

# MIDAS

testing on cloud

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**M**odel and  
**I**nference  
**D**riven  
**A**utomated testing of  
**S**ervices architectures

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- **Motivation**
- **Objectives of the Project**
- **Testing as a Service with MIDAS**
- **Conclusion**



**Dedalus** ADPERSONAM  
HEALTHCARE SYSTEMS GROUP

 **Fraunhofer**  
FOKUS   
INSTITUTO TECNOLÓGICO DE ARAGON

**SimplEngineering**

  
Consiglio Nazionale  
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SINTESIO

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 Laboratoire d'Informatique de Paris 6



- **Software and software architectures evolved**
- **More and more industrial software is based on SOA**
- **Often available on the cloud**
  - Software as a Service (SaaS)
- **Testing did not evolve!**



in practice  
automated effective  
Model Driven  
Tools Developers  
**SOA Testing**  
routinize testing  
SMEs affordable accessible  
disruptive innovation  
Public administrations



- **Move the testing of SOAs to the cloud**
  - Testing as a Service (TaaS)
- **Benefit from the scalability of the cloud**
- **Facilitates testing of cloud applications from the cloud**
- **Removes the need for local test driving facilities**



## ■ Model-based approach

- Everything is based on models
  - *Common feature that unites the different testing approaches*

## ■ UML for modeling the SUT

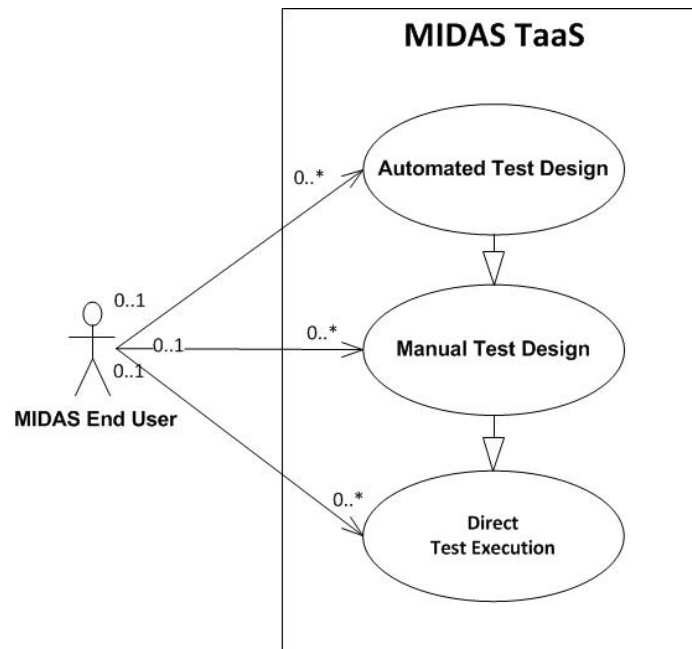
- State machine diagrams
- Class diagrams
- Sequence diagrams
- OCL for further restrictions on the diagrams
- Augmented with SoaML to account for SOA specific aspects

