

The UMBC TAGA Demo




- **What we have developed and achieved**
 - Travel Agent Game in Agentcities (TAGA)
 - A FIPA compliant agent framework that extends and enhances the Trading Agent Competition (TAC)
 - TAGA won *the **Best Student Entry** in the Agentcities sponsored Agent Technology Competition held in Feb. 2003 in Barcelona*
- **Features:**
 - Open Market Framework
 - Auction services are developed to enrich the Agentcities environment
 - The use of Semantic Web languages (OWL) improves agent interoperability
 - OWL-S is employed to support agent service registration, discovery and invocation




- TAGA demonstrates agent and semantic web technology working together
- Inspired by TAC, TAGA is designed as a general framework for running agent-based travel market simulations and games
- **Our Objectives:**
 - Develop an open framework for building trading game simulation
 - Develop a MAS research test-bed for studying intelligent agent and semantic web technologies

The TAGA Game and Players

- Game Objective: **develop strategies for different agents to achieve their objectives**
- Game participants can choose to implement/play agents with different roles and objectives:

Customer Agent (CA) 	<ul style="list-style-type: none"> ❖ Find travel arrangements ❖ Save \$\$
Travel Agent (TA) 	<ul style="list-style-type: none"> ❖ Satisfy customers' needs ❖ Maximize profits
Web Service Agent (WSA) 	<ul style="list-style-type: none"> ❖ Sell "goods" (e.g., plane tickets , hotel rooms) ❖ Maximize profits



- TAGA provides Agent Shell
 - Download the source code, customize the parameters, and play the game
 - Users can also develop customized agent strategies
 - Agents follow well-defined, industry supported standards for agent communication languages and protocols
- Based on TAGA, researchers can develop more advanced agent models involving distributed trust, social norms, reputations models, security and privacy considerations.

TAGA in Action

TAGE Home Page
<http://taga.umbc.edu>

Monitor TAGA game status online

Download the latest TAGA pkg and docs

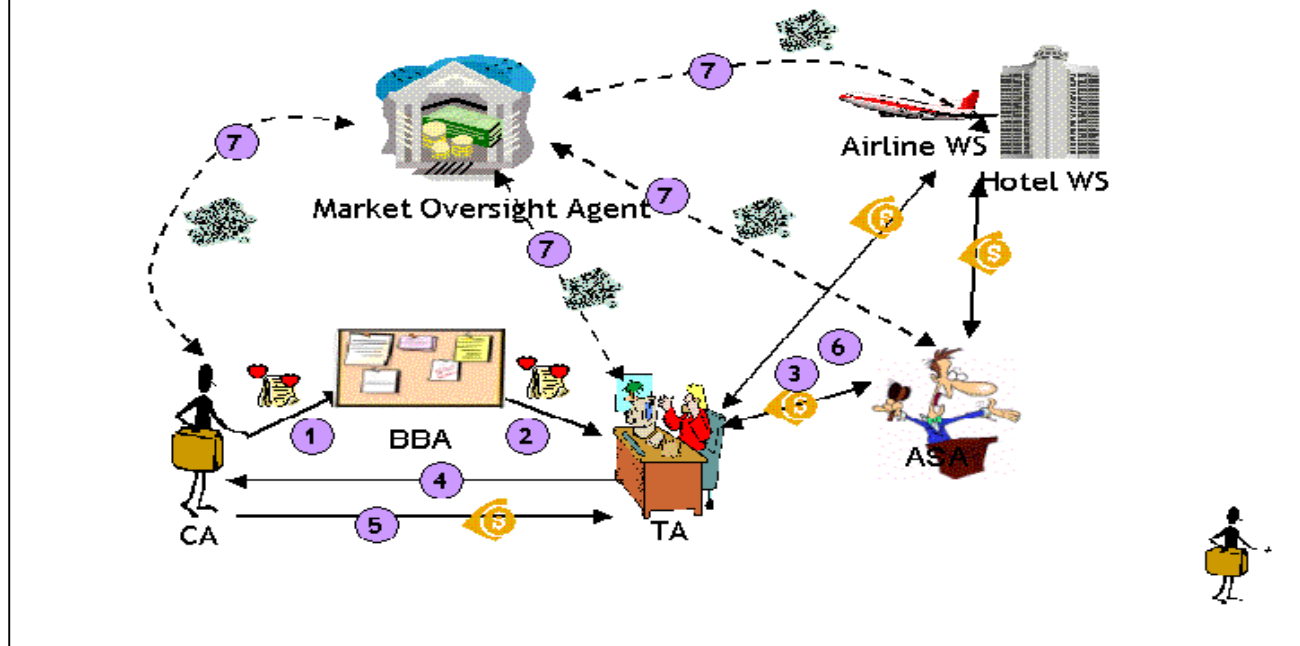
TAGA on Agentcities network:
taga.agentcities.net
umbctac.agentcities.net
Baltimore, MD USA

TAGA supports heterogeneous agent platform.
A FIPA-JADE agent can interact with a FIPA-AAP agent

Our Demo Will Show:

- (1) The architectural design of TAGA, including ontologies, Agent Communications Language, Protocol and agent shell.
- (2) The runtime feature of TAGA game server: a multi-tier semantic web application involving web servers, remote Java applications, FIPA agent systems, global Agentcities, the Semantic Web and web services.
- (3) The runtime interaction of different TAGA agents including the complete cycle of a typical TAGA scenario.
- (4) How to customize and extend the TAGA for research and teaching purposes.

