

# HyXAC: a Hybrid Approach for XML Access Control

Manogna Thimma, Bo Luo  
University Of Kansas

## Abstract:

While XML has been widely adopted for sharing and managing information over the Internet, the need for efficient XML access control naturally arise. Various access control models and mechanisms have been proposed in the research community, such as view-based approaches and preprocessing approaches. All categories of solutions have their inherent advantages and disadvantages. For instance, view based approach provides high performance in query evaluation, but suffers from the view maintenance issues.

To remedy the problems, we propose a hybrid approach, namely HyXAC: Hybrid XML Access Control. HyXAC provides efficient access control and query processing by maximize the utilization of available (but constrained) resources. HyXAC uses pre-processing approach as a baseline to process queries and define sub-views. It dynamically allocates the available resources (memory and secondary storage) to materialize sub-views to improve query performance. Dynamic and fine-grained view management is introduced to utilize cost-effectiveness analysis for optimal query performance. Fine-grained view management also allows sub-views to be shared across multiple roles to eliminate the redundancies in storage.