The Delta File System

Lonnie Princehouse

DeltaFS

A thing

DeltaFS

A thing to make

DeltaFS

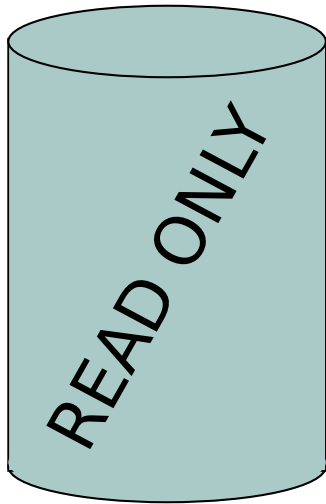A thing to make your read-only filesystem

DeltaFS

A thing to make your read-only filesystem
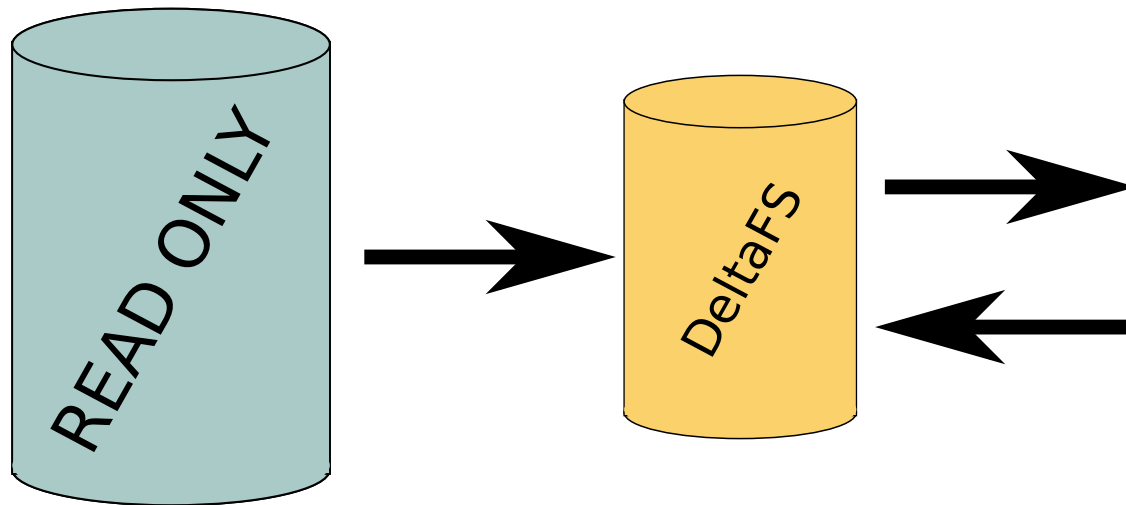writeable.

