

# 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)

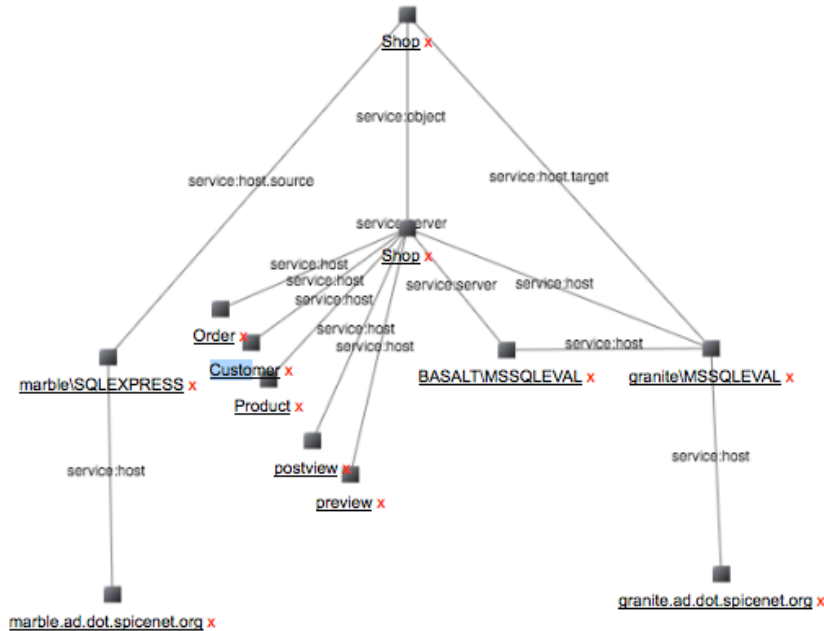


Migrate

database “Shop”

from marble  
to granite

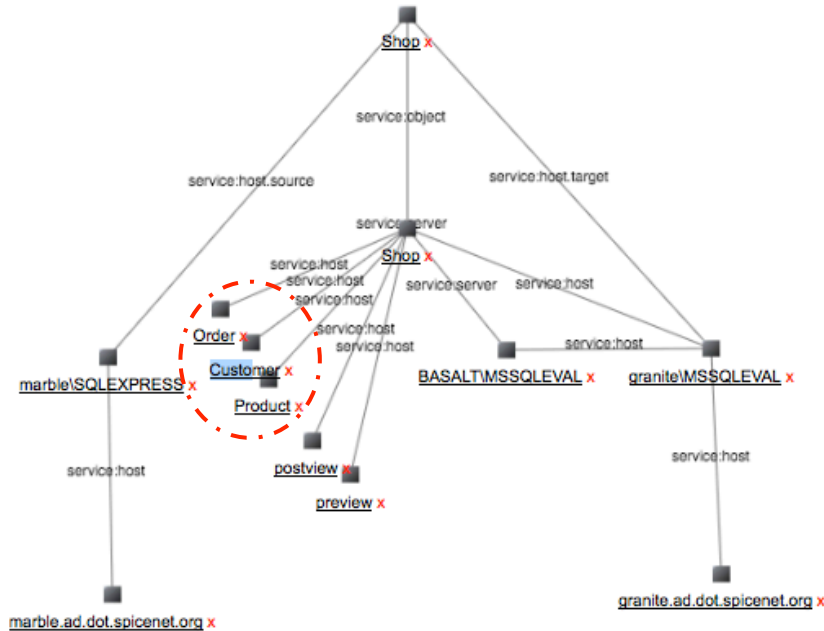
# Migration Description (Scan & Analyse)



