

TDT4225 – Assignment 2

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0.0.1 Explain the adaptive replacement cache of ZFS, with focus on how it supports different access patterns of blocks?

The adaptive replacement cache or ARC for short is a way of managing cache. It splits the cache into two parts, one holding blocks that have only been referenced once, and the other holding blocks that have been referenced twice or more. ZFS changes the size of the parts dynamically by using four lists of blocks; t_1, t_2, b_1, b_2 . t_1 containing blocks that have been cached after being referenced, t_2 containing blocks re-referenced while in the first list. b_1 and b_2 contain reference to blocks that are evicted from cache, b_1 are those evicted from t_1 and b_2 those from t_2 . When a block in b_1 is referenced, the algorithm makes room in t_1 at the expense of t_2 and vice versa.

0.0.2 Under which conditions may the use of a Bloom filter be appropriate?

Bloom filter