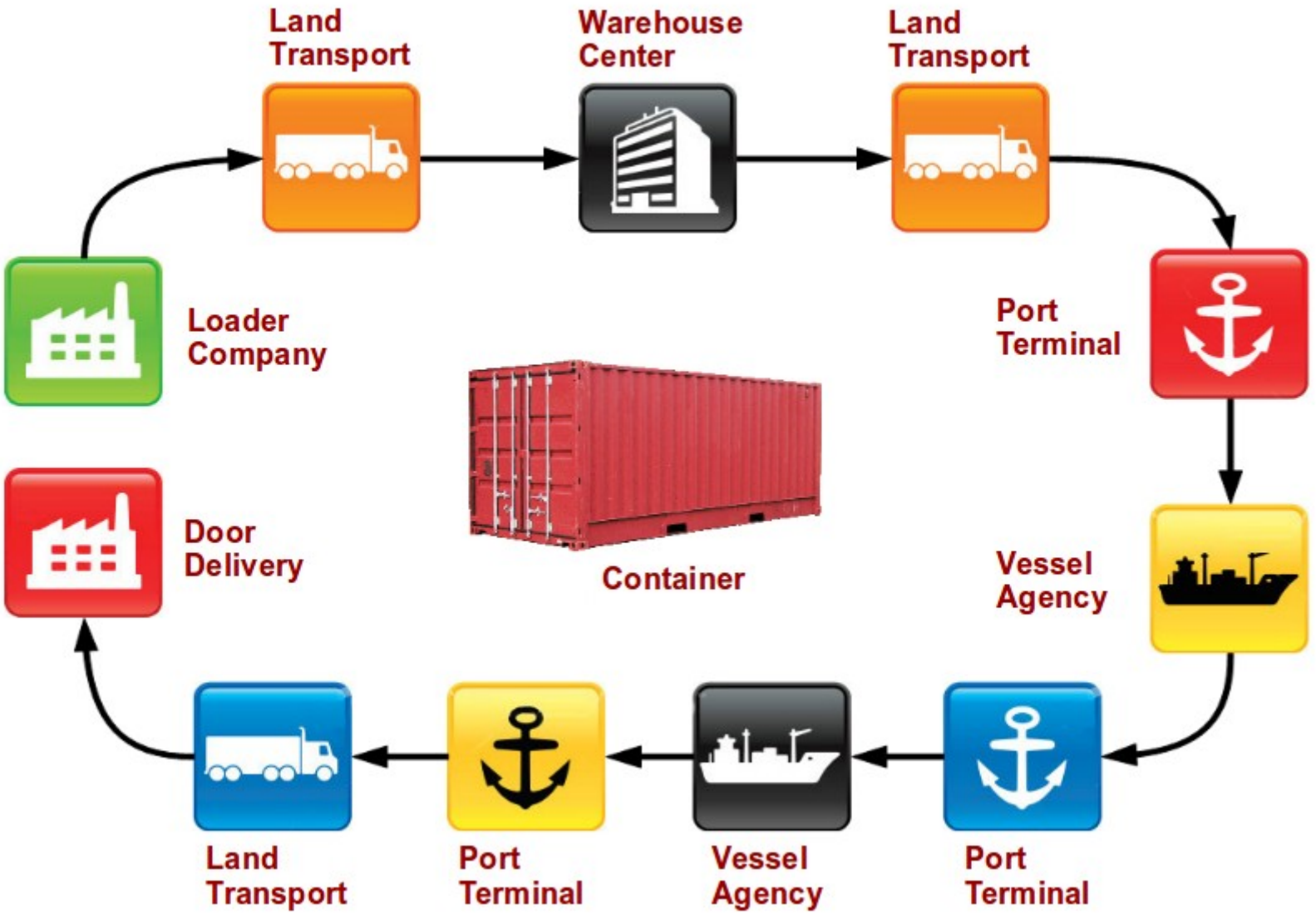
Bringing Agility into Linked Data Development

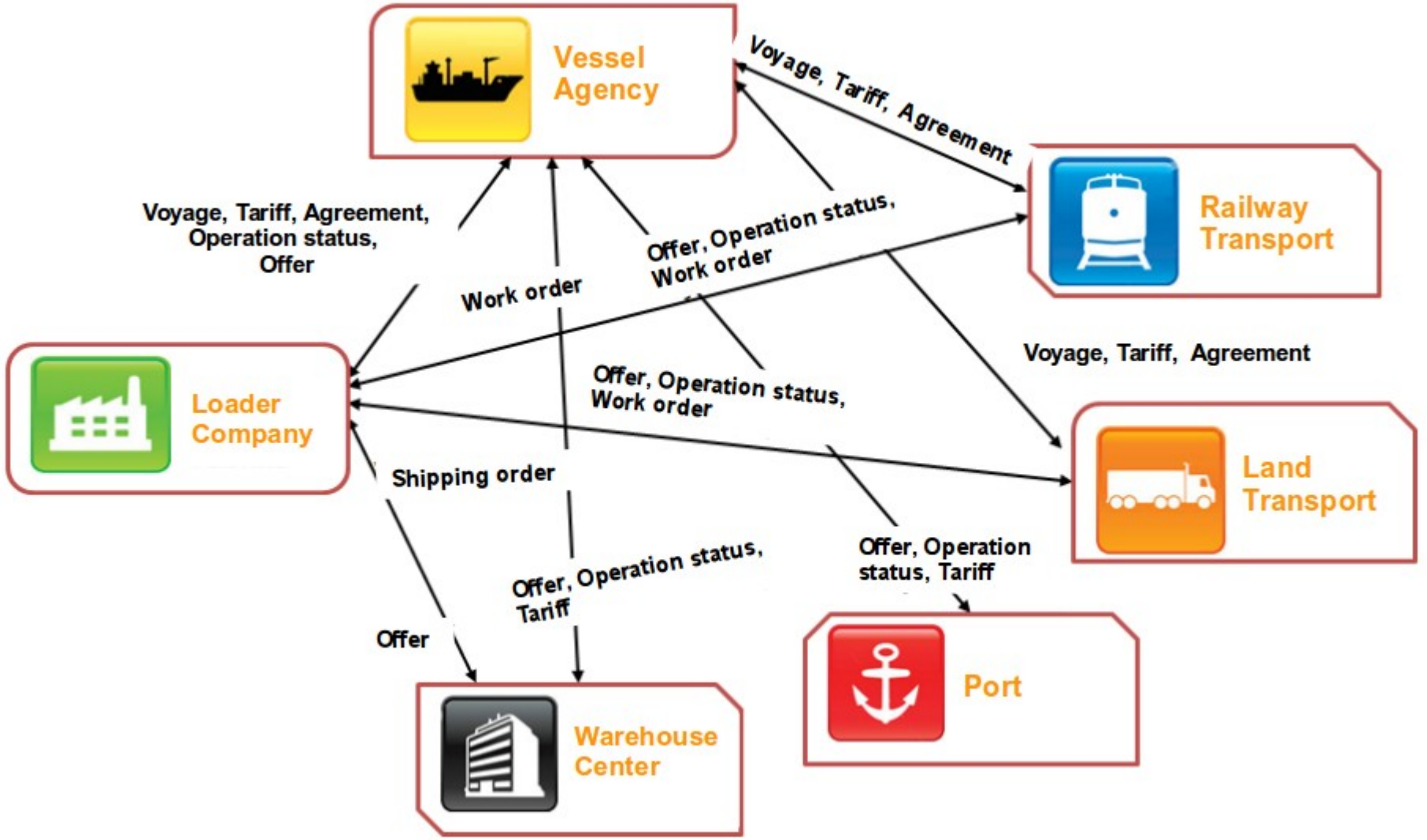
An Industrial Use Case in Logistics Domain

