

Re-Negotiation Protocol Proposal

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Design Approach I

- Define protocol on abstract level
 - first technology-independent
 - then map to realization technology
 - defined messages, meaning, SLA state machine
 - defined allowed message sequences by preconditions, not by MSCs

Design Approach II

- Assumption: network can fail
 - messages can be delayed, lost, duplicated
 - protocol should work correctly in such environments
 - loose consistency is okay: provider and consumer can have (temporarily) different view of state of SLA
- Assumption: protocol is independent of application domain
 - terms within SLA do not affect re-negotiation protocol

Protocol “Phases”

- Non-binding exchange of offers
 - to re-negotiate terms within SLA
 - both partners can initiate this process
- Binding agreement to offer
 - results in a new SLA
 - both partners have to agree
 - initiated only by the customer

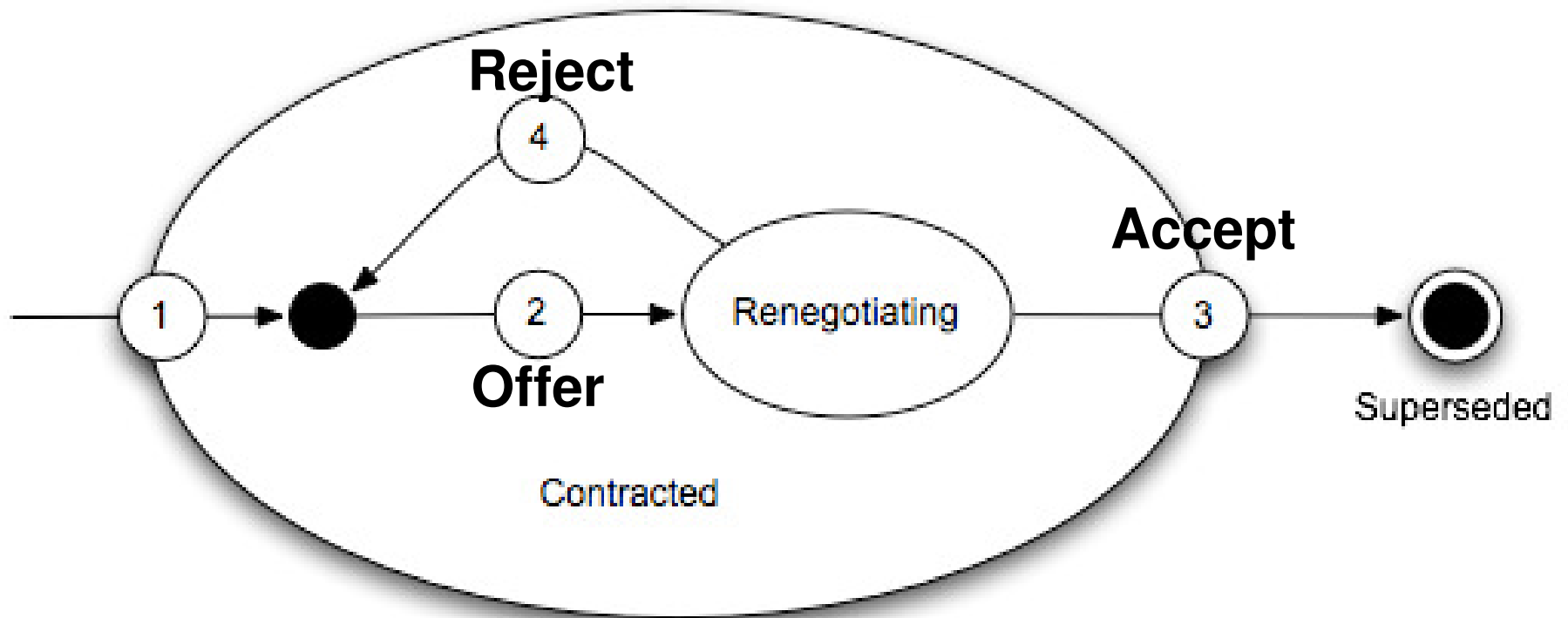
Messages

- RenegotiationQuoteRequest, RenegotiationQuote
 - non-binding exchange of quotes
- RenegotiationOffer, RenegotiationOfferAck, RenegotiationAccept, RenegotiationReject
 - binding offer exchange
- RenegotiationNotPossible
 - indicate unwillingness to re-negotiate an SLA

Safety Properties

- Only an offer that has been made can be accepted
- Only one offer can be accepted in an instance of the re-negotiation protocol
- Acceptance of an offer revokes all other outstanding offers
- Receipt of RenegotiationNotPossible by client revokes all outstanding offers

Contract State Machine



Next Steps

- Agree on abstract protocol & messages
- Design mapping to realization technology, e.g. Web Services
- Write specification

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