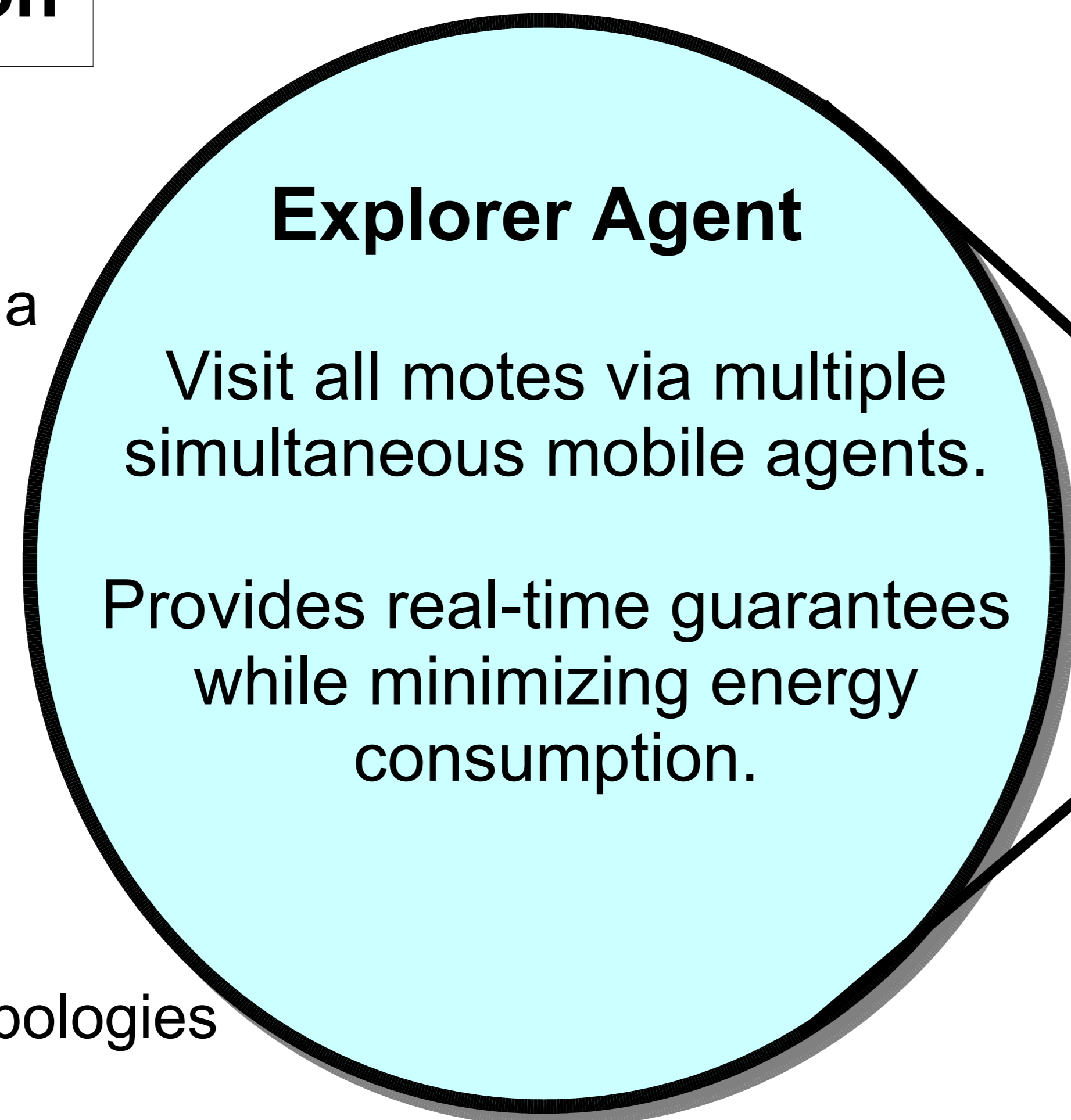


Daniel Massaguer
Nalini Venkatasubramanian

