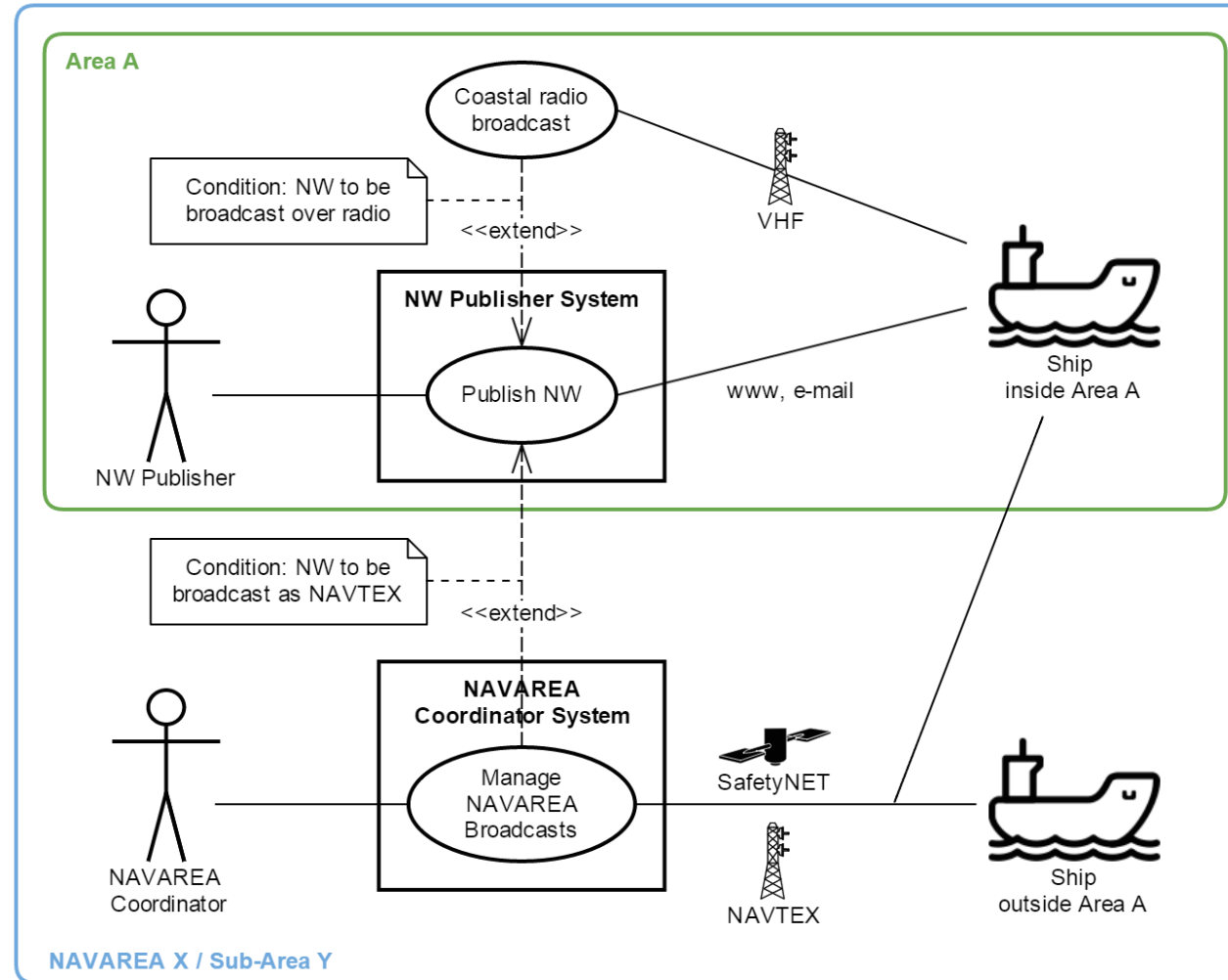


S124 SERVICE SPECIFICATION

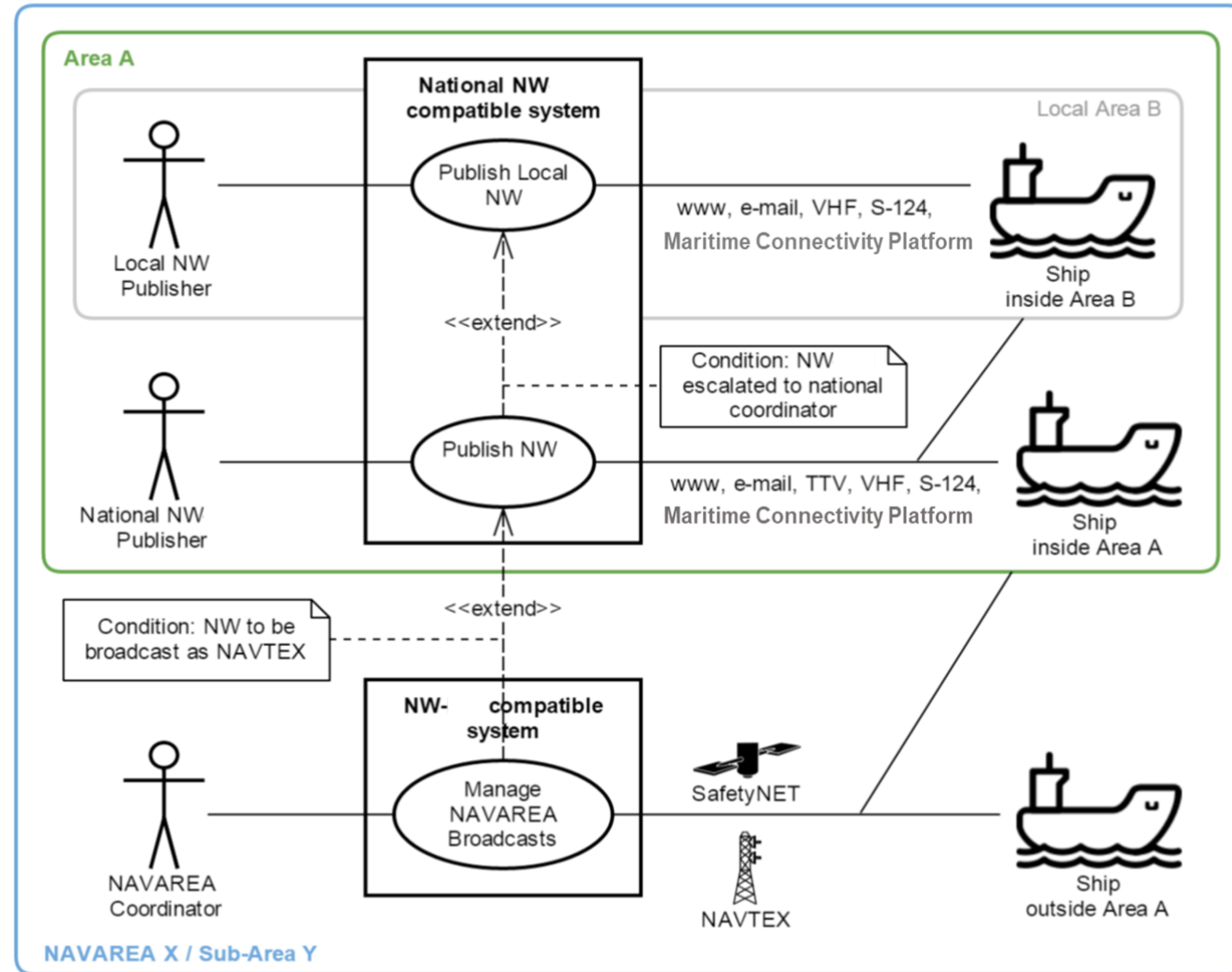
Contents

- Operational context
- Requirements/ use cases
- S-124 standard implementation interpretation
- STM technical presentation
- S-124 Interfaces
- S-124 Service dynamic behaviour

Operational context – present situation



Operational context – envisioned situation



Requirements

Overall requirements

- REQ 1. The service interface shall be described in accordance with S-100 and IALA 173 guidelines.

Design requirements

- REQ 2. The service interface shall support use of dataset according to S-100
- REQ 3. The service interface shall support (not hinder) data authentication and signing according to S-100.
- REQ 4. The service interface shall enable defined cyber security procedures
- REQ 5. The service interface shall enable possibility to perform authentication and authorization procedures
- REQ 6. The service interface shall enable composition of service interface for mixed information products exchanged.
- REQ 7. The service interface shall support a subset of interfaces implemented. (see also req Service interface capability)
- REQ 8. The service interface shall respond with adequate error message for both human and machine interpretation.

Transfer of information product

- REQ 9. The service interface shall support transfer of information defined in formal Information Product Specification.
- REQ 10. The service interface shall support acknowledgement on reception by parent system of transferred product.

Request information

- REQ 11. The service interface shall support request of a list of accessible information.
- REQ 12. The service interface shall support request for information by the consumer.
- REQ 13. The service interface shall support request for information with specified identifier.
- REQ 14. The service interface shall support request for information with specified status.
- REQ 15. The service interface shall support request for information within a specified geographical area.

