Cloud Modernization Assessment Framework:

Analyzing the impact of a potential migration to Cloud

Juncal Alonso
TECNALIA
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Presentation Outline

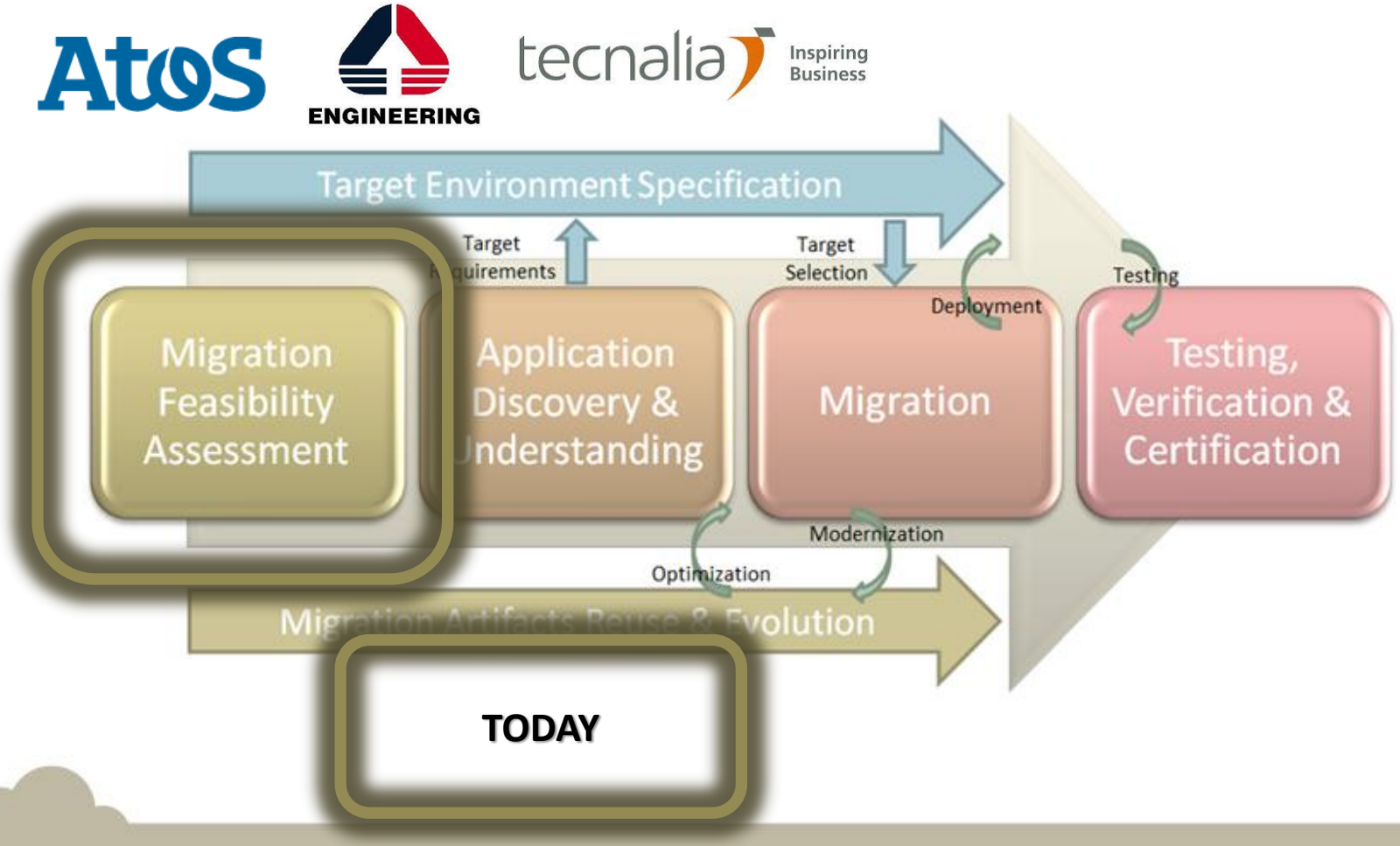
- ARTIST project at a glance
- Cloud modernization asessment in ARTIST
  - Maturity assessment
  - Technical feasibility analysis
  - Business feasibility analysis
- Technical approach & tools
- A hands-on practice with PetStore

ARTIST at a glance

- **ARTIST** *A* *nd migraTIo*
- **Mission**
  - ARTIS **nization of legac**
- **Vision**
  - ARTIS **legacy softw**
- **Goal**
  - **Adap** e creation of a set **Driven Engin**

ARTIST Core phases

- Four core migration phases



Cloud modernization assessment in ARTIST (I)

