

Representing Homeland Security Command and Control: Conceptual Modeling in Support of the National Response Plan

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Overview

- Project Overview
- The Conceptual Model
- Data Collection Efforts
- Observations & Conclusions



Project Background

- JFCOM J-7, in support of a Congressional mandate, is sponsoring a multi-agency, multi-contract team intent on better understanding and improving the state-of-the-art in modeling and simulation support for homeland security training, research and experimentation.
- Effort spans a broad area of interest:
 - Conceptual modeling
 - Simulation Investments
 - Exercise data collection and analysis to inform modeling and simulation effort

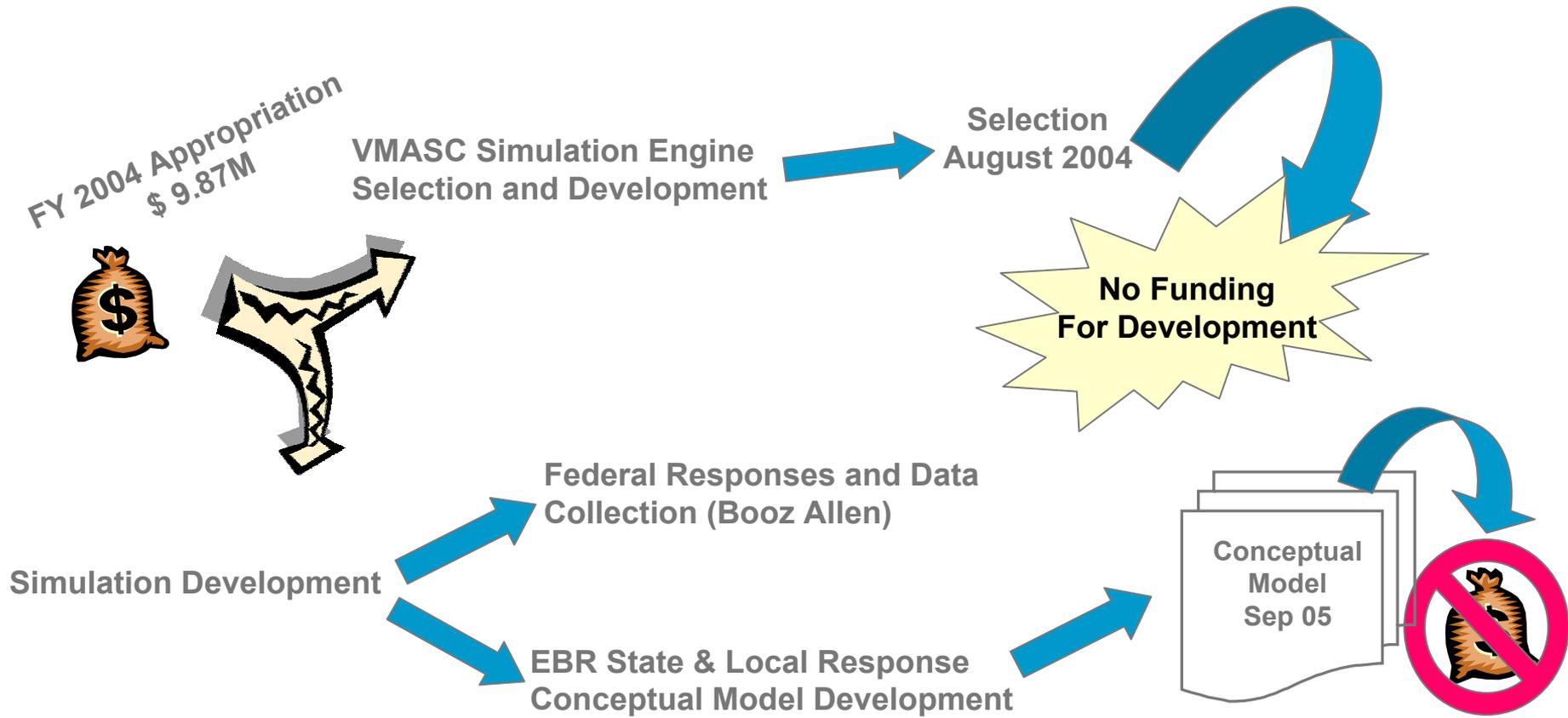


Project Context

- Conceptual Model is attempting to be true to National Response Plan (NRP)
- NRP was approved November 2004
- Modeling efforts pre date approval of the NRP
- NRP is a living document



