Proposed Architecture of Enrima DSS
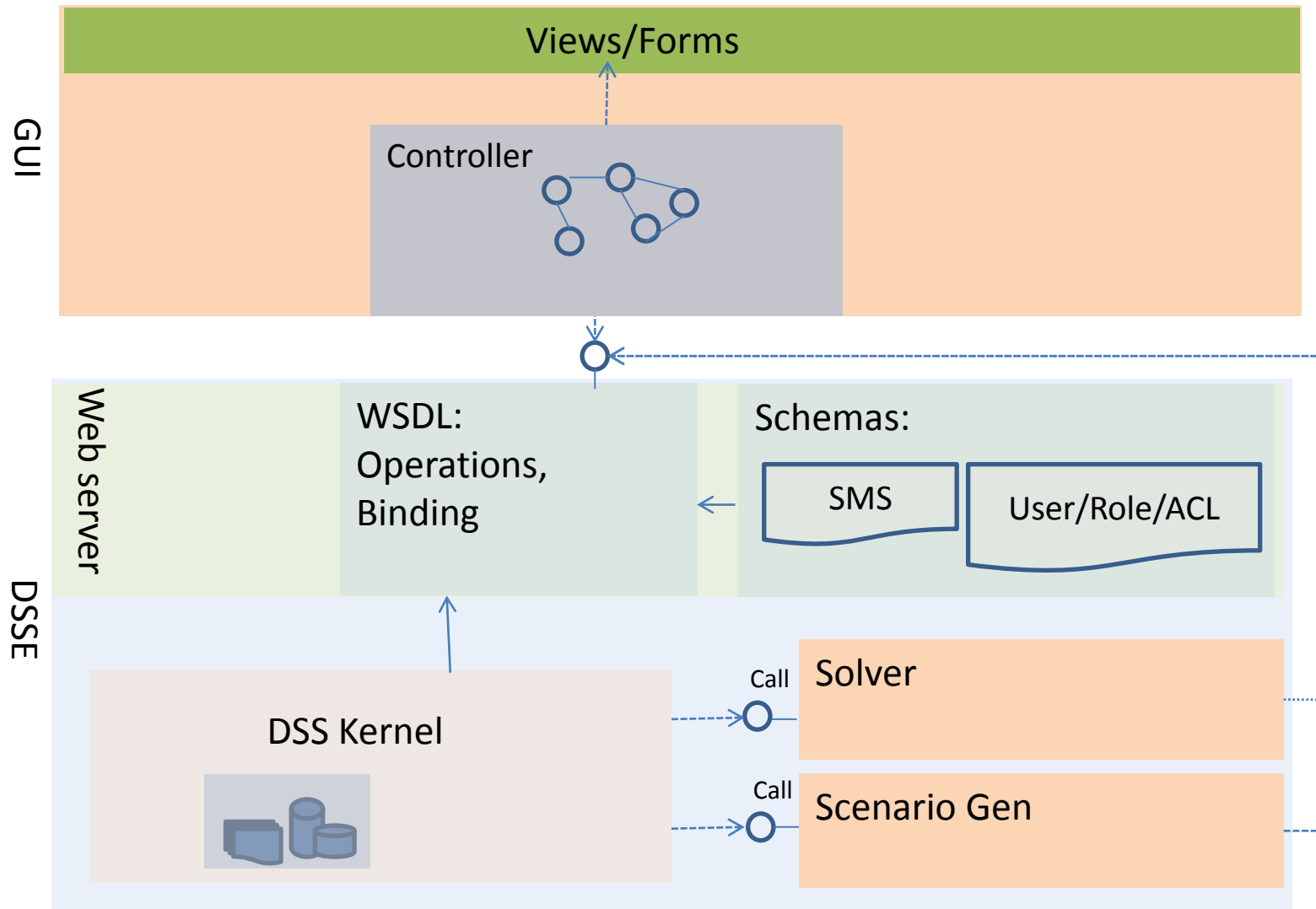
