

# A practical implementation of interoperability solutions in the maritime environment

The European Commission's  
science and knowledge service  
Joint Research Centre

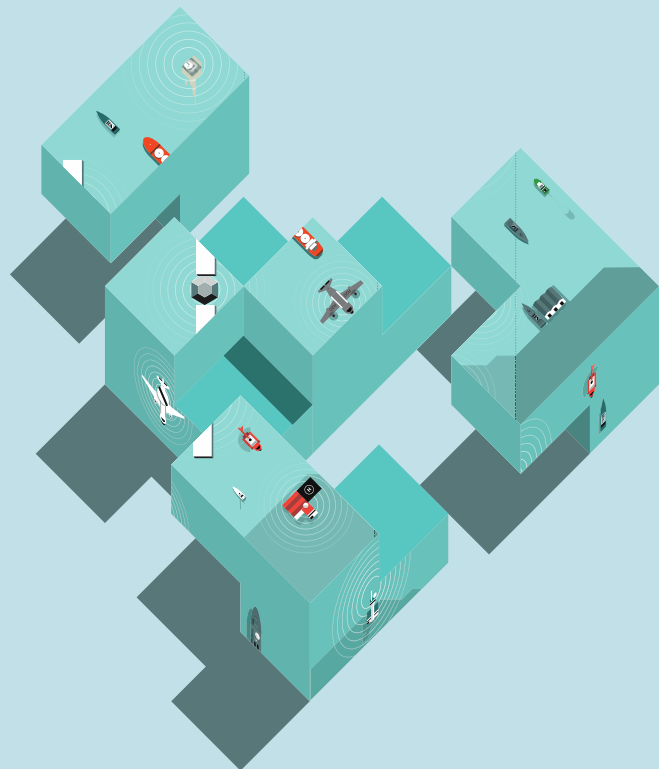


Maritime  
**CISE**

Common Information Sharing Environment

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## A practical implementation of interoperability solutions in the maritime environment

Our experience from CISE

*Jesus Hermida*  
*Brussels, June 5th 2018*

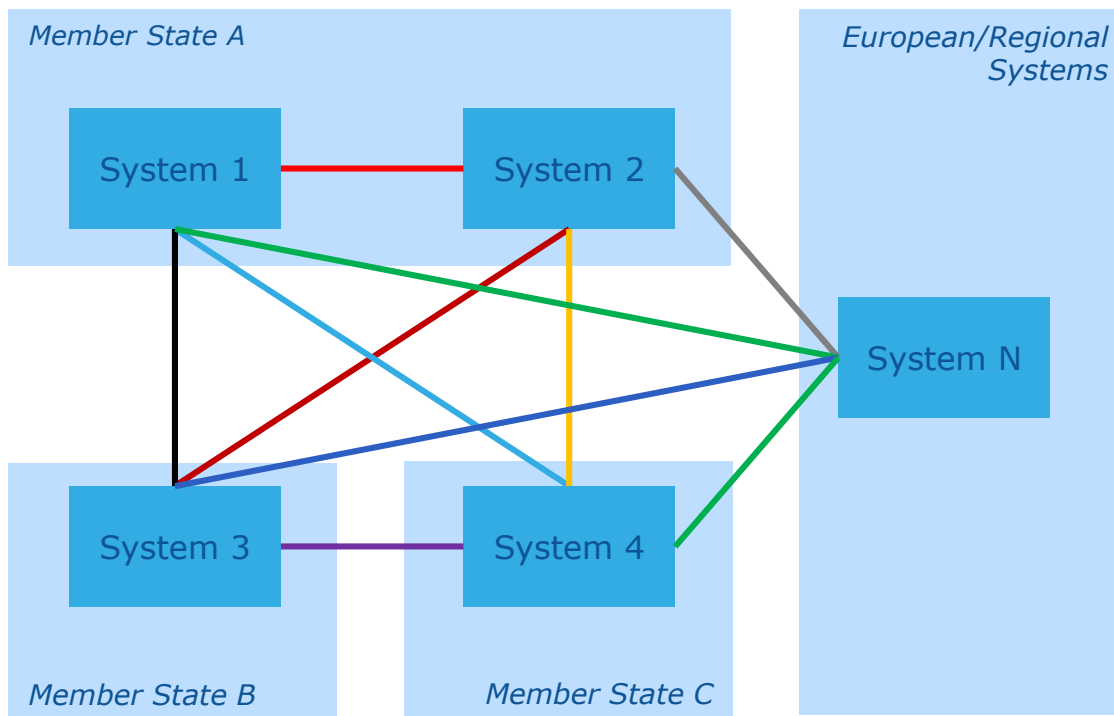
# What is the Maritime CISE?

