Fort Future

The Virtual Installation

Force Projection Modeling

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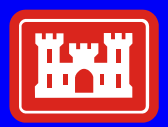
Engineer Research and Development Center

What's the Problem?

- No automated tools for "End to End" Mobilization and Deployment planning, rehearsal, and execution
- Mobilization and Deployments are inherently complex and resist improvement
  - "Fighting the last war"
  - "What did I fix? What did I break?"
  - "Can I get there from here?"
- Solution thru modeling and simulation

The Virtual Sandbox

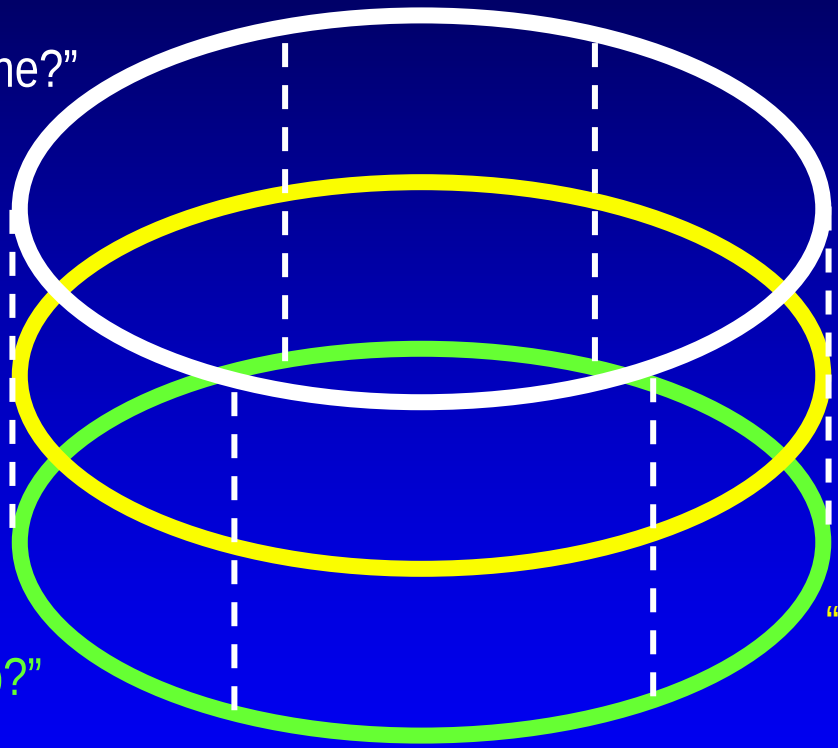
- A “Resource Contention Process Simulation”
- Assigns processes and resources dynamically to user assigned locations
- Entities for projection are created from a TC AIMS-like file
- Each entity is a discrete object with real-world attributes
- Entities are established for personnel, vehicles and equipment
- Entity “to-do” list determined by attributes
- Entities may be group into units, chalks, etc



Interdependent Models

Mission

"What must be done?"



Process

How much time does it take?

"Who does it?"

"Where does it happen?

"What resources are needed?"

What constraints are there?

Infrastructure

"What must the facility do?"

