Joint
Countermine
Operational
Simulation

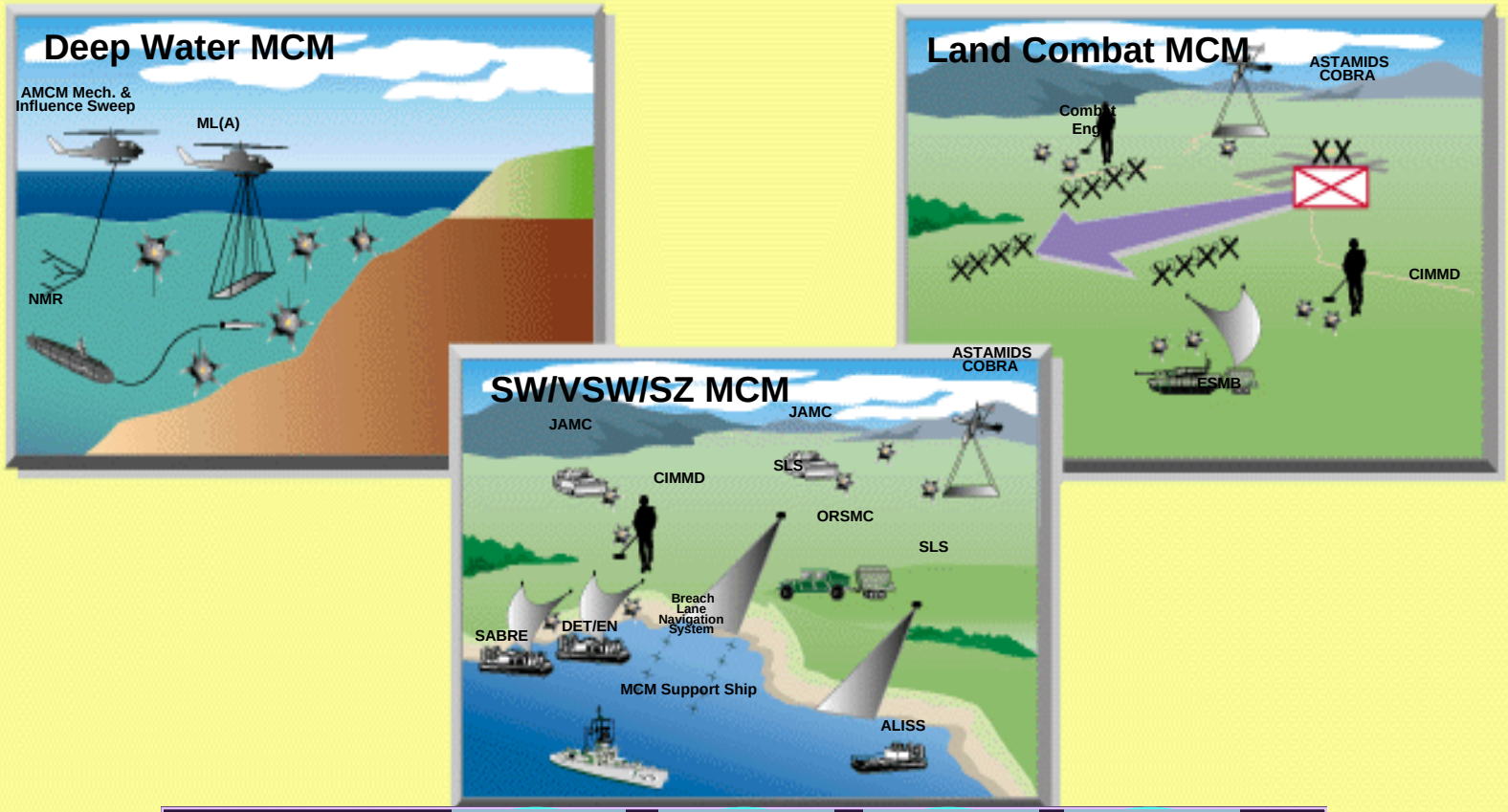
Use of Advanced Distributed Simulation for Analysis

Agenda

- JCOS Objective Background
- VV&A
- Analytic Case Comparison
  - Army Operations: Heavy Force Breach
- Exercise Management and Control
  - Naval Operations: Amphibious Assault
- After Action Review System
- Closing Remarks

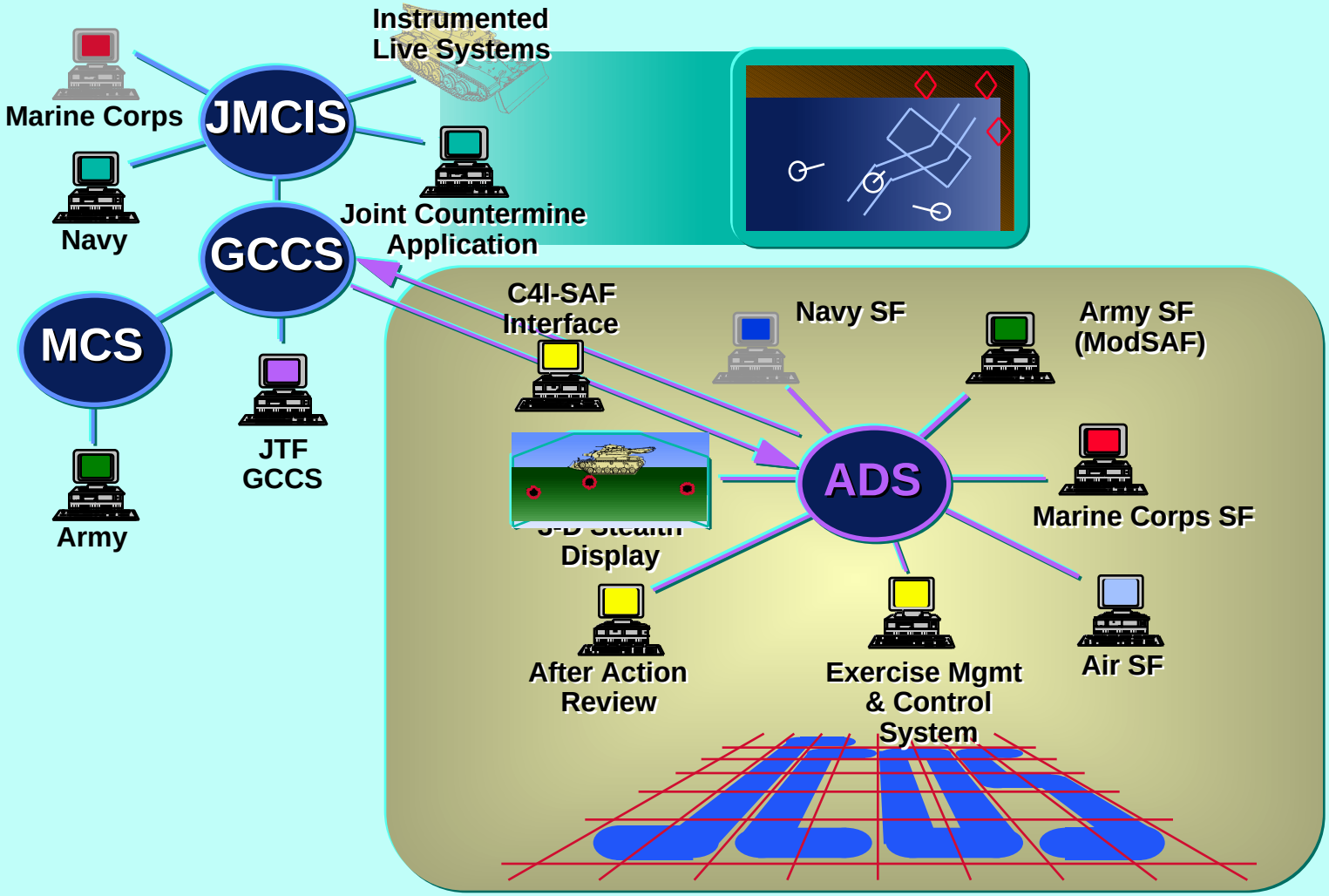
The JCOS Vision

Vision: Seamless transition of countermine capabilities from sea to land operations