Requirements

Subscribe to information

- REQ 16. The service interface shall support subscription on information.
- REQ 17. The service interface shall support request for subscription on “all accessible” information by consumer.
- REQ 18. The service interface shall support request for subscription on information with specified identifier.
- REQ 19. The service interface shall support request for subscription on information with specified status
- REQ 20. The service interface shall support request for subscription on information or service in specified geographical area
- REQ 21. The service interface shall enable a service consumer to separate between single transfer of information and published information within subscription.
- REQ 22. The service interface shall support notification when subscription is created.
- REQ 23. The service interface shall support notification when subscription is removed.
- REQ 24. The service interface shall support retrieval of list of active subscriptions.

Dynamic run-time interfaces

- REQ 25. The service interface shall support dynamic request for service description
- REQ 26. The service interface shall support dynamic request of service interface capability
- REQ 27. The service interface shall support dynamic request for access to information.

Requirements

Product Specification – types of datasets

- New dataset
- New dataset self-cancelling
- New dataset with cancellation
- New dataset with cancellation self-cancelling
- In force-bulletin

Service Specification – requirements (functional)

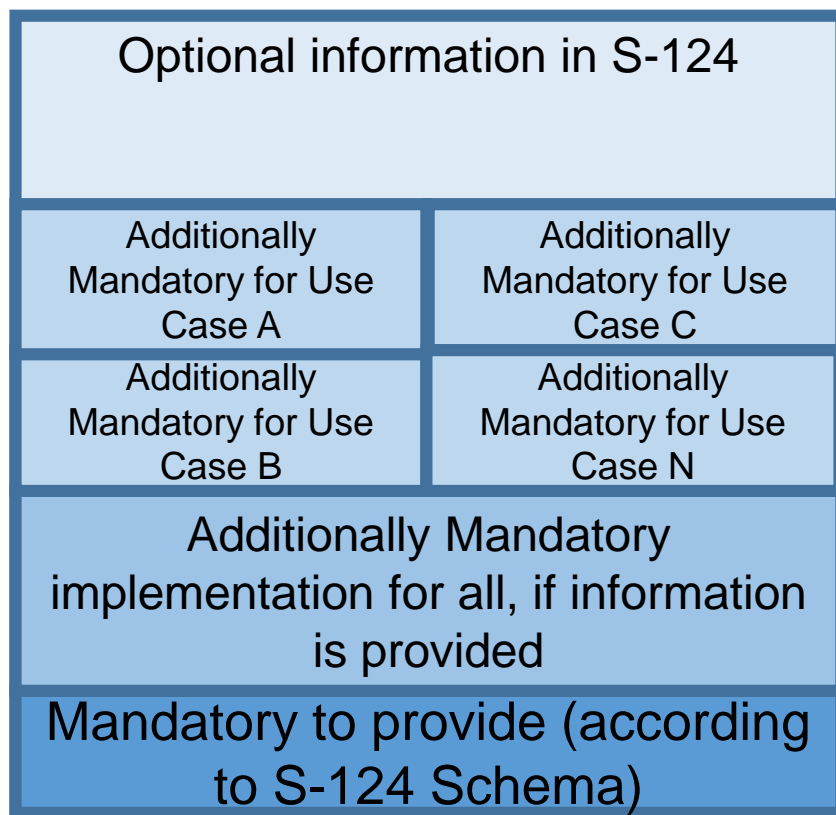
- Retrieve NW
- Submit NW (relevant for NW coordination centres)
- Subscribe/ unsubscribe to NW
- Filter NW based on submitted ship route or geography
- Confirmation of retrieved/ submitted NW

Requirements continued

Service Specification – requirements (non-functional)

- Interoperability
- Confidentiality
- Authenticity
- Integrity
- Availability
- Performance – Time Behaviour
- Operability
- Modularity