## ■ UML Testing Profile (UTP) for modeling test specific aspects



## ■ MIDAS spans all testing activities

- Test generation
- Test execution
- Test scheduling
- Test arbitration





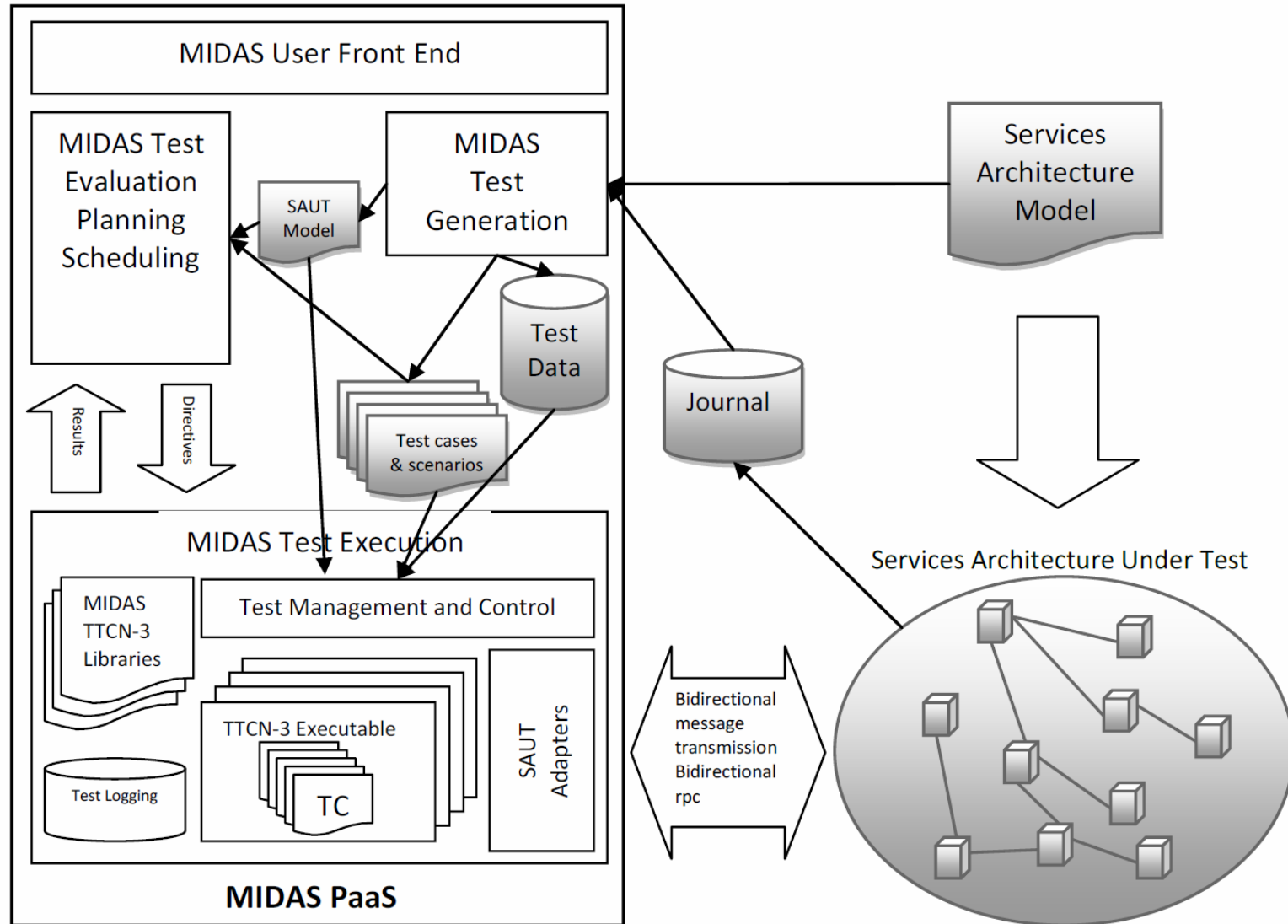
- **Offers testing the system from different perspectives**
  - Functional and interaction testing
    - *Mixture of techniques from boundary value analysis to model checking*
  - Security testing
    - *Based on data fuzzing and behavioral fuzzing*
  - Usage-based testing
    - *Based on usage data*



- **Intelligent scheduling of test suites to improve efficiency**
  - Reduces costs
  - Reduces execution time
- **Static scheduling**
  - Based on security properties and priorities
  - Based on usage scores for each test case
- **Dynamic scheduling**
  - Based on analysis of test runs and bayesian networks

