



NAVELINK



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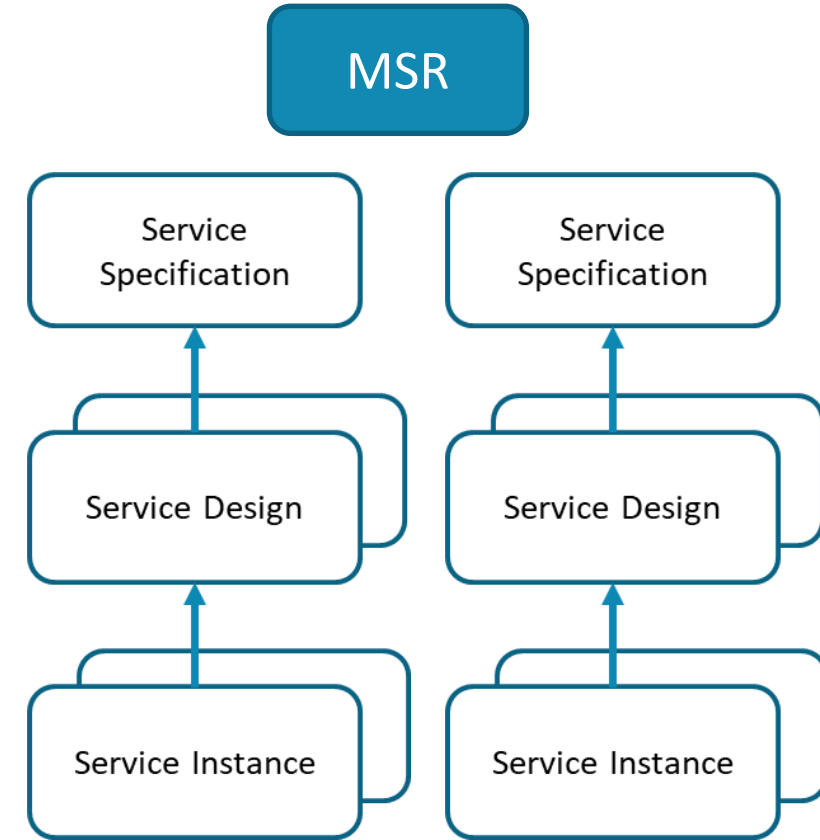
Making services that make use of MCP

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Services for MCP

The given framework and guidelines

- IALA G1128 Service Documentation
Gives guidelines and templates for documenting and registering the service in a Service Registry.
- IHO S-product Specification
Gives guidelines for use cases and context around the S-product
- IHO S-100
Gives guidelines for dataset packaging, data security etc.
- IEC 63173-2 SECOM
Gives guidelines for security and patterns for service methods
- Cyber Security standards, recommendations and guidelines
- MCP guidelines
Gives guidelines for authentication, tokens etc.
- MCP Instance provider guidelines
May give guidelines for registration procedures, maturity, stability etc.



