Introduction

Ad Hoc Networks
Rapidly deployable, bring your own network solution that can support many domains, e.g., search and rescue teams and invading military forces.

Multi Agent Systems (MAS)
Software entities with seemingly intelligent behaviour:
+ Environmentally Aware
+ Interactive
+ Take Decisive Action

State of the Art
Ad Hoc Routing Protocols
Topography Based
AODV, DSR, AODV-BR
Position Based
GPSR, GPCR, AODV-DFR

Agent Distribution
Optimistic, on-demand/reactive mechanism for distributing software agents

AD Message Types
1. Agent Query
2. Pop Query
3. Pop Reply
4. Agent Reply

AD Mechanism Operation
1. S broadcasts Agent Query
2. A1/A2 broadcast Pop Query
3. B1-B4 send back Pop Reply
4. A1/A2 send back Agent Reply
5. Agent on S jumps to A1/A2

Shoulder Monkey

System Specification
+ Message delivery system for use in ad hoc networks
+ Built using the MAS paradigm
+ Implements the AD mechanism
+ Allows migrant agents to traverse an ad hoc network in a multihop fashion

Design Architecture for Shoulder Monkey

Evaluation

Communication using TCP
+ Transfer rate drops as hops increase
+ Many erroneous TCP segments
+ Entire network not utilised

AD Mechanism
+ 100% success rate in data delivery
+ Minimal mechanism footprint
+ Entire ad hoc network utilised

Conclusions/Future Work

Conclusions
+ Ad hoc in the wild (Real World/Real Time)
+ MAS and ad hoc work well together
+ AD mechanism enables
  + Rapid routing of small payloads
  + Successful routing for large payloads

Future Work
+ Large Scale Testing
+ Implementation of AD mechanism in the MAC layer
+ Dynamic addition of agent behaviour

Further Information

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