Hongtao Ren, Marek Makowski
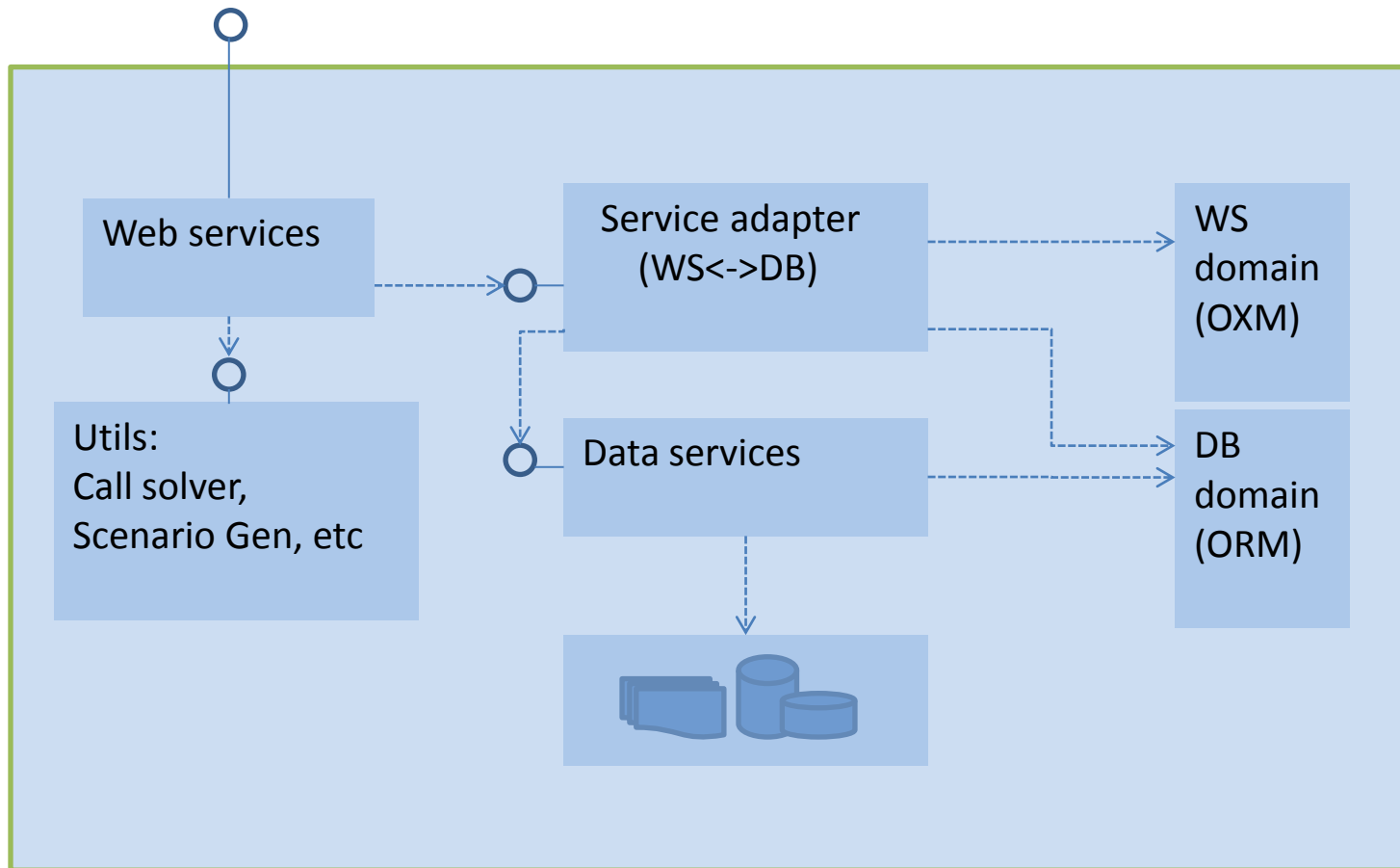
