

# Datenbank Migration mittels semantischer Technologien

Micro Service  
Orientated  
Architecture

Ontology Driven  
Architecture



Declarative  
Architecture  
Modelling

Graph Data  
Abstraction Layer

# Transform Factory

Maximizing Efficiency is our Business

We are offering  
**Semantic Managed Services**  
to our customers.

**At lower price, lower risk and higher quality.**

# Use Case MSQL Database Migration

- SQL 2008 R2 to MSSQL 2014
- 1000+ SQL Server
- 5000+ application databases
- 400+ enterprise applications

# 1st Challenge

## **application centric**

parallel build

Testing

Rollback

database by database

## **infrastructure centric**

in place update

DBMS instance by instance

**following slides are about a parallel build approach**

# Migration Description (CMDB import)

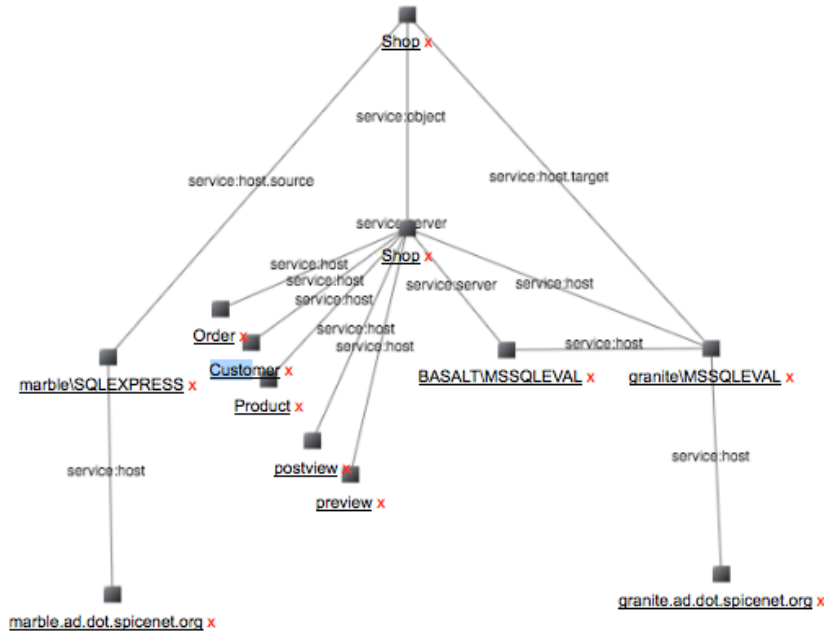


Migrate

database “Shop”

from marble  
to granite

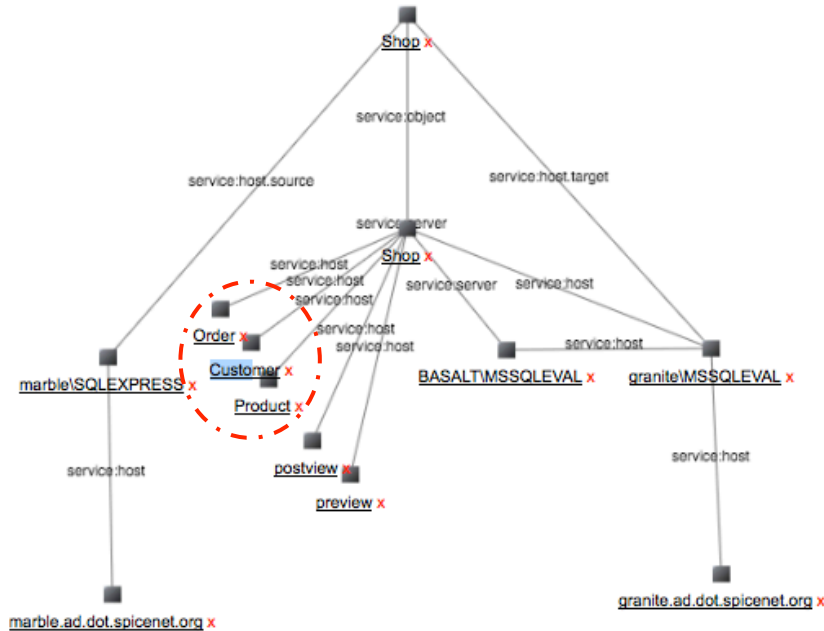
# Migration Description (Scan & Analyse)



