



Methodology for Creating New Service Types

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Use of ORCHESTRA Framework

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orchestra



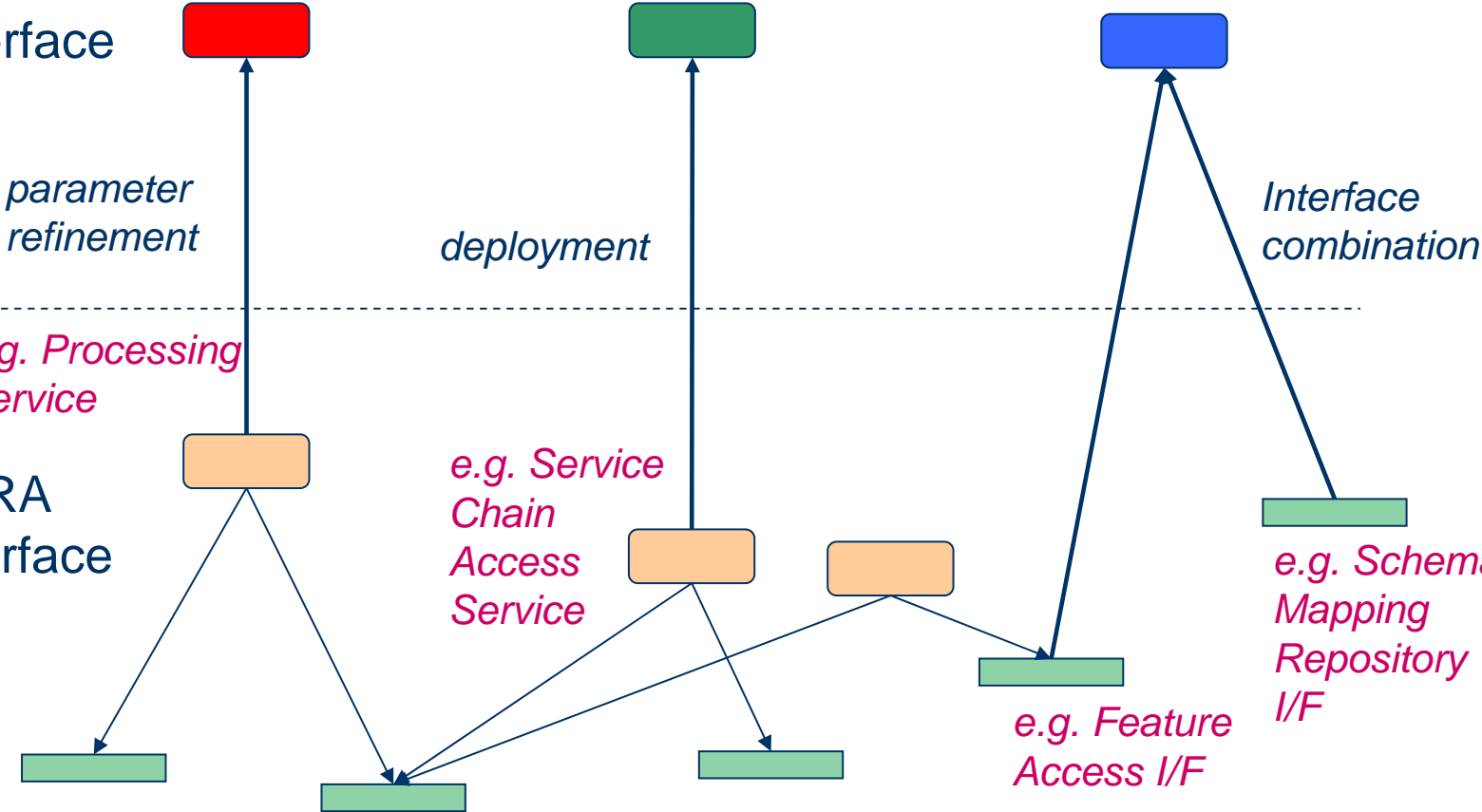
Overview – New Thematic Service Types

Risk-neutral/specific Service/Interface Specs

e.g. Risk Map Calculation Service

e.g. Forest Fire Risk Assessment Service

e.g. Translating Feature Access Service



ORCHESTRA Service/Interface Specs

Outline

- The Orchestra Metamodel
 - Service Viewpoint
- Creating new service types
 - Combination of service interfaces
 - Using Service Chain Access Service (SCAS)
- Summary
 - Issues

