



Rapid **A**pplication **I**nnovation for **SMEs**

11th November 2011

Sprers Training Event

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Timisoara (Rumania)



What: European Community co-funded project in its 7th Framework Program

- Area: "Capacities - Research for SMEs Call 3"
- 982.844 €
- 692.345 € EC contr.
- 108,25 PMs

When: Started in October 2010

Duration: 20 months

Who: 6 partners :

- 3 SMEs :

coordinator



- 3 RTD performers :



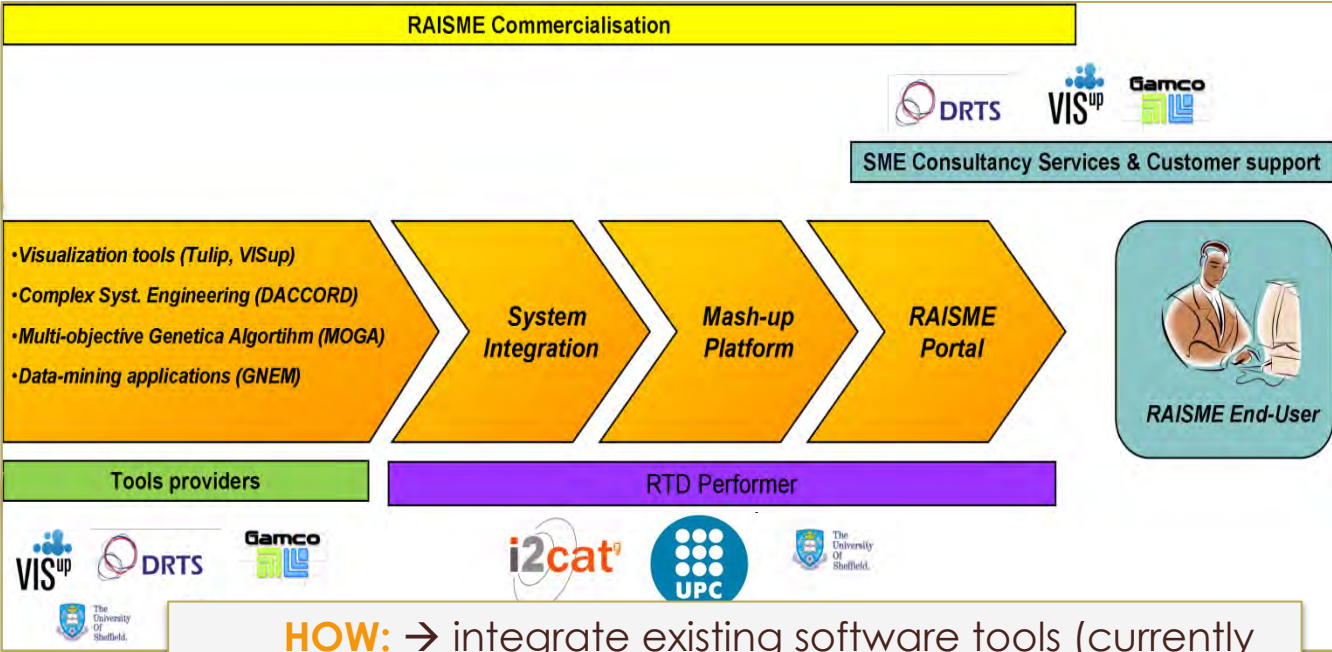
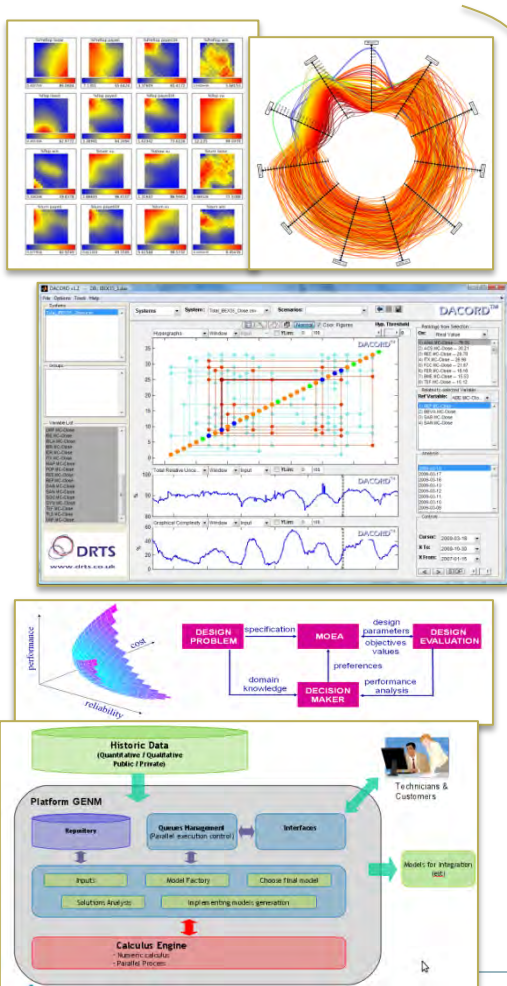
- **Analysis platform.**
 - Integration of existing tools.
 - Large data storage and processing.
 - Interactive Visualisations.
 - Intelligent support to the user.

- **Deployable private cloud platform for additional tool integration.**
 - Using RAISME processing tools for analysis.
 - Enhancing with customer SMEs own services.

