NAVELINK

Developer forum

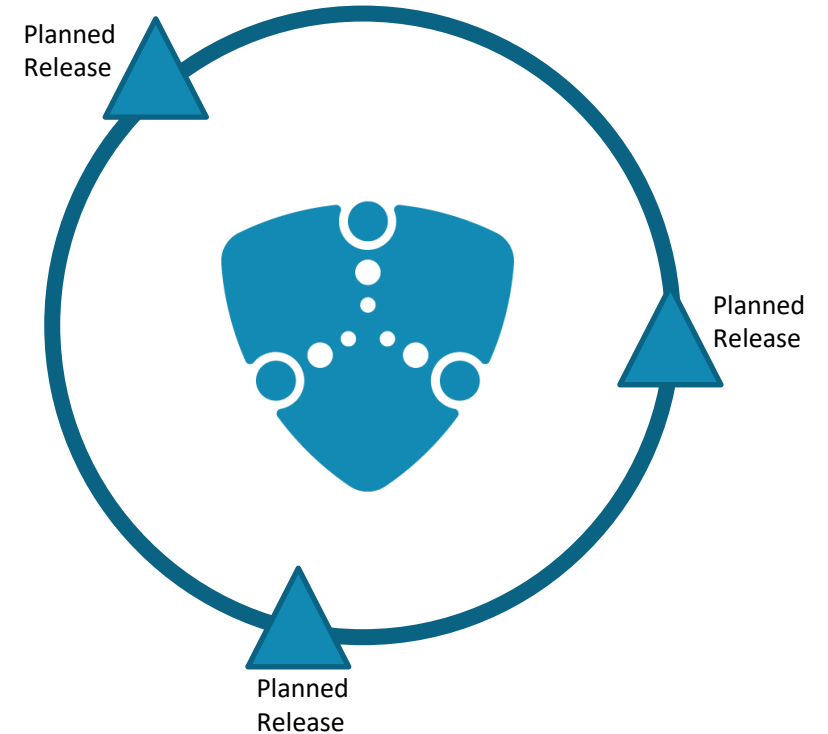15-12-2022

Navelink.org

Agenda

1) Navelink Platform status & update

2) Navelink Roadmap   (Head of concept Navelink)

3) Service development discussions & information
   a) Forum service developers   (Each developer)
   b) Forum security and interoperability   (Each developer)
   c) Ongoing work within the STM-community (Trello)   (Each developer)

4) Overview of Navelink usage

5) Q&A
   a) New questions   (All)

6) DMI Introduction

7) Discussion on design of services for VDES and MMS

8) Closing remarks

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1) Navelink Platform status & update

- Does Developer Forum at the last Thursday of every month work?

- Posted a new FAQ "Do I own my signatures if I am using Navelink?"

- Implemented G1128 v 1.3 schemas on DEV and TEST

  – Test Service registered on TEST (Verification Service)

  – Have you tested?

- Implementation of G1128 v 1.3 schemas to PROD/OPS planned on Monday 19/12 at 13:00

  – Release notes posted on Navelink.org

Received questions

Planned Release

Planned Release

Planned Release

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2) Navelink Roadmap

1-2 years

2-5 years

- Increase VDES support
- Add MMS support
- Increase Traceability
- Increase SECOM Compliance
- Add more Service Specifications and Designs
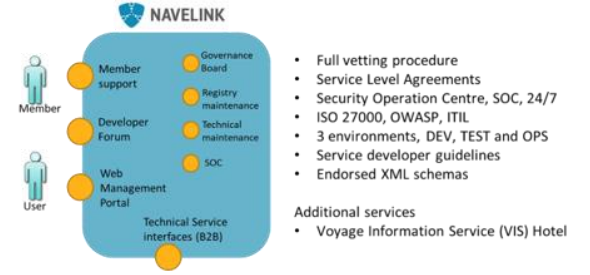- Add SECOM Hotel
- Refine Permissions Management
- Add Service Ledger support

- Enable subscription on Navelink technical notes
- Enhance functionality to host payload formats
- Add support for Geocasting
- Add support for Service Payment

