Applications & Opportunities

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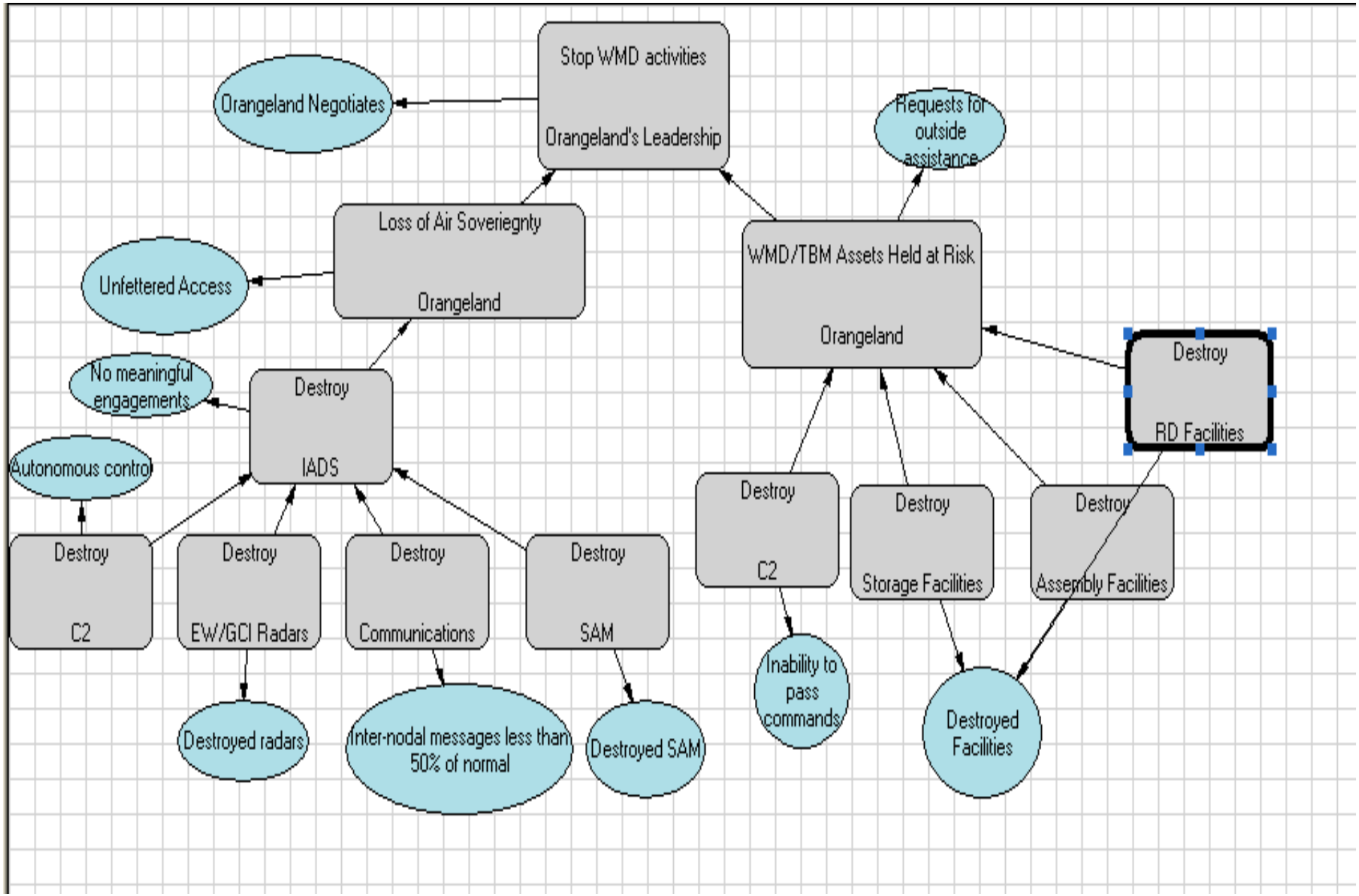