Pinar Gocebe(1), Oguz Dikenelli(1), Umut Kose(2)
(1) Ege University
(2) Bimar Information Services

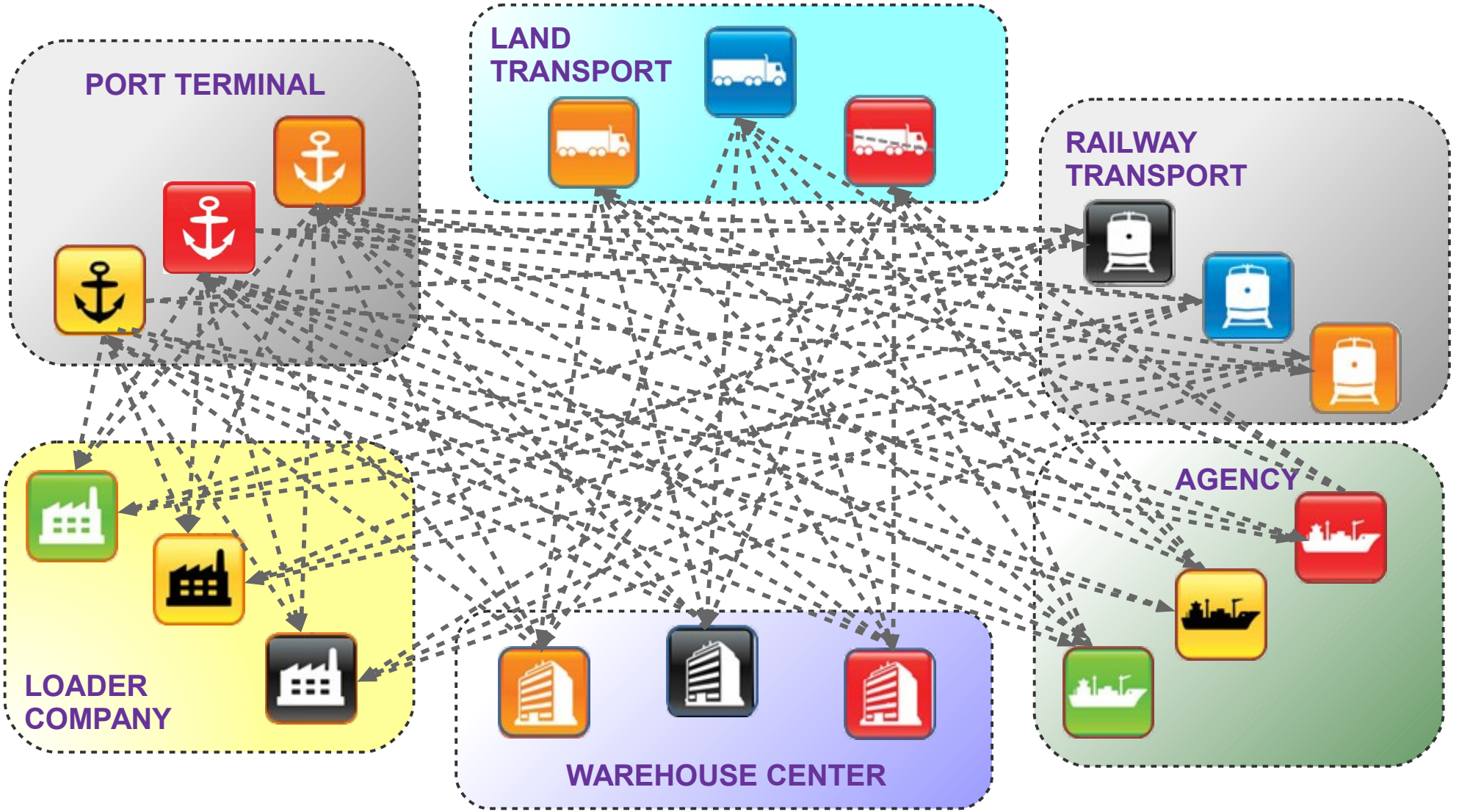
Logistics Container Transportation



Logistics Container Transportation



Logistics Container Transportation

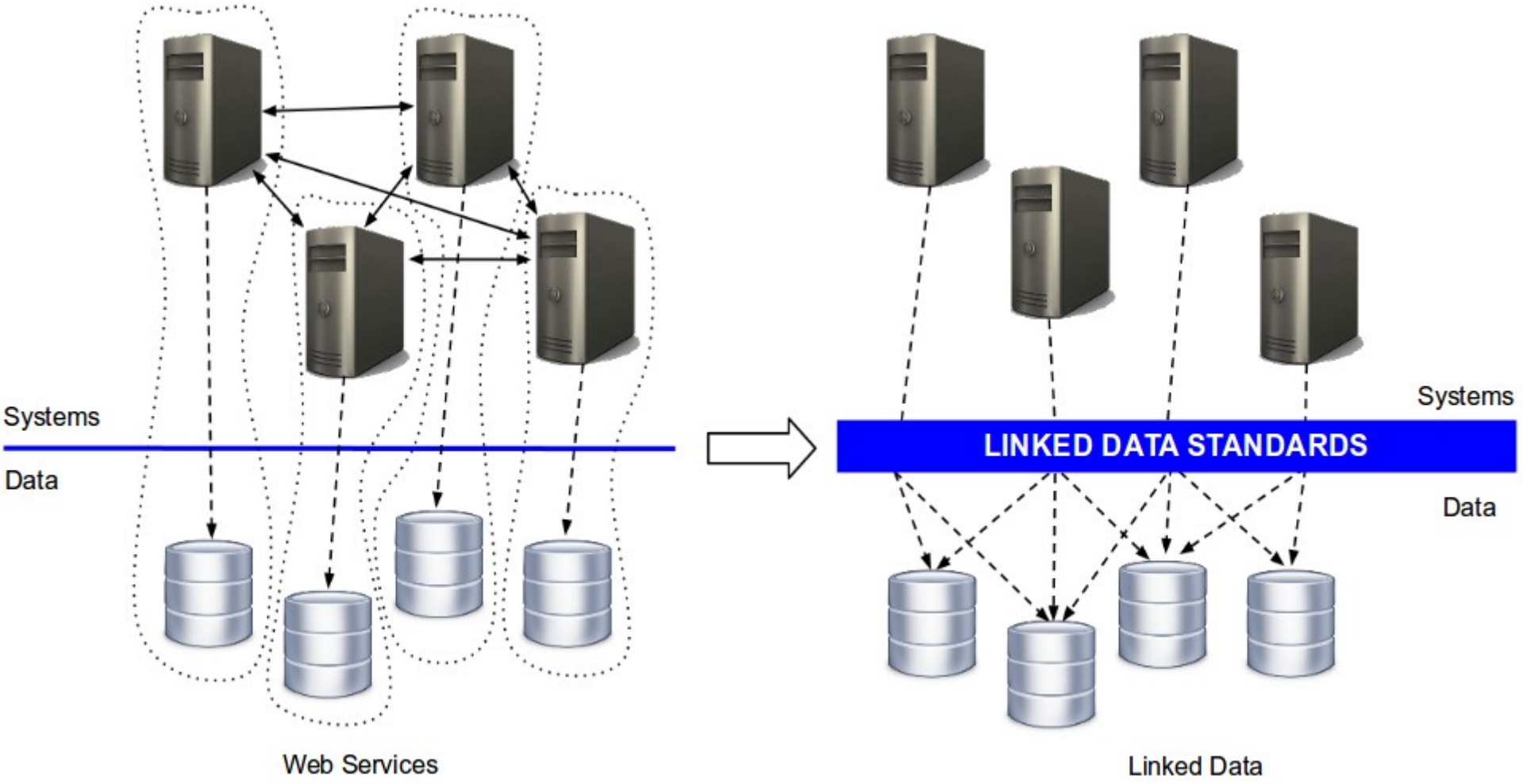


Logistics Container Transportation

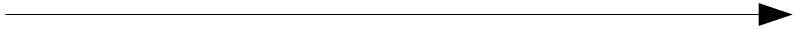
IN TURKEY	TOTAL	WORKING with INTEGRATON
Port	23	11
Warehouse Center	~ 80	21
Land Transport	~ 900	~ 650
Agency	22	13
Forwarder	~ 200	2
Railway Transport	6	1

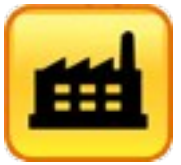
- New Integration Cost
  - 12-30 days
- Costly Operations