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- Full vetting procedure
- Service Level Agreements
- Security Operation Centre, SOC, 24/7
- ISO 27000, OWASP, ITIL
- 3 environments, DEV, TEST and OPS
- Service developer guidelines
- Endorsed XML schemas

Additional services
- Voyage Information Service (VIS) Hotel

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3) Service development discussions & information

- Forum service developers

  - G1128

  - Discussion on future changes of MRN pattern

- Forum Security and interoperability

  - Common discussions

- Ongoing work within the STM-community (Trello)

  - Trello check

  - Common standardization work: S-124, S-421, SECOM, General STM news

G1128 schema

The G1128 XML schemas is used primarily to describe and register a service in Maritime Service Registry (MSR). Based on the content in the XML, the MSR extracts some data and stores it specifically in the database. The content of this database is later returned as JSON fields. The original XML is also returned.

Current version (early 1.0)

Service Specification

+ Mainly references any data model

Service Design

Service Instance

<URL>https://....</URL>

Present version (1.3)

Service Specification

+ Can reference a S100 Feature Catalogue or Product (examples ongoing)
+ Can still reference any data model by name
- Removed definitionsAsXSD

Service Design

No changes identified

Service Instance

+ Field "URL" changed to "endpoint"
<endpoint>https://....</endpoint>

Breaking change

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G1128 schemas

Consequences of changed field name URL in Service Instance

- When retrieving and searching for service the response contains both the service in JSON format and also the original XML file. The JSON is unchanged, but the XML retrieved will be in the format decided by the registrator, as long as the schema is accepted by Navelink. By accepting both versions of the schema (and more in future...), everyone using the XML part in the response will have to accept all versions of the schema allowed in Navelink.

Example (simplified)

```
{

  "name": "<name>",
  "instanceId": "<mrn>"
  "InstanceAsXml": "xlmns="" .... <URL>https://</URL>",
  "endpointUri": https://,
  "endpointType": null

}
```

```
{
  "name": "<name>",
  "instanceId": "<mrn>"
  "InstanceAsXml": "xmlns="" .... <endpoint>https://</endpoint>",
  "endpointUri": https://,
  "endpointType": null
}
```

xmlns="http://efficiensea2.org/maritime-cloud/service-registry/v1/ServiceInstanceSchema.xsd"

xmlns="http://iala-aism.org/g1128/v1.3/ServiceInstanceSchema.xsd"

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G1128 in TEST

G1128 implementation in Navelink MSR

When creating a service in MSR, the XML can be in either G1128 v1.0 (early) or G1128 v1.3 format. This change is implemented for both Service Specification, Service Technical Design and Service Instance.

For service instance, the difference is the field "URL" which is changed to "endpoint". Navelink will interpret both and store them in the database as endpointUri, which is responded back in GET and SEARCH JSON part.

For service technical design there is no change.

For service specification, the data model reference can be made to IHO S-100 product and the S100 Feature Catalogue.

New service for testing purposes

In DEV and TEST environment, the Verification Service is registered both in G1128 v1.0 and G1128 v1.3. Search for "**VIS 2.2 Verification Service (G1128v3)**" and consume the service. If you can consume it and get response from **Verification Service,** all is good.

MRN for VIS 2.2 Verification Service (G1128v3) on TEST:

urn:mrn:mcp:service:navelink-test:navelink:instance:vis:verificationservice:v3

MRN for VIS 2.2 Verification Service (G1128v3) on DEV:

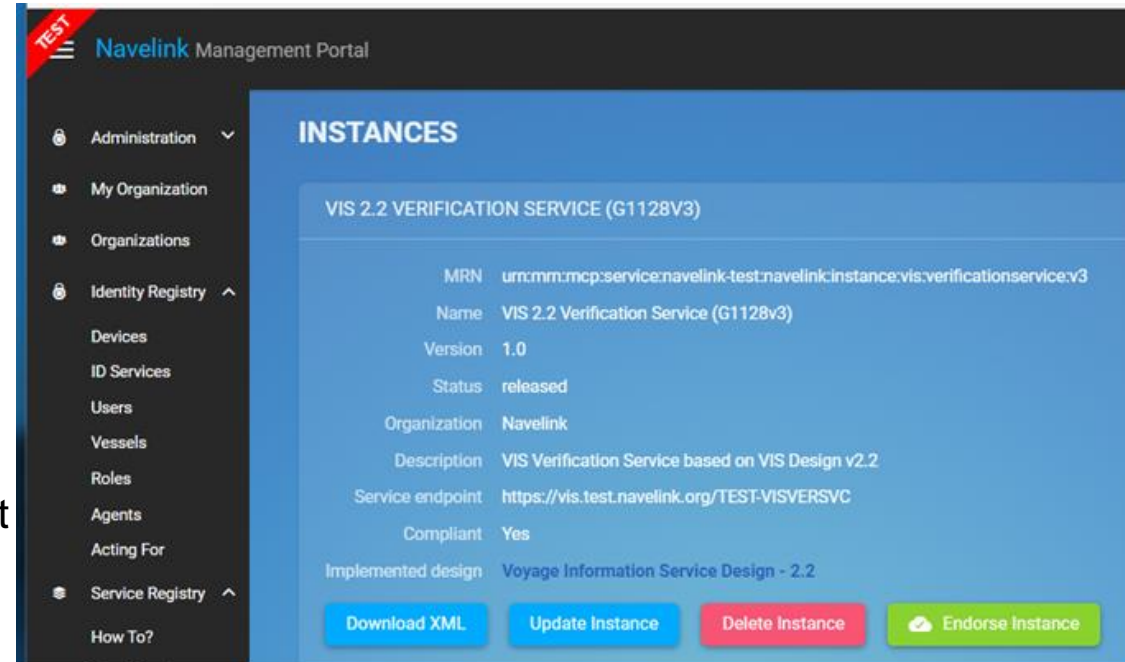urn:mrn:mcp:service:navelink-dev:navelink:instance:vis:verificationservice:v3

Please don't hesitate to get in touch with us if you need help. You can reach us at info@navelink.org

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Solution

- Accept all approved versions of the IALA G1128 schema when registering services in Navelink

- Accept that "InstanceAsXML" content in responses are according to one of the approved versions of the G1128 schema

