Developer forum

26-09-2024

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)

4) Overview of Navelink usage

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

6) Basis for Discussion

7) Closing remarks

1) Navelink Platform status & update

- Since the last meeting:
  - Implementation of SECOM Hotel to TEST
  - System Maintenance
- Current work:
  - System Maintenance
  - Investigation and testing of new MIR version
    - *See next slide for expected changes*

- **Received Questions:**

Planned
Release

Planned
Release

Planned
Release
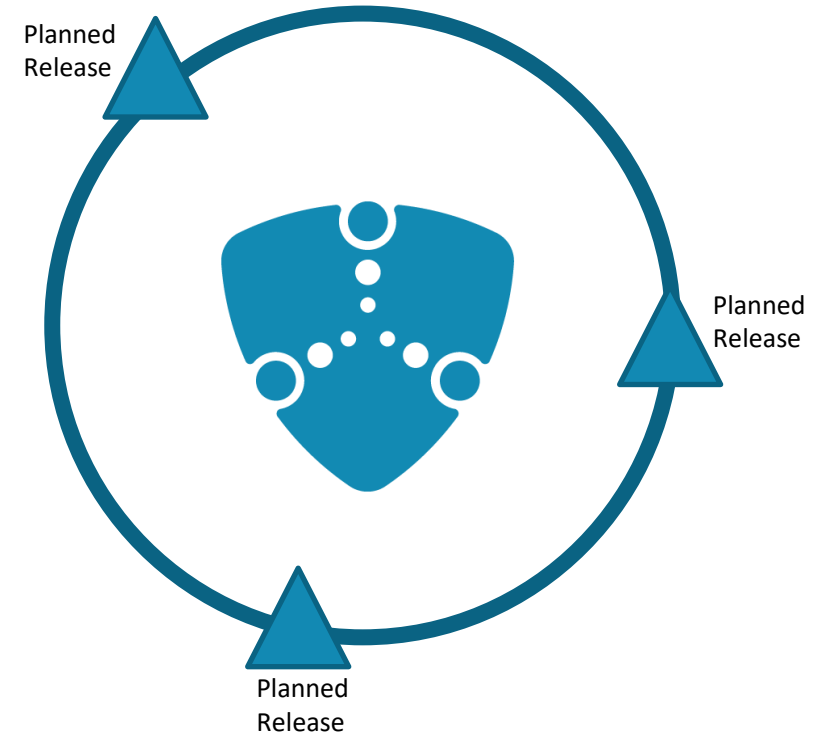
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Changes in next version of Navelink

- SECOM GetPublicKey will be added as REST interface in MIR

- MRN pattern will be added with new MCP-TYPE called "entity" that will in future replace "org","user","vessel","device" and "service" as MCP-types. Navelink will still allow the legacy types but new registrations should follow the new MRN pattern with just "entity" in the MRN.
  The distinction between different types of entities will still be reflected in the certificates, hence a vessel certificate will still be able to hold additional vessel information.

- For service entities, the MRN in itself will become unique.
  Today the combination of MRN+Version is unique.
  For versioning, the recommendation is to add the version in the MRN, e.g. :v1.0.0

- Service Controller in MIR will be updated without "version".

As usual, the new version will first be installed on DEV and TEST to which You also can test your applications against. Then if OK, the OPS environment will be updated.
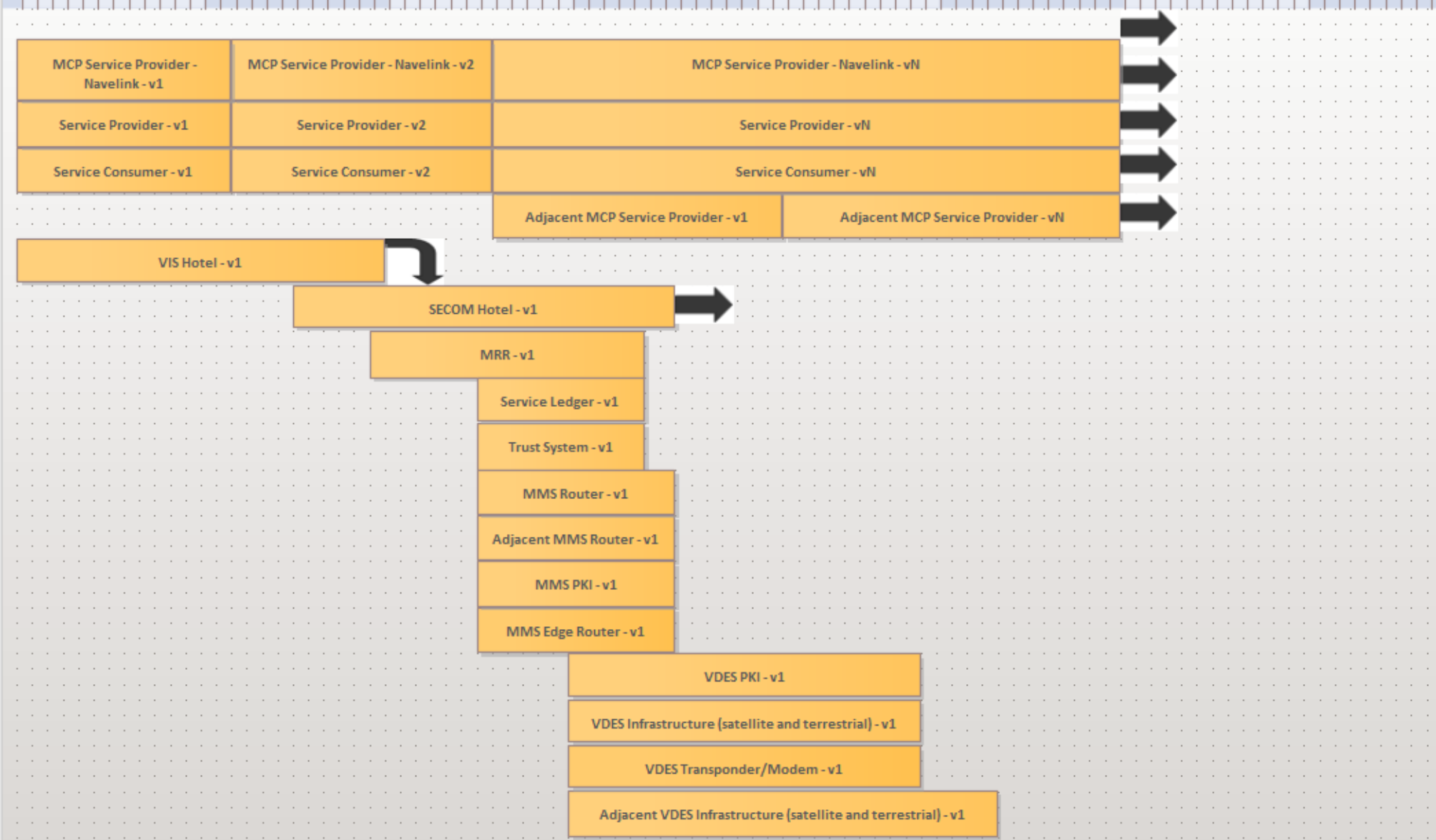
NOTE. The changes may also affect your service instance implementations where the MRN is used.