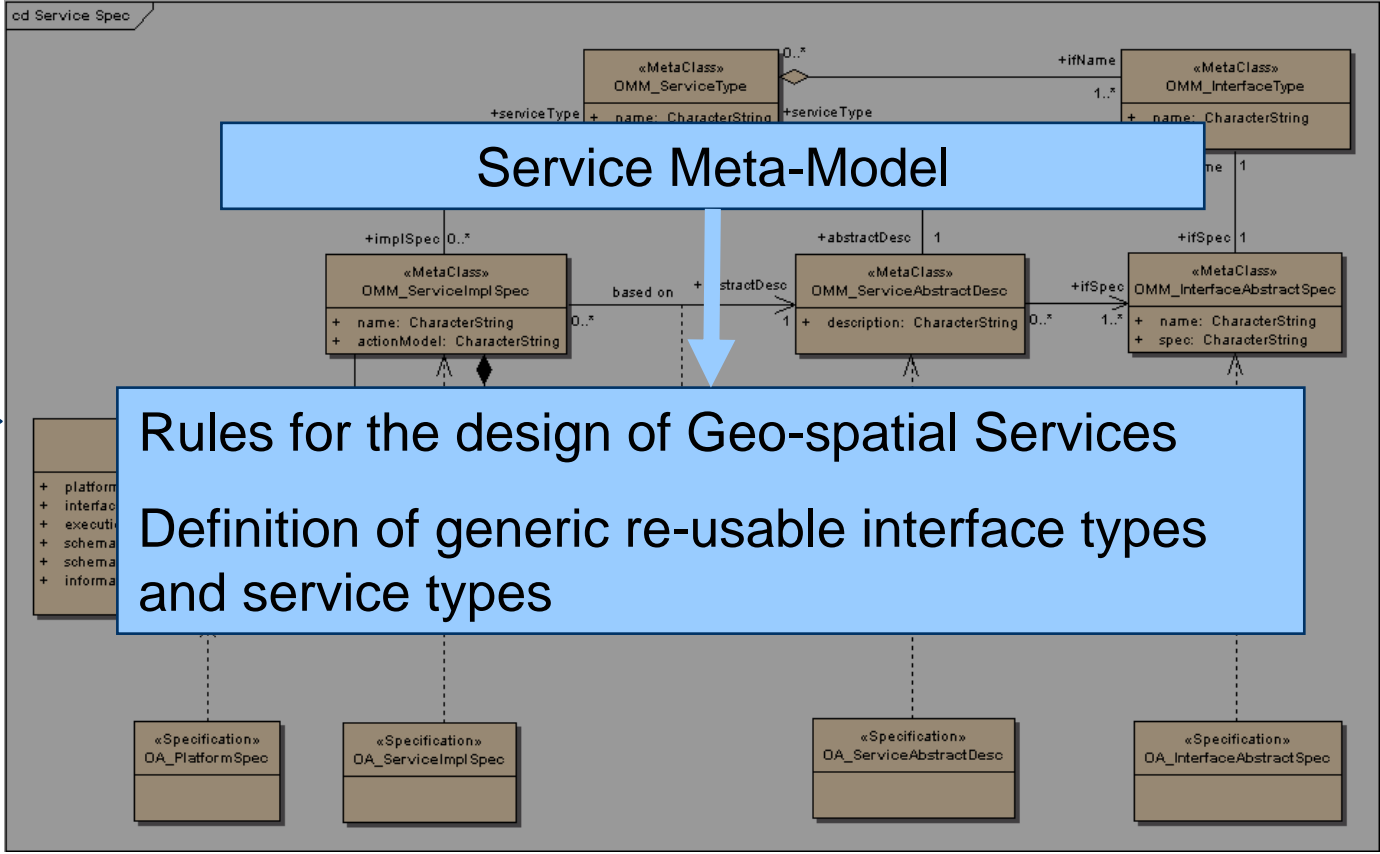




Viewpoints

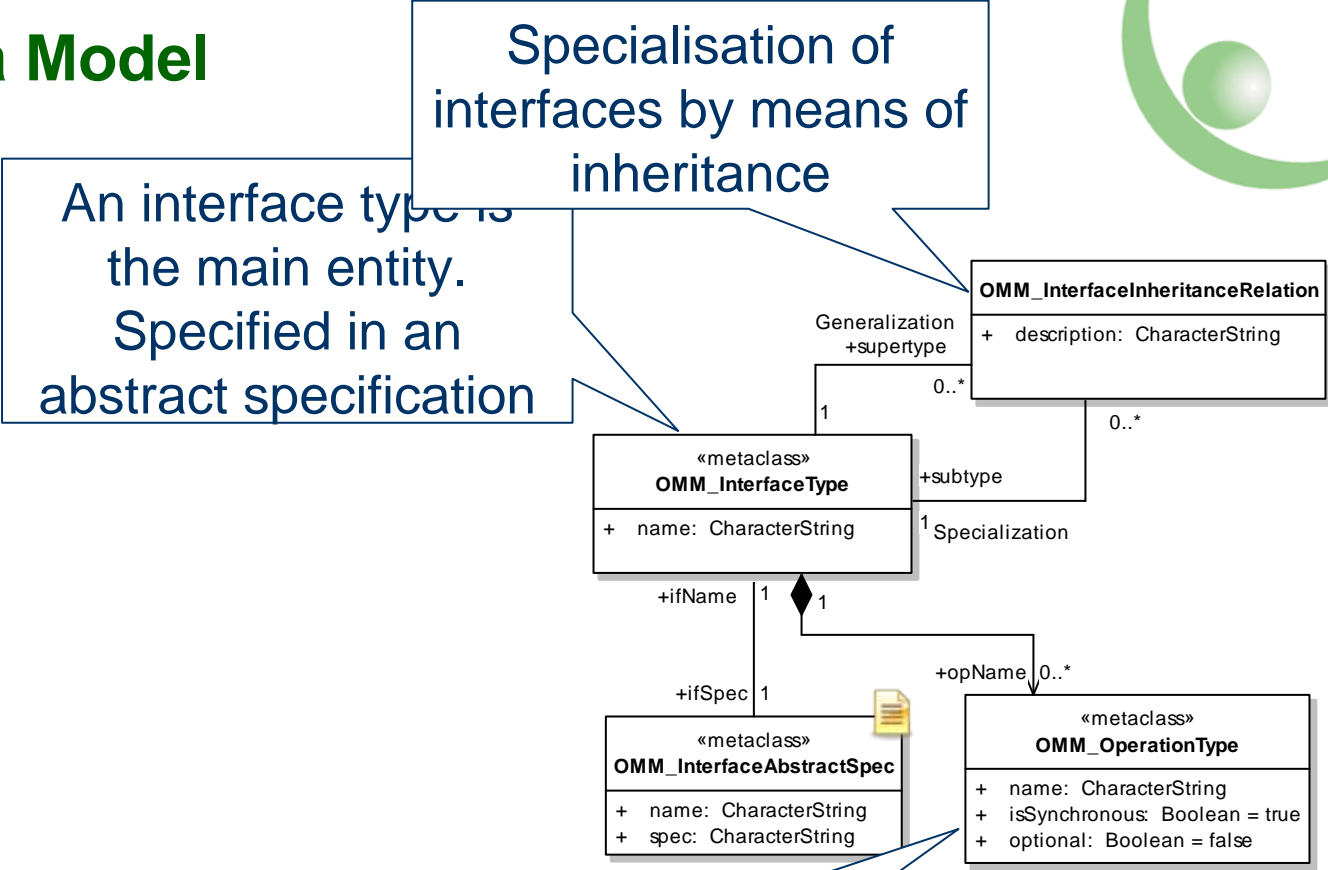
Viewpoints:

- Enterprise
- Information
- Service
- Technology
- Engineering





Service Meta Model

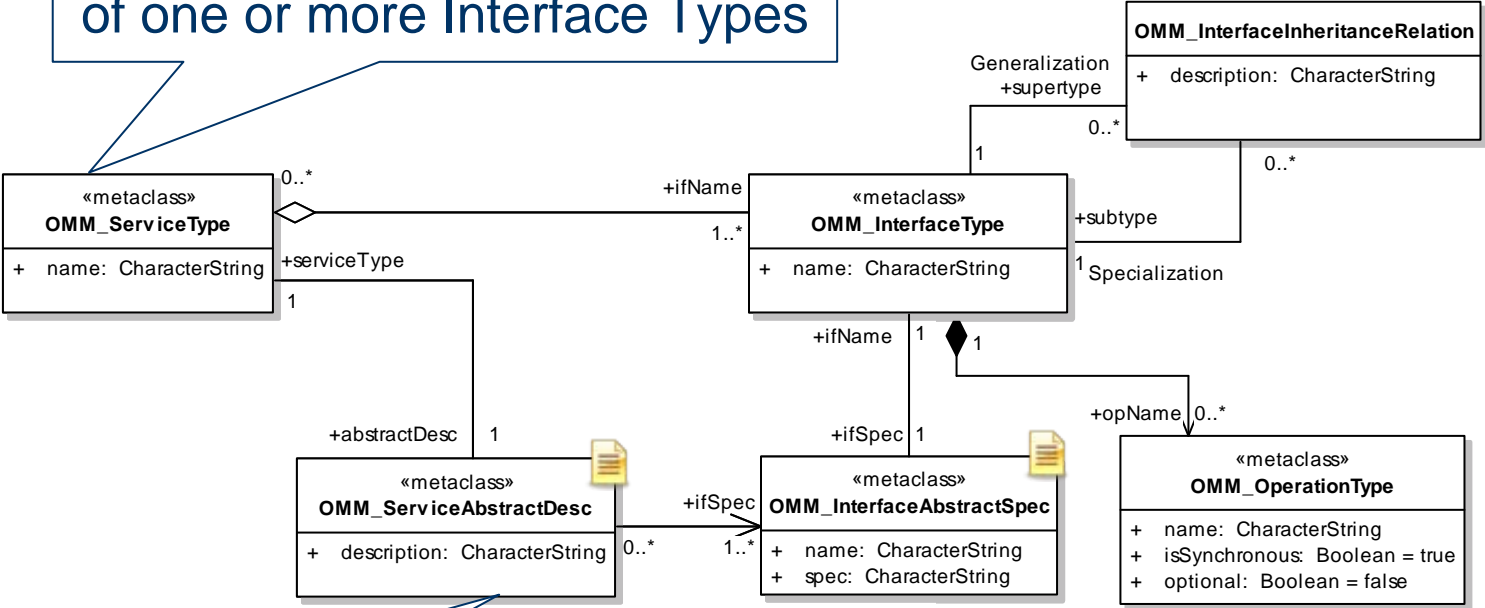


Interfaces are composed of operations which can be optional



Service Meta Model

One Service Type is composed of one or more Interface Types



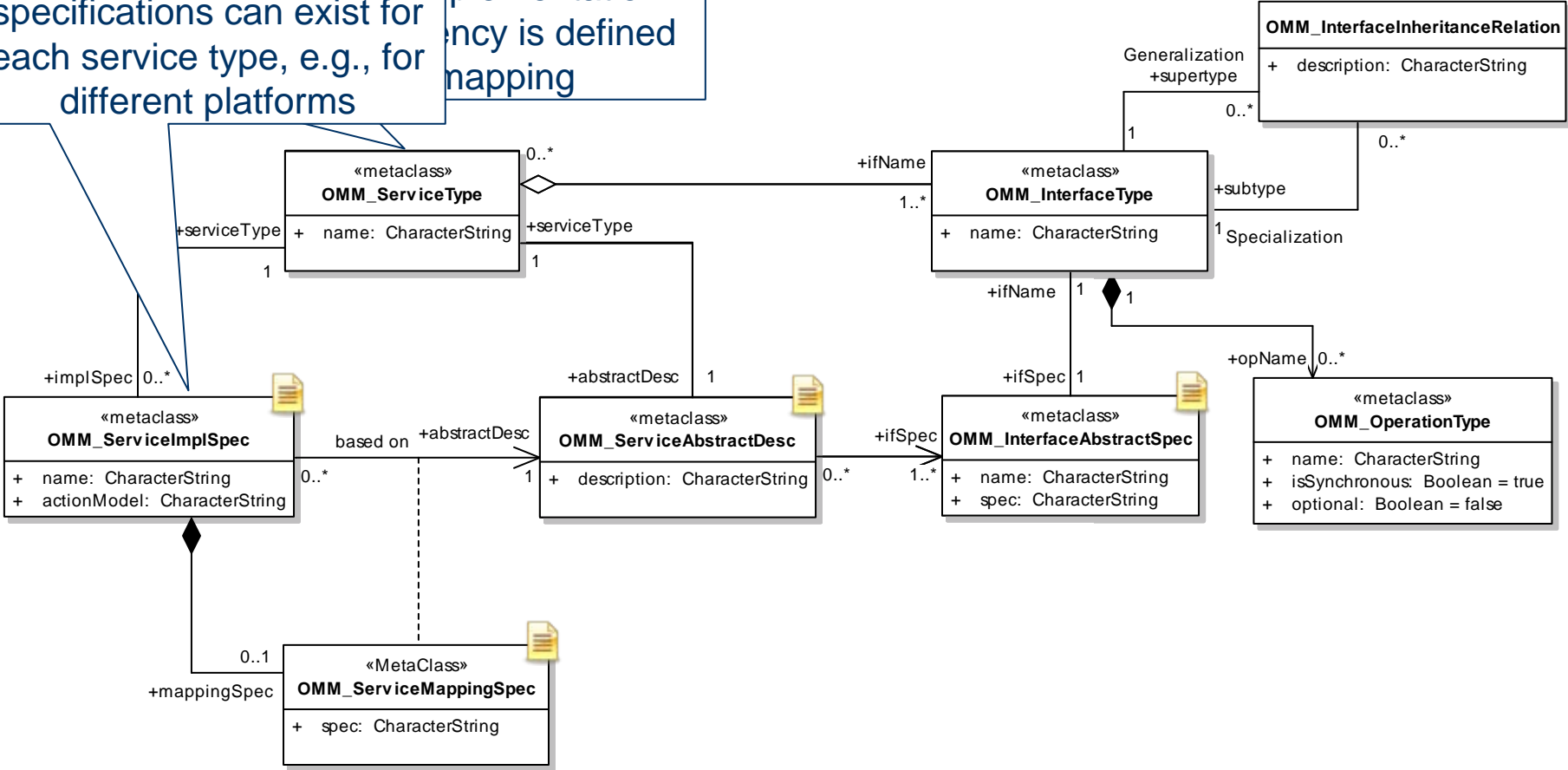
and is specified in an abstract specification