New Database Objects  
Tables  
Views

New Server Object  
Linked Server

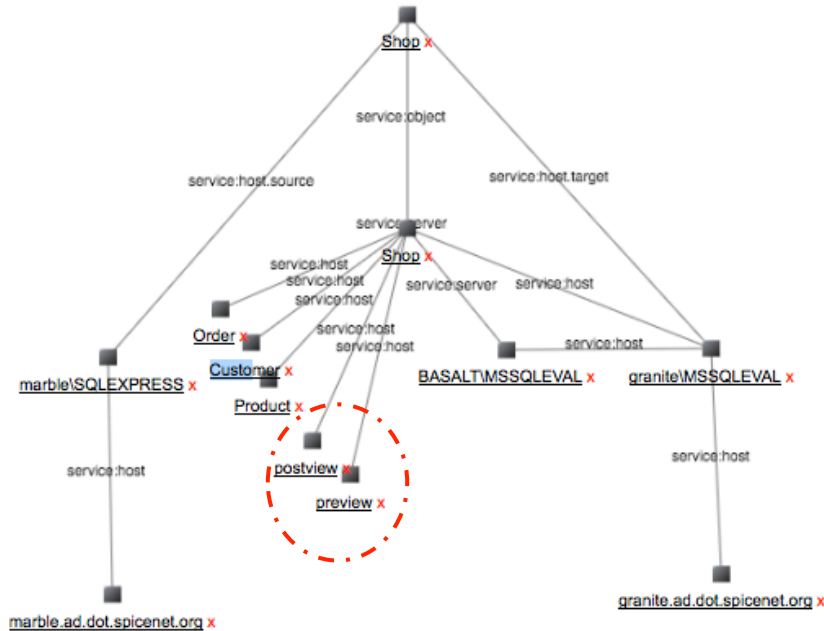
# Migration Description (Scan & Analyse)



New Database Objects  
**Tables**  
Views

New Server Object  
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# Migration Description (Scan & Analyse)