Architecture (Overview)
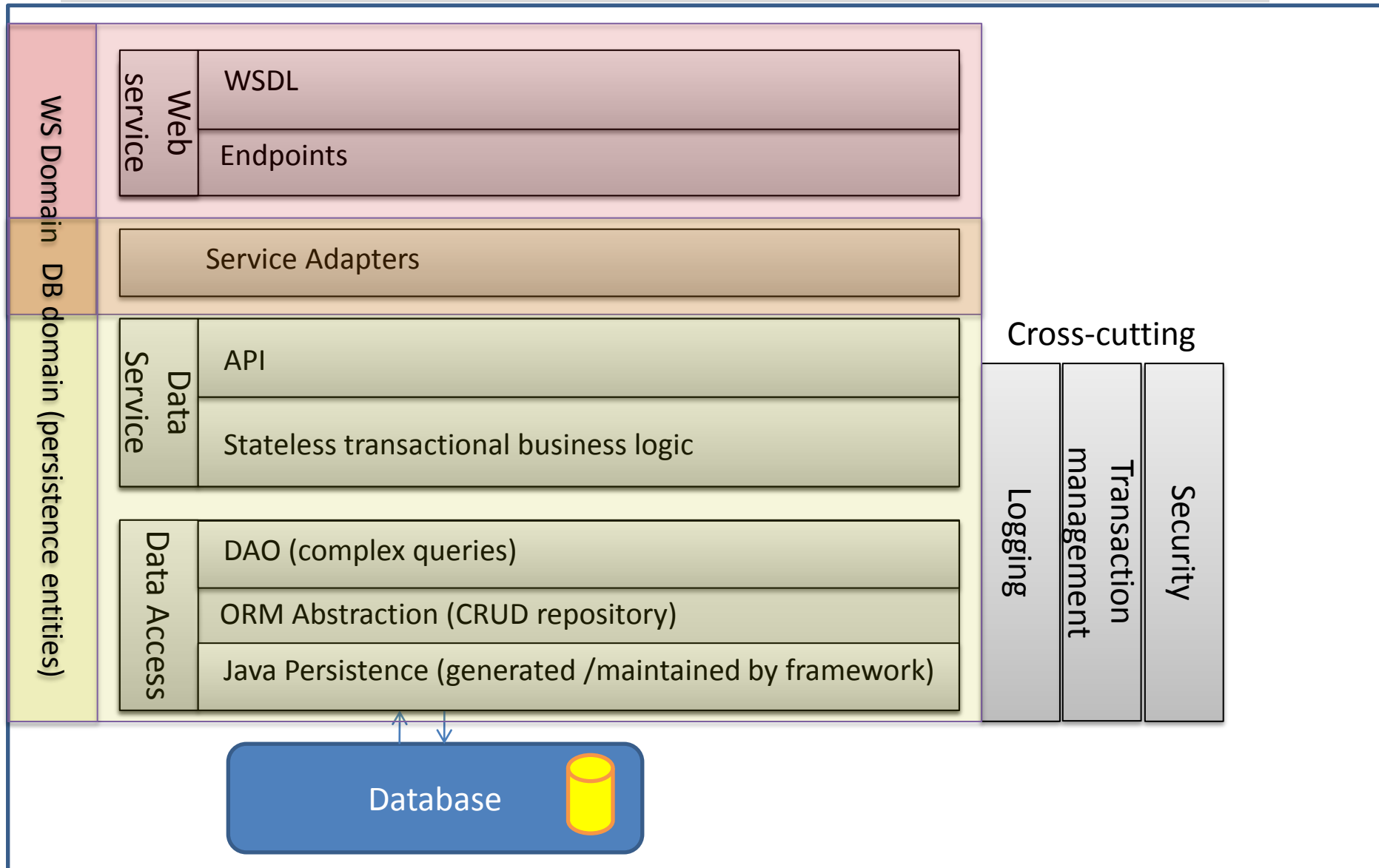
Views/Forms