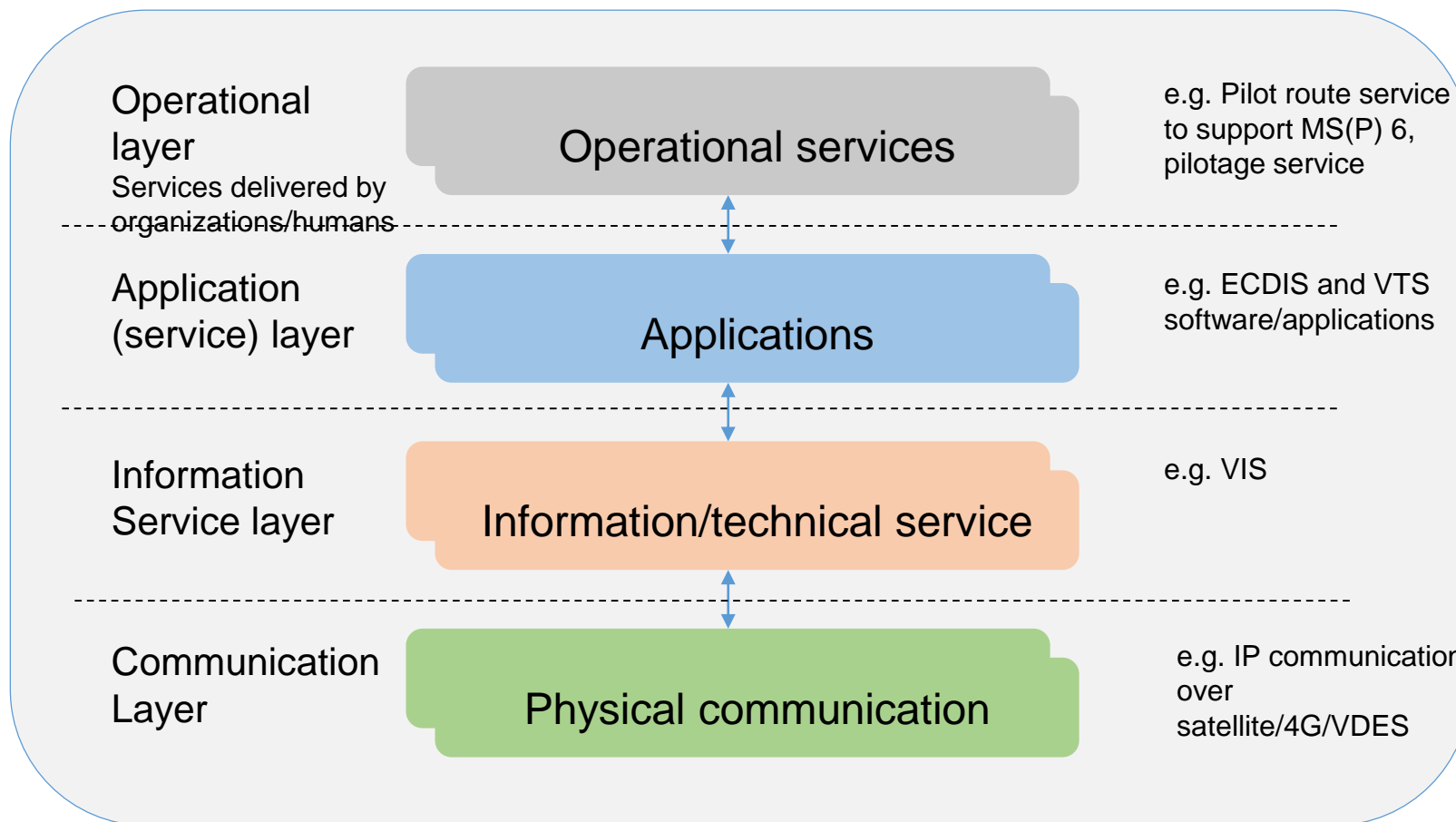
S-124 standard - implementation interpretation