- Be careful to use the content in the InstanceAsXML (G1128 XML) when retrieving essential fields, such as URL, and use the MCP/Navelink fields instead in the JSON.
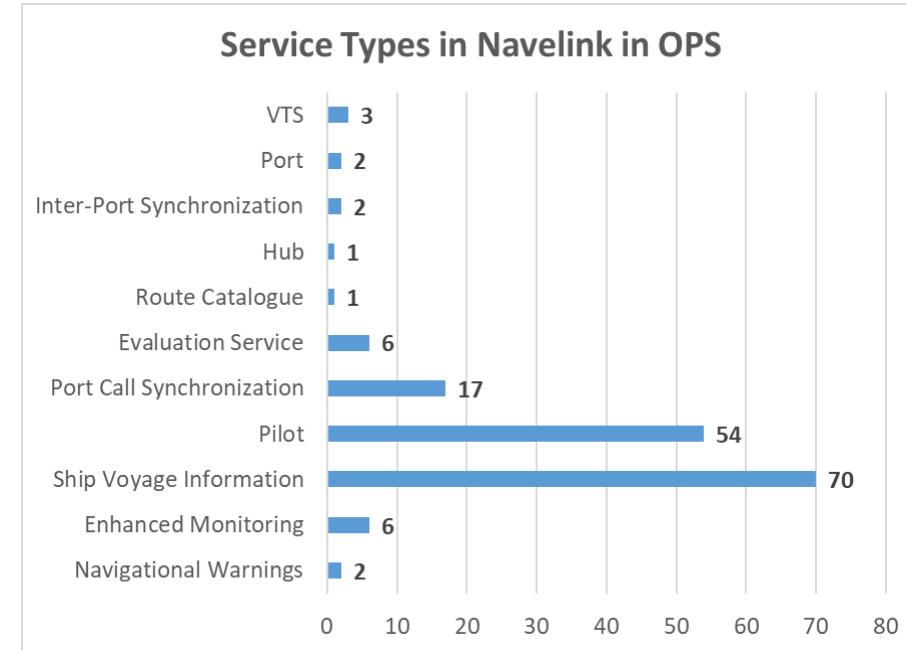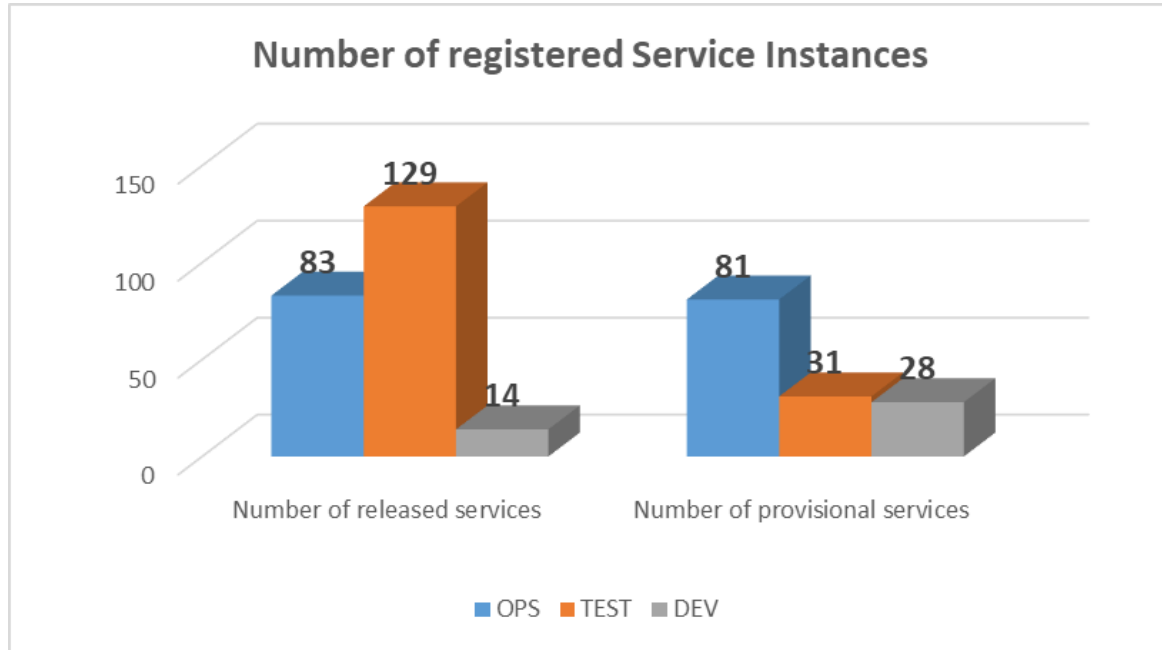
Recommendation: Use primarily the JSON fields in the response. Treat the InstanceAsXML content as extra information more for presentation and use if not present in JSON.

Search includes today also the XML content, hence new fields in the XML is also possible to search on in free text search.

Navelink Management Portal

INSTANCES

VIS 2.2 VERIFICATION SERVICE (G1128V3)

MRN	urn:mm:mcp:service:navelink-test:navelink:instance:vis:verificationservice:v3
Name	VIS 2.2 Verification Service (G1128v3)
Version	1.0
Status	released
Organization	Navelink
Description	VIS Verification Service based on VIS Design v2.2
Service endpoint	https://vis.test.navelink.org/TEST-VISVERSVC
Compliant	Yes
Implemented design	Voyage Information Service Design - 2.2

Administration
My Organization
Organizations
Identity Registry
Devices
ID Services
Users
Vessels
Roles
Agents
Acting For
Service Registry
How To?

