



5a. ESA & WP9: scale up study

1. Welcome and introduction (15m)
2. WP9 - Earth Observation Applications (50m)
3. ESA and WP9: infrastr, appl, TB 0/1 (50m)
4. Demonstration of EO applications (45m)
5. **ESA and WP9: scale up**, effort, recovery plan (50m)
6. Side ESA actions related to GRID (30m)
7. Reviewer separate meeting (60m)
8. Conclusions (30m)

**ESA DataGrid Review
Frascati, 10 June 2002**



Summary



- ◆ **ESA and WP9 part 2 (45m)**
 - **DataGrid EO Scaling up vision (MM, 10m)**
 - **DataGrid ESA initial committed effort, present situation and revised plan, reporting and cost statement issues (LF, 20m)**

Task 9.5 Scaling Study

- **Outcome is the D9.6 Deliverable (Report)**
 - Due by end of June

- **Main Topics:**
 - Assessment of Testbed1
 - Assessment of EO Requirements - Integration of SpaceGrid results
 - Recommendations for Scaling
 - General recommendations
 - Specific EO recommendations
 - EO Applications and Technology Survey
 - Application frameworks for GRID
 - Study on a EO Repository and Workflow Framework



DataGrid EO Scaling up vision

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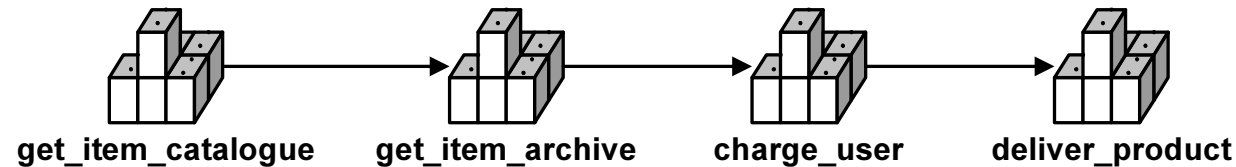
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Introduction

- **Earth Observation (EO) Services typically represent a sequence of EO Application Functions**

Expl:



- **EO Application Functions are geographically distributed, and exchange large EO data products**
- **Functions are part of large-scale, logically self-contained EO Application Systems, which are independently maintained by EO actors**

→ B2B EAI Framework

ARSENAL Project

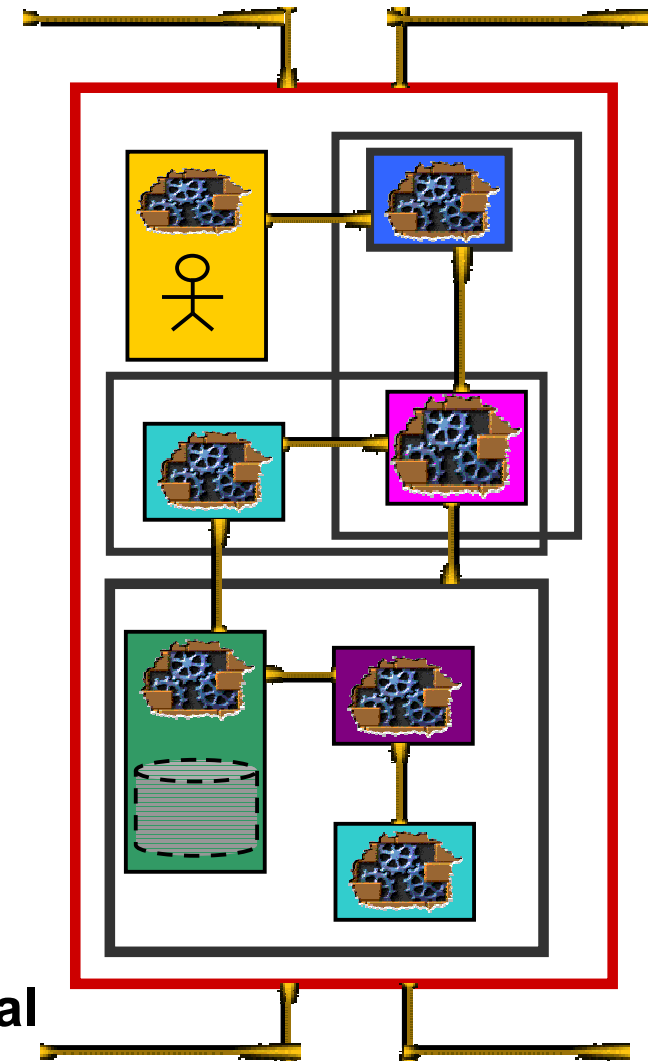
- **Study on a large-scale B2B EAI**
- **EO Application Framework based on**
 - ***Workflow*** (control flow)
 - ***Repository*** (meta data management)
 - ***Web Service* and** (unified access)
 - ***Grid* technology** (high-performance processing)

