University College Cork

Department of Computer Science

Final-Year Project
BSc in Computer Science

Implementing and Augmenting New Distributed and Parallel Algorithms

Eimear Crotty

Supervisors
Prof. Michel Schellekens, UCC
Prof. Muriel Médard, MIT

Completed in collaboration with MIT

April 2017

Abstract

Large scale distributed storage systems can emulate fault-tolerant atomic storage in a variety of ways. The ABD algorithm uses a replication-based approach to this problem, incurring high storage costs to ensure resiliency, while the $SODA_w$ algorithm implements erasure codes to drastically lower this storage cost. This paper will present these two algorithms and will use new experimental data to compare their performances and subsequent costs.

Acknowledgements

Contents

Chapter 1

Introduction

Testing123. Attiya et al. (1995).

Bibliography

Attiya, H., Bar-Noy, A. and Dolev, D., 1995. Sharing memory robustly in message-passing systems. *Journal of the ACM (JACM)*, 42(1), 124–142.