Download XML | Update Instance | Delete Instance | Endorse Instance

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4) Overview on Navelink usage

2022-12-14

Number of registered Service Instances

OPS | TEST | DEV

Number of released services: 83 | 129 | 14
Number of provisional services: 81 | 31 | 28

Service Types in Navelink in OPS

- VTS: 3
- Port: 2
- Inter-Port Synchronization: 2
- Hub: 1
- Route Catalogue: 1
- Evaluation Service: 6
- Port Call Synchronization: 17
- Pilot: 54
- Ship Voyage Information: 70
- Enhanced Monitoring: 6
- Navigational Warnings: 2

Events since last Dev Forum:

Created in OPS
- Port Call Synchronization: Wartsila NaviPort of KRPUS
- Ship Voyage Information: CAUQUENES
- Ship Voyage Information: CISNES

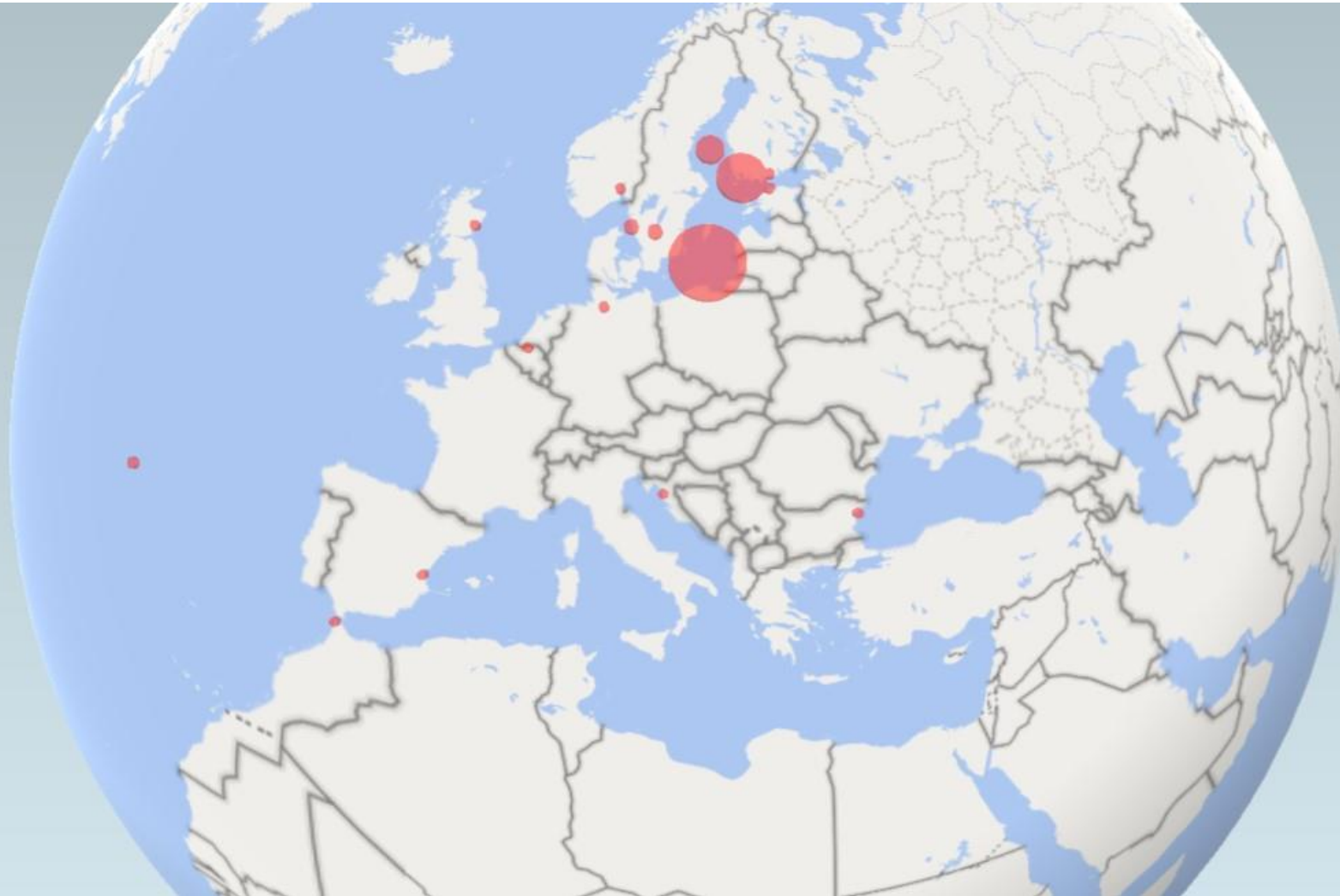**Navelink Operational environment Service Registrations**

