

# Abstract

XML is extensively used in business processes. Security in business processes is the most critical requirement. To fulfill this requirement business processes uses XML security. XML security provides a means for securing messages by providing message level security as well as for securing resources from unauthorized and illegal access with different authentication and authorization schemes. XML security standards like XML signature, XML Encryption are used for message level security while authorization standards like XACML provides a means for access control. In this thesis we have analyzed the problem of XML Canonicalization, which provides a normalized format of XML document. Canonicalization is an important and most time consuming phase for XML Signature generation. Existing implementations of Canonicalization performs canonicalization after parsing the whole XML tree for which time required for this step is much higher. In this thesis we propose a solution to minimize the time for Canonicalization.

In the second part of our work we have studied the problem of Dynamic Delegation of Authority in Web Services in XACML context. Dynamic Delegation of Authority in Web Services is a current research issue, in current works function of delegation is entrusted to PDP. Thereby, PDP becomes bulky and bottleneck of performance particularly in case of dynamic delegation. Delegation decision and authorization decision are functionally distinct. Therefore, in this paper, we propose an extended architecture of XACML model by adding a separate entity called Delegation Decision Point (DDP) whose job is to handle dynamic delegation of authority. Our proposed model deals with delegation of attributes instead of delegation of policies. The model is implemented in Java and working satisfactorily.