The Reliability Problem in Distributed Database Systems

This paper discusses the reliability problem in distributed database systems, which refers to the challenge of ensuring successful execution of programs that run on multiple processing elements and communicate with remote databases. The authors identify four factors that affect reliability: the reliability of links, the reliability of databases, the topology of the network, and the distribution of databases. They propose two algorithms for computing reliability in specific types of distributed database systems: one for linear structures and one for ring structures. The algorithms are based on the concept of a minimum cut set, which is the smallest set of links that, if failed, would disconnect the network. The authors also present a simulation study to evaluate the performance of the algorithms and compare them to existing methods. The results show that the proposed algorithms are effective in computing reliability and outperform existing methods in terms of accuracy and efficiency. However, the authors note that the algorithms have limitations in terms of scalability and applicability to more complex network topologies. They conclude that further research is needed to address these limitations and to develop more robust methods for computing reliability in distributed database systems.

This paper is important in the field of database systems for several reasons. Firstly, it addresses the reliability problem in distributed database systems, which is a critical issue in ensuring the successful execution of programs that run on multiple processing elements and communicate with remote databases. Secondly, the paper proposes two algorithms for computing reliability in specific types of distributed database systems, which can help database administrators and system designers to optimize the performance and reliability of their systems. Thirdly, the paper presents a simulation study to evaluate the performance of the proposed algorithms and compare them to existing methods, which provides valuable insights into the strengths and limitations of different approaches to computing reliability. Finally, the paper highlights the need for further research to address the scalability and applicability of the proposed algorithms to more complex network topologies, which can guide future research in this area. Overall, this paper contributes to the development of more robust and effective methods for ensuring the reliability of distributed database systems, which is an important and ongoing challenge in the field of database systems.

On Distributed Database Security Aspects

This PDF file is titled "On Distributed Database Security Aspects" and is written by Zakaria Suliman Zubi. The paper provides an overview of distributed database architecture and management systems, with a focus on security concerns. The paper begins by introducing the concept of distributed databases and discussing their features and design. It then delves into the topic of distributed query processing and retrieval problems in distributed databases, particularly in relation to access control and integrity. The author also explores security issues that arise in distributed database systems, including multilevel security and discretionary security mechanisms. The paper concludes by discussing the impact of secure distributed database systems on database tools and the importance of addressing security concerns in the design and management of distributed databases. Overall, this paper provides a comprehensive overview of distributed database systems and their security aspects. It is a useful resource for anyone interested in learning about distributed databases or seeking to improve the security of their existing distributed database system.

This paper is important in the field of database systems for several reasons: 1. It provides an overview of distributed database architecture and management systems, which are becoming increasingly important as organizations collect and store more data across multiple locations. 2. The paper highlights the security concerns that arise in distributed database systems, including multilevel security and discretionary security mechanisms. This is important because security is a critical aspect of any database system, and distributed databases present unique security challenges. 3. The paper discusses the impact of secure distributed database systems on database tools, emphasizing the importance of addressing security concerns in the design and management of distributed databases. 4. The paper is a useful resource for anyone interested in learning about distributed databases or seeking to improve the security of their existing distributed database system. It provides a comprehensive overview of the topic and includes references to additional resources for further reading.