  - Data transformation between services
  - Data format (EDIFACT, RosettaNet, STEP, AnsiX12) agreement processes
  - Maintenance of integrations
- Integration/Budget → %25-30
- Maintenance/Budget → %10-15

Why Linked Data?



Observation and Monitoring of Container Life Cycle Application



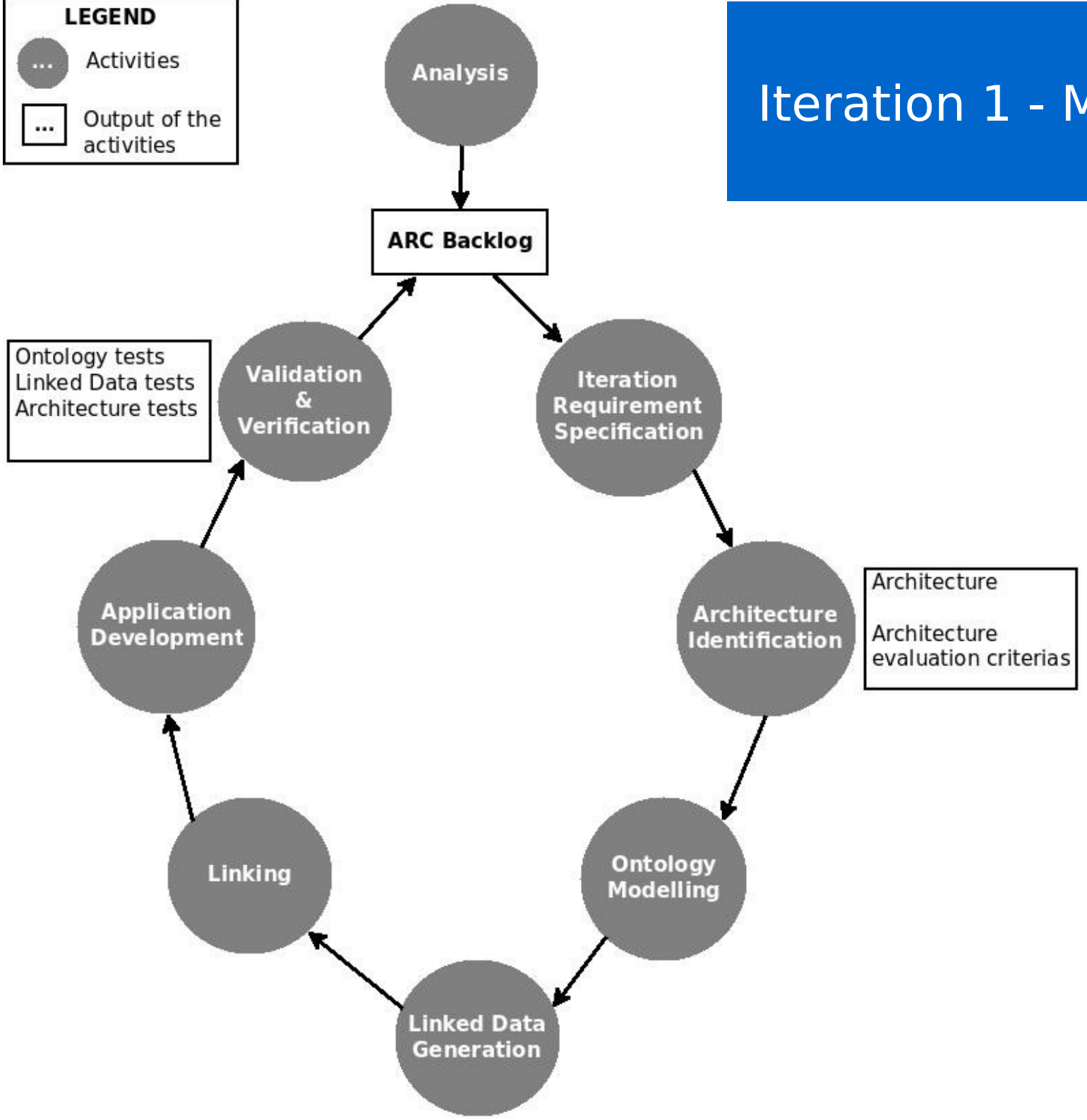


From: Manisa / Turkey

To: Muchen / Germany

- Land Transport → from Manisa / Turkey to İzmir Alsancak Port / Turkey
- Sea Transport → from Izmir Alsancak Port / Turkey to Pireus Port / Greece
- Sea Transport → from Pireus Port / Greece to Venice Port / Italy
- Land Transport → from Venice Port / Italy to Munchen / Germany