SaaS

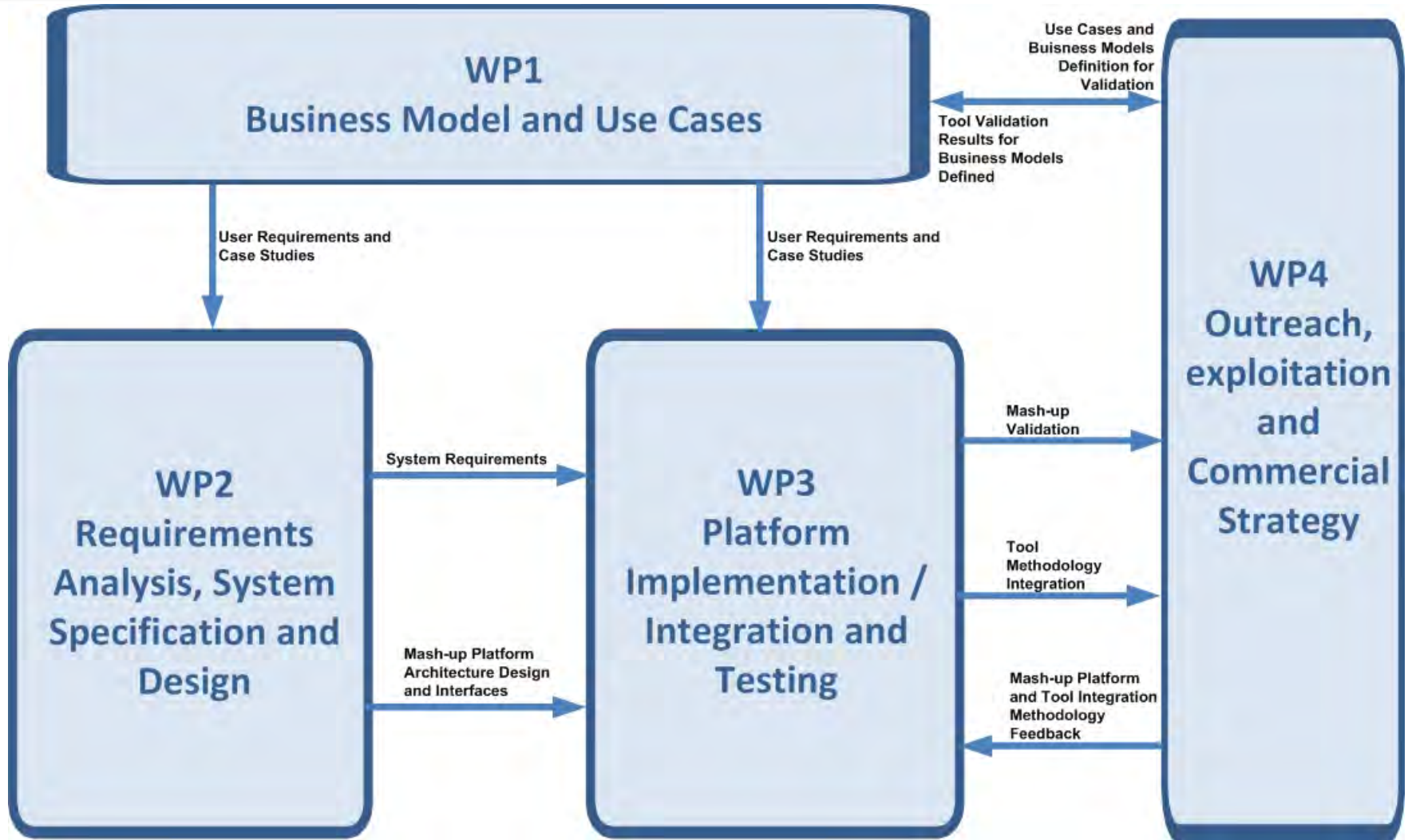
PaaS

Study, design, and implementation of an innovative, low-cost, integrating mashup platform for rapid software application development.



HOW: → integrate existing software tools (currently used for stand-alone applications) to provide, non-conventional solutions to a range of industrial applications.

- Integrating partners' tools as services of a distributed platform
- Allow fast integration of new services
- Users can create their own workflows
 - Connecting different services by means of a GUI
 - Recommender system
- Large data handling and scalable processing
- Creation of static and interactive reports showing analysed information in a visual way
- Use of interactive visualisations allowing selection of variables, intervals, nodes, etc.



- RAISME platform + Portal
- Partner's tools Services APIs
- Tool Integration Methodology
 - allow third parties to integrate new services in RAISME platform

Security and user management

- Fine-grained authorisation, encrypted data, secure connection, collaboration groups and trust networks, SSO authentication

Data acquisition

- Data-source gathering, data formats, broad and large data, reading highly sensitive data, bringing applications to data sources

Data pre-processing

- Visualization on raw data, data anonymisation, data cleansing/ extraction and transformation, synchronise time series

Data visualization

- List of visualizations, visualizing multiple results, usable and updated information visualization, image pre-visualization in workflows, customized multi-view dashboards

Data sharing

- Sharing results, collaborative groups

Meta-data

- Data tagging, semantically annotated data for visualization

Data storage

Mashup

- Interactive intermediate steps, workflow design, show workflows cost/consumption while designing it, workflow results visualization

API marketplace

- API integration in RAISME marketplace, API integration in other marketplaces, standard services