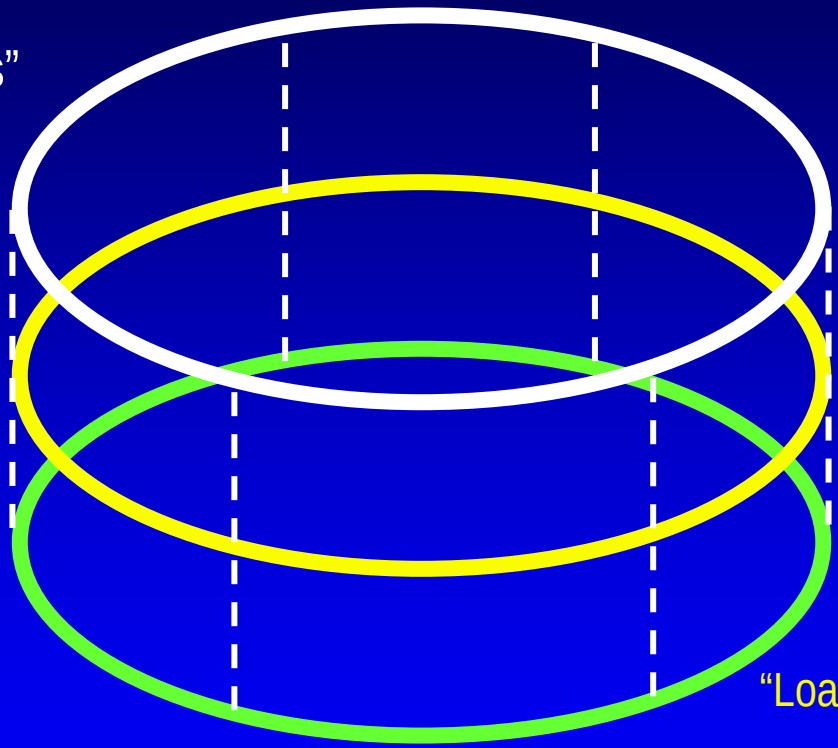
"Can it do it?"

"What will improve it?"

Interdependent Deployment Models

Mission

"Deploy Troops"

