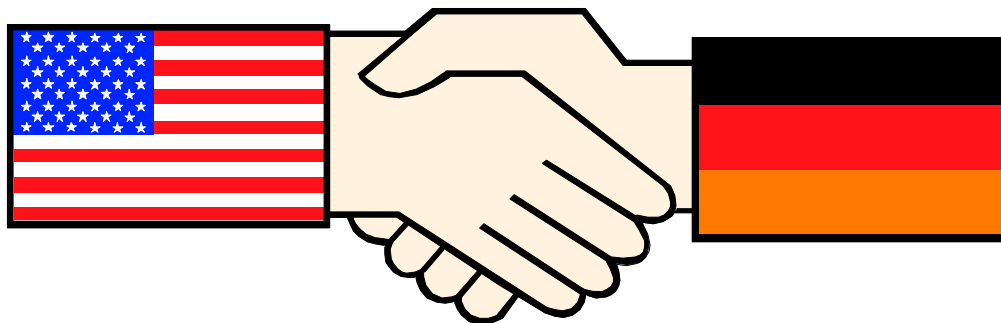




US-GE Coalition C2 R&D Technology Program



Simulation & C2 Information Systems Connectivity Experiments (SINCE)



- Presented to 8th International C2 Research and Technology Symposium
- Briefer: Dr. Israel Mayk
- Chair, SINCE TWG(US): US Army CERDEC C2D C2 SoS Division
- Date: 17-19 June 03
- Tel: (732) 427 - 4996
- Email: Israel.Mayk@mail1.monmouth.army.mil



Introduction



- This presentation describes the goals and implementation approach of the US national program supporting [Transformation](#) efforts for multi-national command and control (via a bilateral approach (US and Germany)).
- In the conduct of the SINCE program, both the US and Germany will be tying together appropriate Command and Control Information Systems (C2IS) and Modeling and Simulation (M&S) systems as necessary to support these experimentation activities
- These experiments will focus on the conduct of collaborative Mission Planning and Execution Management activities as needed to support coalition force operations
 - ⇒ Improving information exchange interoperability and situation understanding
 - ⇒ Streamlining/improving decision making process for commanders
 - ⇒ Demonstrating the use of M&S to support the Decision Making Process
 - ⇒ Combined military user and development community participation
- Each nation has and will implement its own unique national approach for supporting and participating in SINCE.
- The US and Germany are jointly working to define and implement common information exchange mechanisms needed to support SINCE



Program Objectives



The goals of the US SINCE program are to:

- **Provide US Army Objective Force and Future Combat System (FCS) Commanders operating in coalition operations with improved means for**
 - ⇒ **visualizing the coalition battlespace**
 - ⇒ **planning, executing and managing coalition operations,**
 - ⇒ **performing real-time collaboration and information exchange with coalition partners**
- **Demonstrate new, affordable, and enhanced means for achieving interoperability between evolving Objective Force/FCS C2IS and those of our coalition partners**
- **Integrate and use M&S technologies to facilitate/support Combined Operations**



SINCE Implementation Concepts



Thrust Areas:

- Brigade and Battalion Level CJTF Operations in an future 2010 Objective Force/Future Combat System (FCS) environment
- Shared Situational Understanding is critical
 - ⇒ Understanding via one's own C2 system
- Execution Monitoring using National C2 systems
 - ⇒ Supports national, doctrinal approaches to operations
 - ⇒ Uses embedded, synthetic environments to drive C2 interoperability
- Evaluation of new C2 System interoperability concepts
 - ⇒ Redefine Combined Operations C2 paradigm (e.g. STANAG)
 - ⇒ Ultimately drives the technical approach to international C2 systems interoperability.



SINCE Experimentation Program Schedule



1a. Establish technical feasibility and ensure the connectivity and interoperability of all C2/ M&S systems

- Experiment 1a (Technical Connectivity)
- Done at Greeding
- Technical in nature/ Operational oversight
- TWG has lead

2. Determine the next level technical feasibility and ensure the updated connectivity and interoperability of all C2/ M&S systems

- 2nd Experiment
- Done a UAMBL & Greeding
- Operational in nature (focus at Bn Level)
- OWG/UAMBL has lead

- 3rd Experiment
- Done a UMAMBL, BCBL and /or JFCOM
- Operational in nature (fucus as CJTF level)
- OWG/UAMBL has lead

1b. Scenario that is constrained by the IER within the C2 systems and by the interoperability constraints of the simulation systems

- Experiment 1b (Operational Checkout)
- Done at Ft. Monmouth and Greeding
- Operational nature w/ Technical oversight
- OWG has lead (potential use of CFBL net)

3. Complex military scenario (across the spectrum of war – support ops to mid intensity) unconstrained by earlier limitations of C2 systems and interoperability

Quarter	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Experiment 1a	[Timeline bar from Q1 to Q4]													
Experiment 1b	[Timeline bar from Q1 to Q5]													
Experiment 2														
Experiment 3														