Work approach

IALA G1128

- Word templates
- XML Schemas

Systems Engineering

Specify Service
– **WHO and WHAT**

Design the Service -
HOW

Implement the service

Deploy the service

Announce the service
- **WHERE**

Require
ments

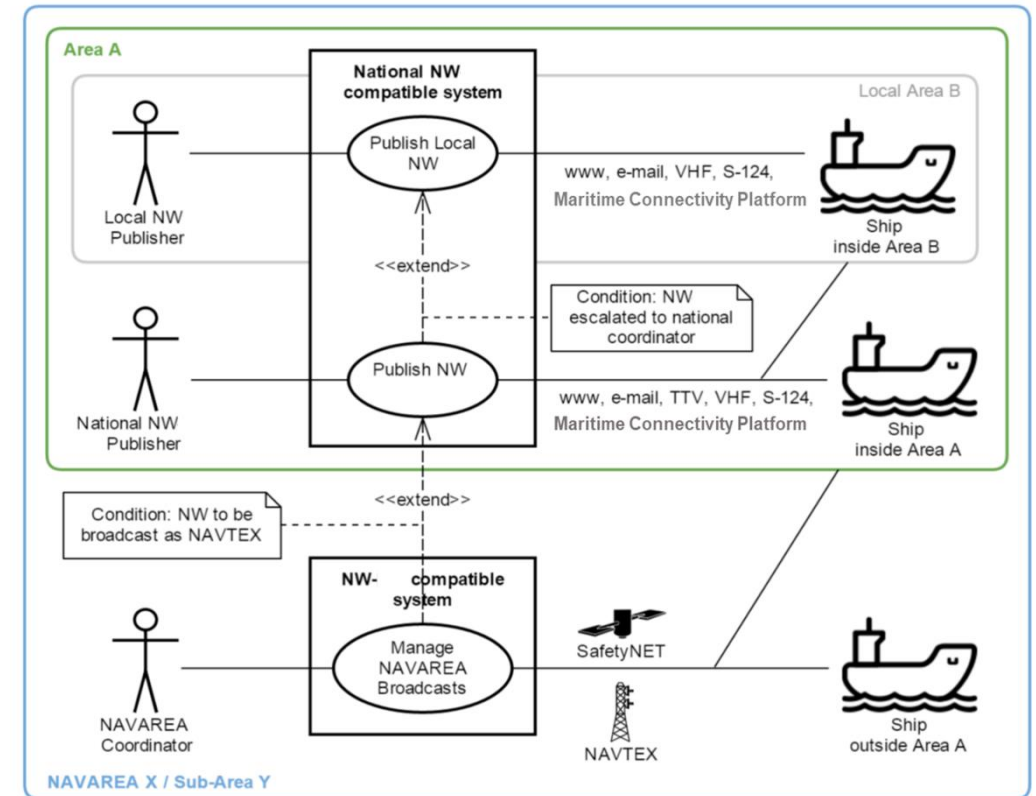
TEST, VERIFICATION, VALIDATION

Service Specification

- The first step is to evaluate if there is an **existing** Service Specification to use **or** a **new** need to be created.
- The Service Specification contains the technology agnostic **description** of a service **from a user** (operational) **perspective**, e.g. Use Cases and Stories, including the requirements and the information in focus, where the information in focus is recommended to be referencing IHO S-Product(s), but it can also be any other (well defined) information model (e.g. RTZ).
- The Service Specification is represented both as a human readable **document** and a machine readable **XML**-fil that are registered in the Service Registry.
- Typically done by, or in collaboration with, Maritime Domain Experts