Iteration 1 - Methodology



Iteration 1 – ARC

ID	BAKI-IT1
Purpose	Observation of the Container Transportation History
Selected Data Sources	ARLES (Port database) YNA (Agency database)

User Story

As a customer, I need to search port history of a specific booking number, So I could learn whether the port history of my goods as expected.

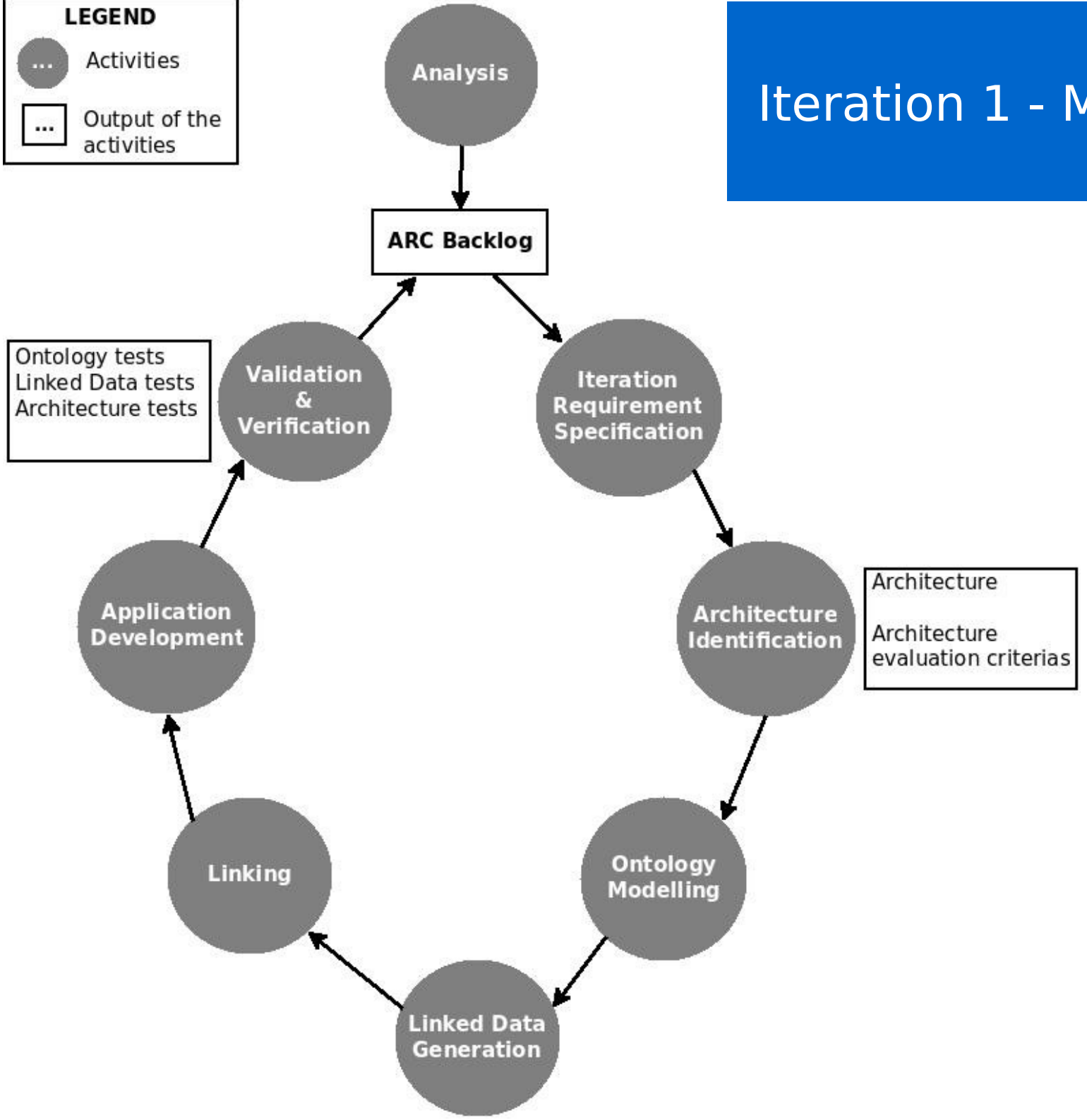
Competency Questions

1-) Is there specific booking number in the specific port?