Usage and interface

- RAISME usage, versatile user interface, data manipulation, modular platform

Real-time

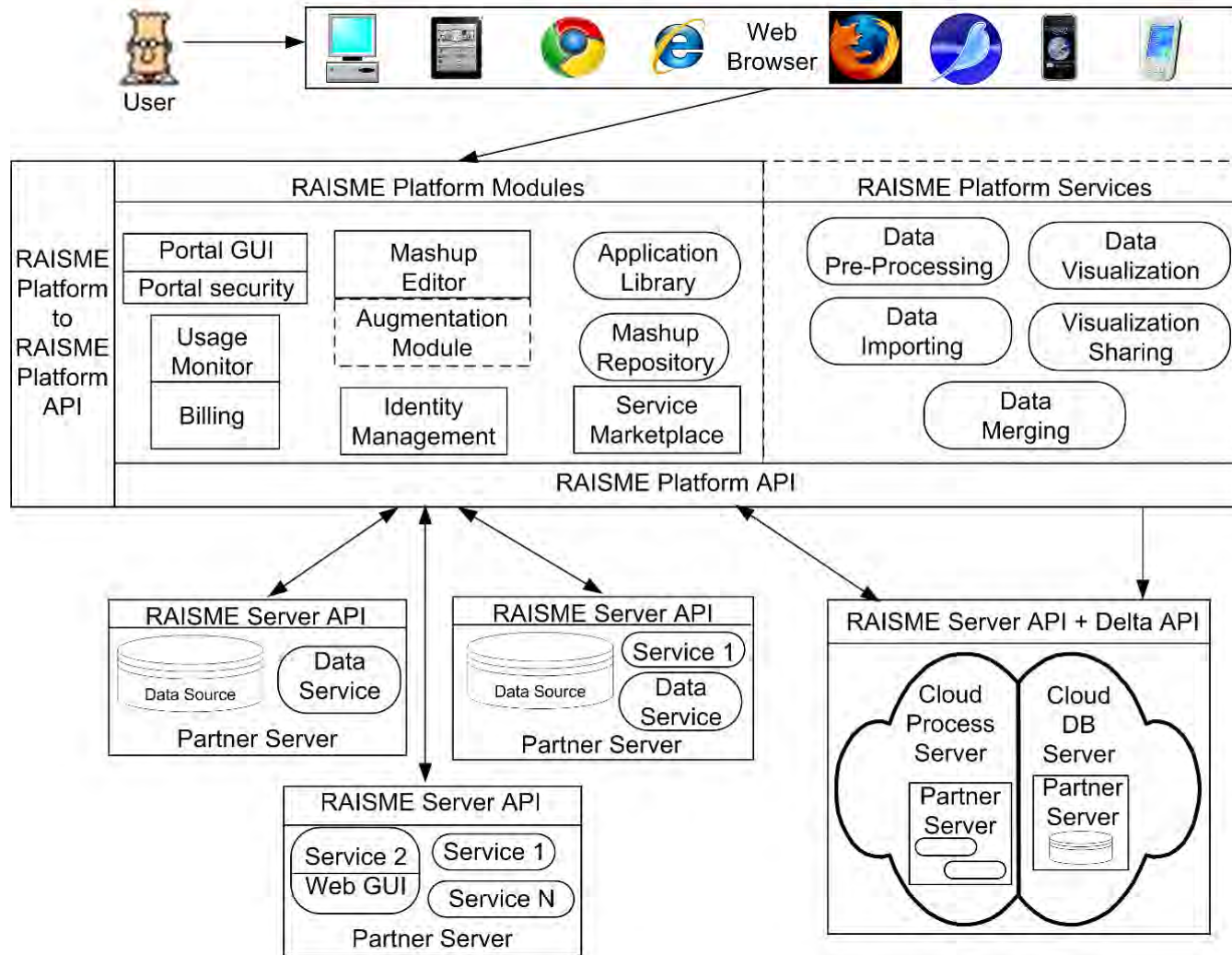
- Real-time performance monitoring, real-time visualization

Billing

- Billing subscription, credit consumption

Monitoring

- System status, users' behaviours



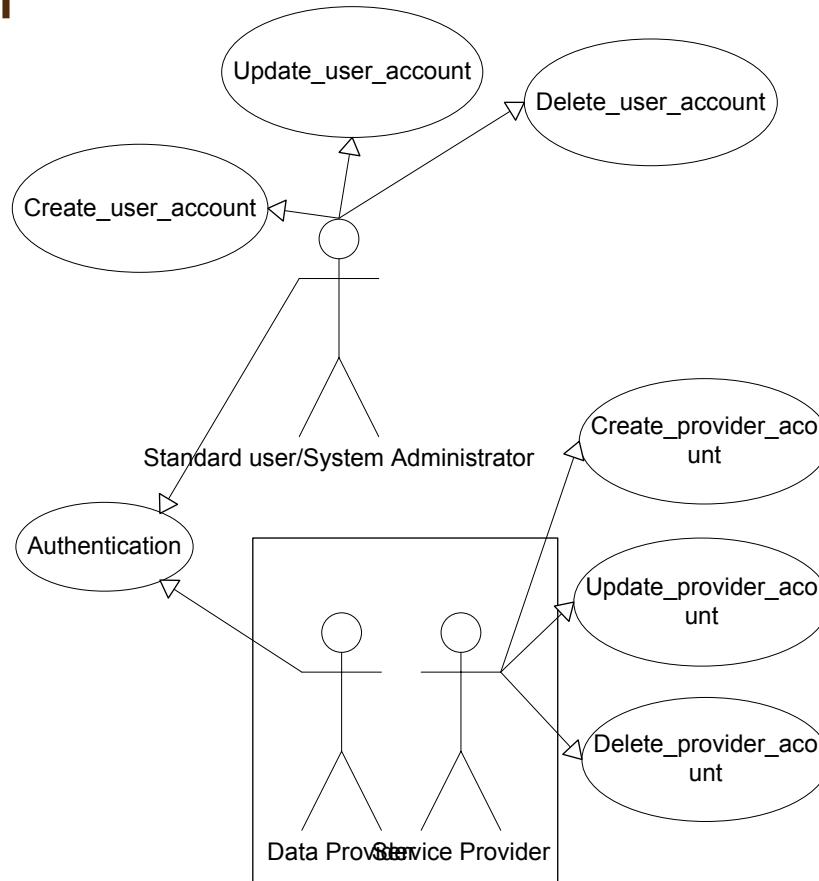
	Portal GUI	Portal security	Usage Monitor	Billing	Mashup Editor	Augmentation Module	Identity management	Application Library	Mashup Repository	Service Marketplace	Data Pre-processing	Data importing	Data Merging	Data Visualization	Visualization Sharing
Fine-grained authorisation (SU-1)							S								
Encrypted data (SU-2)		S													
Secure connection (SU-3)		S													
Collaboration groups and trust networks (SU-4)							S								
SSO authentication (SU-5)		S					S								
Data-source gathering (DA-1)												S	S		
Data acquisition: data formats (DA-2)												S			
Broad and large data (DA-3)												S			
Reading highly sensitive data (DA-4)					S										
Bringing applications to data sources (DA-5)		S			S				S						
Visualization on raw data (DP-1)														S	
Data anonymisation (DP-2)											S				
Data cleansing/extraction and transformation (DP-3)											S			S	
Synchronize time series (DP-4)											S		S		
List of visualizations (DV-1)						S								S	
Visualizing multiple results (DV-2)	S				S										
Usable and updated information visualization (DV-3)														S	
Image pre-visualization in workflows (DV-4)					S										
Customized multiview dashboard (DV-5)					S										
Sharing results (DSH-1)							S								S
Collaborative groups (DSH-2)							S								S