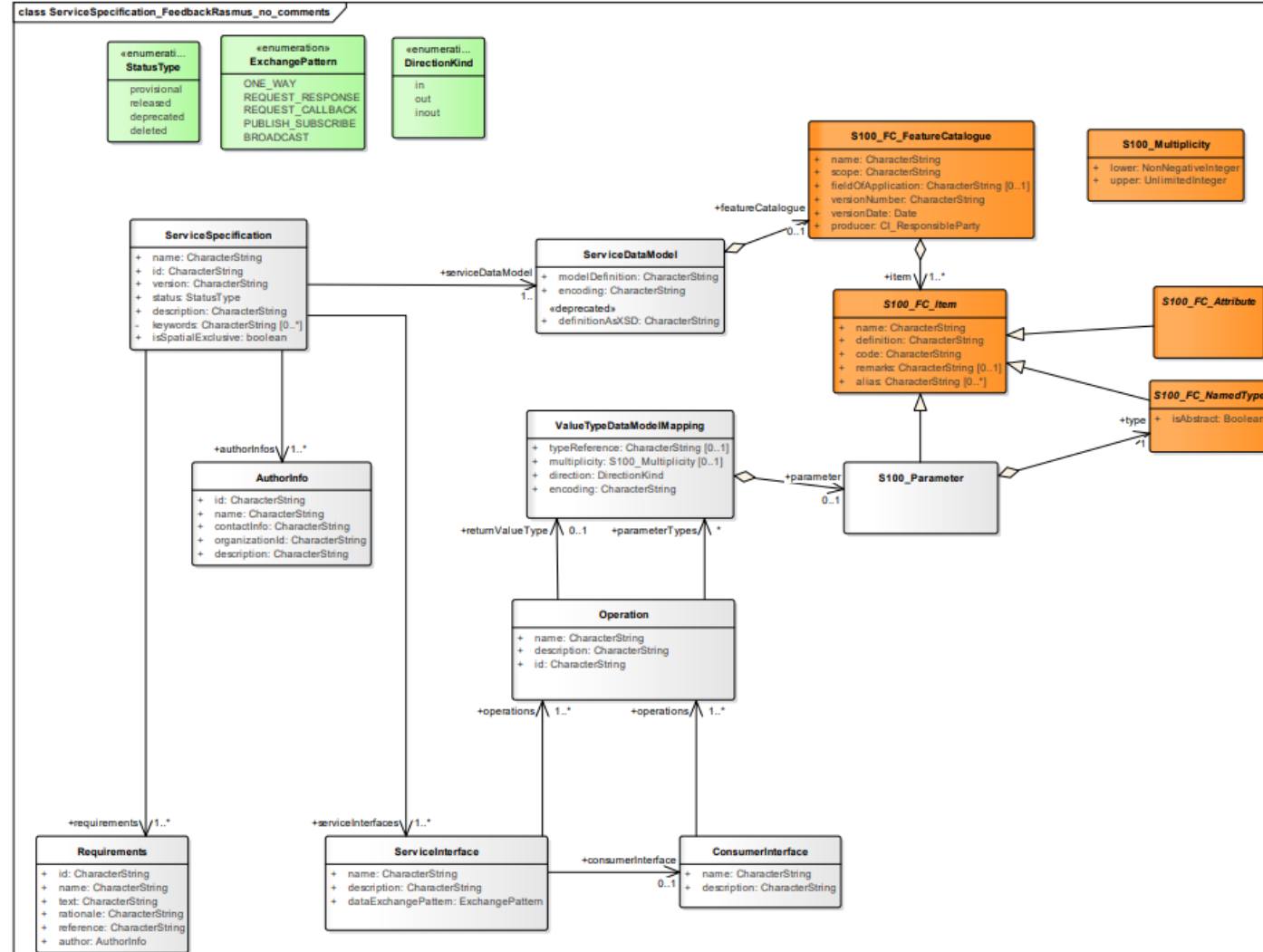
→MSR.Find(Service Specifications)

