

The FP7 Project ASPIRE

(contract No. 215417)

John Soldatos

Associate Professor, Athens Information Technology
Technical Manager, ASPIRE Project
e-mail: jsol@ait.edu.gr





Motivation

- RFID can contribute to increased efficiency in trade, logistics and industry
 - Pilots have demonstrated tangible ROI
 - Innovative SMEs can leverage RFID to produce new products and services
- RFID penetration in European SMEs is still low:
 - European SMEs do not have sufficient equity capital to invest in RFID
 - RFID incurs a significant TCO, comprising hardware, software, integration, consulting and training costs
 - SMEs do not have the resources and expertise to research the optimal blending of RFID into their processes





Project Overview and Goals

Lower the SME entry cost barrier and Total Cost of Ownership (TCO) for RFID technology solutions:

- Royalty Free Middleware
- Lower effort for developing and managing applications

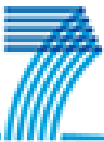
Enable RFID scenarios (based on ASPIRE middleware and added value sensors) that improve business results

ASPIRE

Develops and will deliver a lightweight, royalty-free, programmable, privacy-friendly, standards-compliant, scalable, integrated and intelligent

middleware platform

Validate the above developments in RFID trials



2007 - 2013

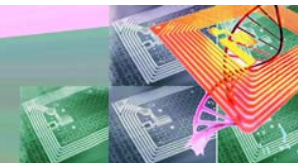
ASPIRE
Aspire Today, Inspire Tomorrow





Project Fact sheet

- Consortium:
 - Aalborg University – CtiF, Denmark
 - INRIA (ObjectWeb, POPS), France
 - Université Joseph Fourier – Grenoble University – LIG Laboratory, France
 - **Athens Information Technology, Greece**
 - Melexis technologies SA MELE, Switzerland
 - Open Source Innovation Ltd OSI UK
 - UEAPME, Belgium
 - **Sensap S.A, Greece**
 - Pole Traceability Valence, France
 - Instituto Telecomunicações IT, Portugal
- Timeframe: 01/01/2008 – 31/12/2010
- Budget: 6.7M€
- EC Contribution: 4.4M€
- Web Site: www.fp7-aspire.eu





(Technical) Approach (1)

- User Requirements
 - Emphasis on SMEs
 - RFID Information Days (France, Greece, Denmark, UK, Portugal)
 - Identification of Trials
- Specification
 - ASPIRE Architecture
 - Middleware Specifications
 - Programmability Specification



(Technical) Approach (2)

- Create core middleware infrastructure
 - Leverage EPC Architecture Framework and Modules (EPC-ALE, EPC-RP, EPC-IS)
 - Reuse from background projects (UJF RFID Suite, Accada)
 - Augment EPC Architecture (JMX end-to-end Management, Sensor Data, Actuator Control, Business Event Generation (BEG))
 - BEG == Added-value EPC Capturing Applications
 - Edge Server Implementation – OSGi Gateway
- Implement Programmability Functionality
 - ASPIRE IDE Concept (Eclipse Plugin)
 - Business Users – RFID BPM
 - Exploit underlying RFID Infrastructure