Nov 03

Apr 04

Jun 05

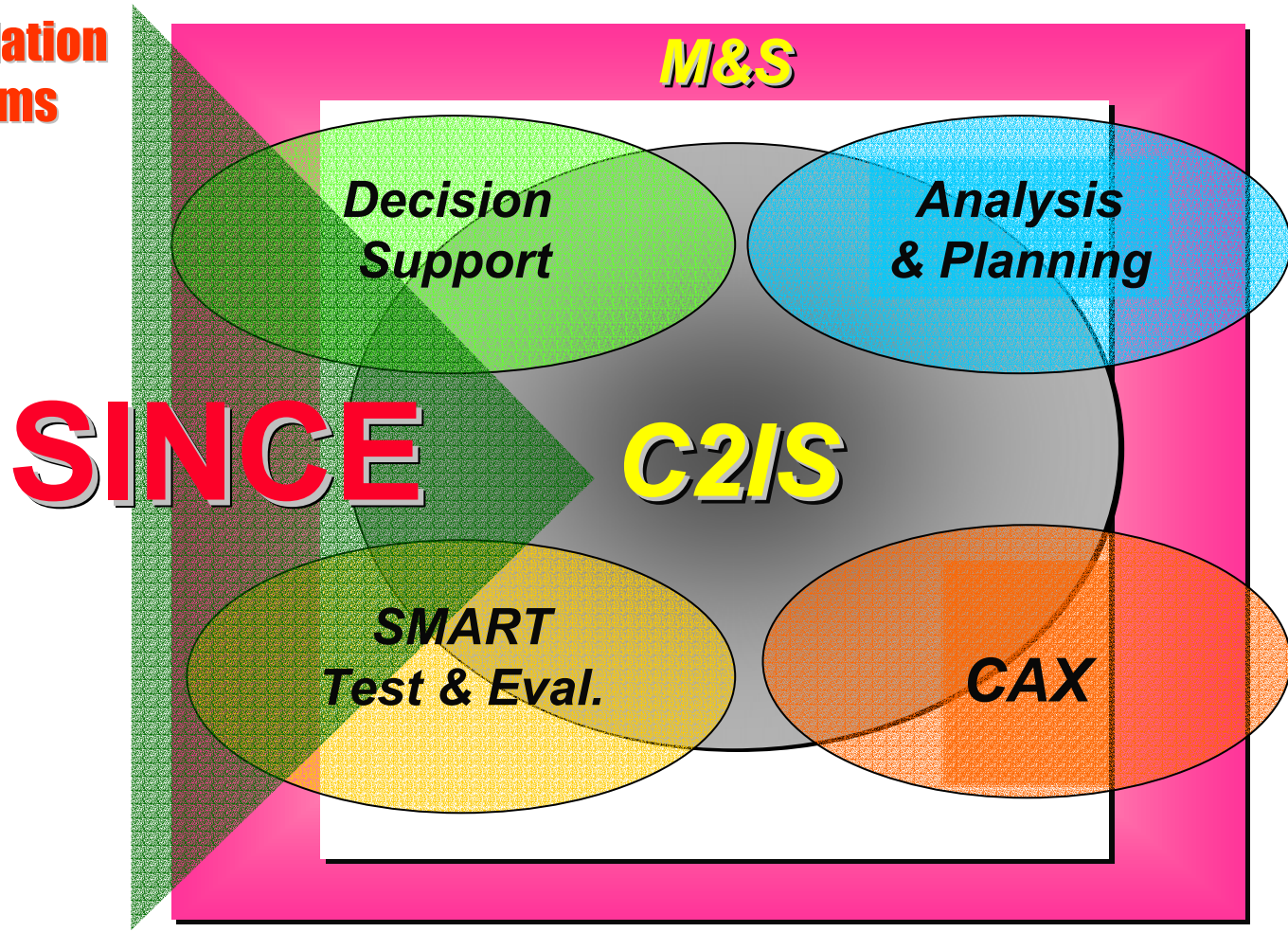
Mar 06



Bridging the Technical & Operational Problems

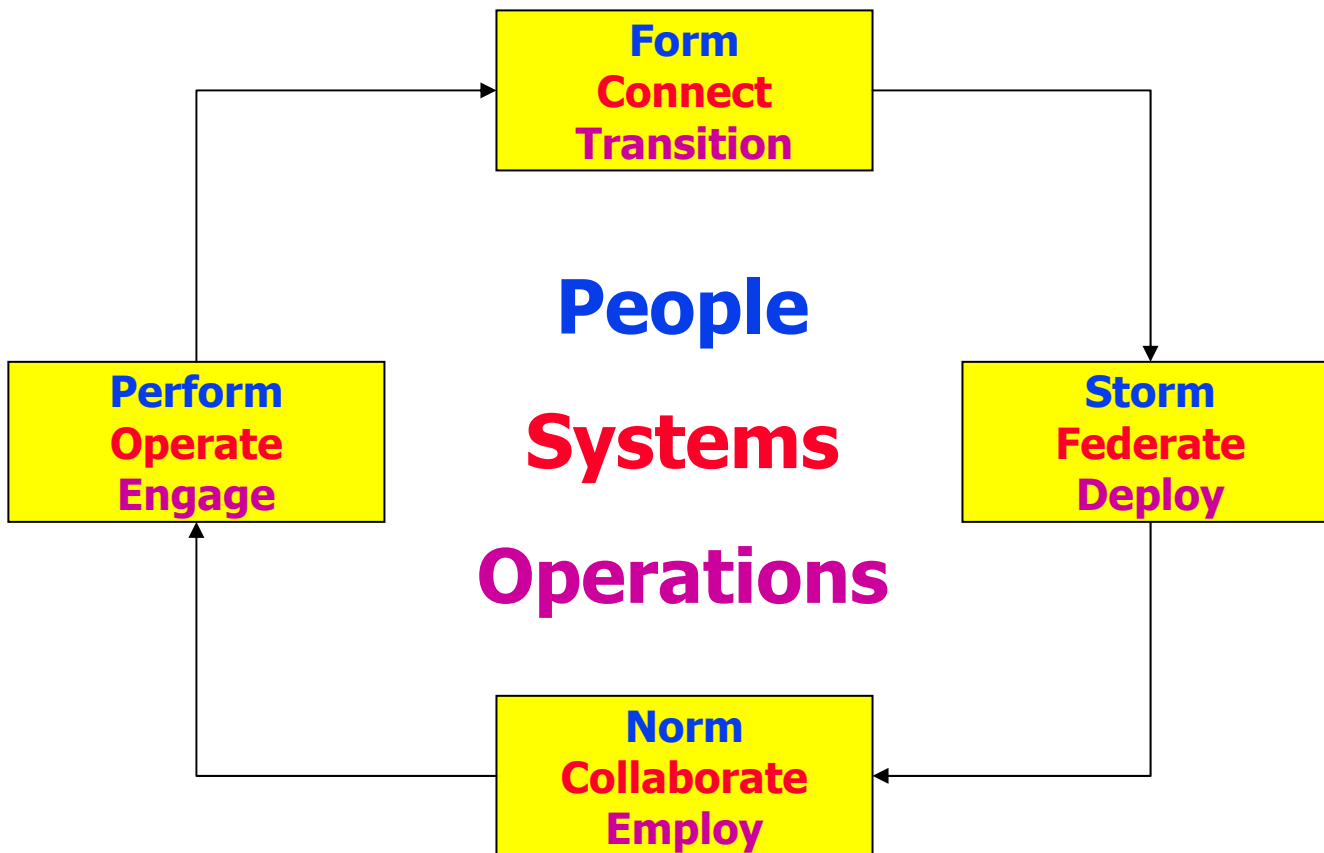
Simulation Systems
Meet C2IS

Collaborative Planning Decisions



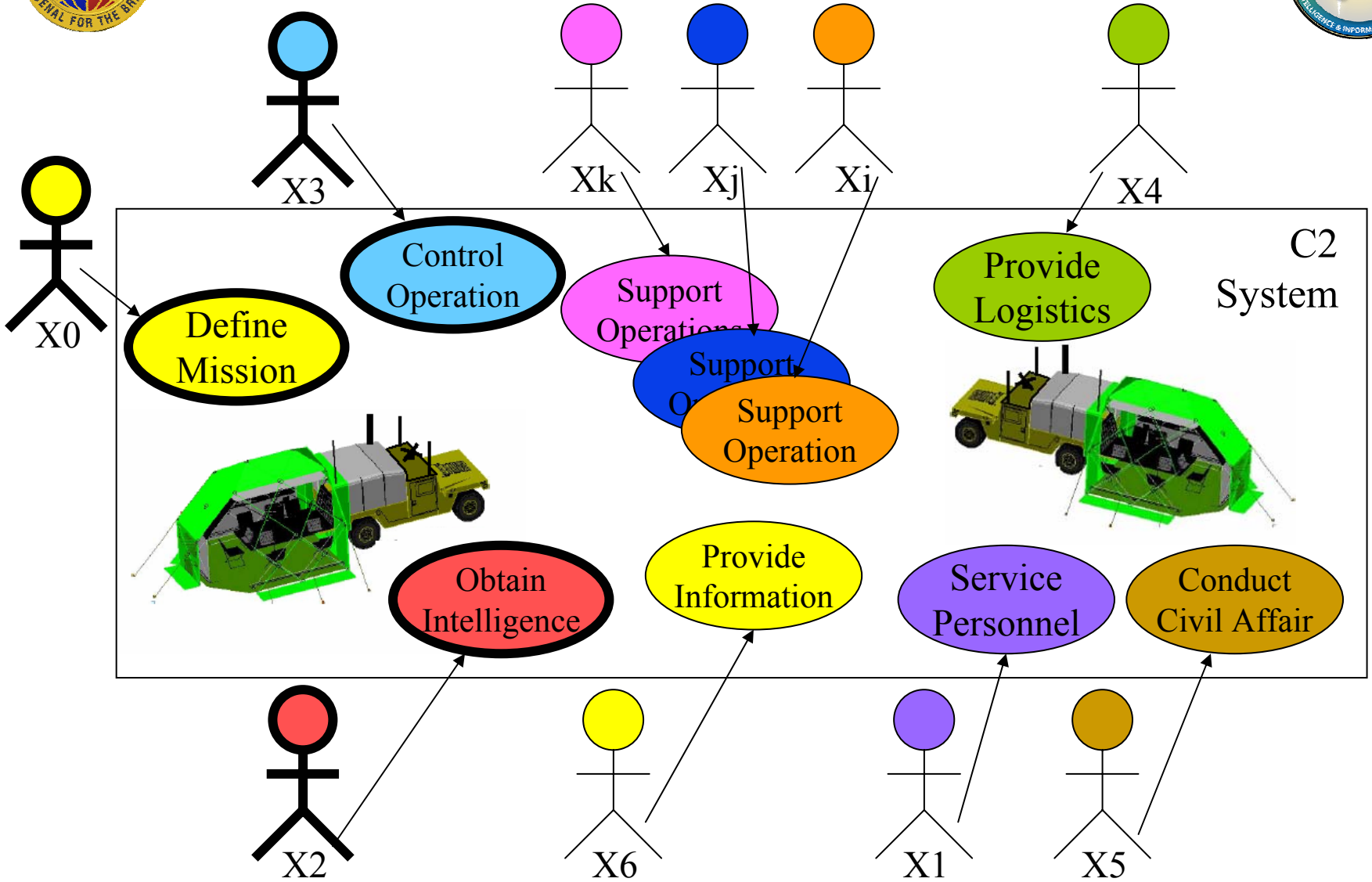


Phases of **Team**, **System**, and **Mission Execution** Developments





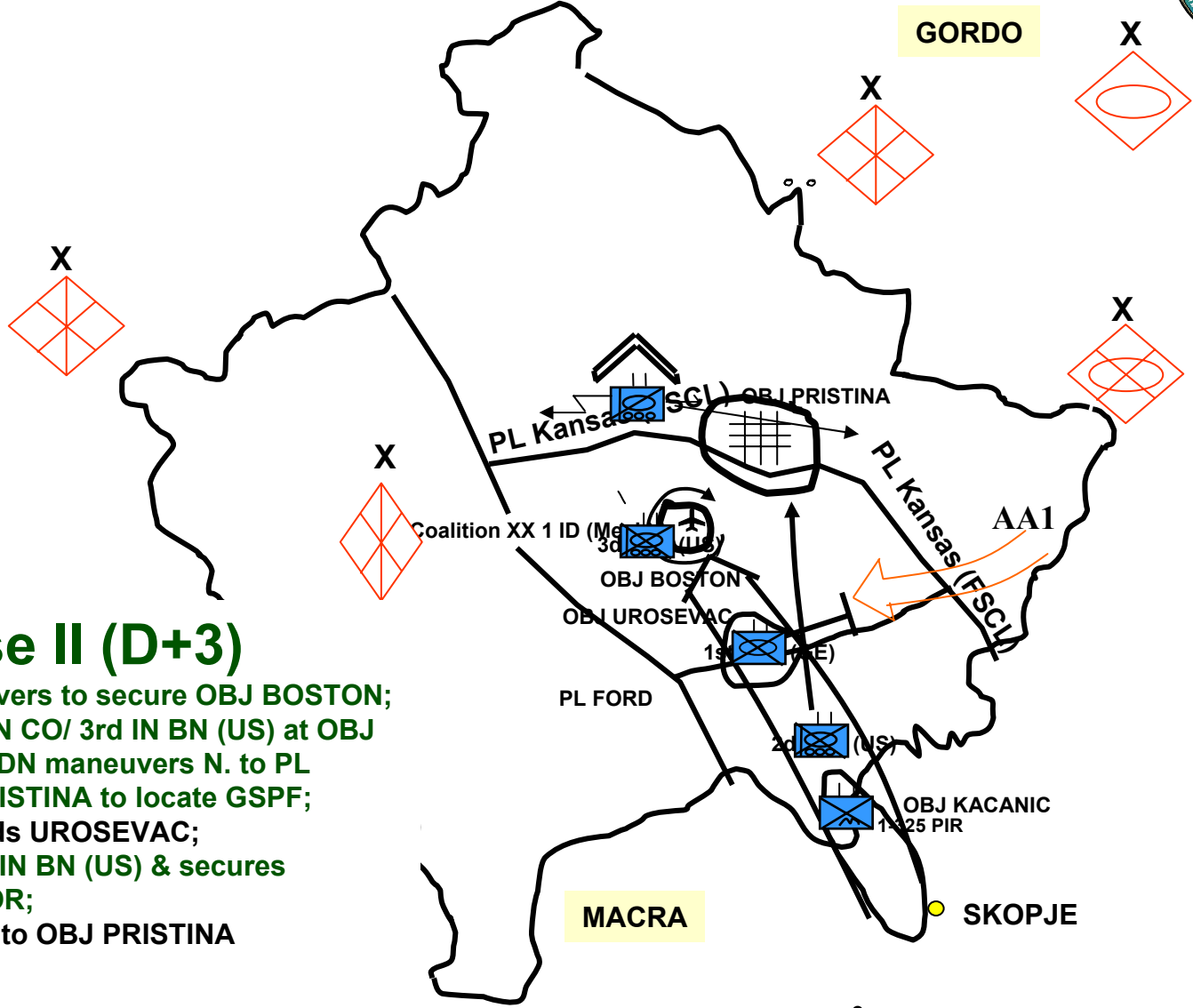
Experiment 1 - Operational Use Cases



CECOM Bottom Line: THE WARFIGHTER



Experiment 1 - Operational Scenario



Phase II (D+3)

- 3d IN BN (US) maneuvers to secure OBJ BOSTON;
- Upon closure of 1st IN CO/ 3rd IN BN (US) at OBJ BOSTON, RSTA SQDN maneuvers N. to PL Kansas and into PRISTINA to locate GSPF;
- 1st IN BN (GE) defends UROSEVAC;
- 1/325 PIR relieves 2d IN BN (US) & secures KACANIC CORRIDOR;
- 2d IN BN (US) moves to OBJ PRISTINA



C2 Product: - OPORD, Messages



◆ Situation

◆ The Enemy Forces

- ◆ Who are they? What kind of unit is it? What kind of Equipment do they have?
- ◆ Where are they? How strong are they? Where are they effective?
- ◆ How capable are they? What are they likely to do?

◆ The Friendly Forces

- ◆ What is our higher echelon mission and Concept of Operation? What is the mission of adjacent units?

◆ Mission

- ◆ A clear concise, statement of what the unit is to do to include who,where, when, and why of the operation.

◆ Execution

- ◆ What is the Concept of Operation? How to maneuver, how to fire, how to deal with obstacles? In Offense: what unit formations, movement techniques, routes of advance? On Defense: what battle positions to establish, weapon orientation, engagement plan, +more.