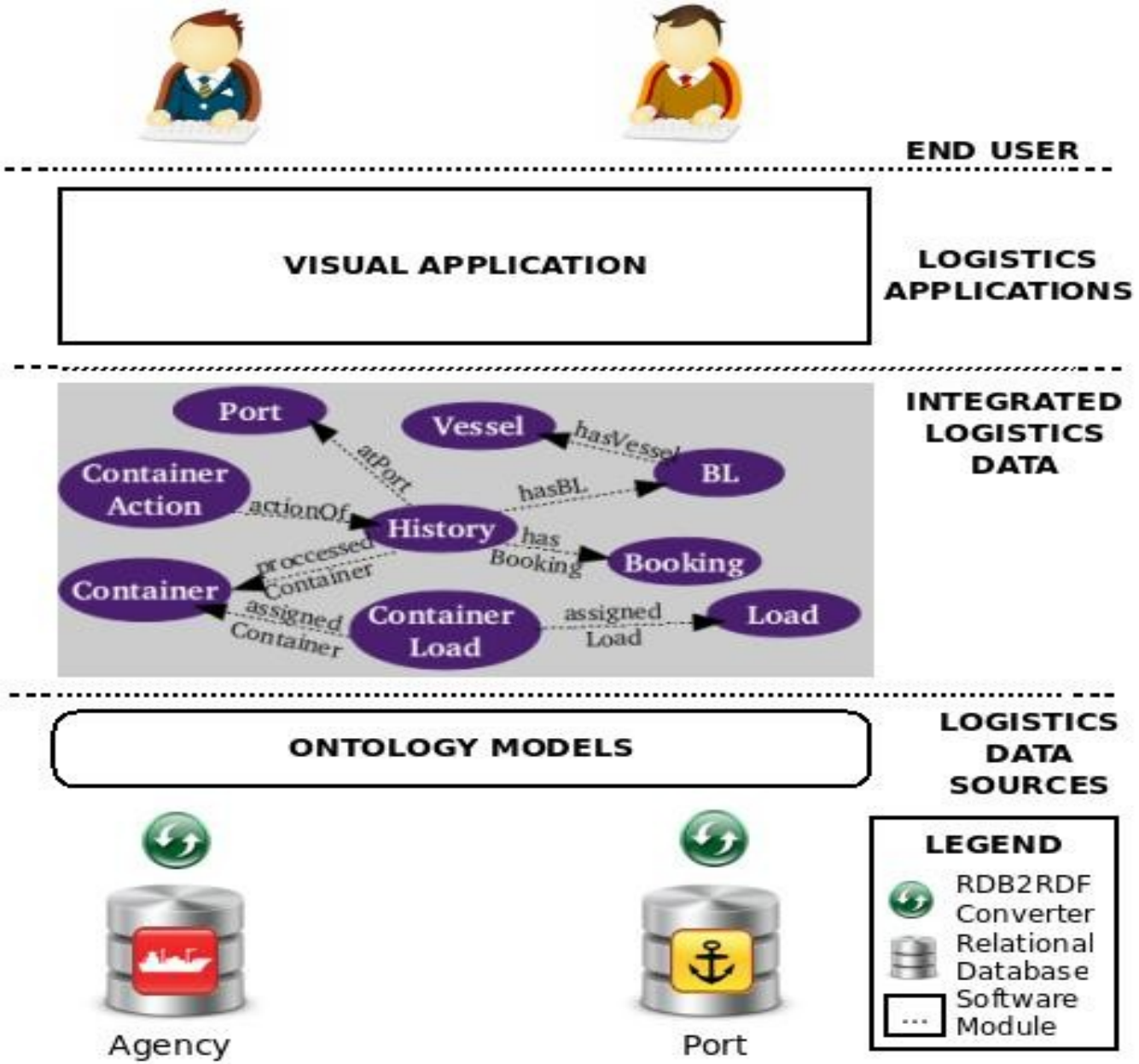
2-) What is the list of actions specific booking number in specific port?

...