Service Specifications: 1 (Voyage Information Service v2.2)
Service Technical Design: 1 (Voyage Information Service Design v2.2)
Service Instances: 164

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Geographical representation in Europa for services in Navelink

2022-12-11 17:46
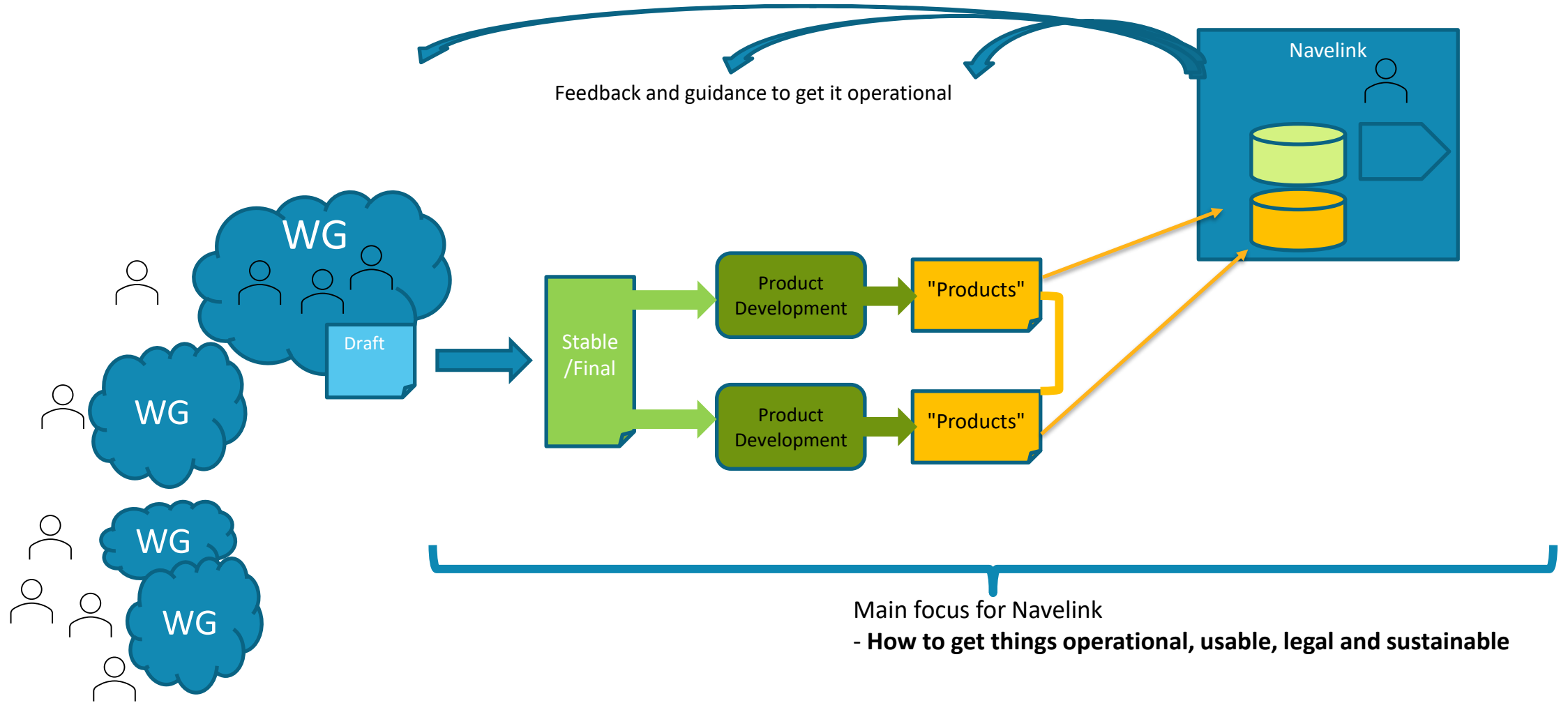
Continents

5) Q&A

- Any Questions? The floor is open.

