UK Experiences and Lessons Identified Using C-BML in Practical Experiments

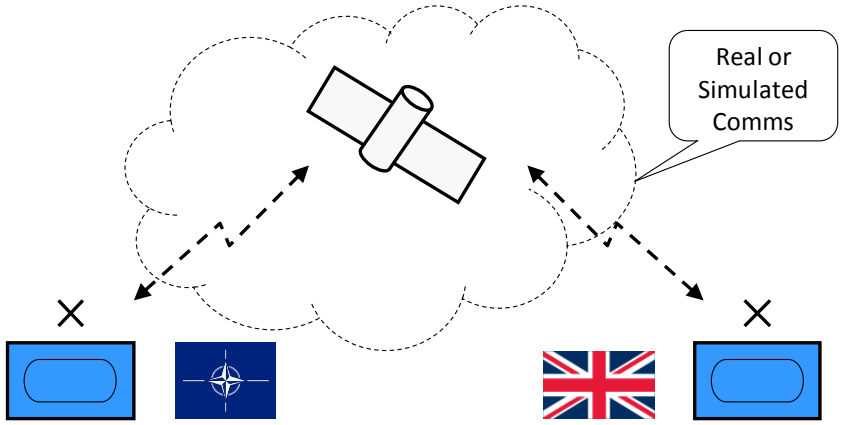
Adam Brook
QinetiQ Ltd
Farnborough, UK
+44 (0) 1252 396427

STOW & CCSIL

- Synthetic Theater Of War used CCSIL
- This proved the principle but was not easy to use for many reasons:
  - Limited tools to support the development of tasking expressions
  - Limited tools to manipulate the LISP-based orders
  - No ‘native’ support in any C2 applications
- The CGF (ModSAF architecture) did however support tasking because it incorporated a behavioural layer