	Portal GUI	Portal security	Usage Monitor	Billing	Mashup Editor	Augmentation Module	Identity management	Application Library	Mashup Repository	Service Marketplace	Data Pre-processing	Data importing	Data Merging	Data Visualization	Visualization Sharing
Data tagging (MD-1)								S	S	S					
Semantically annotated data for visualization (MD-2)								S	S	S					
Interactive intermediate steps (MS-1)					S										
Workflow design (MS-2)					S										
Show workflows cost/consumption while designing it (MS-3)					S										
Workflow results visualization (MS-4)					S										
API integration in the marketplace (AM-1)								S		S					
Standard services (AM-2)								S		S					
RAISME usage (UI-1)	S				S										
Versatile user interface (UI-2)	S														
Data manipulation (UI-3)	S				S	S									
Modular platform (UI-4)								S	S						
Real-time performance monitoring (RT-1)			S		S										
Real-time visualization (RT-2)	S													S	
System status (MO-1)			S												
Users' behaviours (MO-2)			S				S								
Billing subscription (BI-1)				S			S								
Credit consumption (BI-2)				S			S								

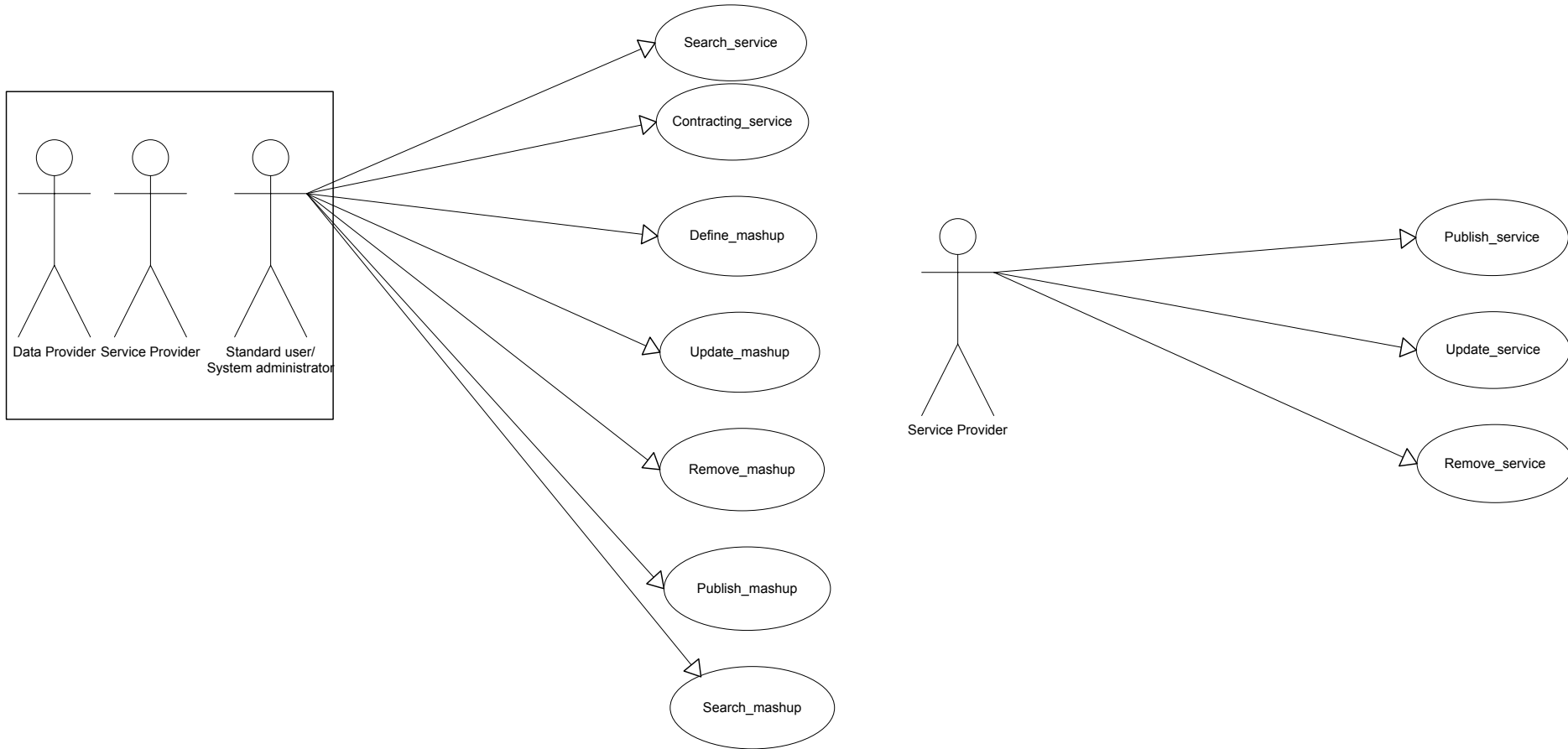
Groups of Users

- 1. Standard users**, or service consumers
 - can search and consume services or datasets for building mashups
 - can run analyses and present results (e.g., visualizations, reports...)
 - have to register and pay a subscription fee
- 2. System administrators**
 - same actions and functionalities as a standard user plus
 - a set of privileges to manage the platform (e.g., monitoring capabilities to control failed requests, resource consumption peaks)
- 3. Service providers**, or partners
 - extends the standard user
 - can publish services to be consumed in RAISME Platform
- 4. Data providers**, or partners
 - extends the standard user
 - Can publish datasets to be consumed in RAISME Platform (e.g., merging processes, analysis services...)