Iteration 1 - Methodology



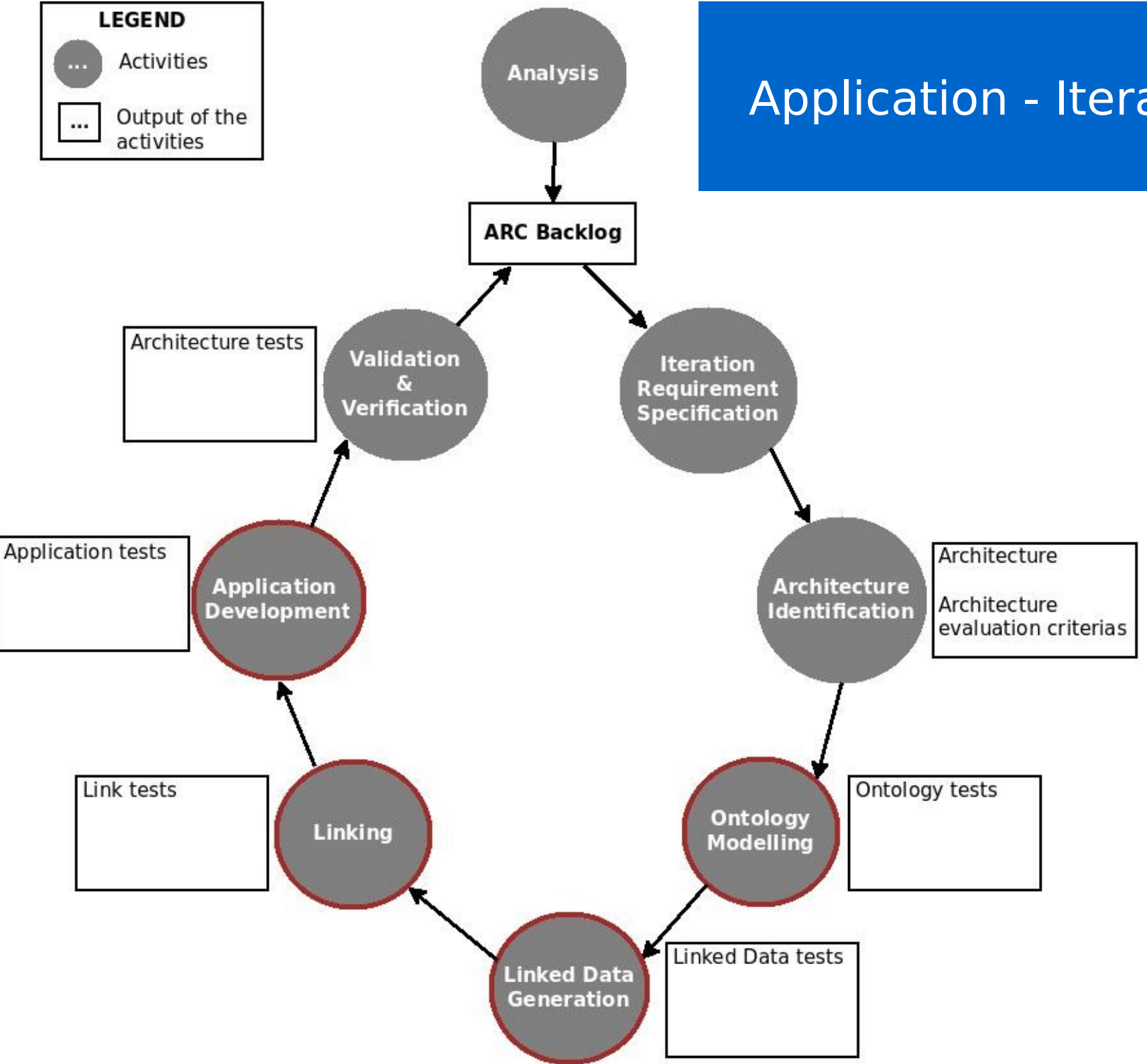
Iteration 1 - Application



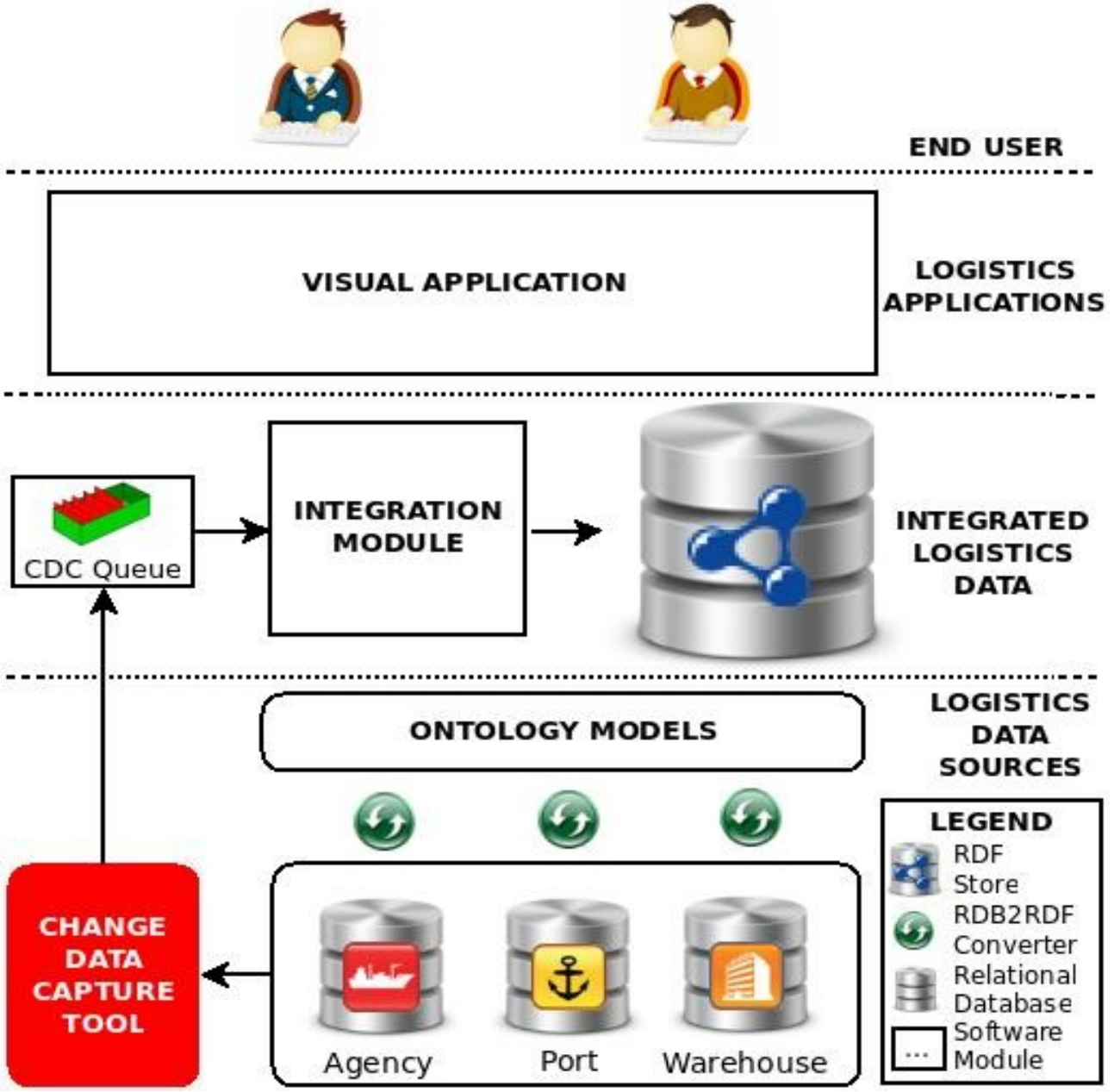
Iteration 1 – Lessons Learned

- Before the development, an education about linked data knowledge set is required to prevent smooth flow of the activities.
- Development of test cases and execution of tests should be done when necessary knowledge is ready.
- Integrating architecture identification and evaluation of the identified architecture within the development life cycle is a good idea.