○ ⚑ In progress 4   ...

⊙ IdentityRegistry #41
Implement SECOM GetPublicKey in MIR

⊙ IdentityRegistry #44
Allign implementation with the MIR specification that is defined in IALA G1183

⊙ IdentityRegistry #42
Refactor Service entity type to not have version as an attribute that is separate from the MRN

⊙ IdentityRegistry #45
Make MCP MRNs unique across all database tables

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Unit: Years

Maritime digital environment

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |

- MCP Service Provider - Navelink - v1 (2023)
- MCP Service Provider - Navelink - v2 (2024)
- MCP Service Provider - Navelink - vN (2025–2028)
- Service Provider - v1 (2023)
- Service Provider - v2 (2024)
- Service Provider - vN (2025–2028)
- Service Consumer - v1 (2023)
- Service Consumer - v2 (2024)
- Service Consumer - vN (2025–2028)
- Adjacent MCP Service Provider - v1 (2026–2027)
- Adjacent MCP Service Provider - vN (2027–2028)
- VIS Hotel - v1 (2023–2024)
- SECOM Hotel - v1 (2024–2025)
- MRR - v1 (2025)
- Service Ledger - v1 (2025)
- Trust System - v1 (2025)
- MMS Router - v1 (2025)
- Adjacent MMS Router - v1 (2025)
- MMS PKI - v1 (2025)
- MMS Edge Router - v1 (2025)
- VDES PKI - v1 (2025–2026)
- VDES Infrastructure (satellite and terrestrial) - v1 (2025–2026)
- VDES Transponder/Modem - v1 (2025–2026)
- Adjacent VDES Infrastructure (satellite and terrestrial) - v1 (2025–2026)

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Interfaces

MIR Open interface	Open interface to MCP Identity Registry Main functions are: - OCSP certification check - CRL download http:// No authentication required.
MIR Secure interface	Secure interface to MCP Identity Registry Main functions are: - Create, Get, Update and Delete entities - Issue certificates - Create, Update and Delete Roles - KeyCloak Protected by Navelink Certificates and HTTPS
MSR Open interface	Open interface to Navelink Service Registry Main functions are: - Search and Get Service Specifications - Search and Get Service Designs - Search and Get Service instances metadata Protected by HTTPS No authentication required.
MSR Secure interface	Secure interface to Navelink Service Registry Main functions are: - Create, Update and Delete Service Specification - Create, Update and Delete Service Design - Create, Update and Delete Service Instance metadata Protected by Navelink Certificates and HTTPS

