Component Lifecycle and Concurrency Model in Usage Control (UCON) System

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Abstract : Access control is one of the most challenging issues facing information security. Access control is defined as, the ability to permit or deny access to a particular computational resource or digital information by an unauthorized user or subject. The concept of usage control (UCON) has been introduced as a unified approach to capture a number of extensions for access control models and systems. In UCON, an access decision is determined by three factors: Authorizations, obligations and conditions. Attribute mutability and decision continuity are two distinct characteristics introduced by UCON for the first time. An observation of UCON components indicates that, the components are predefined and static. In this paper, we propose a new and flexible model of usage control for the creation and elimination of some of these components; for example new objects, subjects, attributes and integrate these with the original UCON model. We also propose a model for concurrent usage scenarios in UCON.