◆ Service Support

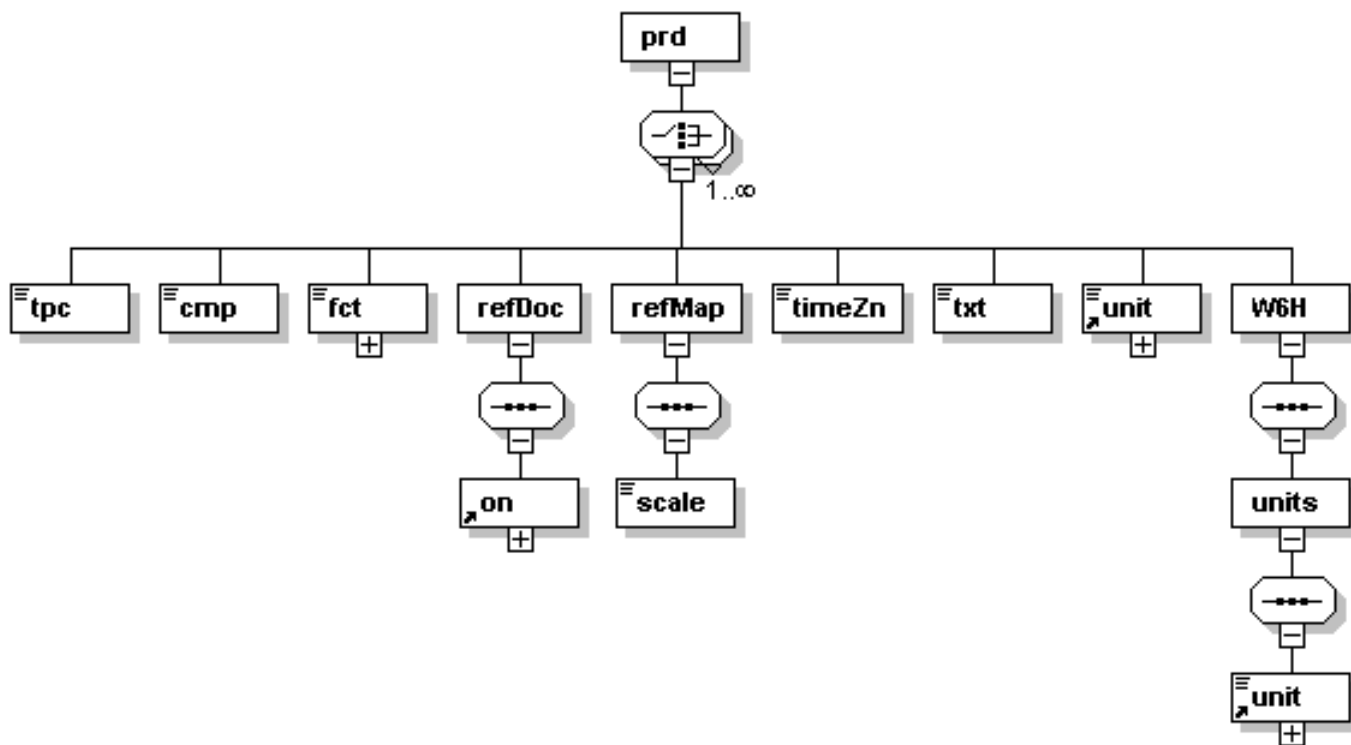
- ◆ Where is refueling, How? Where is the collection point of damaged vehicles?

◆ Command and Signal

- ◆ How communications will be maintained?
- ◆ What is the command succession?



Experiment 1 – C2 Products



Generated with XMLSpy Schema Editor www.xmlspy.com



Experiment 1 – System **States** and Use Cases



- **Interconnection State:**
 - Interconnect Federate
- **Federation State:**
 - Enable Federate, Initialize Federate
- **Collaboration State:**
 - Collaborate with Coalition (to Plan Operation)
- **Interoperation State:**
 - Stimulate Federate,
 - Interoperate with Coalition (to Monitor Execution)



Typical OPORD Text Parsed by W6H Rules

On order IBCT deploys to MACRAN REPUBLIC and moves immediately to Kazar to secure the KACANIC CORRIDOR, PRISTINA Airfield, and PRISTINA, and to establish a US presence throughout the zone. IBCT cooperates with KAF to defeat GSPF elements in zone and deters a Gordian attack on Kazar. If deterrence fails, IBCT defends in order to defeat GAF attack and to restore Kazarian territorial integrity.

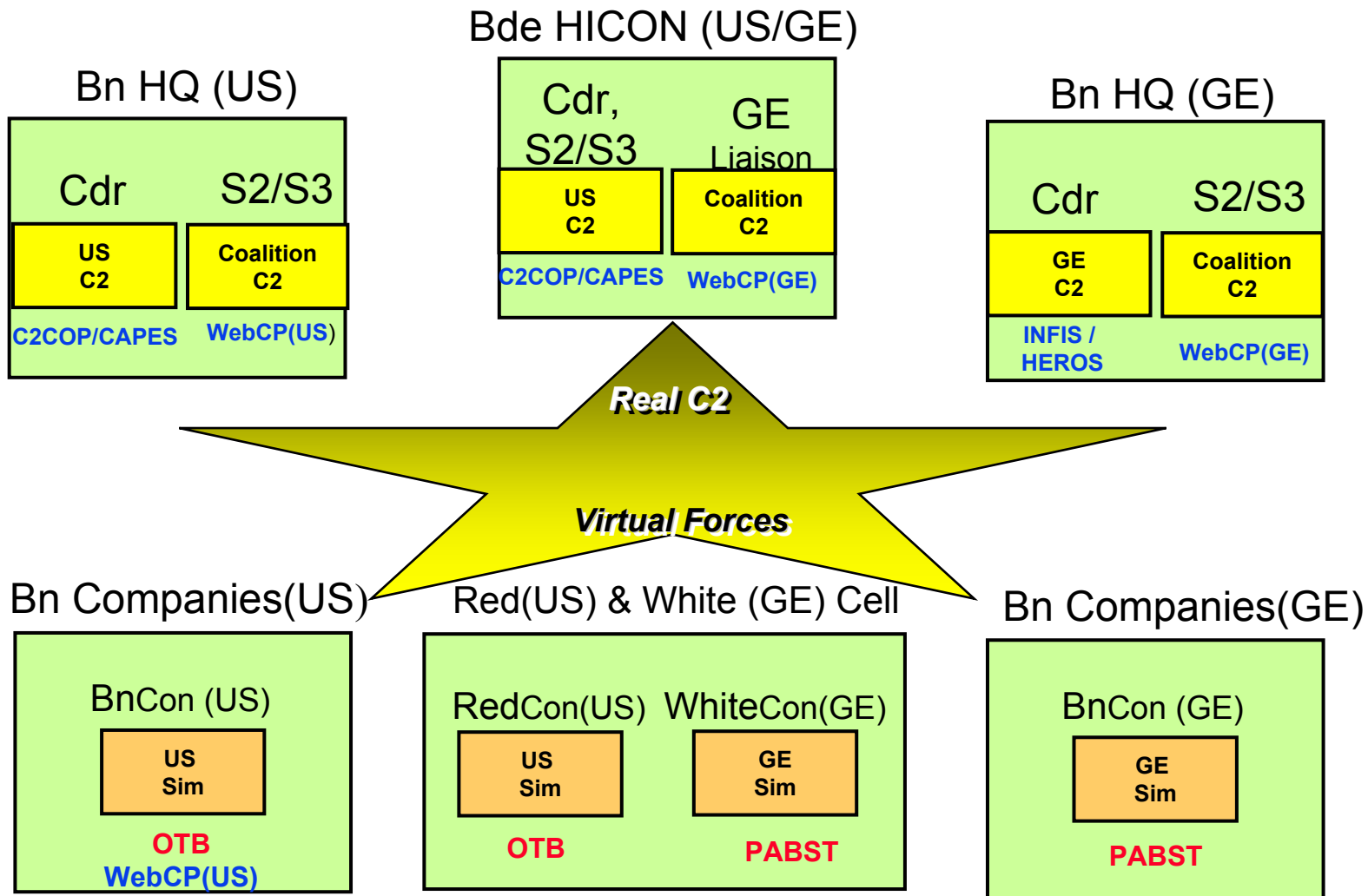


OPORD Text represented in XML

```
<?xml version="1.0" encoding="UTF-8"?>
<grp type="Situation/Friendly Forces" fnc="Mission">
<on type="order"><unit id="1st" role="IBCT" size="Bde" aff="Coalition"/><do type="mission">deploy</do>
<at type="state" name="Macran Republic"/><do type="mission">move</do><by type="rate">immediately</by>
<at type="region" name="Kazar"/><to>secure</to><at type="Corridor" name="Kacanic"/><to>secure</to>
<at type="airfield" name="Pristina"/><to>secure</to><at type="region" name="Pristina"/><to>establish</to>
<units aff="US"/><at type="zone" aff="Kazar"/><To>cooperate</To><Link><unit id=" KAF"/><To>defeat </To>
<unit id="GSPF" size="elements"/><at type="zone" name="Pristina"/><To>deter</To><Link><unit aff="Gordo"/>
<do> attack</do><unit aff="Kazar"/></Link><if><Link><unit aff="Gordo"/><do> attack</do><unit aff="Kazar"/>
</Link><then><do> defend</do><To> defeat</To><unit id="GAF"/><To> restore</To><unit aff="Kazarian">
<Status>territorial integrity </Status></unit></then></if></Link></on>
</grp>
```