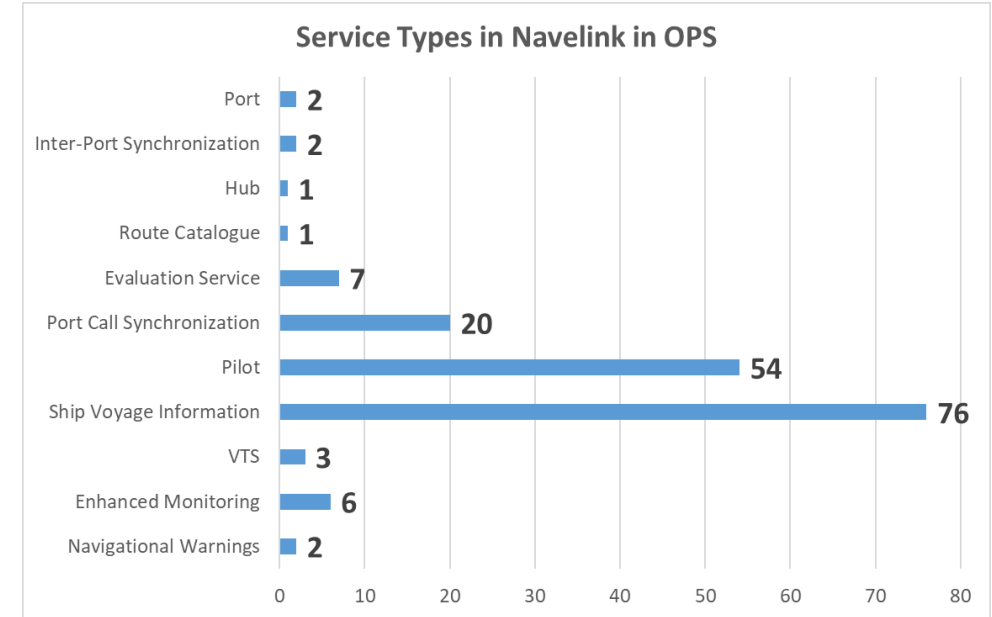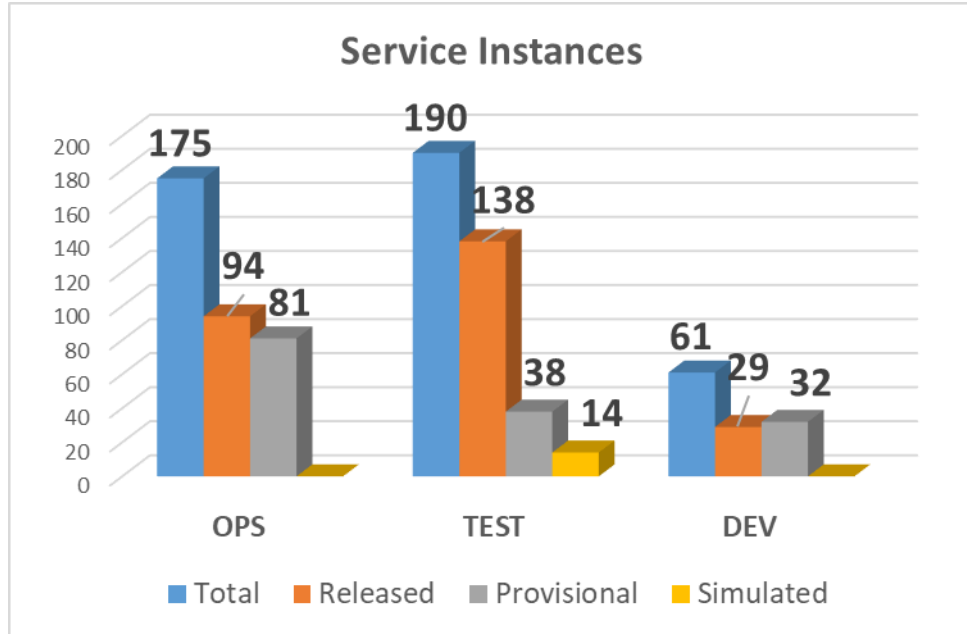|	
SECOM - Public	SECOM Service interface for connecting public SECOM users to the SECOM Service. Main functions are - Uploaded Message - Get Summary - Get Message - Create and Remove Subscription - Request Access - Send EncryptionKey Defined by OpenAPI file (JSON) designed by IEC 63173-2 SECOM Protected by SECOM PKI Certificates and HTTPS.
SECOM Hotel - Private	Vendor specific interface for connecting user application to the SECOM Service. Main functions are - Get Uploaded Messages - Get Notifications - Publish Messages to downloaders and subscribers - Set Access Control on published messages - Create subscriptions for users Defined by OpenAPI file (JSON) designed in Navelink, based on SECOM Test Project. Protected by HMAC and HTTPS.
VIS - Public	VIS Service interface for connecting public VIS users to the VIS Service. Main functions are - Uploaded Message - Get Summary - Get Message - Create and Remove Subscription Defined by OpenAPI file (JSON) designed by STM Project. Protected by MCP PKI Certificates and HTTPS.
VIS Hotel - Private	Vendor specific interface for connecting user application to the VIS Service. Main functions are - Get Uploaded Messages - Get Notifications - Publish Messages to downloaders and subscribers - Set Access Control on published messages - Create subscriptions for users Defined by OpenAPI file (JSON) designed in STM Project. Protected by HMAC and HTTPS.