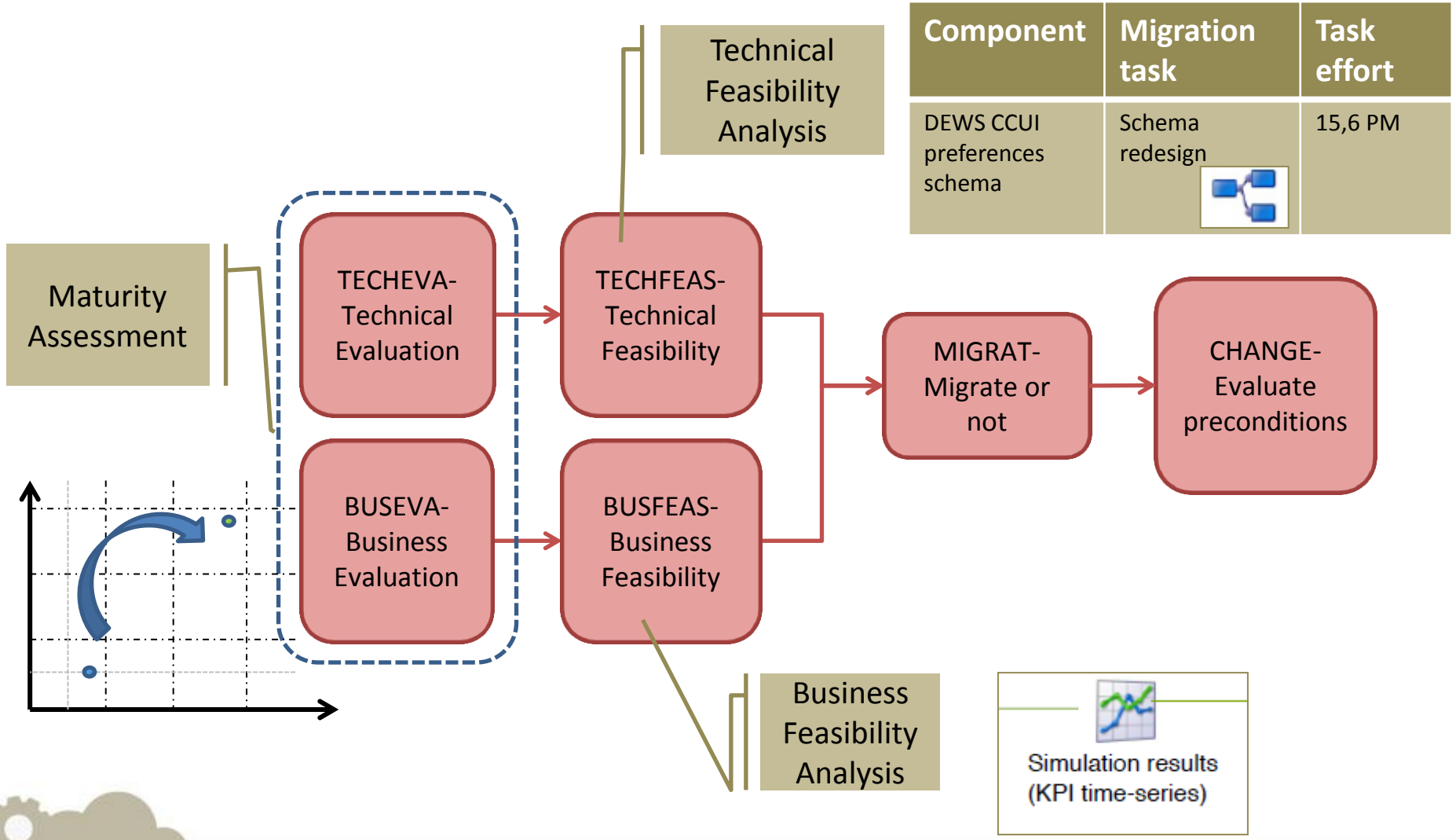
Pre-migration phase as the **starting point of each migration**

The **objective** of this phase is to measure the **impact of a potential migration** in terms of:

- Resources needed
- Changes needed (Processes & Business)

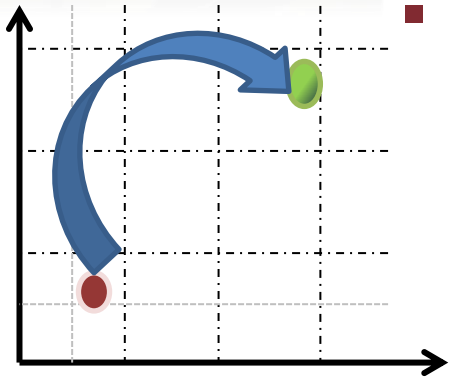
In order to have **quantitative & qualitative** metrics upon which to base the migration

Cloud modernization assessment in ARTIST (II)