HLS Training Simulation Initiative Overview



DP04 Jul 04 Eng Select Aug 04 AS 05 Apr 05

Oct 03

Jul 04

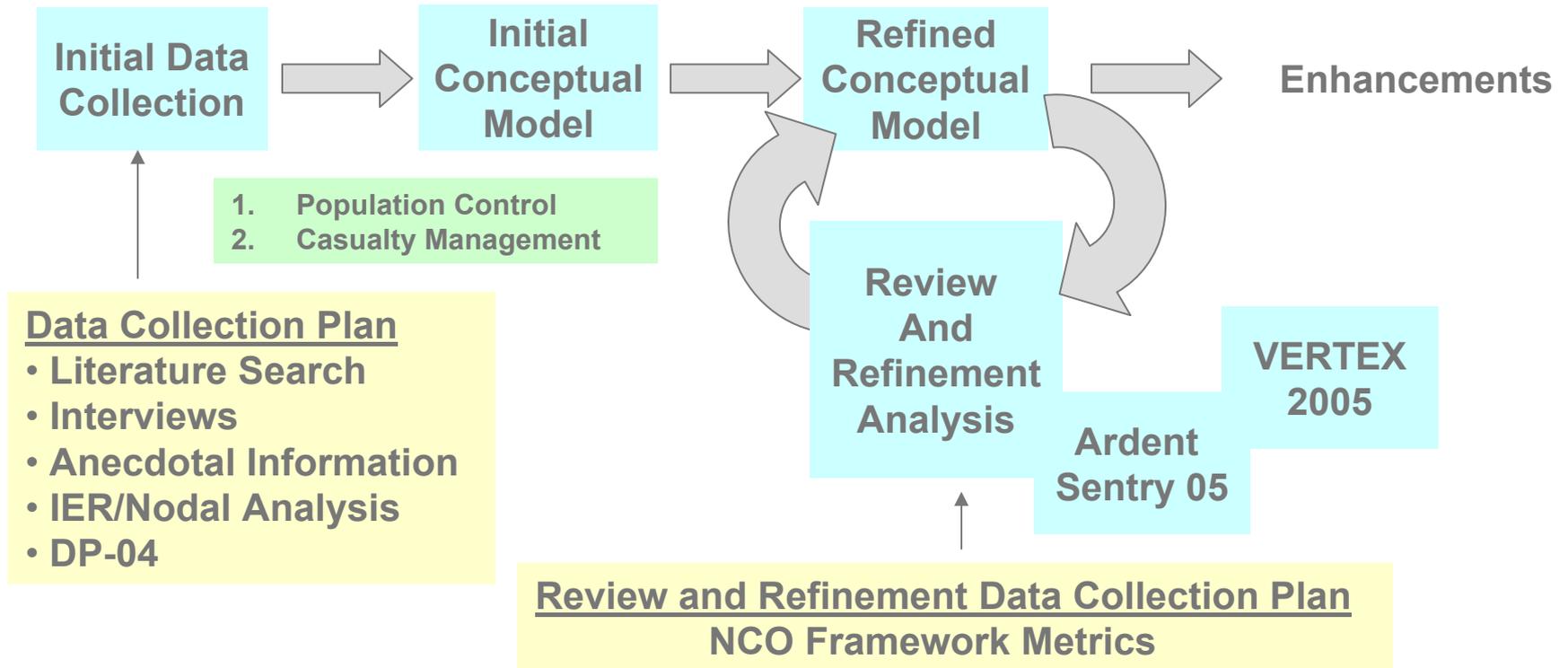
Aug 04

Apr 05

Oct 05



Technical Process



The Conceptual Model

- Implemented in Visio[®] as a description of the NRP for:
 - Mass Casualty Management
 - Population Control
- Continues to evolve as collaboration and data collection occur