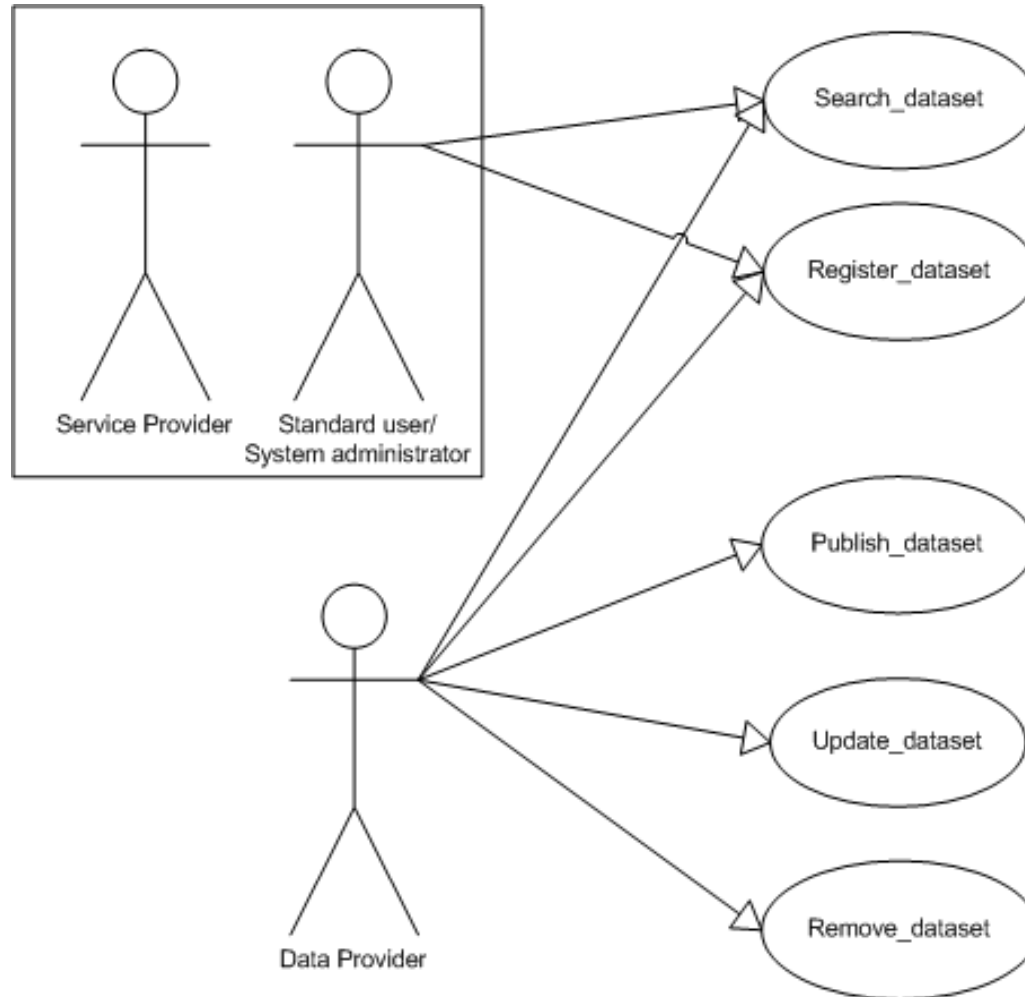
User Management



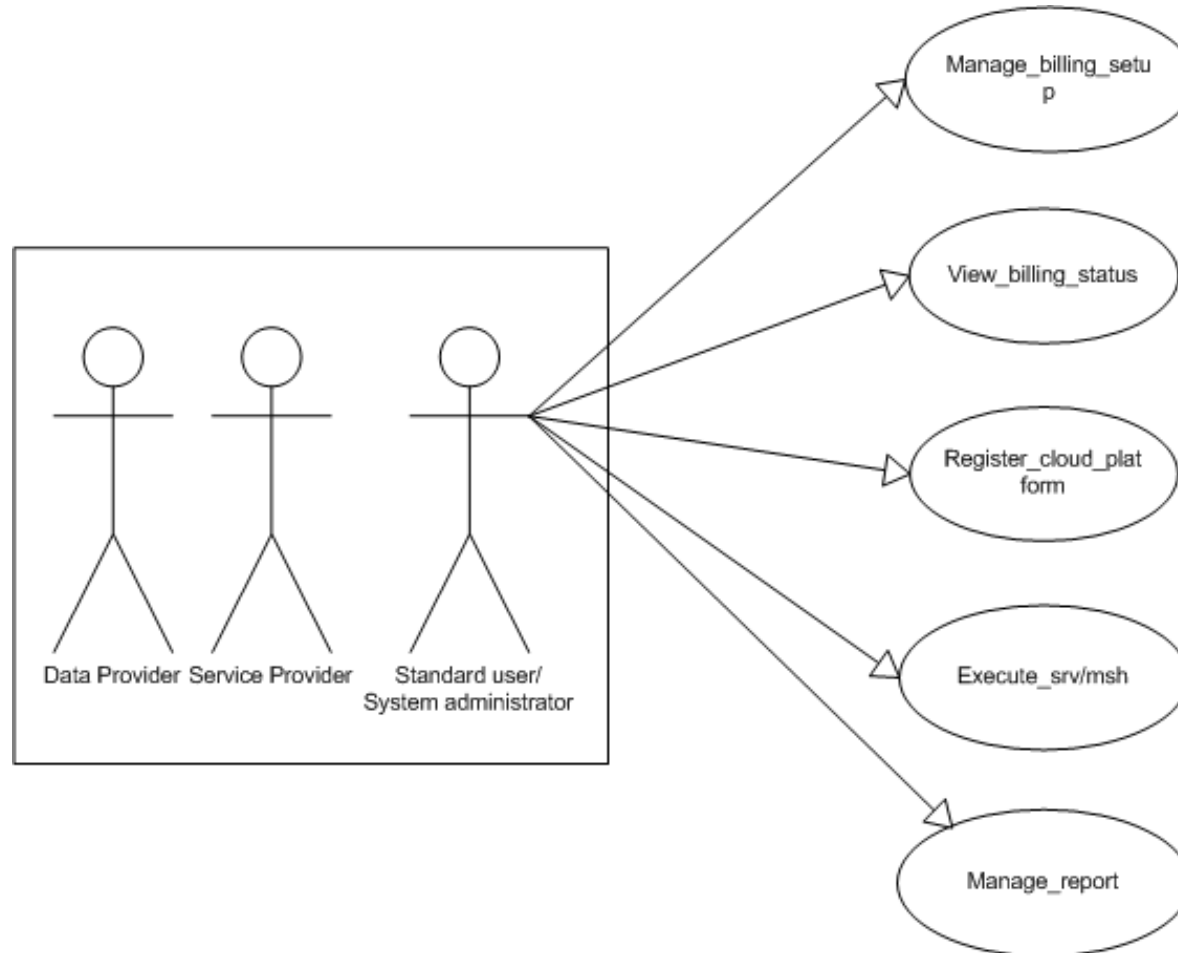
Services & mashups



