



NATO
+
OTAN

C4I – M&S Convergence

Opportunities and Challenges for C-BML in NATO

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Contents

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- **Challenges**
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[“Adopting joint”: interoperability through convergence. – Free ...](#)

C4ISR Command Control Communications Computers Intelligence Surveillance and and user interface software released in 1985 to run on top of **MS-DOS**. ...



Background

- **JC3IEDM $\approx$ vocabulary, C-BML $\approx$ language**
- **Each enables interoperability, but at different levels**
- **NATO is all about interoperability, based on common vocabulary and common language**

C-BML opportunities

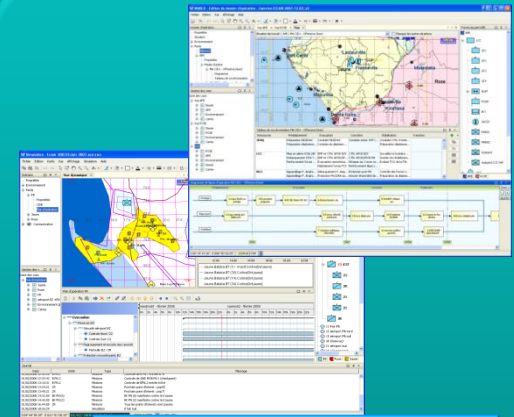
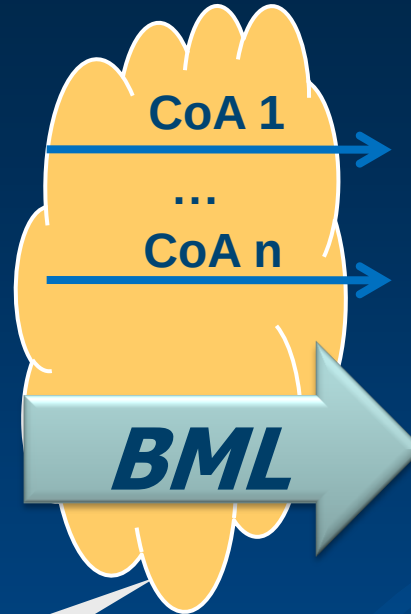
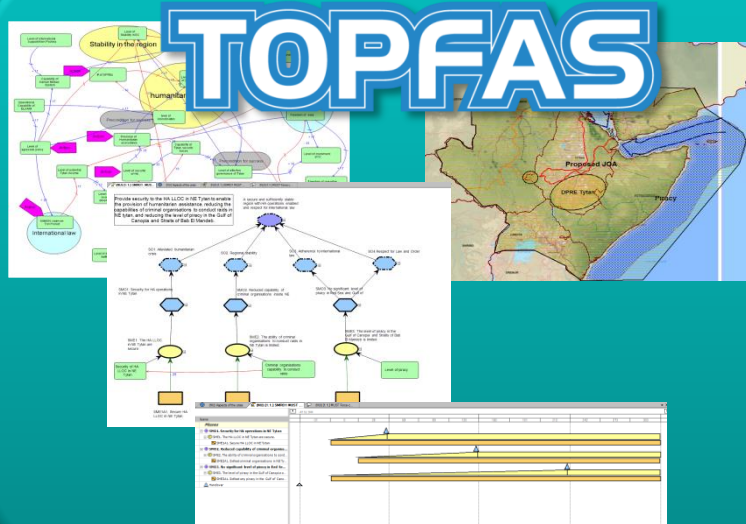
- **Joint operational planning / COAA**
 - Ops Management, ref. MSG-48 demo focus on COA analysis
 - NATO joint planning at operational level (JFC - CC, ISAF HQ - IJC - RC)
- **Training and Exercising**
 - Exercise preparation: scenario data + operational plans → simulation and C2 systems databases (C-BML / MSDL)
 - Exercise management: information exchange between CAX tools, C2-simulation interfaces
- **Joint ISR, collaborative sensor planning**



BML for Joint Planning

- **Converting (parts of) the OPLAN from free text to BML**
- **OPLAN contains Forces, Timings, Locations but Actions are mostly expressed as free text**
- **Use Force Tasks list to remove ambiguity**
- **Interface with C2 systems**
- **Be able to simulate CoAs directly from the plan (no special input needed, the plan design can directly be simulated)**