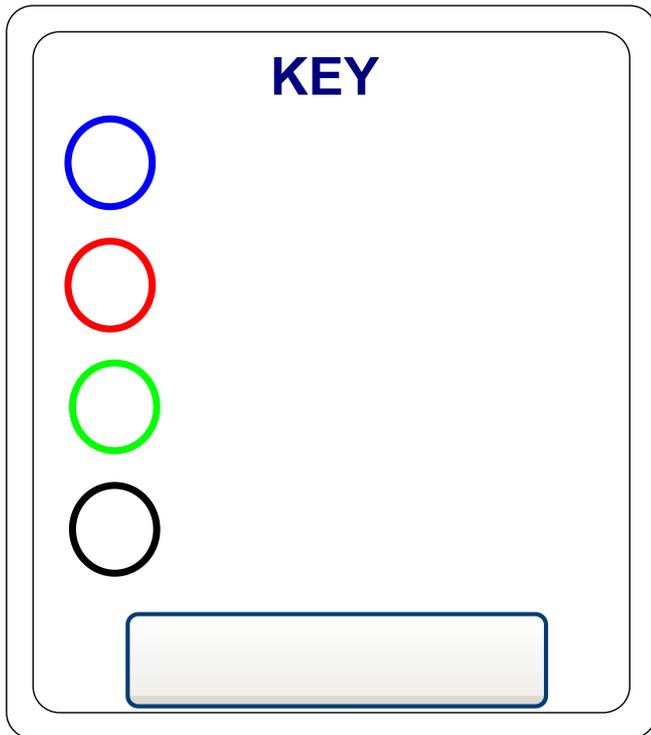
Data Collection

- Researched a variety of documents
 - NRP, NIMS, state response plans, local response plans, etc.
- Initial data collection at Determined Promise-04
- Conducted interviews with emergency responders
- Observed the Ardent Sentry-05/TOPOFF-3 exercises
- Observed the Virginia Emergency Response Team Exercise