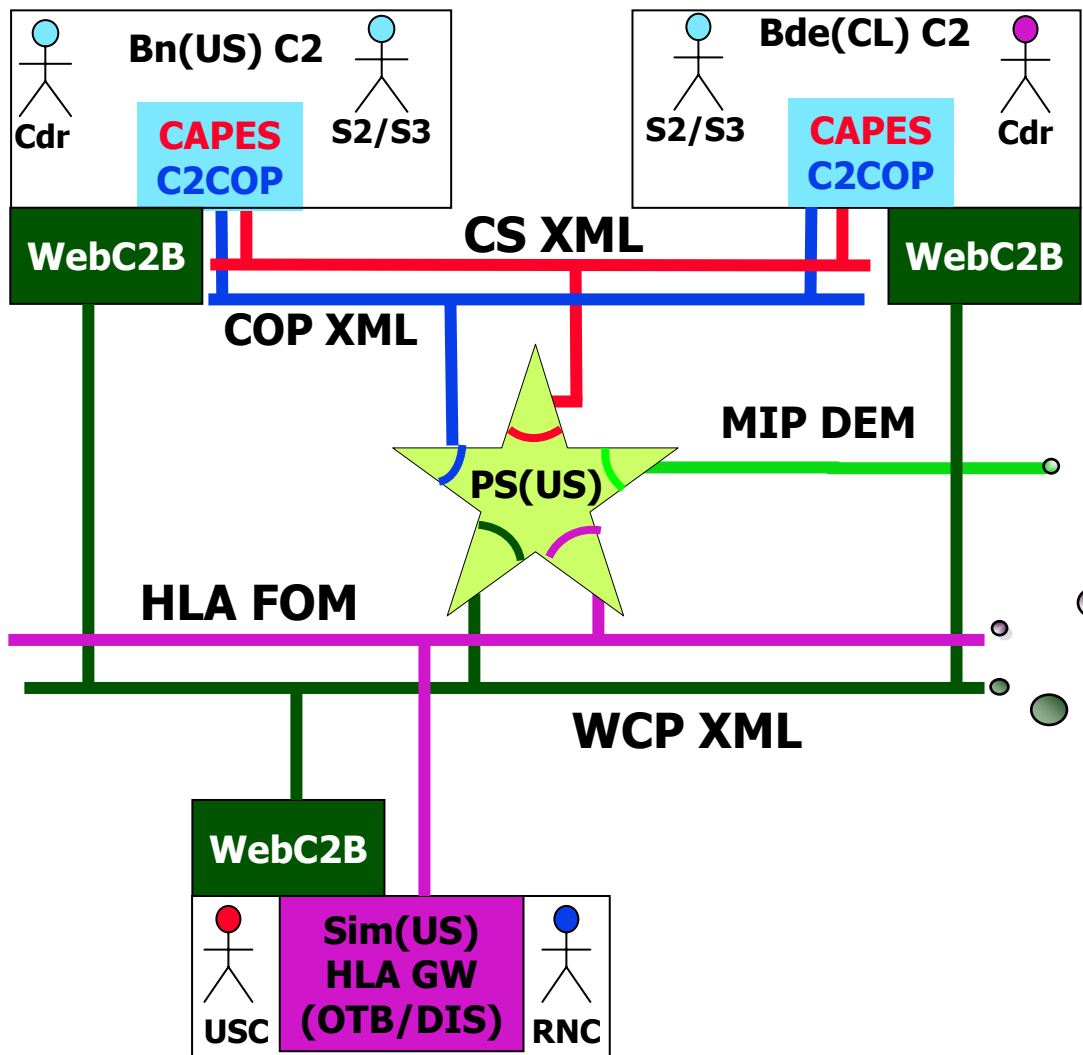


Experiment 1 - Operational Configuration



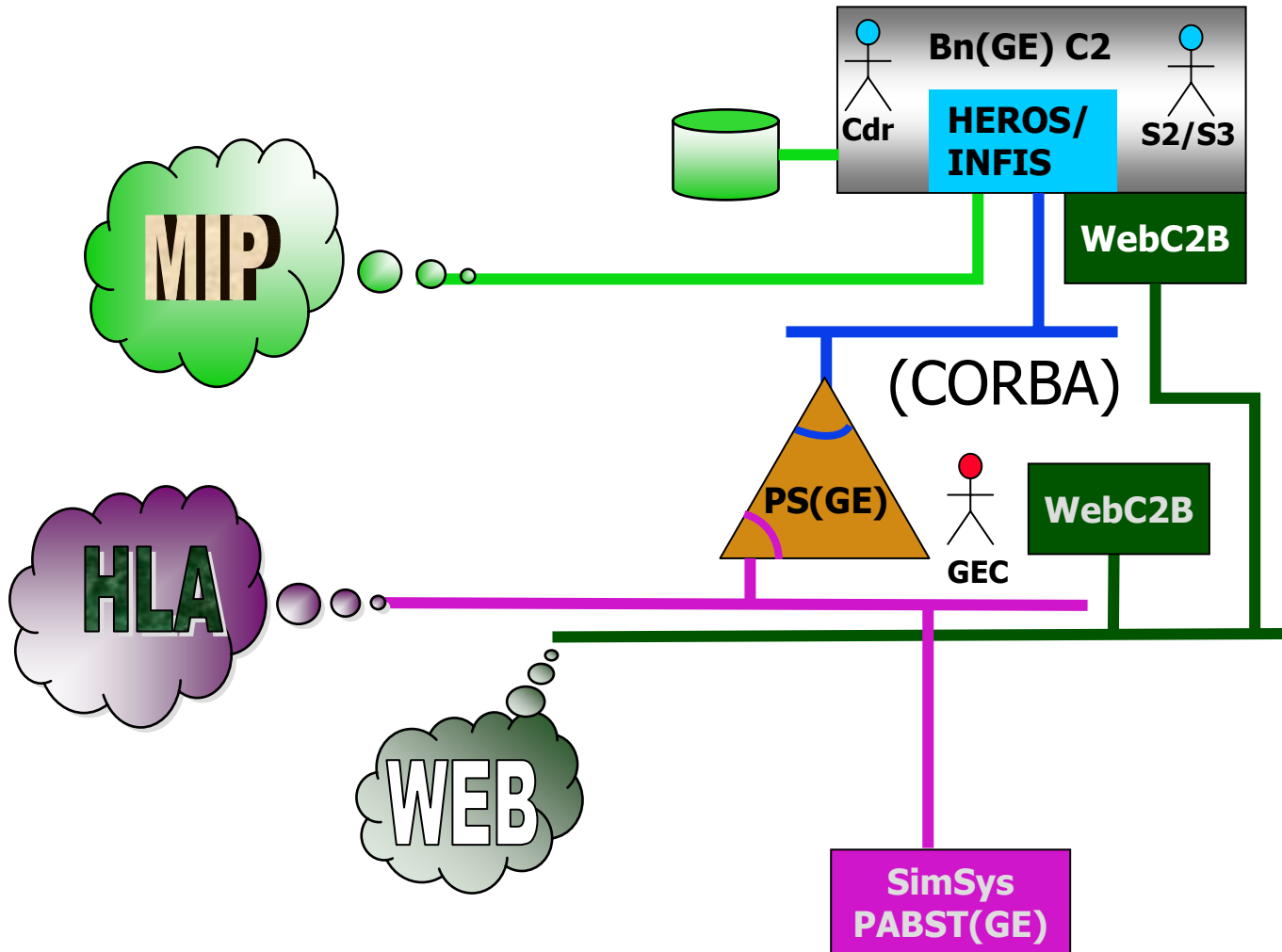


SINCE Experiment 1: US Environment



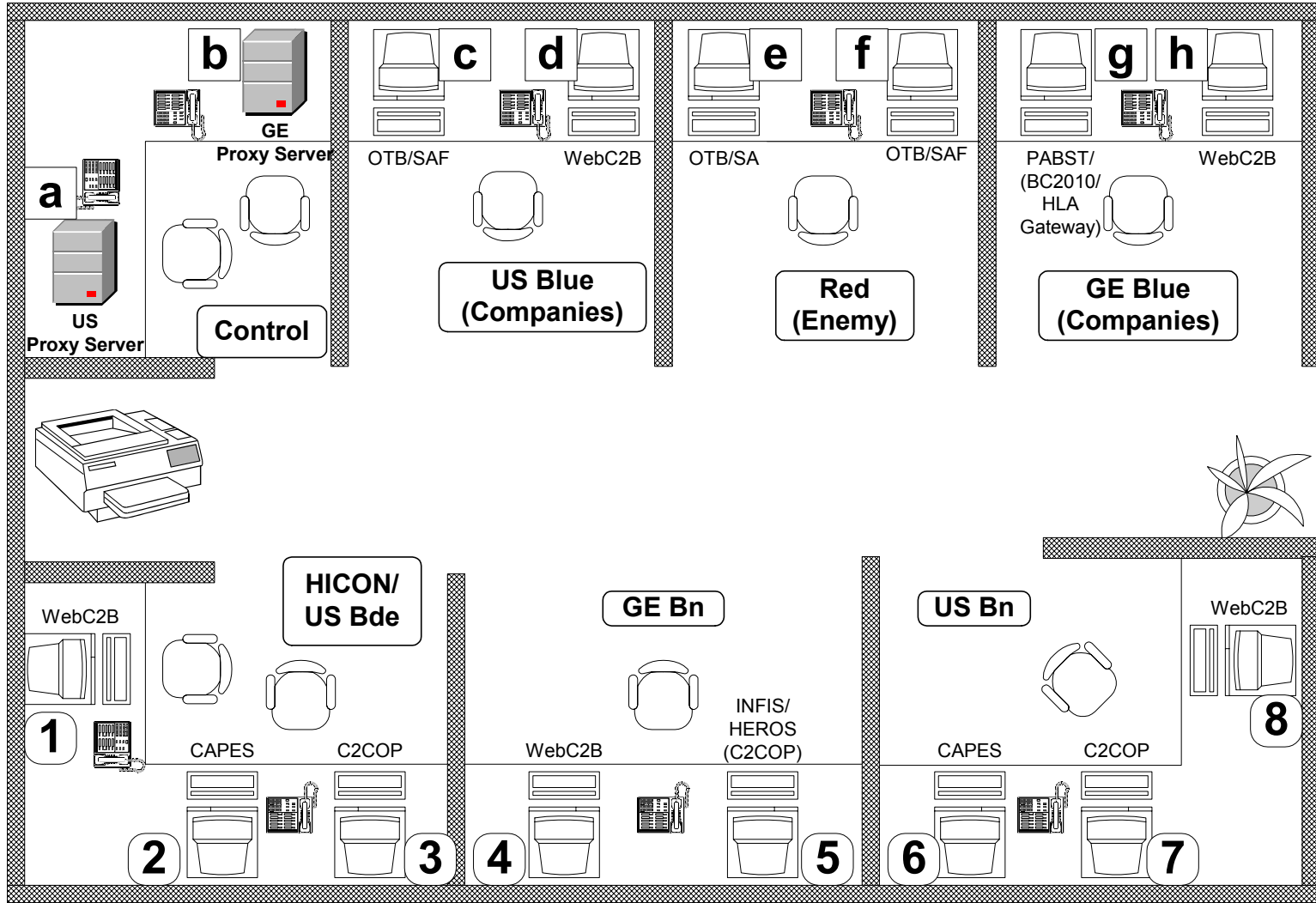


SINCE Experiment 1: GE Environment



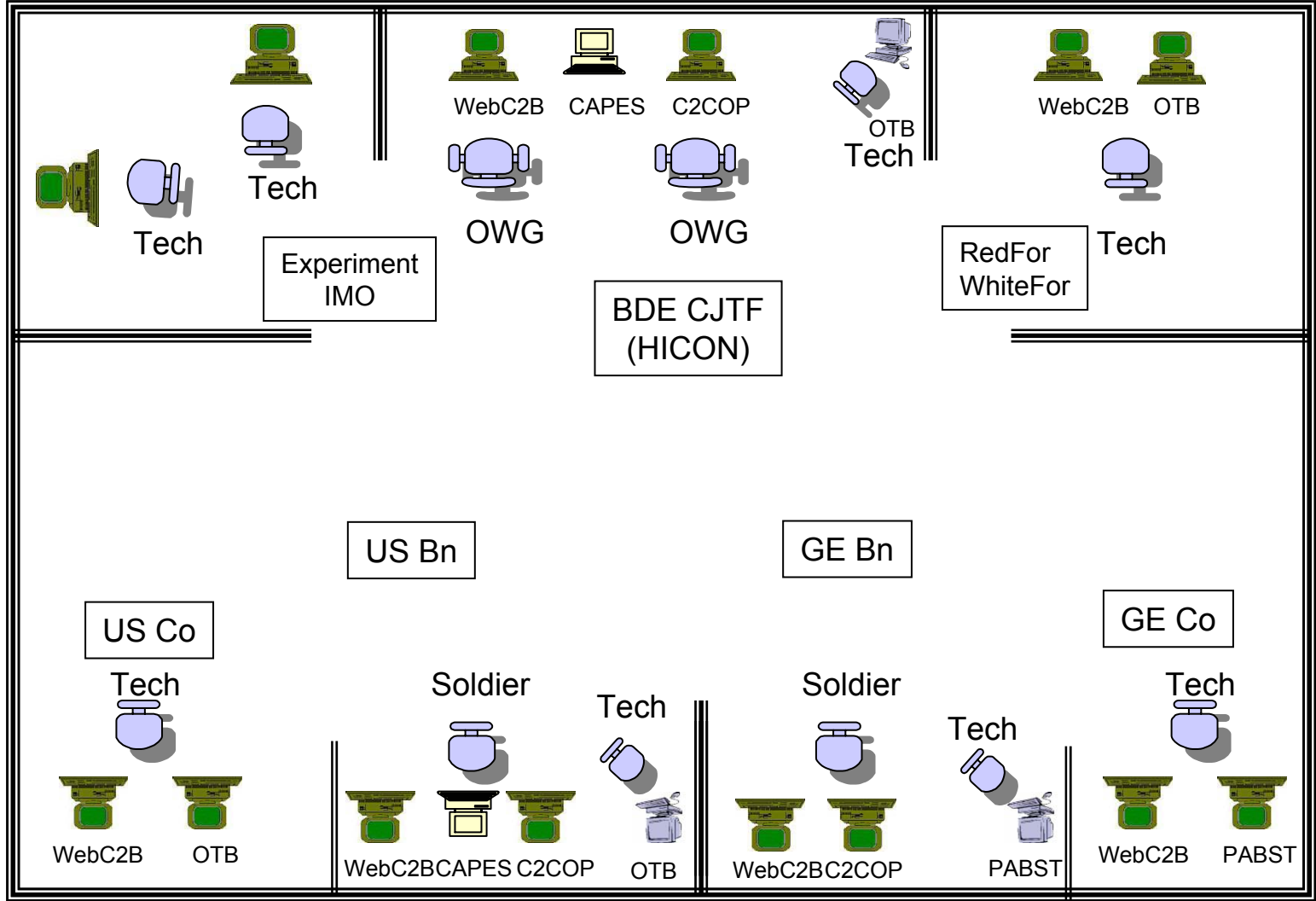


Experiment 1: Initial Configuration



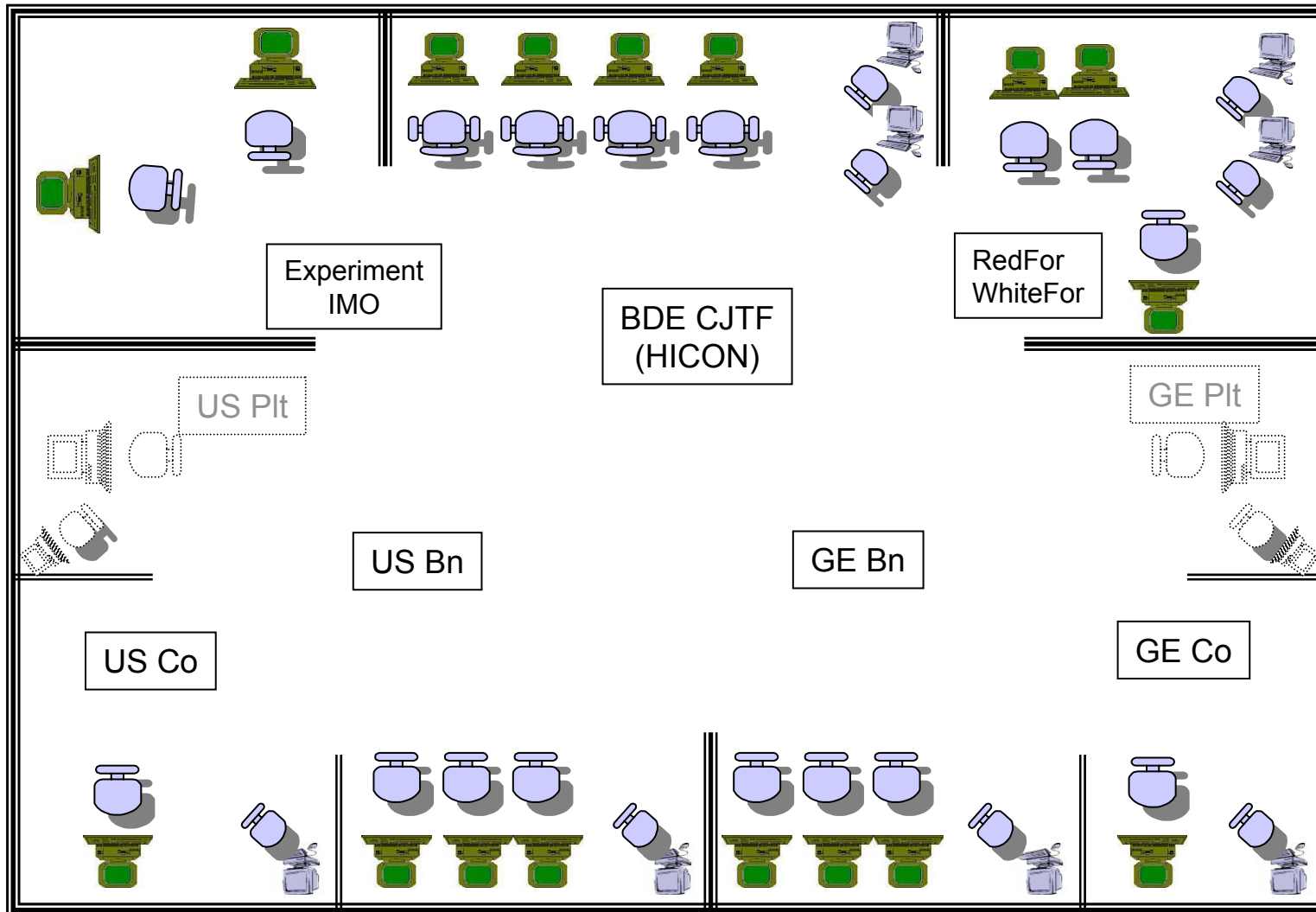


Experiment 1a: Functional Configuration





Experiment 1b: Operational Configuration





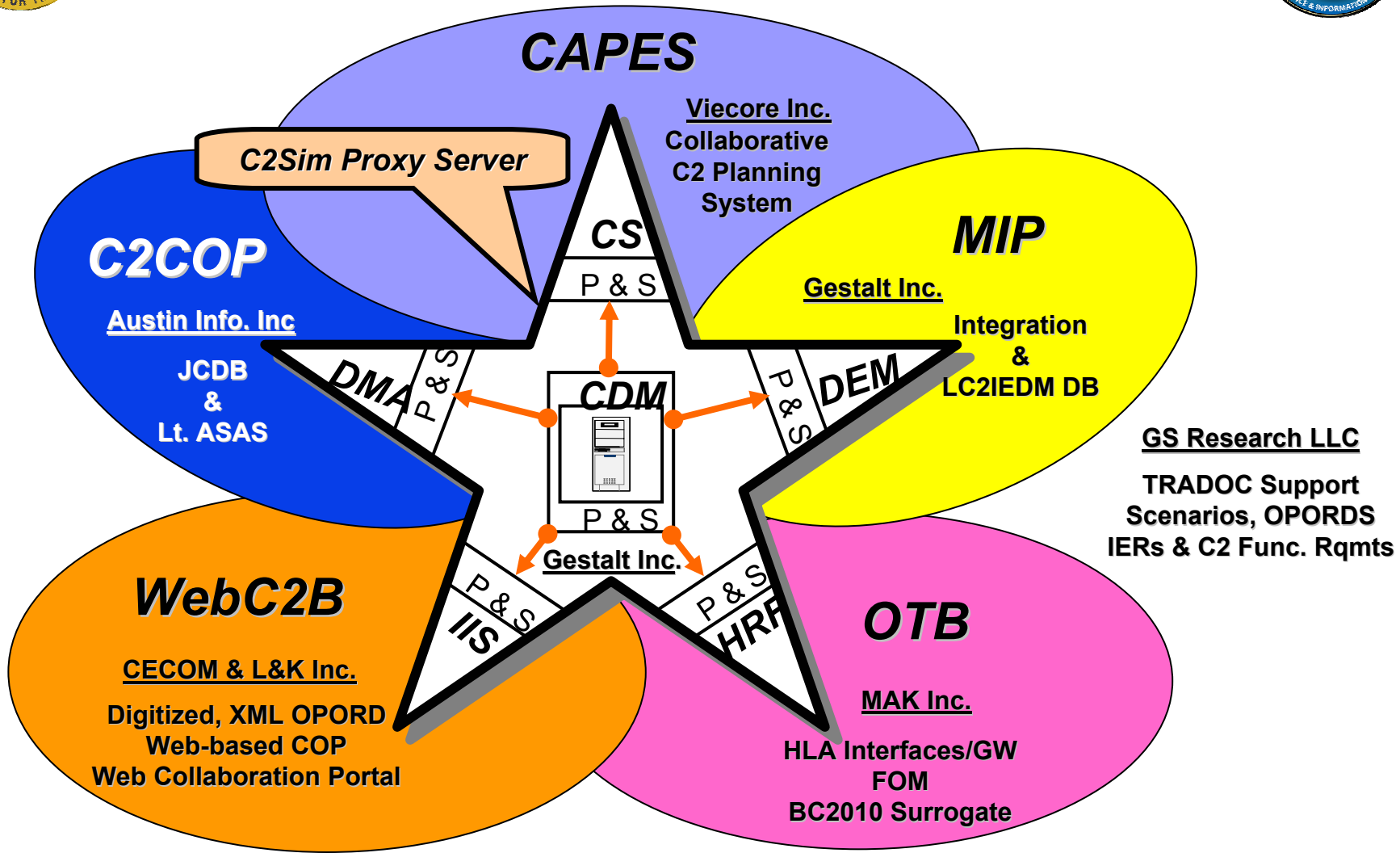
SINCE Information Exchange Mechanisms



- **Common Relevant Operating Picture (CROP) information exchanges between coalition C2 Systems:**
 - Exchanged via MIP LC2IEDM AdatP3 Messages or
 - [LC2IEDM database to database replication](#) mechanisms
- **Modeling and Simulation (M&S) Systems state information exchanges:**
 - Defined in the structure of HLA Federate Object Model
 - Exchanged [HLA RTI](#) Mechanisms
- **Real-time Tactical Planning Information exchanged between coalition force military planners and operations managers:**
 - Defined as [XML based text and graphics](#) constructs
 - Exchanged primarily via Web-based Collaboration Portal
 - Mapped into extended LC2IEDM/JDM database (planned)