GUI

Controller

Web server

WSDL:
Operations,
Binding

Schemas:

SMS

User/Role/ACL

DSSE

DSS Kernel

Call

Solver

Call

Scenario Gen

Protocols between DSS kernel and solver
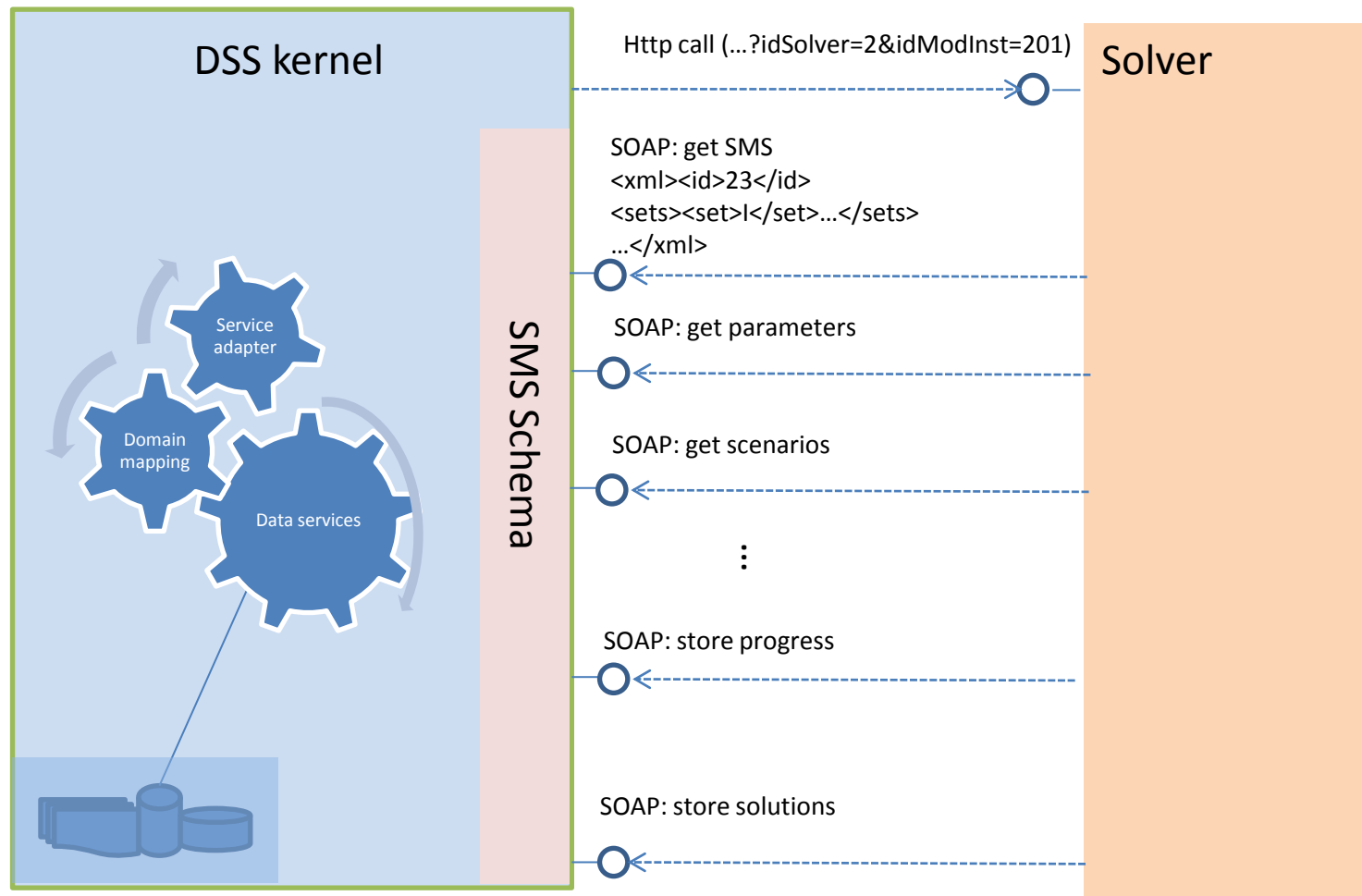
DSS kernel components

DSS kernel layers

WS Domain

DB domain (persistence entities)

WS service — **Web service**
- WSDL
- Endpoints

Service Adapters

Data Service
- API
- Stateless transactional business logic

Data Access
- DAO (complex queries)
- ORM Abstraction (CRUD repository)
- Java Persistence (generated /maintained by framework)

Database

Cross-cutting
- Logging
- Transaction management
- Security

DSS Web-services

DSS kernel clients

Web-Services

-Endpoints
-WSDL

JAVA

WSDL2JAVA

WS- Domain

-Auto-generated java classes (OXM)

Marshalling

Unmarshalling

C++

WSDL2H, marshaling, unmarshalling

Matlab

Flex, Adobe Air

Ajax calls: (JQuery, Dojo, etc)