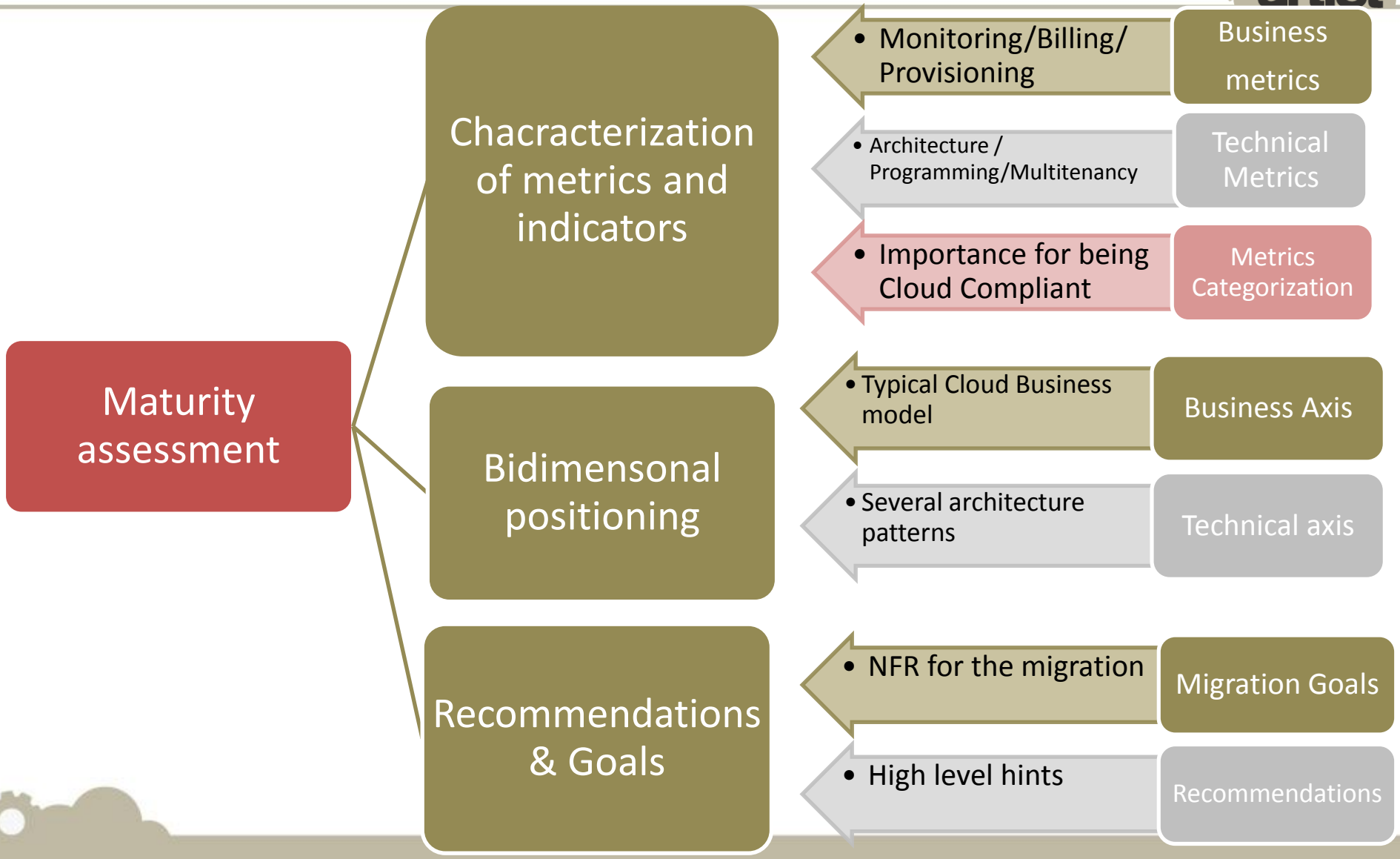
Maturity assessment (I)

- Maturity Assessment has as objective to **analyze the current (initial) and desired (final)** situation of an application that is going to be migrated, and under two perspectives : **Technical and Business**.



- The assessment provides as a result:
  - 1) **A picture with the position** in a quadrant of the initial and the final situation of the application
  - 2) A set of **migration goals** and **recommendations**(high level)

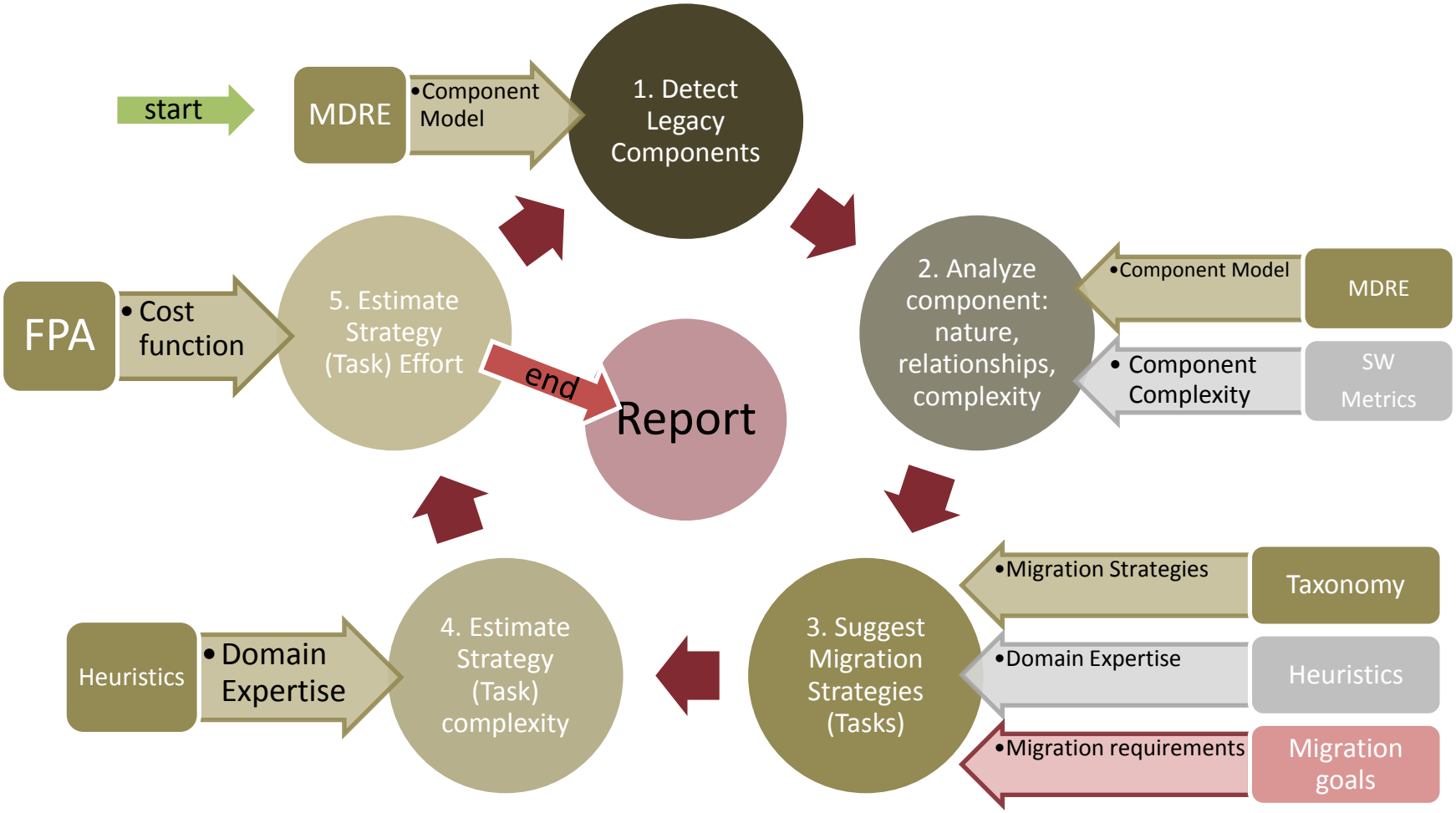
Maturity assessment (II)



