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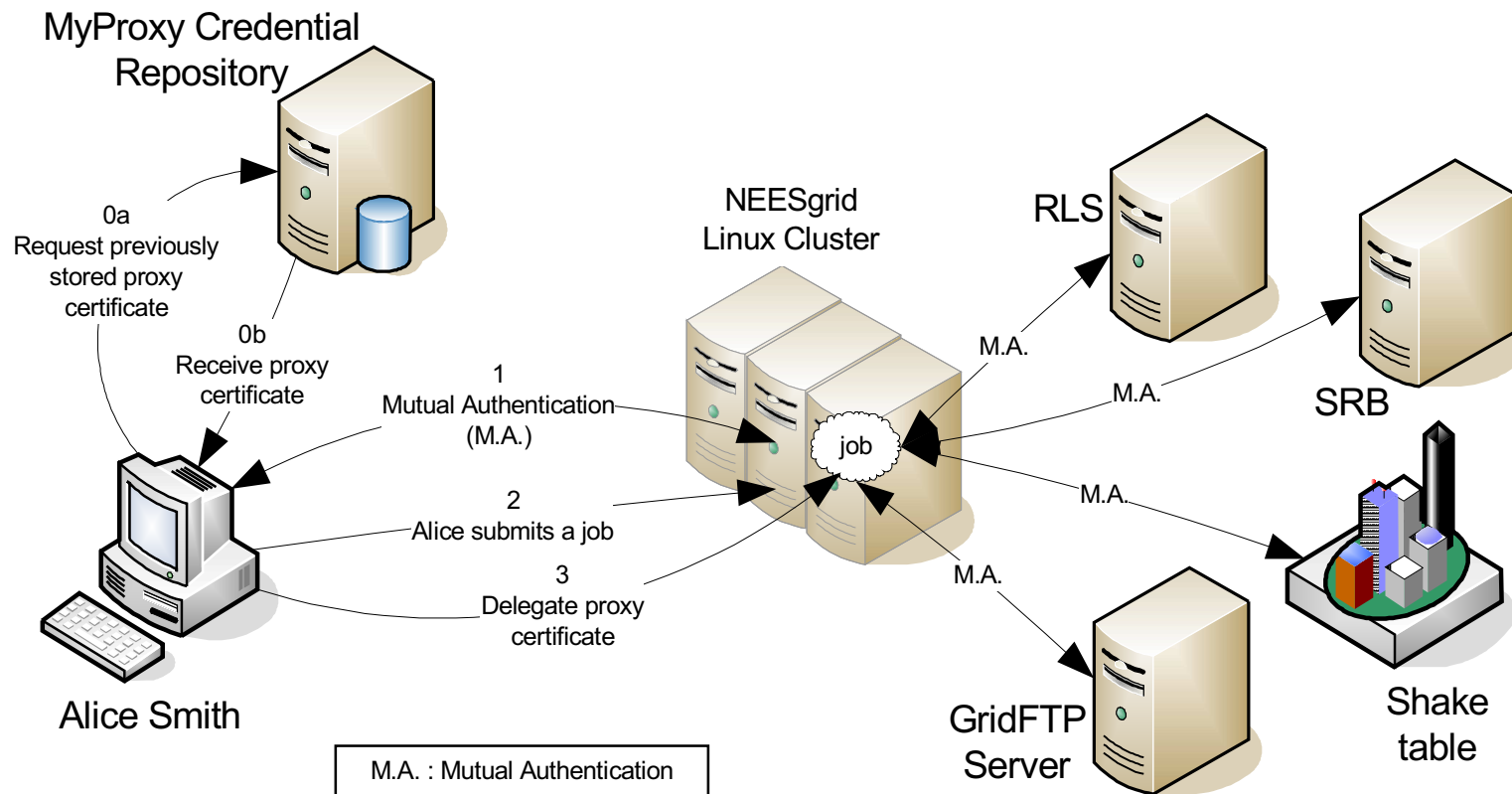
Policy-Based Negotiation for Grid Service Authorization

Daniel Olmedilla, Wolfgang Nejdl

Semantic Grid: The Convergence of Technologies
Dagstuhl Seminar, 4th-8th July 2005