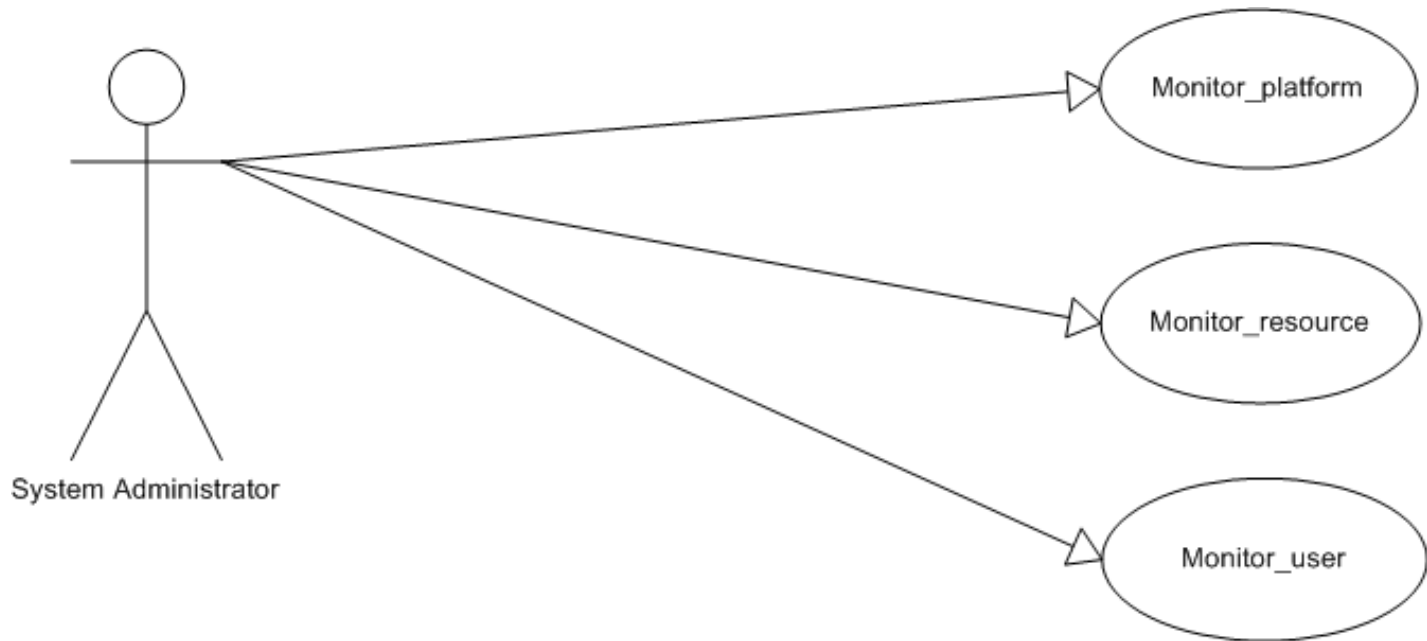
Datasets



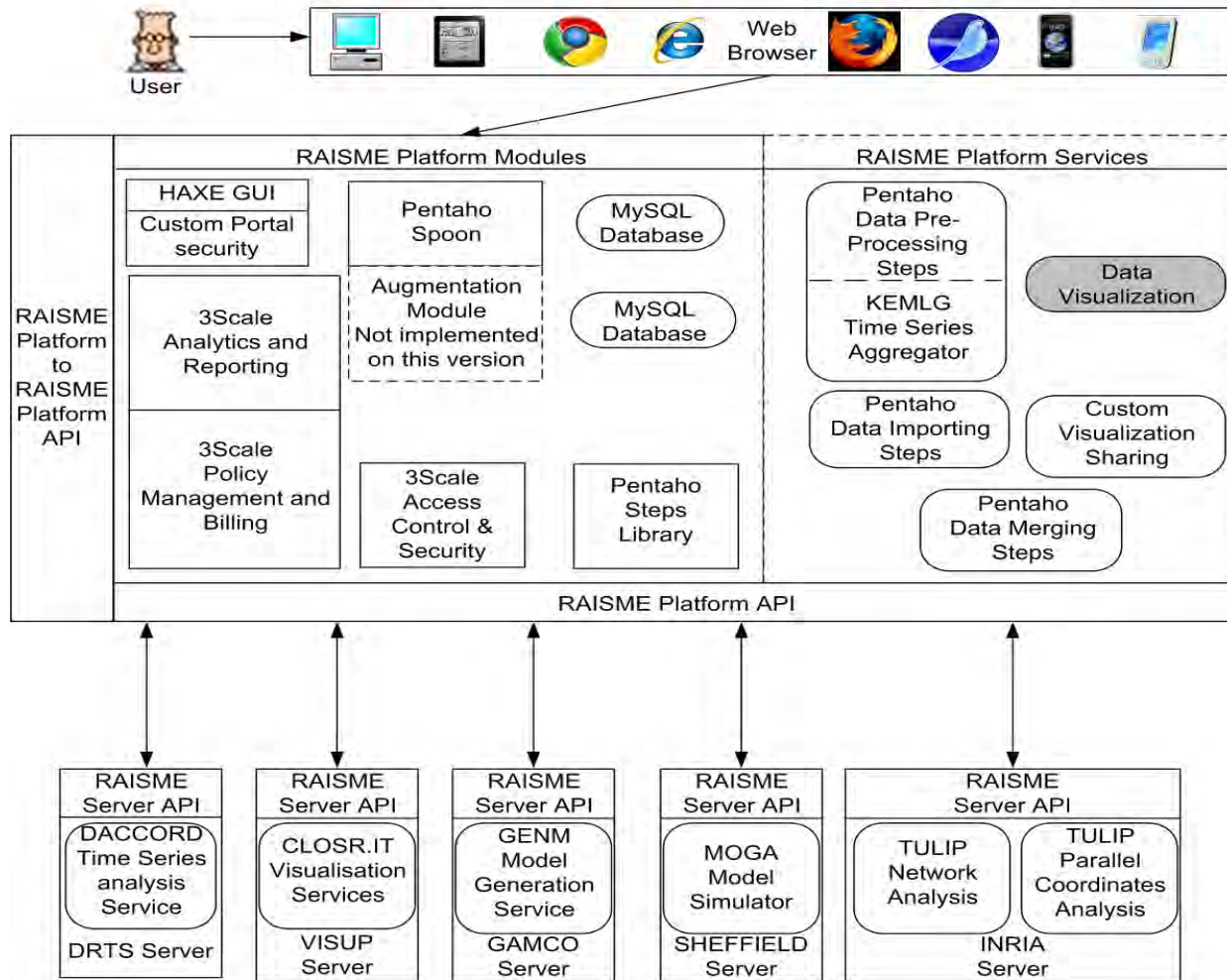
Service execution, billing and reporting