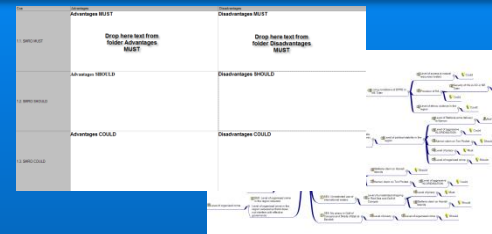
BML and Joint Planning: A practical Example



Course of Action
Simulations

Objectives, Effects
Synch Matrix : Actions, Timings

Results/ Comparison





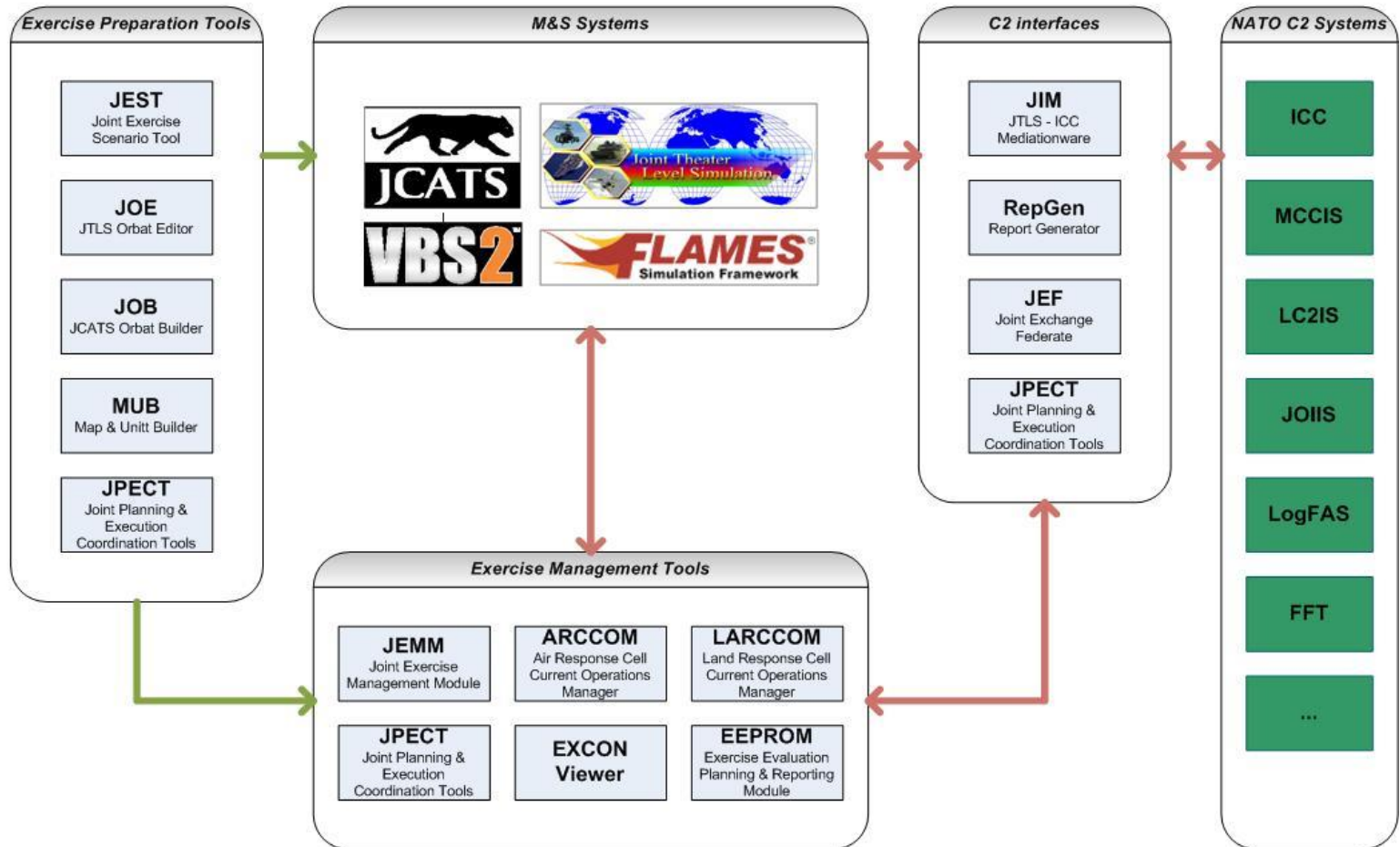
Leveraging MIP based interoperability

- **BML defines Plans, Orders, and Reports in a manner that is unambiguous and fully data based**
- **BML is compatible by design with the JC3IEDM; the few needed extensions are being submitted to the MIP as JC3IEDM change proposals**
- **BML can be an extension to MIP exchange content**
- **Systems that already implement MIP interoperability can implement BML extensions as they see fit**