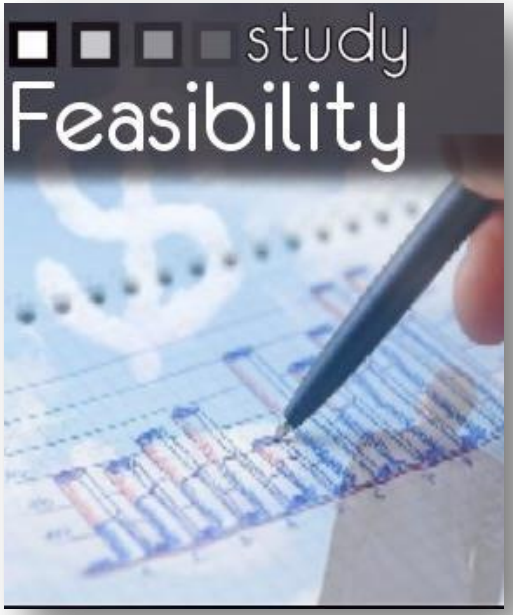
Technical Feasibility Analysis (I)

- Support users on the **early feasibility** assessment addressing the **technical aspects** of the migration
- Offer a detailed breakdown into **tasks of the technical migration process**
  - Estimate **complexity for migration tasks** and migrated components
  - Estimate **efforts** to accomplish migration tasks.
- Help to address **other technical related issues**, such as the selection of staff skills and expertise.

Technical Feasibility Analysis (II)

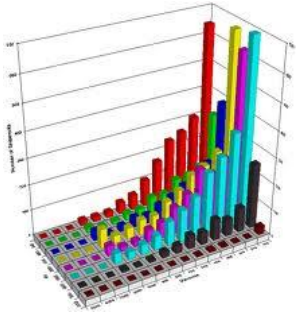


Business feasibility analysis (I)



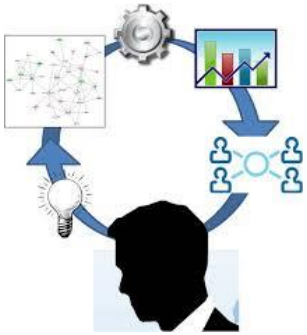
- Business Feasibility Analysis aims to support decision makers in the context of **the assessment of Business Solutions by offering means to estimate costs, benefits and operational risks of the migration** to a cloud deployment scheme
- Business feasibility analysis will include an **economic, strategic, and analytic** study
- It will offer a **simulation of the KPI indicators** in each of the alternative scenario and the **main processes involved**

Business feasibility analysis (II)



