

EECS Seminar

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The Pennsylvania State University

1:00 p.m.

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3152 Learned Hall

XML Access Control in Native and RDBMS-supported XML Databases

Abstract

As the eXtensible Markup Language (XML) emerges as the de facto standard for storing and exchanging information in the Internet Age, the needs for efficient yet secure access of XML data naturally arise. It becomes increasingly important to be able to tailor information in XML data for various users and applications, while preserving confidentiality. Toward this problem, I have developed a novel XML access control technique that exploits the mature RDBMS and security mechanism therein. Although being practical since majority of relational and XML data are managed by RDBMS (not by XML database), this approach of using RDBMS to support XML access control needs to address challenging issues due to incompatible relational and XML models. In particular, in this talk, I will discuss: (1) a general framework to capture design principles and operations of existing XML access control mechanisms across centralized and distributed environments, (2) an efficient, view-free, Non-deterministic Finite Automata (NFA) based XML access control enforcement method, called QFilter, which works independently from the underlying XML engine. (3) Theoretical results on how one can (and cannot) support fine-grained XML access control when XML data are managed by RDBMS, and (4) an XML information brokering system which enforces access control through a broker-coordinator overlay network in a distributed environment.

Bio

Bo Luo is a Ph.D. candidate at College of Information Sciences and Technology, the Pennsylvania State University. He got an M.Phil degree in Information Engineering from the Chinese University of Hong Kong, and B.E. in Electronic and Information Engineering from University of Science and Technology of China. His current research interests include information security and privacy, XML and conventional database systems, and Web-based multimedia technologies and applications.