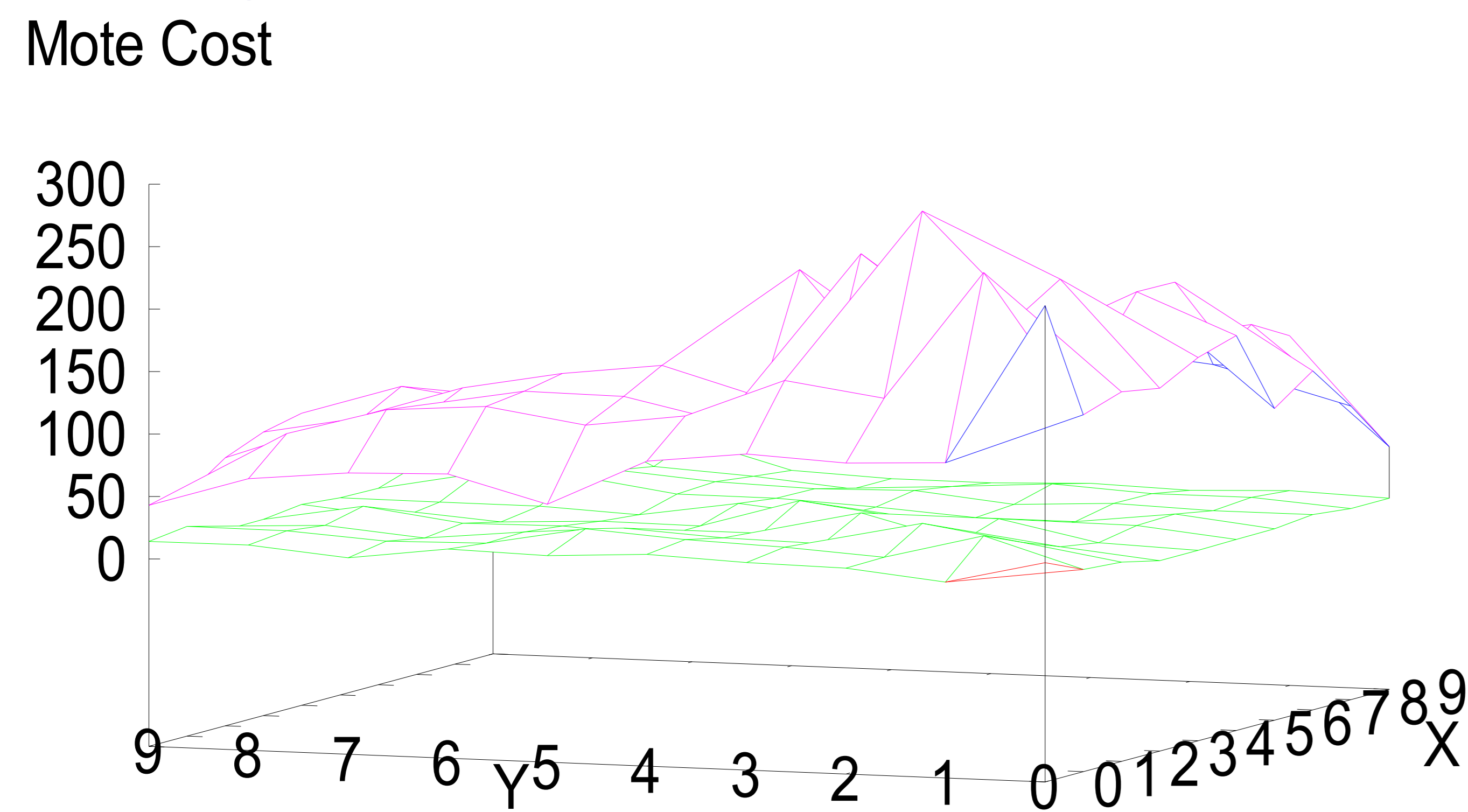
Network Exploration

Two-Step Algorithm

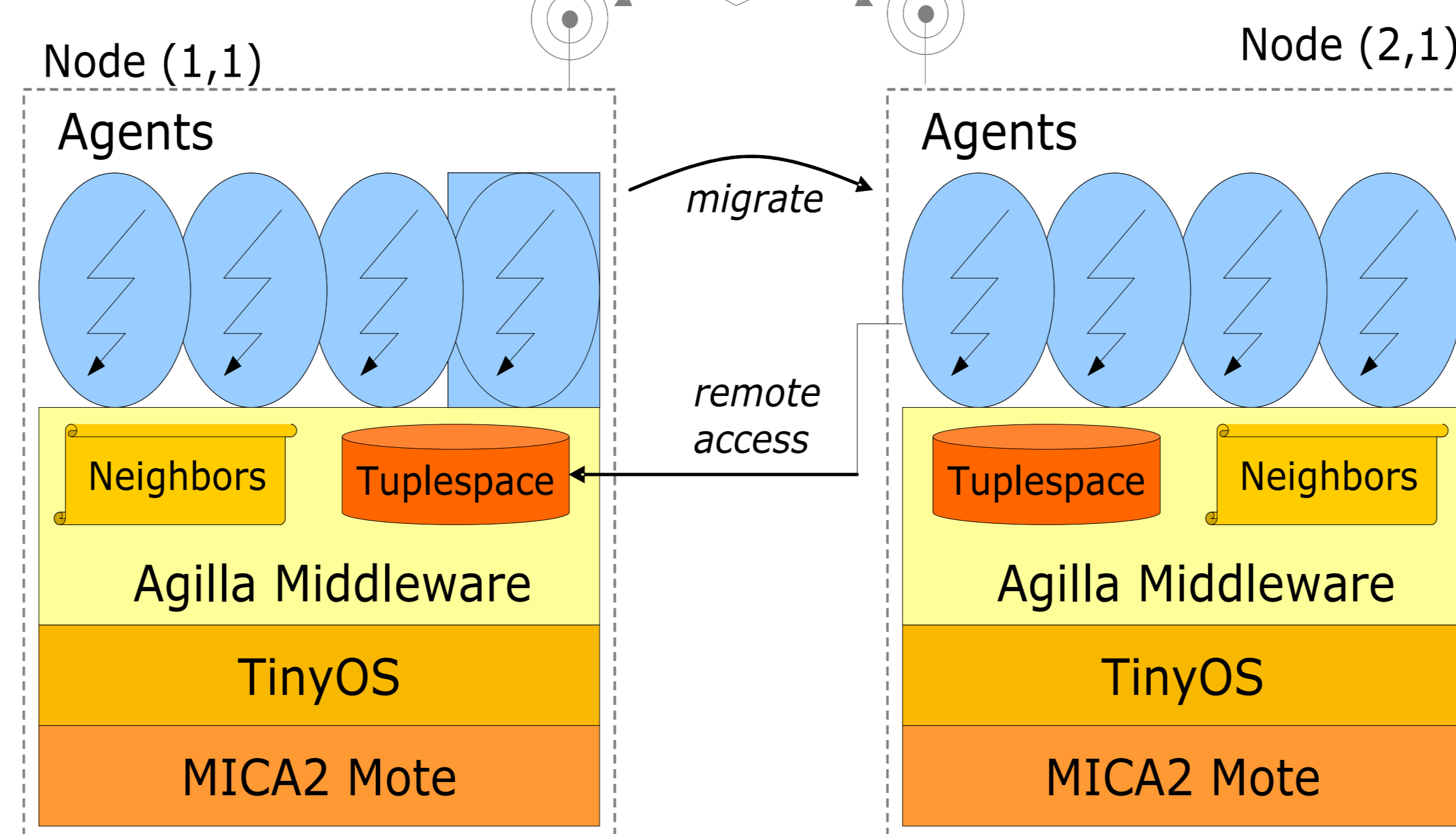