DeltaFS

A thing to make your read-only filesystem writeable.
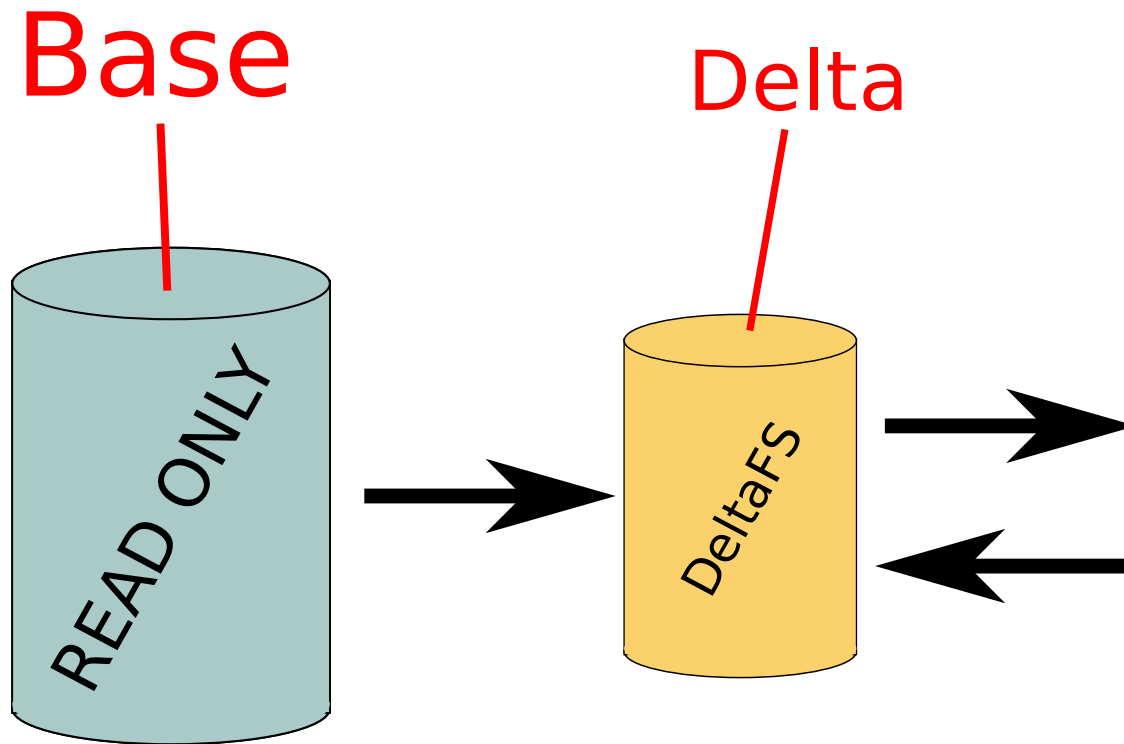
(or at least seem like it)
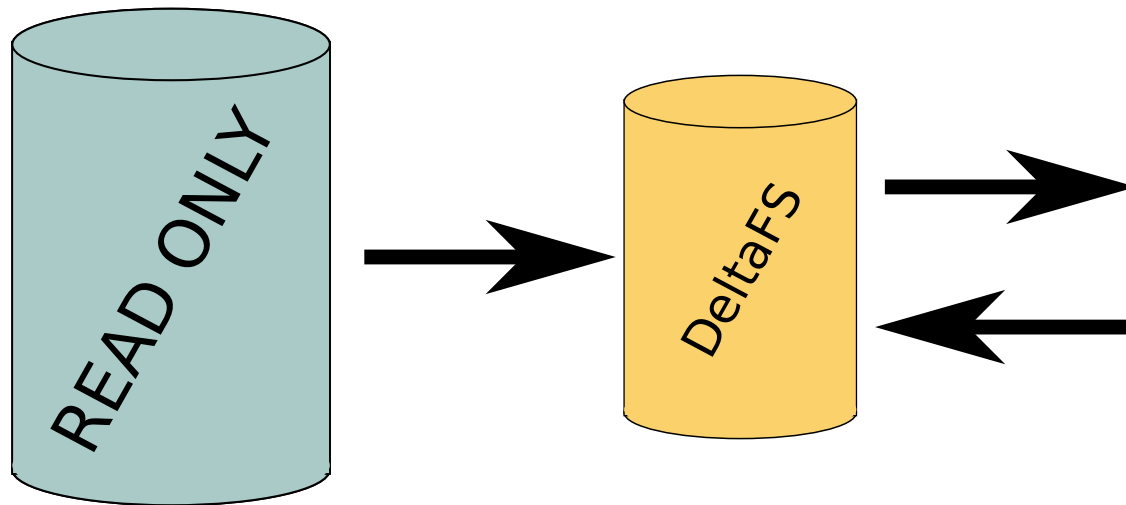
The Read Only Filesystem: Limited in its Capabilities
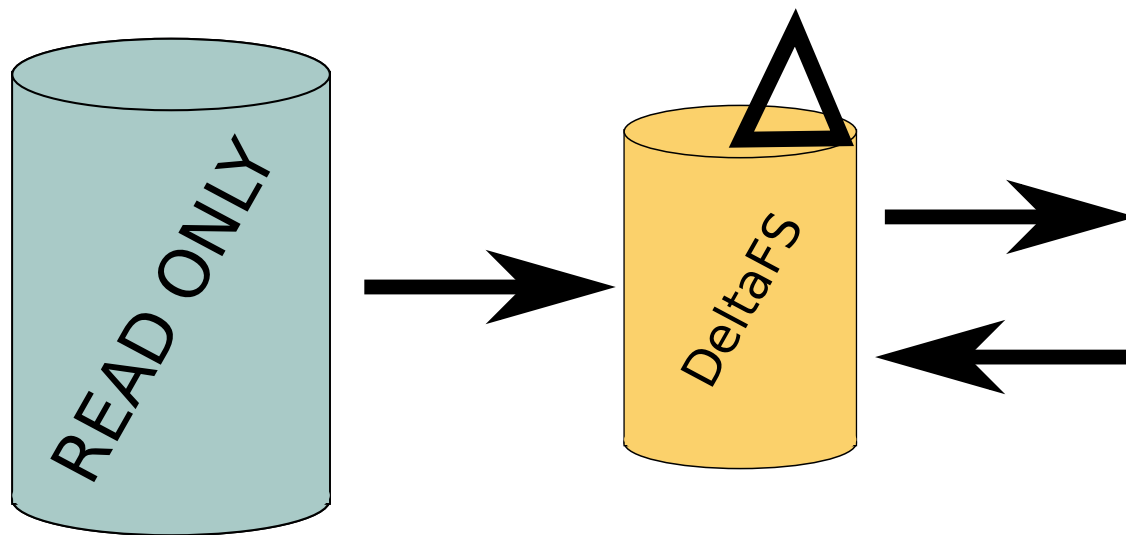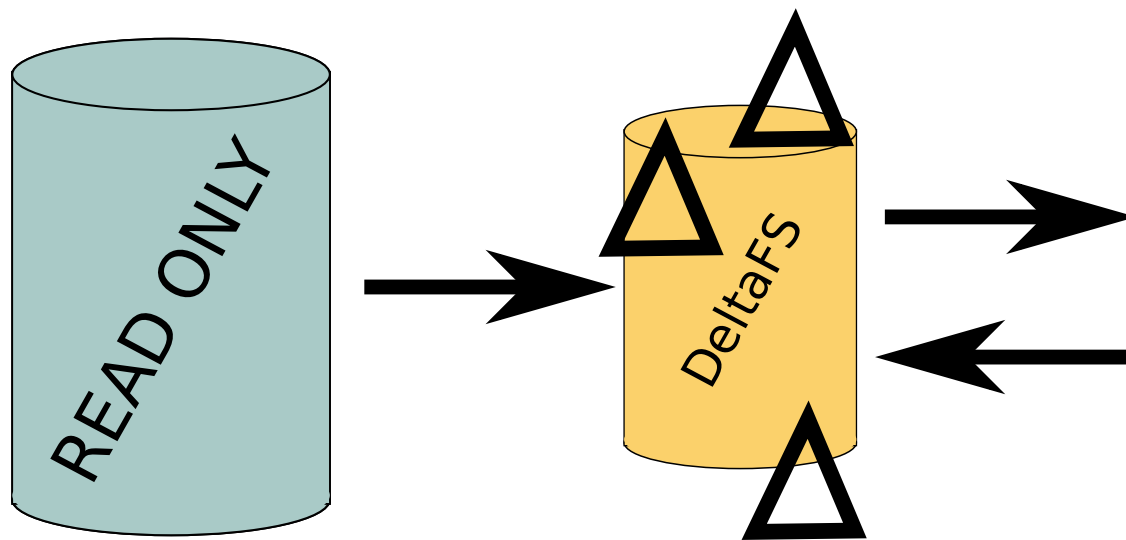
DeltaFS is a Proxy