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3) Service development discussions & information

- Forum service developers
  - Common discussions
- Forum Security and interoperability
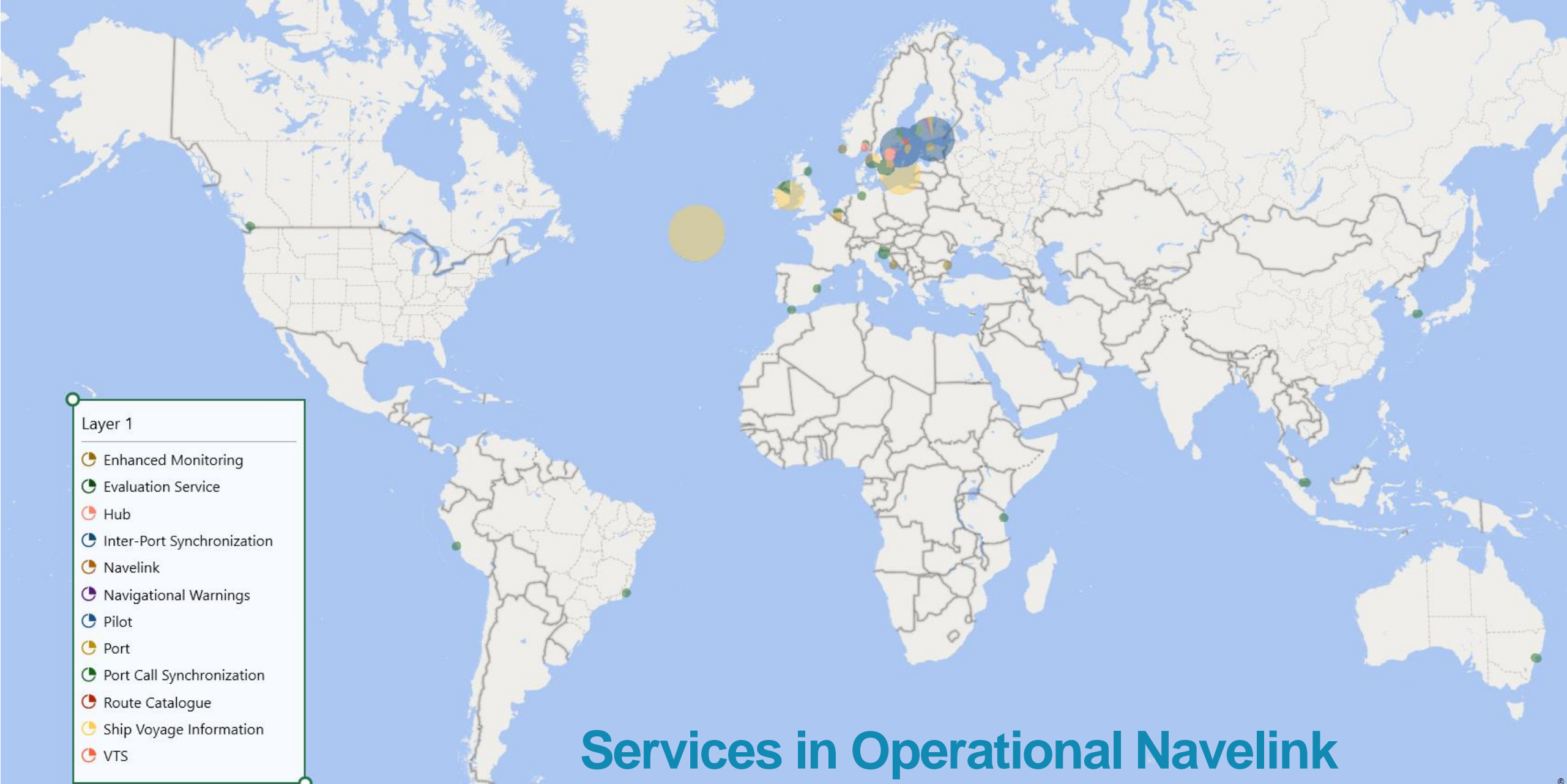 - Common discussions

4) Overview on Navelink usage

2024-09-25

Service Instances

	OPS	TEST	DEV
Total	175	190	61
Released	94	138	29
Provisional	81	38	32
Simulated		14	

■ Total ■ Released ■ Provisional ■ Simulated

Service Types in Navelink in OPS

Service Type	Count
Port	2
Inter-Port Synchronization	2
Hub	1
Route Catalogue	1
Evaluation Service	7
Port Call Synchronization	20
Pilot	54
Ship Voyage Information	76
VTS	3
Enhanced Monitoring	6
Navigational Warnings	2

Navelink Operational environment Service Registrations

Service Specifications: 2 (Voyage Information Service v2.2) + **SECOM Generic Service Specification v1**
Service Technical Design: 2 (Voyage Information Service Design v2.2) + **SECOM Service Design Template v1**
Service Instances: 175