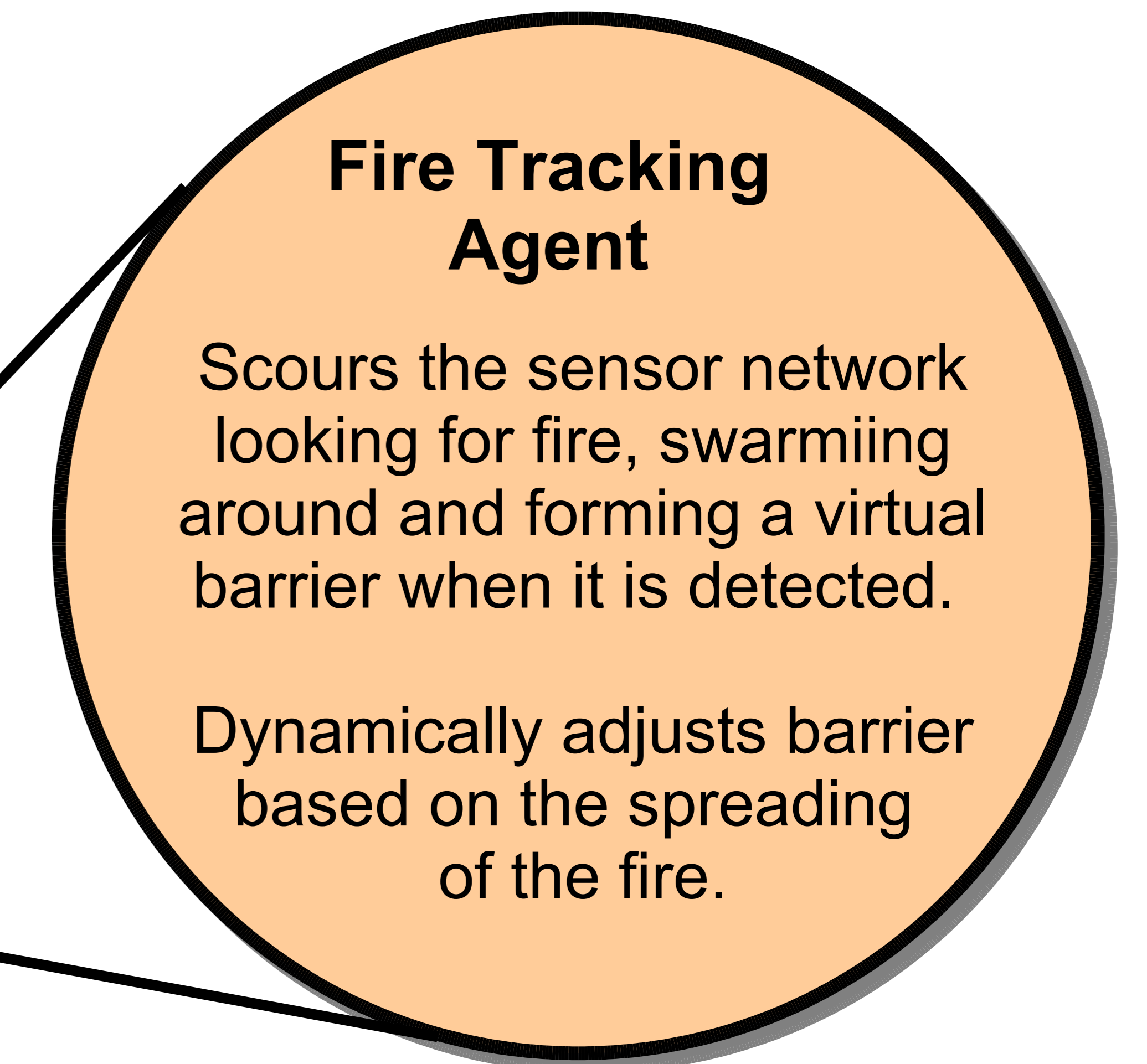
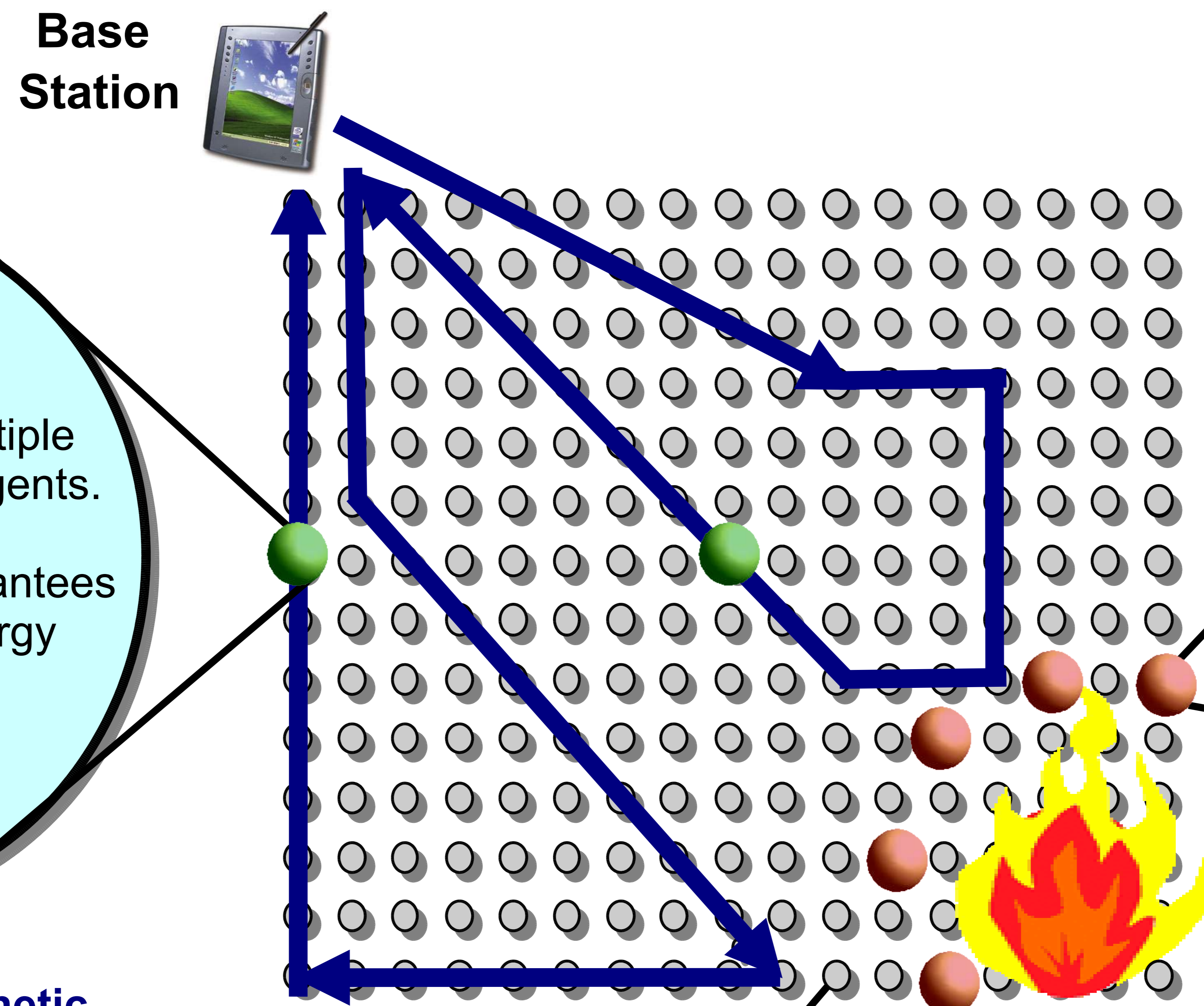
- 1. Route Preplanning** by a genetic algorithm:
Server decides:
 - Number of mobile agents
 - basic itineraries of each agent
- 2. In-Network Localized Decisions:**
Mobile agents adapt to
 - unexpected network topologies
 - node failures