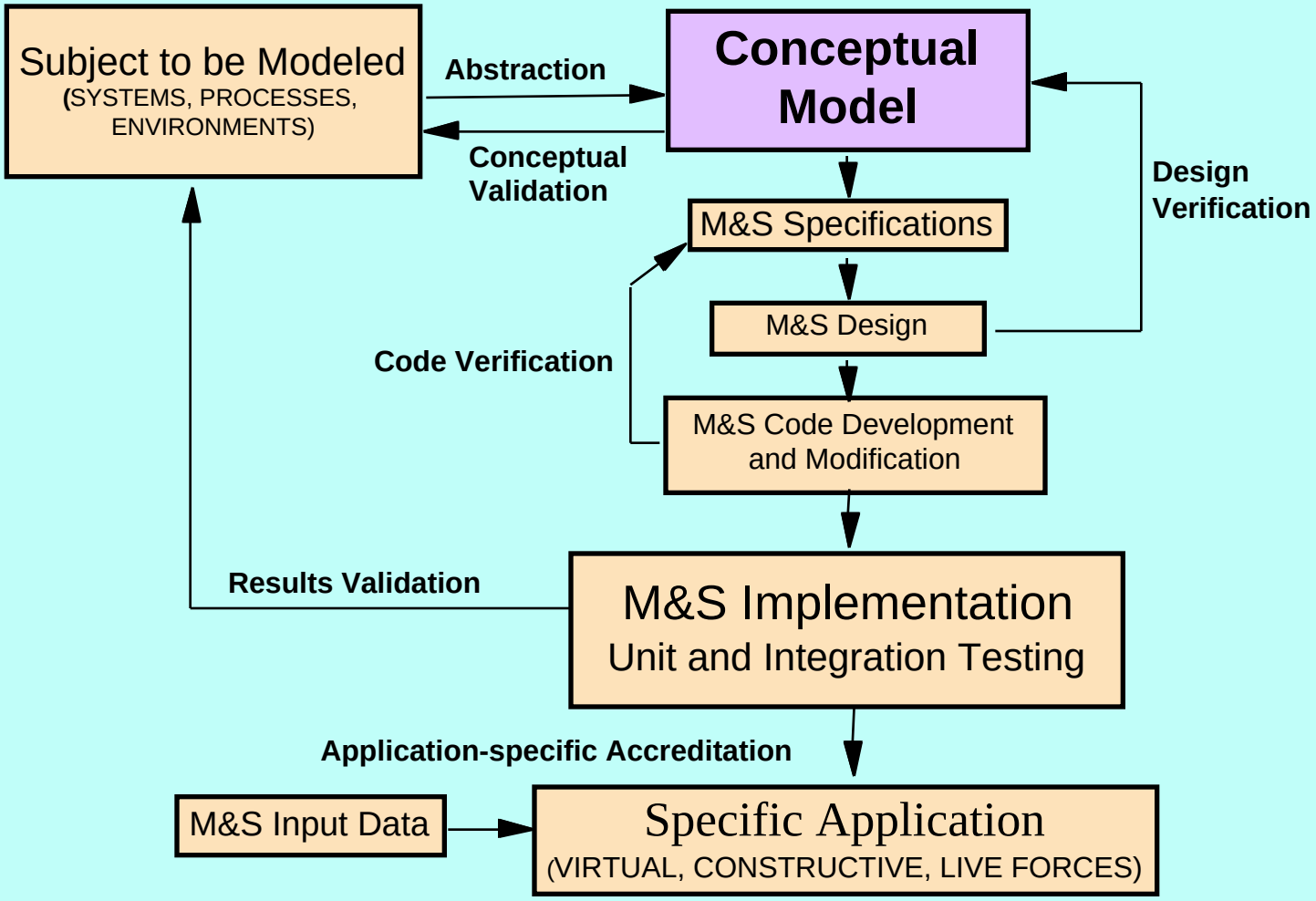


Supports | Training | Planning | Mission Rehearsal | Acquisition

The JCOS Components and C4I Relationship

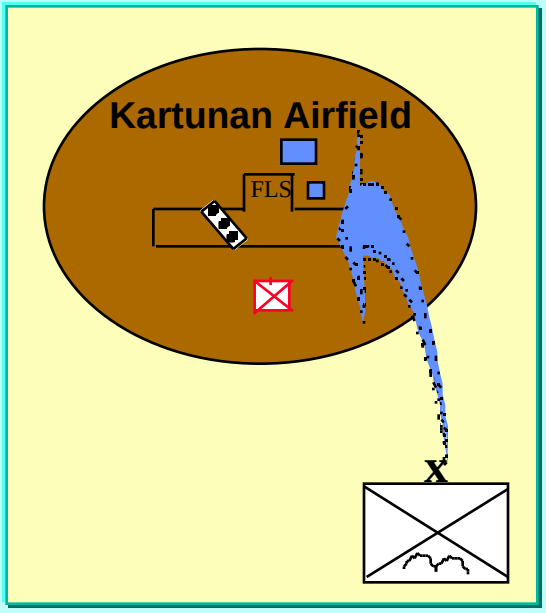


JCOS VV&A Process

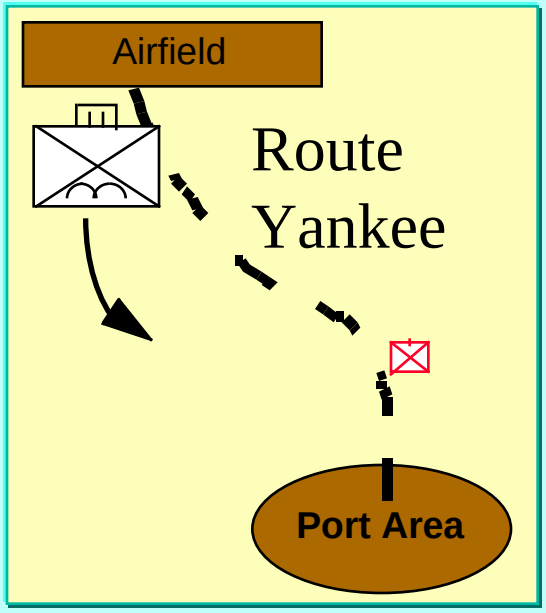


ARFOR Scenarios
Heavy and Light Force Operations

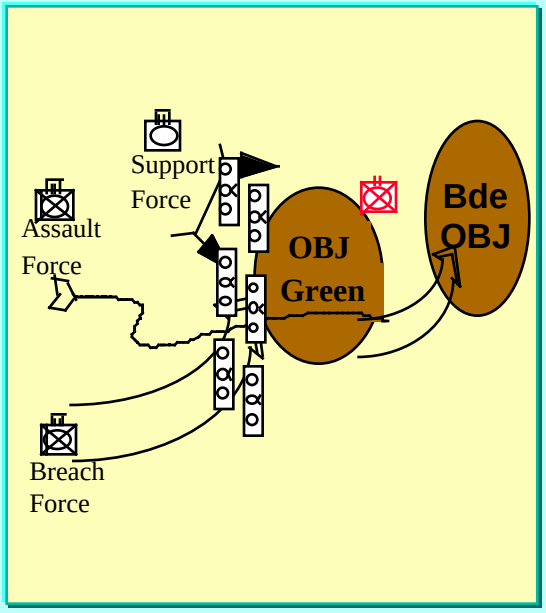
Light Force Airfield Seizure



Light Force Route Clearance



Heavy Force Border Breach

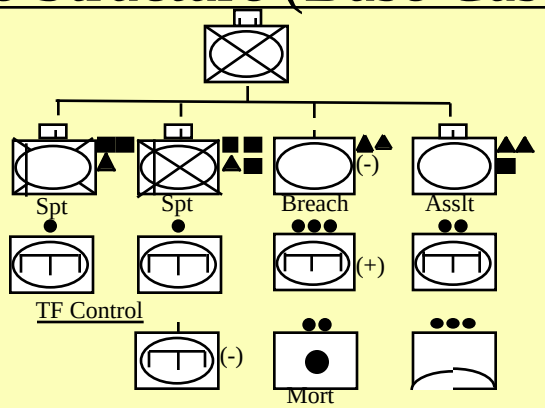


Simulation Support Planning

Essential Elements of Analysis