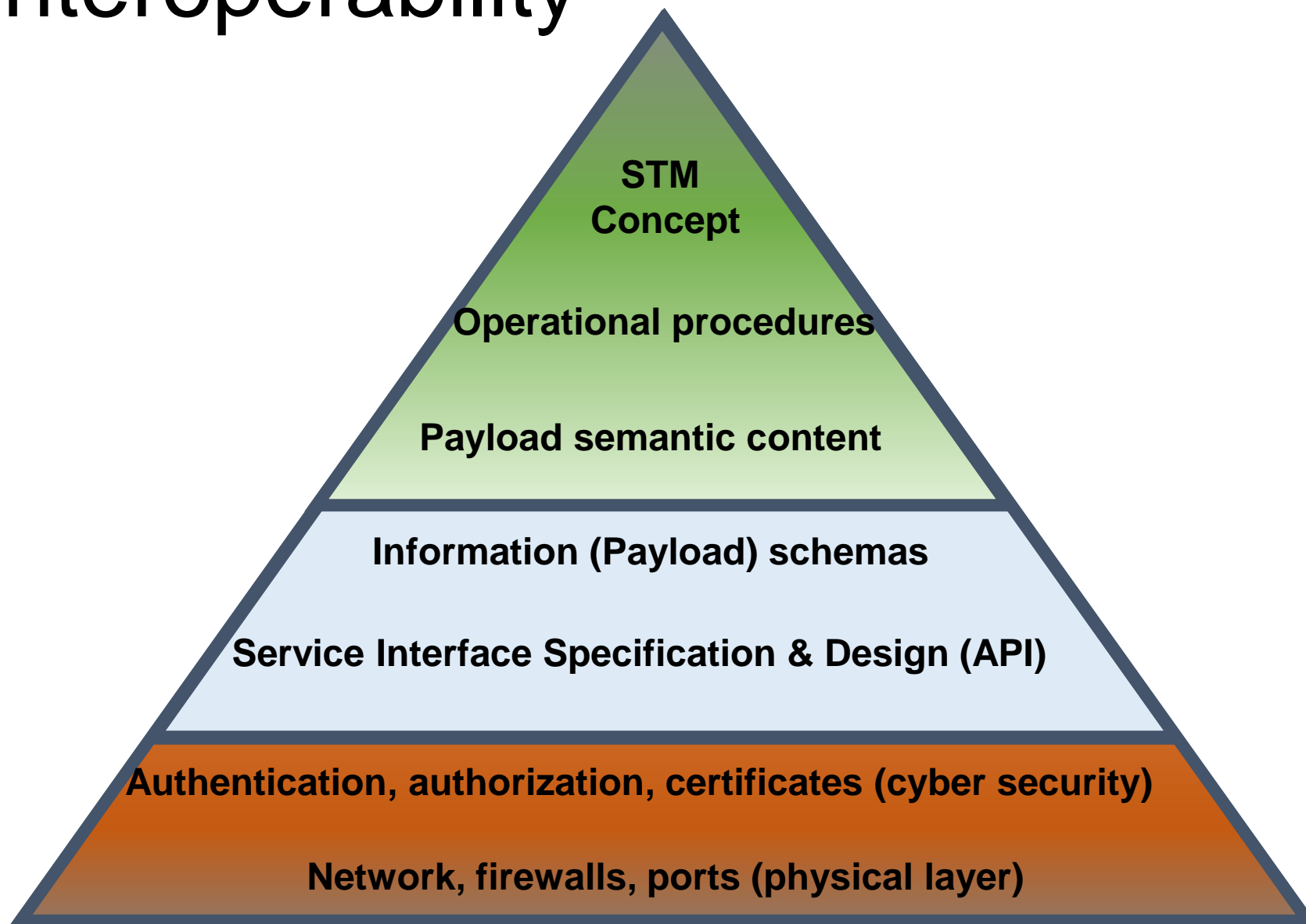
Specific implementation based on specific Use Cases