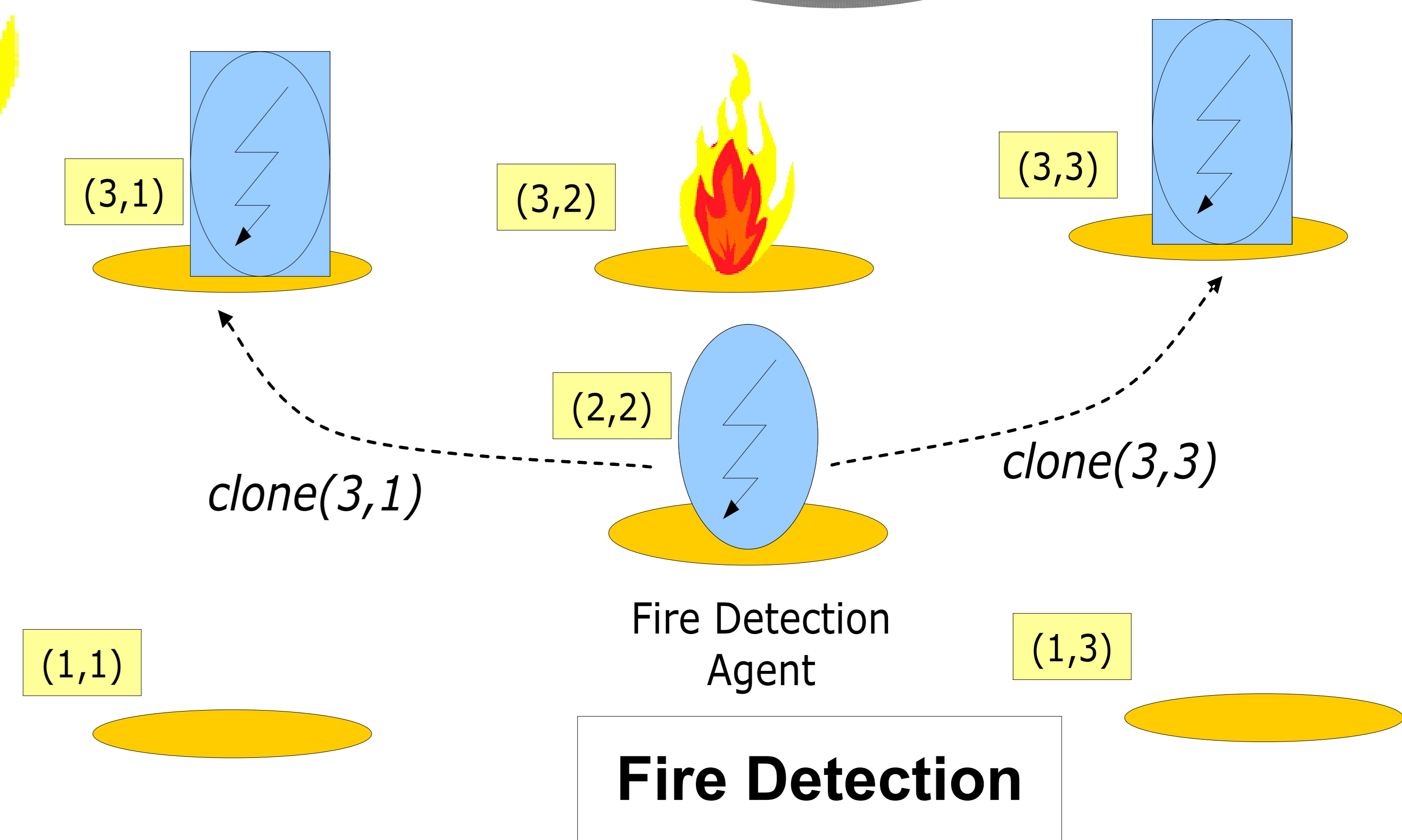
Individual Mote Cost (Energy-Wise) of the Genetic Algorithm Best and Worst Solutions



Best implies smaller and more balanced individual cost



Agilla



- Upon detecting fire, the fire tracking agent clones itself to all neighbors within a distance of 1.5 of the fire forming a barrier.
- Agents continuously monitor temperature and jump away when it gets too hot, and jumps towards the flames when it gets too cold, thus forming a **dynamic barrier**.

Mobile Agents
Flexibility
Robustness
Load Distribution

- Agents are written in a higher-level language; simplifies programming
- Agents can be dynamically injected into an existing network
- Agents can move or clone onto any node addressed by **location**
- Inter-agent coordination and context discovery done through **tuplespaces**

Wireless Sensor Networks
Ubiquitous and Large
Resource-constraint
Faulty