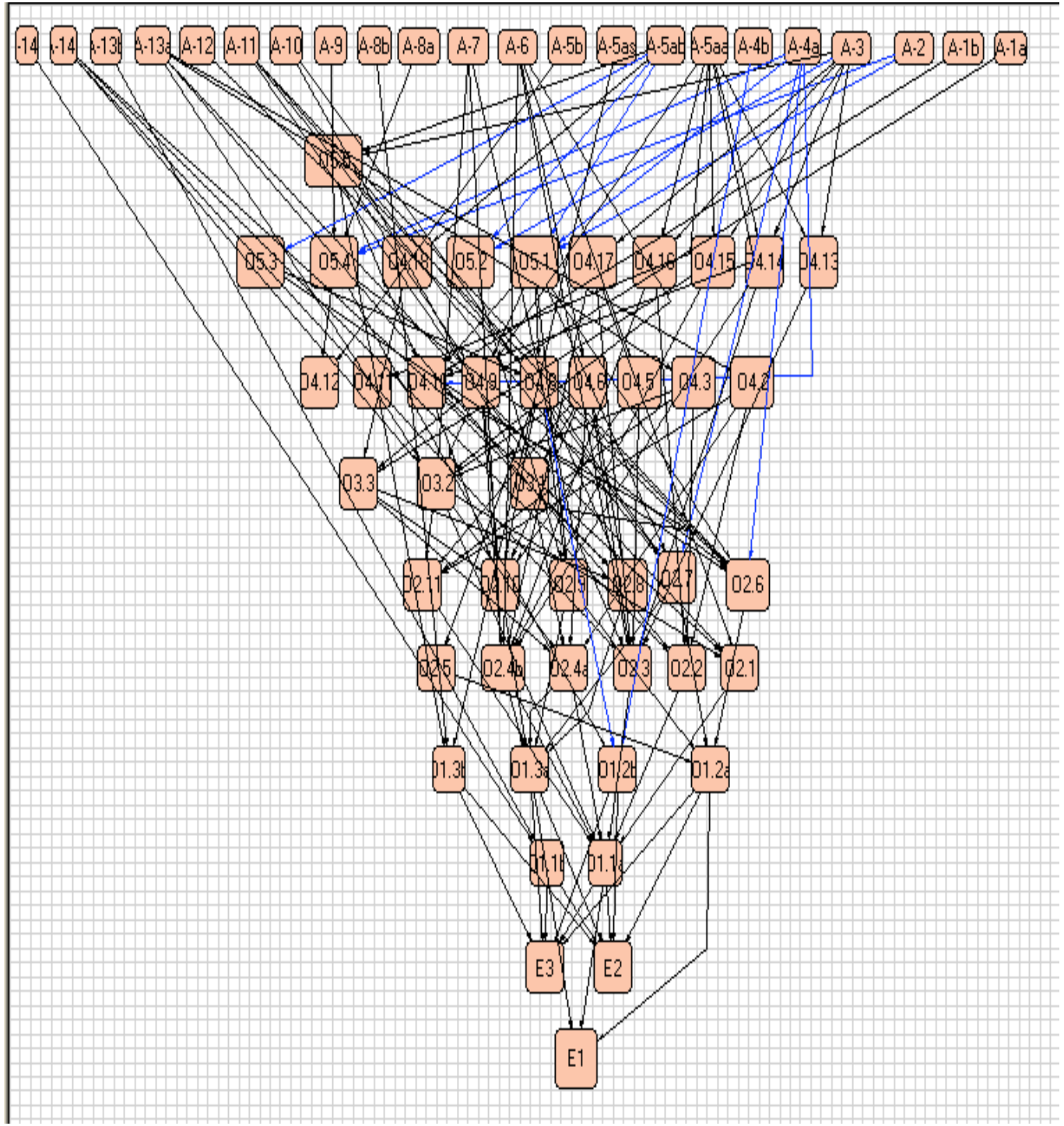
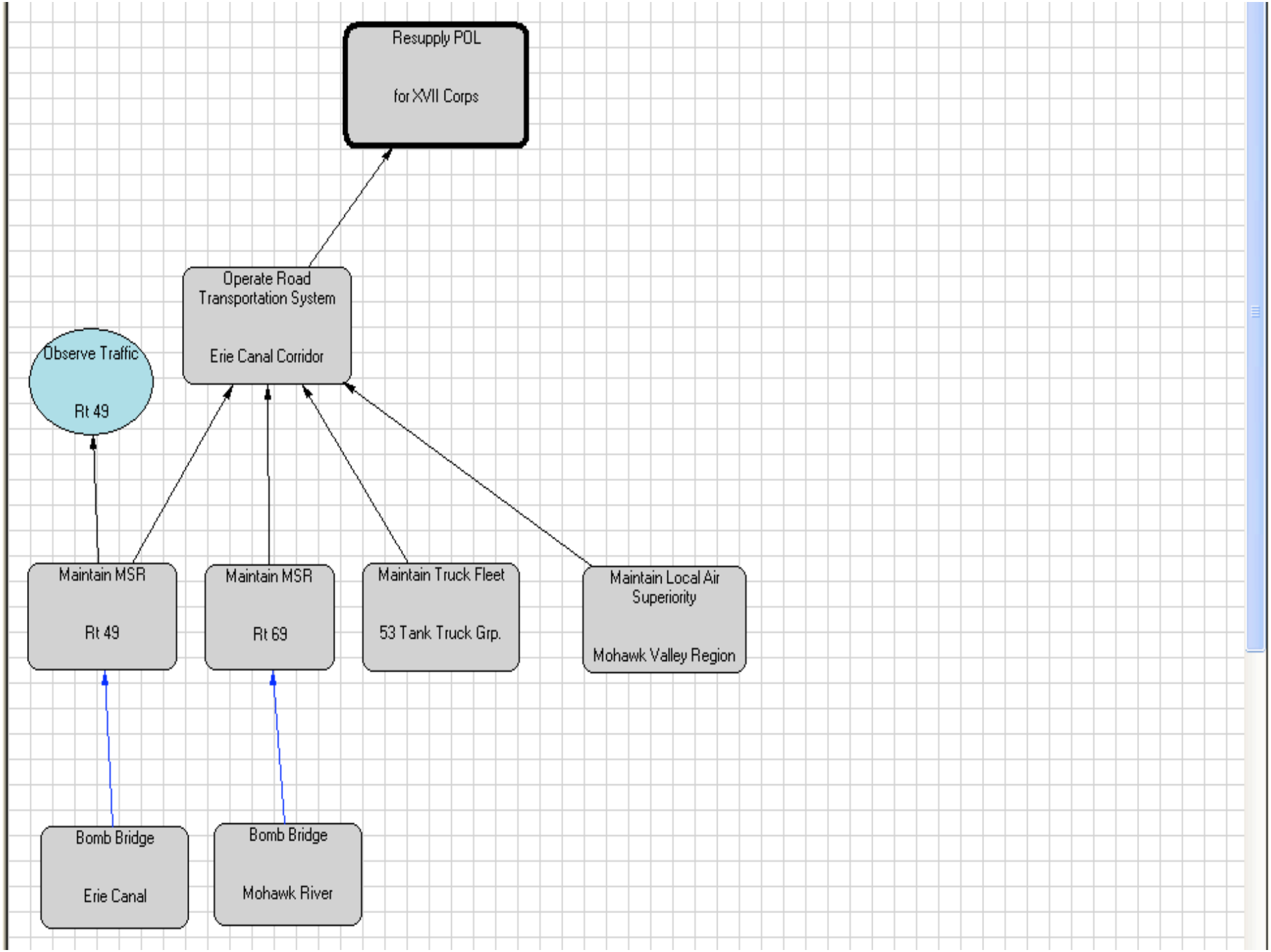
Topics

