The New Territory of Generalized Agreement in a Cloud Computing Environment

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Abstract. The cloud computing, an Internet-based development in which dynamically scalable and often virtualized resources are provided as a service over the Internet has become a significant issue. In a cloud-computing environment, the connected topology is not very significant that uses low-power hosts to achieve high reliability and ensure the ability to be better. However, the agreement problem is fundamental to fault-tolerant distributed systems. In previous studies, protocols dealing with the agreement problem have focused on a fully connected network or on a general connectivity. Therefore, previous protocols for the agreement problem are not suitable for a cloud-computing environment. To enhance fault-tolerance, the agreement problem in a cloud computing environment is revisited in this study. The proposed protocol achieves agreement on a common value among all correct nodes in a minimal number of message exchange rounds, and can tolerate a maximal number of allowable faulty components in a cloud computing environment.

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