6) DMI Introduction

7) Discussion on design of services for VDES and MMS

- Last time Stefan Pielmeier (Sternula) gave a presentation on VDES and MMS

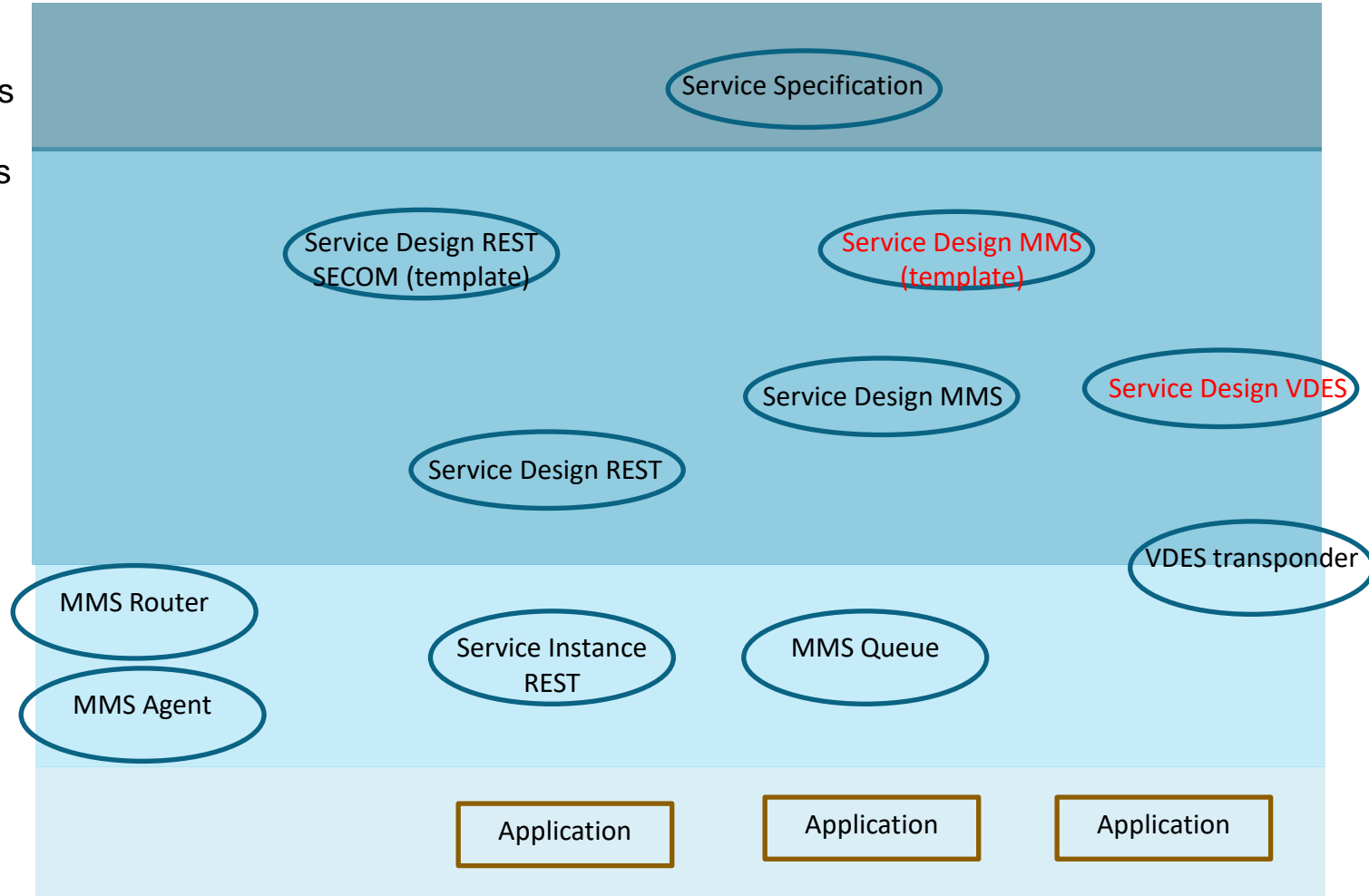- How can VDES be used together with existing services in Navelink?