Common Information Sharing Environment for Maritime Surveillance

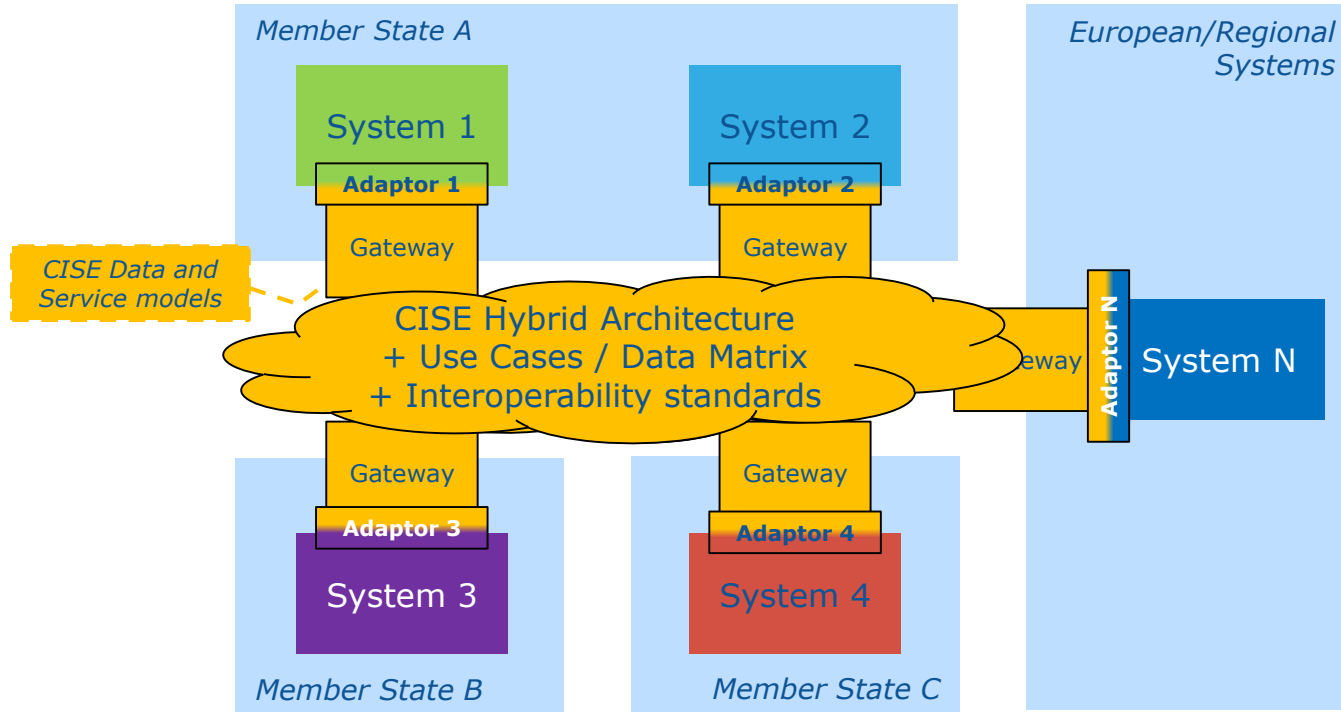
Key Principles:

- Connecting **public authorities** responsible for maritime surveillance
  - *civil and military*
  - *regional/sectorial organisations, EU agencies*
- Decentralised → *point-to-point exchange of information*
- Voluntary → *information exchange not enforced by legislation*
- Neutral solution → *all sectors and systems are important*
- Reusing existing tools and systems → *not a new surveillance system*
- Easy for information providers
  - *ownership of the information, access rights, security*

# Information Sharing Problem



# Interoperability Solution in CISE



# Two-side Development

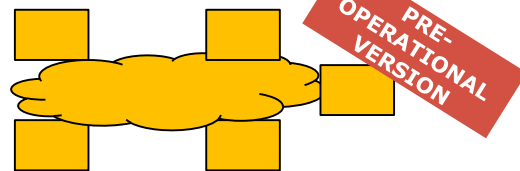
## Common Interoperability Solution

- CISE Data model (maintained by JRC)
- CISE Service Model
- Technical specifications for interoperability
- Common Software components:
  - Gateway
  - Service Registry
  - Adaptor → *Bridge between CISE specifications and existing system*

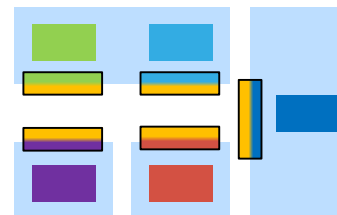
## Developments for each maritime surveillance system

- The adaptor must be developed fit to each system
- Could provide/consume different information
- Legacy systems may also need an update