1. What are the threats to force mobility?
2. What is the impact of ASTAMIDS?
3. What is the impact of ASTAMIDS/ESMB?
4. What is the impact of MMCM?
5. What is the impact of Grizzly?
6. What is the survivability of each system?

Force Structure (Base Case)



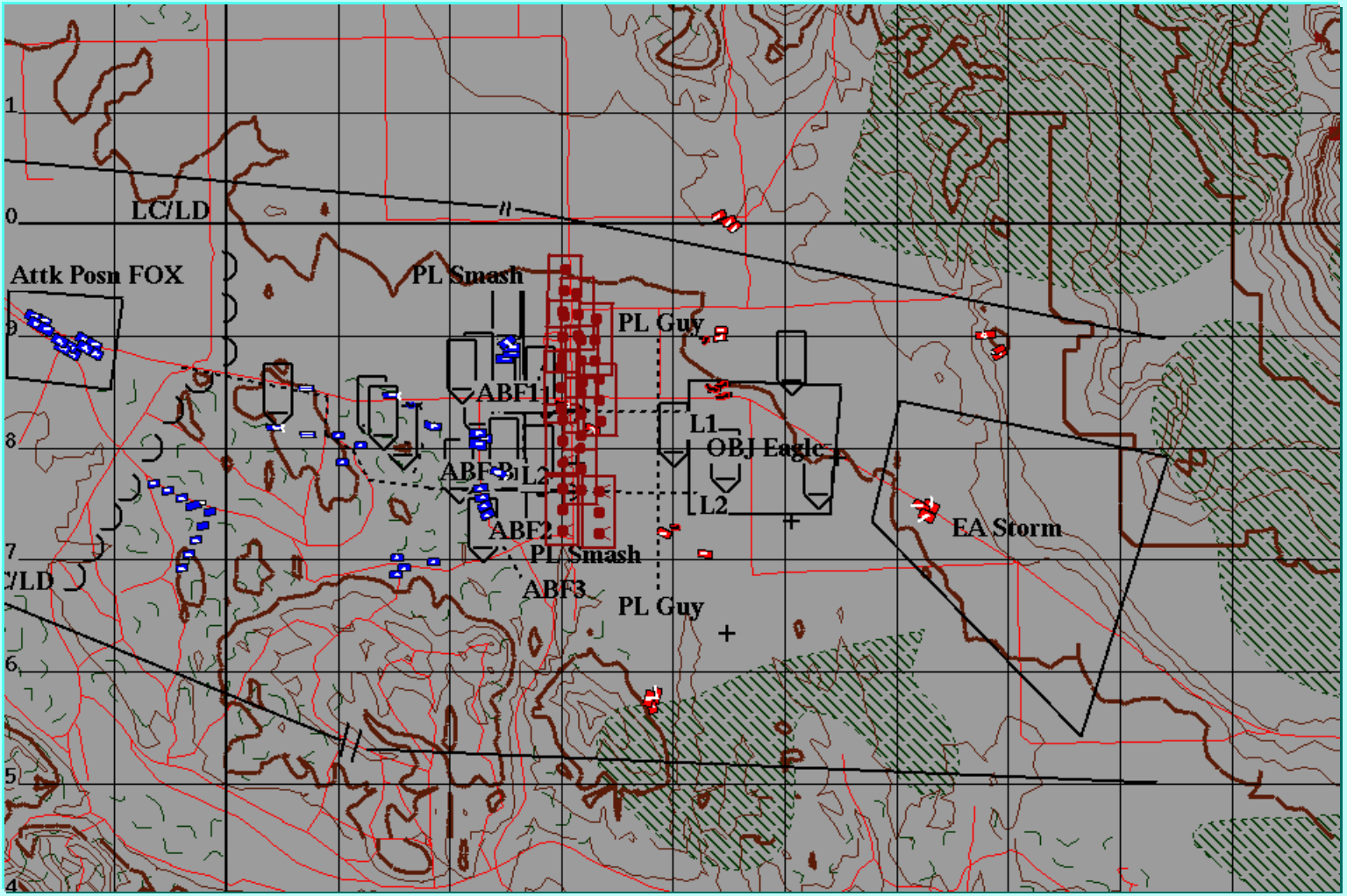
Measures of Effectiveness

1. Time to conduct aerial recon
2. Percent of minefields detected
3. Number of breached lanes created
4. Time to bypass or breach obstacles
5. Countermine system survivability
6. Time to reach attack objective
7. Bn TF survivability