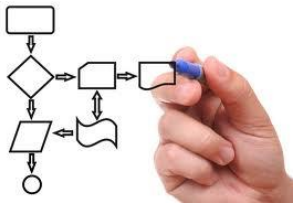
Computer based simulation

- Cost Benefit Analysis
- Business process simulation



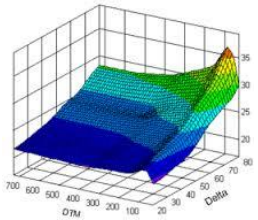
Agent Based Modelling

- Cloud based Business models
- Human resources modelling



Process Kit

- Ideal cloud compliant processes



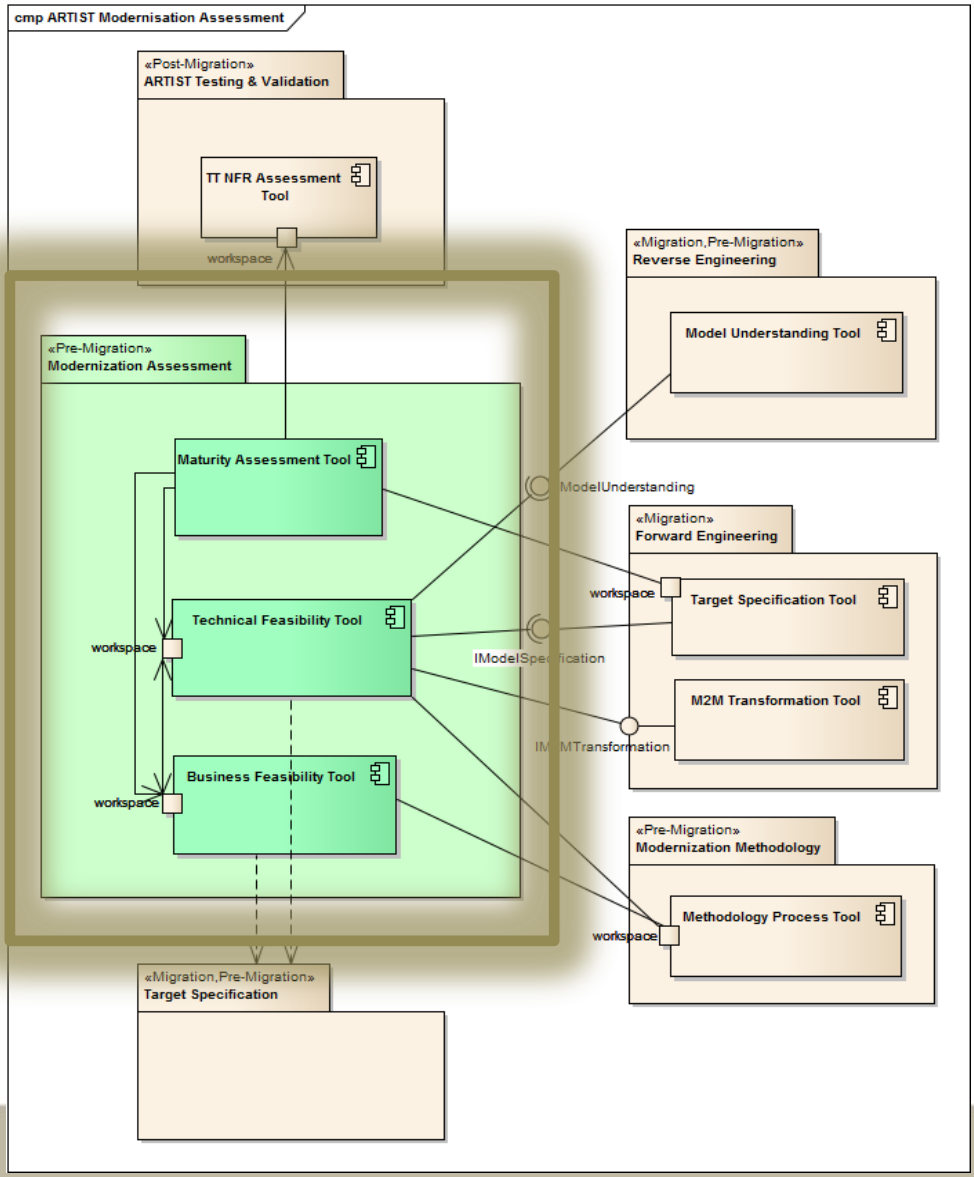
Agent based computational economics

Enterprise simulation

- "What if" support

Technical approach & tools

- Three different tools to perform the maturity assessment, the technical feasibility analysis and the business feasibility.
  - Maturity Assessment Tool (**MAT**) : Web User Interface + Java Application
  - Technical Feasibility Tool (**TFT**): Eclipse Plugin (Eclipse Views & Wizards + Backend)
  - Business Feasibility Tool (**BFT**): Eclipse Plugin (Scenario Workbench + simulation service component)



A hands-on practice with PetStore (I)

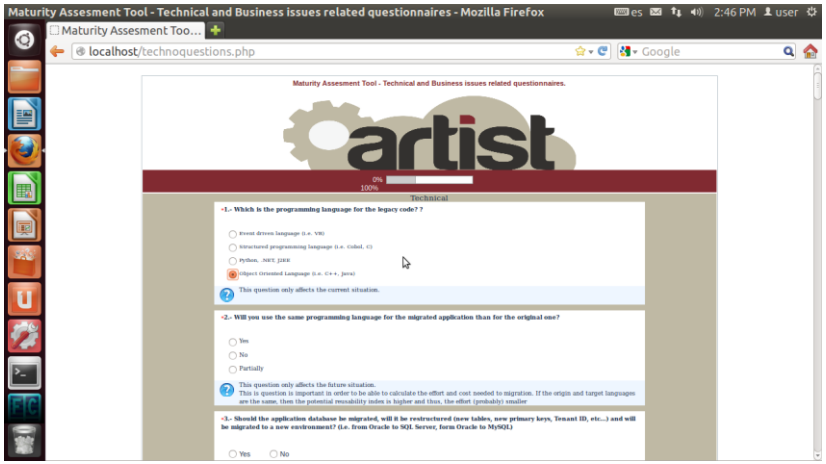
- Initial experiments conducted to evaluate the functional approach proposed.
- Based on:
  - Technical level: Java PetStore code

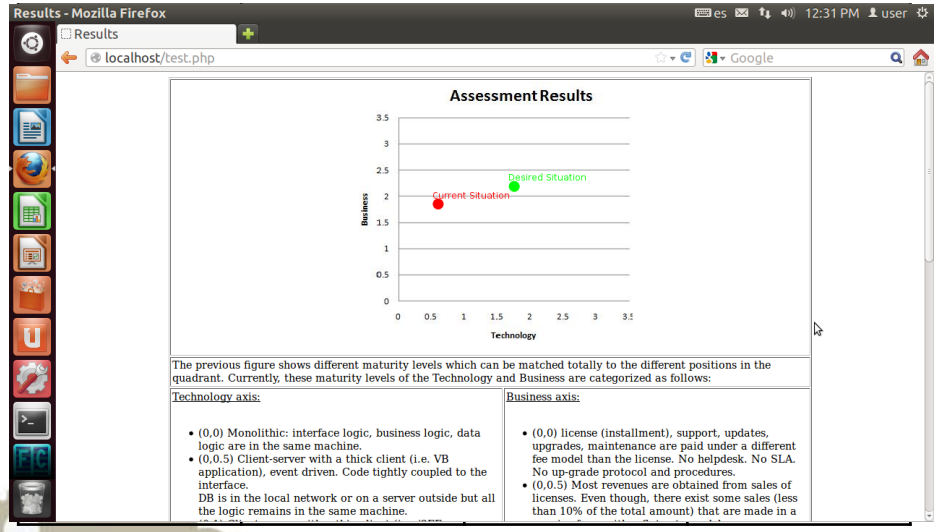
    http://www.mia-software.com/html/miaStudio/download/modisco/examples/javapetstore-2.0-ea5.zip)