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Base
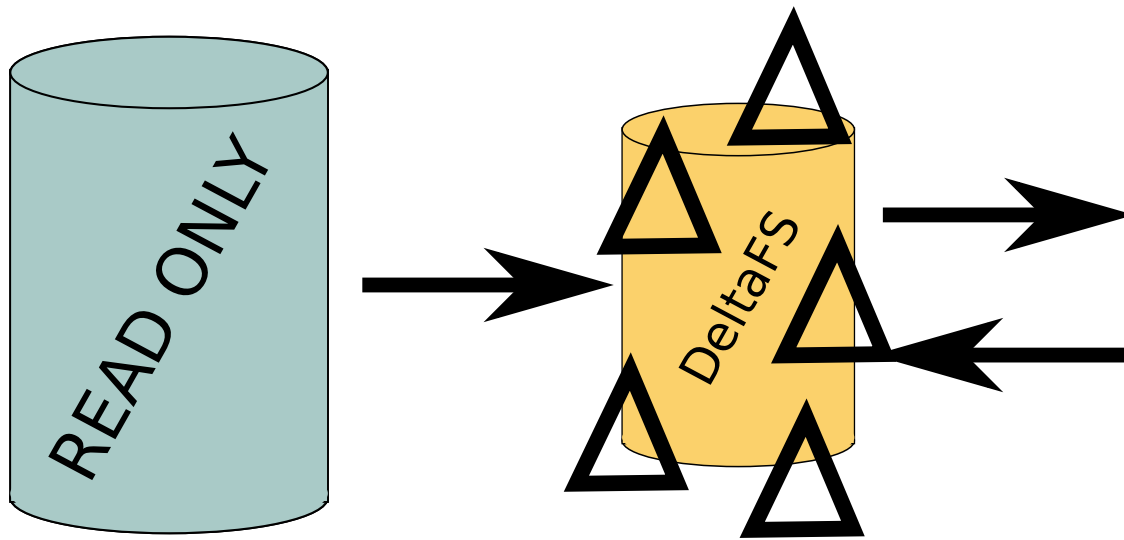
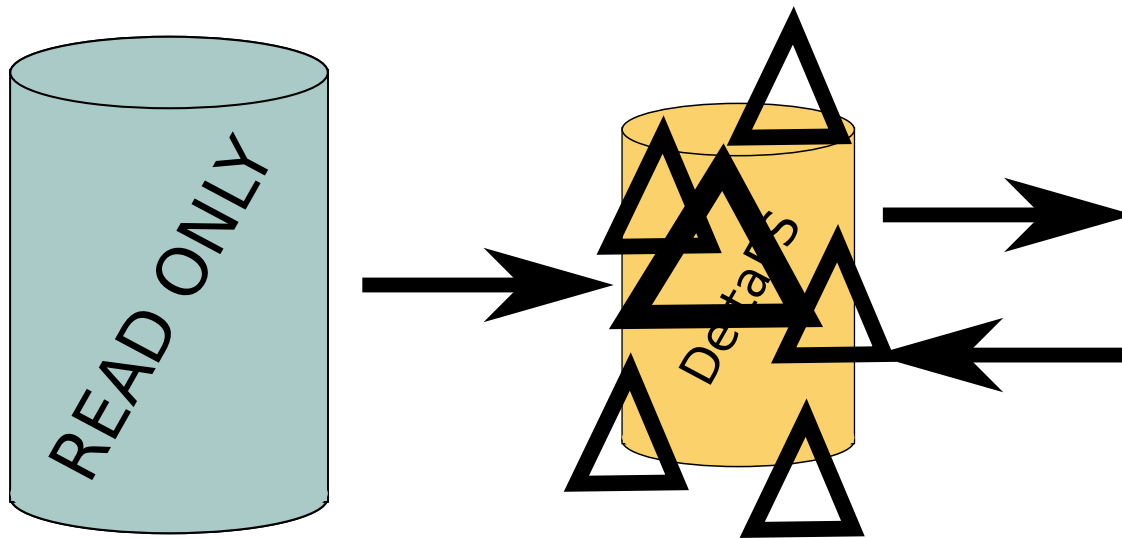Delta