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Role of Navelink

Feedback and guidance to get it operational

Navelink

WG

WG

WG

WG

Draft

Stable /Final

Product Development → "Products"

Product Development → "Products"

Main focus for Navelink
- **How to get things operational, usable, legal and sustainable**

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Brainstorming!

Pre-requisites (assumptions here in the brainstorming)

- Information products (such as S-product) SHALL always be signed the owner/creator to enable data authentication (e.g. as described in SECOM) regardless of communication method

- Dynamic coupling between service provider and consumer that can be permanent or adhoc, still authenticated (secure) and interoperable

- Different communication methods in co-existence, selectable based on situation and cost-benefit.

- Described services for interoperability

Service Specification

Service Design REST SECOM (template)

Service Design MMS (template)

Service Design MMS

Service Design VDES

Service Design REST

VDES transponder

MMS Router

Service Instance REST

MMS Queue

MMS Agent

Application

Application

Application

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Questions!

- Same User Authentication in all types of services?

- Same Data Authentication in all types of services?

- Same Service Specification but different Service Designs based on REST, MMS, SOAP, VDES?

- Mix of REST and MMS services?

- Bridges between?

- REST services is today registered and in use in Navelink today; How will the MMS service be registered in Service Registry?

- What is a VDES Service? Is it a correct expression?

- Where document procedures and the dynamic usage of REST, MMS and VDES? Are they different?

- There are probably both very simple procedures (such as "get data") and more complex where data need to be searched and filtered, acknowledgement are expected etc. (such as Port Call Synch, UKCM, Route Plan monitoring and flow management)

- Service descriptions also for MMS Agent and Router?

8) Closing remarks

- Next Developer Forum we will be given a presentation on Naviport by Dmitry Rostopshin, Wärtsilä

- Merry Christmas/ Happy Hollidays and a Happy New Year!

- Next Developer Forum at 26/01-2023

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Meeting notes (1/2)

- Navelink now have a collaboration with VDES and MMS and will have to make a roadmap on how to implement it into Navelink in the future

- You can now register services according to G1128 v1.0 and v1.3 in Navelink

- On DEV and TEST there exist a verification service registered in both G1128 v1.0 and G1128 v1.3 that you can use for tests
    - MCC are not giving any new input to the G1128 on the IALA meeting in January but will collaborate during that meeting regarding the design template and parameters.
    - Peter Bergljung discussed new edition of G1117
        - G1117 lists multiple IMO e-navigation services that can be used with VDES
    - Sternulas satellite will go up during the 2nd of January, DMI is taking part of the project as service providers
    - VDES will be tested in 2023 using the Sternula satellite and later Saab and Kongsberg satellites… more to discussions will come on VDES and G1117 in future dev forums

- Till Soya Rasmussen from DMI gave an introduction.
    - DMI have been participating in many different maritime projects and now they are involved in a IALA project
    - Will develop S100 services (S4xx weather) to be provided through Navelink and VDES
        - Will most likely be able to upload services to Navelink pretty soon
    - Wish to prove it is possible to receive from and send data to a specific ship
    - Question asked to Till: Are there any written test cases for VDES that we can use?
        - Tests will include weather data, authentication and encryption of data

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Meeting notes (2/2)

- VDES alliance [VDES Alliance – Making VDES Happen (vdes-alliance.org)](vdes-alliance.org) acts a coordinator body of VDES

- VDES discussion

  - VDES has very good encryption and have dual link, meaning that you can send and receive data simultaneously

  - Does not see any data in Navelink that cannot be sent over via VDES

  - Are there any closed loops in VDES itself? Not built into VDES itself but will be implemented in the services.

  - Navelink and VDES could be a good way to exchange data safely from the satellites to ships that does not want internet on the bridge

- How do we reach interoperability not only on the operational level but also making service specification and service design?

- Bandwidth is an issue and VDES provides a few kilobytes per user, not mega or gigabytes, and care need to be taken when designing the services and procedures

- Next developer forum at 26/01-2023

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