- Some real military plans
  - Some more real than others
  - One that was actually fought
- Where might the game trees be?
- Opportunites
  - Rome at least recognizes the problem
  - History


Stop WMD activities
Orangeland's Leadership
Orangeland Negotiates
Requests for outside assistance
Loss of Air Soveriegnty
Orangeland
Unfettered Access
WMD/TBM Assets Held at Risk
Orangeland
Destroy
RD Facilities
No meaningful engagements
Destroy
IADS
Autonomous control
Destroy
C2
Destroy
EW/GCI Radars
Destroy
Communications
Destroy
SAM
Destroy
C2
Destroy
Storage Facilities
Destroy
Assembly Facilities
Inability to pass commands
Destroyed Facilities
Destroyed radars
Inter-nodal messages less than 50% of normal
Destroyed SAM


A-14
A-14
A-13b
A-13a
A-12
A-11
A-10
A-9
A-8b
A-8a
A-7
A-6
A-5b
A-5as
A-5ab
A-5aa
A-4b
A-4a
A-3
A-2
A-1b
A-1a
O5.3
O5.4
O4.18
O5.2
O5.1
O4.17
O4.16
O4.15
O4.14
O4.13
O4.12
O4.7
O4.3
O4.2
O3.3
O3.2
O2.6
O2.5
O2.4b
O2.4a
O2.3
O2.2
O2.1
E3
E2
E1


Resupply POL
for XVII Corps
Operate Road Transportation System
Erie Canal Corridor
Observe Traffic
Rt 49
Maintain MSR
Rt 49
Maintain MSR
Rt 69
Maintain Truck Fleet
53 Tank Truck Grp.
Maintain Local Air Superiority
Mohawk Valley Region
Bomb Bridge
Erie Canal
Bomb Bridge
Mohawk River

Game Trees

- Where are the trees in these plans?
- Current planning involves at most, branches
  - This might be one level of game tree
  - Does the “fog of war” make deeper planning practical?
- Plenty of history available
  - Although most history is “attrition warfare”
  - EBO (DIME/PEMSI) plans may support game trees

High Performance Computing
Real-Time Decision Support

Problem: *Efficient Generation and Analysis of Large Courses of Action (COA) Alternatives to Anticipate and Shape the Future Battlespace.*