SINCE C2Sim Proxy Server



GS Research LLC
 TRADOC Support
 Scenarios, OPORDS
 IERs & C2 Func. Rqmts

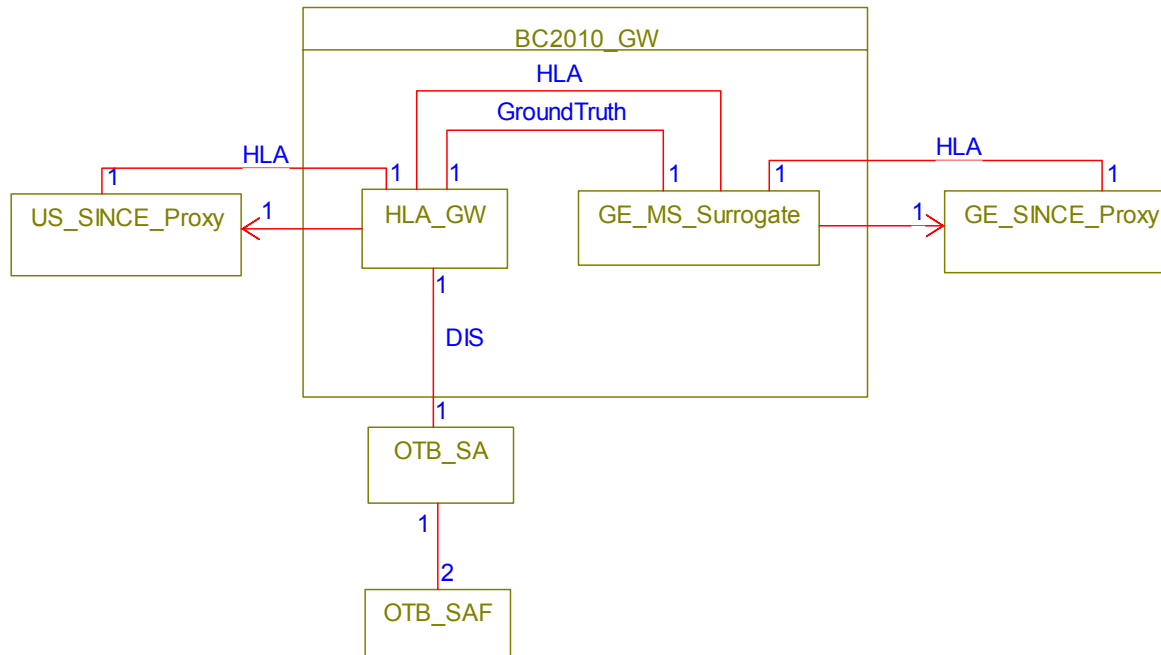


Object Model Diagrams: BC2010



Source Document:
SINCE - Info Flow 3.1a.ppt
Page 2

BC2010/GW plays the roles of an Allied M&S surrogate and an OTB to HLA Gateway

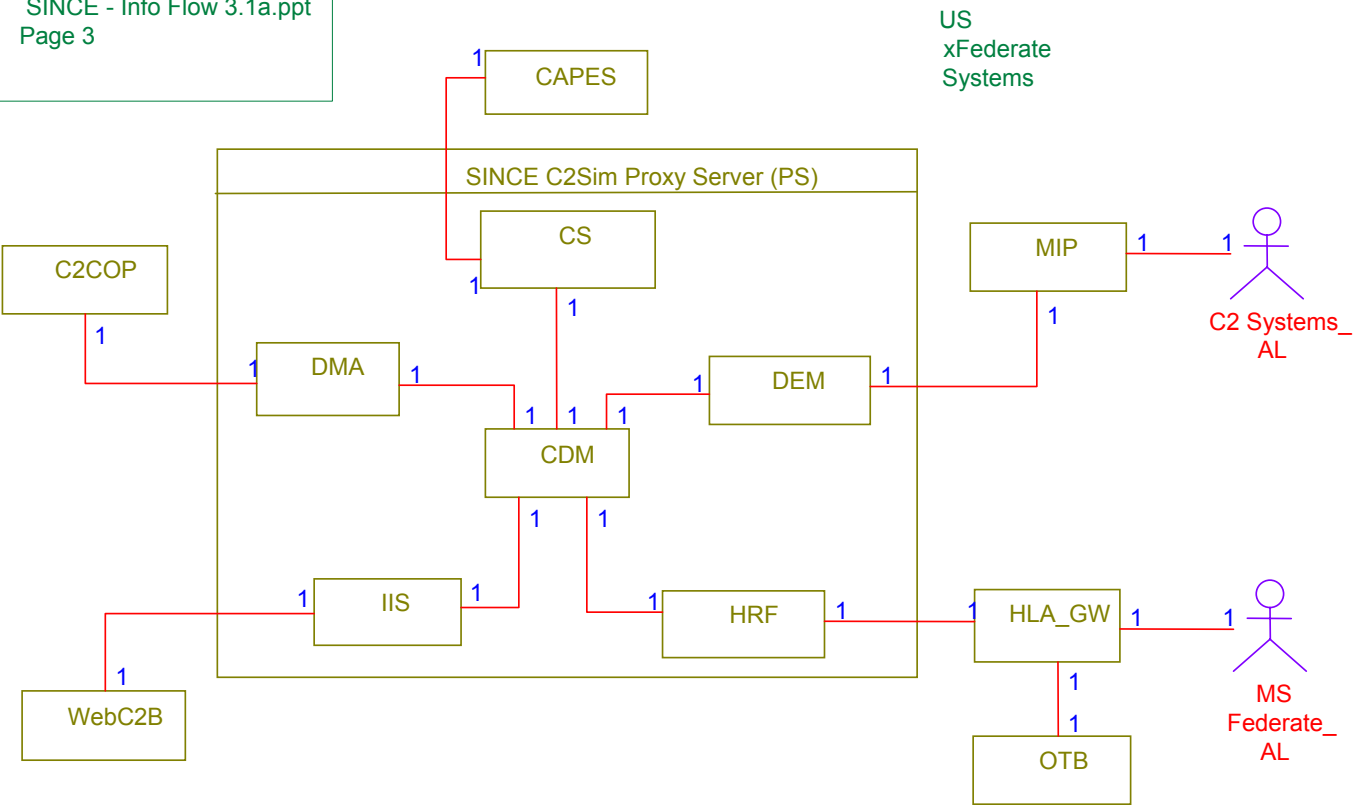




Object Model Diagrams: SINCE C2Sim PS



Source Document:
SINCE - Info Flow 3.1a.ppt
Page 3





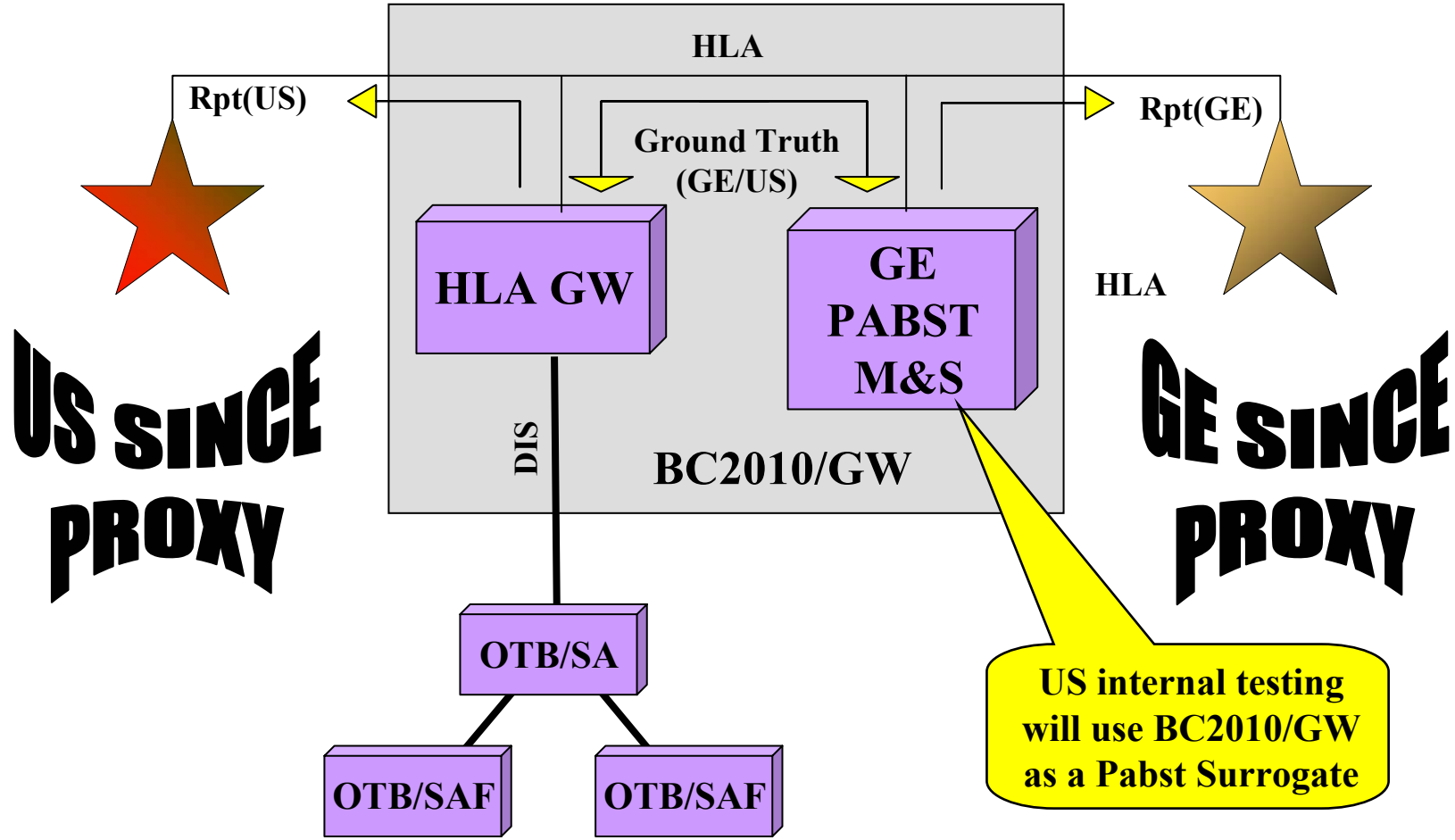
C2Sim Proxy Server Acronyms



- **CAPEX** - **Combined Arms Planning and Execution System**
- **C2COP** - **C2 Common Operational Picture**
- **CDM** - **Coalition Domain Manager**
- **CS** - **Collaboration Server**
- **DEM** - **Data Exchange Mechanism**
- **DMA** - **Data Model Adapter**
- **HRF** - **High Level Architecture Real-time Infrastructure
Reference Federation Object Model**
- **MIP** - **Multilateral Interoperability Program**
- **OTB** - **OneSAF Test Bed**
- **P&S** - **Publish and Subscribe Mechanism**
- **WebC2B** - **Web C2 Browser, Web Portal**



SINCE Interface of US and GE M&S





Web-based Collaboration Portal Exchanges



Supports real-time situation visualization and planning concept information exchanges by

- Enabling coalition force planners to jointly view the evolving operational picture
- Supporting the exchange of visual battlefield and operation graphics information during a planning session
- Supporting the generation and display of coalition force Operational Orders, Frago's and Task Force Synchronization Matrix information via common XML-based constructs
- Implementing a common agreed upon set of terms, tactical phrases and battle management language/concepts for exchange of textual planning information that assure consistent execution of coalition operations.



Web-Based Collaboration Portal (WCP) View of the Coalition CROP



SINCE - Web Collaboration Planning Portal for C2 Information Exchange - Microsoft Internet Explorer

