The South African Institute of Computer Science
and
Information Technology

The 1997 National Research and Development Conference

Riverside Sun
Vanderbijlpark
13 & 14 November

Hosted by

Potchefstroomse Universiteit
vir Christelike Hoër Onderwys

The Department of Computer Science and Information Systems
Potchefstroom University for Christian Higher Education
Vaal Triangle Campus

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Edited by L.M. Venter & R.R. Lombard

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Towards 2000

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Foreword

This book contains a collection of papers presented at a Research and Development conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT). The conference was held on 13 & 14 November 1997 at the Riverside Sun, Vanderbijlpark. Most of the organization for the conference was done by the Department of Computer Science and Information Technology of the Vaal Triangle Campus, Potchefstroom University for Christian Higher Education.

The programming committee accepted a wide selection of papers for the conference. The papers range from detailed technical research work to reports of work in progress. The papers originate mainly from Academia, but also describe work done in and for Industry. It is hoped that the papers give a true reflection of the current research scene in Computer Science and Information Technology in South Africa. Since one of the aims of the conference is Research development, the papers were not subjected to a refereeing process.

A number of people spent numerous hours helping with the organization of this conference. In this regard, we wish to thank the members of the Organizing committee, and the Programming committee who had very little time to screen the abstracts and compile the program. A special thanks goes to the secretary of the department, Mrs Helei Jooste, whose very able work was interrupted by the birth of her first child.

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Global optimisation of routes after the process of recovery

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Abstract

Survivability in connection-oriented ATM networks is critical due to link and node failures. With regard to high priority connections, it is important that the network maintains their performance guarantees. The restoration scheme of high priority connections assumes two steps. The first step is the fast restoration to accelerate the recovery of high priority connections through a thick pipe(s) between nodes adjacent to the failed link. Such routes to accommodate thick pipe(s) are sub-optimal due to the urgency of recovery. The second step is that after recovery is completed, the optimisation procedure computes optimal path(s) for new a network topology and moves the thick pipe(s) or part of it to the new optimal path(s).

In this paper an overview of route optimisation schemes is discussed. We consider the problem of optimisation of routes (used to re-route high priority connections) after a link failure recovery. The objectives of the optimisation process will be to reduce the percentage of high priority connections supported by a node, maximising the chances of a new connection acceptance and reduction of disruption caused by a link failure.