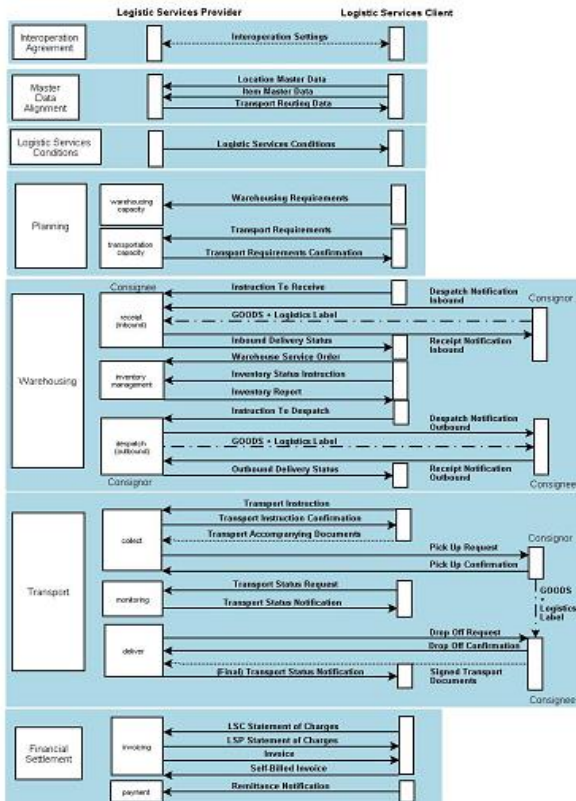


# Overview of MIDAS

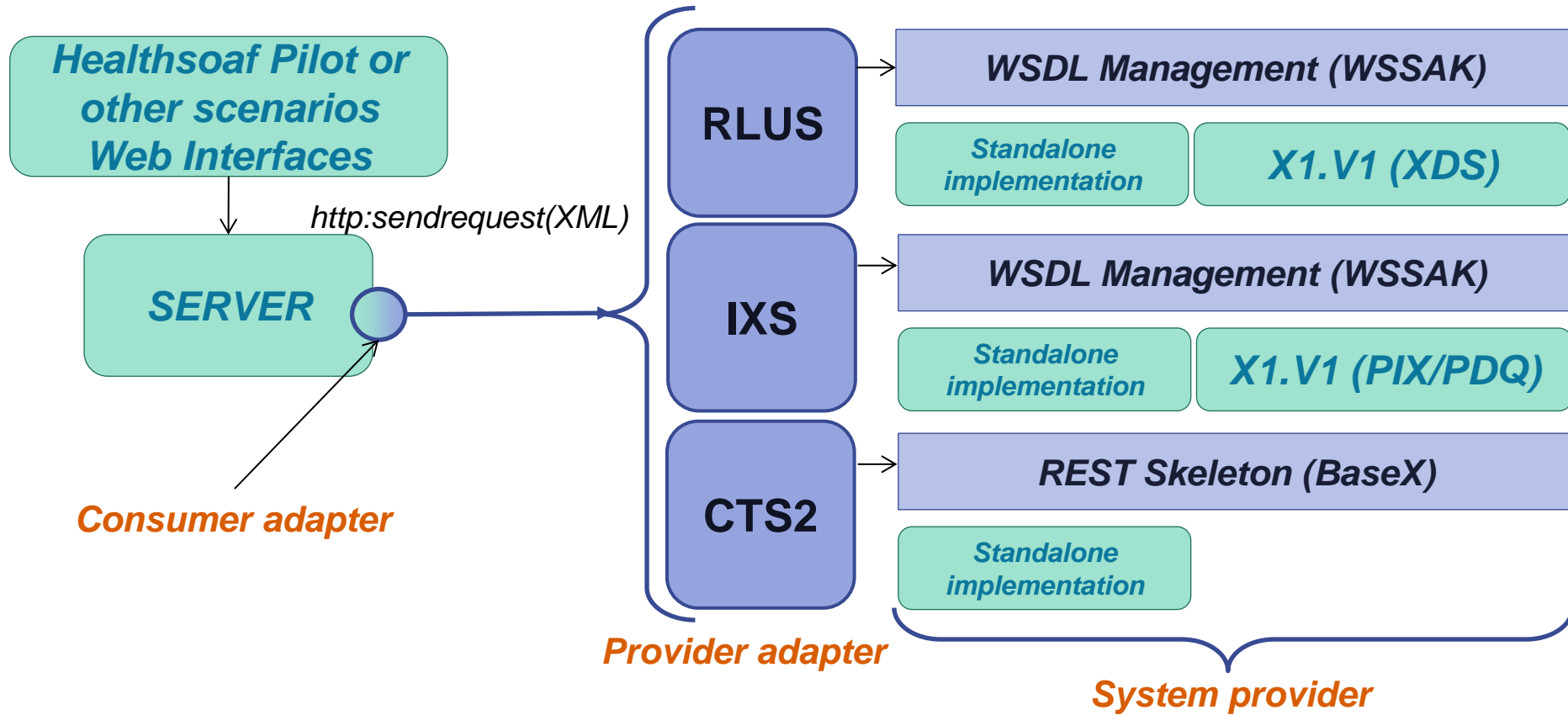


# Supply Chain Management Pilot

## ■ Testing of a GS1 LIM compliant framework



## ■ Testing of a X1.V1 compliant framework



# Conclusion

- **MIDAS will move testing to the cloud**
  - Testing as a Service
- **Uses a model-based approach**
- **Test execution based on TTCN-3**
- **Pilots will evaluate the feasibility of MIDAS**
  - Test of two SOA applications implementing industrial standards



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**Thank you for your attention!**



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