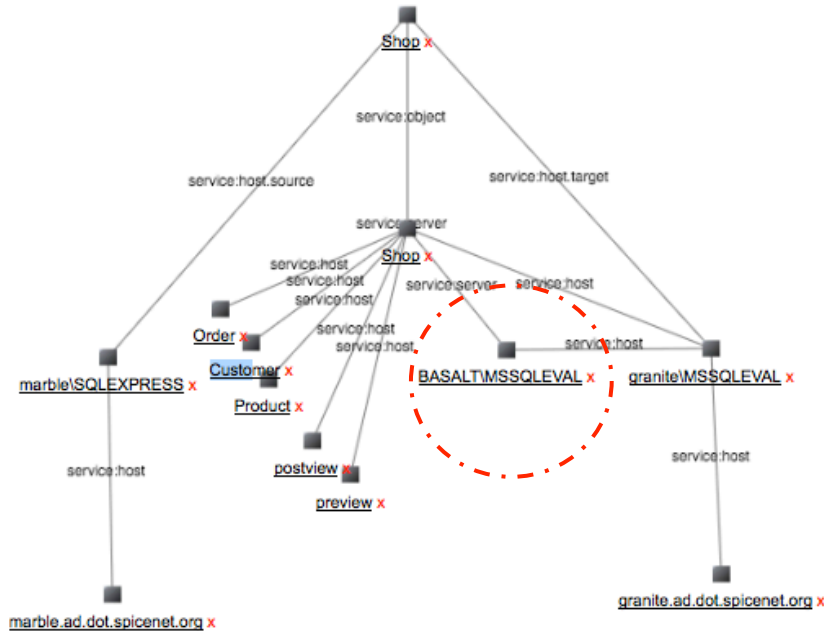


New Database Objects  
Tables  
Views

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

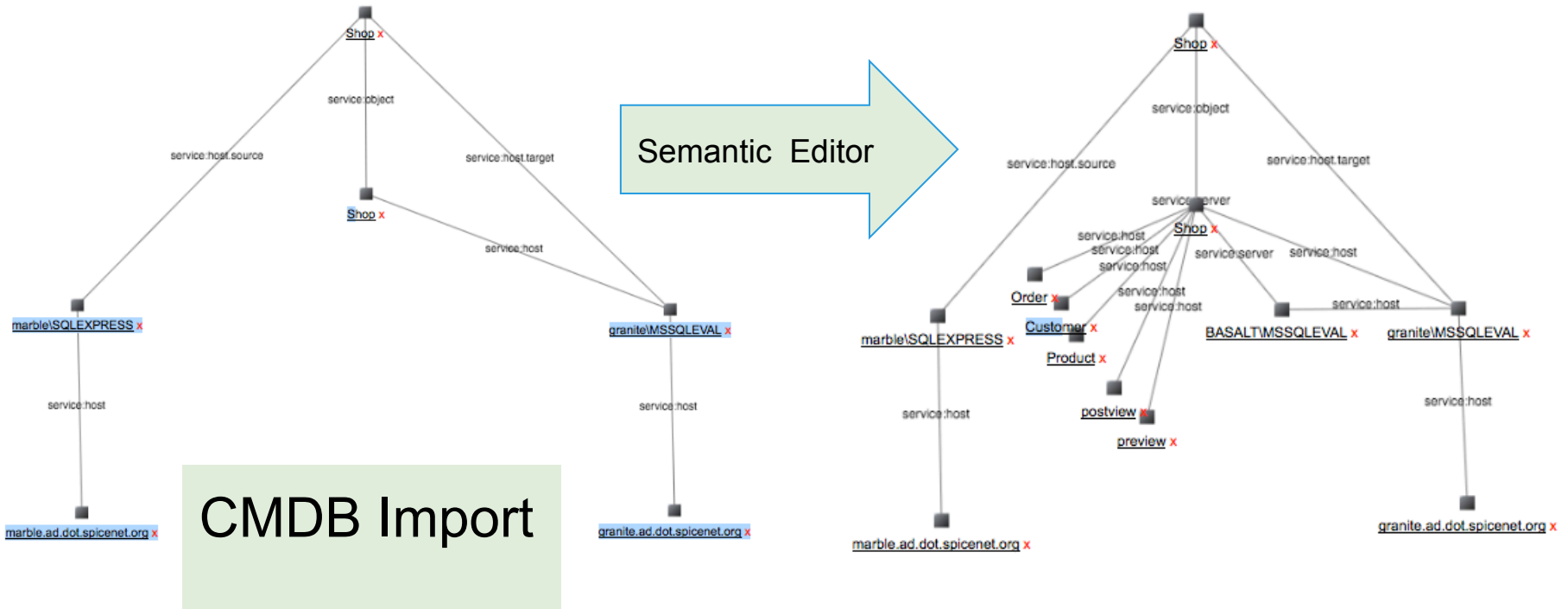
Jobs

User/Logins

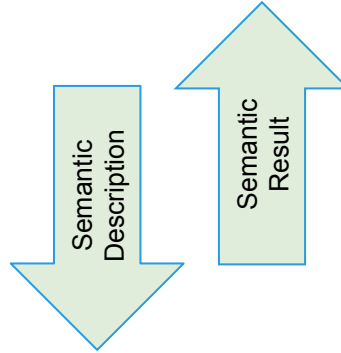
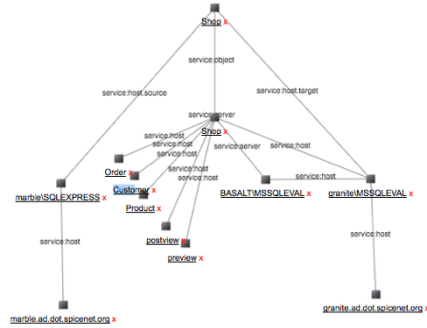
Any kind of database to database relation

mirroring

# Migration Description Editor



# Semantic 'Hands'



Result Properties

Property	Value
project.result.command	powershell.exe -NoLogo -NoProfile -NonInteractive -Command 'New-Object -TypeName System.Management.Automation.PSCredential -ArgumentList \$ip,\$pw -E \$AppPath\PathCopy-SubDatabase.ps1 -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.stdout	VERBOSE: Loading module from path 'E:\App\887\SQLServer\120\Tools\PowerShellModules\SQLPS\Microsoft.SqlServer.Management.PSSnapins.dll'
project.result.command.stdout	VERBOSE: Loading module from path 'E:\App\887\SQLServer\120\Tools\PowerShellModules\SQLPS\Microsoft.SqlServer.Management.PSProviders.dll'
project.result.command.stdout	VERBOSE: Loading module from path 'E:\App\887\SQLServer\120\Tools\PowerShellModules\SQLPS\SqlPsPostScript.ps1'
project.result.command.stderr	

