

Software Engineering of Distributed Systems, KTH

AOSE and Mobility

Distributed AI and Intelligent Agents, Homework 3, Question 4

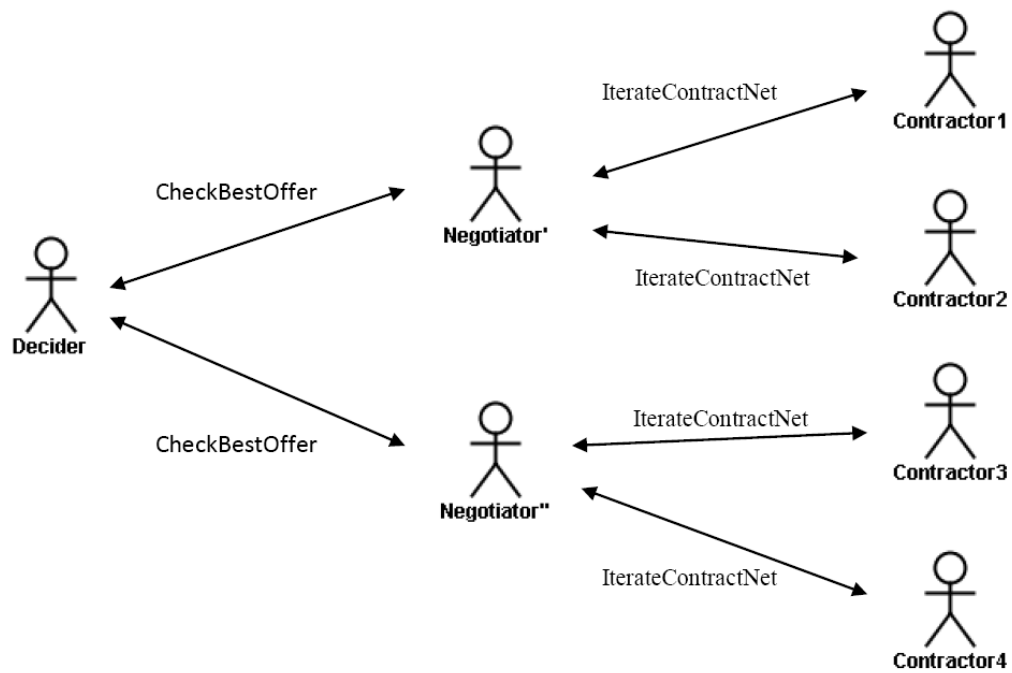
Role Model

Role	Decider
Description	It acts as a decider and selects the best offer from negotiators.
Protocols and Activities	SelectBestGlobalOffer
Permissions	
reads	supplied localBestOffers
generates	globalBestOffer
Responsibilities	
Liveness	GenerateGlobalBestOffer = (CollectLocalBestOffers • SelectBest)
Safety	true

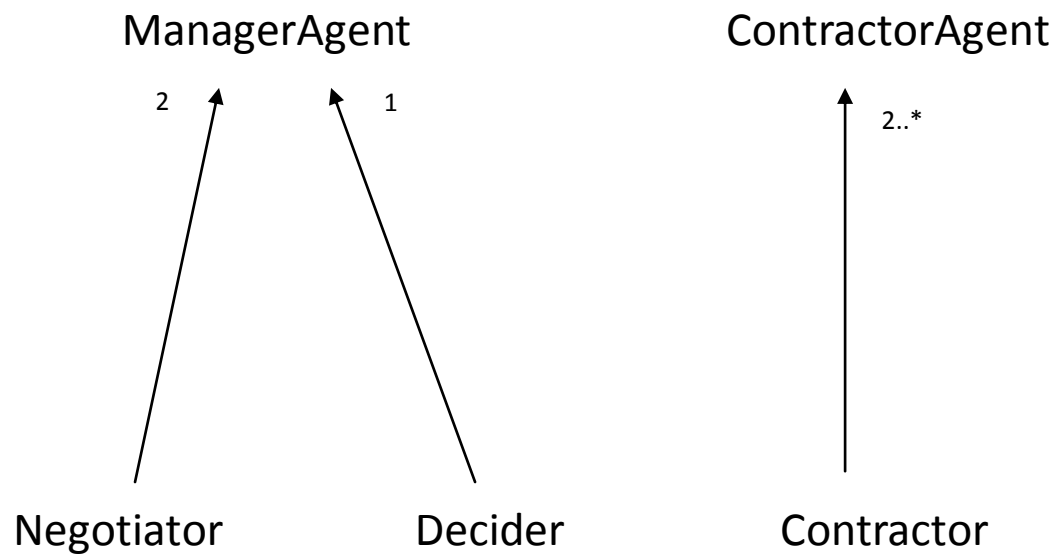
Role	Negotiator
Description	Initial and manage contract with contractors
Protocols and Activities	SelectBestLocalOffer
Permissions	
reads	supplied localOffers
generates	localBestOffer
Responsibilities	
Liveness	GenerateBestLocalOffer = (CollectLocalOffers • SelectBestOfCurrentRound)+
Safety	true

Role	Contractor
Description	It behaves like a contractor and makes offer to local negotiator
Protocols and Activities	MakeOffer
Permissions	
reads	currentLowestOffer
generates	myNewOffer
Responsibilities	
Liveness	GenerateNewOffer = (ReadCurrentLowestOffer • CalculateNewOffer)+
Safety	true

Interaction Model



Agent Model



Service Model

Service	Inputs	Outputs	Pre-condition	Post-condition
Make offer		<i>offer</i>	<i>able to make a better offer</i>	<i>offer \neq nil</i>
Select best offer	<i>offers</i>	<i>best offer</i>	<i>receive all offers</i>	<i>best offer \neq nil</i>
announce local best offer	<i>offer</i>	<i>local best offer</i>	<i>only one contractor left</i>	<i>true</i>
announce global best offer	<i>local best offers</i>	<i>global best offer</i>	<i>end of local contracts</i>	<i>true</i>

Acquaintance Model