Services in Operational Navelink

Layer 1

- Enhanced Monitoring
- Evaluation Service
- Hub
- Inter-Port Synchronization
- Navelink
- Navigational Warnings
- Pilot
- Port
- Port Call Synchronization
- Route Catalogue
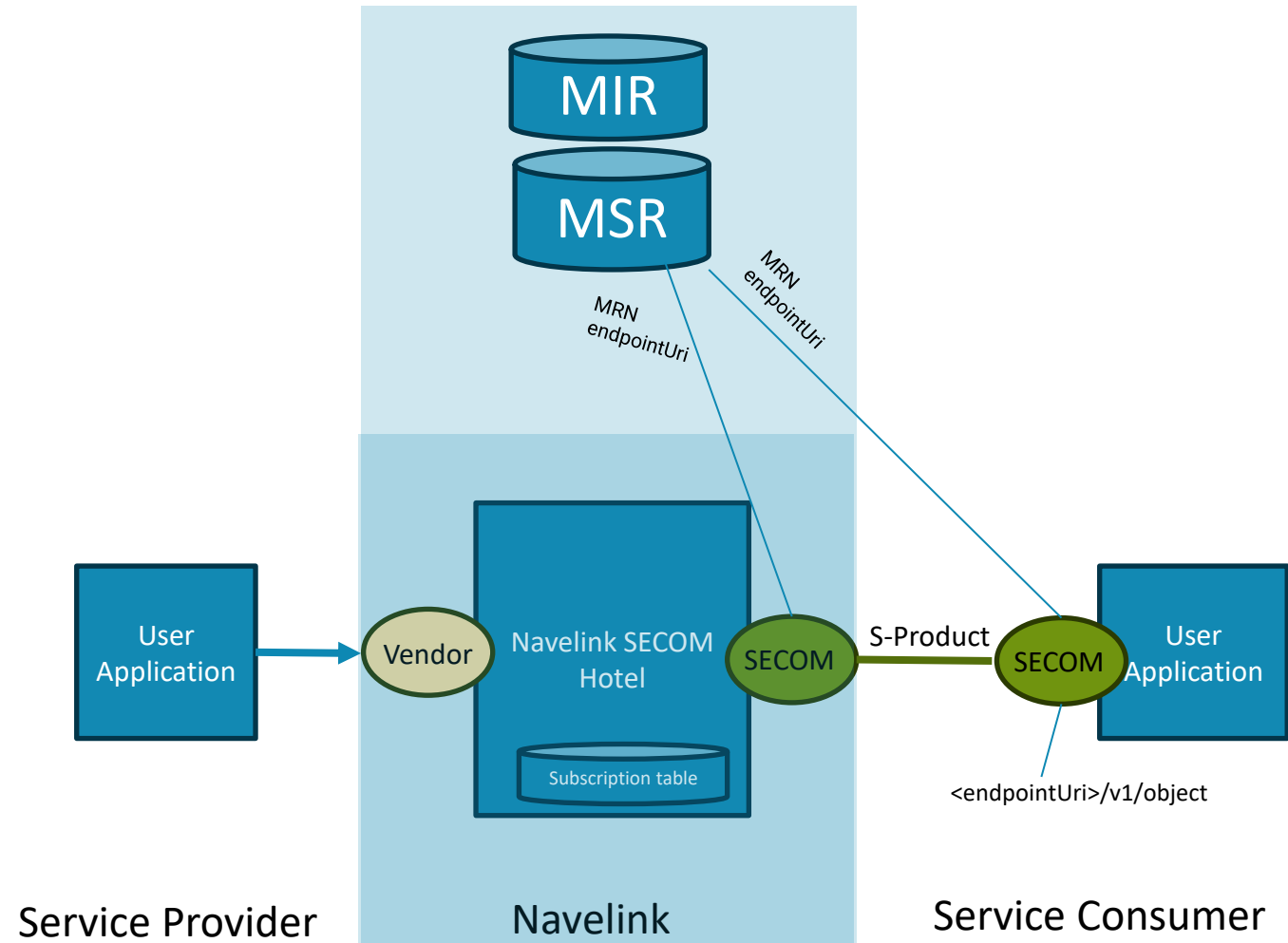- Ship Voyage Information
- VTS

2024-02-13

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5) Q&A

- Any Questions? The floor is open.

DEMO of SECOM Service Hotel

Demo

- Show the services in Management Portal

- Scenario 0
  - Ping the SECOM Service
  - Get Capability for the SECOM Service

-Scenario 1 – Download (pull) information
  -Publish Data on private side
  -Get Summary and the Data on SECOM side

-Scenario 2 – Upload (push) information
  -Upload data on SECOM side
  -Get Notification and the Uploaded message on private side

-Scenario 3 - Subscription
  -Create subscription on S-124 data
  -Publish S-124 Navigational Warning on private side
  -Get the Uploaded S-124 Navigational Warning on private side

MIR

MSR

MRN endpointUri

MRN endpointUri

User Application

Vendor

Navelink SECOM Hotel

SECOM

S-Product

SECOM

User Application

Subscription table

<endpointUri>/v1/object

Service Provider

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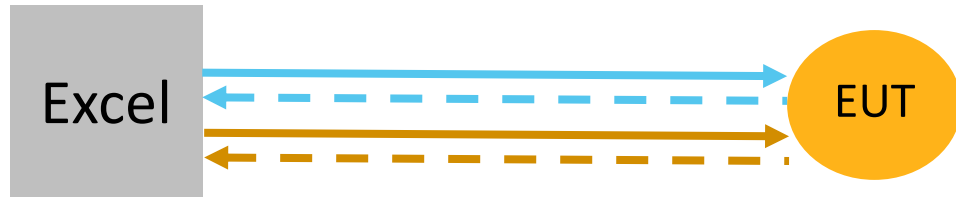Service Consumer

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Demo Set-up

- Excel "REST Service Test Case Excel Tool"
- EUT in SECOM Service Hotel
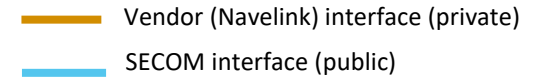
Prepared Excel Service Test where the EUT access is both to the public SECOM interface and the private Navelink interface.

