PERFORMANCE EVALUATION OF TRANSACTION PROCESSING IN MOBILE DATA BASE SYSTEMS

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ABSTRACT

Specific characteristics of mobile environments make traditional transaction management techniques no longer appropriate. This is due the fact that the ACID properties of transactions are not simply followed, in particular the consistency property. Thus, transaction management models adopting weaker form of consistency are needed and these models can now solerate a limited amount of consistency. In this paper we evaluate our execution framework on different mobile computation modes using different execution strategies. Moreover, the effects of the fixed host transaction are identified and included in the evaluation. The integration between wired and wireless environments confirms that the execution strategy is critical for the performance of a system. Neither MHS nor FHS are optimal in all situations and the performance penalties and wasted wireless resources can be substantial. A combined strategy CHS over MCA-FSA computation model matches the best performance of the FHS and MHS and shows better performance than both in many cases.

$K_{EYWORDS}$

Mobile Data Base, transaction processing, Execution Strategies, Execution framework, Performance evaluation.

1. INTRODUCTION

Mobile computing suggest that there will be more competition for shared data since it provides users with ability to access information and services through wireless connections that can be retained even while the user is moving. Further, mobile users will have to share their data with others. Those users may have access to the shared data by reliable wired communication (i.e. fixed host transaction or unreliable wireless communication (i.e. mobile host transaction). The task of ensuring consistency of shared data becomes more difficult in mobile computing because of limitations of wireless communication and restrictions imposed due to mobility and portability [20]. The access to the future information systems through mobile computers will be performed with the help of mobile transactions. Research in mobile database systems (MDBS) has received a lot of interests in the past decade [1, 16, 19, 24, 25, 26, 28, and 29]. Transactions in a mobile database system are usually associated with relaxation of ACID properties because of its longlived nature and the limitation inherited from the wireless environment. Any abortion of a mobile transaction may result in a high cost associated with scarce wireless resources, while fixed transactions might only cause a little degraded level of system performance. In the past two decades, researchers have proposed various transaction models [13, 23,21] either to tackle the isolation and atomicity properties of mobile transaction [13, 23, 27] or guarantee the consistency of mobile transaction Most of the previous studies in mobile database system often assume that the system may consist of only one single type of transaction(i.e. mobile transaction). Without

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Performance Evaluation of a Firm Real-Time DataBase System ,1995 In conventional database systems performance is primarily measured by the number of transactions completed within a unit time In real time applications timing and criticality characteristics of transactions must be taken into account In this paper we examine the performance of StarBase a firm real time database system The deadline guarantee ratio and average response times are the primary performance measures There have been performance studies on real time data base systems but most of them were performed using simulation This work demonstrates the feasibility of developing a real time database system with an acceptable performance Performance Evaluation of Database Systems a Benchmark Methodology S. Bing Yao,1984 Computer Science and Technology S. Bing Yao,1984 Database Systems for Advanced Applications Chengfei Liu,Lei Zou,Jianxin Li,2018-05-12 This book constitutes the workshop proceedings of the 23rd International Conference on Database Systems for Advanced Applications DASFAA 2018 held in Gold Coast QLD Australia in May 2018 The 23 full papers presented were carefully selected and reviewed from 44 submissions to the four following workshops the

5th International Workshop on Big Data Management and Service BDMS 2018 the Third International Workshop on Big Data Quality Management BDQM 2018 the Second International Workshop on Graph Data Management and Analysis GDMA 2018 and the 5th International Workshop on Semantic Computing and Personalization SeCoP 2018 **Data for Science and Technology** Phyllis S. Glaeser, 2013-10-22 Data for Science and Technology covers the proceedings of the Seventh International CODATA Conference This text is comprised of 133 chapters with a total of 180 papers from 400 hundred authors which cover CODATA concerned with environmental and energy questions along with problems of data banking and telecommunications network operations This book provides valuable assessment of data and points out alternatives trends and requirements for the future such as production and use of data in pure applied sciences data for the development of human settlements in a dynamic world informatical analysis of scientific research activities and data on our evolutionary heritage Researchers from all scientific fields will find this book a great source reference material since it presents research from various disciplines Resources in Education ,1987 **Database and Expert Systems Applications Mohamed** Ibrahim, Josef Küng, Norman Revell, 2003-05-15 The Database and Expert Systems Applications DEXA conferences have established themselves as a platform for bringing together researchers and practitioners from various backgrounds and all regions of the world to exchange ideas experiences and opinions in a friendly and stimulating environment The papers presented at the conference represent recent developments in the field and important steps towards shaping the future of applied computer science and information systems DEXA covers a broad field all aspects of databases knowledge based systems knowledge management web based systems information systems related technologies and their applications Once again there were a good number of submissions out of 183 papers that were submitted the program committee selected 92 to be presented In the first year of this new millennium DEXA has come back to the United Kingdom following events in Vienna Berlin Valencia Prague Athens London Zurich Toulouse Vienna and Florence The past decade has seen several revolutionary developments one of which was the explosion of Internet related applications in the areas covered by DEXA developments in which DEXA has played a role and in which DEXA will continue to play a role in its second decade starting with this conference Database Systems For Advanced Applications '91 - Proceedings Of The 2nd International Symposium On Database Systems For Advanced Applications Akifumi Makinouchi,1992-09-21 This book provides an authoritative overview of the global development of surgical paediatrics Biographical accounts of key people who developed this relatively new specialty many of whom are now household names are presented. The compendium also acknowledges the enormous contribution of imaging ultrasound MRI and PET scans minimal invasive surgery and fetal surgery as well as the role of related journals and associations in the progress of surgical paediatrics Many of the contributors have been instrumental to the development of surgical paediatrics in their respective countries and have considerable worldwide influence on the management of children requiring surgical care Through their valuable insight and first hand experience

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systems He has over 20 years of experience in the design development and deployment of database systems for a variety of organizations including Fortune 500 companies and government agencies He is also a frequent speaker at industry conferences and has published numerous articles on database systems If you like this book write a review NBS Special Publication ,1968 Publication United States. National Bureau of Standards,1978

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