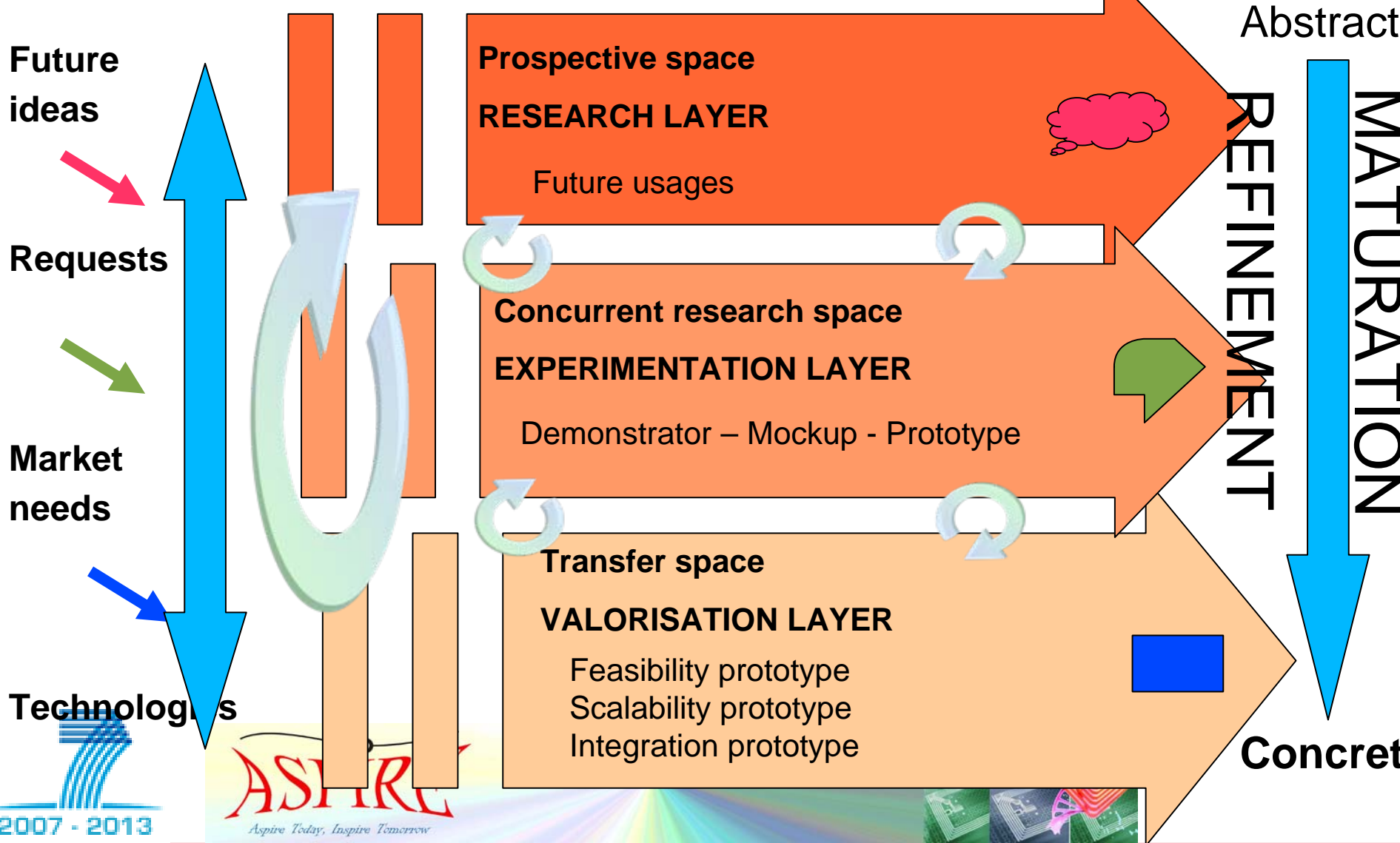
(Technical) Approach (3)

- Trials:
 - At least two (France, Greece)
 - Liaison with more trials in Europe
- Middleware Testing:
 - In trials and demonstrations
 - Using the ASPIRE OW2.org Middleware
 - Using the ASPIRE low-cost hardware as well (MELEXIS IC – Low Cost Reader)