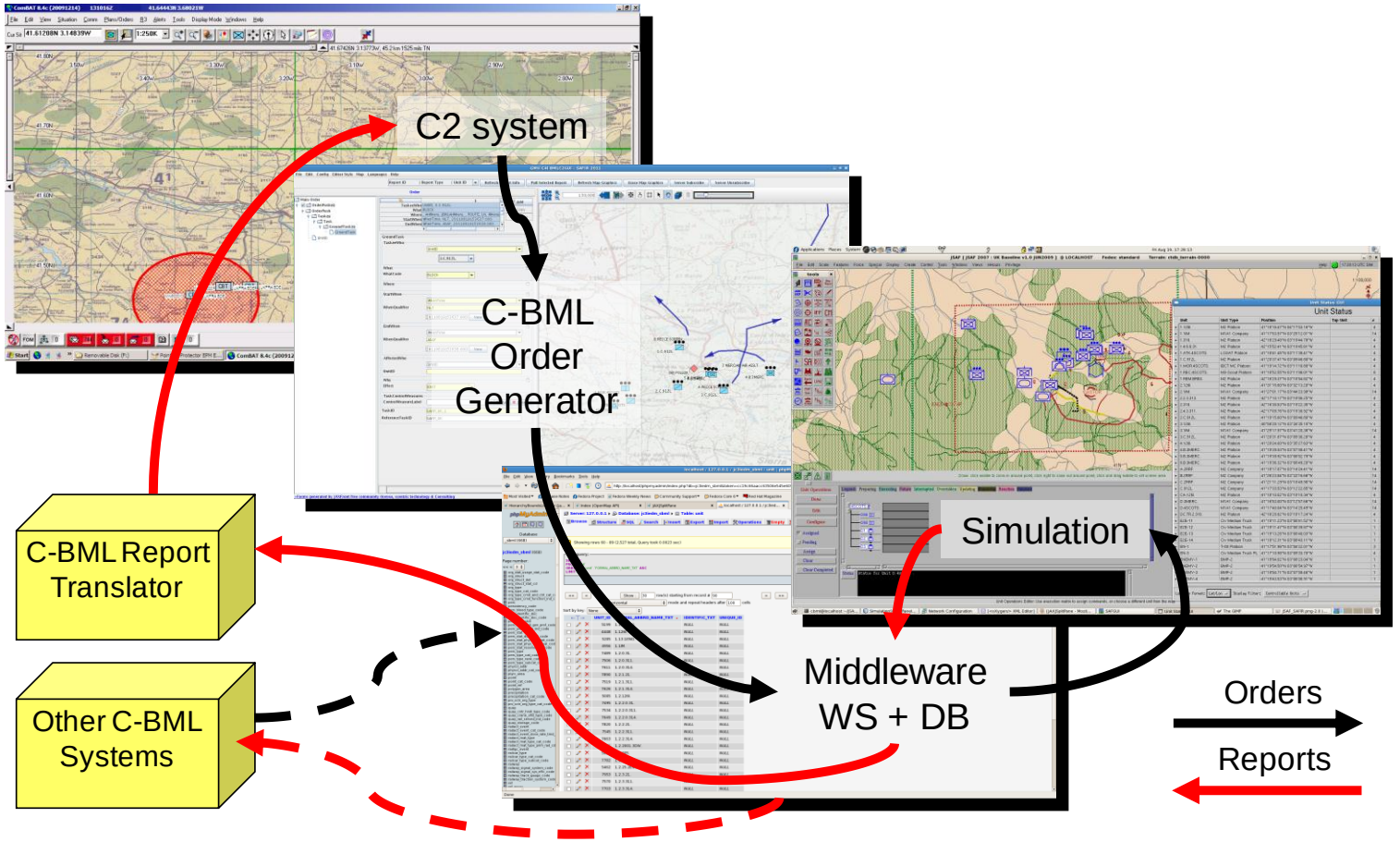
LTHQ, CBFSA & SEELEX

- A number of experiments in the early days of NEC using CGF to generate and exchange SA messages and exchanged over live or simulated networks and fed into operational C2 systems
- Why?
  - To see how well a commander can work under pressure in an all digital environment
  - To augment a limited number of live assets (synthetic wrap)
  - To investigate the processes and benefits accrued of exchanging tactical SA at different echelons – horizontal vs vertical C2 structures
- All these used *reports* only and manual tasking



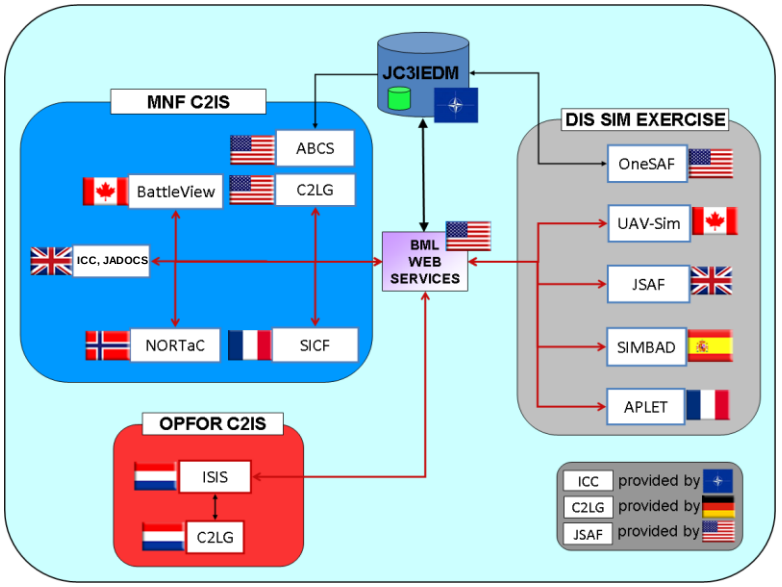
Exchanging SA data between Coalition and UK forces
(live and synthetic) using real or simulated tactical radio systems
at different echelon levels

A Generic C-BML System



NATO MSG-048

- A development running for a period of 4 years culminating in a complex coalition C2-Sim federation in Nov 2009
- Experiences fed into:
  - The SISO standards development process
  - Outreach events
  - Understanding of what is entailed in managing these complex systems
  - The work of MSG-085 (2010-2014)