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

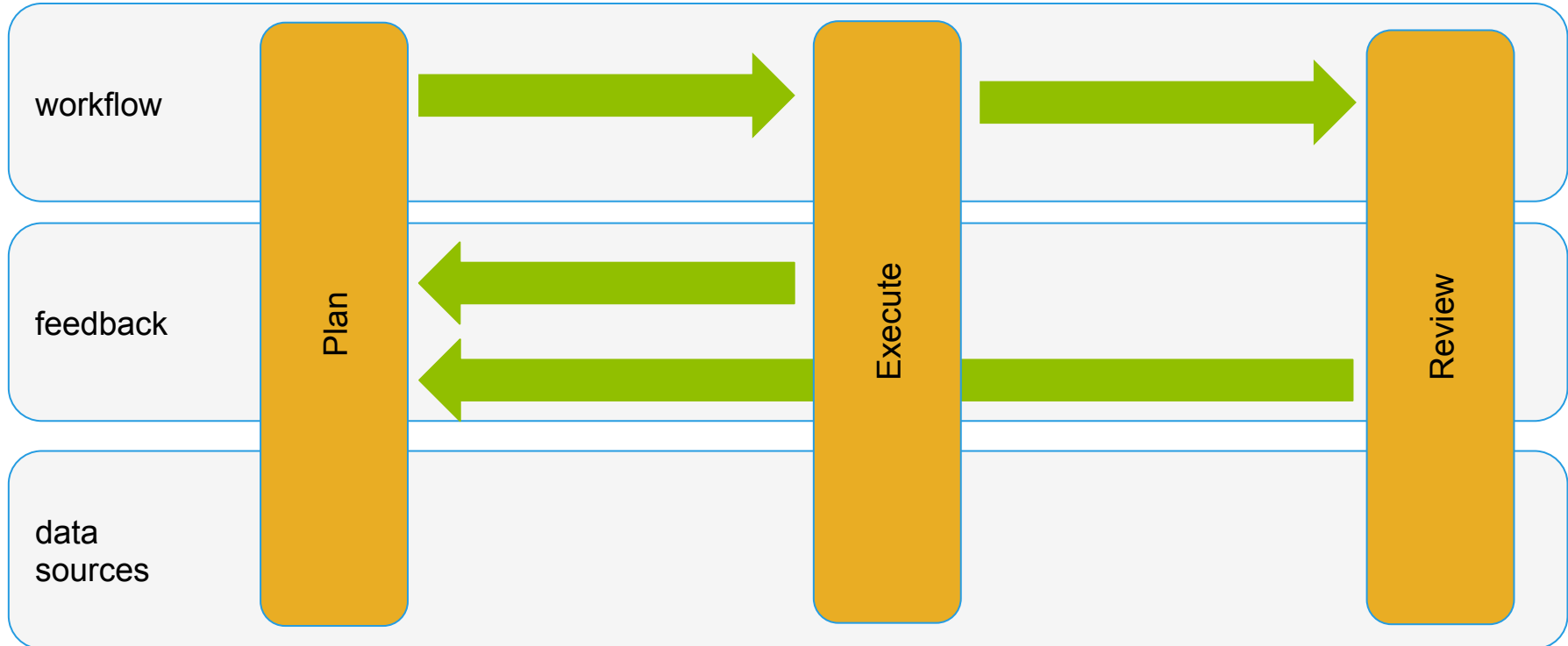
scan vs. scan

SQL 2008 R2 vs. SQL 2014



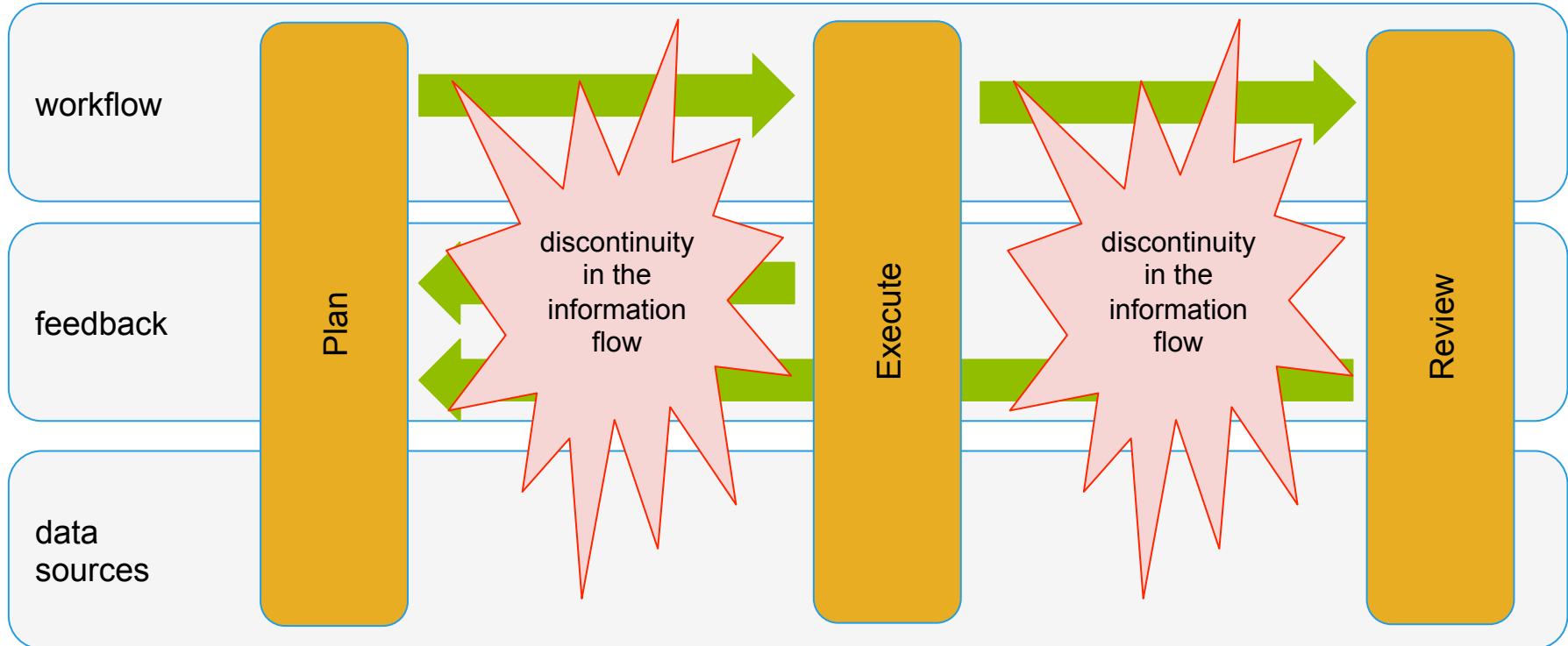
Property	Value
project.result.action	Migration Validator
project.result.action.error	can't find deployment for blueprint
project.result.cnt	Success: Details SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop)
project.result.cnt	Success: Check SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:Tables)
project.result.cnt	Success: Details SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:Tables:Product)
project.result.cnt	Success: Details SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:Tables:Order)
project.result.cnt	Success: Details SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:Tables:Customer)
project.result.cnt	Success: Check SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:Views)
project.result.cnt	Success: Check SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:StoredProcs)
project.result.cnt	Success: Details SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop)
project.result.cnt	Success: Check SQL 2014 (SQL Server) MSSQL_EVN_ChDatabase(Shop:User)
project.result.editor.deployment.created	startMSSQL.EVN
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	e772b992-86fe-42f5-811b-bf69c93f2c1e
project.result.url.sql	Shop
project.result.url.sql	admin
results.us@validator.error:blueprint.deployment:shared	sqlview
results.us@validator.error:blueprint.deployment:shared	sqlflow
results.us@validator.error:blueprint.deployment:shared	BASAL\MSSQL\EVN
results.us@validator.error:blueprint.difference:checked	Shop
results.us@validator.error:blueprint.difference:checked	Product
results.us@validator.error:blueprint.difference:checked	Order
results.us@validator.error:blueprint.difference:checked	Customer
results.us@validator.id	us_Validator_MIGRATION_DBMS_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.modified	2016-06-19 18:45:53:575 CEST
project.status	failed
project.type	us_thru.class
project.type	project.Result
label	FAILED (DATABASE)

