

Modality conflict detection model with authorization propagation in policy evaluation

ABSTRACT

Modality conflict is one of the main issues in policy evaluation. Existing modality conflict detection approaches do not consider complex condition attributes such as spatial and temporal constraints. In this paper, a modality conflict detection model is proposed to identify the applicable policies during policy evaluation, which supports an authorization propagation rule to investigate the class-subclass relationships of a subject, resource, action, and location of a request and a policy. We have evaluated the effectiveness of our proposed modality conflict detection model on real XACML policies for university, conference management, and health-care domain. Overall, our solution achieved higher percentage of P, R, and F in retrieving the applicable policies and in detecting modality conflict as compared to the previous work.

Keyword: Modality conflict; Authorization propagation; Policy evaluation; Spatial and temporal constraints; Distributed environment