Service Meta Model

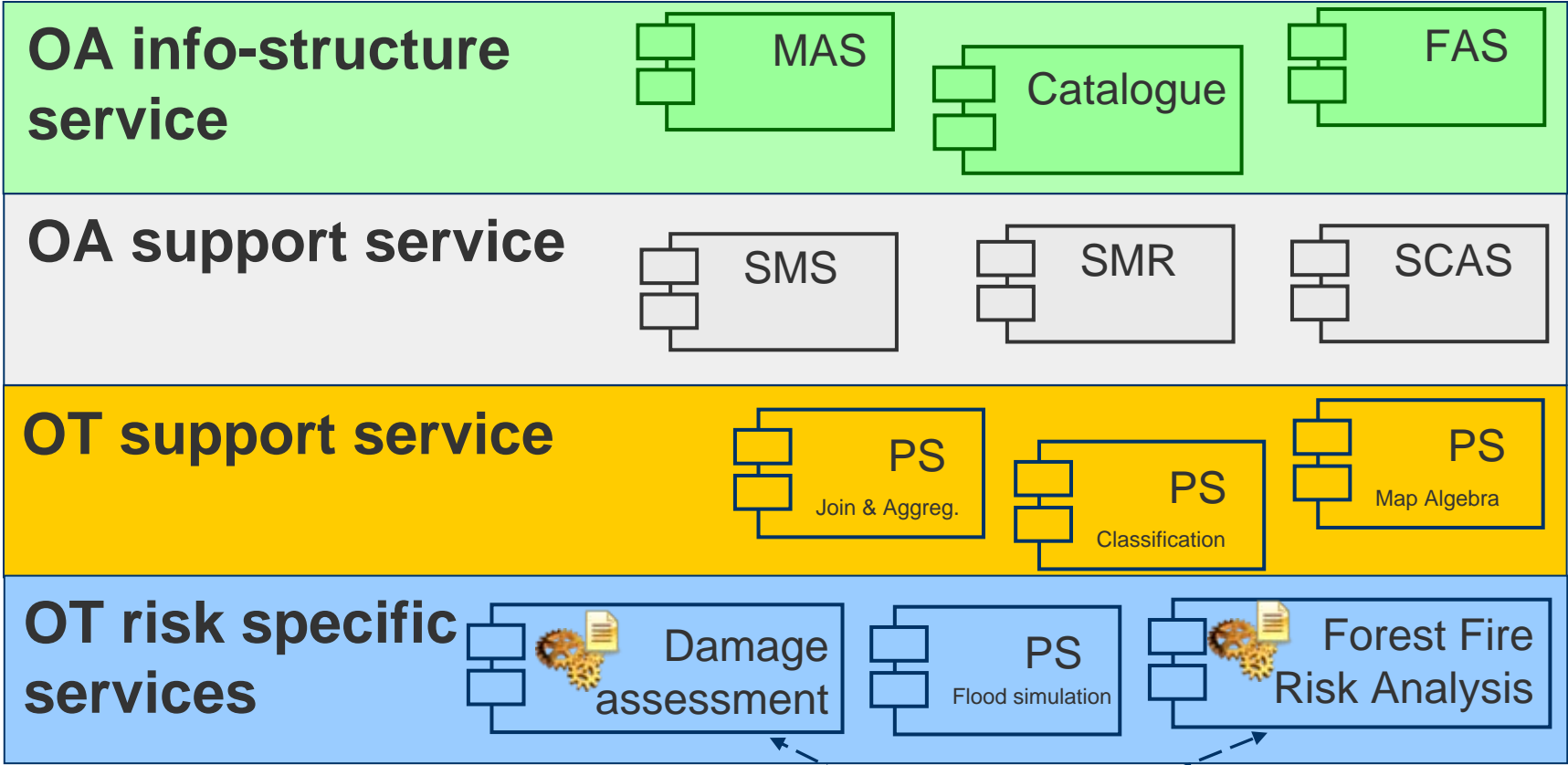
Multiple implementation specifications can exist for each service type, e.g., for different platforms