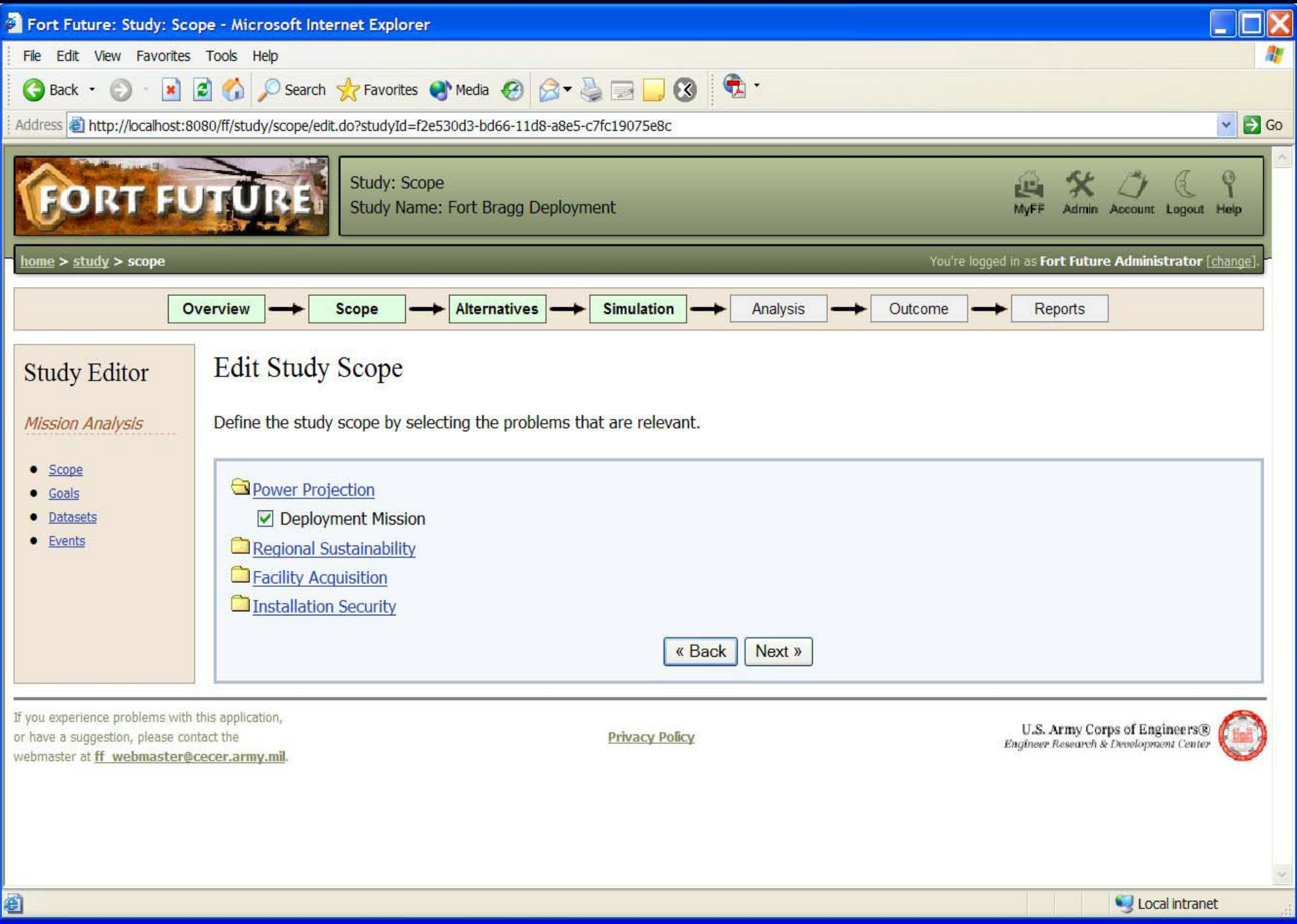


Process

"Alert and Recall"
"Vehicle Prep"
"Alert Holding Area"
"Call Forward Area"
"Ready Line"
"Load Vehicles and Passengers"
"Wheels Up"

Infrastructure

"Company Area"
"Motorpool"
"Marshalling Area"
"Airfield"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Study: Scope
Study Name: Fort Bragg Deployment
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Overview Scope Alternatives Simulation Analysis Outcome Reports
Study Editor
Mission Analysis
Scope
Goals
Datasets
Events
Edit Study Scope
Define the study scope by selecting the problems that are relevant.