1. Send prepared operation and check response
2. Send scenario based operations and check the responses

Prepared Excel Service Test where the EUT access is only to the public SECOM interface.

A Ref SECOM Service is used.
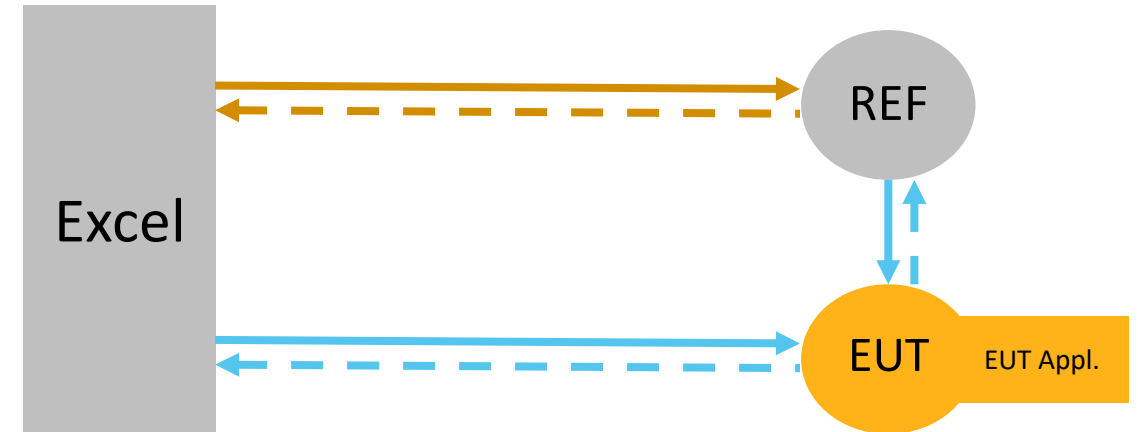
Scenario 1 – Download (pull) information

Scenario: Service providing Reference Routes (e.g. pilot routes) for anyone to download. The Service is registered in Service Registry to be discoverable.

Preparation

The Service Provider prepares messages to be published

- Create signature for the data
- Set description parameters for the data (i.e. metadata)

Publish

The Service Provider publishes the prepared data

- Define access control list
- Publish the data to my own service

SECOM GET

The Service Consumer discovers the service and gets Summary, then picks data to download

- SECOM Get Summary
- SECOM Get Data by <dataReference>
    - Verify signature

To prepare for demo
- Register service (use SECOM Verification Service)
- Publish realistic data of different types
    - Prepare realistic RTZ
    - Prepare realistic S-124
    - Prepare realistic S-125
    - Prepare realistic S-421
- Set signature and Verify signature on data
- Publish the test data set ACL "all"

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Scenario 2 – Upload (push) information

Scenario: Ship uploads route plan to VTS.

Preparation

The Service Provider prepares messages to be uploaded

- Create signature for the data
- Set description parameters for the data (i.e. metadata)
- Create envelope signature

To prepare for demo
- Register service (use SECOM Verification Service)
- Prepare realistic S-421
- Set signature and Verify signature on data and envelope
- Verify data signature on uploaded message

SECOM Upload

The Service Provider uploads the prepared data to SECOM Consumer

Get Uploaded Message

The Service Consumer gets notification and gets the uploaded message

- Get Notification
- Get Uploaded Message [envelope is verified and Acknowledgement sent, if requested]
    - Verify signature

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Scenario 3 – Subscription

Scenario: Service providing subscription of S-124 Nav Warnings.
Both provider and consumer Service is registered in Service
Registry to be discoverable.

Preparation

The Service Provider prepares messages to be published

- Create signature for the data
- Set description parameters for the data (i.e. metadata)