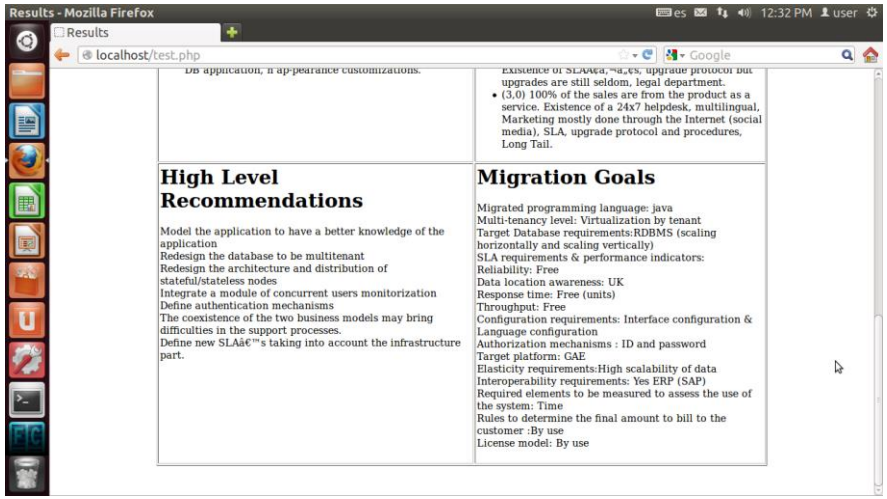
  - Business level: Petstore business case

A hands-on practice with PetStore (II) → MAT approach

- MAT experiment:







A hands-on practice with PetStore (III) → MAT approach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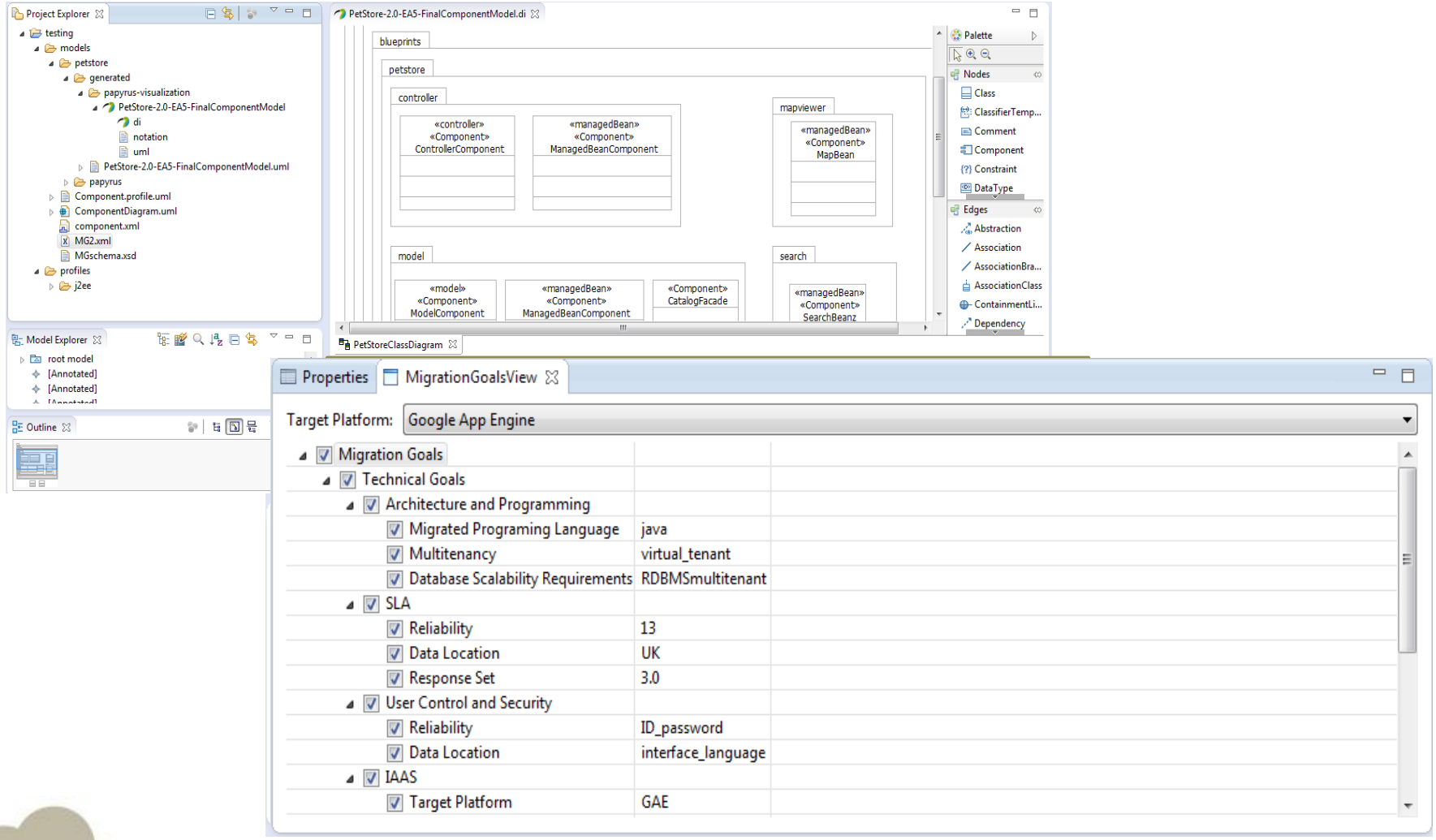
Done | Local intranet | 100%