Common minimum S-124 that can always be exchanged and interpreted

OSI - interoperability

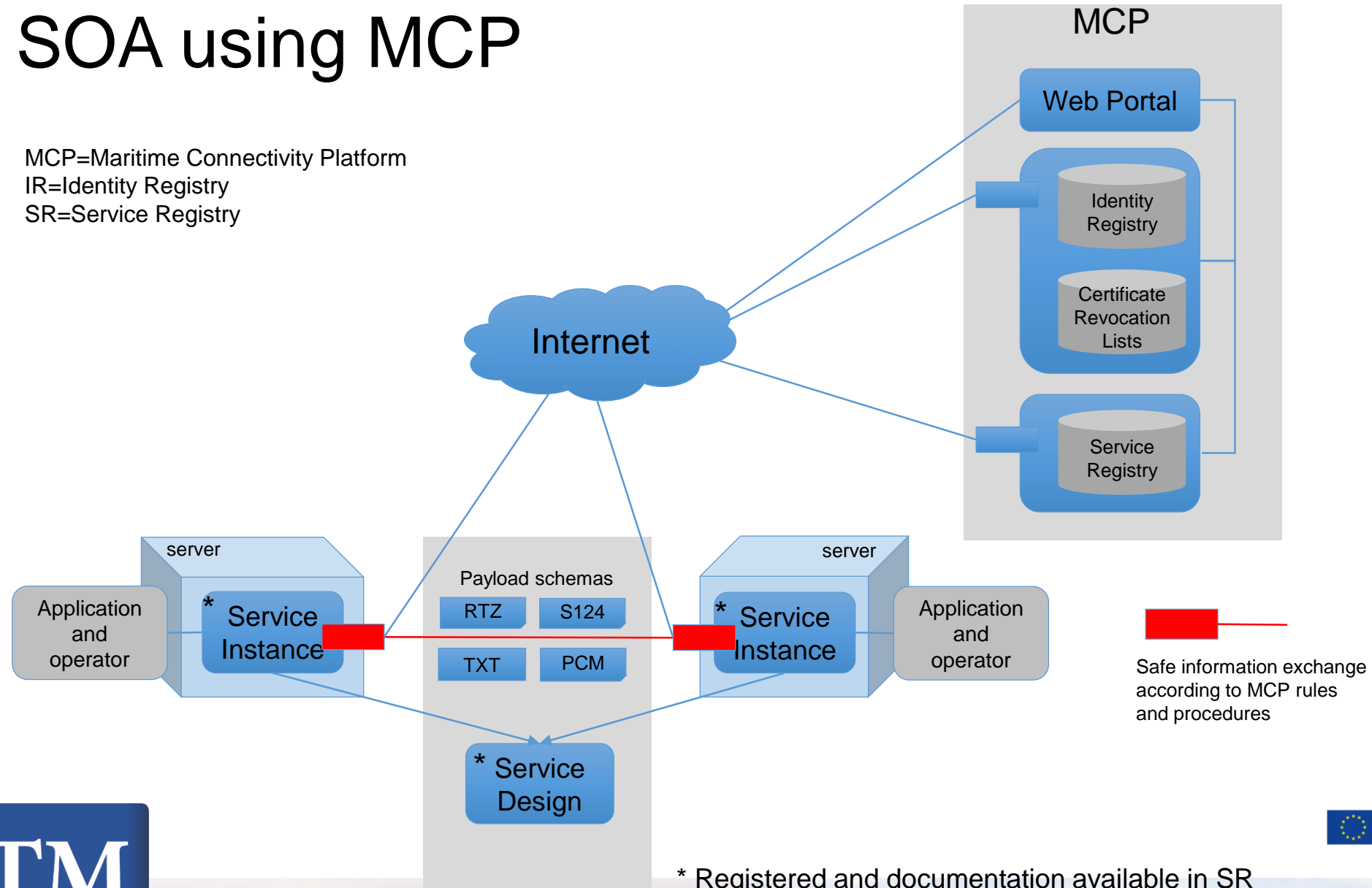


Interoperability



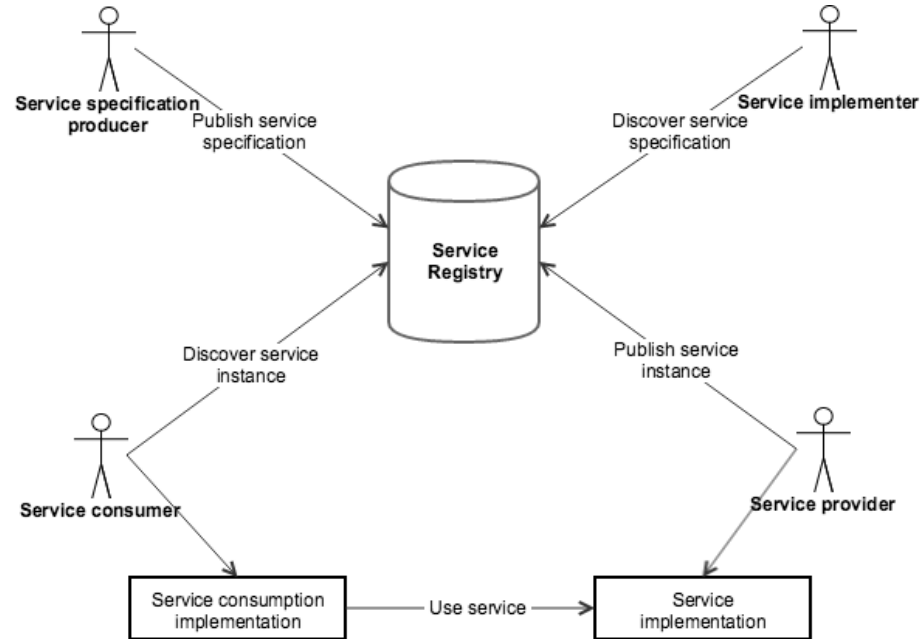
SOA using MCP

MCP=Maritime Connectivity Platform
IR=Identity Registry
SR=Service Registry



Service Registry

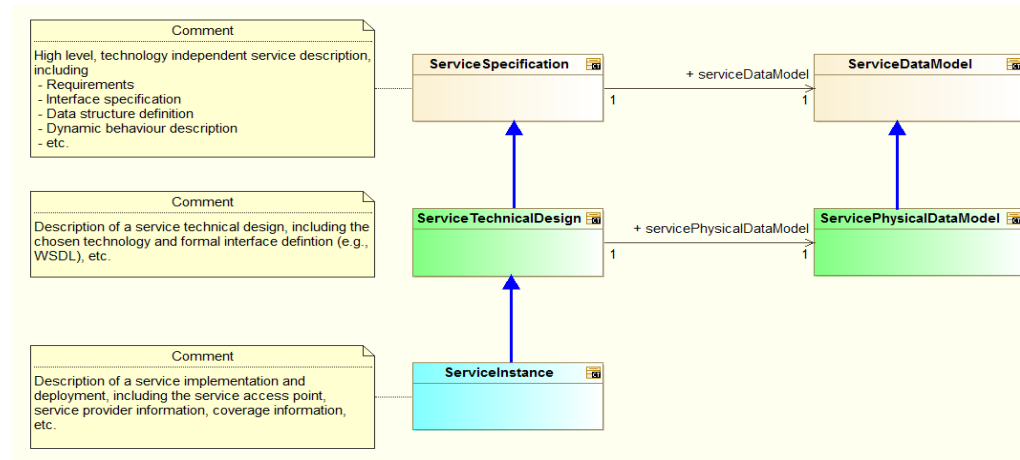
The Service Registry contains information about the services and is the main source of service information for both developers, providers and consumers of services.



Service Registry supports IALA G1128

The service descriptions in Service Registry is divided into three levels.

- **Service Specification**
Technology agnostic description of the service, often in the operational context
E.g. Baltic Navigational Warning Service
- **Service Technical Design**
Technology dependant description of a service design that realizes the service specification
E.g. Voyage Information Service Technical (REST) Design
- **Service Instance Description**
The actual consumable service deployed and exposed public interface
E.g. Ship Cinderella Voyage Information



S-124 Interfaces

S-124
interface

Upload

S-124

Get

S-124

GetList

Subscribe

S-124

Notification

Access

Request access

Notification

Acknowledge

Technical
Operational

Help/Support

Capability
Description

S124 Interfaces