Publish

The Service Provider publishes the prepared data

- Define access control list
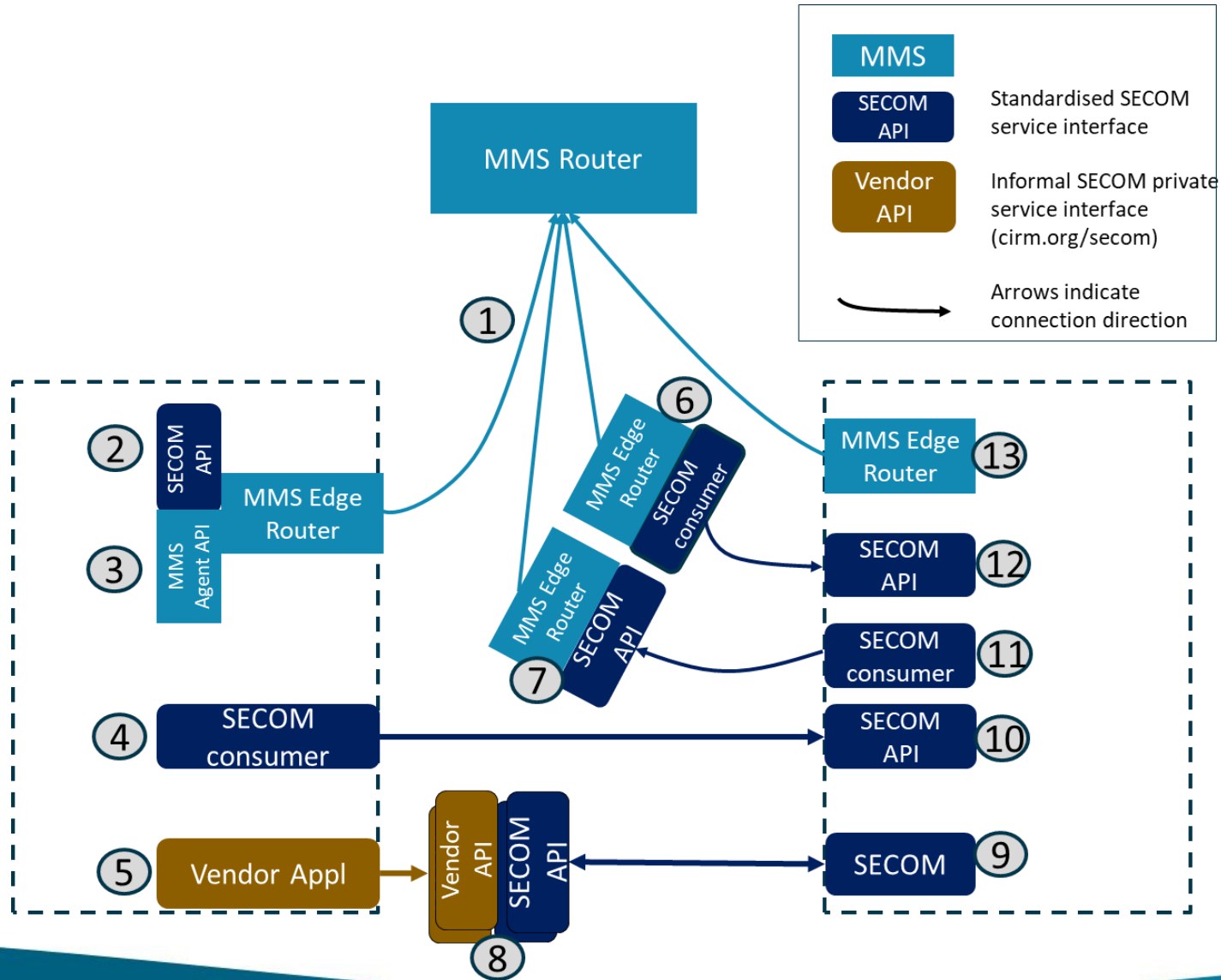- Publish the data

Subscription

The Service Consumer subscribes to data

- Create subscription
- Get Uploaded Messages
    - Verify envelope signature and data signature

To prepare for demo
- Register service (use SECOM Verification Service)
- Publish realistic data of different types
    - Prepare realistic RTZ
    - Prepare realistic S-124
    - Prepare realistic S-125
    - Prepare realistic S-421
- Set signature and Verify signature on data and envelope
- Publish the test data set ACL "all"
- Create subscription
- Publish new/updated messages
- Get the uploaded messages
   - Verify envelope and data signature

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MMS – SECOM integrations points

Legend:
- MMS
- SECOM API — Standardised SECOM service interface
- Vendor API — Informal SECOM private service interface (cirm.org/secom)
- Arrows indicate connection direction

1. MMS network can be either internet or VDES
2. SECOM API as user front to MMS
3. MMS Agent interface as user front
4. SECOM consumer calling other SECOM service
5. Vendor application as user front to SECOM service. Also called the SECOM private side. Can be either based on informal private API or existnig communication between e.g. ship and fleet operation.
6. Bridge from MMS to SECOM service
7. Bridge from SECOM service to MMS
8. SECOM service hosted by "anyone" with a private side (vendor API) and the public side (the standard API)
9. SECOM Service and application allowing both outgoing and incomin calls to SECOM Service.
10. SECOM Service allowing incoming calls
11. SECOM consumer application
12. SECOM Service allowing incoming calls
13. MMS