READ ONLY

DeltaFS

It Stores Changes Locally...

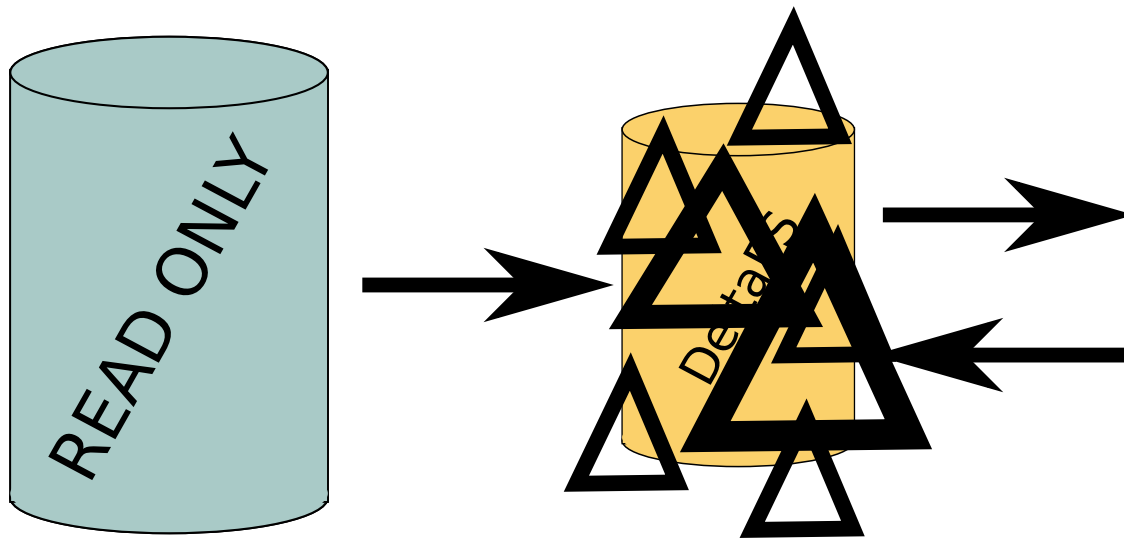# It Stores Changes Locally...