For Details see:

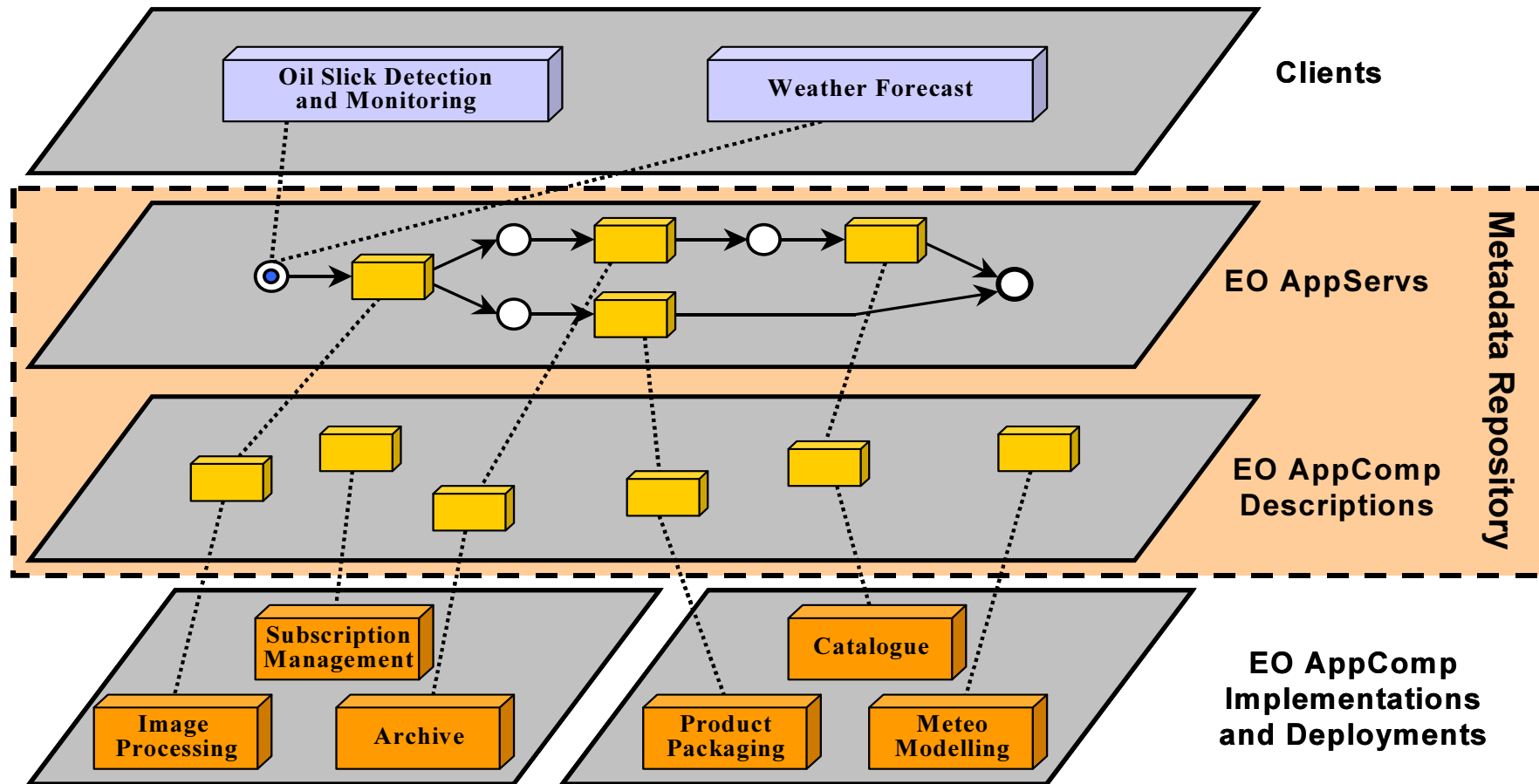
[M.Mariucci, B.Mitschang: On Making RAMSES and EO Application Framework. To be published in: *The 2002 International Symposium on Information Systems and Engineering, ISE2002, July 2002, San Diego*]