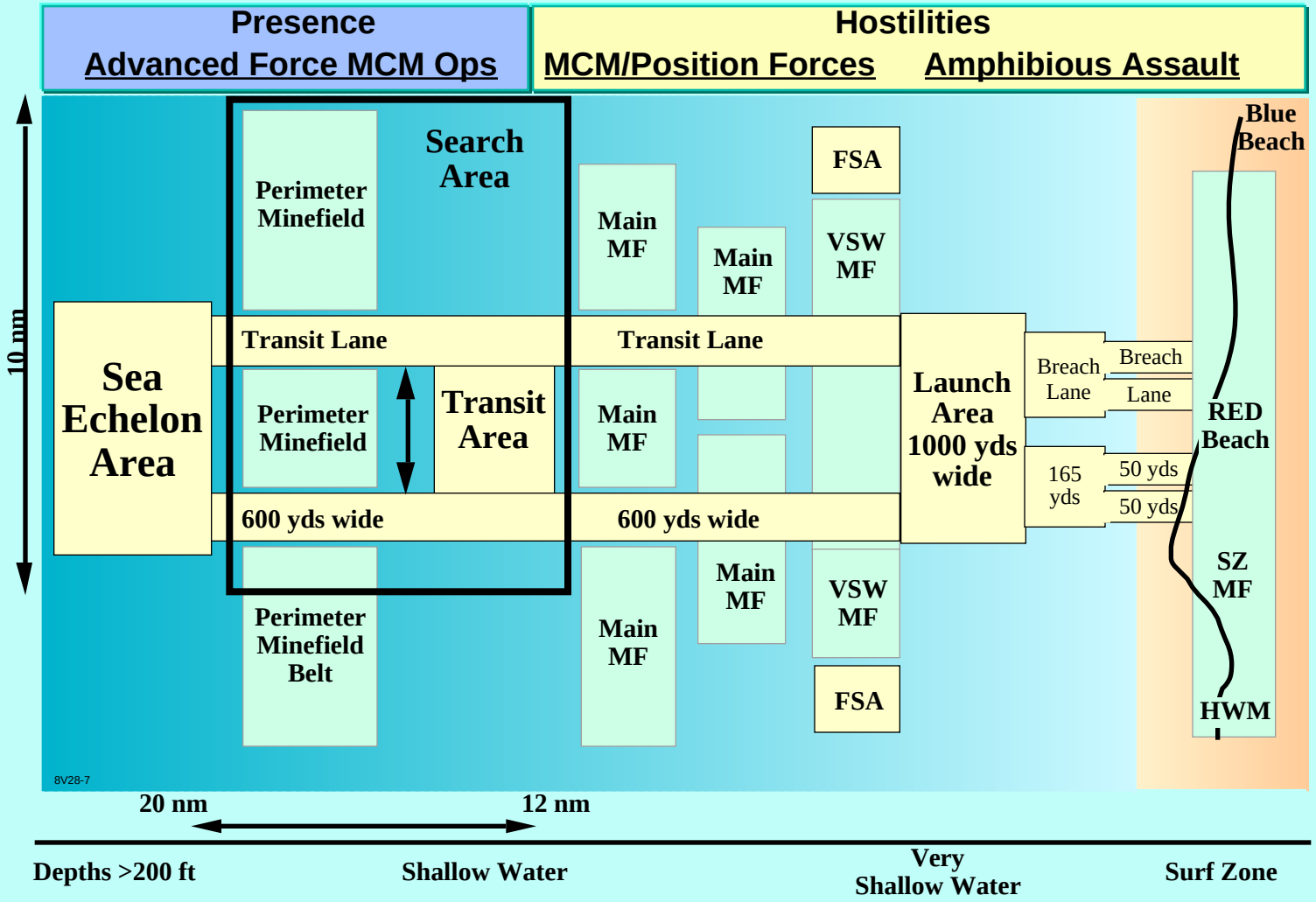
Analysis Runs Matrix

	Force Threat			
	MRC		MRC(+Scat)	
	Mine Laydowns			
	I	II	I	II
Base case	**4**	**4**	**4**	**4**
Novel case1		**4**		**4**
Novel case2	**4**	**4**	**4**	**4**

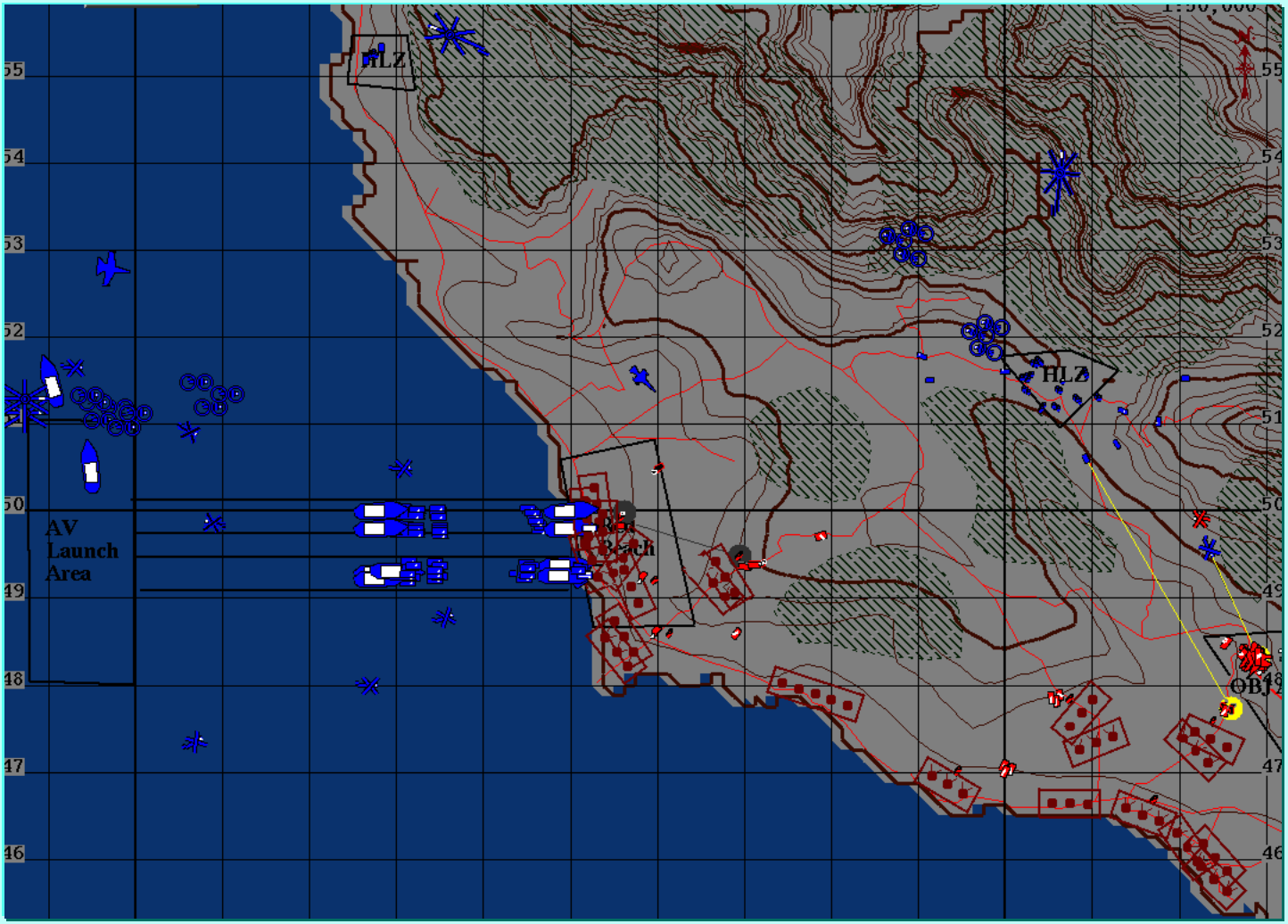
Army Heavy TF Attack
Base Case Scenario (Legacy Systems)



