

Title: Access control and inference problem in data integration systems

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Abstract

In data integration system a mediator is defined. This mediator aims at providing a unique entry point to several heterogeneous sources. In this kind of architecture security aspects and access control in particular represent a major challenge. Indeed, every source, designed independently, defines its own access control policy. The problem that arises in this context is the following: "How to define a representative policy at the mediator level that allows preserving source policies?". We propose an incremental methodology able to tackle the inference problem in a data integration context. The first phase of this methodology, the detection phase, characterizes the role of semantic constraints in inducing inference about sensitive information. We also introduce in this phase a graph-based approach able to enumerate all indirect access that could induce accessing sensitive information. In order to deal with previously detected indirect access, we introduce the reconfiguration phase which provides two solutions. The first one is achieved at design time while the second is achieved at runtime.

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