Service Registry



---G1128 Service Specification

3.3 SERVICE SPECIFICATION XSD STRUCTURE



Headings

Pages

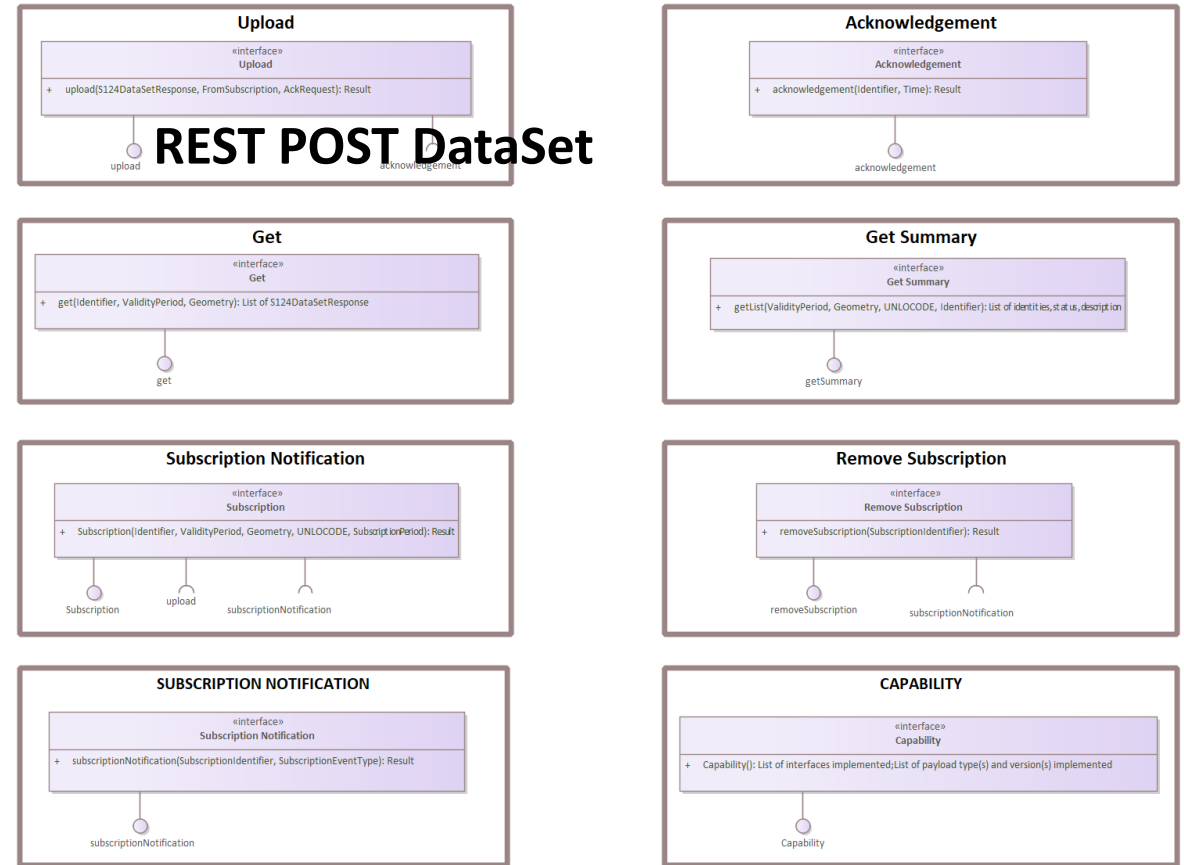
Results

- ▲ 1 Introduction
 - 1.1 Purpose of the Document
 - 1.2 Intended Readership
 - 1.3 Inputs from Other Projects
- 2 Service Identification
- ▲ 3 Operational Context
 - 3.1 Present Day Operational Context
 - 3.2 Envisioned Operational Context
 - 3.3 Functional and Non-functional Requirements
 - ▷ 3.4 Other Constraints
- ▷ 4 Service Overview
- ▷ 5 Service Data Model
- ▷ 6 Service Interface Specifications
- ▷ 7 Service Dynamic Behaviour – TO BE REVISED
- ▷ 8 Acronyms and Terminology
- Appendix A Service Specification XML