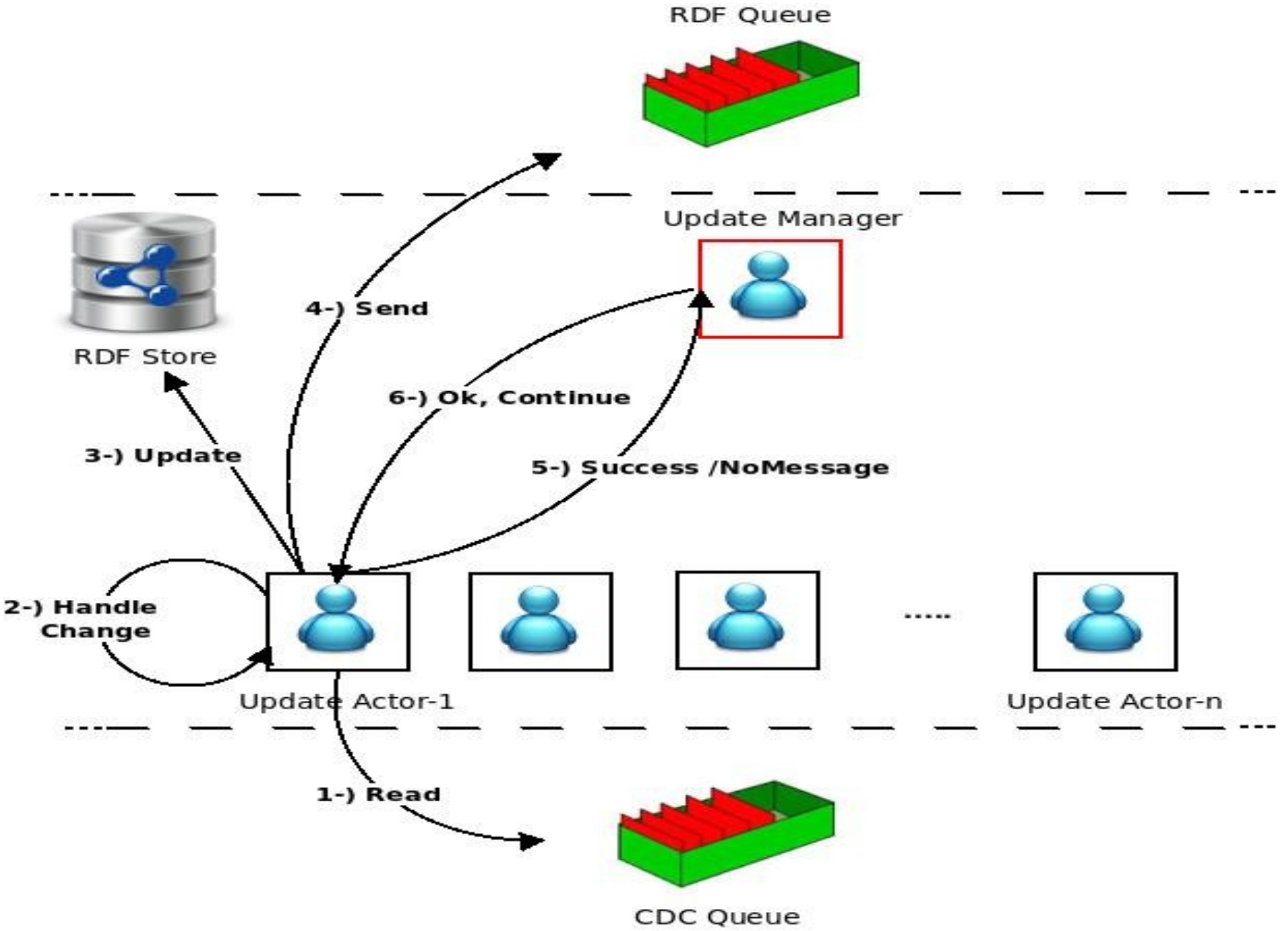
Application - Iteration 2



Application - Iteration 2



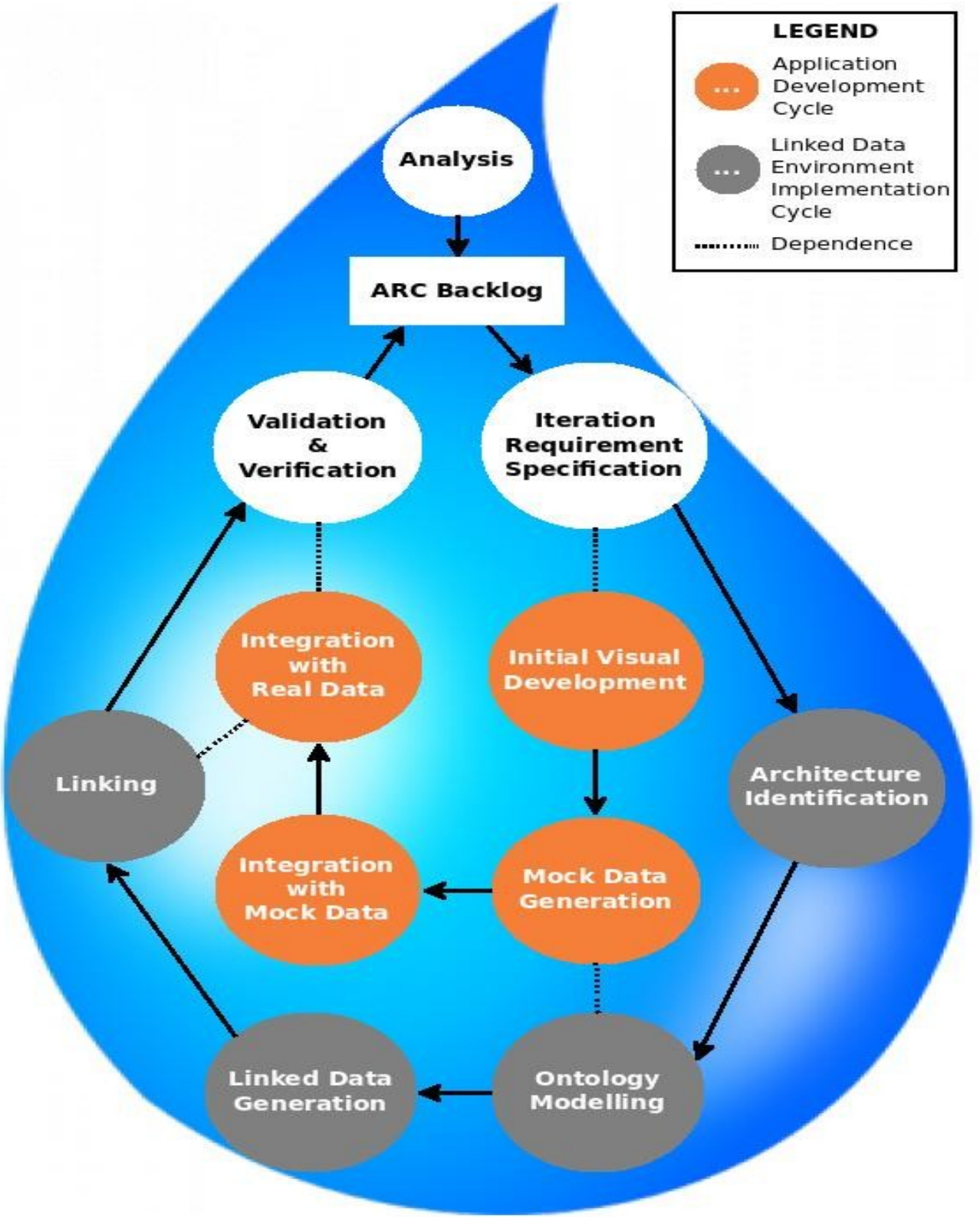
Application - Iteration 2



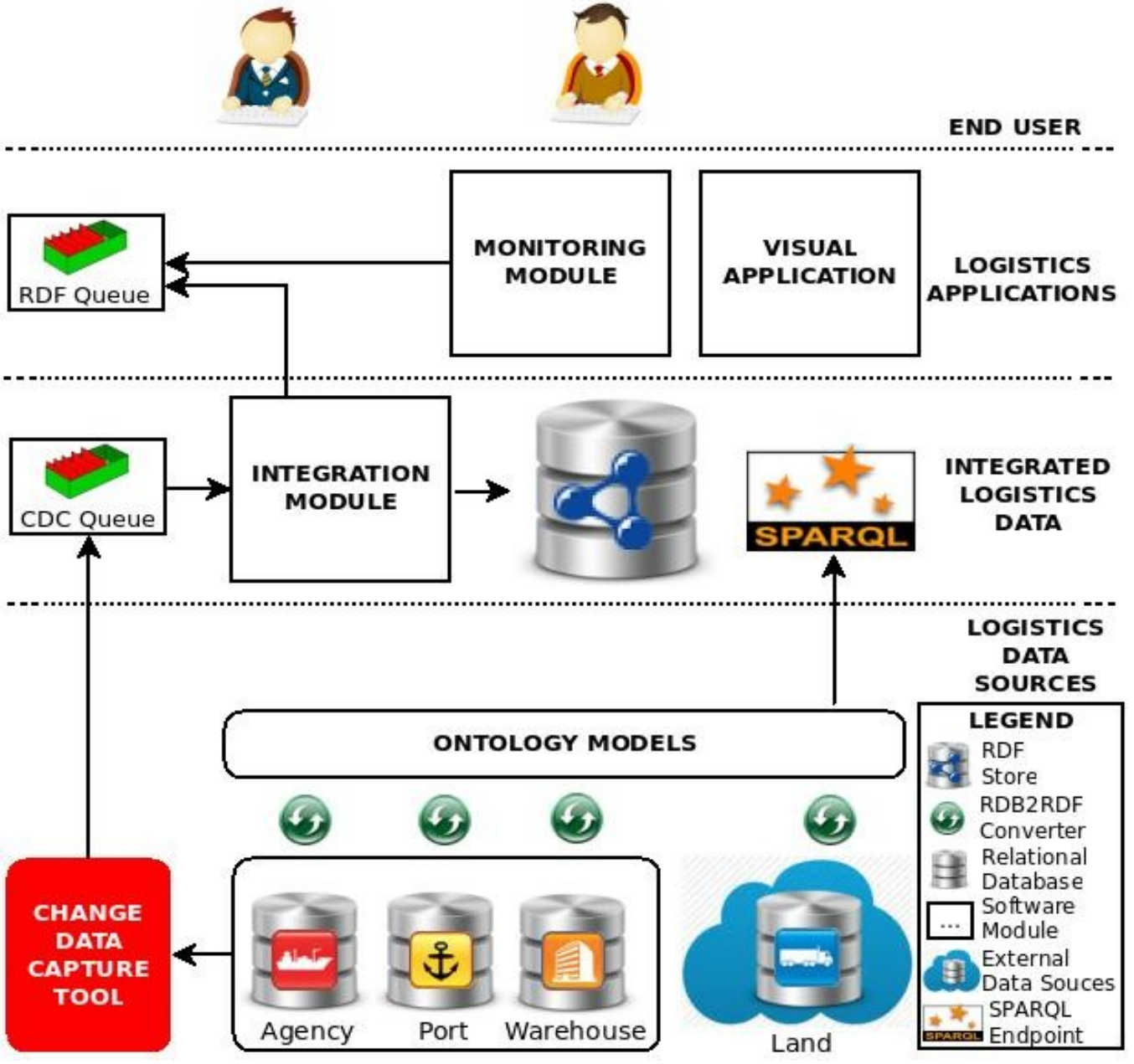
Application - Iteration 2

- Generation of test cases and making tests in the Ontology Modeling, Linked Data Generation and Linking activities are good idea.