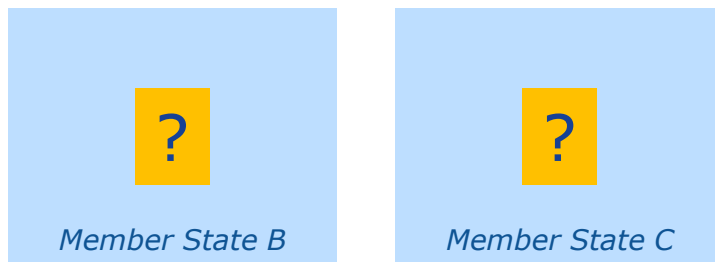
**Developed and tested in  
the EUCISE2020 FP7  
project (2014-18)**



**Developed by the national  
authorities / EU agencies**



# Challenges in the development of the adaptors



- What is the current situation in each Member State /Authority?
- Are the information needs clear? How to translate the high-level CISE use cases into more specific ones?
- Which surveillance systems will exchange information?

# Challenges in the development of the adaptors

- Are the legacy systems ready for the interoperability solution?

System 1



- Windows 2012 system
- Using the latest .NET technologies
- Maintained by Company AAA
- Reusing old network infrastructure

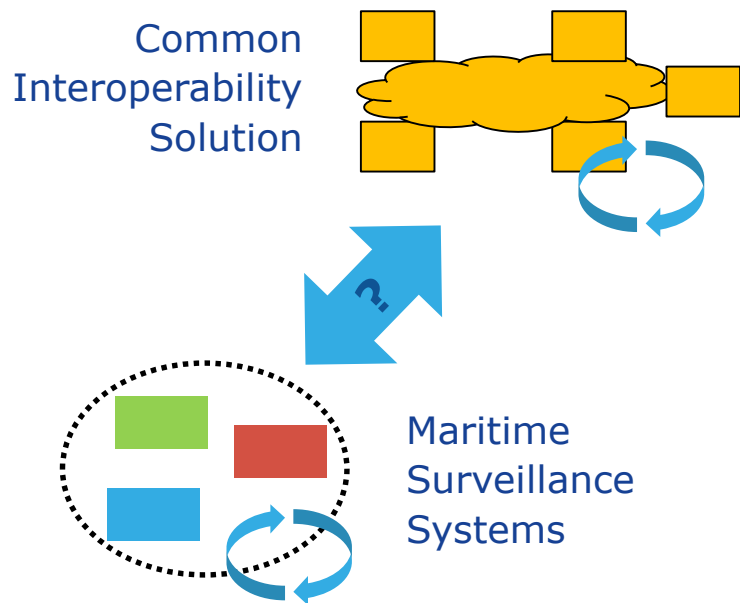
System 2



- Linux system in a national cloud
- Using Java 8 technologies
- Maintained by Company BBB
- Using new routers fit for purpose



# Challenges in the development of the adaptors



- How do we coordinate the development of the common components, adaptors and the legacy systems?
- How do we manage change requests on the interoperability specifications?

# Facing up the challenges

Reference technical forum for the stakeholders → EUCISE2020

- Lead of the development of the common interoperability solution
  - Testbed → partners can conduct experiments with the solution and identify issues with the interoperability specifications
- Regular meetings to follow up the development and integration
- Technical support for the development of the adaptors
- Workshops to discuss specific technical issues, e.g., networking
- Coordination of procurement processes and contracts at national level

Parallel actions to complement the current work

- 13 national “interoperability” projects under EMFF – 5 ongoing
  - Studies on information needs and national requirements
  - IT developments using the interoperability specifications, for instance the adaptors
- Preparatory work towards the operational phase
- Driver for the development of interoperability at national level

# Facing up the challenges

An organisation with experience in IT projects for Maritime Surveillance following the technical developments → The Commission (JRC)

- Monitoring the projects and providing advice
- Not leading, but supporting
- Exploring and assessing technical options and technologies
- Ensuring continuity between projects
  - *Maintenance of the CISE interoperability models: data and service models*
  - *Maintenance of the technical specifications*
- Maintaining a single repository of technical documentation and lessons learnt
- Encourage and support communication among the stakeholders

# Future Challenges

- Engage the stakeholders into the transition and operational phases from 2018
  - *Define new technical fora? New roles?*
- Update of the Common Interoperability Solution with the experience and feedback from EUCISE2020
  - *Technical Specifications + CISE Data and Service models*
  - *Common Software Components*
  - *Formal standardization? Reusability in other domains?*
- Establish a maintenance process for the evolution of Common Interoperability Solution, the adaptors and legacy systems
  - *Should the software support multiple versions of the Data and Service Models?*
  - *Several speeds of integration?*
  - *Big bang vs snowball*

# Thank you!



Maritime Forum: <https://webgate.ec.europa.eu/maritimeforum/en/cise>



Twitter: [@EU\\_ScienceHub](#), [@EU\\_MARE](#), [EUCISE2020](#)



YouTube: <https://www.youtube.com/watch?v=EDkexwhVUVE>

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