Service Design

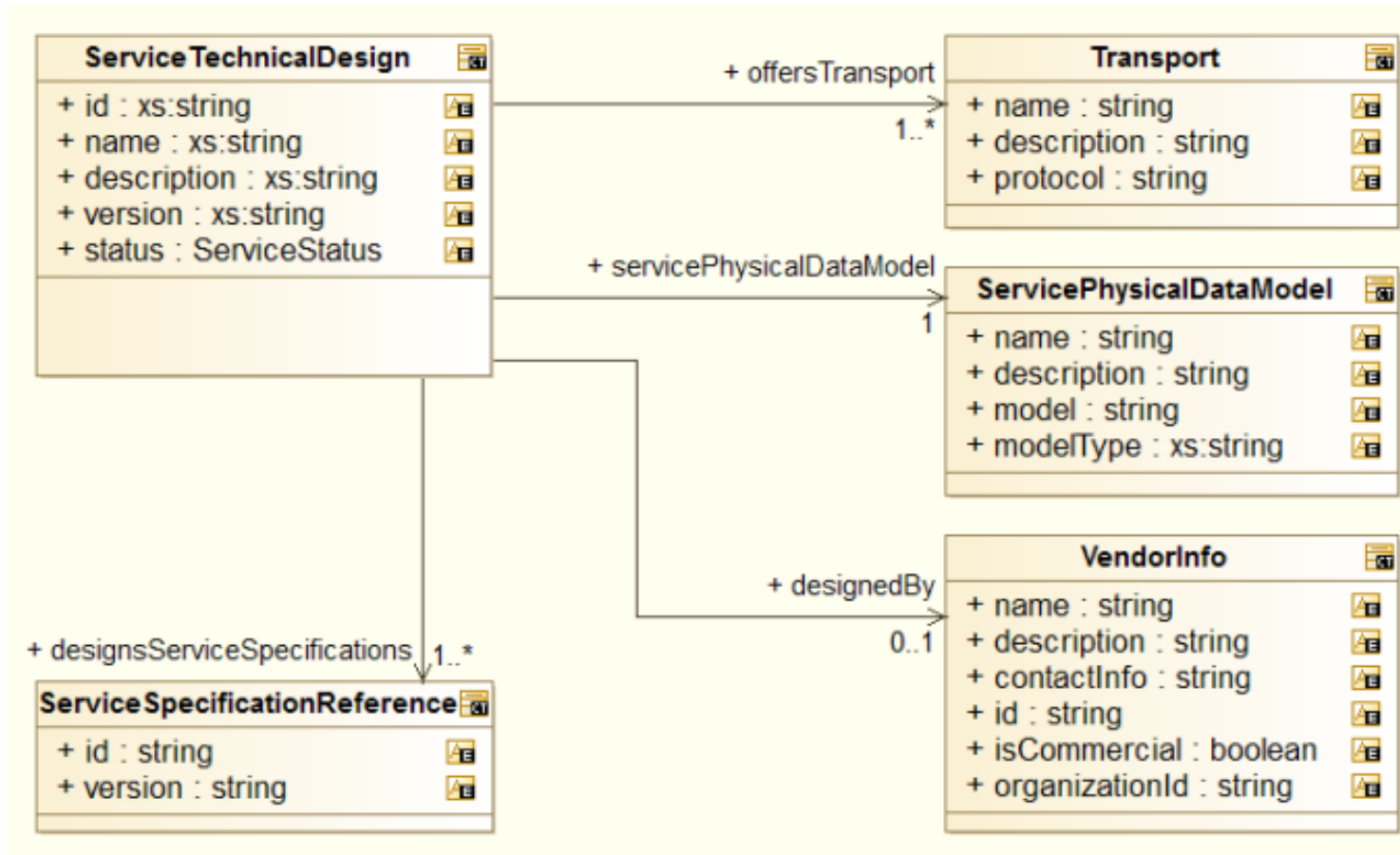
- The second step is to evaluate if there is an **existing** Service Design to use **or** a **new** need to be created.
- The Service Design includes to **select technology** for the service and the detailed representation of all methods expressed in the selected technology, e.g. REST, SOAP
- Defines the **Technical Interoperability** including the security procedures
- The Service Design is also represented with both a human readable **document** and a machine readable **XML**-file that are registered in Service Registry.
- Typically done by Solution Architects
- Prototyping can be started

→ MSR.Find(Service Designs)