	ServiceInterface	ExchangePattern	Definition
PUSH	Upload	REQUEST_CALLBACK	Interface for uploading (pushing) information to consumer ConsumerInterface: Acknowledgement
	Acknowledgement	ONE_WAY	Interface for acknowledgement on uploaded information.
PULL	Get	REQUEST_RESPONSE	Interface to ask for (pulling) information from producer
	Get List	REQUEST_RESPONSE	Interface to ask for (pulling) a list of information from producer
ACCESS	Access	REQUEST_CALLBACK	Interface to ask for access to information ConsumerInterface: AccessNotification
	Access Notification	ONE_WAY	Interface for notification from access request
SUBSCRIPTION	Subscription	PUBLISH_SUBSCRIBE	Interface to create subscription of information ConsumerInterface: SubscriptionNotification Upload
	Subscription Notification	ONE_WAY	Interface for notification from subscription events
	Remove Subscription	ONE_WAY	Interface to remove subscription
	Get Subscription List	REQUEST_RESPONSE	Interface to retrieve a list of active subscriptions
HELP	Capability	REQUEST_RESPONSE	Interface to ask for the interface capabilities
	Description	REQUEST_RESPONSE	Interface to ask for a short description of the service

S124 Message pattern one-way



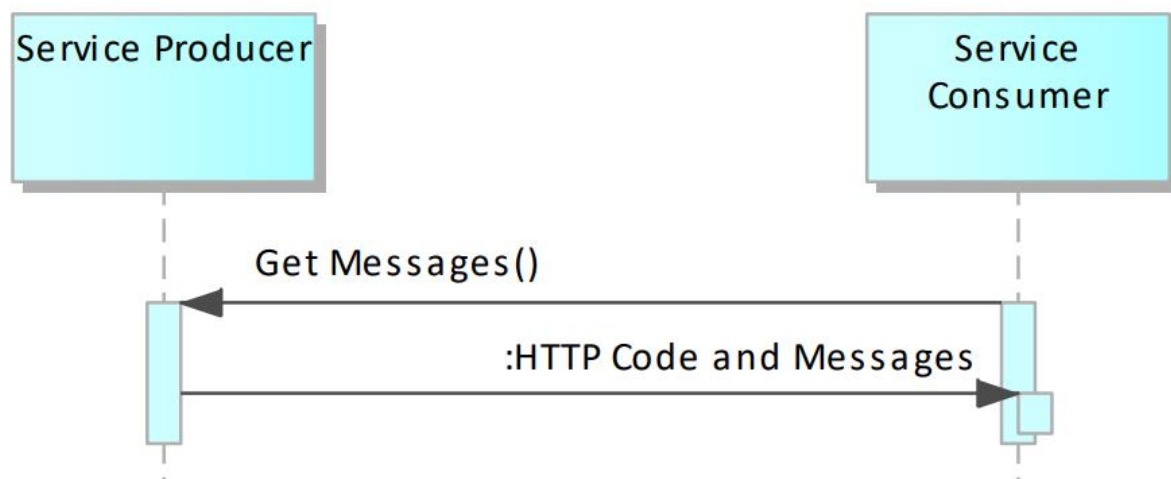
Fire-and-forget, sends data to consumer without expecting something back, other than technical response.