New Database Objects  
Tables  
Views

New Server Object  
Linked Server

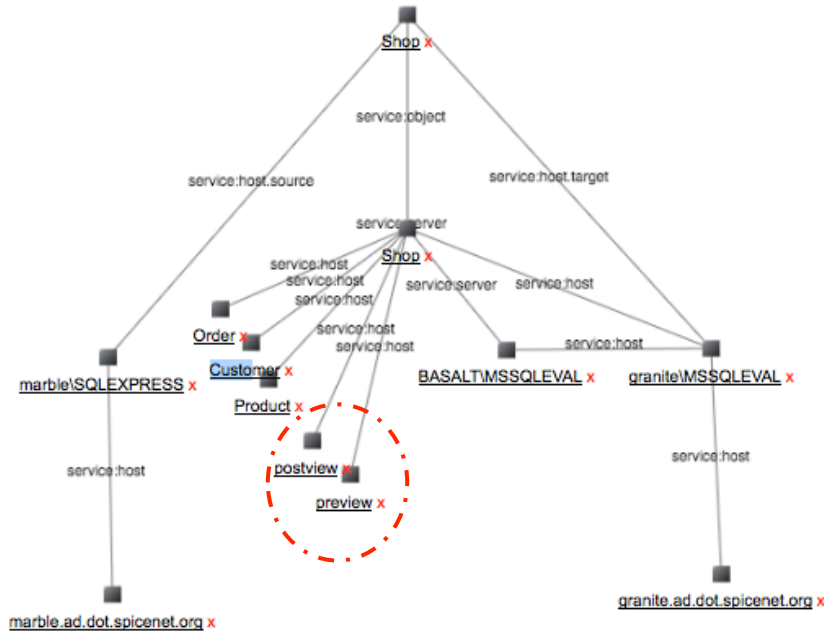
# Migration Description (Scan & Analyse)



New Database Objects  
**Tables**  
Views

New Server Object  
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# Migration Description (Scan & Analyse)