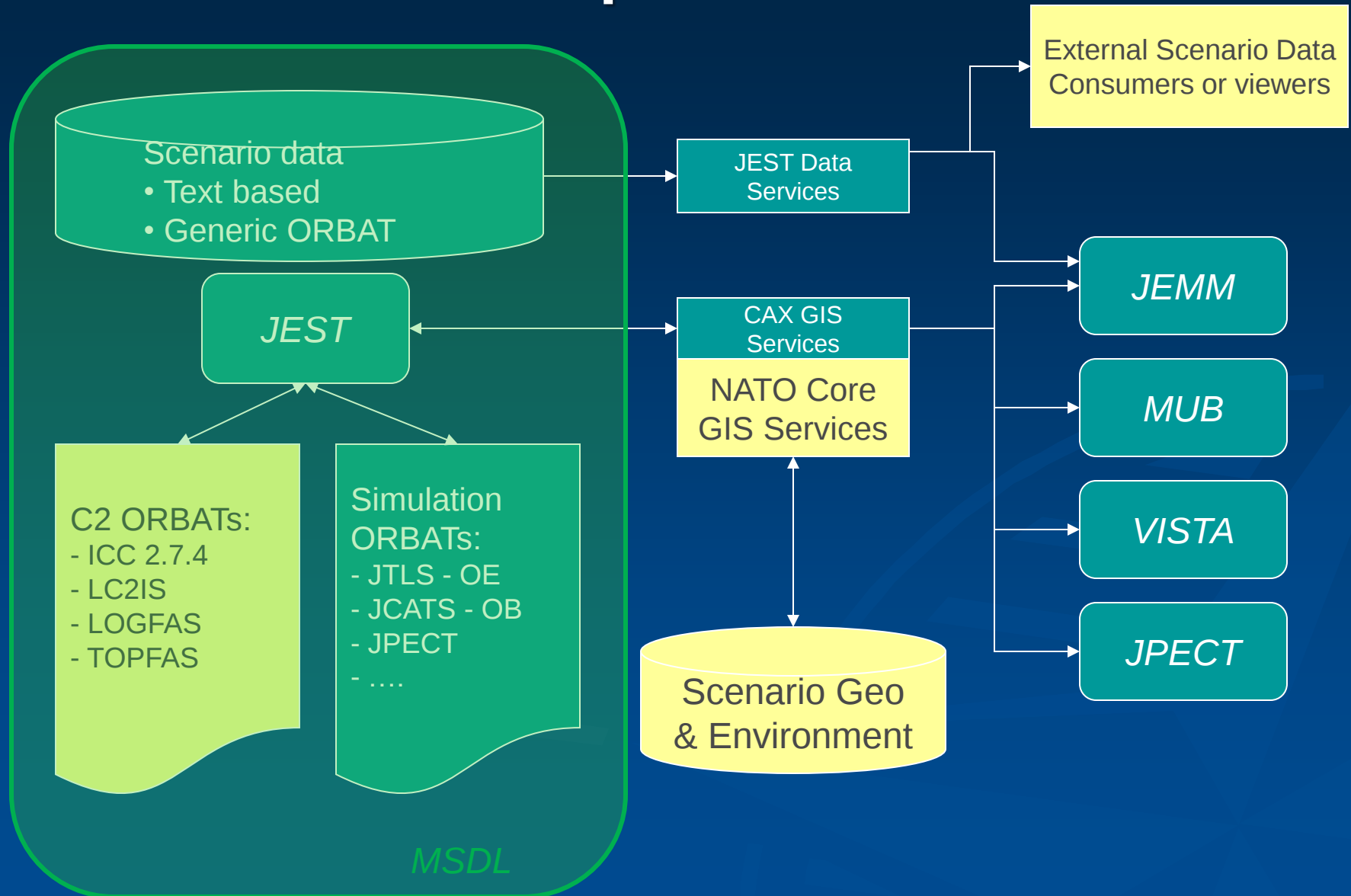
The current NATO CAX toolbox

NATO CAX Toolbox

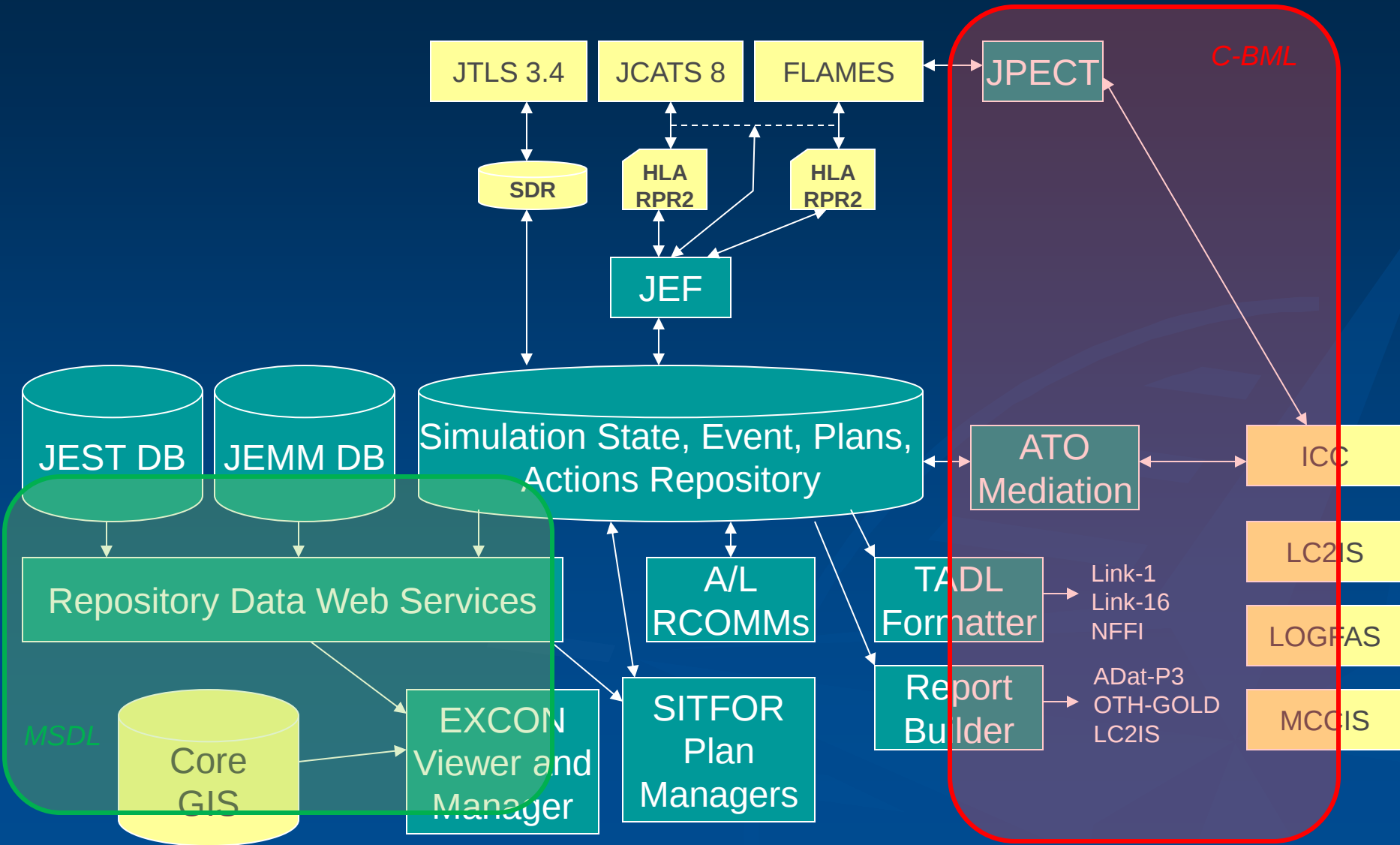
Thursday, October 01, 2009



Exercise Preparation

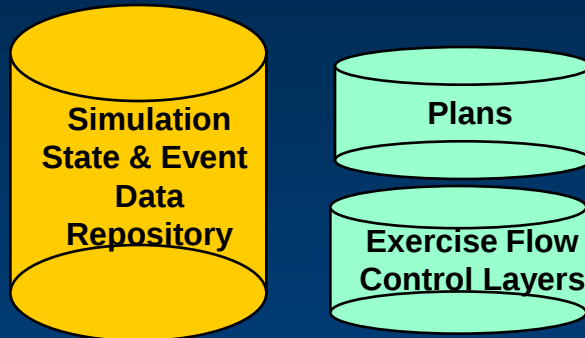


Target CAX Env't Architecture (Proposed)

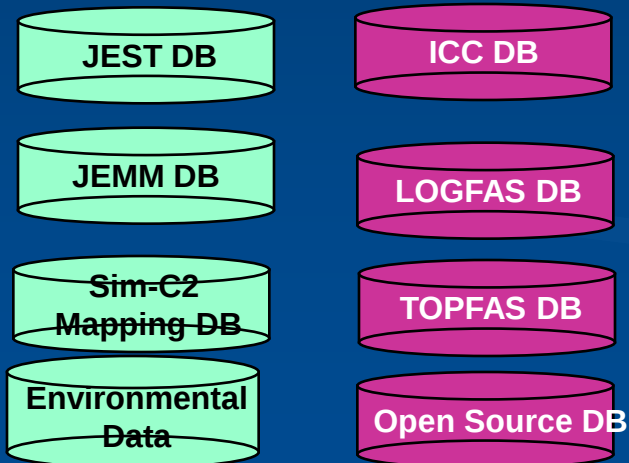


Exercise Execution

Persistent Simulation Repository



Persistent Exercise Repositories



World View Services

Combine Static and Dynamic Data

Object Plans Services

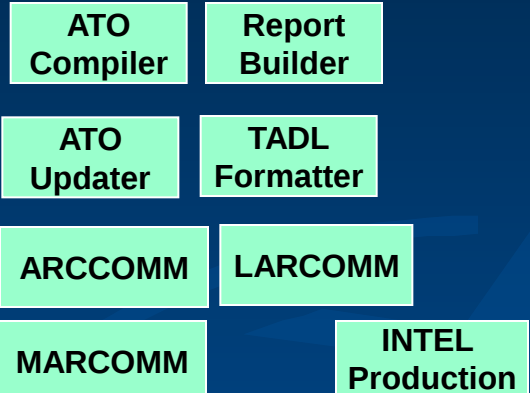
Sequences of Activities and Associated Geo objects

Exercise Flow Services