ARSENAL Concepts

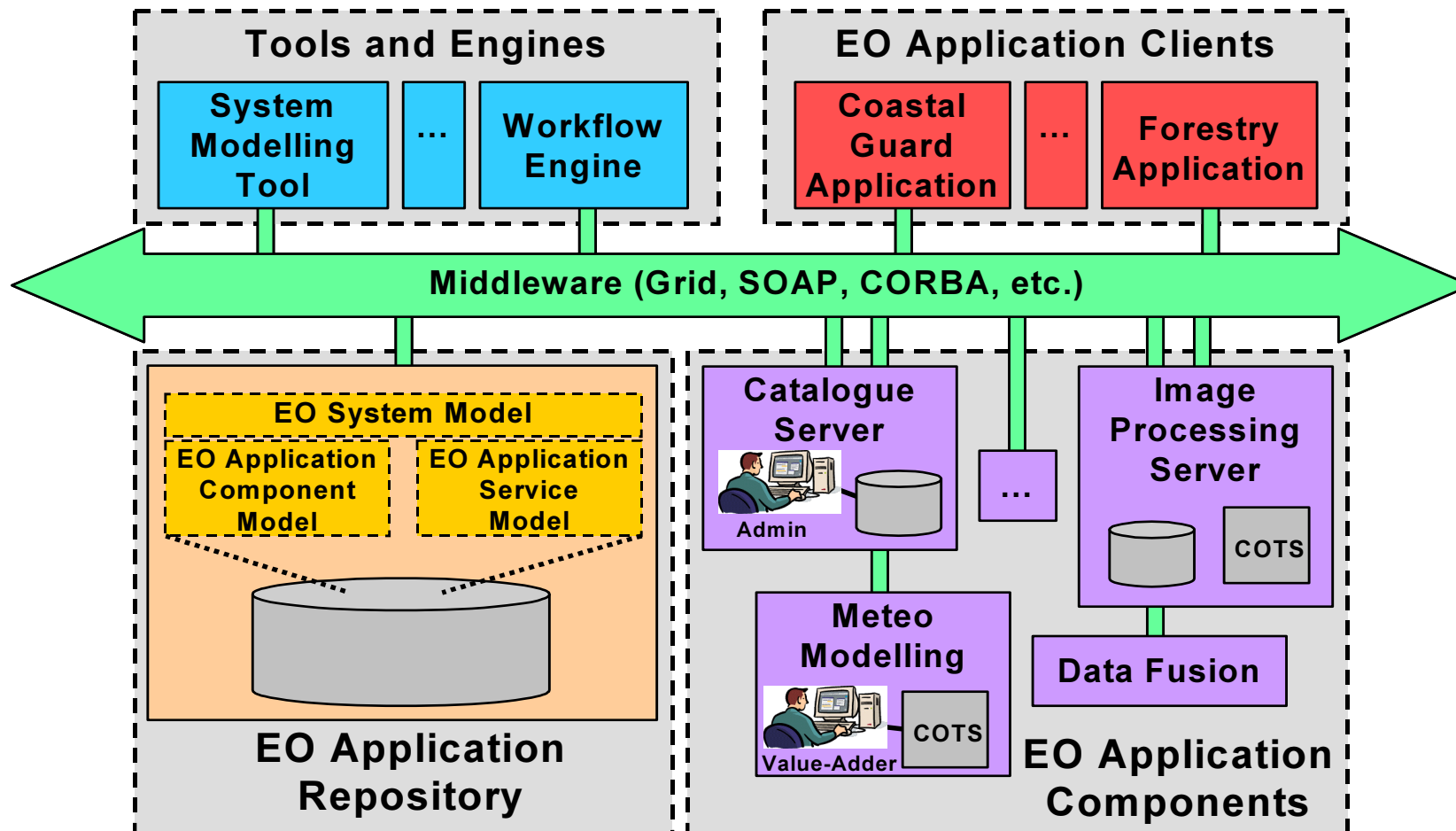
- **Functional composition:**
Gathering EO Application Functions to EO Application Components
- **Service assembly:**
Specification of EO application function relationships and workflows
- **Automation and consistent processing:**
Execution of EO application services by means of a workflow management system
- **Information Base:**
Constitution of a domain-specific, distributed database of the EO application's structural and semantic information



