



# Ideas and Observations

## Foundations for a versatile filesystem

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### Abstract

Cameleonica is a prototype of a highly versatile filesystem. This paper describes a wide range of concepts that could but have not been incorporated into popular filesystem designs. Both potential benefits and reasons why these features were not popularized earlier are presented. Expectations of their performance are then justified.

### Introduction

When reading scientific papers that describe historical filesystem designs from the golden times of Unix development, one might come to a conclusion that evolution of filesystem designs was very incremental in nature and much effort was put into not making too many dramatical changes at any one time. Well known example would be a paper by [McKusick et al](#), "[A Fast File System for UNIX](#)" where they mention increasing block size from 512 to 1024 bytes that lead to doubling of throughput from 2% to 4% of disk maximum performance. They conclude from this fact that increasing block size is a good method of increasing performance. Eventually they achieved 47% performance but it was a result of several modifications, including new allocation policies. One might be tempted to conjecture that achieving maximum performance might just as well require a complete overhaul of entire design. There was some research done into radically new designs since then.