- Application development should be a parallel process with Linked Data generation

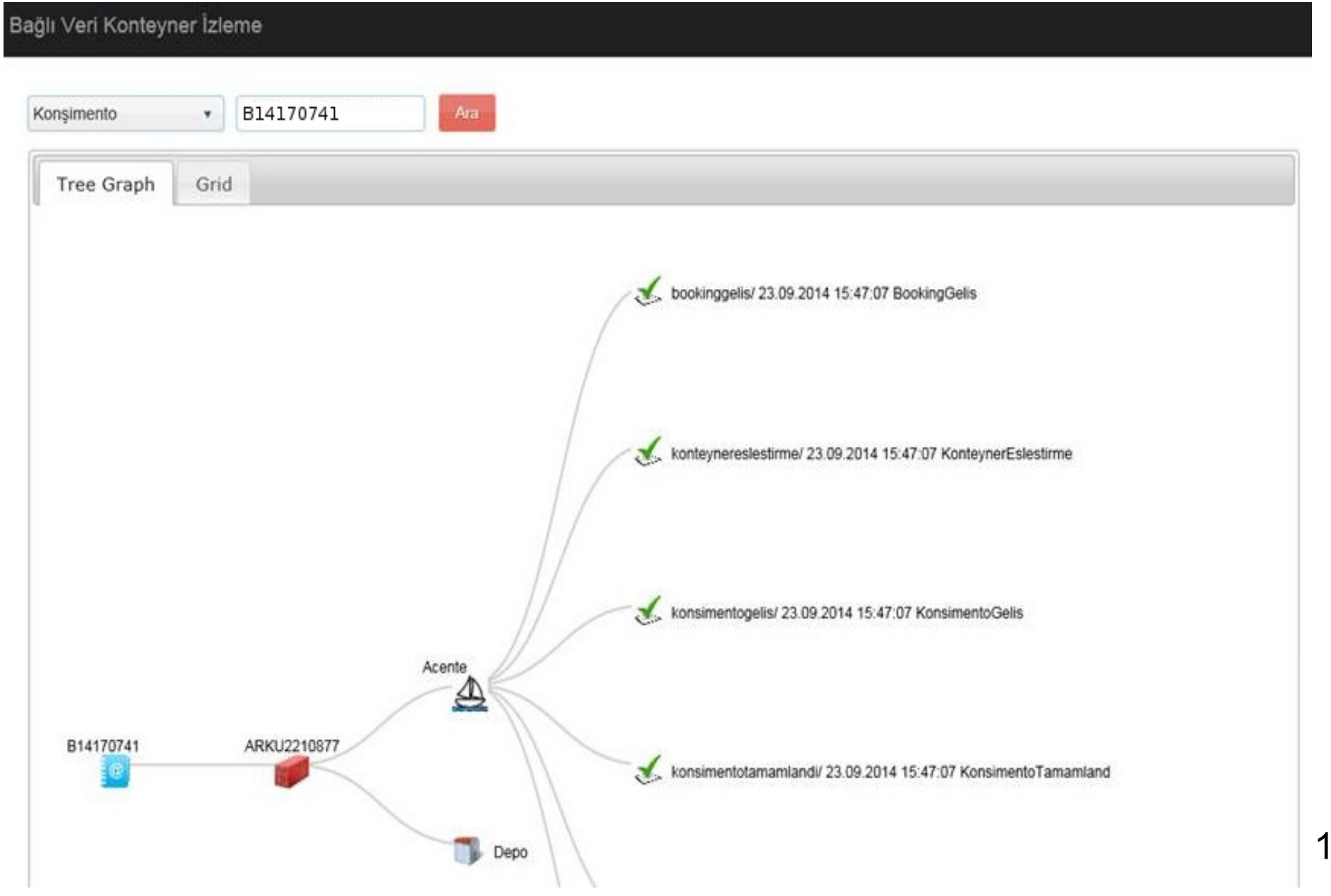
BLOB Methodology



Application - Iteration 3



Application - Iteration 3



Conclusion and Future Works

- Customer Operation Unit
  - 20 concurrent users
- ~300 million RDF triples
- ~3 million change messages per day

- Role based access management
- Monitoring rule management screen

Questions...