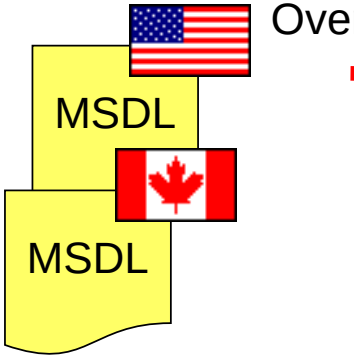


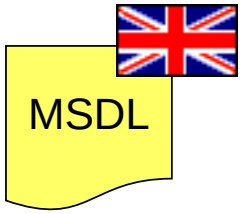
Using MSDL (1)

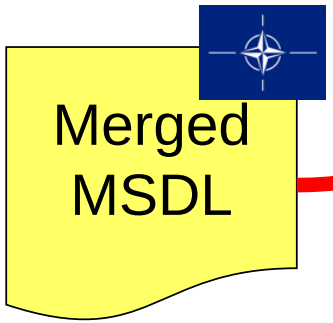
- Could MSDL be used to initialise all systems in a complex federation?
- If so:
  - How easily can this be done?
  - Can all systems be initialised?
  - Is MSDL sufficient to do this?
  - Could it be used for re-initialisation too?

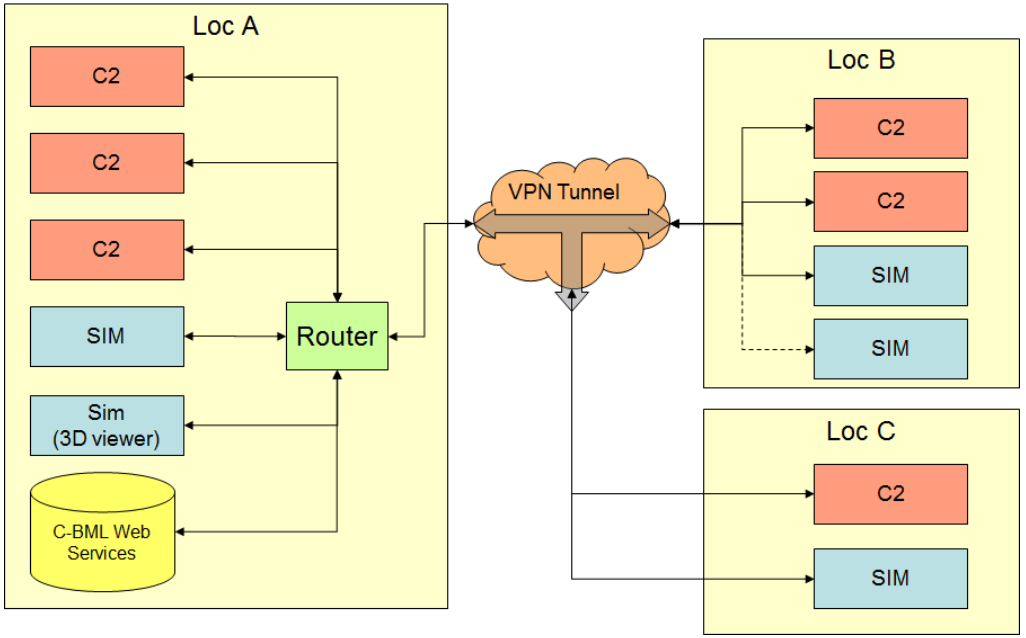
Using MSDL in a Complex Federation

National C2/M&S systems create MSDL for their own Units, Equipment & Overlays



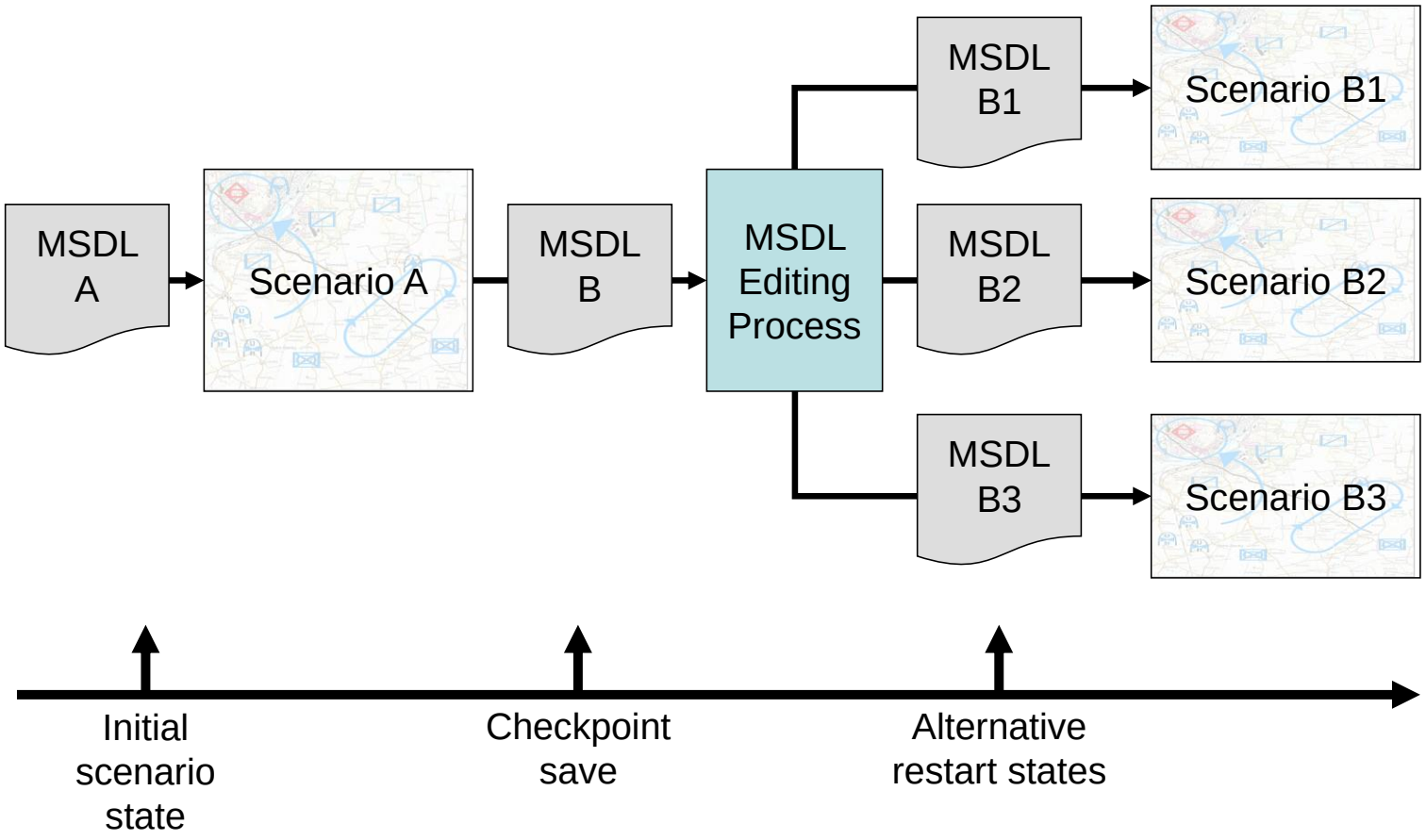






MSDL consumed by each component system as appropriate

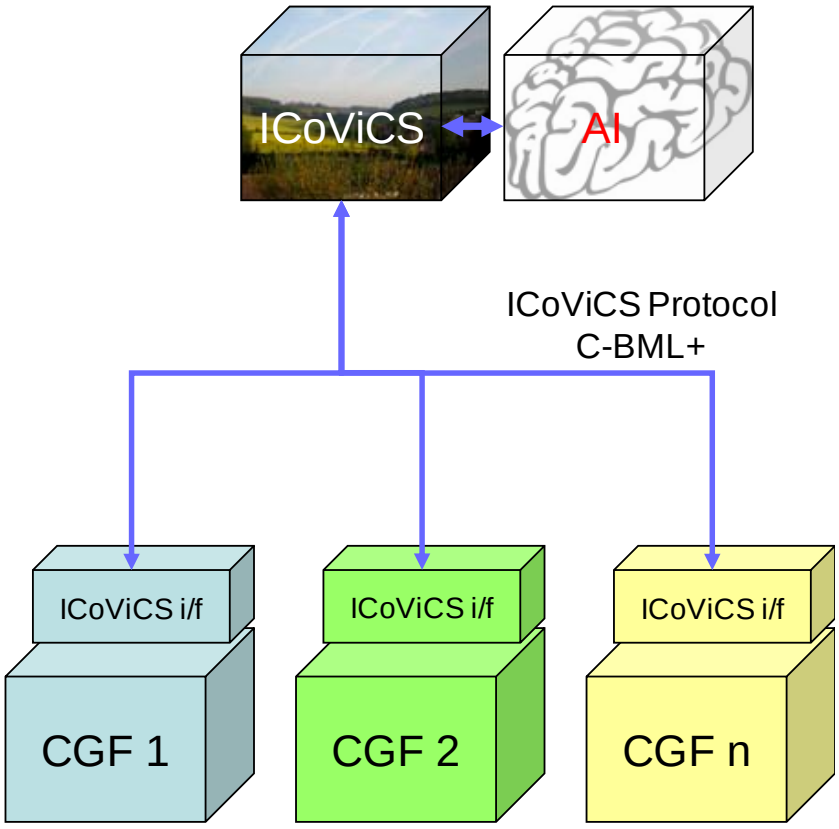
MSDL – Use case check-pointing