ARSENAL Layers

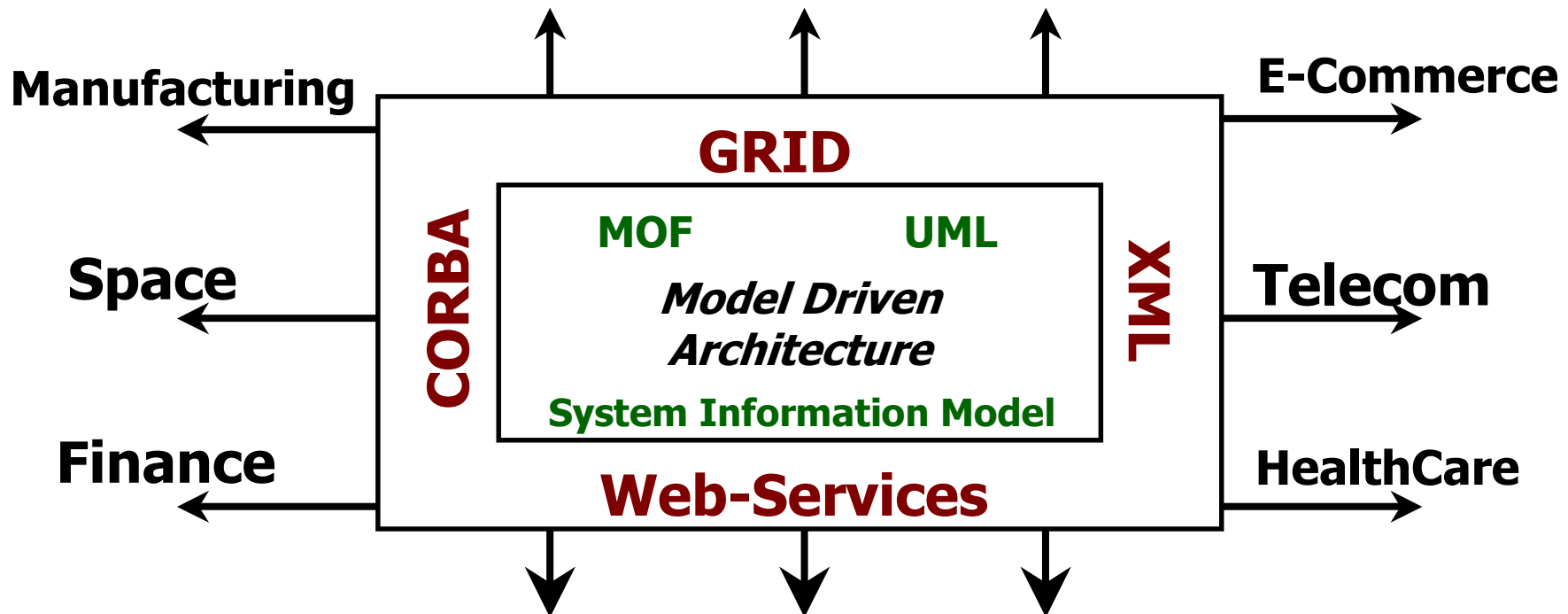


ARSENAL Architecture



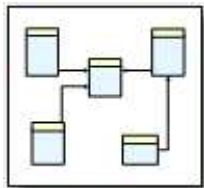
OMG Model Driven Architecture

- ARSENAL is based on a Model Driven Architecture (OMG Standard, 2001)



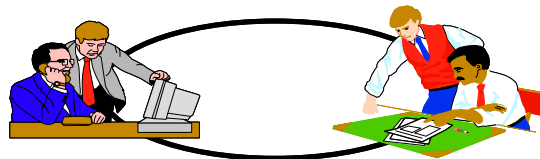
ARSENAL Development Process

Design-Time



- Creation of the Information Model (Application Repository)