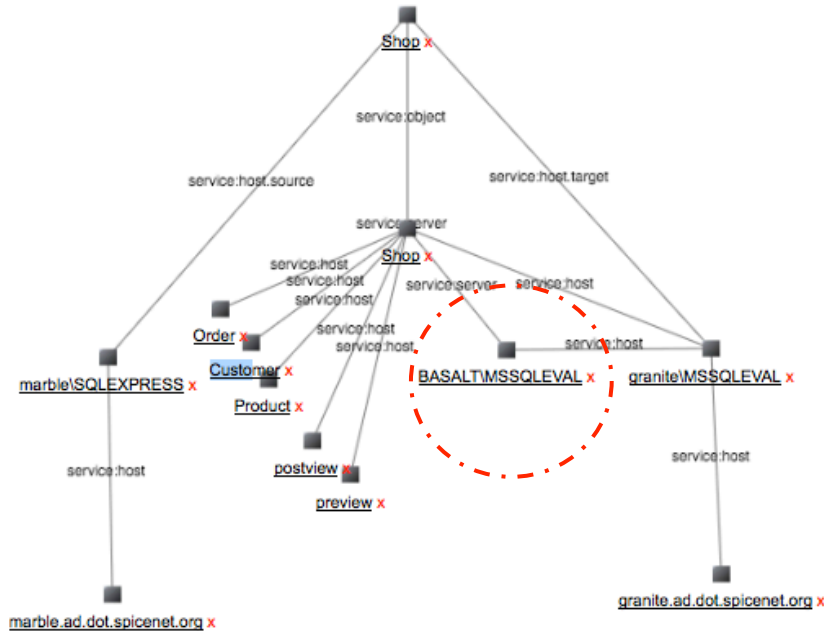


New Database Objects  
Tables  
Views

New Server Object  
Linked Server



# Migration Description (Scan & Analyse)



New Database Objects  
Tables  
Views

New Server Object  
**Linked Server**

# Migration Description (Scan & Analyse)



Cross Dependency  
Database (View) is client  
of Linked Server

# Similar Challenges

Any kind of Database to DBMS relation

Linked Server

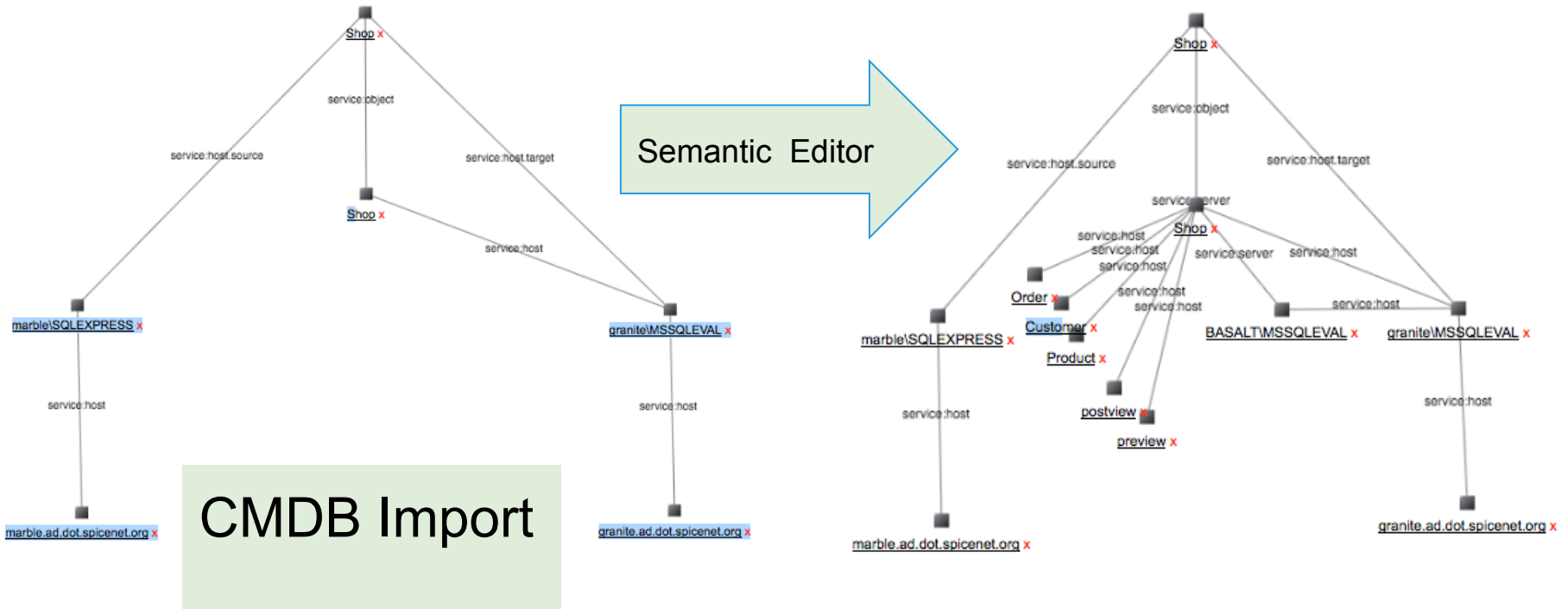
Jobs

User/Logins

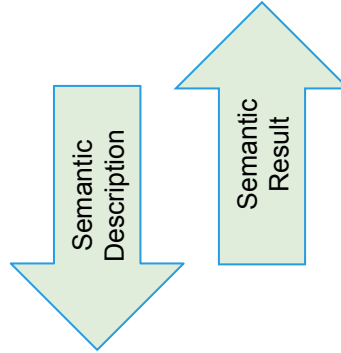
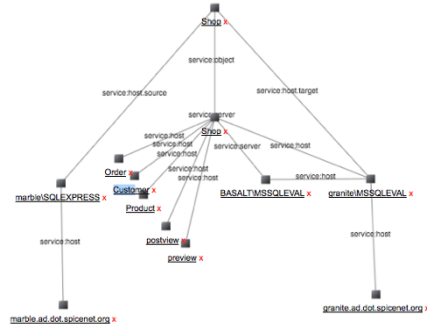
Any kind of database to database relation

mirroring

# Migration Description Editor



# Semantic 'Hands'



Result Properties

Property	Value
project.result.command	powershell.exe -NoLogo -NoProfile -NonInteractive -Command 'Set-Content -Encoding ASCII Plan.txt -Force -String "sqlTPac3Sered + new-object -Type name System.Management.Automation.PSCredential -ArgumentList 'sql.ad.dod.spcinet.org' -SourceInstance granite/MSSQLEVAL -DatabaseName Shop -TargetInstance granite/MSSQLEVAL -SourceInstance marble/SQL EXPRESS -Verbose -Credential \$cred'
project.result.command.exitcode	0
project.result.command.stdout	marble/SQL EXPRESS
project.result.command.stderr	VERBOSE: [Get-DestinationPath] Constructed DestinationPath from SourcePath assuming use of Administrative shares
project.result.command.stdout	VERBOSE: [New-ArtifactStore] Initialized Artifact Store for target granite and source marble
project.result.command.stderr	VERBOSE: Loading module from path 'E:\Apps\887\SQLServer\120\Tools\PowerShellModules\SQLPS\Microsoft.SqlServer.Management.PSSnapins.dll'
project.result.command.stderr	VERBOSE: Loading module from path 'E:\Apps\887\SQLServer\120\Tools\PowerShellModules\SQLPS\Microsoft.SqlServer.Management.PSSnapins.dll'
project.result.command.stderr	VERBOSE: Loading module from path 'E:\Apps\887\SQLServer\120\Tools\PowerShellModules\SQLPS\SqlPsPostScript.ps1'