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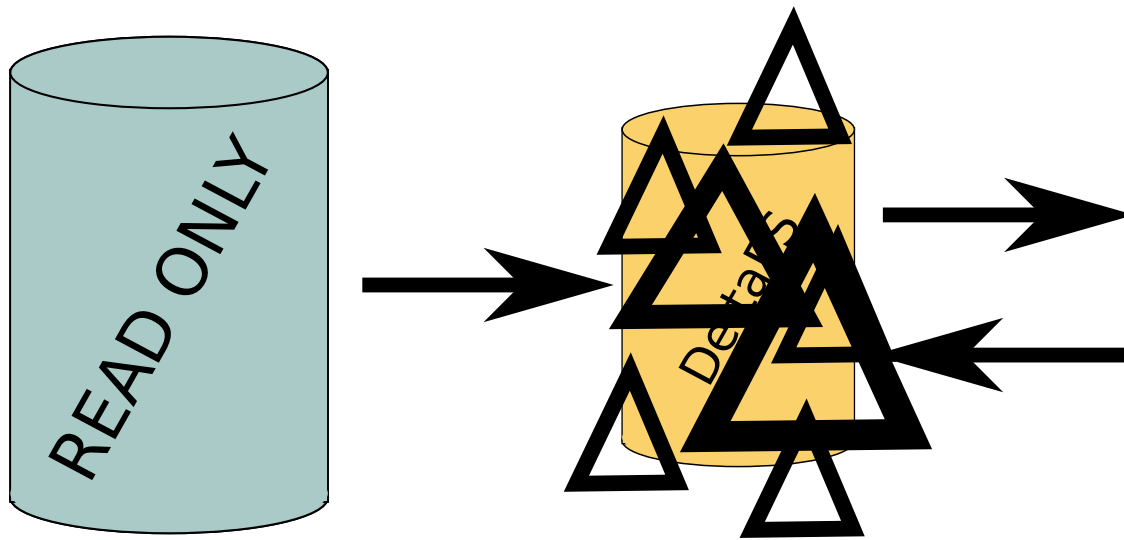# It Stores Changes Locally...