Power Projection
Deployment Mission
Regional Sustainability
Facility Acquisition
Installation Security
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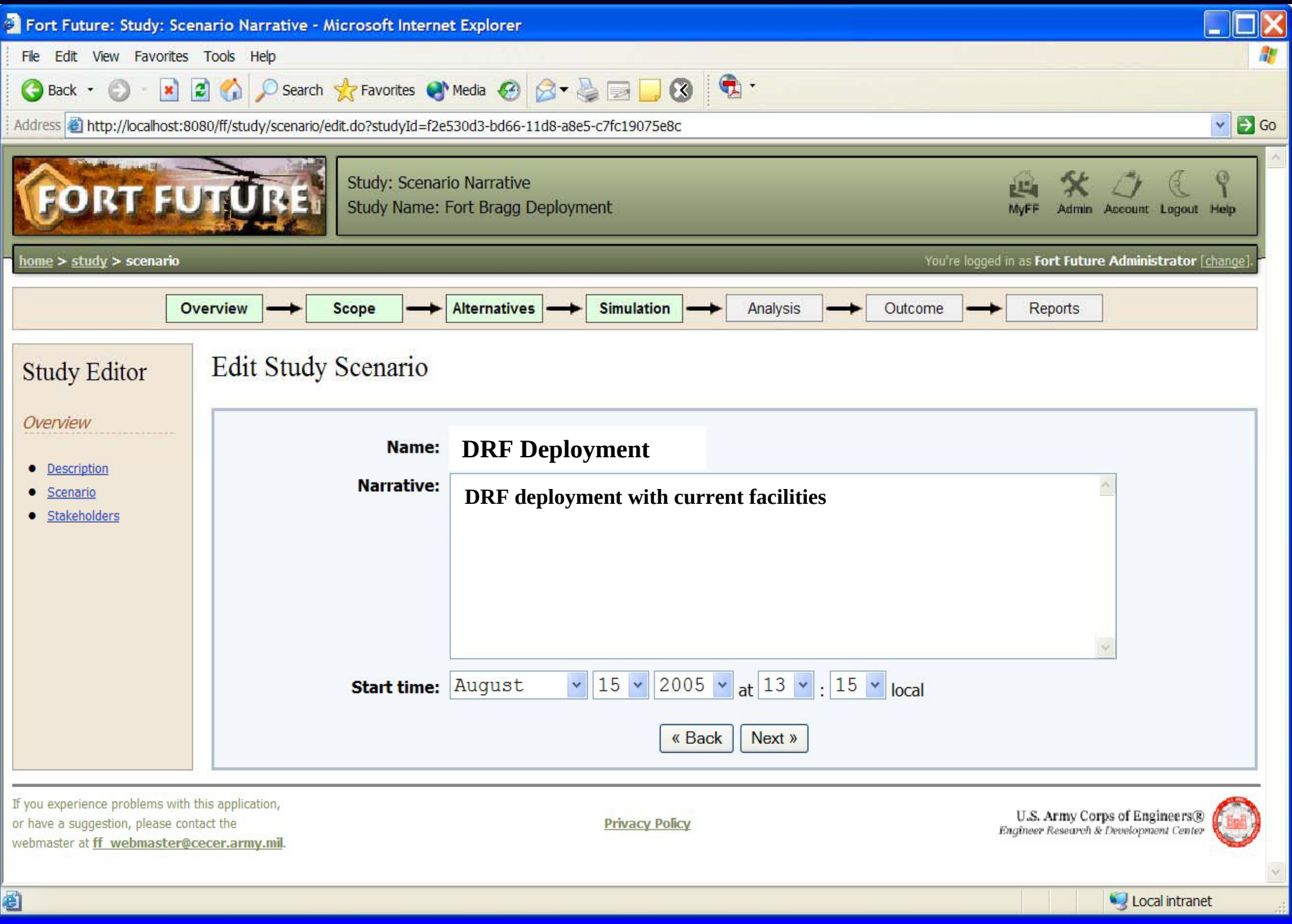
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Study Editor
Overview
Description
Scenario
Stakeholders
Edit Study Scenario
Name: DRF Deployment
Narrative: DRF deployment with current facilities
Start time: August 15 2005 at 13 : 15 local
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Study Editor
Overview
- Description
- Scenario
- Stakeholders