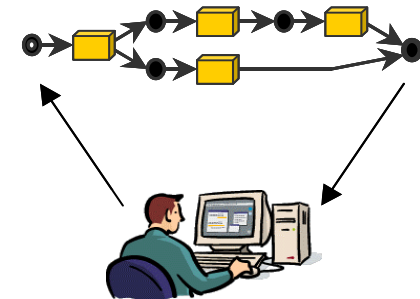
Development-Time



Asynchronous Collaborative Work

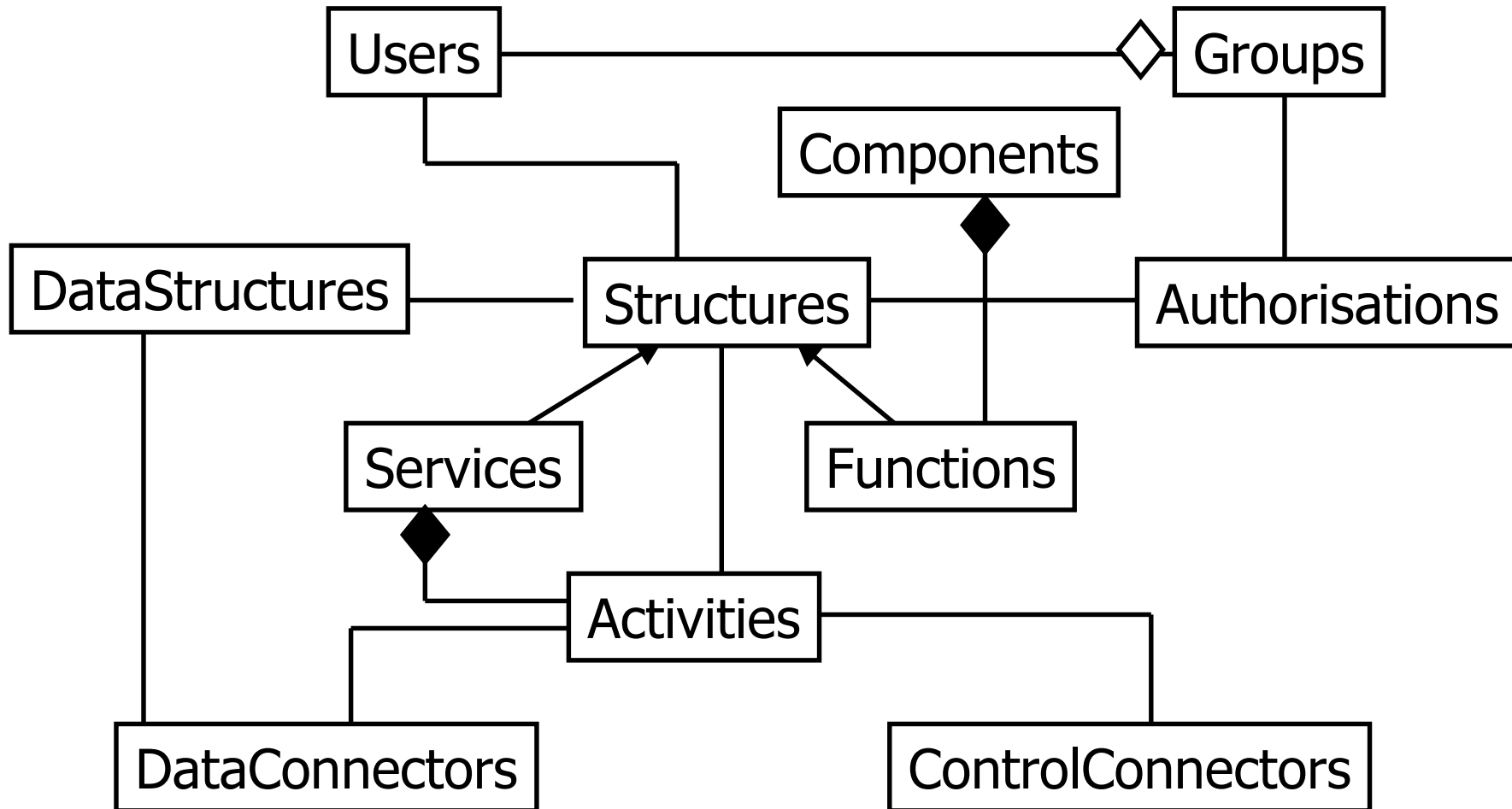
- Instantiation of the Information Model
- Provision of EO AppComps and collaborative development of flexible EO AppSerts
- Support during the complete development life cycle

