

SBIR Topic Number:
AF06-283

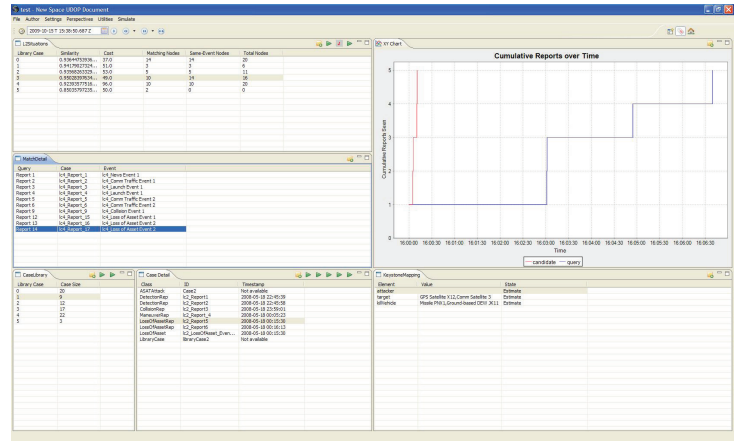
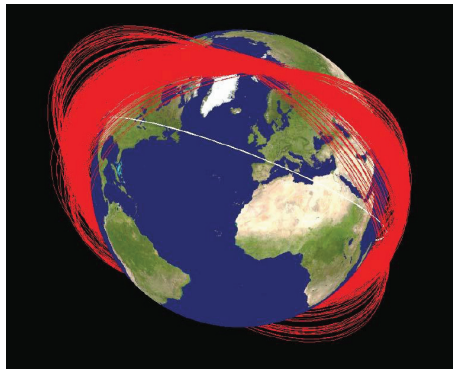
SBIR Title:
Threat Detection, Validation, and Mitigation Tool for Counterspace and Space Situational Awareness Operations

Contract Number:
FA9453-07-C-0004

SBIR Company Name:
eShopperTools.com, Inc., dba CleverSet, Inc., Corvallis, OR

Technical Project Office:
AFRL Space Vehicles Directorate, Kirtland AFB, NM

This Air Force SBIR/STTR Innovation Story is an example of Air Force supported SBIR/STTR technology that met topic requirements and has outstanding potential for Air Force and DoD.



Left: Debris field caused by an anti-satellite (ASAT) test. Right: A view of the CleverSet plugin monitoring the ASAT test.

Distributed Multi-Level Situation Awareness and Response Management for Defensive Counterspace

- Satellite operators and analysts need a way to bring together information from many entities and information sources in the environment, and to relate these to past situations in order to identify plausible and important multi-entity temporal relationships
- The CleverSet Level 2 Case-Based Reasoner (L2CBR) is a plug-in to software developed by The Design Knowledge Company, which allows the user to build a specific view of a situation as a User Definable Operational Picture (UDOP) using an Eclipse plug-in
- The Design Knowledge Company's software is based on the Joint Space Operations Center's (JSpOC) Mission System (JMS) User Defined Operational Picture (UDOP); its goal is to integrate Mixed-Initiative, User-Driven Data Fusion and other problem support approaches to enhance Space Situational Awareness (SSA) and warfighter capability
- The CleverSet L2CBR allows users to perform case-based reasoning using incoming data, allowing analysts to make sense of these data and to identify developing situations

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Approved for public
release; distribution
unlimited.

Air Force Requirement

Satellite operators, analysts, and watch officers in the chain of command and organizational hierarchy face difficult tasks in recognizing, orienting with respect to, and managing complex, dynamically evolving situations. These situations involve multiple entities operating at several time scales. Information arrives from many sources, often not in temporal order.

Users need a way to bring together information from many entities and information sources in the environment, and to relate these to past situations in order to identify plausible and important multi-entity temporal relationships.

SBIR Technology

The CleverSet Level 2 Case-Based Reasoner (L2CBR) is a plug-in to software developed by The Design Knowledge Company. It allows the user to build a specific view of a situation as a User Definable Operational Picture (UDOP) using an Eclipse plug-in.

The CleverSet L2CBR plugin consists of six views: L2Situations, Match Detail, Time-mapping, Case Library, Case Detail, and Keystone Mapping. The plug-in accomplishes two main tasks: (1) it resolves ambiguities in data-fusion Level 1 reporting, and (2) it retrieves relevant case library material.

Potential Air Force Application

The Design Knowledge Company's software is based on the Joint Space Operations Center's (JSpOC) Mission System (JMS) User Defined Operational Picture (UDOP). Its goal is to integrate Mixed-Initiative, User-Driven Data Fusion and other problem support approaches to enhance Space Situational Awareness (SSA) and warfighter capability.

The CleverSet L2CBR allows users to perform case-based reasoning using incoming data. This allows analysts to make sense of these data and to identify developing situations.

Company Impact

"CleverSet was acquired by Art Technology Group, Inc. (ATG) in 2008," states Dr. Jane Jorgensen, principal scientist at ATG. "One of the assets of the company was its technology portfolio. The SBIR/STTR Program made it possible for CleverSet to build this portfolio, while at the same time creating jobs and providing valuable, leading-edge capabilities to the United States Government."



SBIR/STTR

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