Introduction

The main purpose with the SECOM Service Hotel is to provide customers with REST Services compliant with the IEC standard 63173-2 SECOM. Navelink will host the services on behalf of the customers, and the customers applications connects to the private REST service. Other consumers will the connect to the SECOM Public REST service.
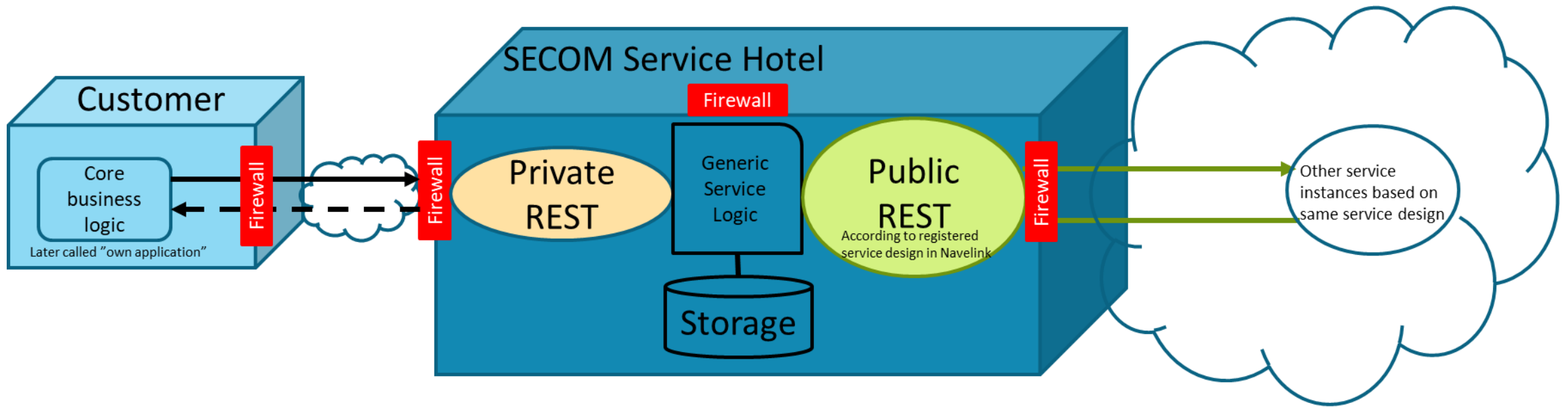
6) Basis for discussion
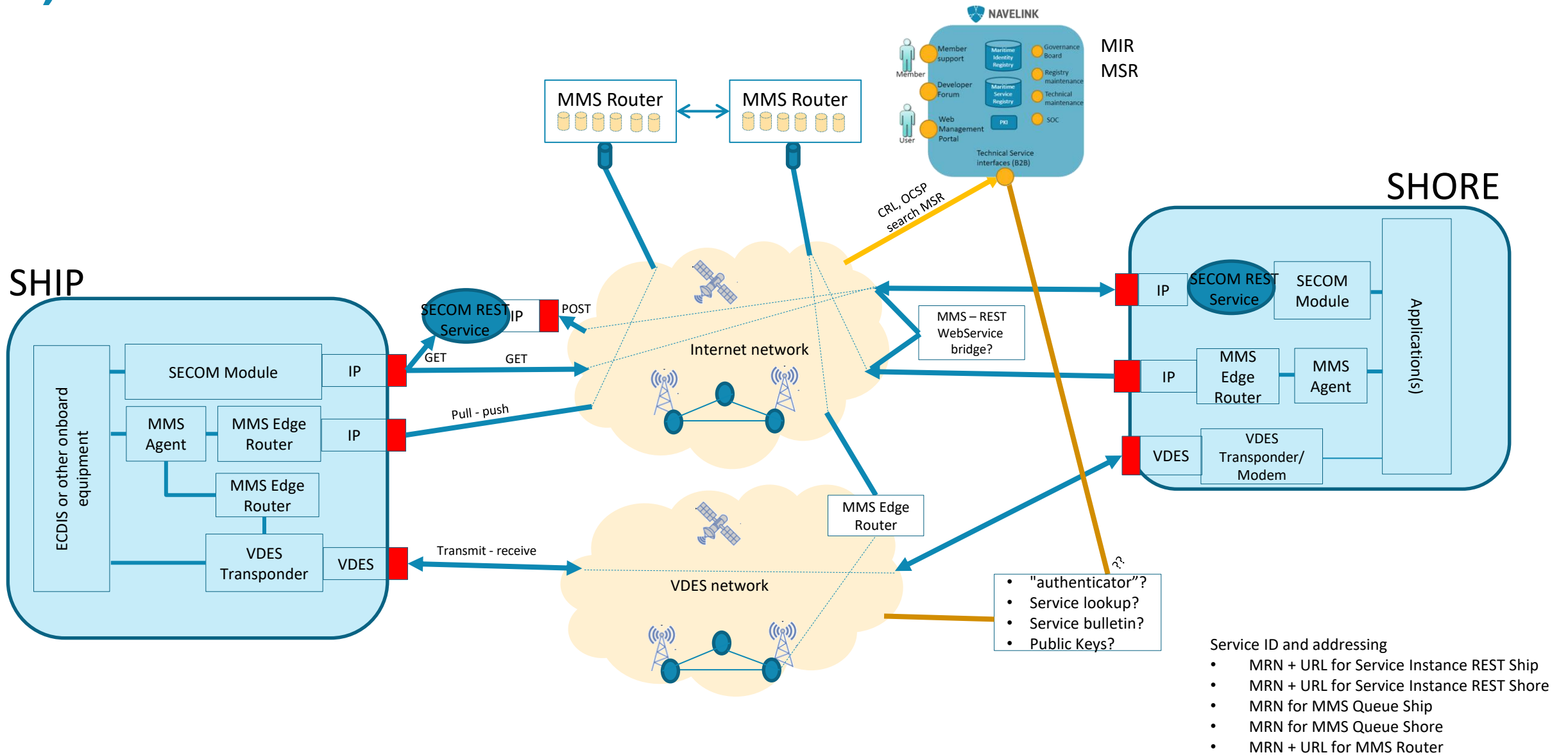
7) Closing remarks

- Notes were sent out this time instead of a meeting due to collision with the IALA weeks.

- Next Developer Forum at 24/10-2024

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Meeting notes (1/1)

- Notes were sent out this time instead of a meeting due to collision with the IALA weeks.

- SECOM Hotel has been implemented to TEST

- Current development focuses on:

  – Maintenance of Systems

  – Investigation and testing of new MIR version

- Next Developer Forum at 24/10-2024

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