Masaryk University
Faculty of Informatics

Performance testing of Virtual Data Optimizer storage layer

Master's Thesis

Samuel Petrovič

Brno, Fall 2019

Declaration

Hereby I declare that this paper is my original authorial work, which I have worked out on my own. All sources, references, and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.

Samuel Petrovič

Advisor: Adam Rambousek

Acknowledgements

I would like to thank my self for tremendous help and guidance during writing of this thesis. I would also like to thank Red Hat for collaboration and provision of necessary testing equipment.

Abstract

Abstrakt sa pise nakoniec

Keywords

file system, performance, aging, benchmarking, fragmentation, storage, trim, fs-drift, XFS, VDO

Contents

List of Tables

List of Figures

1 Introduction

File systems remain an important part of modern storage solutions. Large, growing databases, multimedia and other storage based applications need to be supported by high-performing infrastructure layer of storing and retrieving information. Such infrastructure have to be provided by the operating systems (OS) in a form of file system.

2 Related work

In this chapter I present different approaches of file system aging and fragmentation research described and implemented in the past. The first section discuss usage of collected data to create aging workload. The second section discuss possibilities of aging the file system artificially, without pre-collected data.

2.1 Aging file system using real-life data

3 File system and storage devices

In this chapter, I present basic information about used file systems, storage devices and its features relevant to performance and aging.