---G1128 Service Design

4.3 SERVICE DESIGN DESCRIPTION XSD STRUCTURE



Service Implementation

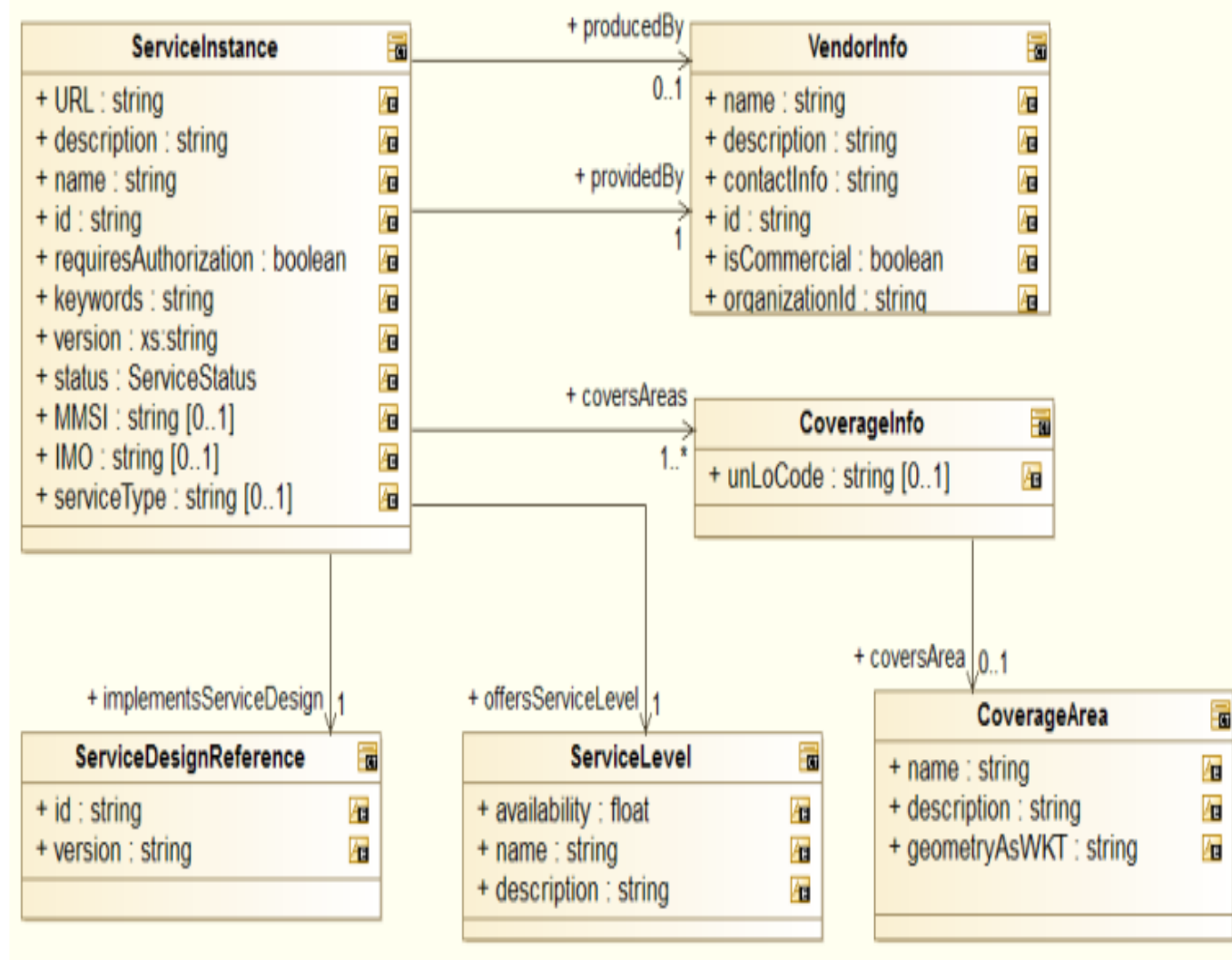
- The third step is to evaluate if to **buy/rent** an **existing** Service Instance **or** to **implement** your **own** instance.
- The Service Instance implements the Service Design in a **selected software programming language**, e.g. Python, JAVA, C#.
- This step also includes the decision **where** to **deploy** the instance. Normally the instance is deployed in a server environment with a Web Server, firewall, maintenance, support etc.
- Typically done by Software Engineer
- Service unit tests can be started
- *This step is normally internal in the Service Producer organization.*

Service Instance (the runtime service to consume)

- Registration of Service Instance for integration tests
- The Service Instance is also represented with both a human readable document and a machine readable XML-file that are registered in Service Registry. The Service Instance is the main target for search by a Service Consumer.
- Typically done by Software Engineer
- Service unit tests can be started

Announce / Release the Service Instance

- This step refers to the registration of the Service in operational Service Registry and how it can be discovered by other operational units.
- The Service Instance is also represented with both a human readable **document** and a machine readable **XML**-file that are registered in Service Registry. The Service Instance is the main target for search by a Service Consumer.
- How to make the service **discoverable** in the Service Registry
- Typically driven by the operational Service Provider



Some considerations

- Mimic today's interaction sequence or create new (improved perhaps) interaction sequence
- Relation between S-Product Specification, IALA G1128 and e.g. SECOM Service template
- Use cases and behavior patterns
- Push-Pull-Subscription design
- Allowed interaction to/from the user application (the complete functional chain)
- Implementation stability and re-use versus specialization and tailoring
- Composition of service (e.g. service with several S-products)
- Orchestration of services (e.g. the operational sequence to ask for information and acknowledge when received)
- Human in the loop



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