A Highly Secure Access Control Scheme for Web Services in Digital Archives Environments Based on Context-aware

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ABSTRACT

Nowadays, digital archives projects have already accumulated a huge mass of resources in our country. Thus, how to employ web services techniques to provide integrated services, e.g. single sign-on, contents authorization by each other, and so on, among distributed digital archives databases and web site architectures is an extremely significant issue. Specially, with the help of role-based access control (RBAC) mechanism, administrators can easily manage the users in the systems to efficiently view their authority in web services access control tactics. However, with the more and more serious networks security problems, the existing access control mechanisms are insufficient. Therefore, our researches will improve RBAC mechanism by adding the functionality of context-aware, and further analyze hidden context data by using decision tree algorithm. The context-aware technique will dynamically adjust users ’ access constraints with differently temporal, spatial, and environmental factors, and at the same time provide adaptable access contents according to distinctive features of equipment (or devices), such that it can extremely enhance security and efficiency in the digital archives information systems. Our proposed scheme will construct a peer-to-peer distributed transmission protocol to effectively prevent networks congestion, then integrate single sign-on and cross-domain RBAC mechanism to solve inconsistent authority and role conflict problems among multi-system in digital archives environments, and further achieve the capability of flexible authorization by using context-aware technique. Finally, we also implement a prototype to demonstrate the feasibility of the proposed scheme.

Keywords : Digital Archives、Web Services、RBAC、Context-aware、Decision Tree

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