Additionally implementation dependency is defined for mapping





Service Taxonomy and Service Types



FAS = Feature Access Service
MAS = Map Access Service
SMS = Service Monitoring Service
SMR = Schema Mapping Repository
SCAS = Service Chain Access Service
PS = Processing Service

Obtained by chaining ORCHESTRA services instances

Combination of Interfaces

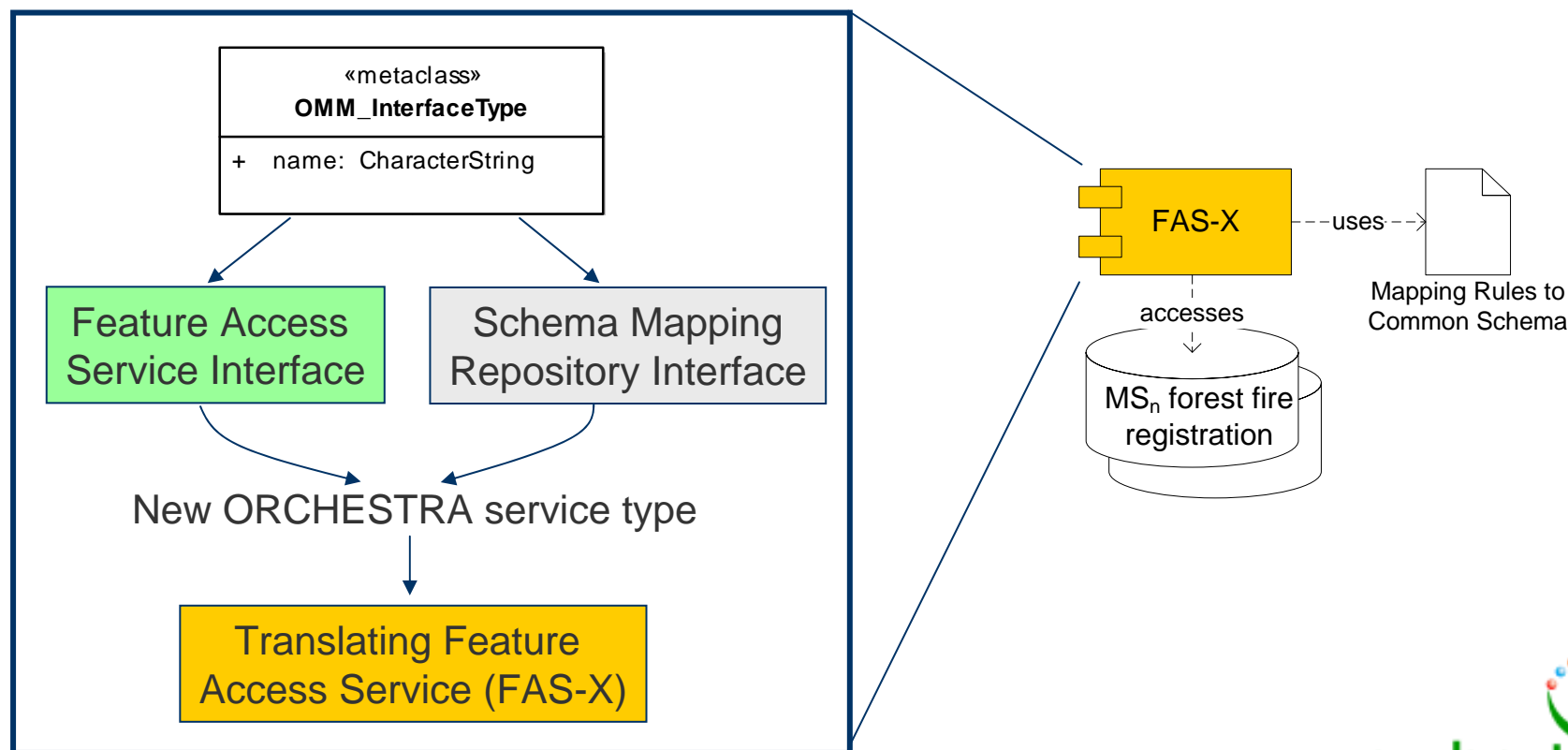


- Combination of interfaces is possible according to the service metamodel:
 - Allows for new service types
 - Allows for additional/different functionality
- According to the service metamodel subsets of interfaces can be combined
 - E.g., all non-mandatory operations can be excluded
- Ex.: Combining a catalogue with Authentication Service interface:
 - Secure Catalogue service type
 - Gives additional functionality



An Example – Translating FAS (FAS-X)

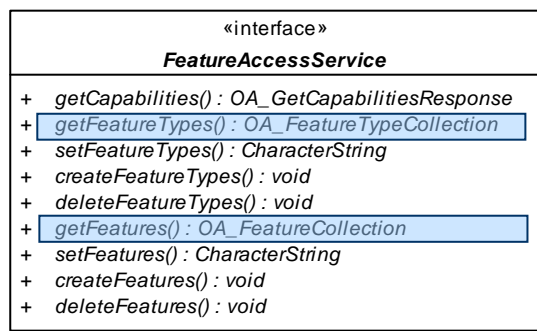
- Provides access to historic data on forest fire frequency in different Member States
- Schema translation to support access to forest fire based on a common European schema



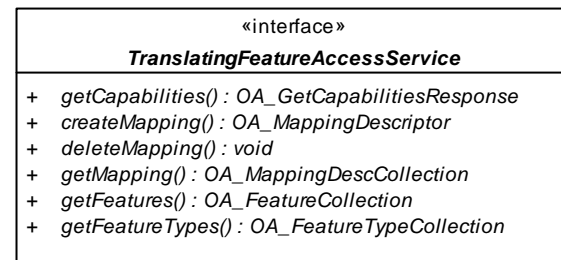
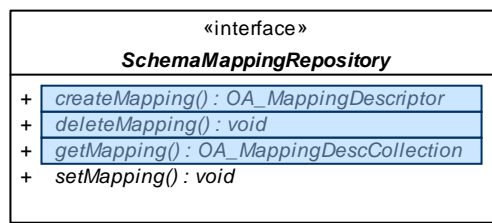


