



 POLITECNICO DI MILANO

Dipartimento di
Elettronica e Informazione

SWARM Direction Voting

Maurizio Garbarino

Adnan Abid

7 April 2009

Flow of Presentation

- Problem Statement
- Proposed Solution
- Implementation Details
- Results
- Questions

- In SWARMS there is a problem of finding a direction in a way that the SWARM should be kept connected (like a single component graph)
- Based on
 - Alternative Voting Systems
 - ✓ Steven J. Brams
 - ✓ Peter C. Fishburn

Political Parties and Elections in the United States: An Encyclopedia

1991

Flow of Presentation

- Problem Statement
- **Proposed Solution**
- Implementation Details
- Results
- Questions

- **Alternative Voting Systems**
 - **Approval Voting**
 - A variant of Approval Voting
 - One agent can only vote for 1 preference
 - The *option* that gets the maximum votes is selected
 - **In the current scenario the chosen direction is the one selected by the maximum number of agents.**

Flow of Presentation

- Problem Statement
- Proposed Solution
- **Implementation Details**
- Results
- Questions

Framework: JADE

One of the most significant frameworks for Agent Based Software Development.

A simple project to implement the Agent Communication Architecture for conducting the voting among the agents.

Based on two kinds of messages

PROPOSE

- used when a single agent wants a poll for new direction

INFORM

- used for casting the vote

Flow of Presentation

- Problem Statement
- Proposed Solution
- Implementation Details
- **Results**
- Questions

Results

```
maury@hakkar: /storage/jade maury@hakkar: /storage/jade maury@hakkar: /storage/jade
va4:NEW DIRECTION PROPOSAL
va2:Information received from va2@hakkar:1099/JADE
va1:Information received from va2@hakkar:1099/JADE
va2:Information received from va1@hakkar:1099/JADE
va1:Information received from va1@hakkar:1099/JADE
va2:Information received from va3@hakkar:1099/JADE
va1:Information received from va3@hakkar:1099/JADE
va3:Information received from va2@hakkar:1099/JADE
va2:Information received from va4@hakkar:1099/JADE
va3:Information received from va1@hakkar:1099/JADE
va1:Information received from va4@hakkar:1099/JADE
va4:Information received from va2@hakkar:1099/JADE
va3:Information received from va3@hakkar:1099/JADE
va4:Information received from va1@hakkar:1099/JADE
va3:Information received from va4@hakkar:1099/JADE
va4:Information received from va3@hakkar:1099/JADE
va4:Information received from va4@hakkar:1099/JADE
NEW DIRECTION: SW with 2 votes.
va4:NEW DIRECTION PROPOSAL
va1:Information received from va1@hakkar:1099/JADE
va1:Information received from va3@hakkar:1099/JADE
va3:Information received from va1@hakkar:1099/JADE
va4:Information received from va1@hakkar:1099/JADE
va1:Information received from va4@hakkar:1099/JADE
va4:Information received from va3@hakkar:1099/JADE
va3:Information received from va3@hakkar:1099/JADE
va1:Information received from va2@hakkar:1099/JADE
```

Thank you!!!
Questions???