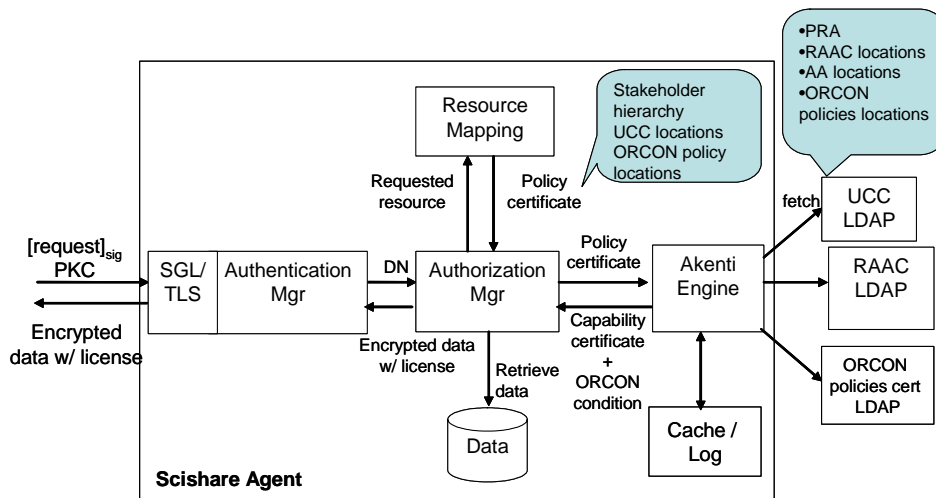


Collaboratories Needs Secure Information Sharing

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Balancing the competing goals of collaboration and security is difficult because interaction in collaborative systems is targeted towards making people, information, and resources available to all who need it, whereas information security seeks to ensure the integrity of these elements while providing it only to those with proper authorization. Protection of contextual information and resources in such systems therefore entails addressing several requirements not raised by traditional single-user environments in part due to the unpredictability of users and the unexpected manners in which users and applications interact in collaborative sessions. Our research enables users to access and selectively share resources in distributed database systems enhancing the scalability of information sharing. We have proposed a security model called role-based delegation. Through delegation, individual user is trusted and empowered to share resources to which they have access. In addition, we successfully addressed privacy issues in collaborative sessions.

Our role-based delegation and revocation framework has been widely cited and adopted in access control community as well as research publications at ACM Symposium on Access Control Model and Technology. Through this project, we have been supporting two Phd students focusing on trust management and delegation model for secure information sharing. One of students has recently finished his dissertation and joined New Mexico Tech as an assistant professor. Another student is about to finalize his dissertation this May publishing his work at ACM Transactions on Information and System Security which is one of prestigious information security journals. Also, we have recently applied our model to sensor networks successfully and our initial study showed us promising outcomes. In addition, we are currently attempting to enhance a tool (called "Scishare") developed by Lawrence Berkeley National Laboratory (LBL) using our security models. We have clearly demonstrated our research results could influence to build secure collaboratory environments.



- PKC: public-key certificate
- RAAC: Role Assignment AC
- RSAC: Role specification AC
- AA: Attribute Authority

Figure 1 Enhanced Scishare architecture with role-based delegation and originator Control