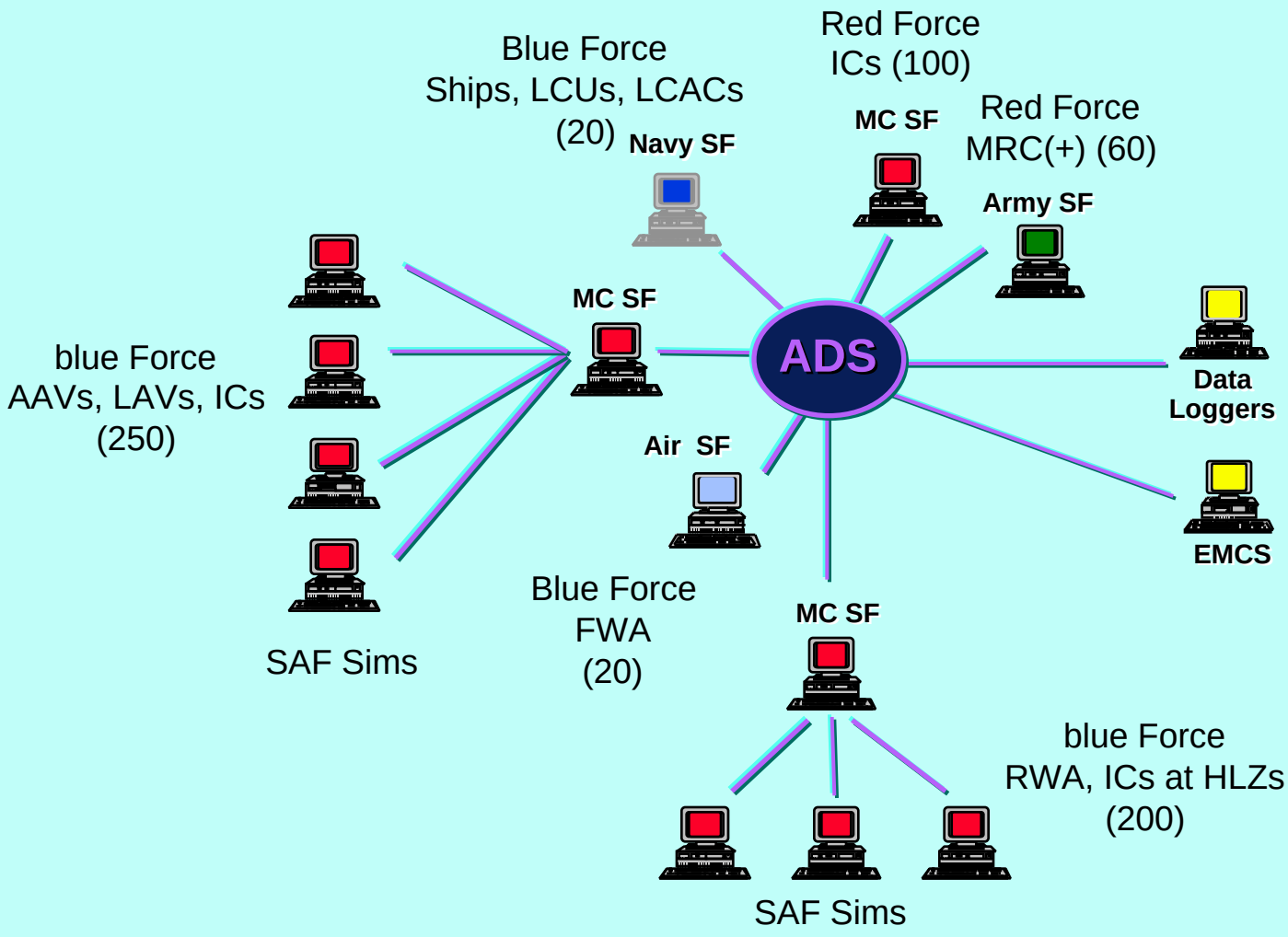
NAVFOR/MARFOR Scenario Presence/Hostilities Phases



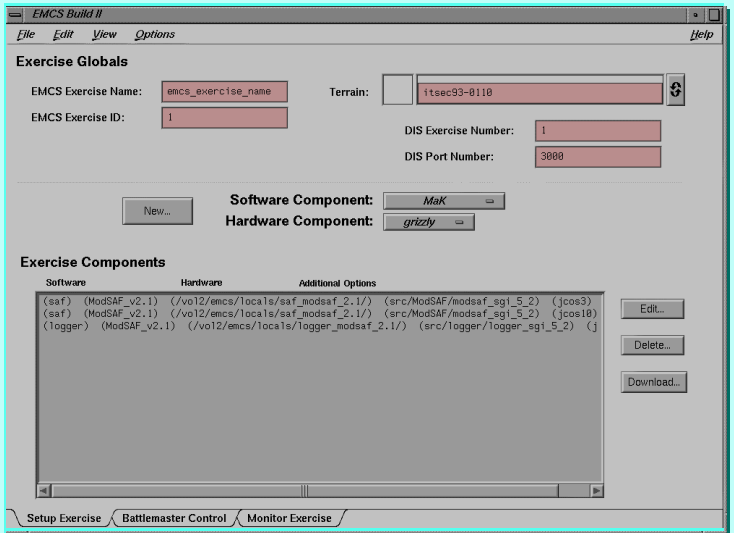
Amphibious Assault Simulation

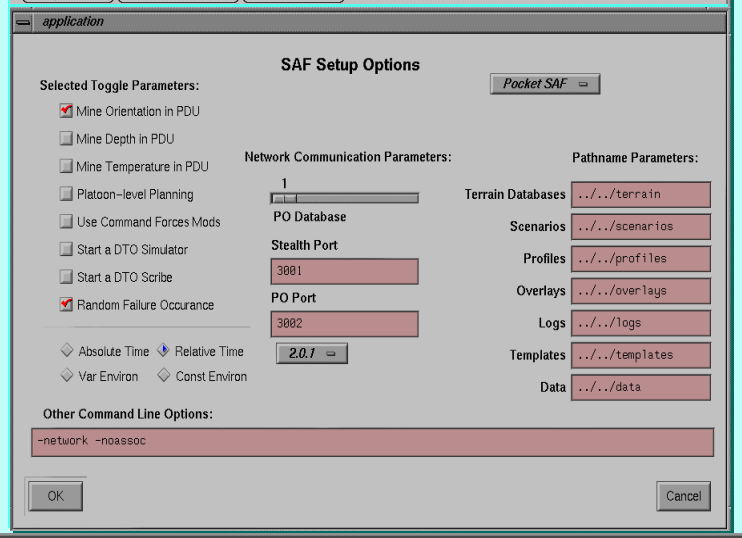


ADS Federation
Regimental Landing Team Scenario

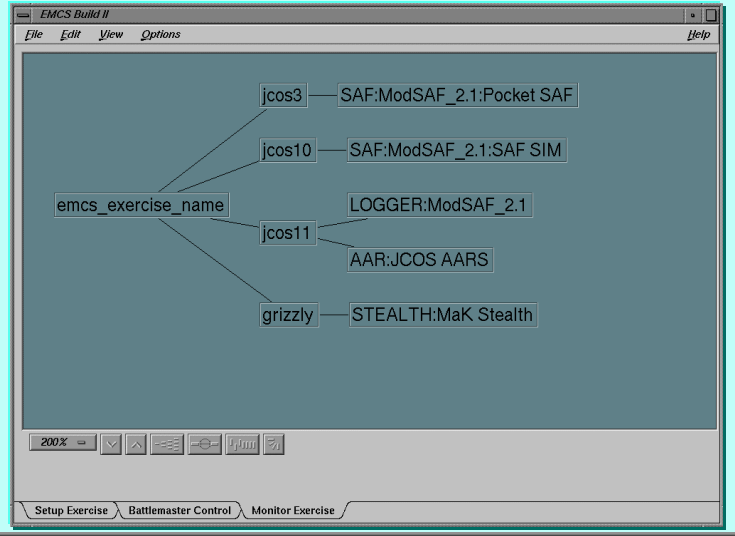


Exercise Management and Control System Functions





- 0 **Set-up Exercise**
- 0 **Set-up Simulations**
- 0 **Monitor Exercise**
- 0 **Control Exercise**
- 0 **Save Configuration**