# IT Project Traditional Approach

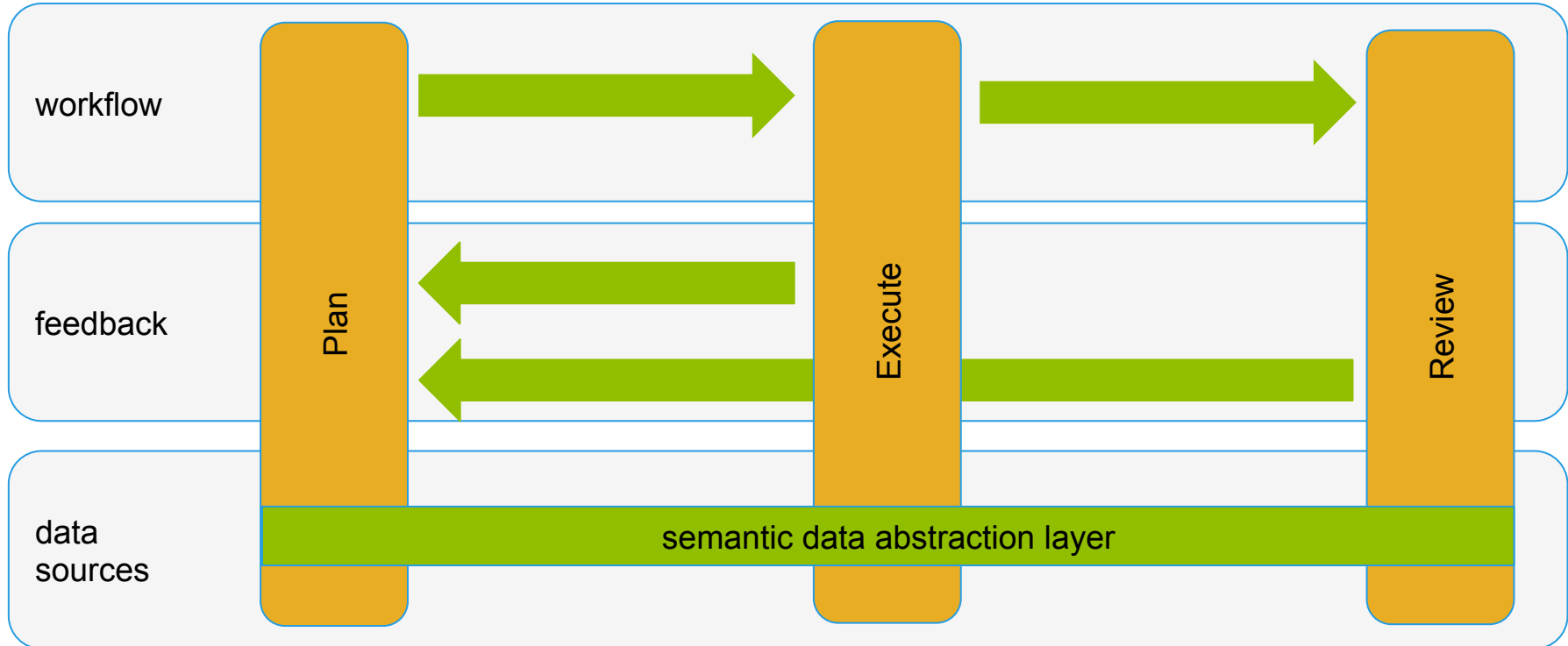




# IT Project Traditional Approach



# IT Project Semantic Approach



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