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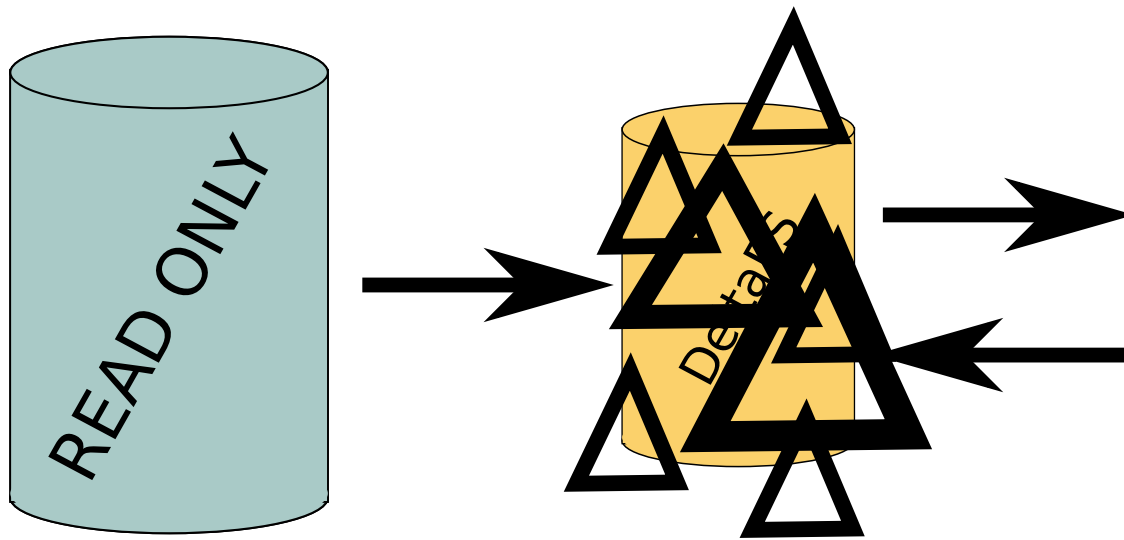
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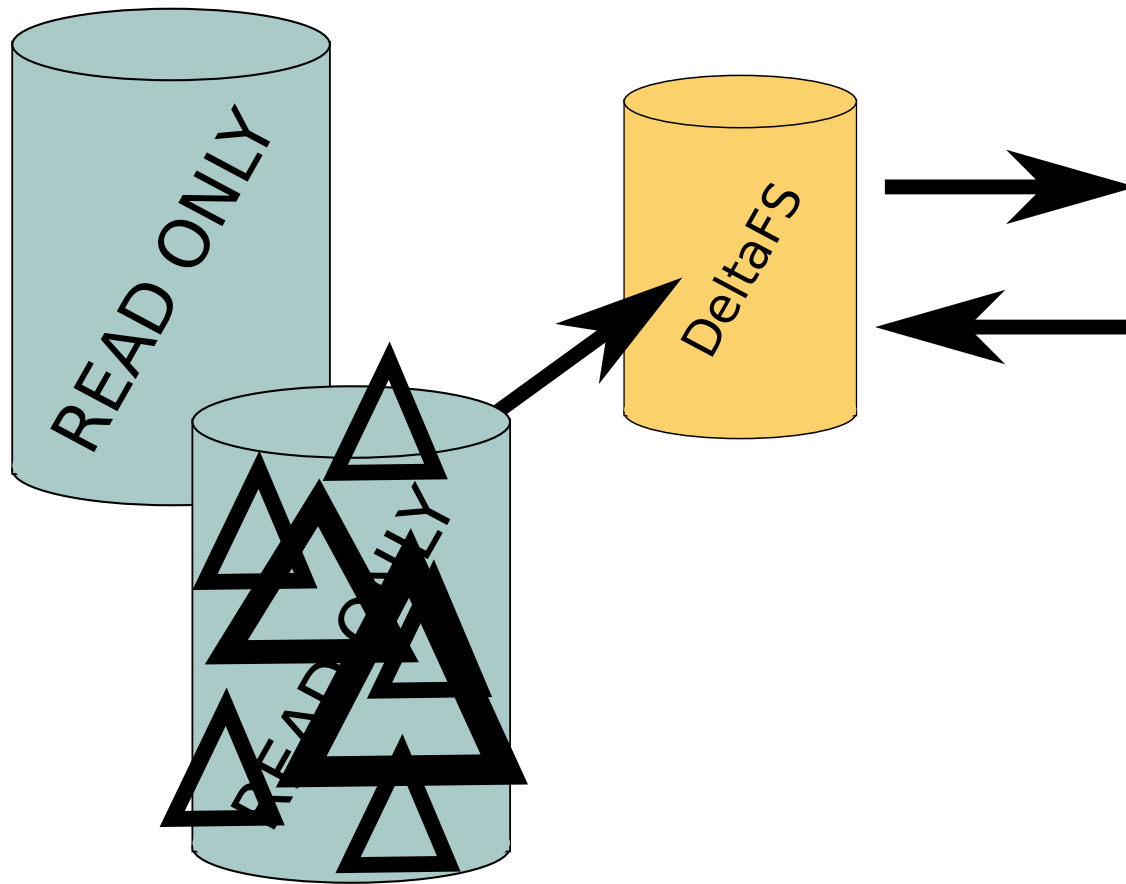
It Stores Changes Locally...

...giving the impression of a read/write filesystem.

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Why is this Useful?