DRF Composition

5 Officers – Commander and 4 Officers

25 NCO – First Sergeant, 21 NCOs, and Motor Sergeant

120 Enlisted:

- **1 SmEmplExcvtr Driver and TC**
- **1 Zlite Driver and TC**
- **1 DEUCE Driver and TC**
- **1 M101A1 Driver and TC**
- **2 M1113 Driver and TC**
- **8 M1121 Driver and TC**
- **6 M119 and M1097 Driver and TC**
- **1 M950BBKTLdr Driver and TC**
- **1 M966 Driver and TC**
- **24 M998 Driver and TC**

Vehicles:

SmEmplExcvtr
Zlite
DEUCE
M101A1
2 M1113
8 M1121
6 M119 and M1097
M950BBKTLdr
M966
24 M998

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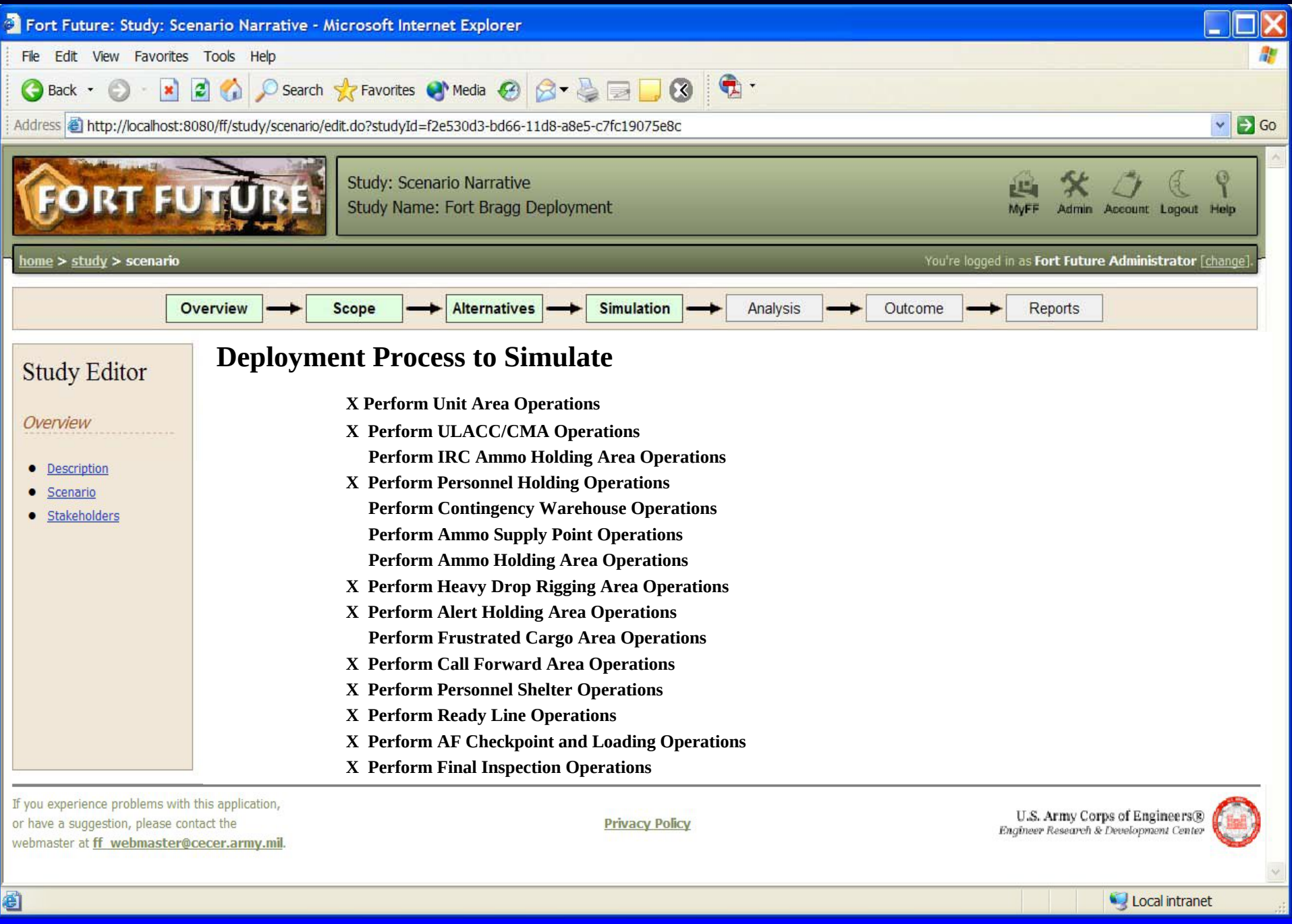
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Overview Scope Alternatives Simulation Analysis Outcome Reports
Study Editor
Overview
Description
Scenario
Stakeholders
Deployment Process to Simulate
X Perform Unit Area Operations
X Perform ULACC/CMA Operations
Perform IRC Ammo Holding Area Operations
X Perform Personnel Holding Operations
Perform Contingency Warehouse Operations
Perform Ammo Supply Point Operations
Perform Ammo Holding Area Operations
X Perform Heavy Drop Rigging Area Operations
X Perform Alert Holding Area Operations
Perform Frustrated Cargo Area Operations
X Perform Call Forward Area Operations
X Perform Personnel Shelter Operations
X Perform Ready Line Operations
X Perform AF Checkpoint and Loading Operations
X Perform Final Inspection Operations
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Run Simulation

Can be used now…

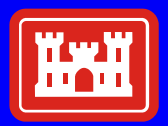
- Basic Capability Works (new technology)
  - Rapidly create new models and simulations
  - Uses existing data sets*
  - Move processes around the installation
  - Can test proposed structures or processes
  - Five prototype installations exist
  - Stand alone capability