MSSQL Migration Module

Semantic Abstraction Layer

PowerShell

Desired State Configuration

Unix Shell / ssh

API

# Semantic Result Object

## Command

anonymised secrets

standard out, standard error, exit code

context

user

timestamps

decisions made

# Migration Validation

Compare

description vs. scan

fine grain status

description vs. description

PROD vs. UAT

scan vs. scan

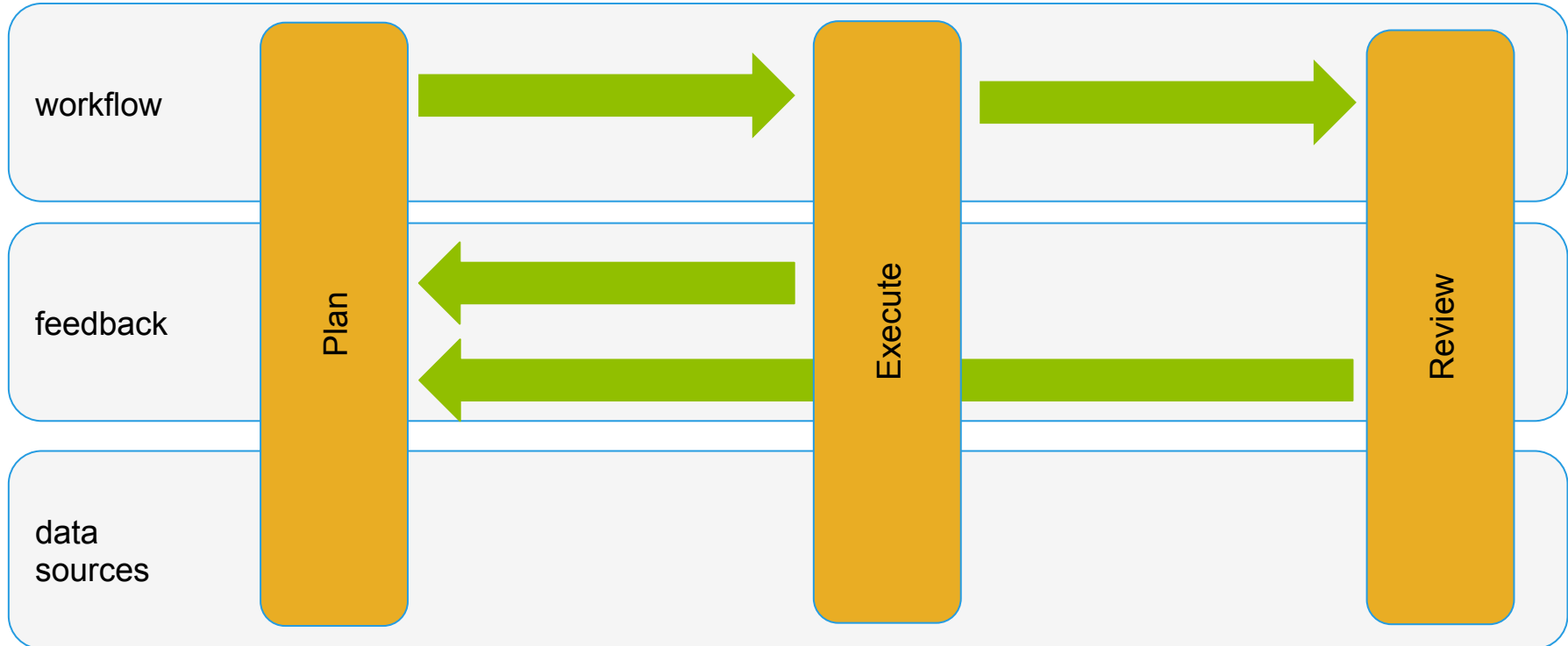
SQL 2008 R2 vs. SQL 2014



The screenshot shows a table with two columns: 'Property' and 'Value'. The table contains various migration validation results, including success messages for database table checks and error messages for deployment and status checks.