An Example – Translating FAS (FAS-X)

- Subset of base interfaces (mandatory operations)
- Feature Access Service interface offering translated features
 - getFeatures
 - getFeatureTypes
- A Schema Mapping Repository interface to manage mappings:
 - createMapping
 - deleteMapping
 - getMapping



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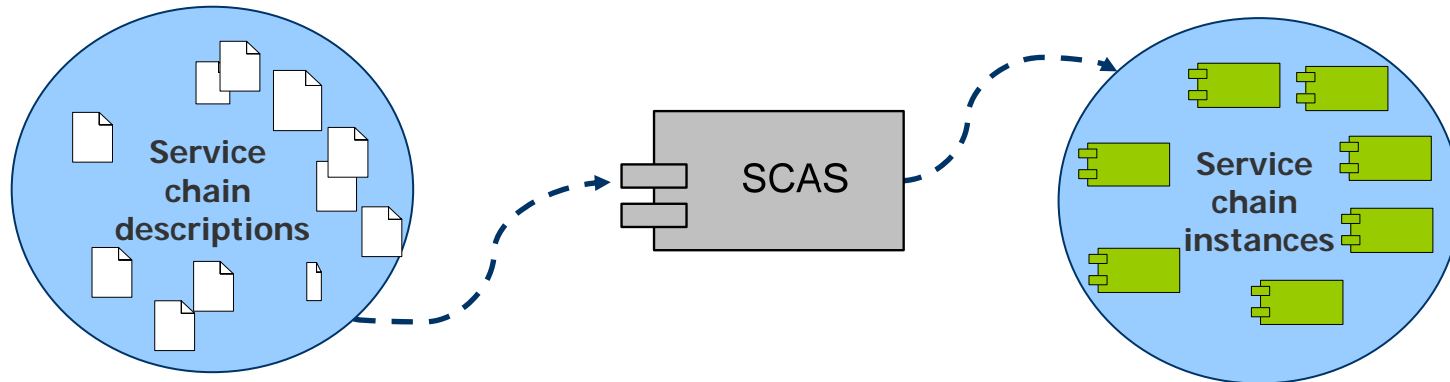


Service chaining in ORCHESTRA – ISO 19119



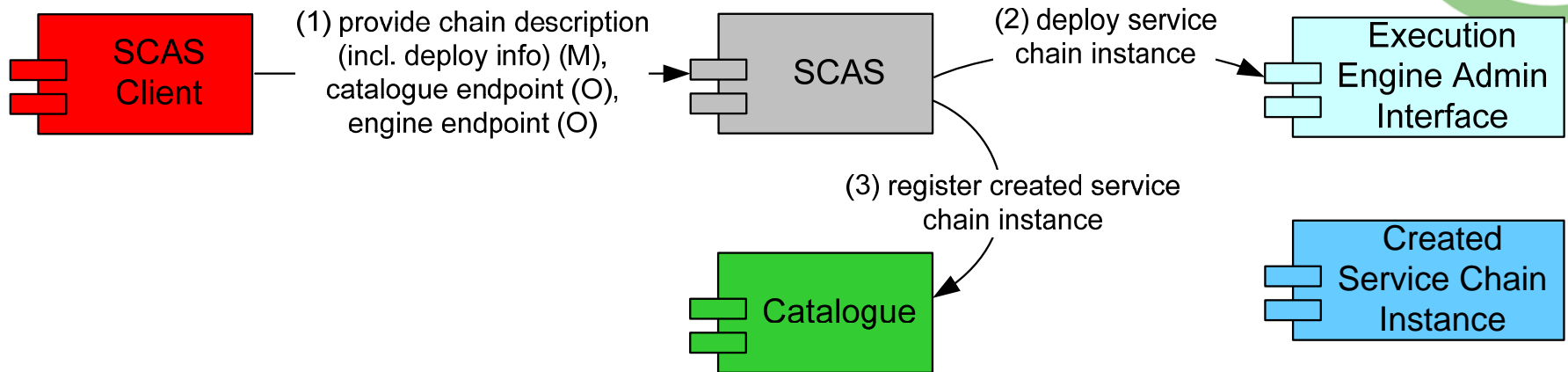
- ➡ • Opaque chaining (*aggregate services*)
 - Hide the business logic (depending e.g. on services available in the network)
 - Simplify the re-configuration of clients in case of business logic modifications
 - Service chain instance functionalities may be used in other chains or clients (all having access to the services network)
- User defined chaining (*transparent chaining*) and Workflow-managed chaining (*translucent chaining*)
 - No specific service chain instance executing the chain → no “shared” service chains instances in the network
 - Particularly suitable when the chain strongly depends on the user (different strategies, data, etc.)