* If data is of appropriate

FY 05 Deliverables

- Rule Based Simulation
  - Entity behavior
  - Role Changes
  - Resource allocation
- Deployment Manager
- Multiple Locations

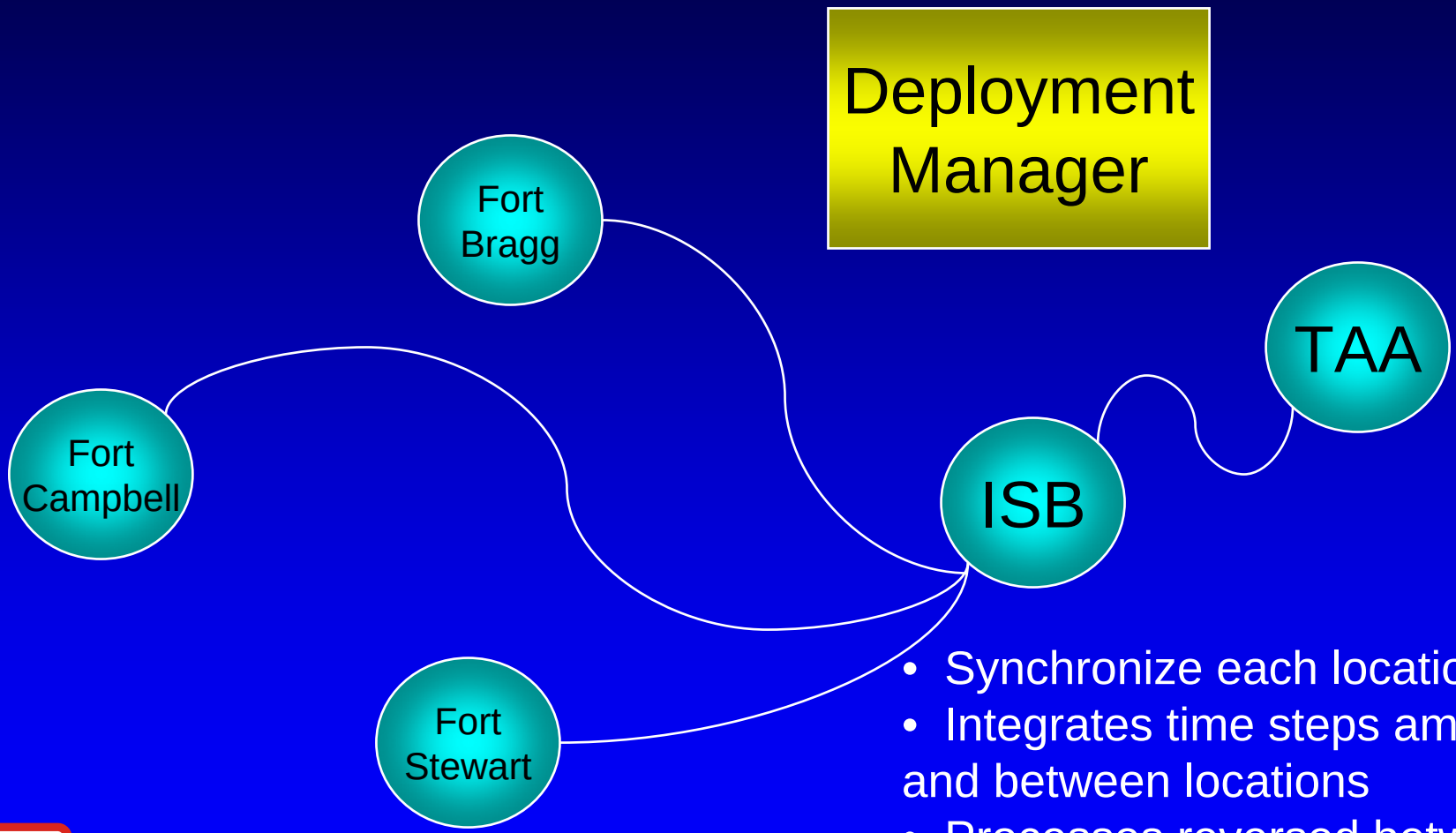
These functionalities will allow modeling of End to End Deployments from multiple locations and mobilization of Reserve Component Units