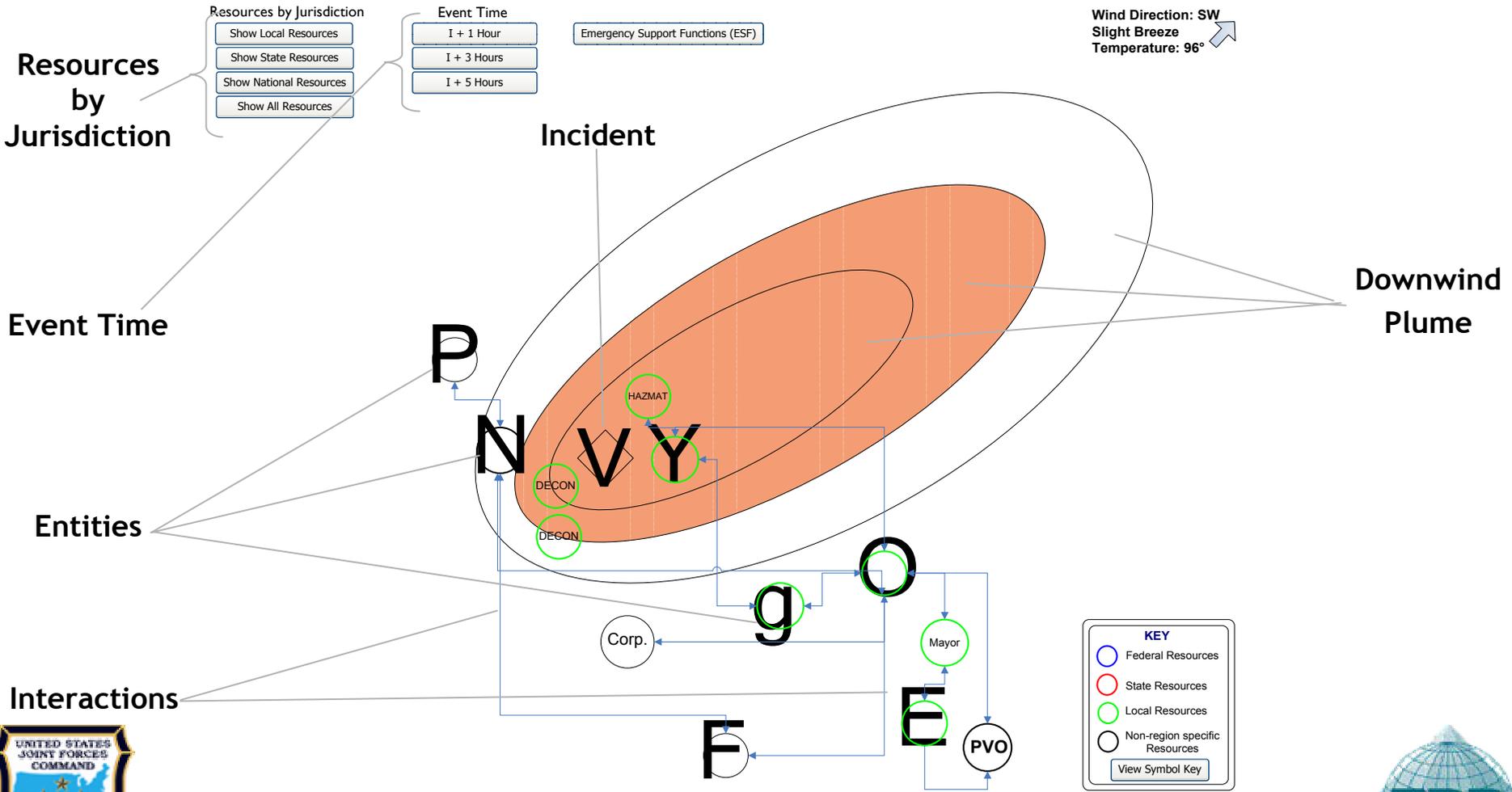


Symbology

- Homeland Security Working Group Symbology
- Adapted with color ring to denote jurisdictional authority