The JCOS AARS Functions Enabled in Netscape 3.0 Browser

- Exercise Planning and Preparation

- Data Extraction

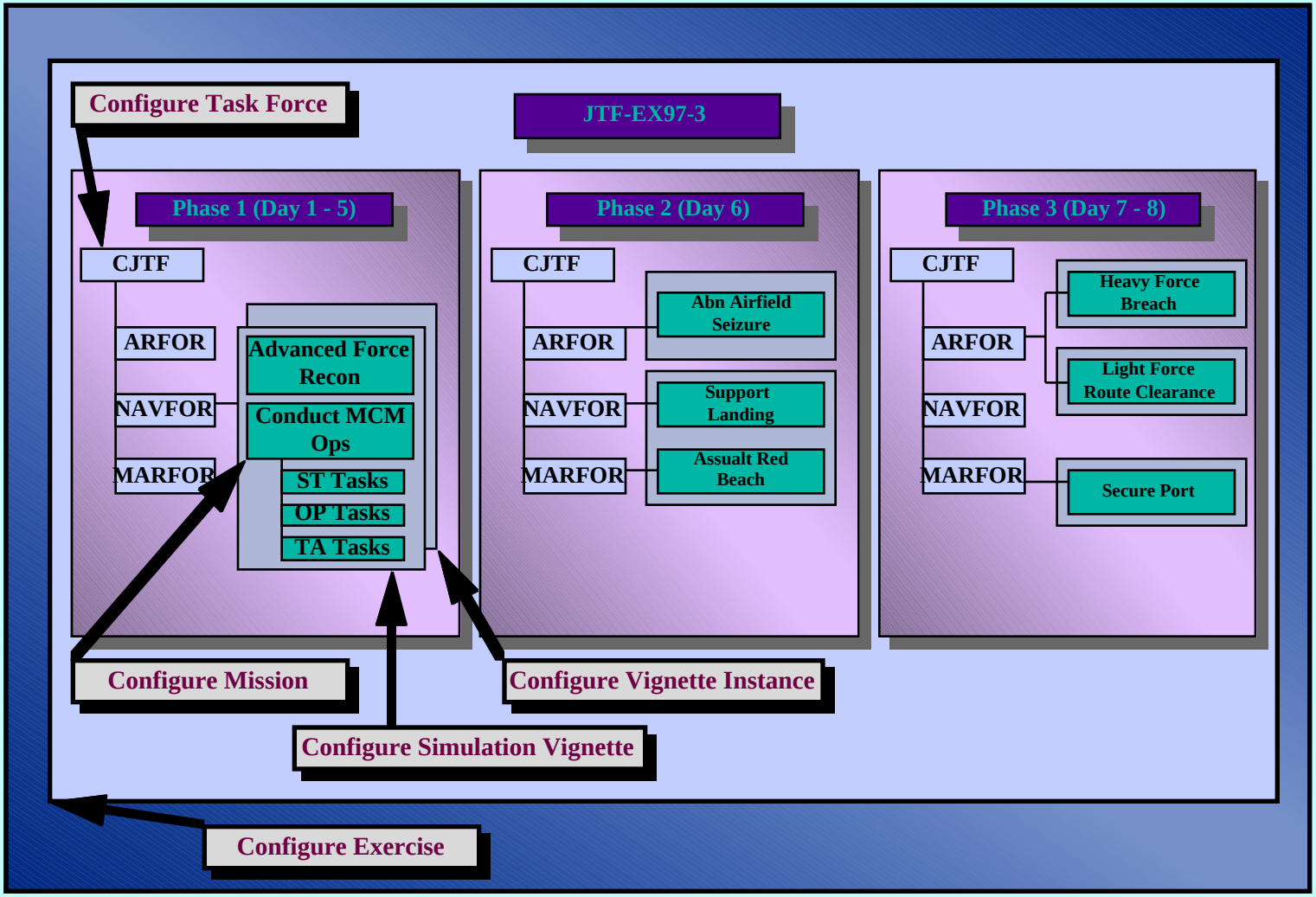
- Performance Evaluation

- Data Analysis

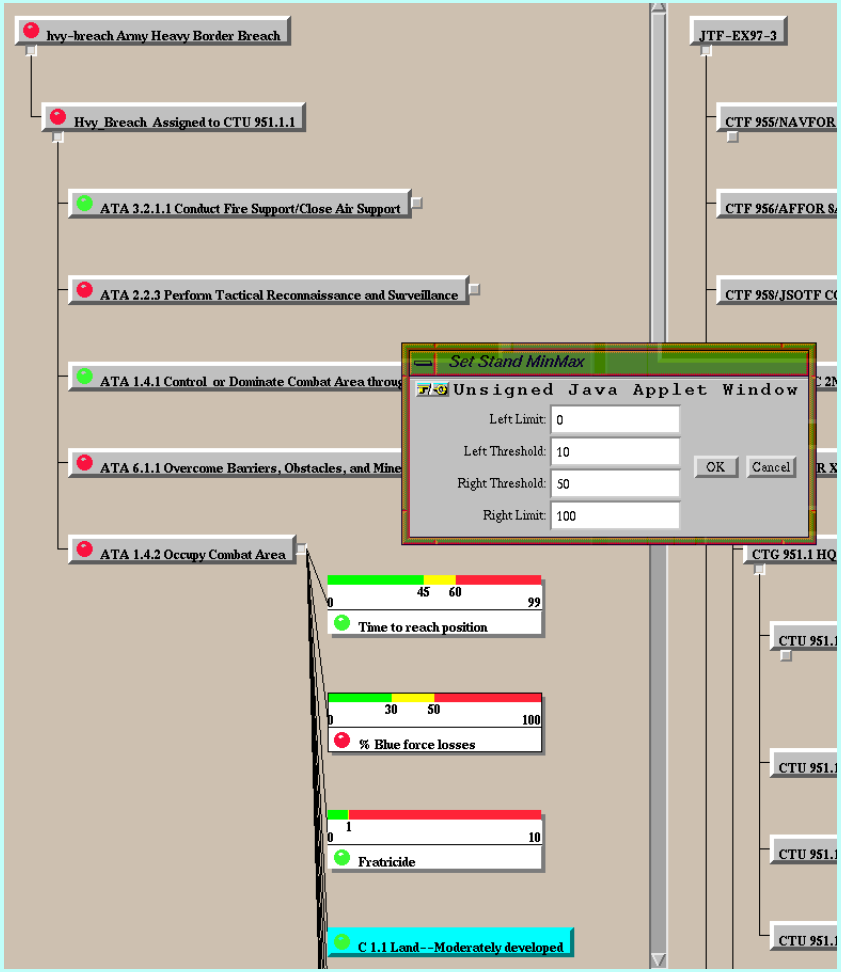
- Observer/Controller

Others
Data Dictionary
Presentation
Administration

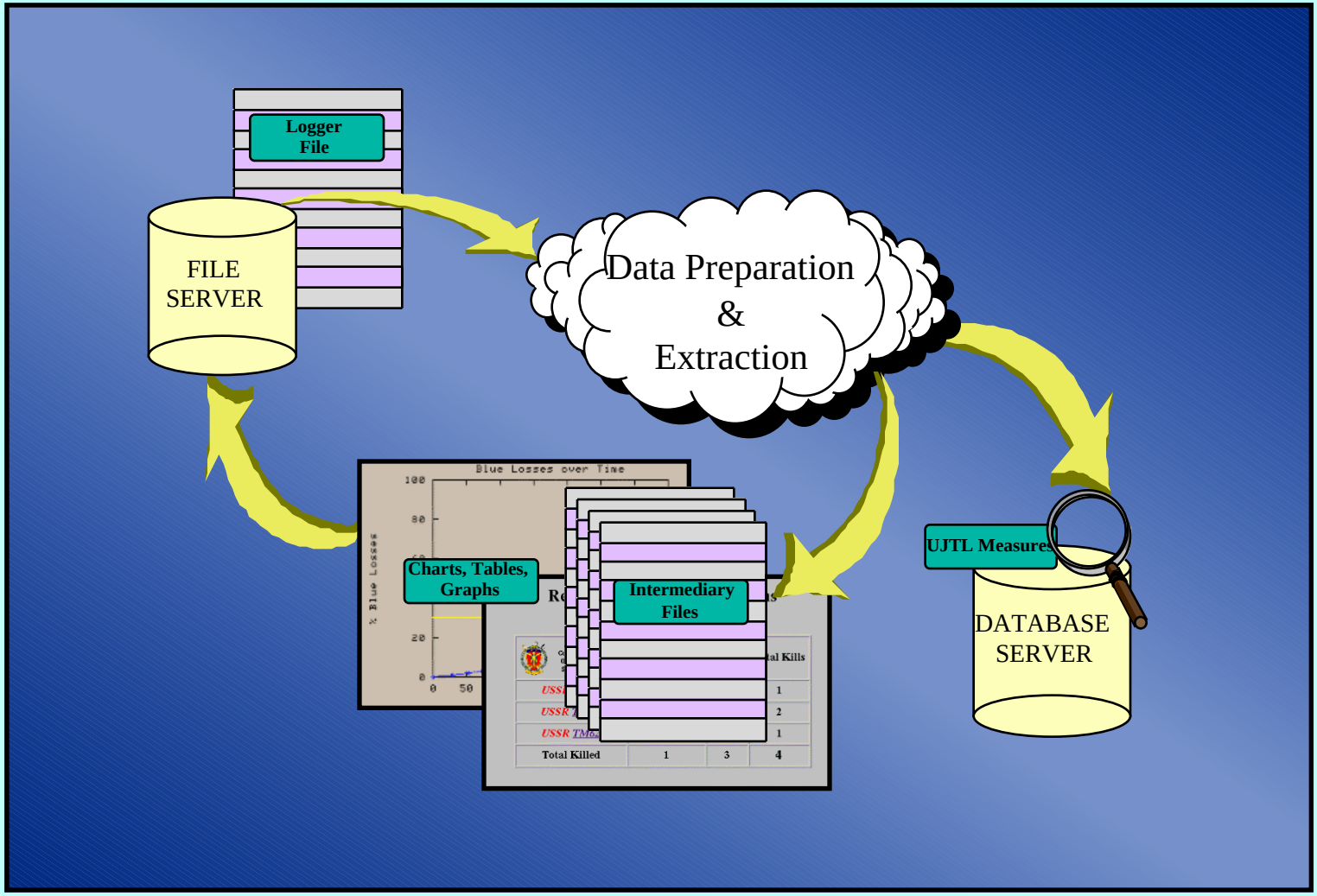
Exercise Preparation and Planning