Rule Types

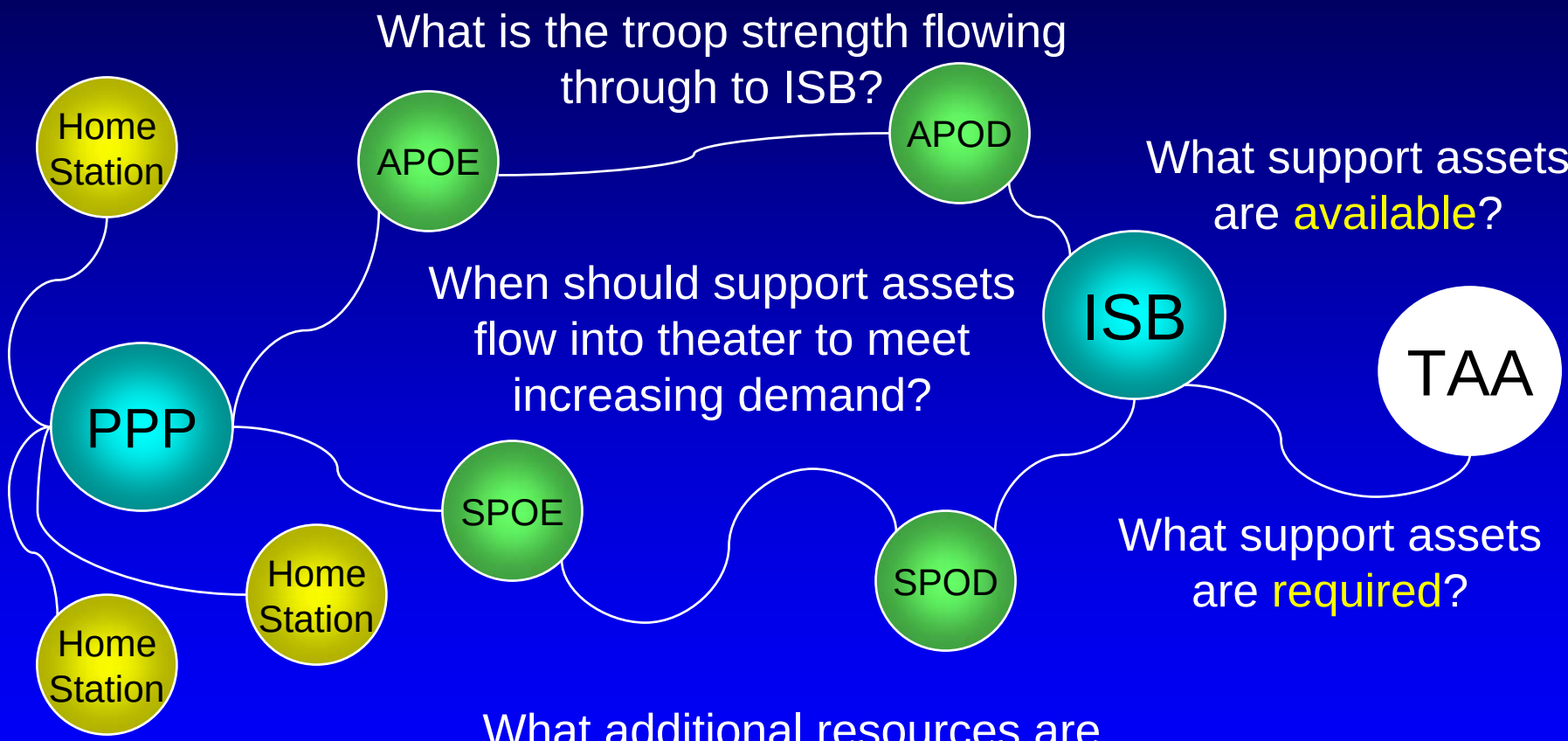
- Entity Rules: Based on entity roles and attributes
- Process Rules: Based on process ordering and timing
- Resource Rules: “The Bus”
- Deployment Manager Rules:
  - Resource allocation
  - Role changes
  - Decision Points
  - Multiple locations