Devices with limited capacity

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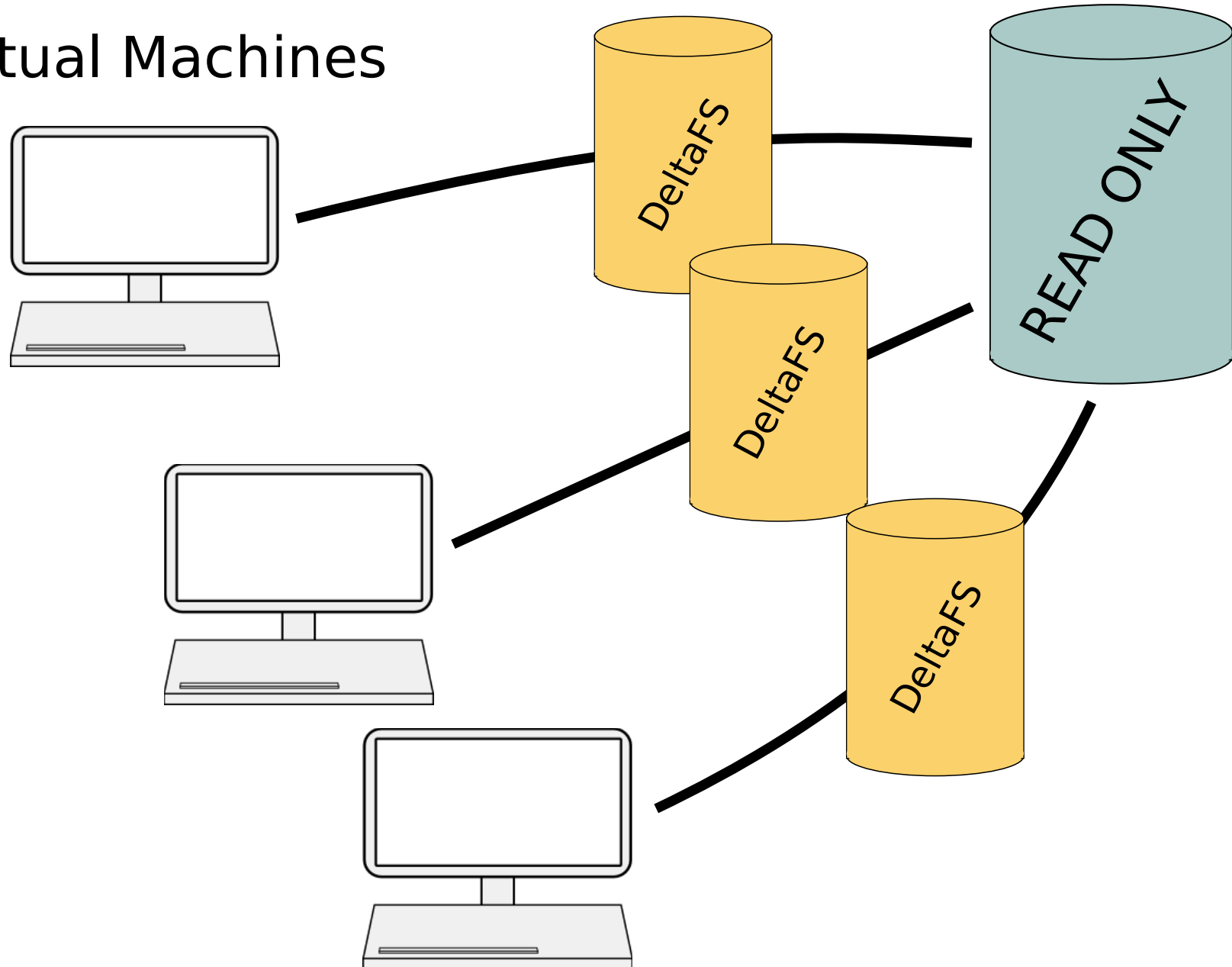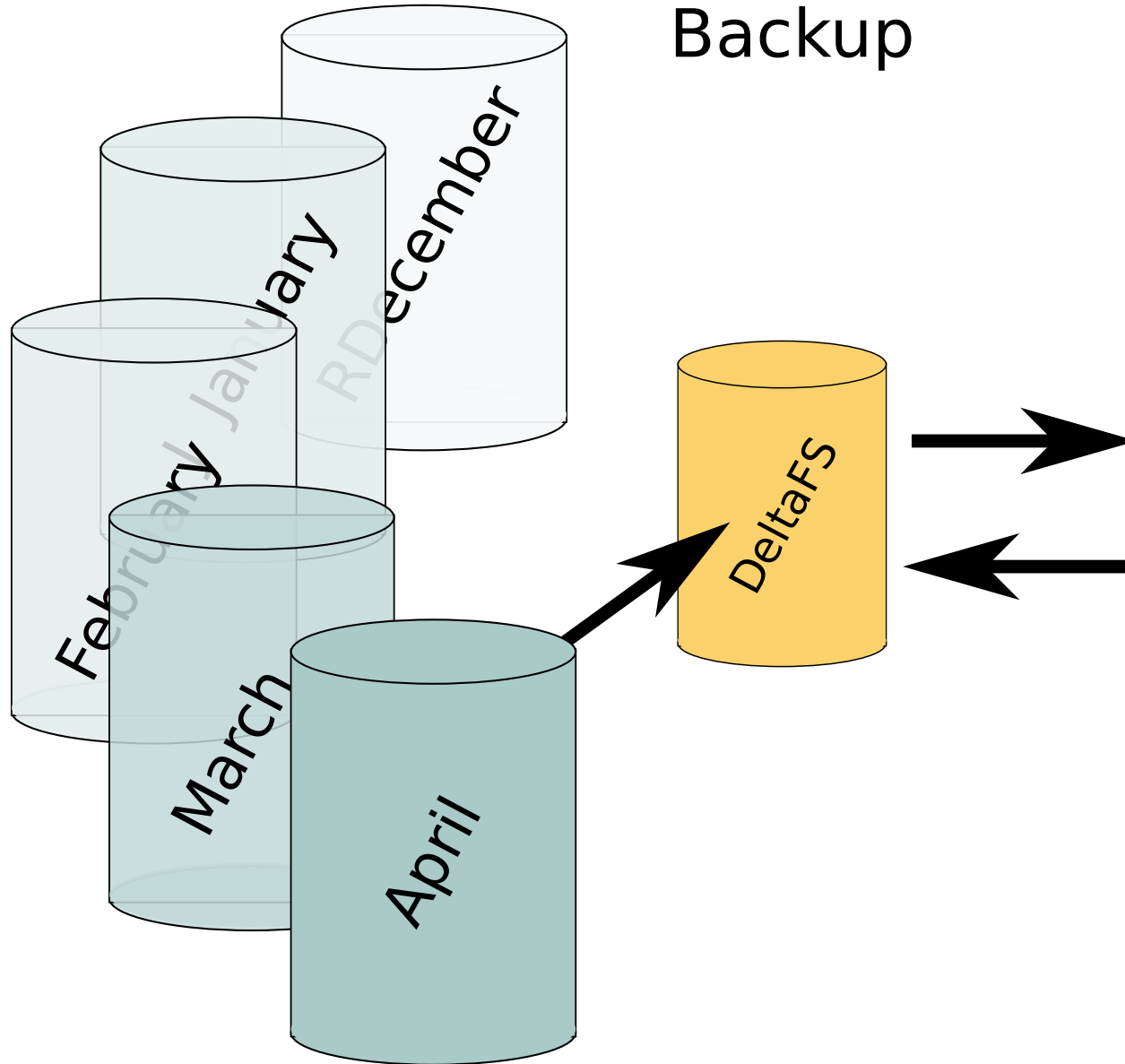
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Use extra space to cache data from the Base
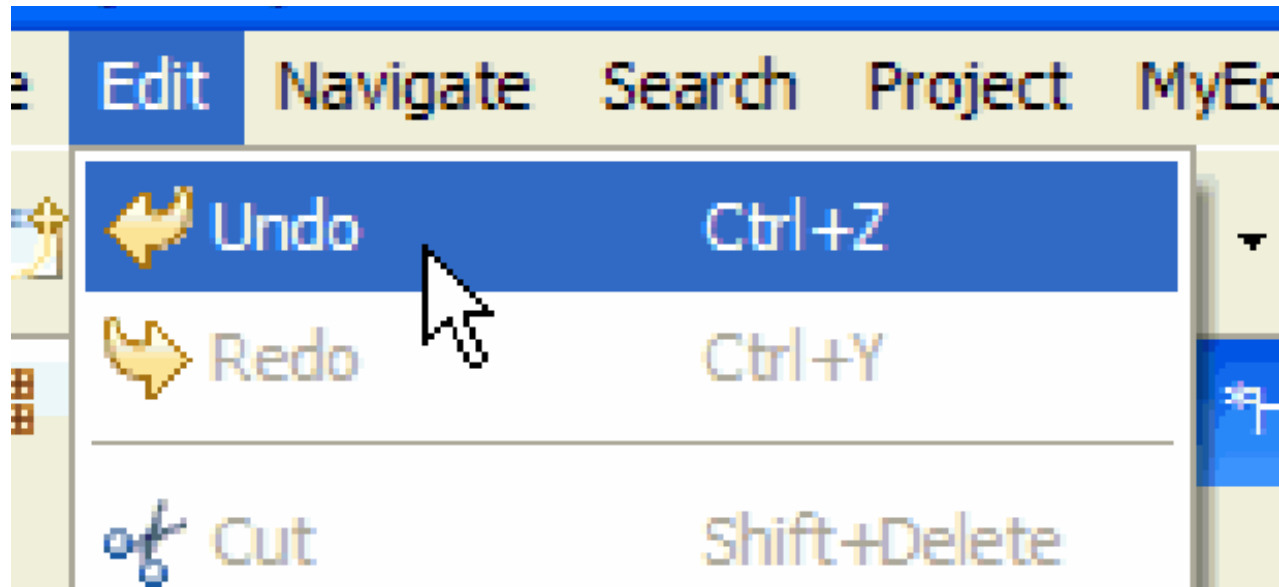
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Virtual Machines

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Backup

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Speculation

FUSE Implementation

The Delta is a log-structured filesystem

Naturally stores diffs
Healthy for solid state disks

Use any read-only directory as the Base

Immutable filesystems (SFS, CFS, etc) preferable

Lots of stuff not implemented

Log cleaning, commit, caching, special file types