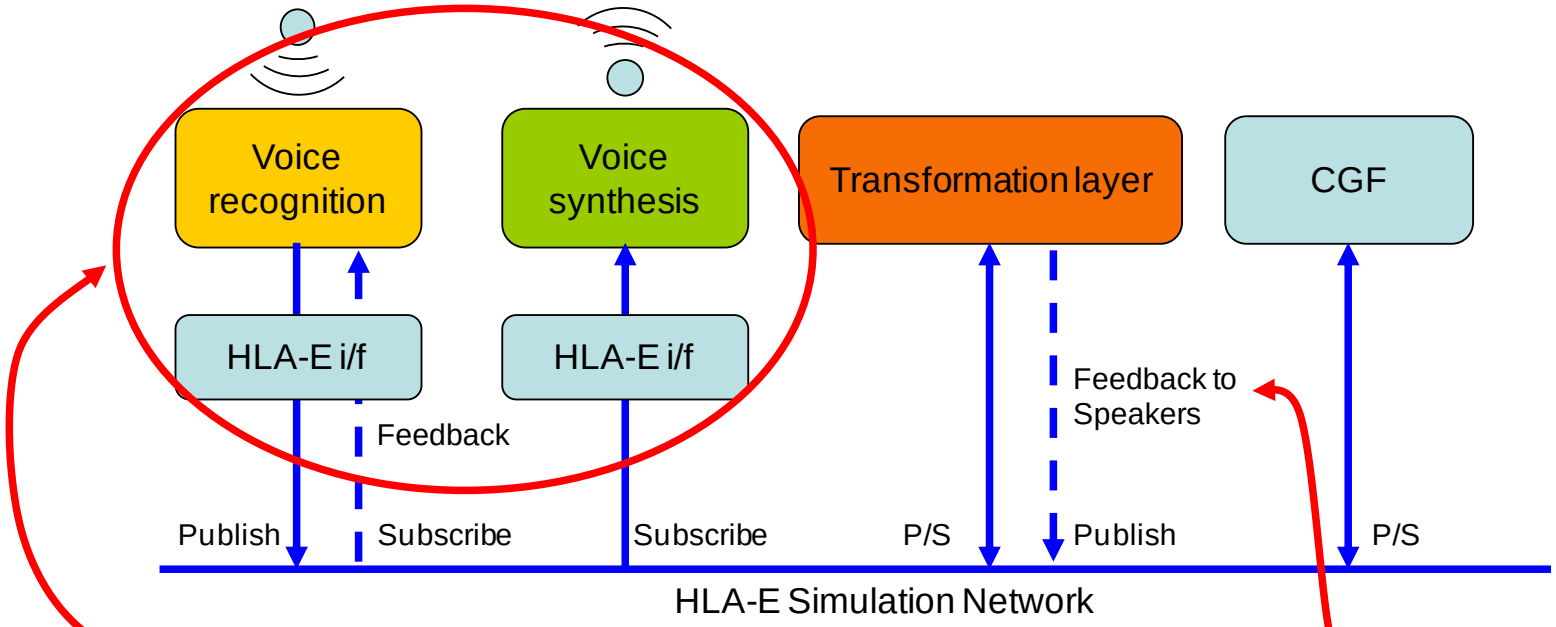
Using Chat

- Reports suitable for graphical or textual display
  - Locations – put on a map
  - Task status, events – send to Chat
- Study of operational use indicates extensive use of voice and chat
  - Can we use agents to extract information from Chat messages to help control simulations?