Motivating Scenario

Grid Limitations



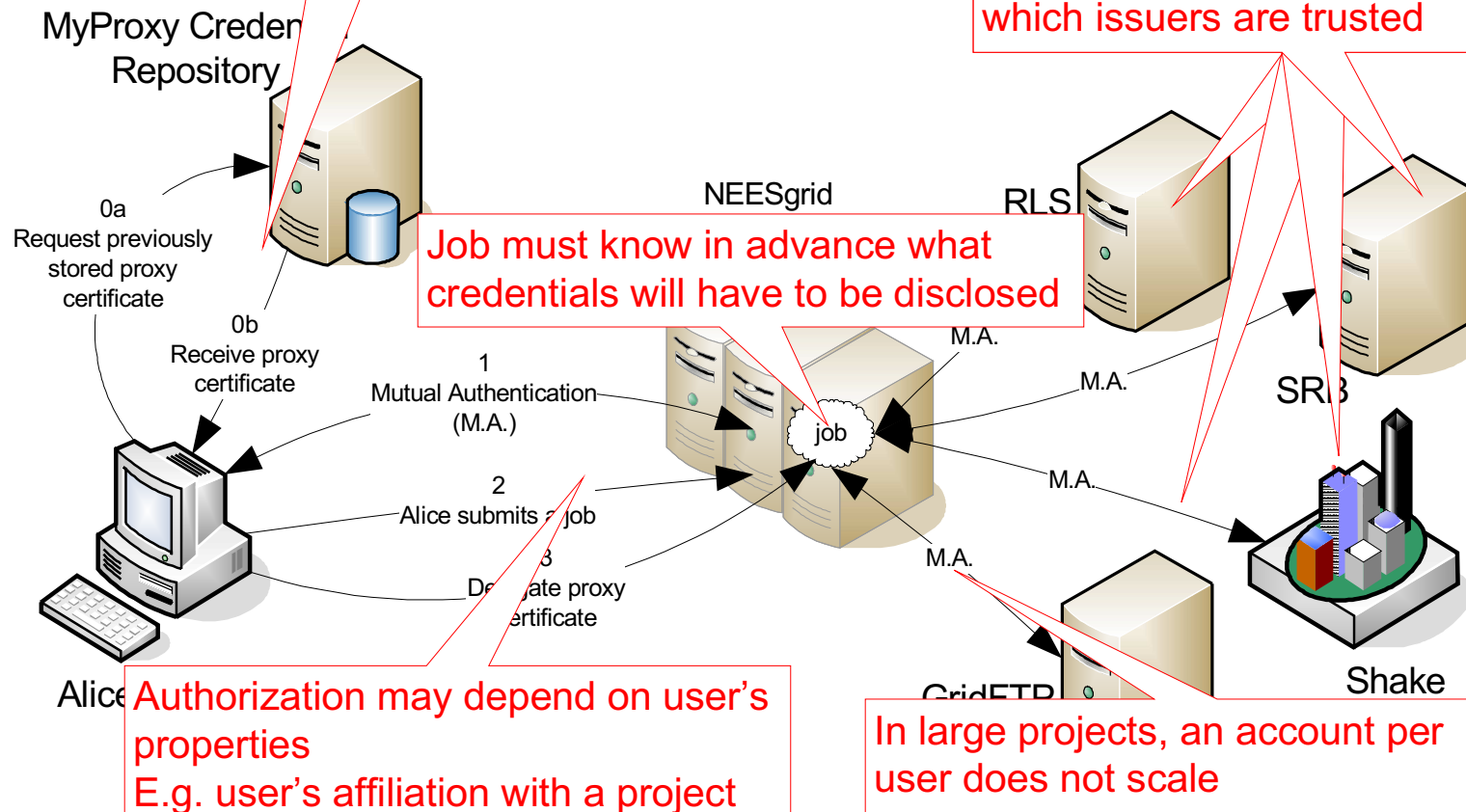
Motivating Scenario

Grid Limitations



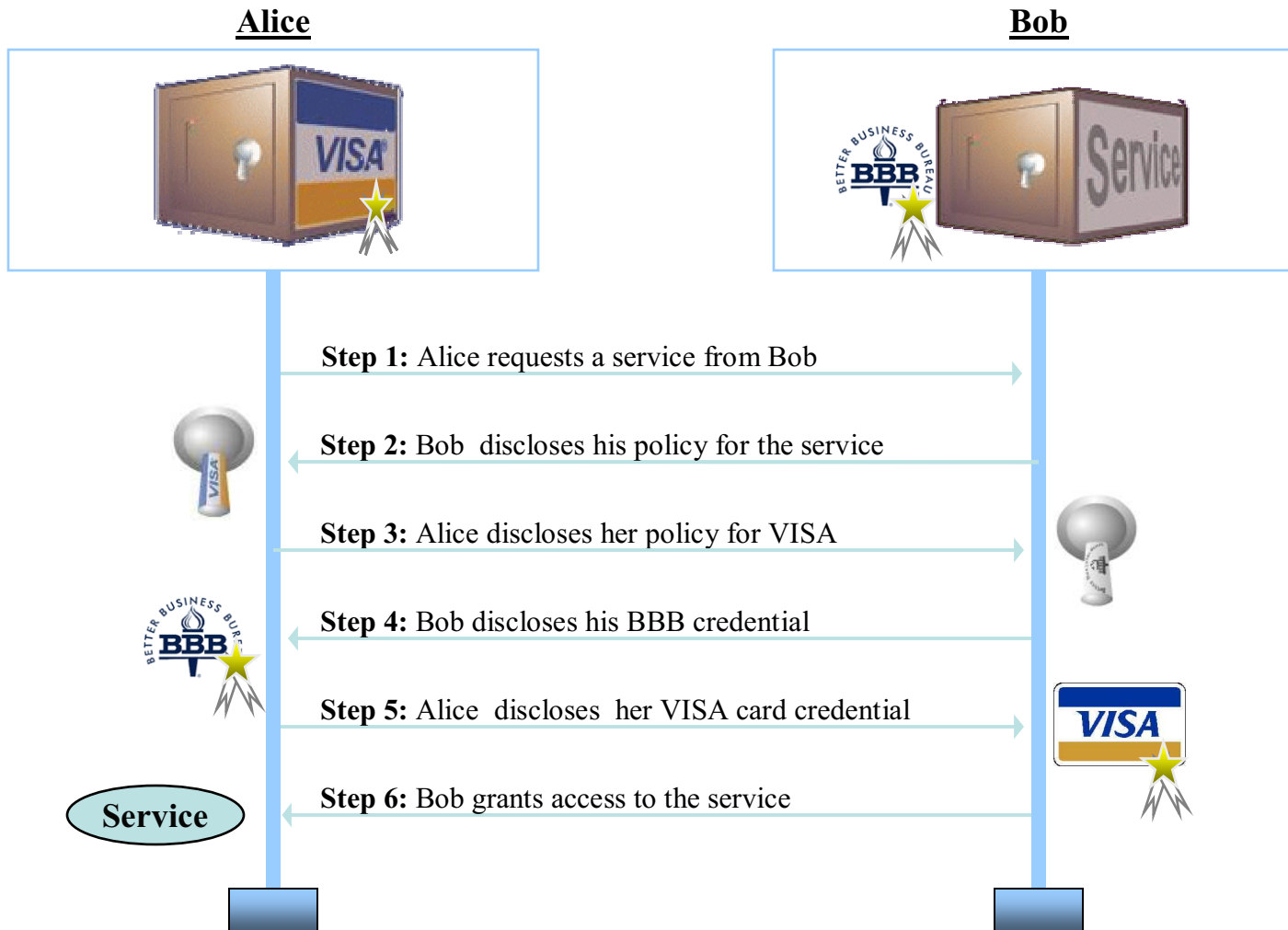
- Too many Credentials to keep track of
- Knowing which credential to use

- Different sites trust different CA
- No way to determine automatically which issuers are trusted



Policy-Based Negotiation

Trust Negotiation



Using policies in the Grid

Policy-based Negotiation



To gain access to a grid resource, I must satisfy its access control policy, which describes