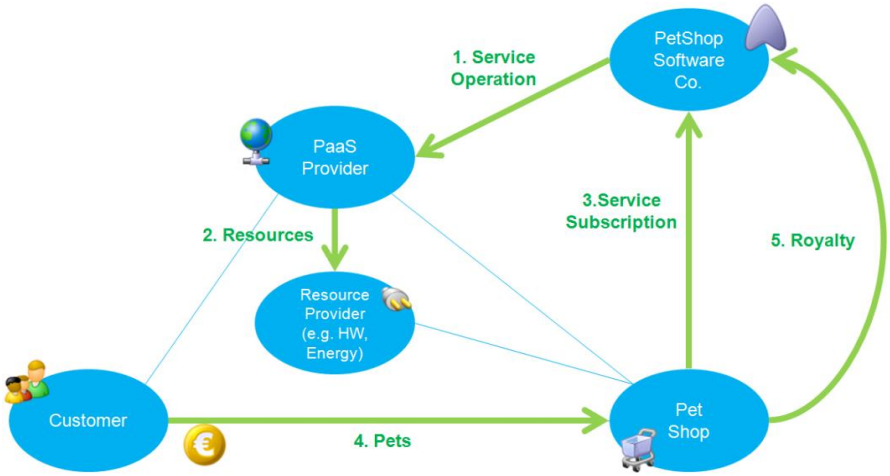
A hands-on practice with PetStore (VI) → TFT approach

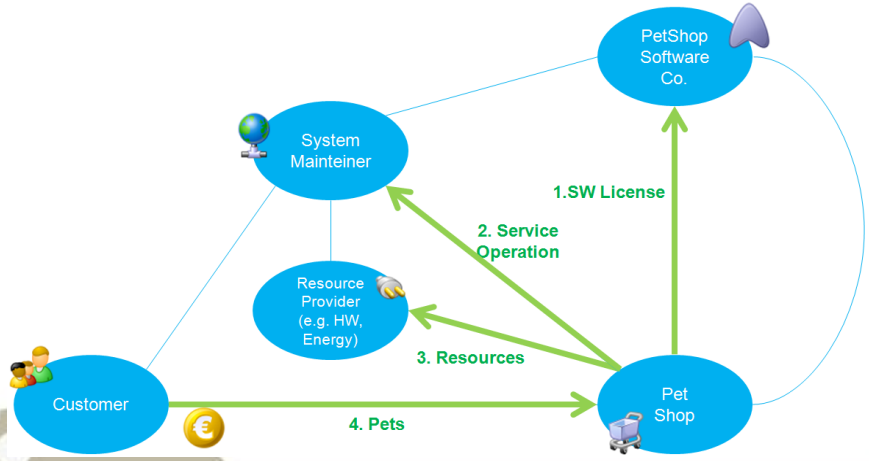
Component	Component Complexity	Task	Task Type	Complexity Level	Task Complexity	Task Effort (hours/person)
J2EE Server	1.0	App Server Installation & Configuration	Installation and Configuration	Average	2.0	2.0
Non-SQL Server	1.0	Non-SQL persistence framework installation and configuration	Installation and Configuration	Average	2.0	2.0
PetStore Web App	40.0	PetStore Persistence Layer re-coding based for Non-SQL persistence framework	Code refactoring	High	5.0	40.0
PetStore Web App	1.0	Petstore data schema refactoring for Non-SQL persistence framework	Data source	High	5.0	8.0
Non-SQL Server	1.0	Petstore data dump into Non-SQL persistence framework	Data source	Low	1.5	1.0
JDBC Resource	1.0	Petstore JDBC Resource reconfiguration	Connection/Configuration	Low	1.0	0.1
Connection Pool	1.0	Petstore connection pool reconfiguration	Connection/Configuration	Low	1.0	0.1
Totals						53.2

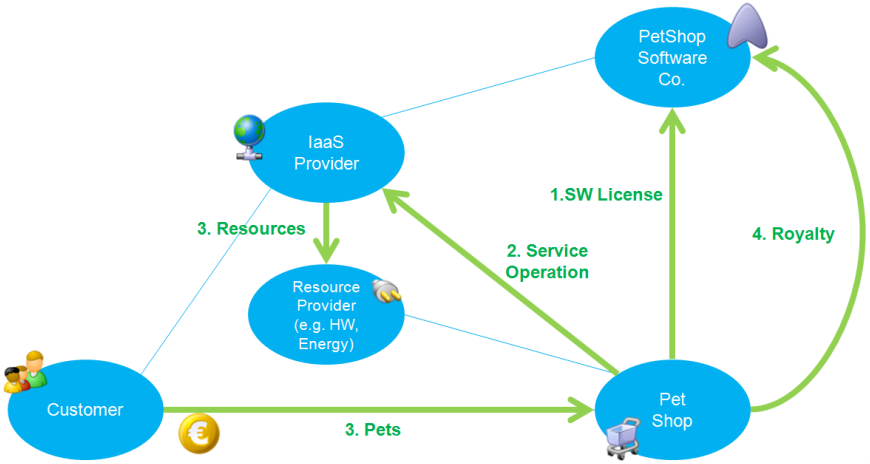
A hands-on practice with PetStore (VII) → TFT approach