Multiple Units Deployed from Multiple Locations



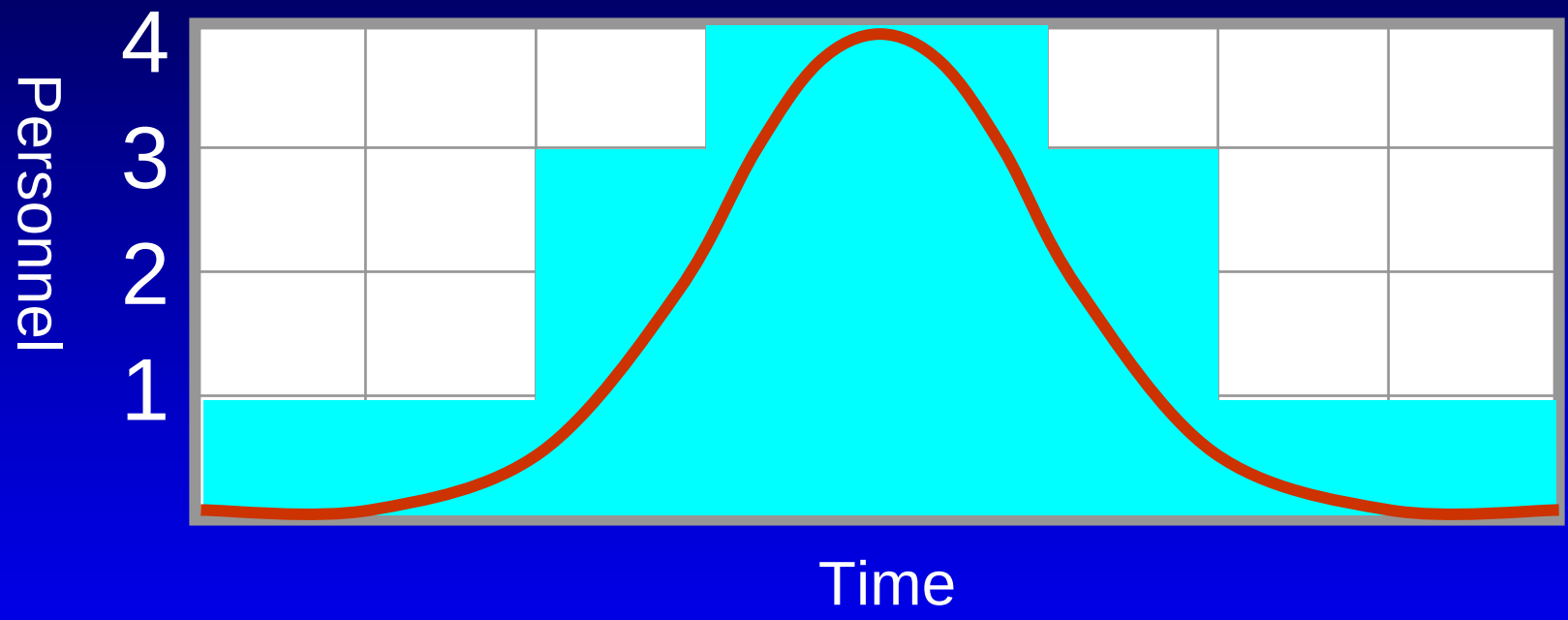
- Synchronize each location
- Integrates time steps amongst and between locations
- Processes reversed between push and catch

The Problem "End to End"



Optimizing Resources

Determining resources required as a function of flow



32 man-hours versus 18 man-hours

Foundation to Do More

- Extend from planning to execution
- Accept and Display Live Feeds
- Predictive Capability
  - Lock Live Feeds to set Baseline
  - Run Simulation to forecast results

Questions?