

Securing SLA Negotiations in Virtual Organisations

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Outline

- I. Background
- II. Problem Statement
- III. Goals & Methodology
- IV. Limitations

Background

Service Level Agreement (SLA):

A contract that formalizes a business relationship between two parties¹. It usually contains:

- Parties involved
- Validity Period
- SLA parameters
- Metrics and algorithms used to compute SLA parameters
- Service level objectives/Service guarantees and the necessary actions to be taken if those objectives/guarantees are violated.

Virtual Organisation (VO):

A temporary network of independent companies that come together quickly to exploit fast-changing opportunities [1].

[1] Svirskas, A., & Roberts, B. (2003). Towards Business Quality of Service in Virtual Organisations through Service Level Agreements and ebXML. *10th ISPE international conference on concurrent engineering*

Background (cont.)

- **TrustCoM**
 - The EU decided to fund the development of a framework for *Trust, Security and Contract Management* for dynamic VO.
 - The framework is to support the creation of VOs, interactions between the VO members and those between the VO and parties outside it.
 - The framework will make use and extend open standards and specifications like Web Services.

- **Negotiation process:** a process between two or more parties that interact in order to reach an agreement about one or more issues.

- **Negotiation Protocol** = Interaction Protocol + Rules

- **Negotiation Mechanism** = Negotiation protocol + Strategy

- Negotiations can take place between the VO members or between the VO and outsiders.

Problem Statement

Negotiating an SLA

- A lot of research has been done on negotiation protocols but mostly for negotiation between agents.
- The WS/Grid community has been working on that (WS-AgreementNegotiation, WS-Negotiation).
- No negotiation protocol established within the TrustCoM framework.
- Negotiations take place within a business context. Security becomes an important issue.

Goals & Methods

1. Look at a general negotiation process and derive the security requirements for it.
 - **Xtreme Security Requirements Engineering Method.**
2. Define the requirements which will suit the negotiation needs of a SLA in a VO environment in terms of functionality.
 - **Montreal Taxonomy, TrustCoM documentation and people.**
3. Choose a negotiation protocol from the existing state of the art, according to the requirements set above.
 - **Literature survey, Montreal Taxonomy**
4. Examine the chosen protocol security-wise and state what such a protocol needs to have to be considered secured (TrustCoM scenario).
 - **Xtreme Security Requirements Engineering Method.**
5. Implement a negotiation scenario based on the chosen protocol.
 - **Business Process Execution Language for Web Services (BPEL4WS).**

Limitations

- We will focus on SLA negotiations. We will not consider GVOAs or other type of agreements.
- Negotiation Strategies will be out of our scope.