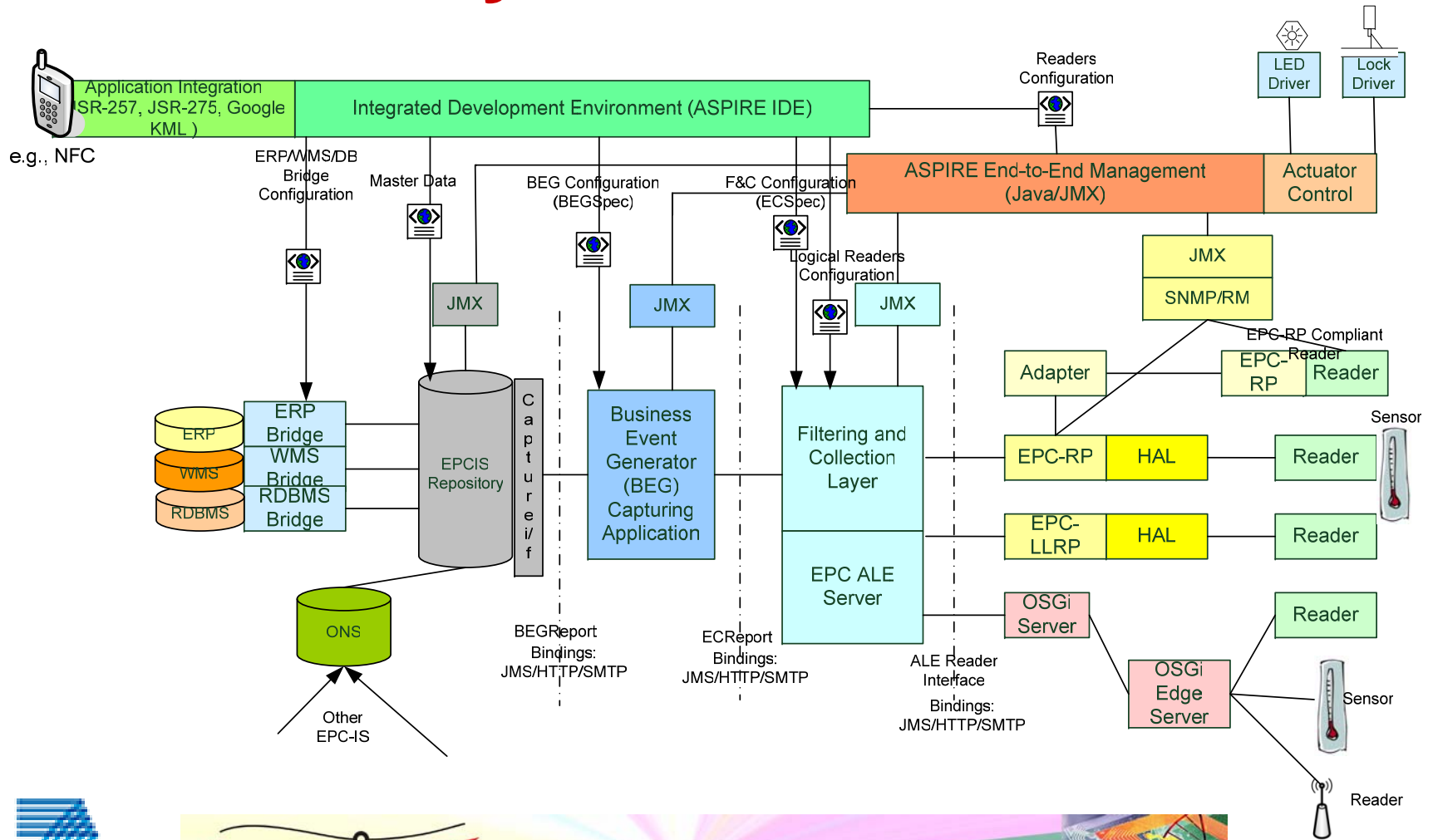
Concurrent Innovation Engineering



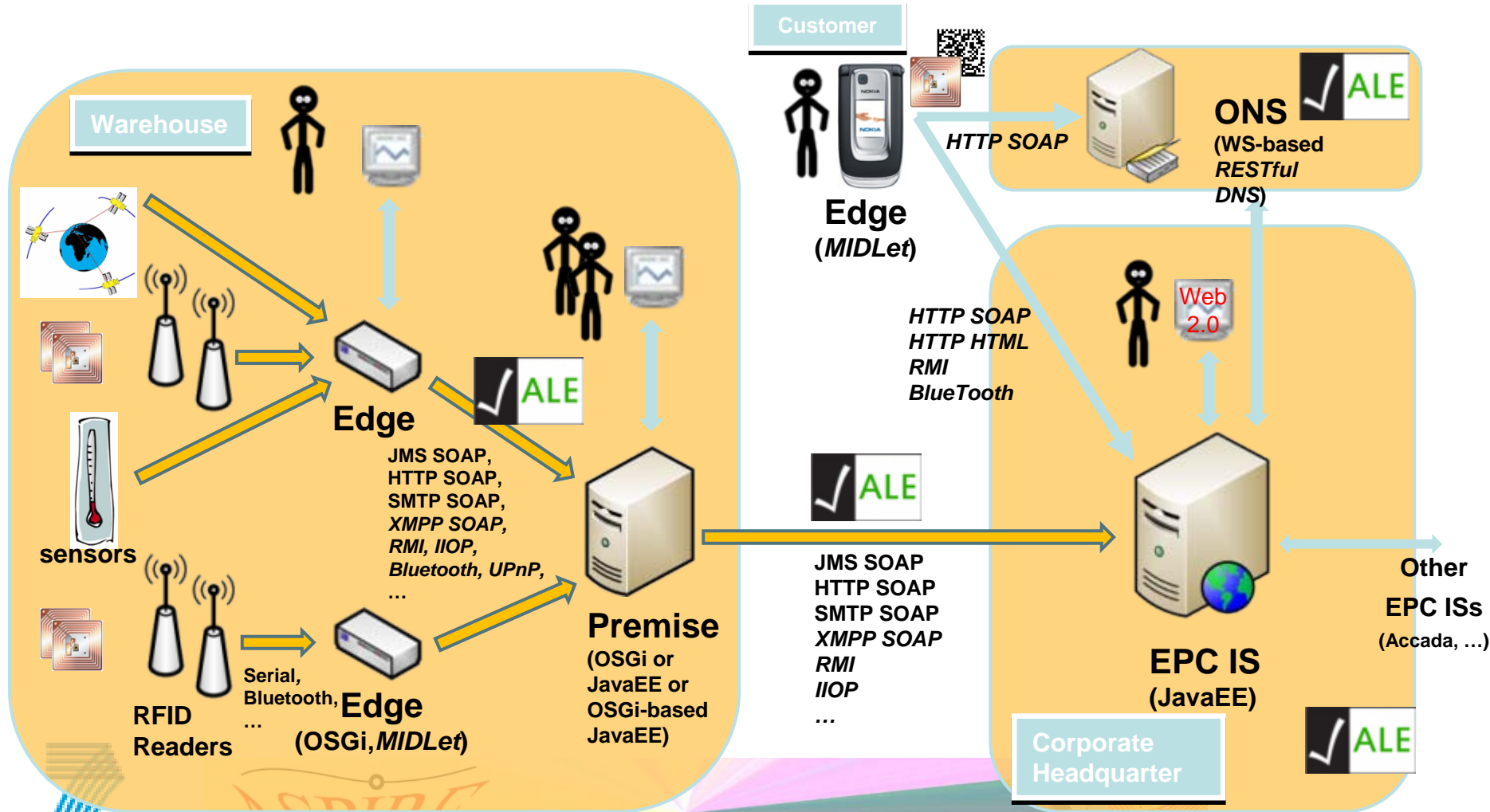
2007 - 2013



Preliminary ASPIRE Architecture



Background: UJF Suite (1)





Background: UJF Suite (2)

RFID Middleware - Windows Internet Explorer

http://localhost:9000/epc/itr_map.adde.rfid.gwt.IndexModule/IndexModule.html