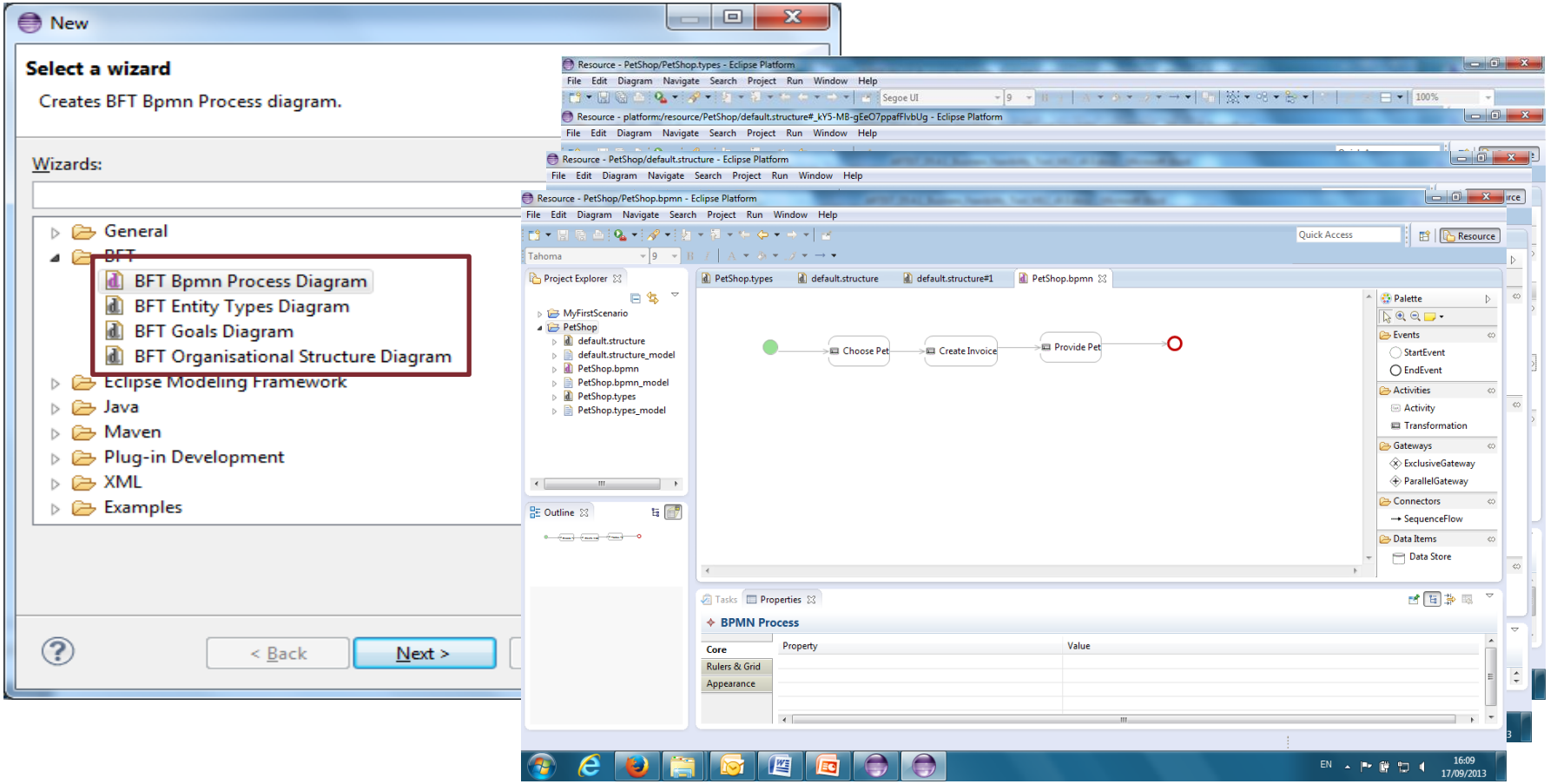
A hands-on practice with PetStore (VII) → BFT approach







A hands-on practice with PetStore (VIII) → BFT approach



Conclusions

- Pre-migration phase **can measure the impact of a potential migration to Cloud** assessing the decision taking

- Both technical and business aspects **have to be considered**

- Several **“migration paths”** can be supported

Future Work

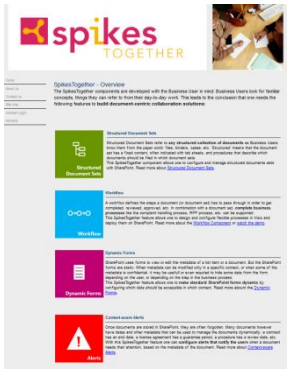
- Work on the technical solution and integrated prototypes

- Validate the first prototypes in “real” cases (ARTIST use-cases)

Distant Early DEWS Warning System

eGOV IT SPcoop

news asset



Thank you for your attention!

Juncal Alonso
juncal.alonso@tecnalia.com
IT Competitiveness Area
TECNALIA

ARTIST Contact information

- Project coordinator :
  - Clara Pezuela (ATOS)
  - Clara.pezuela@atos.net
  - +34912148609
- Project web site: www.artist-project.eu
- Twitter: @ARTISTeu