Conceptual Model Showing Local Interactions



Conceptual Model Showing Local and State Interactions

Resources by Jurisdiction

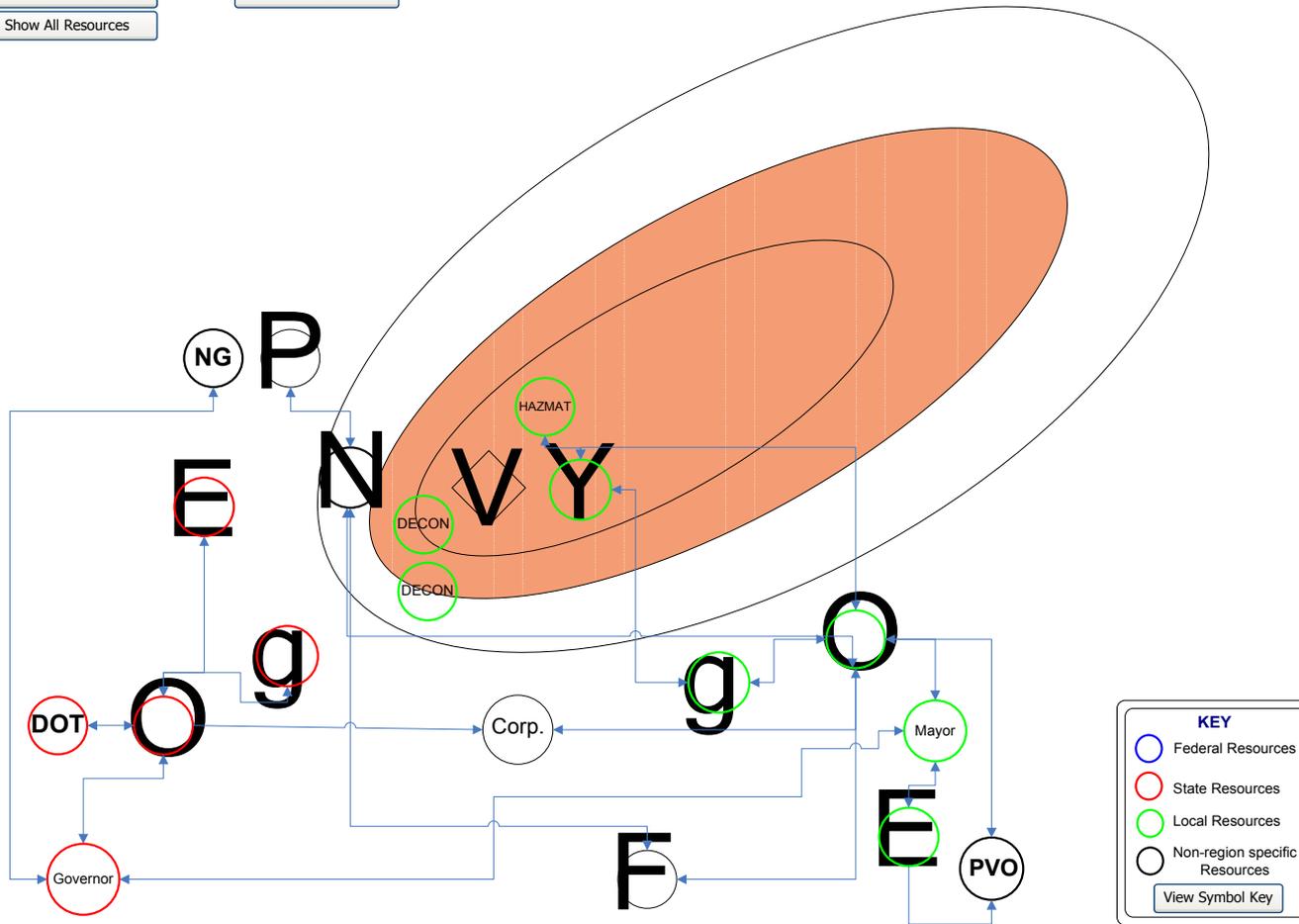
- Show Local Resources
- Show State Resources
- Show National Resources
- Show All Resources

Event Time

- I + 1 Hour
- I + 3 Hours
- I + 5 Hours

Emergency Support Functions (ESF)