Run-Time

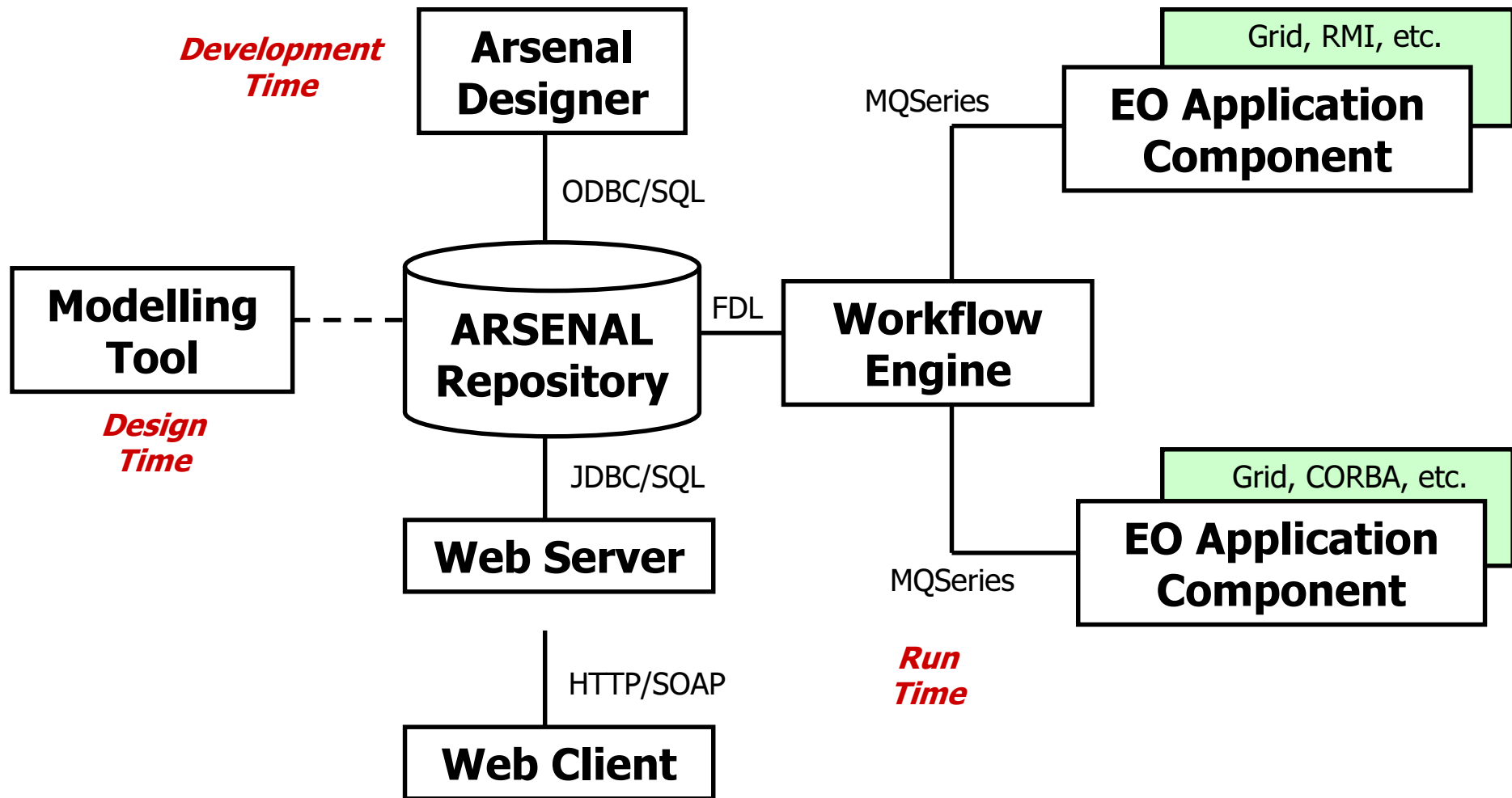


- Discovery and location of EO AppSerts
- Execution of EO AppSerts

ARSENAL Information Model (simplified)



ARSENAL Prototype



Outlook