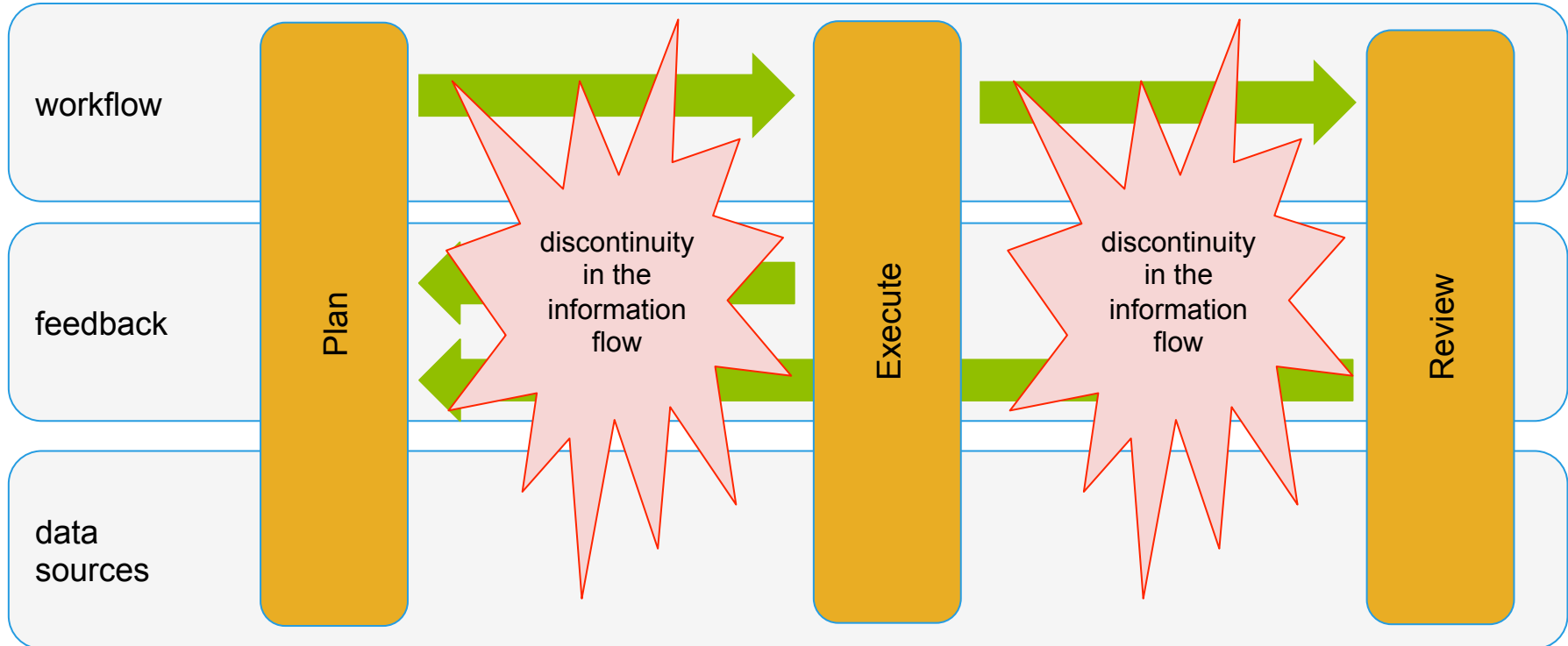
Property	Value
project.result.action	Migration Validator
project.result.action.error	can't find deployment for blueprint
project.result.chk1	Success (Check SQL 2014/R2/SQL against MSSQL 2014/Database/Shop)
project.result.chk2	Success (Check SQL 2014/R2/SQL against MSSQL 2014/Database/Shop/Tables)
project.result.chk3	Success (Details SQL 2014/R2/SQL against MSSQL 2014/Database/Shop/Tables/Order_Product)
project.result.chk4	Success (Details SQL 2014/R2/SQL against MSSQL 2014/Database/Shop/Tables/Order_Customer)
project.result.chk5	Success (Check SQL 2014/R2/SQL against MSSQL 2014/Database/Shop/Views)
project.result.chk6	Success (Check SQL 2014/R2/SQL against MSSQL 2014/Database/Shop/Stores/PhotoStores)
project.result.chk7	Success (Details SQL 2014/R2/SQL against MSSQL 2014/Database/Shop)
project.result.chk8	Success (Check SQL 2014/R2/SQL against MSSQL 2014/Database/Shop)
project.result.editor.deployment.created	startMysql.sql
project.result.editor.deployment.created	Shop
project.result.editor.deployment.created	Product
project.result.editor.deployment.created	Order
project.result.editor.deployment.created	Customer
project.result.editor.deployment.created	672892-86fe-40f5b1-b69c93c1c
project.result.url.prod	Shop
project.result.url.uat	shop
newUat.sql.validator.error.blueprint.deployment absent	shopView
newUat.sql.validator.error.blueprint.deployment absent	shopView
newUat.sql.validator.error.blueprint.deployment absent	BASAL\MSSQL\UAT
newUat.sql.validator.error.blueprint.difference checked	Shop
newUat.sql.validator.error.blueprint.difference checked	Product
newUat.sql.validator.error.blueprint.difference checked	Order
newUat.sql.validator.error.blueprint.difference checked	Customer
newUat.sql.validator.id	SQL Validator MIGRATION DDMIS DATABASE
project.status.error	A state transition action failed. See project "error" for details
project.creation	2016-06-19 18:43:10.433 CEST
project.modification	2016-06-19 18:43:53.578 CEST
project.is.open	false
project.offtype	SQL check class
project.offtype	project Result
project.label	FAILED (DATABASE)