S124 Message pattern request-callback



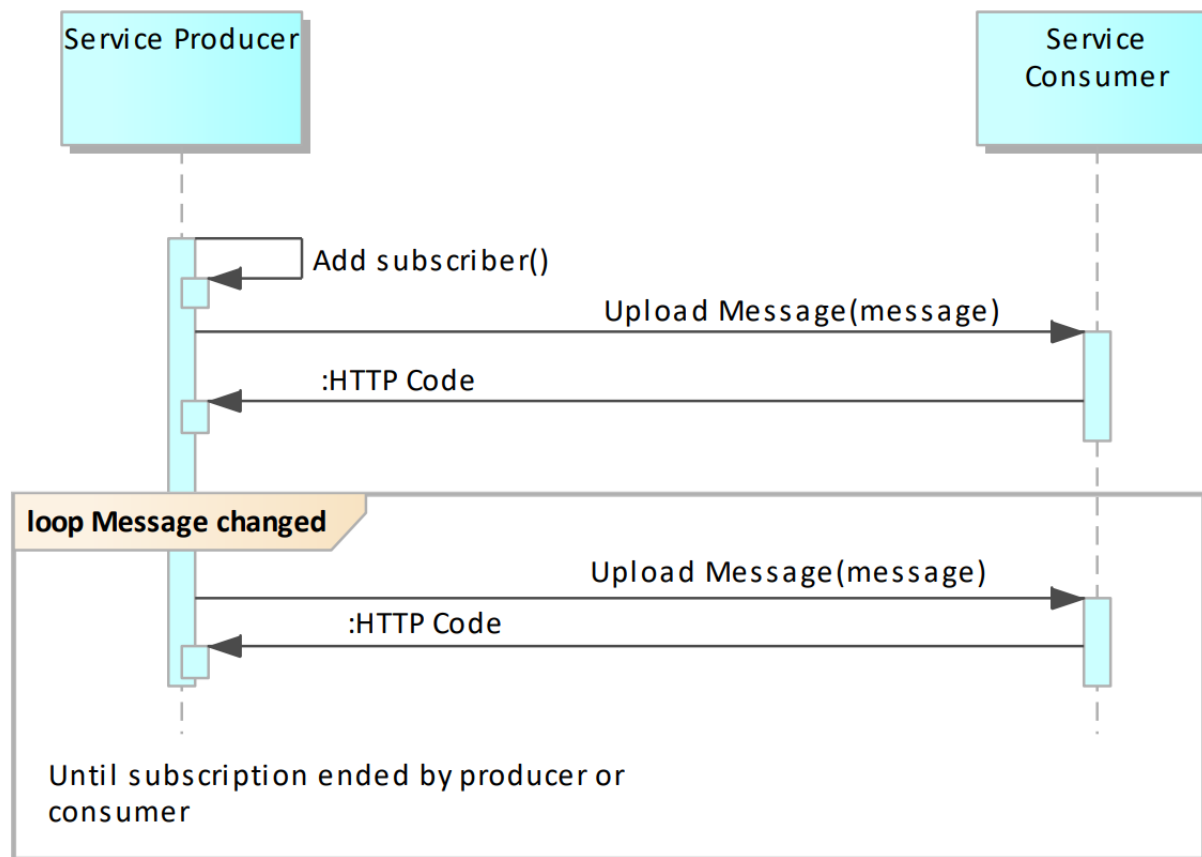
Sent message are expected to result in message back, such as optimized route.

S124 Message pattern request-response



Consumer requests information from producer, and if authorized, information is sent back synchronously in the response.

S124 Message pattern publish-subscribe (producer nominates)



The parent on producer side nominates a consumer and sends messages until either producer or consumer ends the subscription.

All uploaded message can be combined with acknowledgement when sent message has been forwarded to parent.

S124 Message pattern publish-subscribe (consumer requests)

Consumer request subscription on producer.
The producer either rejects or accepts the subscription request.
If accepted, message(s) in given subscription are sent, and then all updated messages are sent to consumer until either producer or consumer ends the subscription.