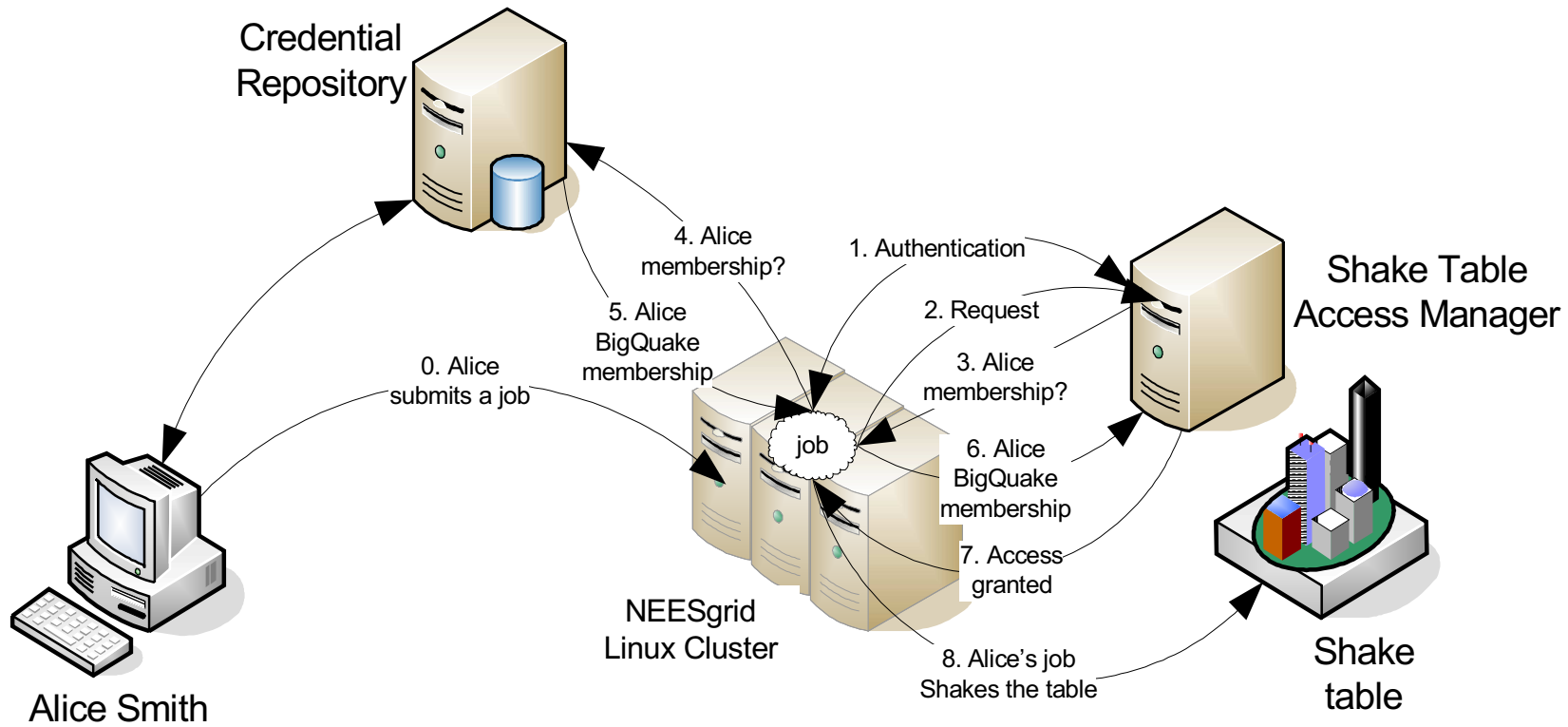
- Which certificates must be presented to gain access to it
- Who is responsible for obtaining and presenting these certificates

If required, for sensitive resources, negotiation can be longer

- To obtain (access to) a certificate, I must satisfy its access control policy, which specifies ... --and so on, recursively—

Motivating Example

Negotiating on the Grid



Implementation

Easy Integration with Current Grid Services



Service

- include one jar file containing the policy based trust negotiation engine
- minor add-ons to the service wsdl file (import one wsdl file and extend one port type) and wsdd file (add one more provider and install a security descriptor)
- have a resource (if not available)
- re-deploy the service

Client

- use one jar file containing the policy based trust negotiation engine
- invoke the service as usual / or call directly for a trust negotiation process
- look for authorization exceptions and if one triggered by trust negotiation failure make simple calls to the negotiation engine



Negotiating Trust on the Grid

J. Basney, W. Nejdl, D. Olmedilla, V. Welch, M. Winslett
2nd Workshop on Semantics in P2P and Grid Computing at
the 13th International WWW Conference, May 2004, New
York, USA

D-GRID Infrastructure Project

- Work on AAAI / Security
- Specifically on / with MyProxy and online credential repositories
- Project starts in August/September



Thanks!

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