Wind Direction: SW
Slight Breeze
Temperature: 96°



Conceptual Model Showing Local, State, and Federal Interactions

Resources by Jurisdiction

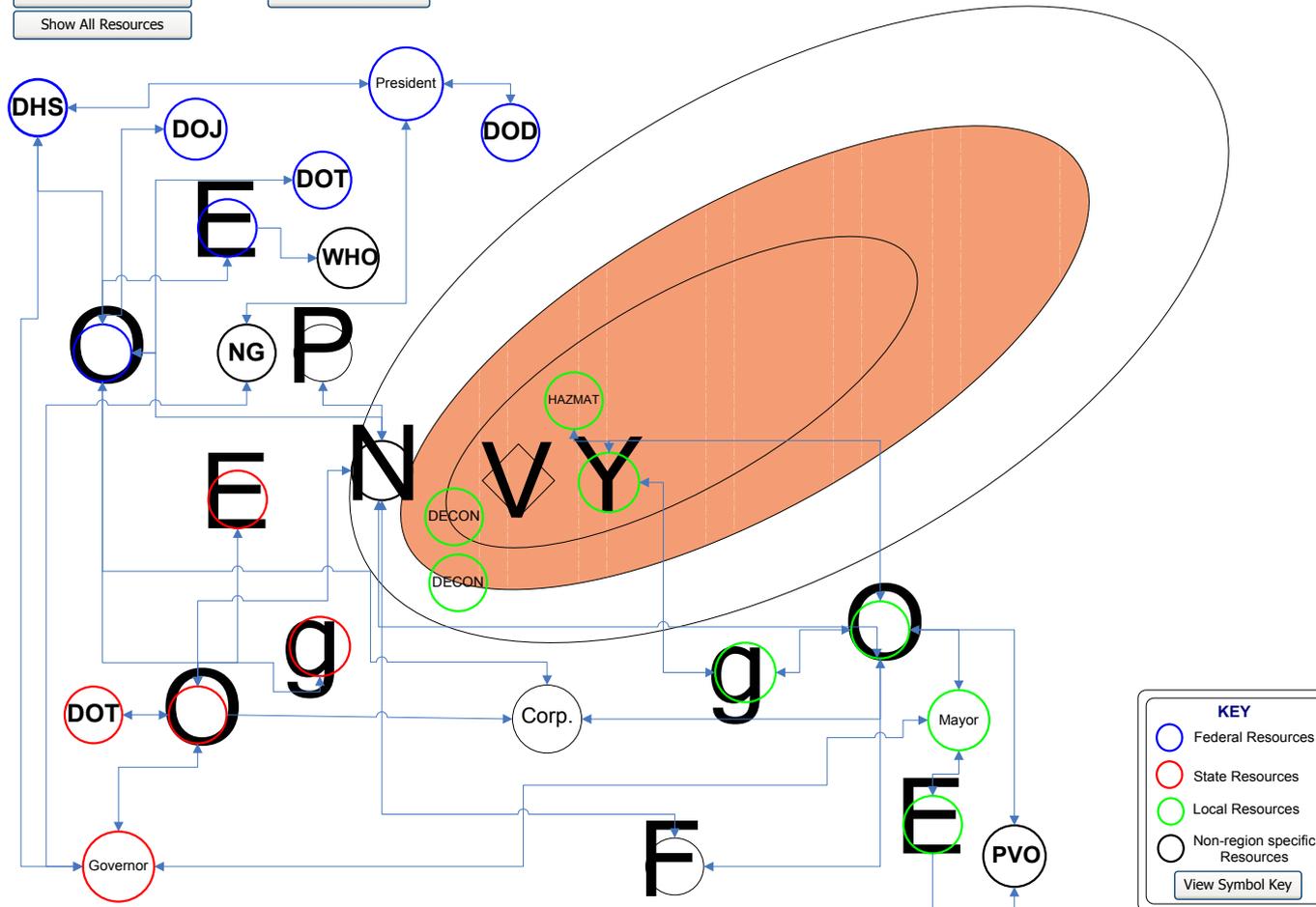
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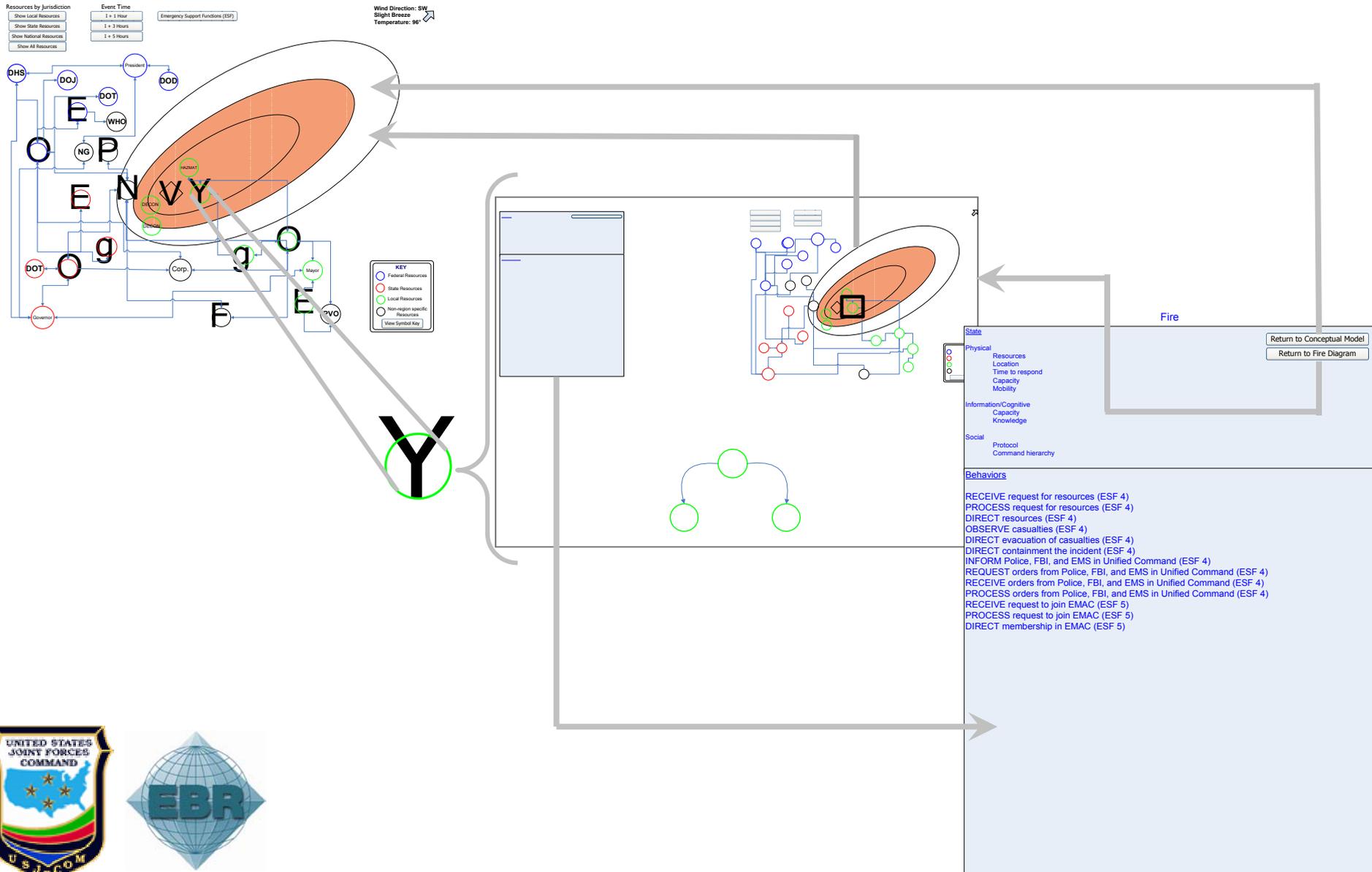
KEY

- Federal Resources
- State Resources
- Local Resources
- Non-region specific Resources

[View Symbol Key](#)



Model Interaction



Observations and Conclusions

- Evolving model represents:
 - Highly complex and dynamic process
 - Emergency response as dictated through the NRP
- Current limitations:
 - Informal interactions are not represented
 - Regional specialization may not be represented



Research Issues

- Modeling Issues
 - Logical representation of multilayered and multidirectional data
 - Regional specificity vs. generalized usability
- Application Issues
 - Capturing tacit knowledge & informal information exchanges
 - Assembling elements from a variety of resources, which do not necessarily agree
 - Modeling is a discovery process



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Back Up



Project Partner Roles

- **JWFC:** Project Sponsor, providing overall direction
- **VMASC:** Project leadership, Integration and Development
- **Northrop Grumman:** Model Development
- **Booz Allen Hamilton:** DoD, Federal, and State Interagency process data collection and analysis
- **Evidence Based Research:** Data collection and analysis, Interagency decision making process conceptual model development
- **Loyola Enterprises:** Database and GIS Data Environment Support
- **Additional partners include:** Hampton University, Norfolk State University, Eastern Virginia Medical School, VisiTech, WernerAnderson



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