Address: http://192.168.1.132/MapDisp.asp

SINCE - Web Collaboration Planning Portal for C2 Information Exchange

Home | Scenario Briefing | Op.Order | UTO View | Sync Matrix | Map Display

PLANNING EXECUTION

MAP hood SEND PLAN EDIT PLAN STOP-EDITING:GRAN PLANNING MODE

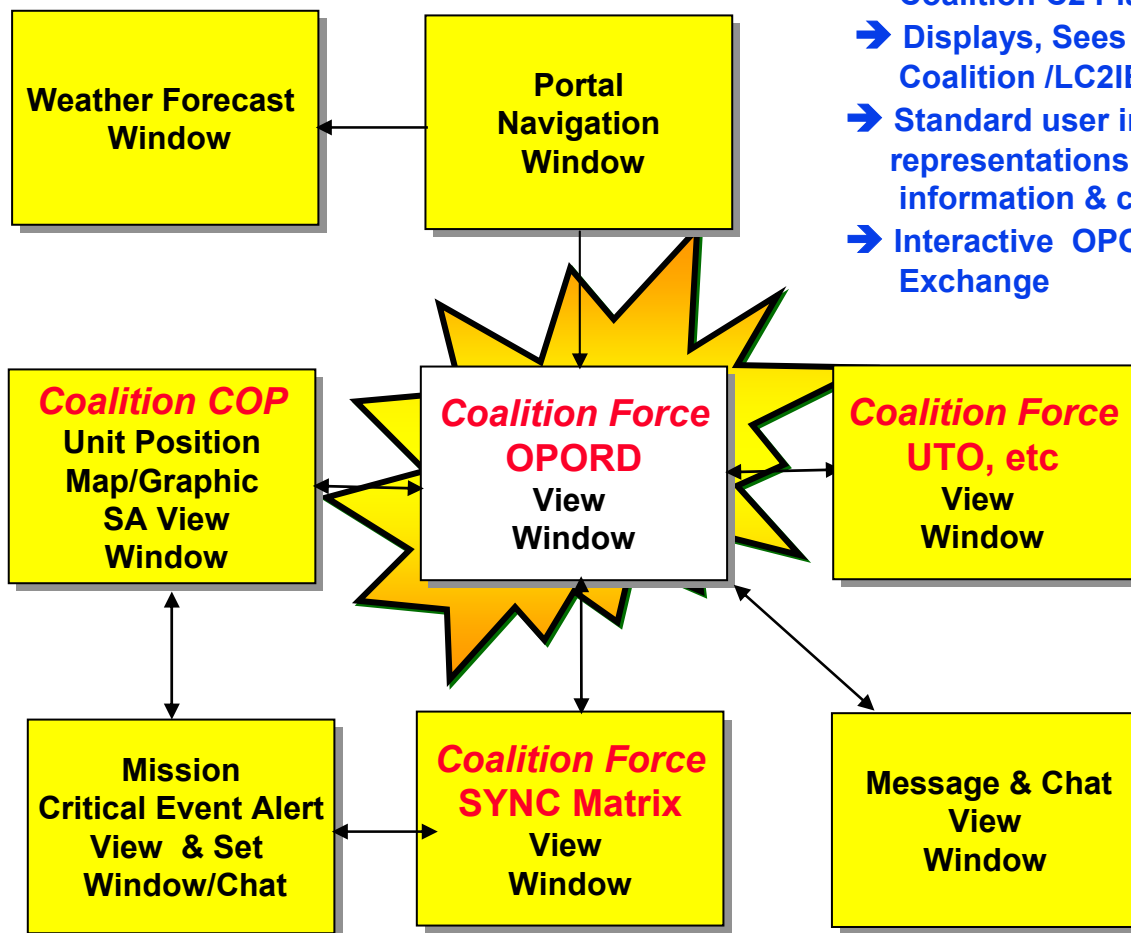
longitude: -97.77384 latitude: 31.15754

Internet

CECOM Bottom Line: THE WARFIGHTER



The Web-based Collaboration Portal (WCP)



- ➔ Gateway between National & Coalition C2 Planning Systems
- ➔ Displays, Sees and Operates on only Coalition /LC2IEDM Information
- ➔ Standard user interfaces & information representations for exchange of planning information & concepts (BML, Graphics,etc)
- ➔ Interactive OPORD building and Info Exchange



SINCE WCP Interactive OPORD Development (Collaboration & Common Battle Command Language)



- To facilitate the interactive development of a coalition OPORDs using Web-based technologies and standards we are
- Using XML documentation specifications and constructs
 - Creating XML document instances via core XML Specifications (Style/Schema)
 - Parsing natural language OPORD text and graphics in terms of a *Battle Command Language* using a W6H Reference Model
 - Formalizing a common coalition ontology that will enable common understanding of OPORD tasks, missions, concepts, etc. by coalition partners
 - Applying this ontology to support interactive collaboration
 - Using the planning ontology and XML constructs developed under the Agile Commander/CAPES efforts
 - Also coordinating with SIMCI on their BML and C4ISR reference model development effort and leverage as it becomes available



WCP Supports Real-Time Collaboration & Info Exchange between Coalition Force Planners



The screenshot displays a complex web-based interface for mission planning. At the top, there are status bars for '091616ZMAR97', 'UTO: 1', 'Unclassified', 'FORTIRWI', '1:100k', '1/2x', 'Re-center', and 'Help'. Below these are buttons for 'Ops Ovlly 081708ZMA', 'Obs Ovlly 062321ZMA', '43329 09658', '66 STARWARS', 'COMM A', 'VEH STAT', 'OPS', and 'BCIS'. A central map shows a terrain view with blue lines and markers. Several tool windows are overlaid: 'Control Measure Editor', 'Mission Editor', 'Unit Editor', and 'Execution Monitoring'. The 'Execution Monitoring' window shows a Gantt-style chart with multiple colored bars representing task timelines. At the bottom, there are buttons for 'Print', 'Ack Log', 'Filters', and 'Menu'.

Task Force Eagle Web-Base
 File Edit View Go Communica
 Back Forward Reload

Task Force Eagle Web-

Select the Situation Map of Interest

- [Bosnia/Herzegovina](#)
- [MND \(N\) AOR](#)
- [Comanche AOR](#)
- [Demi AOR](#)
- [Dobol AOR](#)
- [McGovern AOR](#)



Staff Applications

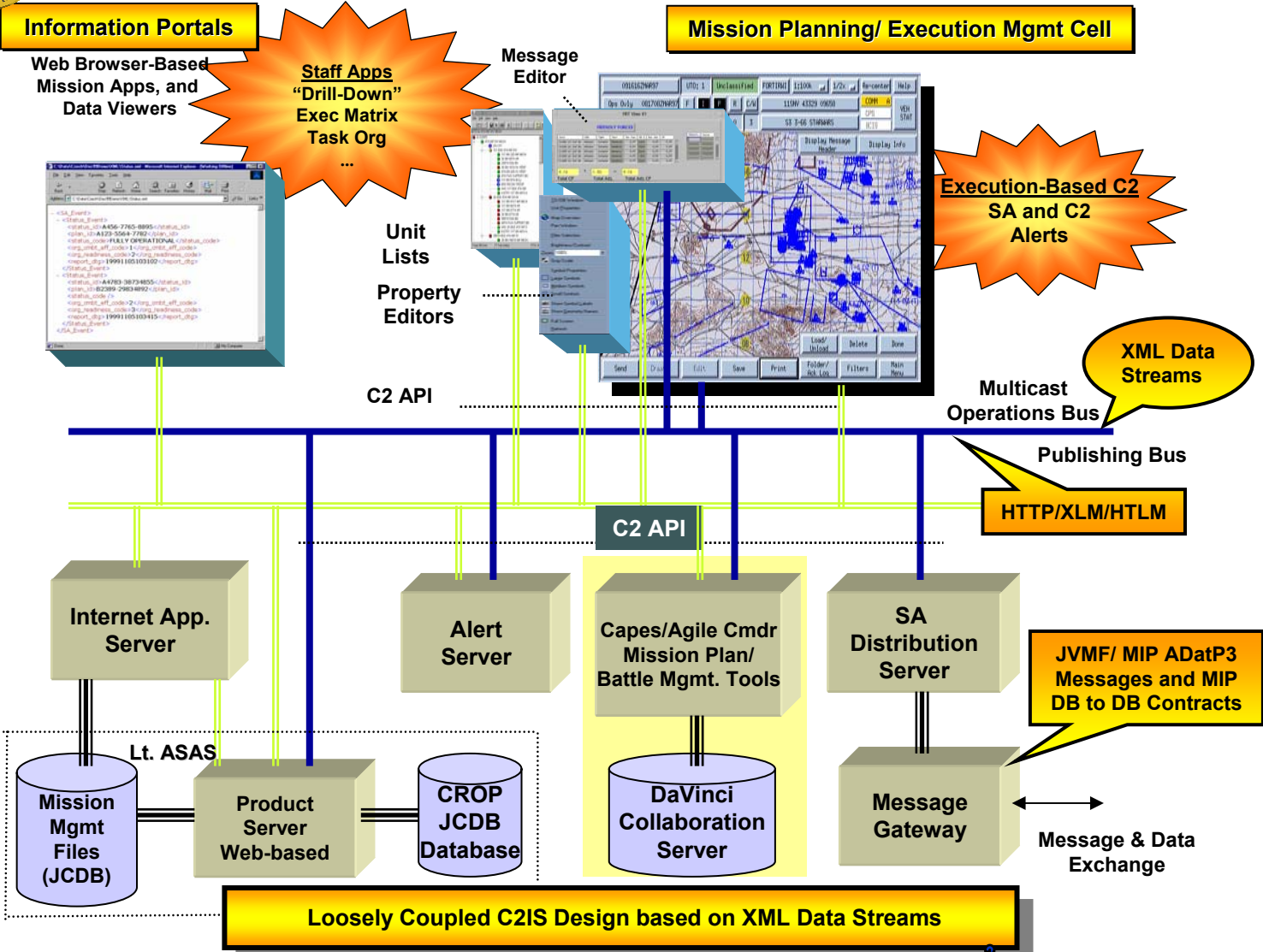
Message

Resource Reports

What:
 When:
 Where:
 Why:



US Emulated Objective Force & FCS C2 Systems



Staff Apps
"Drill-Down"
Exec Matrix
Task Org
...

Execution-Based C2
SA and C2
Alerts

XML Data
Streams

HTTP/XML/HTML

JVMF/ MIP ADatP3
Messages and MIP
DB to DB Contracts

Loosely Coupled C2IS Design based on XML Data Streams

CECOM Bottom Line: THE WARFIGHTER



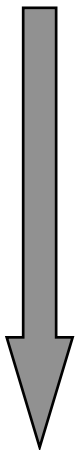
Combined Arms Planning & Execution Monitoring System (CAPES)



CAPES – C2 Toolset enabling the commander and staff to rapidly and effectively plan/monitor/replan combined arms (e.g. maneuver, fires, logistics) operations

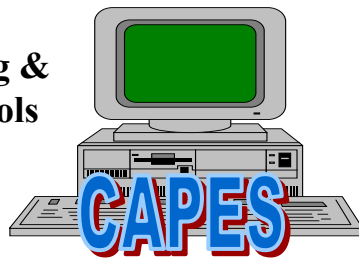
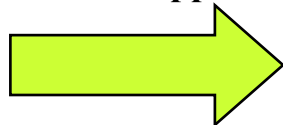
Planning

- Mission Analysis
- COA Development
- COA Analysis
- COA Comparison
- COA Approval
- Orders Generation

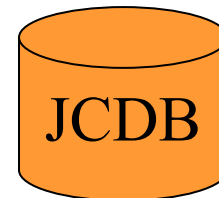
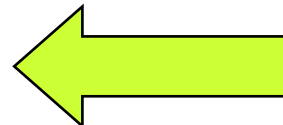


Military Decision Making Process

Automated Reasoning & Decision Support Tools



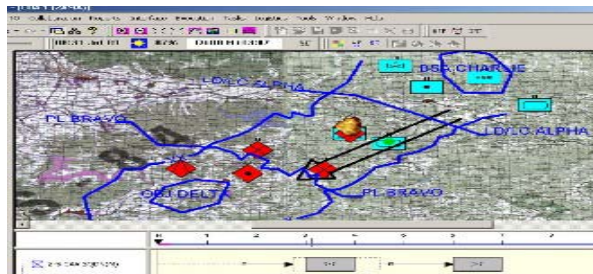
Tactical Picture & Execution Alerts



Monitor Joint Common Database for Plan Contingencies

Visualization & Collaboration

- Map Background
- Mil Std Graphics
- COA animation



- Horizontal Plan Collaboration
- Vertical Plan Collaboration



FY 03 SINCE Tasks



- **Task 1: Experiment 1 Program Management and Schedule Tracking**
 - Program execution management, milestone & schedule tracking, documentation
- **Task 2: SINCE C2Sim Proxy Server Development**
 - Expand capability of Feasibility Prototype to meet Experiment 1 needs
 - Multiple types of MIP C2 message, LC2IEDM DB replication data contracts, M&S HLA Object data and Plan graphics/overlay information exchanges
- **Task 3: Command & Control (C2) Planning Cell Definition and Implementation**
 - Integration of C2 systems & software to meet Experiment 1 needs
 - Expand capability of Web-based Collaboration Portal (WCP) Prototype to support Mission Planning/Mgmt. Information Exchange needs of Experiment 1
- **Task 4: Operational Working Group (OWG) Documentation Dev. Tasks**
 - Define Experiment 1 Operational scenario, functions & testing requirements
 - Develop Operational Implementation Plan and Operational Test Plan
- **Task 5: Technical Working Group (TWG) Documentation Dev. Tasks**
 - Define Technical Implementation Concept, requirements and architecture
 - Develop Technical Implementation Plan, Integration Plan and Test Plans