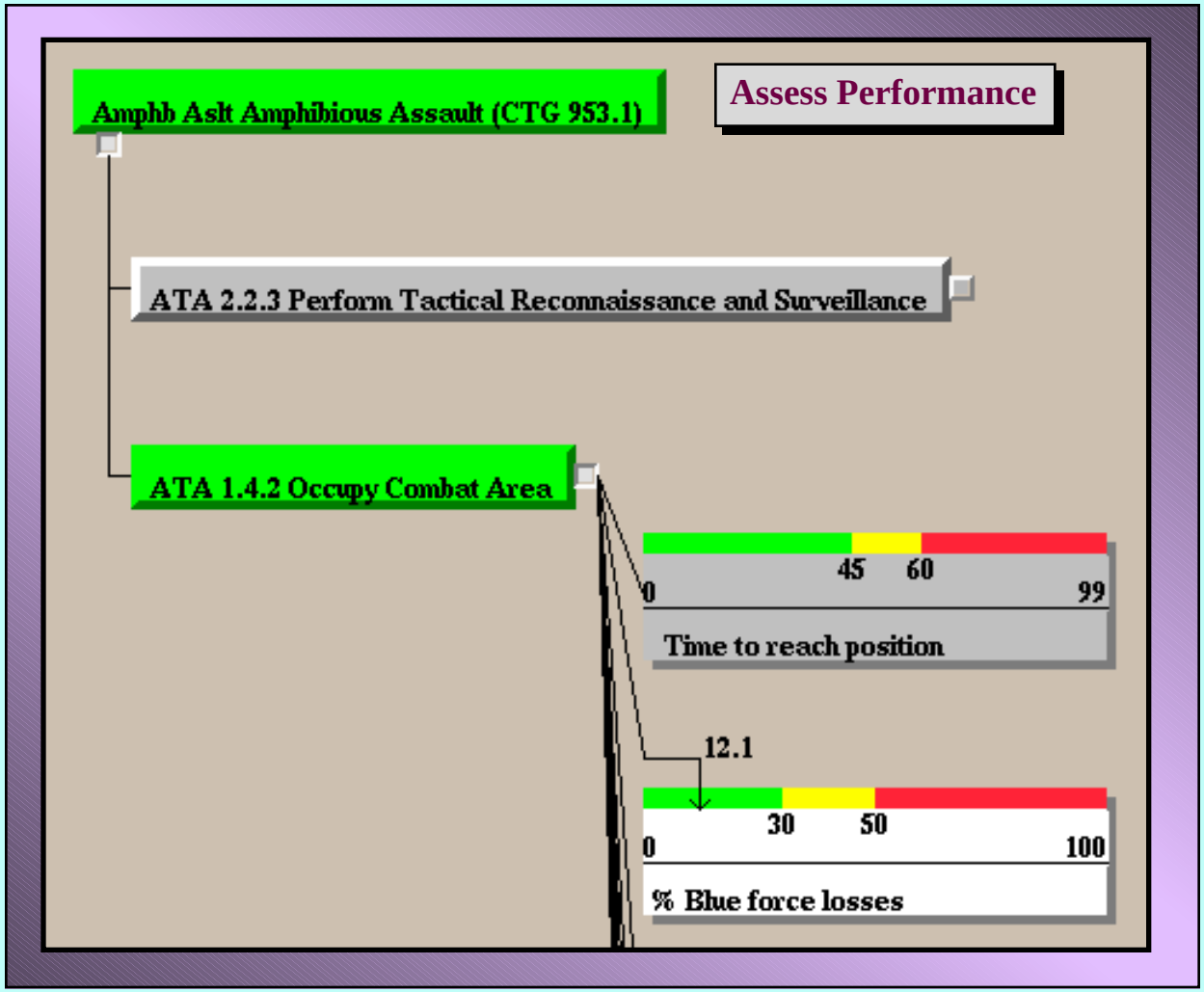
Vignette Instance



Data Preparation and Extraction

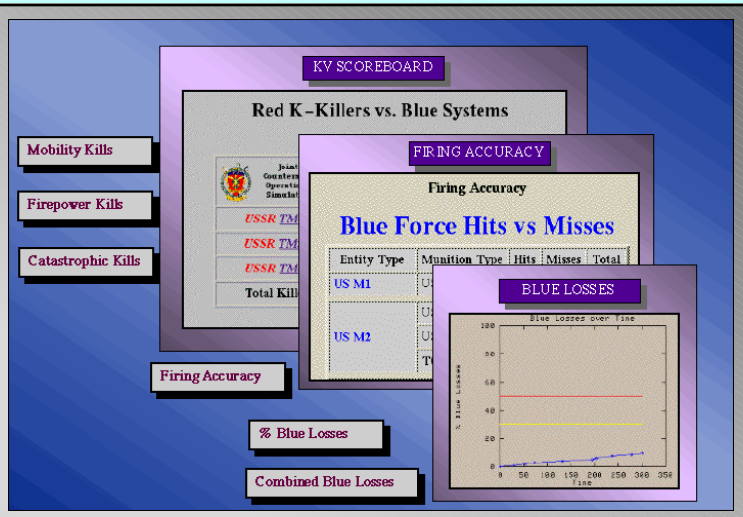


Performance Assessment



Data Analysis

STANDARD ANALYSIS

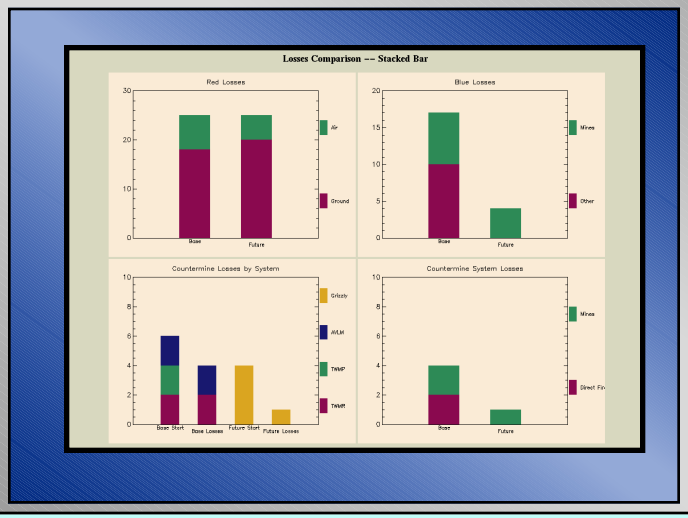


CUSTOMIZED ANALYSIS

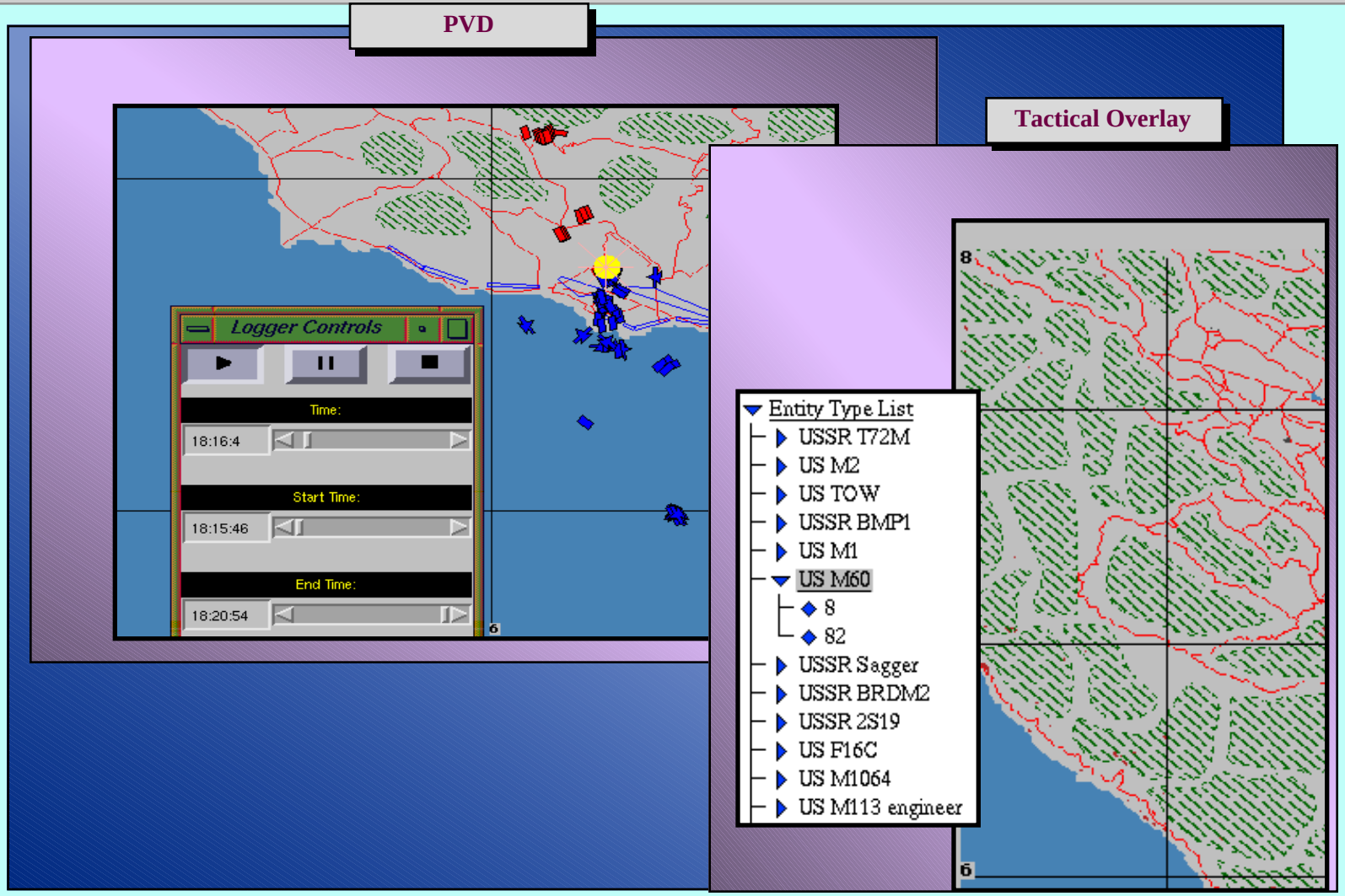
Losses -- Side-By-Side Bar

Losses -- Stacked Bar

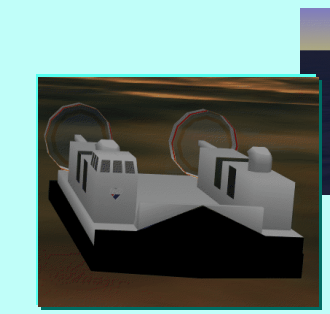
Combined Losses Over Time