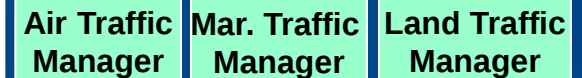
Combines Intended and Actual Flow

EXCON Business Applications

RCs to TA



SITFOR & GC



SITCEN

EXCON View Manager

Common

JEMM

JEST

EXCON Viewer

Expected benefits

- **Improved database validation**
 - Against exercise objectives
 - Reflecting NATO force compositions and system capabilities
 - Coherent and consistent across simulations and C2 systems
- **Improved planning in EXCON**
 - More uniform and less ambiguous information exchange
 - Semi-automation of some EXCON planning and execution tasks
- **C2-simulation interoperability**
 - Making C2-simulation interfaces more re-usable (future proofing)

- Quantifying expected benefits
- Leverage MIP-based interoperability (NATO investments)
- E&T: keep harmonizing MSDL and C-BML
- Automation/MMI issues: how to enable translation of text and graphics based information into BML and vice versa



Acknowledgements

- Mr. Jean-Francois Cosse (Joint Planning, C-BML and MIP in general)
- Dr. Dirk Coppieters (Exercise Preparation and Execution, CAX Architecture)

What?

*Just when you think
this presentation is
terrible, something
wonderful happens.*

It ends!





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