Service Composition in ORCHESTRA



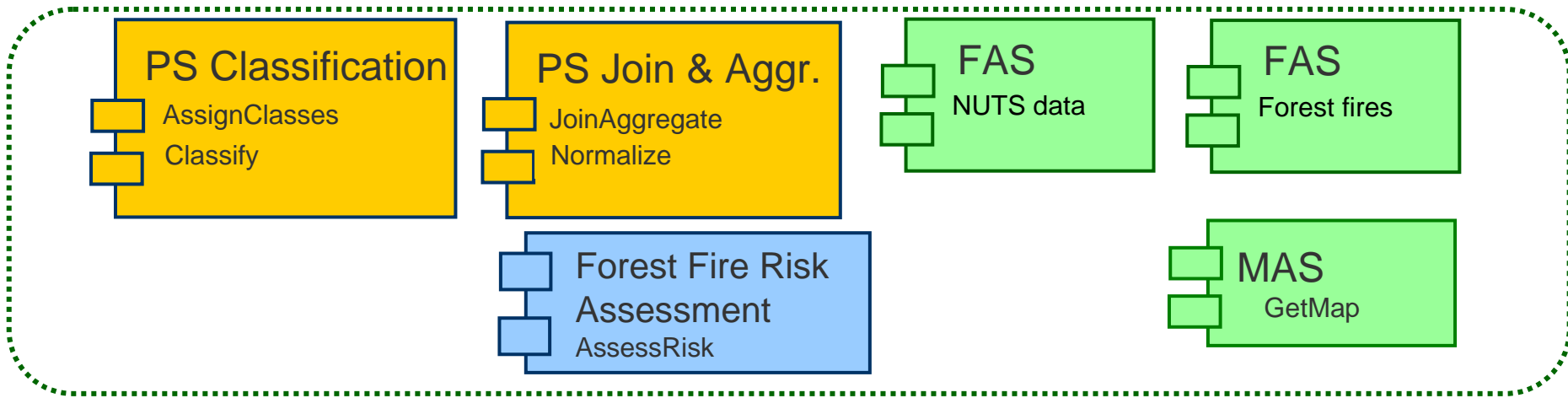
- Introduces a Service Chain Access Service (SCAS)
- SCAS Interface:
 - getCapabilities
 - createServiceChain: create a new service chain instance and (optionally):
 - register the service chain instance in a catalogue defined by the user
 - create the service chain instance in a execution engine defined by the user
 - getServiceChain: get information about a service chain instance
 - deleteServiceChain: un-deploy a service chain instance (and remove all the corresponding info)

Service Composition in ORCHESTRA

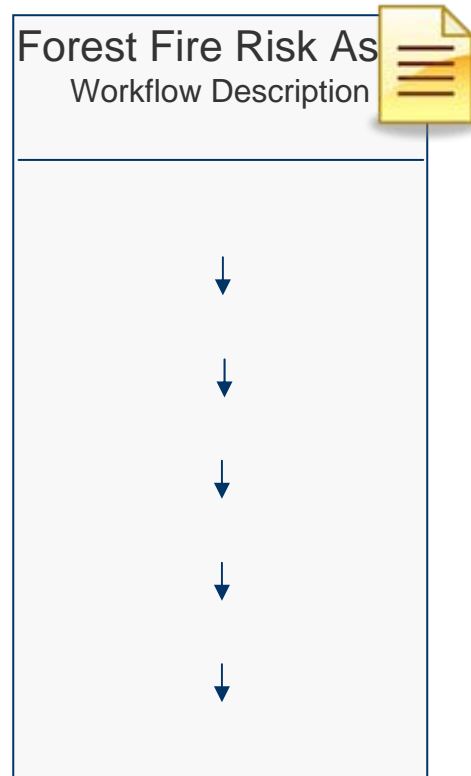


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Example Service Network Components



Creation of OT Risk
specific services using
Service Chain Access
Service (SCAS)



Summary

- Use of ORCHESTRA Reference Model to create new service types
- Combination of service interfaces -> New service type
- Use of Service Chain Access Service (SCAS) -> New service type

Issues:

- How to create ORCHESTRA compliant service using SCAS
 - Automated generation of capabilities information
 - Automatic specification of getCapabilities operation
- Is it possible to define a standard interfaces for OT risk specific services?



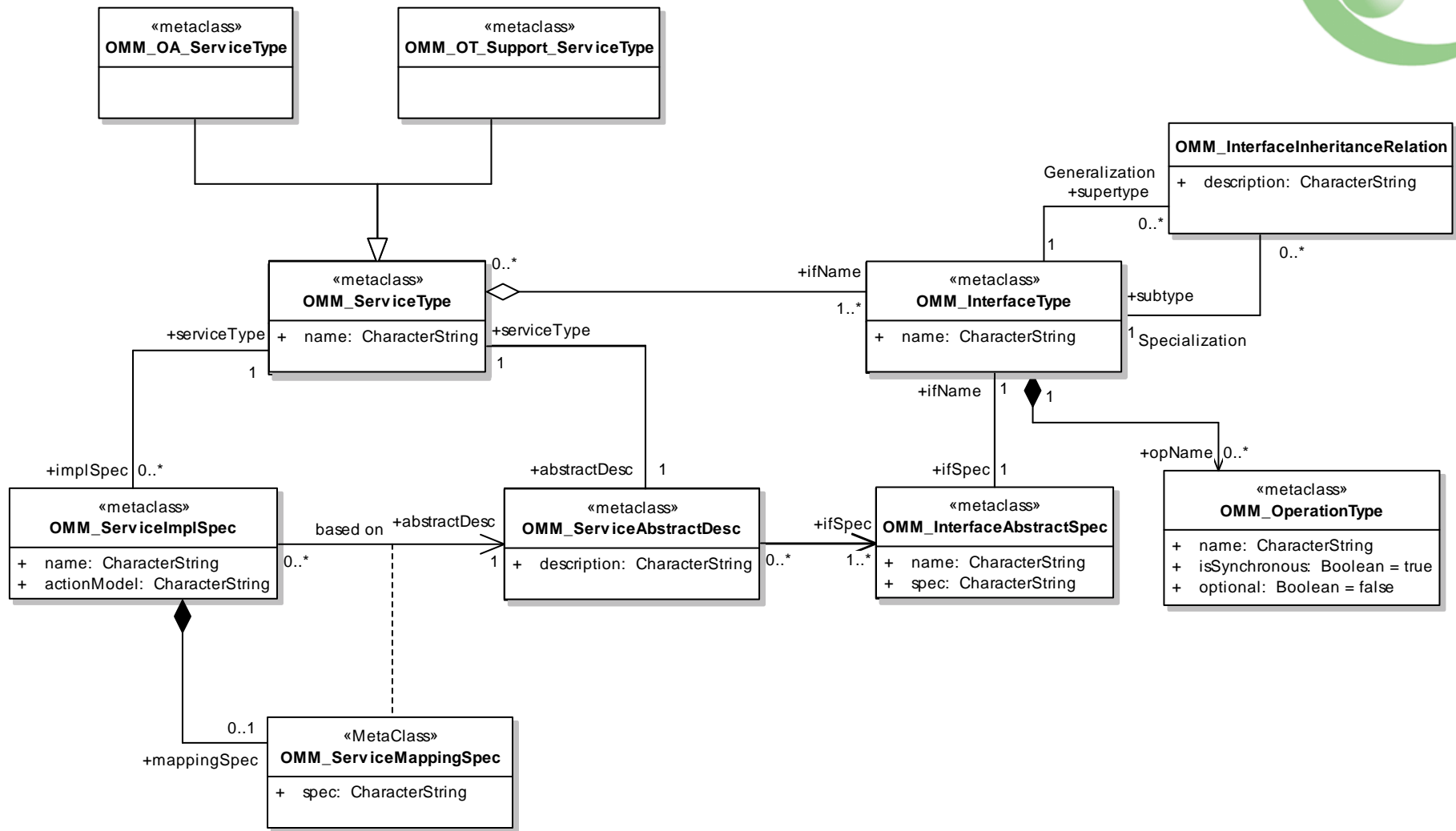
Thank you for your attention!

