Mixed-Initiative Agent Coordination

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BBN Technologies
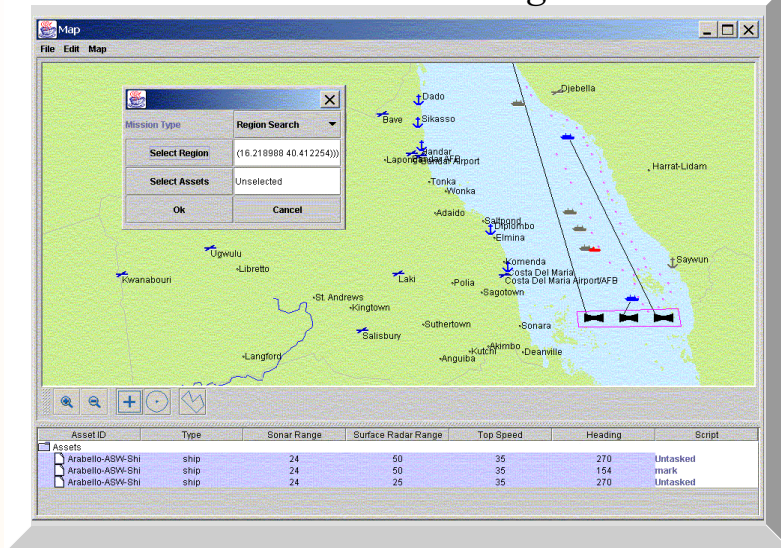http://openmap.bbn.com/~burstein/coabs/
burstein@bbn.com

CoAX Role: *Arabello*

Mixed-Initiative Tasking

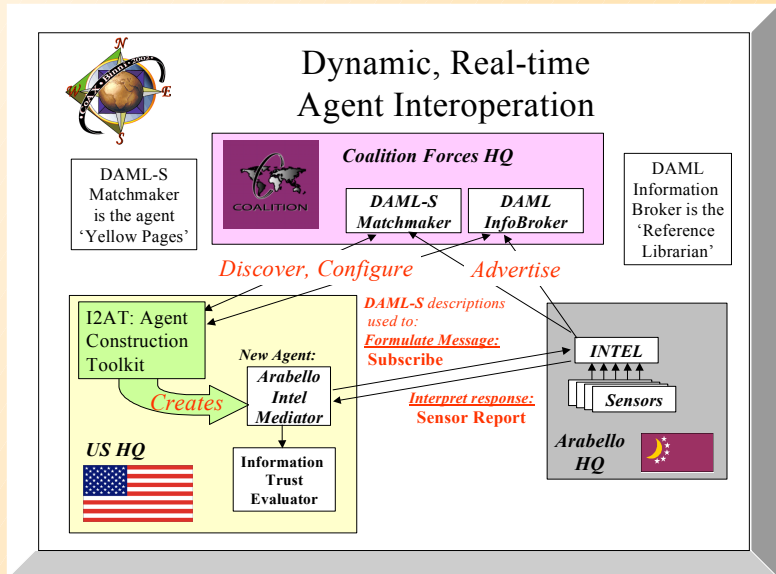

Description:

- Agent development tools for *mixed-initiative* (user interactive) planning and co-ordination.

- *Information sharing* techniques enable commanded agents to co-ordinate their information needs dynamically

- DAML ontologies represent agent capabilities so other agents can discover and utilize new capabilities and information sources dynamically. (with CMU, LM/ATL)

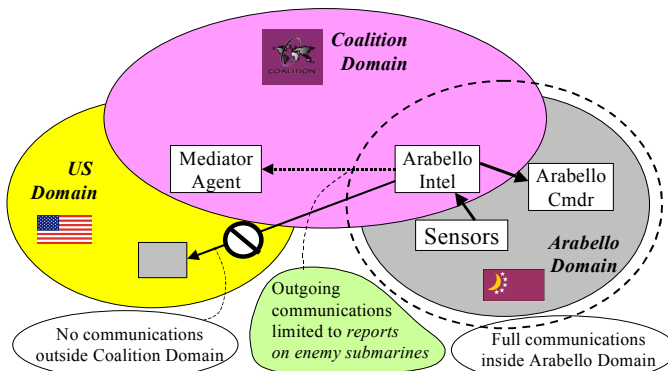- DAML-based message filtering between Domains based on message content (with IHMC)

Results as Demonstrated:

- Mixed-initiative tasking, monitoring of agents (e.g., planning of ship blockade)

- DAML-based capability and information sharing protocols enable agent discovery of Arabello Intel services, dynamic subscription.

- DAML-based semantic filtering of messages crossing domain boundaries integrated with domain policy enforcement system.

Dynamic, Real-time Agent Interoperation

DAML-S Matchmaker is the agent 'Yellow Pages'

DAML Information Broker is the 'Reference Librarian'

Coalition Forces HQ — DAML-S Matchmaker — DAML InfoBroker

Discover, Configure — *Advertise*

I2AT: Agent Construction Toolkit

DAML-S descriptions used to:
Formulate Message: Subscribe
Interpret response: Sensor Report

Creates — New Agent: Arabello Intel Mediator

US HQ

Information Trust Evaluator

INTEL — Sensors

Arabello HQ

Content-based Message Filtering

Technique:
DAML ontologies used to describe both *message content* and the *classes of allowed messages* for different policies.

Coalition Domain

US Domain

Mediator Agent — Arabello Intel — Arabello Cmdr

Sensors

Arabello Domain

No communications outside Coalition Domain

Outgoing communications limited to *reports on enemy submarines*

Full communications inside Arabello Domain

Future:

- User Task Models to help interpret directives, provide active assistance to users.

- Integration of human-to-human and agent-to human communications.

- Tools to assist in scaling up development of repositories of agent service descriptions.

- Improved mechanisms for managing cross-domain communications and security.