Testing tools: SOAPUI, XML spy, etc

…
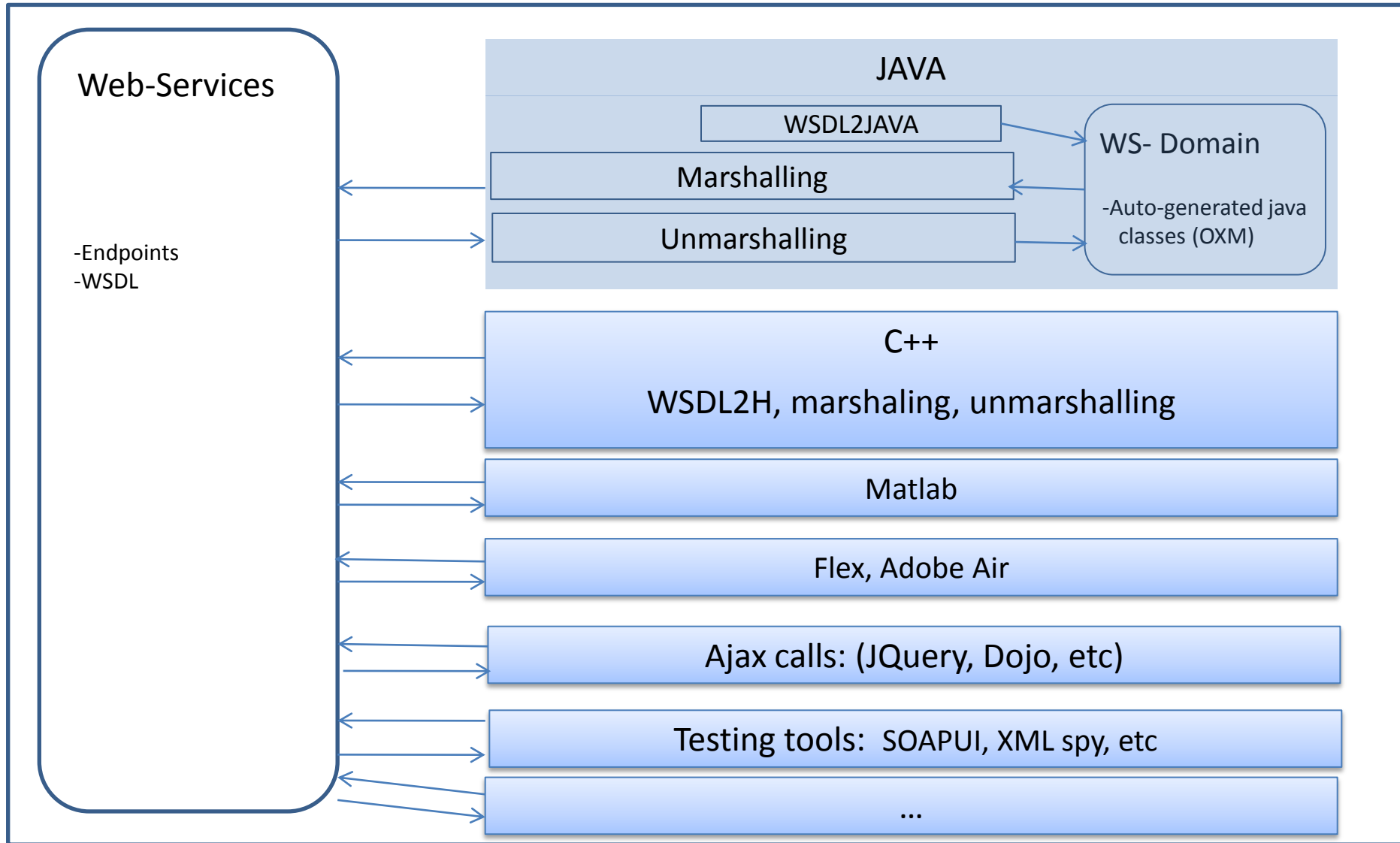
DSS kernel (transparent for clients)

DB Schema

DB Domain

-Auto-generated java
persistence classes
(ORM)
-Lazy loading data within
transaction session

DB Repository

-Data Access Objects
(DAO)