Platform management



Specific technological choices and developments

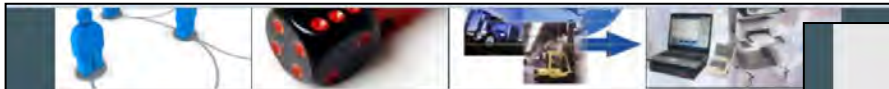


Pentaho as mashup editor and workflow executor

- Algorithms and data remain private on customer-controlled servers
- Full control of the platform
 - Supports transformation execution control (e.g., debugging)
- Exceptional pre-integrated ETL features

Pentaho as mashup editor and workflow executor

- Can be integrated with other modules:
 - Data pre-processing
 - Billing
 - Identity management
- Poor workflow information flow control
 - Does not support loops nor decision branches
- Desktop application
 - GUI difficult to adapt as browser-based



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Select the file you want to import:

Actions Menu

UPLOAD A LOCAL FILE	Import a local file
SELECT A WORKFLOW-STEP	What transformation do you want to perform?





Josep



Select a workflow transformation :

Transformation name	Description
FromCSVToMOGAModel	Given a CSV as input, it creates a MOGA model accordingly.
FromCSVToNetworkImage	Given a CSV as input, it creates a Network Image accordingly.
FromMOGAToVisualisation	Given a MOGA model as input, it creates a Visualisation accordingly.

Actions Menu

UPLOAD A LOCAL FILE	Import a local file
SELECT A WORKFLOW-STEP	What transformation do you want to perform?

Select input 1:

execute

Actions Menu

UPLOAD A LOCAL FILE

SELECT A WORKFLOW-STEP

Inputs

- 0DaccordInput.csv
- 0FromCSVToMOGAModel.csv
- 0FromCSVToNetworkImage.csv
- 0FromMOGAToVisualisation.csv
- 0MogaConfig.conf
- 0MogaModel.moga
- 1FromCSVToMOGAModel.csv
- 1FromCSVToNetworkImage.csv
- 1FromMOGAToVisualisation.csv
- MogaConfig.conf
- MogaModel.moga
- ParallelCoordinateLinks.txt
- TulipVisualisationID.txt

local file

Input description

Data file in CSV format to be used as input.

What transformation do you want to perform?

Output file: NetworkImageLinks.txt

File containing links to network visualisations.
 Download file: NetworkImageLinks.txt
[./data/userfiles/Josep/./TulipVisualisation.jpg](#)



Zoom In
Zoom Out

Output file: MostImportantParameters.csv

File containing the most important parameters of the input data.
 Download file: MostImportantParameters.csv

- Total Emergency Admissions,3.632510243
- General Government Gross Debt (billion),3.51489392
- Gross Disposable Income (mill),3.507136854
- Population Growth (% annual),3.339052628
- Health Expenditure per Capita,3.287963568
- Death Rate Per 1000 People,3.241131387
- UK Youth Unemployment (%pop),3.166190794
- Food Sugar & Sweet Products,3.056191155
- High Tech Exports (%Manu Exports),2.830965985
- Patent Applications,2.733305526
- Total Admissions Age 15-59,2.706448806

Executing FromCSVToMOGAModel

Pentaho transformation log:

```
U=U, L=U
INFO 02-09 16:10:03,859 - Pan - Finished!
INFO 02-09 16:10:03,863 - Pan - Start=2011/09/02 16:10:03.032, Stop=2011/09/02 16:10:03.859
INFO 02-09 16:10:03,864 - Pan - Processing ended after 0 seconds.
INFO 02-09 16:10:03,867 - FromCSVToMOGAModel -
INFO 02-09 16:10:03,867 - FromCSVToMOGAModel - Los procesos CSV file input.0 han finalizado
correctamente, se han procesado 2 l neas. ( - 1 neas)
INFO 02-09 16:10:03,867 - FromCSVToMOGAModel - Los procesos Model Generator Plugin.0 han finalizado
correctamente, se han procesado 1 l neas. ( - 1 neas)
INFO 02-09 16:10:03,867 - FromCSVToMOGAModel - Los procesos MogaModelOutput.0 han finalizado
correctamente, se han procesado 1 l neas. ( - 1 neas)
INFO 02-09 16:10:03,867 - FromCSVToMOGAModel - Los procesos MOGA Configuration Generator Plugin.0
han finalizado correctamente, se han procesado 4 l neas. ( - 1 neas)
INFO 02-09 16:10:03,867 - FromCSVToMOGAModel - Los procesos MogaConfigurationOutput.0 han
```

Output file: MogaModel.moga

File containing the MOGA model.

Download file: [MogaModel.moga](#)

This output file has been configured to not be shown.

Output file: MogaConfig.conf

File containing the MOGA configuration parameters.

