Service Oriented Computing

- SOC is based on the service concept
- Services are loosely coupled components
- Services have well defined interfaces and are invoked through the network
- Business operations can be offered as services
- Services can be selected at runtime
- Services can be composed into coarse grained Composite Services

Composite Services

- How to find component services at runtime?
- How to select and bind to component services at runtime?
- How to adapt service compositions to maintain a required QoS?

Decentralized Coordination

1. Agents cooperate in an overlay network
   - ResourceAgents provide QoS information about their services
   - OrgAgents maintain QoS for their composite services
   - No agent has complete knowledge about network

2. Ant Colony Optimization (ACO) inspired
   - ExplorationAnts explore network, taking pheromone level and QoS into account
   - IntentionAnts spread QoS information (pheromone) in the overlay network

Challenges

- Dynamic environment, services become available and unavailable
- Many services have real world effects, what constrains the de-allocation of a service
- How to create robust composite services