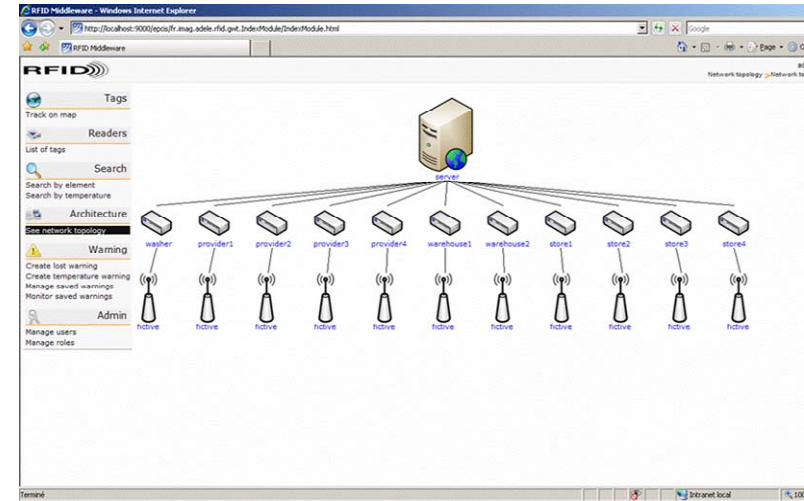
RFID Middleware

Tags: Tag [um.epc.id.gid.6543210.123456.12345678b] Valid Input helper Get general information

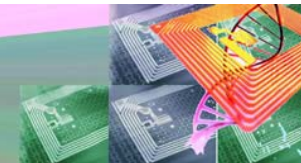
Tracking Complementary information

Information: Path, Marker, Partner information, Display, Focus, Clear map, Legend, Start, Intermediate, Finish

