Edward A. Fox
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Digital Libraries: Implementing Strategies and Sharing Experiences

**8th International Conference on
Asian Digital Libraries, ICADL 2005
Bangkok, Thailand, December 2005, Proceedings**
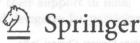
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8th International Conference on
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Volume Editors

Edward A. Fox
Virginia Tech, Department of Computer Science
660 McBryde Hall, M/C 0106, Blacksburg, VA 24061, USA
E-mail: fox@vt.edu

Erich J. Neuhold
Fraunhofer IPSI
Dolivostr. 15, 64293 Darmstadt, Germany
E-mail: neuhold@ipsi.fhg.de

Pimrumpai Premsmit
Chulalongkorn University, Department of Library Science
Bangkok 10330, Thailand
E-mail: pimrumpai.p@chula.ac.th

Vilas Wuwongse
Asian Institute of Technology
Km. 42 Paholyothin Highway, Klong Luang, Pathumthani 12120, Thailand
E-mail: vw@cs.ait.ac.th

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Preface

The International Conference on Asian Digital Libraries 2005 (ICADL 2005), held in Bangkok, Thailand, 12–15 December 2005, was the 8th in a series of annual international conferences organized by digital library researchers in Asia. ICADL was set up to facilitate and stimulate the exchange of digital library research, information, and technology in the Asian region while also functioning as a sister conference to its North American and European counterparts, i.e., JCDL and ECDL. The theme of ICADL 2005 was "Digital Libraries: Implementing Strategies and Sharing Experiences," covering strategies, implementation experiences, systems, techniques, management, and applications. ICADL 2005 provided a forum for sharing experiences and exchanging research results, innovative ideas, and state-of-the-art developments among researchers, educators, practitioners, and policy makers from a variety of disciplines such as computer science, library and information science, archival and museum studies, and knowledge management.

ICADL 2005 also marked the special occasion of the 50th birthday anniversary of Her Royal Highness Princess Maha Chakri Sirindhorn, Patron of the Thai Library Association.

ICADL 2005 received 164 paper submissions from 17 countries, including a good number from outside the Asian region. From these, 40 full papers, 15 short papers, and 15 poster papers were accepted and are included in these proceedings. Each paper was reviewed by the Program Committee members and additional co-reviewers. The technical program comprised one day of tutorials, followed by keynote and invited speeches, paper and poster sessions as well as a post-conference workshop on metadata and Dublin Core.

The 14 technical paper sessions are: "Concepts and Models for Digital Library Systems," "Case Studies in Digital Libraries," "Digital Archives and Museums," "Multimedia Digital Libraries," "Information Processing in Asian Digital Libraries," "Digital Libraries for Community Building," "Information Retrieval Techniques," "Ontologies and Content Management in Digital Libraries," "Information Integration and Retrieval Technologies in Digital Libraries," "Information Mining Technologies in Digital Libraries," "Digital Library System Architecture and Implementations," "Information Processing in Digital Libraries," "Human–Computer Interfaces," and "Metadata Issues in Digital Libraries."

Many people have contributed to the organization of this conference. We would like to express our sincere thanks to the members of the Program Committee for their continuous advice and help in reviewing and selecting papers. We thank the sponsors, members of the Steering Committee, and all individuals for their support in making the conference a success. We also thank all authors and delegates for participating in the conference.

Finally, we would like to express our gratitude to the Organizing Committee Chair, Khunying Maenmas Chavalit, and the Organizing Committee for their excellent work.

December 2005   Edward Fox
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A Model of ITS Using Cold Standby Cluster

Khin Mi Mi Aung[1], Kiejin Park[2], and Jong Sou Park[1]

[1] Computer Engineering Dept., Hankuk Aviation University
{maung, jspark}@hau.ac.kr
[2] Division of Industrial and Information System Engineering, Ajou University
kiejin@ajou.ac.kr

Abstract. Current intrusion detection mechanisms have quite low detection and high false alarm rates. Thus we propose a model of intrusion tolerant system (ITS) to increase the survivability level from the successful attacks. In this paper, we present the cluster recovery model using cold standby cluster with a software rejuvenation methodology, which is applicable in security field and also less expensive. Firstly, we perform the steady state analysis of a cluster system and then consider an ITS with cold standby cluster. The basic idea is - investigate the consequences for the exact responses in face of attacks and rejuvenate the running service or/and reconfigure it. It shows that the system operates through intrusions and provides continued the critical functions, and gracefully degrades non-critical system functionality in the face of intrusions.

Keywords: Security, Concepts and Models, Intrusion Tolerant System, Rejuvenation, Cluster System.

1 Introduction

After intrusion protection and detection mechanisms, the next security mechanism is the intrusion tolerant system (ITS). Current intrusion detection mechanisms have quite low detection and high false alarm rates, and their progress has reached to unacceptable levels.[1]. Thus we propose a ITS model to increase the cluster system survivability level by maintaining the essential functionality. In this paper, we present the cluster recovery model with a software rejuvenation methodology, which is applicable in security field and also less expensive. The nature of attacks is very dynamic because attackers have the specific intention to attack and well prepare their steps in advance. So far no respond technique able to cope with all types of attacks has been found. In most attacks, attackers overwhelm the target system with a continuous flood of traffic designed to consume all system resources, such as CPU cycles, memory, network bandwidth, and packet buffers. These attacks degrade service and can eventually lead to a complete shutdown. In this work, we address attacks mainly related to CPU usage, physical memory and swap space usage, running processes, network flows and packets. It will automatically detect potential weaknesses and reconfigure with attack patterns, which are characterizing an individual type of attack and attack profiles. We had analyzed the attack datasets and injected the attacks

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