# IT Project Traditional Approach

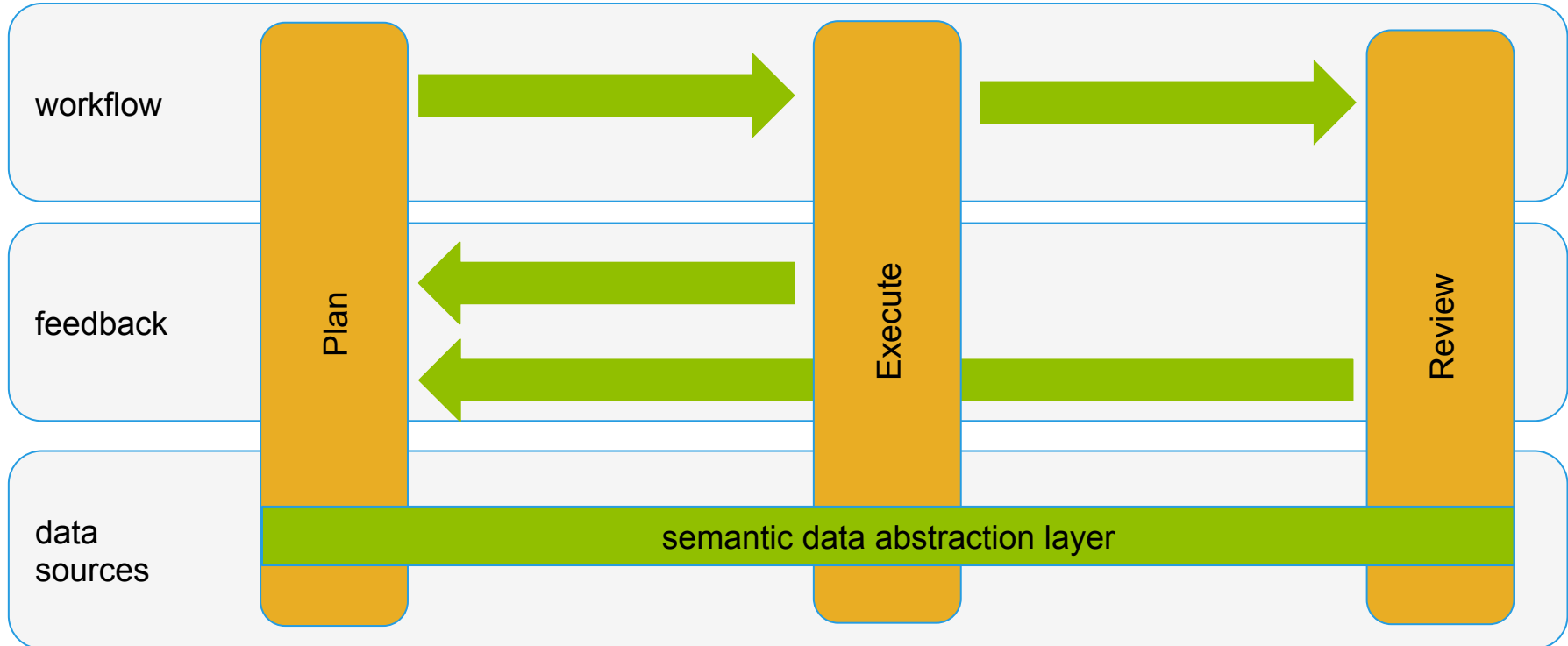




# IT Project Traditional Approach



# IT Project Semantic Approach



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