Pos	Gateway	Reader	Date
1	Gateway name	fictive	mardi 7 août 2007 10:25:34
2	Gateway name	fictive	mardi 7 août 2007 10:25:01
3	Gateway name	fictive	mardi 7 août 2007 10:24:40
4	Gateway name	fictive	mardi 7 août 2007 10:24:10
5	Gateway name	fictive	mardi 7 août 2007 10:23:55
6	Gateway name	fictive	mardi 7 août 2007 10:23:49



ASPIRE
Aspire Today, Inspire Tomorrow





ASPIRE IDE Concept

Solution in ASPIRE Language

Company Data

Warehouses

DockDoors

Readers

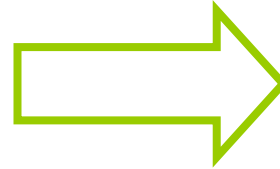
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Legacy Systems

Business Process Description

```
<process name=".."
id="..">
  <warehouse>
  <dockdoors>
  <sequence>
    <isevent>
  </sequence>
</process>
```

Privacy constraints?



ASPIRE RFID Solution Description

Generate Specs



ECSpecs / BEGSpecs / etc.

1. Compile
2. Package
3. Deploy

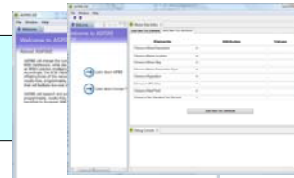
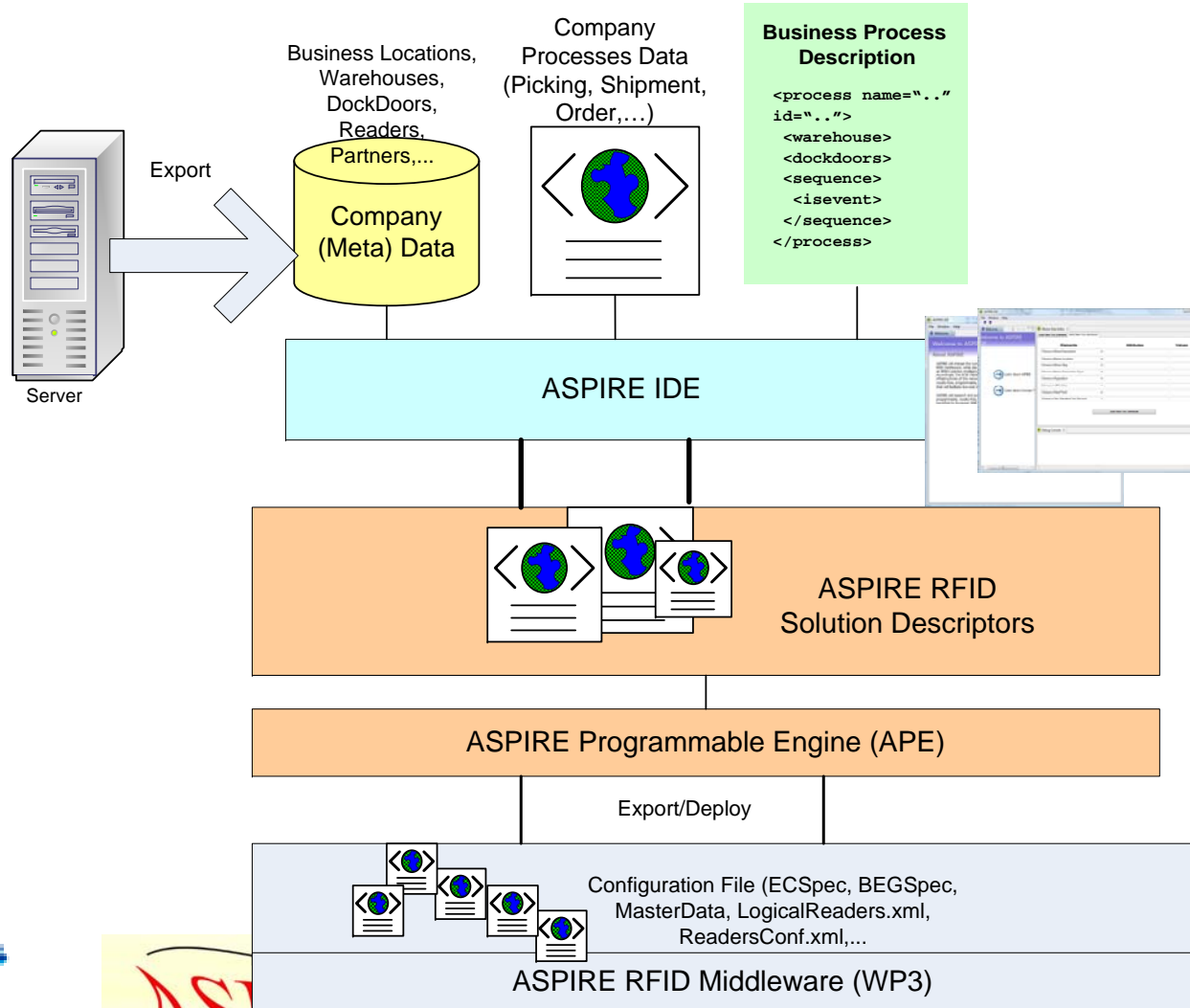