Download file: [MogaConfig.conf](#)

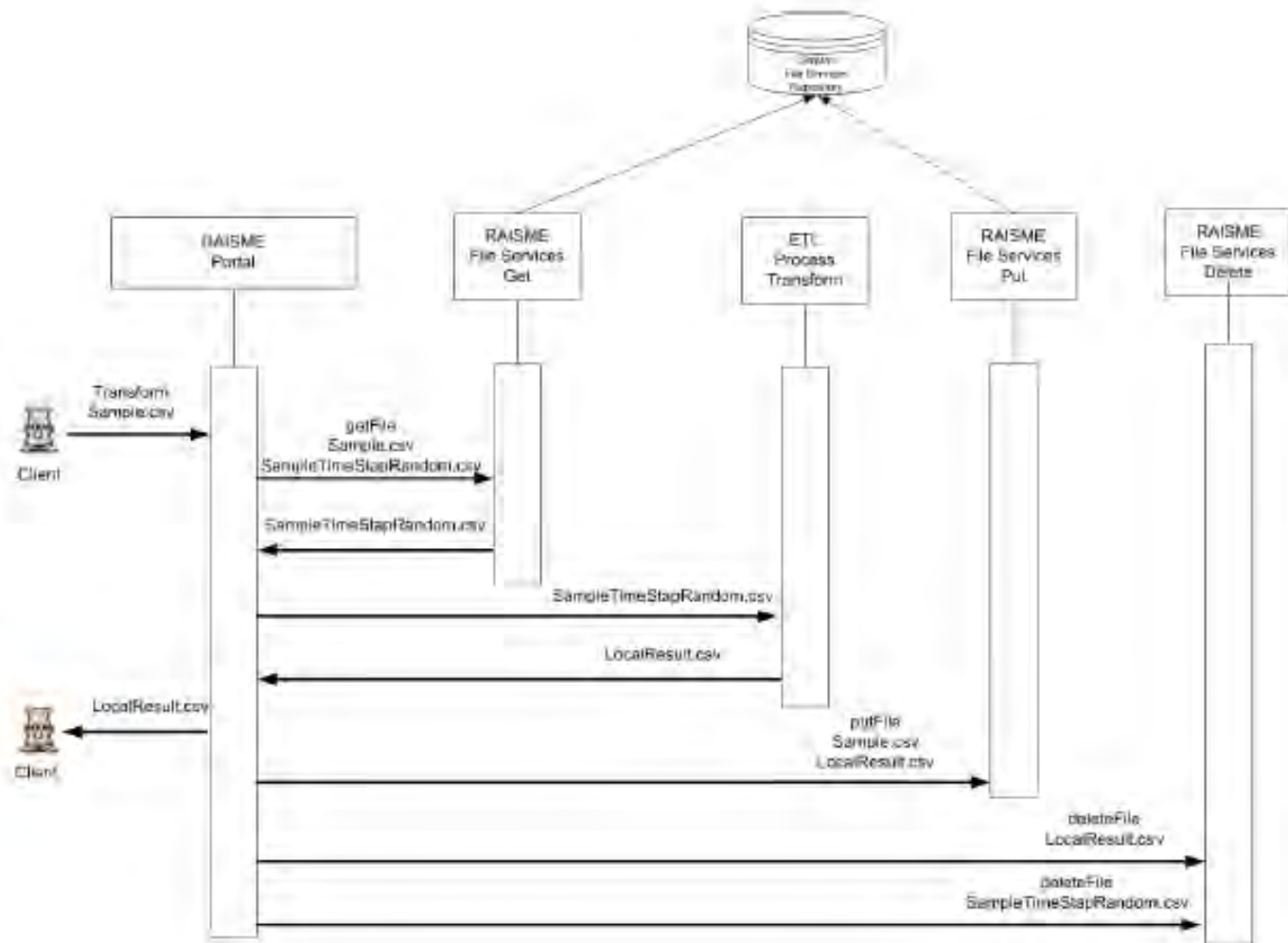
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WSO2 Stratos overview

- WSO2 is an Open Source software company providing SOA Platform solutions for professional platform providers and consumers. Mainly based on the Apache Web Services projects
- WSO2 Stratos provides most of the services required for developing cloud applications.
- Open PaaS solution with support for several core services.
- WSO2 Stratos allows full middleware stack to be self-provisioned, managed and deployed.
- GUI to add and configure their services, effectively deploying and configuring new applications on the platform
- As new services are deployed on the WSO2 Stratos middleware, they can benefit from already existing components (from governance policies to Enterprise Service Bus endpoints)

Module	Impact	Functionalities
Carbon	High	Supports other modules
Enterprise Service Bus	High	Single entry point to the platform. Support for logging. Simple service composition. Simple load-balancing.
Business Rules Server	Low	Rules are not going to be used
Governance Registry	High	Centralized registry for information and meta-information. Supports other modules
Identity Server	High	Provides identity management to platform and other modules (authenticated services)
Business Activity Monitor	Medium	Can perform advanced monitoring and reporting operations if required
Gadget Server	Low	Gadgets are not going to be used. Could be used for reporting but usage is limited to Google Gadgets
Business Process Server	Low	Business processes not going to be used
Mashup Server	Low	Mashups not going to be used
Data Services Server	High	File application services are the core data repository of the RAISME platform
Application Server	High	Hosts applications available on the RAISME platform
Message Broker	Low	No messaging system is going to be used
Complex Event Processing Server	Low	No complex event processing to be performed

- All Operations**
- getcheckfileslists +
 - getcreatenewfile +
 - getdeletefile +
 - getgetfilenames +
 - getgetfilerrecords +
 - getgetfilesize +
 - getgetfiletype +
 - postappenddatatofile +



- ExcelToCSV service

- XMLToCSV service

- AppendCSV service

- Pentaho Kettle as a service

- CSV Modify Value service

- CSV compute column mean Service

- CSV detect rogue values Service

- CSV append date Service

- CSV check time series date Service

- We finished first prototype
 - Using Pentaho as workflow engine
 - Very simple Portal
 - Most of Partner Tool's APIs created (need enhancements)
 - Showed in EC review

- We have started second prototype development
 - Following an agile methodology and an integral development process
 - Demonstrations to SMEs in each sprint
 - At the end, RAISME Platform will cover requirements with higher priority for SMEs
 - Maintaining the product vision until the end
 - WSO2 Stratos as middleware for the platform implementation
 - Portal design will follow Wireframe methodology

- Starting third party tools methodology for integrating new services in the platform.
- In later stage we have to evaluate the product and look about needed further developments to position it in the market.

Thank you for your Attention

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