Lockheed Martin Develops Context-Aware Computing For Intelligence Analysts

Lockheed Martin has developed Contrail, a context-aware computing framework that gives the intelligence community much needed support to capture, retrieve and share contextually relevant information at reduced time and cost.

Analysts review and file hundreds of pieces of data from multiple sources amid the everyday challenges of interagency sharing requirements and compressed timetables to provide mission-critical intelligence. However, mission success may depend on analysts re-finding that same, now critical bit of data weeks or months after they first discovered it. But making rediscovery even more difficult is how analysts organize their data.

Analysts traditionally file data in highly personalized ways, meaning that filing methods across the intelligence enterprise can be quite diverse. As a result, personalization may make it more difficult for analysts to share data files and rediscover the original context of the data.

Contrail solves the problem of rediscovery.

Integrated into an intelligence agency's computing infrastructure, Contrail's software builds an explicit, machine-understandable representation of analysts' contexts by monitoring how they handle information. The technology then builds a personalized software model that automatically tags newly found data, enabling analysts to later refind that needed intelligence using metadata, content, or context at time of storage.

Analysts can also share data by using context tags-typically people, places, events, or concepts active when they first stored the data. During searches, Contrail automatically suggests stored items that are relevant by matching the current situational context with that on the tags of stored items.

"Rediscovery is just a portion of the technology's capability," said Mark Hoffman, ATL technology manager. "By capturing analysts' trails of discovery and reasoning as well as the items they encountered along the way, our technology can re-find old information, find and share new information, and provide an audit trail for items like capturing lessons learned."

The Advanced Technology Laboratories (ATL) developed Contrail in 2007 as part of the Collaboration and Analyst/System Effectiveness program sponsored by the Intelligence Advanced Research Projects Activity. Through internal research and development, ATL continues to expand Contrail's functionality.

Headquartered in Bethesda, MD, Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2007 sales of $41.9 billion.

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