Deploy

ASPIRE Core Middleware Suite



ASPIRE IDE Concept

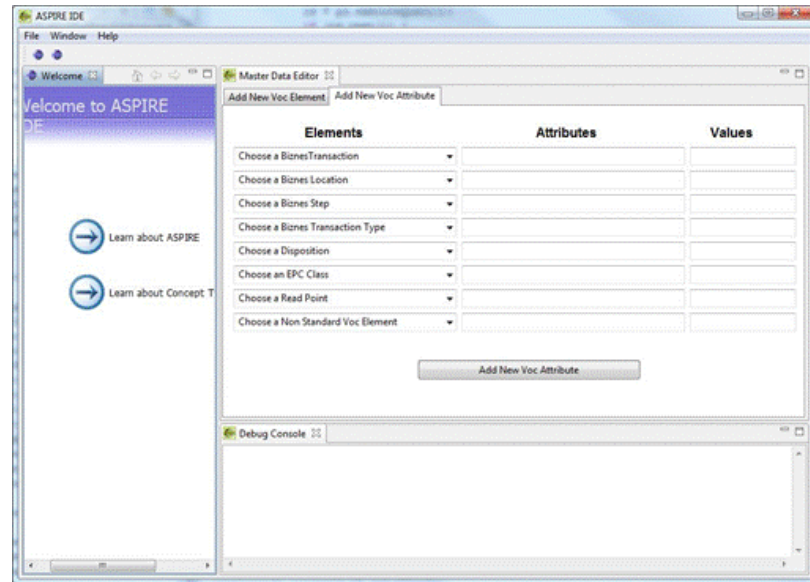
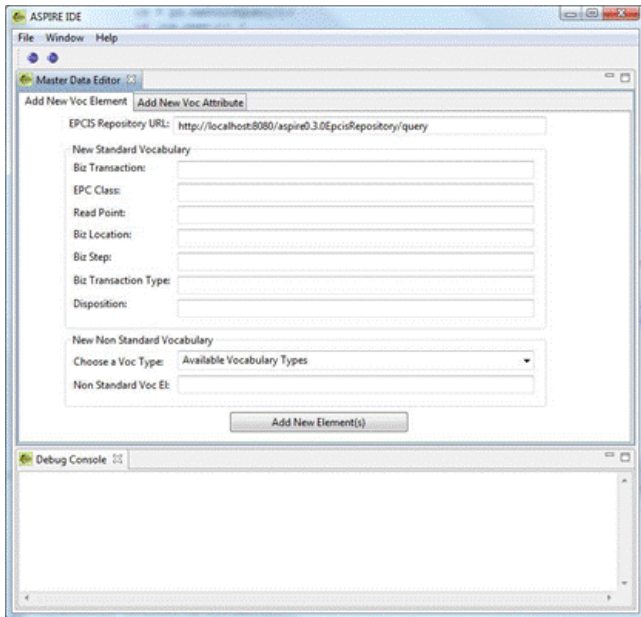


Sample Tools

ASPIRE IDE

Export/Deploy

Configuration File (ECSpec, BEGSpec, MasterData, LogicalReaders.xml, ReadersConf.xml,...)





Participating in ASPIRE

- End-Users (notably SMEs) can:
 - Fill-in the on-line survey (5 min)
 - Participate in the RFID Information Days (1 day?)
 - Participate in ASPIRE trials
 - Download and test/use the ASPIRE RFID middleware
- RFID hardware and/or ERP/WMS vendors:
 - Pursue optimized integration of ASPIRE middleware with their products
- *AIT, SENSAP and other ASPIRE partners look forward to collaborating with you!*