Core

-Manager (security,
Access Control Lists,
etc)
- Services

API

Aspect(s):
-declarative transaction management
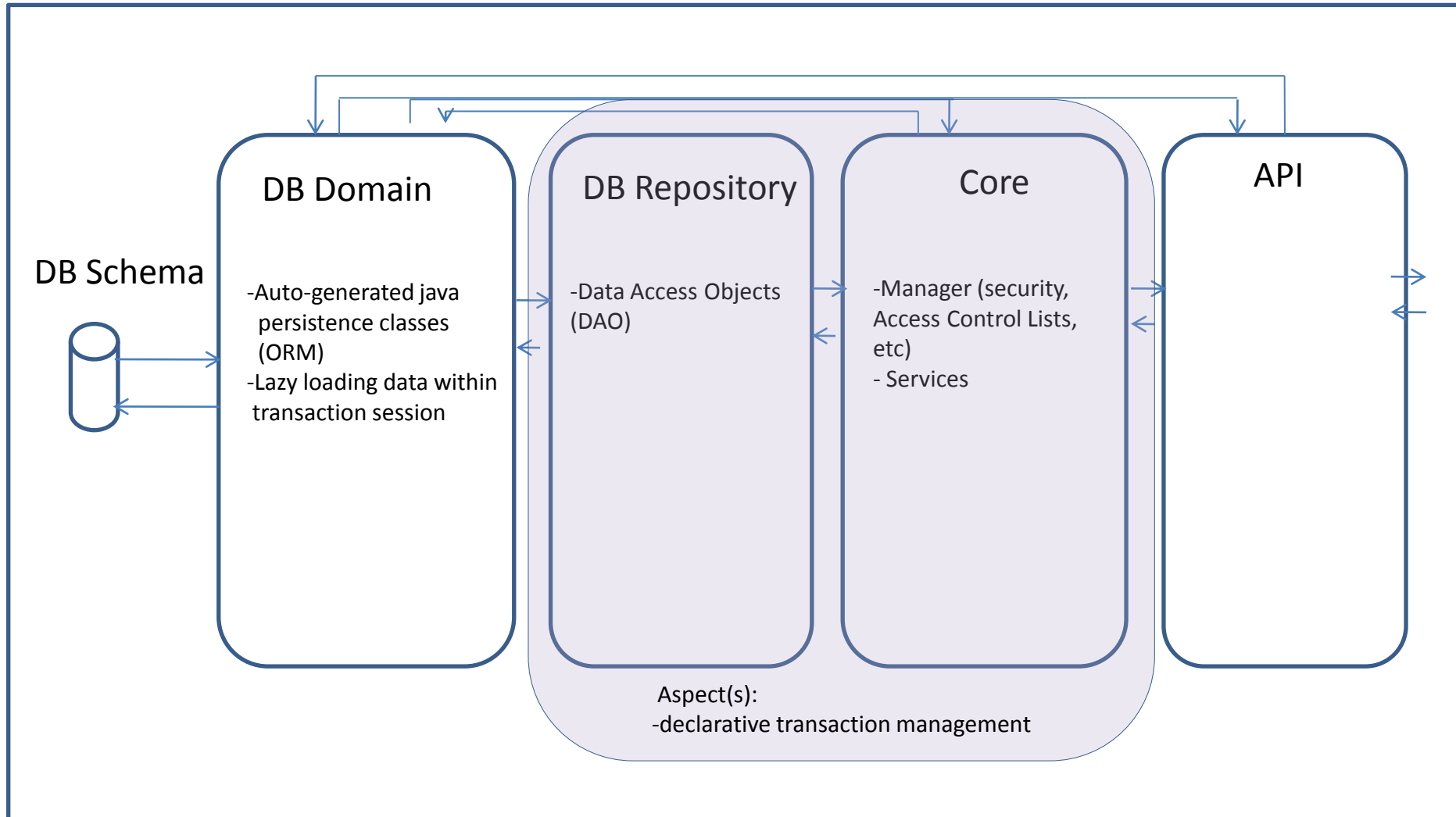
Summary

- Modularity: heterogeneous (software & hardware) DSS components
- Integration of components through web-services (common XML schema)
- Web-services provided by the DSS kernel for all components
- OOP tools for the interface, classes generated automatically for the XML schema
- XML schema changes decoupled from DB structure
- Common SMS and XML-based protocols support flexibility and data consistency
- DB structure independent of XML schema, and transparent for components
- Multi-layer structure of DSS kernel, based on public domain technology.