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EFFICIENT SECURITY FOR DESKTOP DATA GRID USING FAULT RESILIENT CONTENT DISTRIBUTION

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Abstract

Security is the condition that prevents unauthorized persons from having access to official information that is safeguarded in the interests of some particular purpose. Data security ensures that kind of private and sensitive data from <u>corruption</u> and the access to it is suitably controlled. Enterprise businesses and government agencies around the world face the certainty of losing sensitive data from crashed devices. This drives the need for a complete data protection solution that secures data on all common platforms, deploys easily, scales to any size organization and meets strict compliance requirements related to privacy laws and regulations. In most solutions developed, a kind of fixed infrastructure in the form of excessive message exchange is necessary to guarantee good overlay locality properties. The reliability and data assurance at adverse conditions is the requirement of this century. Particularly in the paradigm of "Volunteer Computing" which is a specific type of distributed system, where shared resources are provided in a volunteer fashion by the clients of the Desktop Data Grid system. In this paper, we propose an architecture for the desktop data grids with a centralized server which increases the performance of the system and reduces the complexity of the server. The efficiency of the system not only depends on the security level of the client but also considers the sensitivity of the data being stored in the system. Altogether a simple metric termed Fragmentation Factor (FF) is proposed in this system which considers both the security of the client and the sensitivity of the data. Fast Replica algorithm is applied to reduce the content transfer time for replicating the content within the semantic network. To eliminate the need for retransmission requests from the end users, an enhanced digital fountain with Tornado codes is applied. The enhanced levels of security can be achieved in the corporate environment by imposing Security Auditing. To ensure the security of the various servers and systems, the security has to be assessed through proper audit tools. This paper also analyzes the performance of sequential unicast, multiple unicast and fast replica content distribution schemes in terms of content replication time and delivery ratio.

Keywords : attacks, client/server, centralized server, fragmentation factor, web-based services, distributed system, multicasting, fast replica, delivery ratio.