamic Data Sources
- Custom Views based on
  - Customer
  - SLAs
  - Security
- Customer defined ad-hoc views
- Outsourcing of the Services

Dynamic View Creation

- Only vendor who supports the feature
- Programmatic configuration

Dynamic VDB

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vdb name="twitter" version="1">

    <property name="UseConnectorMetadata" value="cached" />

    <model name="twitter">
        <source name="twitter" translator-name="rest" connection-jndi-name="java:/twitterDS"/>
    </model>

</vdb>
```

DEMO

Q & A

Unlock potential in your data through Power of Data Virtualization

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