

BTG-BIBA: A Flexibility-Enhanced Biba Model Using BTG Strategies for Operating System

Authors : Gang Liu, Can Wang, Runnan Zhang, Quan Wang, Huimin Song, Shaomin Ji

Abstract : Biba model can protect information integrity but might deny various non-malicious access requests of the subjects, thereby decreasing the availability in the system. Therefore, a mechanism that allows exceptional access control is needed. Break the Glass (BTG) strategies refer an efficient means for extending the access rights of users in exceptional cases. These strategies help to prevent a system from stagnation. An approach is presented in this work for integrating Break the Glass strategies into the Biba model. This research proposes a model, BTG-Biba, which provides both an original Biba model used in normal situations and a mechanism used in emergency situations. The proposed model is context aware, can implement a fine-grained type of access control and primarily solves cross-domain access problems. Finally, the flexibility and availability improvement with the use of the proposed model is illustrated.

Keywords : Biba model, break the glass, context, cross-domain, fine-grained

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