<http://www.eu-orchestra.org>



Additional Slides

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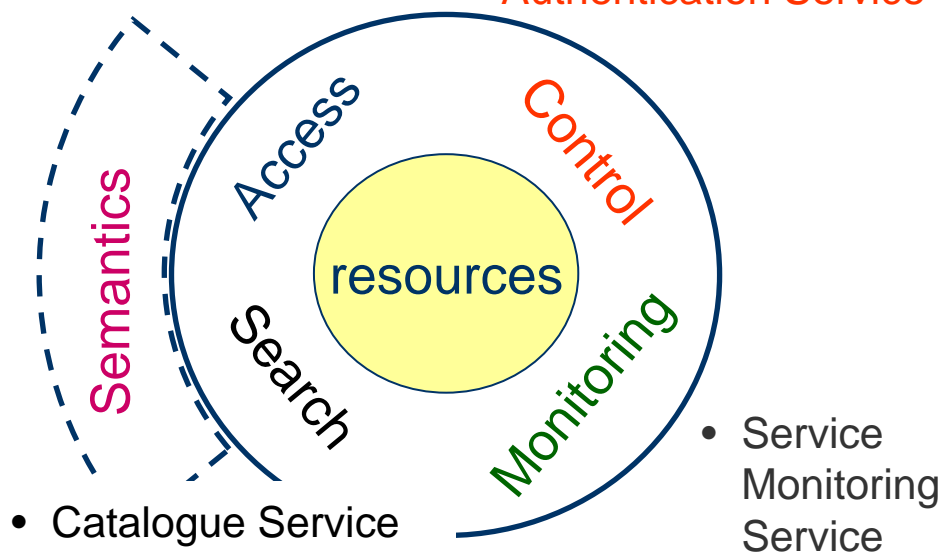


Architecture Services/Interfaces described in RM-OA

*presented in OGC TC Paris
Decision Support WG*

- Service Capabilities I/F
- (A)synchronous Interaction I/F
- Transactional I/F
- Feature Access Service
- Map and Diagram Service
- Document Access Service
- Name Service
- Gazetteer Service
- Thesaurus Access Service
- Schema Mapping Interface
- Format Conversion Service
- Coordinate Operation Service
- Service Chain Access Service
- **Ontology Access Interface**
- **Inferencing Interface**
- **Annotation Service**
- Sensor Access Service

- **User Management Service**
- **Authorisation Service**
- **Authentication Service**



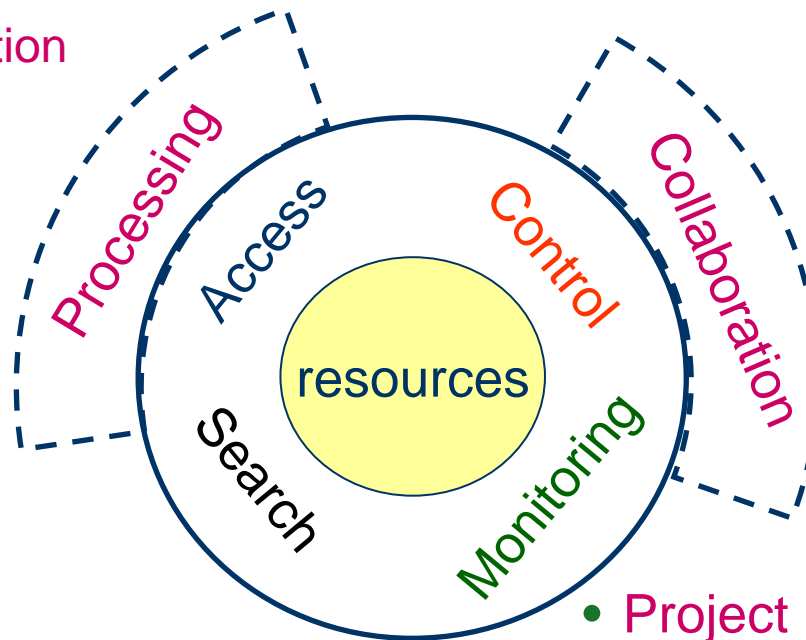
*Refined in SANY
project (→ OGC SWE)*

*presented in OGC TC Paris
Geosemantics WG*

Thematic Services described in RM-OA



- Processing Service for
 - (geo) statistical calculation
 - aggregation
 - normalisation
 - image processing
- Simulation Management Services



- Project Management Support Service
- Communication Service
- Calendar Service
- Reporting Service





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- **Annotation Service** Interface
- Sensor Access Service Interface
- Catalogue Service Interface

- **User Management Service**
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