(Tentative SINCE Technical Experiment 1a Target Dates - Nov 2003)

(Tentative SINCE Operational Experiment 1b Target Dates - Apr 2004)



Key FY 03 SINCE Products/Effort Timelines



Documentation Products

- **US/GE SINCE Project Agreement** (*Signed -11/24/02*)
- **Program Implementation Plan & Schedule**
(*PIP approved 11/15/02, Schedule revised 4/31/03*)
- **Operational Implementation Plan (OIP)** (*7/1/03*)
- **Operational Test & Evaluation Plan (OTEP)** (*9/8/03*)
- **Operational Experimentation Plan (OEP)** (*8/8/03*)
- **Technical Implementation Plan (TIP)** (*8/11/03*)
- **Technical Test & Evaluation Plan (TTEP)** (*10/6/03*)
- **Technical Experimentation Plan (TEP)** (*9/8/03*)
- **Program Security Instruction** (*Approved- 4/31/03*)
- **Technical Experiment 1A Final Report** (*12/16/03*)
- **Operational Experiment 1B Final Report** (*6/8/04*)

Technical & Experiment Support Activities

- **C2Sim Proxy Server Implementation & Info Exchange Interoperability Testing (US)**
(*Integration- 6/9-8/4/03; Testing-8/5-8/25/02*)
- **C2 Cells & WCP Implementation & Functional/Interoperability Testing (US)**
(*Integration ; 6/9-8/28/03 Testing- 8/29-9/26/03*)
- **Experiment 1A Combined US/GE Technical Integrated Systems Testing** (*11/10-11/13/03*)
- **Experiment 1B C2 Cell & M&S Sys. Operator Training** (*3/4-3/12/04*)
- **Conduct of Technical Experiment 1A**
(*Greiding, Germany*) (*11/10-11/21/03*)
- **Conduct of Operational Experiment 1B**
(*US- TBD maybe Trans-Atlantic*) (*4/19-4/29/04*)
- **Dignitary Briefing and Demonstration**
(*4/30/04*)



Summary and Conclusions



- The goal of SINCE is to demonstrate and transition a Collaborative Suite of C2 Support Tools that:
 - Capable of supporting coalition force operations (across conflict spectrum)
 - Compliant with evolving network centric, Objective Force/FCS concepts, tactics, techniques and procedures (TTP), doctrine, architecture & Army DII-COE.
 - Integrate/incorporate use of real-time CROP Situation Awareness (SA) and collaboration to promote better, common understanding of an Operation's execution between coalition force partners.
 - Demonstrate/evaluate interface mechanisms that enable C2 Information systems to use M&S systems in support of Coalition-Force COAA and Mission Rehearsal
- Provide prototype, “state of the art”, Web/XML based Information Portal capability enabling/ supporting exchange of real-time CROP SA, planning and battle management information with coalition Partners having nation-specific C2I systems
- Refine Coalition Force Operational Procedures and experience with alternate and new ways of achieving interoperability



SINCE Project Synopsis



• OVERALL OBJECTIVE:

- Refine, experiment and demonstrate improved collaborative C2 Mission Planning & Mgmt Decision Support Tools tuned to support "On the Move" coalition operations.
- Develop and demonstrate interoperable Web-based Coalition COP Info Exchange and Collaboration capabilities tuned to support SASO & Peace Keeping Ops.
- Develop and demonstrate a Web-based, Xml-oriented, digitized OPORD/FRAGO information exchange tool supporting continuous coalition collaborative planning activities using a common Battle Management Language ontology.
- Implement a reusable, flexible, cost-effective R&D network of C2I, M&S, & Decision systems designed to support Coalition Ops concept evaluation, experimentation and mission rehearsal activities.

• **PRODUCTS:** Suite of Collaborative, Web-based C2 Collaboration, Information Portal and C2Sim Proxy Server software for exchange of Coalition Common Operating Picture (CCOA) situation awareness and Demo of Common C2I & M&S systems info exchange interface for support of multi-nation experiments.

• **OUTPUT/EXIT CRITERIA:** Experiments demonstrating better, faster, more accurate Coalition Ops decision support, current is manual; goal fully automated; minimum is greater than 50% automated. Incremental ATD & PEO software drops every 18 months

C2D PROJECT TEAM:

US PROGRAM MGR: Dr. Dirk R. Klose
PROJ ENGR: Dr. Mayk, H. Negaran, A. Chan, J. MAI, G. Kainz
M&S ENGINEER: Greg Ilaria
PLATFORM/INTEGRATION ENGR: NA
PROTOTYPING ENGR: NA
POWER ENGR: NA
FINANCIAL REP: Ms. Mary Mellone

Outside CECOM Team Members:

TRADOC:

MMBL (Ft. Knox): David Estes
BCBL (Ft. Leavenworth): Col Hiemstra

Support Contractors:

- Gestalt Inc.(C2Sim Proxy Server Integration)
- LNK Corp with Austin Info Inc. (C2 COP)
- Mak Inc. (M&S HLA Support/Integration)
- Viecore Inc. (Capes & C2 System Implementation)
- Farance Inc & I-Logic (Web Doc/UML Support)
- GS Research LLC(Karl Gunzelman & Langston BCBL/MMBL Support)



Backup Slides



SINCE Program Focus and Goals



The focus of US/GE SINCE experimentation activities:

- Conduct of Collaborative Mission Planning and Execution Management activities as needed to support Objective Force/FCS coalition force operations at the Brigade and Battalion levels.
 - ⇒ Improved Information Exchange and Situation Understanding leveraging evolving solutions e.g. MIP, LC2IEDM, etc.
 - ⇒ **Streamlined Decision Making Process for Coalition OPs**
- Demonstrate Common International Information Exchange Interface supporting connection of C2 Information Systems (C2IS) and Modeling and Simulation (M&S) systems used in experiments
- Integrate M&S into the Coalition OPs Decision Making Process

SINCE Operational Program Goals are to:

- Provide Coalition Force Commanders with improved means for
 - ⇒ **Visualizing and Understanding the Coalition Battle Space**
 - ⇒ **Conducting Collaborative Ops Management Activities**



Significant FY03 Accomplishments



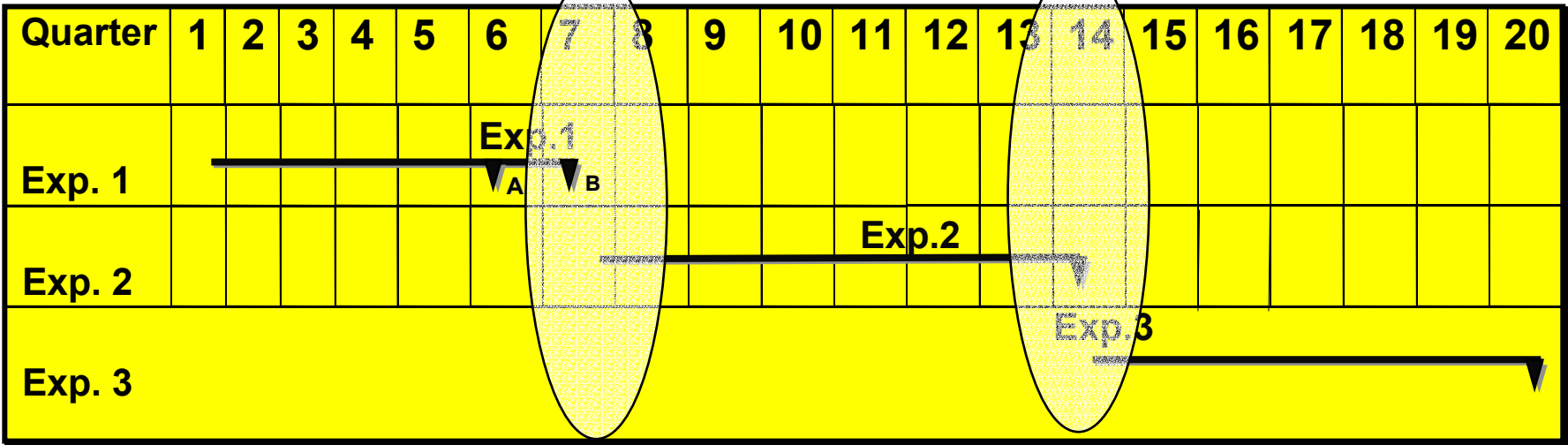
- **US/ GE SINCE Project Agreement**
 - Mr. Craig Hunter, Deputy Assistant Secretary of the Army for Defense Exports and Cooperation, OASA(AL&T) signed Agreement 26 Sept 02.
 - Dr. K. Schoenback, Präsident IT-Amt BWB, signed agreement on 25 Nov 02
- **US/GE SINCE Program Security Instruction (PSI)**
 - SINCE Program Security Instruction was completed during the 28-31 Apr 03 PMG Meeting and sent out for national staffing
- **Program and Milestone Schedule**
 - Revised Program and Milestone Schedule was approved 28-31 Apr 03 PMG Meeting
- **SINCE C2Sim Proxy Server**
 - SINCE Experiment 1 C2Sim Proxy Server Implementation Concept approved 28-31 PMG Meeting
- **TWG & OWG defined SINCE Experiment 1 Technical Test Bed Configuration**
 - SINCE Technical Experiment 1A Test Bed Configuration approved 28-31 PMG Meeting
- **Operational Implementation Plan (OIP) & Scenario for Experiments 1A & 1B**
 - PMG approved current draft and directed final, completed product be delivered 31 June 03
- **Detailed XML tagged representation and data mapping** of MIP/LC2IEDM ADatP3 messages and the Coalition OPORD completed. M&S **HLA FOMS mapping** is still in progress.
- **SINCE Web-based Doc** went operational May 03.



SINCE Experiment Schedule & Perspective



Other Nations Participation



2003/04

2005/06



Summary and Conclusions



- The goal of the US is to demonstrate and transition to PEO C3S, ABCS PMs, FCS and Objective Force C2I System PMs a Collaborative Suite of Mission Planning, Execution Assessment, Dynamic Re-Planning and Decision Support Tools that:
 - ⇒ Have been **harmonized and validated to support coalition force operations** (Both Traditional and Stability and Support Operations)
 - ⇒ **Compliant with evolving network centric**, Objective Force/FCS Mission Planning, Execution & Battle Management **concepts, tactics, techniques and procedures (TTP)**, doctrine, architecture & Army DII-COE
 - ⇒ Integrate/incorporate **use of real-time CROP Situation Awareness (SA) and collaboration to promote better, common understanding** of an Operation's execution between coalition force partners
 - ⇒ **Demonstrate/evaluate interface mechanisms enabling C2 Information systems to use M&S systems in support of COAA and Coalition Force Mission Rehearsal**
 - ⇒ **Specification, demonstration and evaluation of a common, bi-directional interface enabling/supporting international experimentation in collaborative. coalition force C2 Mission Planning/Battle Management CPX's**
- **Demonstrate** of a “state of the art”, **Web/XML based Collaboration Portal capability enabling/supporting exchange of real-time CROP SA information with coalition Partners** having on rudimentary C2I systems
- **Refine Coalition Force Operational Procedures** and experience **with alternate and new ways of achieving interoperability**