Concepts (1) ICoViCS



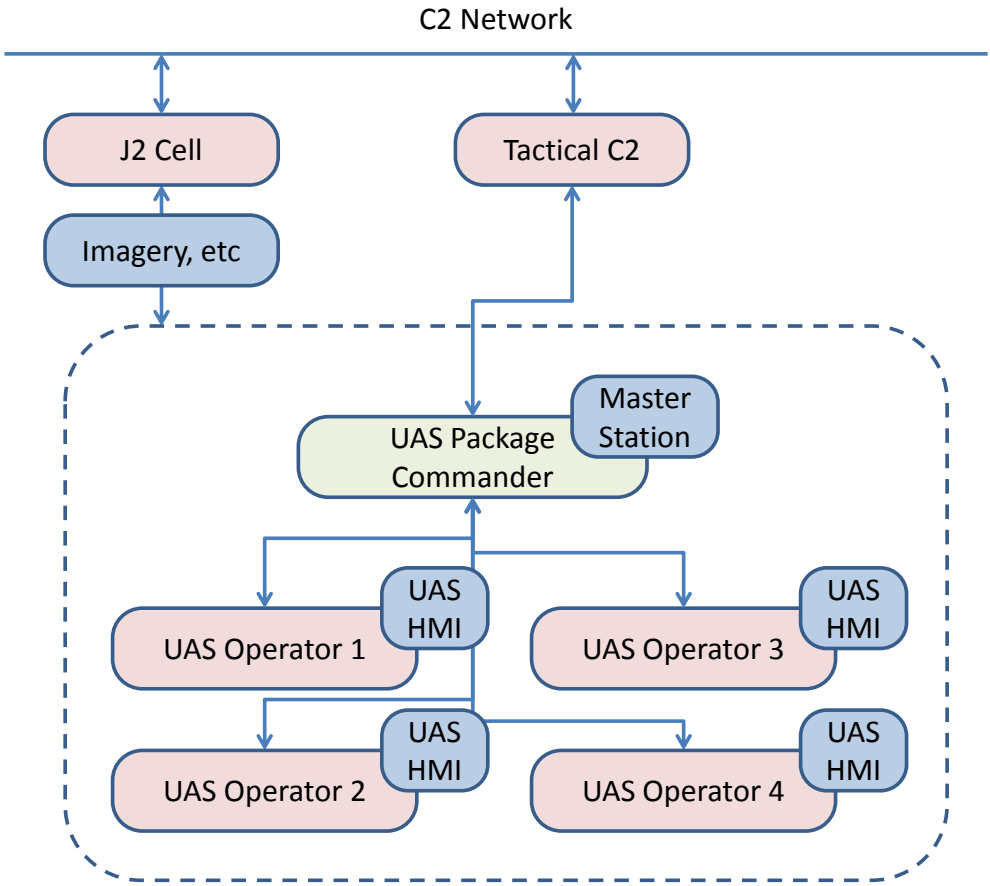
Concepts (2) – CGF Voice



- Separate HLA i/fs permit VR/VS to be added even if they do not have HLA capability
- Transformation Layer may be built from sets of sub-components
- Feedback to speakers relating to success/problems

C-BML with Autonomous Systems

- C-BML used to integrate a UAS package commander's work-station with a coalition C2 network environment



What Next?

- Raise TRL of C2-Sim systems
  - Simplification of translators, e.g. make them services, improve their ruggedness and HMI aspects
- Outreach activities
- Development of C2-Sim Interoperability Standards – SISO and NATO Stanag
- Establish persistent coalition C2-Sim test-beds
- Support “Operationalisation”
  - Encourage C2 architectures which readily support and easily integrate standards-based Simulation capabilities

Questions