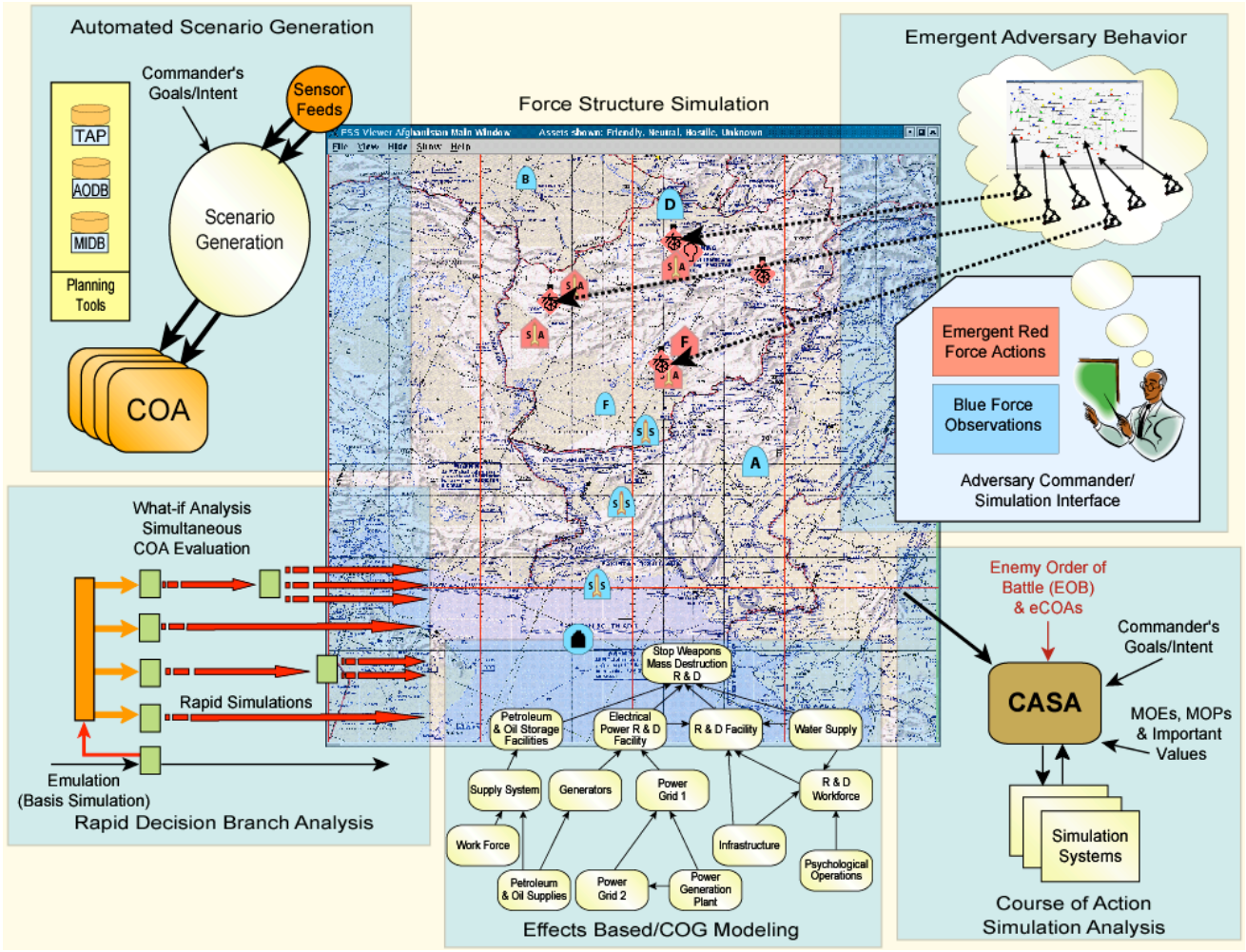
Objective: **Use HPC Simulation Technology for Dynamic Decision Support for Command & Control**

Challenges:

- **Intelligent Adversary Behavior Modeling**
- **Simulating Effects: Kinetic, Non-Kinetic, Indirect, Complex and Cascading**
- **Filtering Large COA Evaluation Space**
- **COA Grading/Evaluation**
- **Integration of Stored and Real-time Information**
- **Automating COA Generation Trigger Events**

Accomplishments:

- **In-House Force Structure Simulation Testbed**
- **Simultaneous COA/eCOA Evaluation**
- **Automated Scenario Generation**
- **Generic EBO Modeling Capability**
- **EBO Simulation Capability**
- **COA Analysis/Grading**
- **Simulation Cloning**
- **Intelligent Adversary Response**



Modeling Intelligent Adversary Behaviors

- Current Generation Wargaming Technologies Execute a Pre-Scripted Sequence of Events for an Adversary – Don't Survive beyond the first Campaign Action
- Provide a Dynamic Simulation Capability that Incorporates Potential Adversary Actions
  - Adversary COAs don't need to be predetermined
- Incorporate Sequential Action / Reaction Analysis Concept into Future Simulations
- More Robust COA Assessment
  - Multiple What-if Analysis