Securing SLA Negotiations in Virtual Organisations

Sakyibea Darko-Ampem
Maria Katsoufí

 Supervisors: Gustav Boström (DSV)
 Pablo Giambiagi (SICS)
Outline

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Background

Service Level Agreement (SLA):

A contract that formalizes a business relationship between two parties\(^1\). 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].

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.