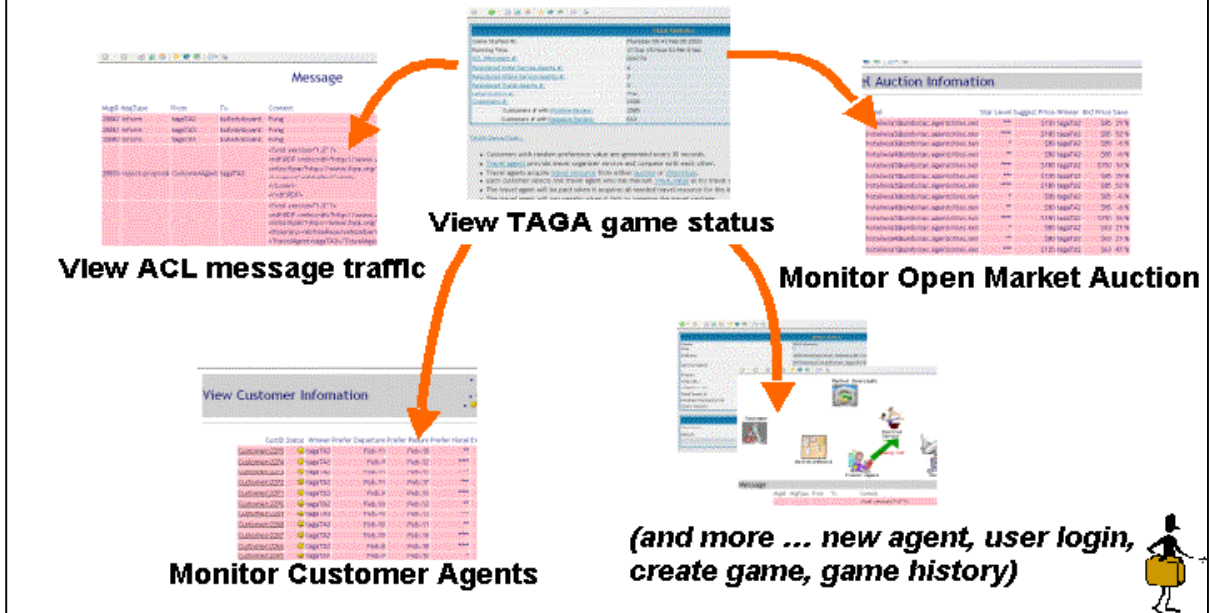
A Typical Scenario



- (1) A new customer with particular travel constraints and preferences sends CFP message to BBA;
- (2) BBA forwards the CFP to registered TAs.
- (3) Each TA contacts the necessary ASAs and SAs, independently decides how to respond;
- (4) TA sends CA a travel itinerary proposal, including the travel date, travel service units, price and penalty;
- (5) CA compares proposals, ultimately selecting one TA based on price, penalty and TA's reputation;
- (6) The chosen TA attempts to purchase the service units in the itinerary from the ASAs and SAs;
- (7) All transactions are reported to the MOA, who will verify them and transfers money from buyer to seller.

The TAGA Game Server

<http://taga.umbc.edu/>



- TAGA is constantly running as part of the Agentcities network (<http://www.agentcities.net>);
- The TAGA server publishes travel and auction services to DF, responses to the travel service requests and maintains the integrity of the game.
- The TAGA agents, implemented in Jade or AAP, can dynamically join and leave without interrupting the execution of other agents;
- TAGA has robust Apache + MySQL web back-end system and a highly customizable PHP web scripting front-end.

TAGA Now and in the Future

Now

- A Sourceforge project
- Built on FIPA standards: Agentcities + April Agent Platform (AAP) + JADE
- Employs OWL in agent communication
- Uses OWL-S in Web Service registrations
- Robust & persistent web server backend (MySQL + PHP + Apache)

In the Future

- Ontology sharing and ontology mapping
- Interact with existing Agentcity services and web services
- Support hand-held devices
- Develop TAGA toolkit for teaching agent technology and Semantic Web.

For more info: <http://taga.umbc.edu>



- We successfully demonstrated TAGA and won a prize in the Agent Technology Competition (Barcelona 2003) organized by Agentcities.NET.
- For more information, visit <http://taga.umbc.edu> for
 - Mailing lists
 - Source code download
 - News and Documents
 - Contact info
 - And more...