Observer-Controller



Advanced Distributed Simulation Demonstration Summary



Stealths

Navy SF

Air SF

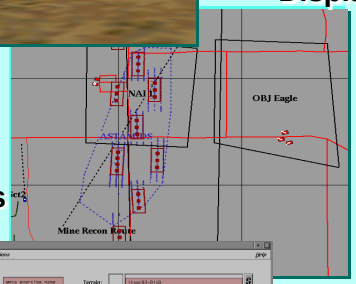
DTO/DVW

Army SF

MC SF

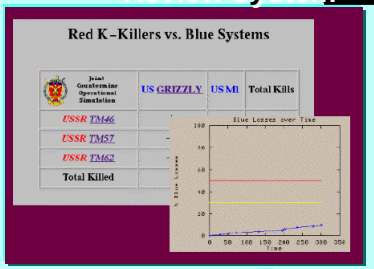
ADS

Plan View Displays



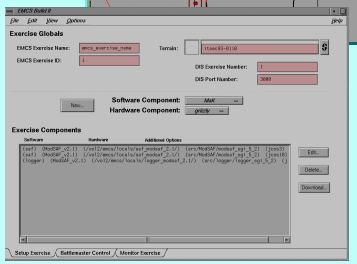
C4I-SAF Interfaces

After-Action Review System



Data Loggers

EMCS



Supports

Training

Planning

Mission Rehearsal

Acquisition