

## New approach of FST metadata storage

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EOS FST has been storing file metadata in different relational databases, so far. In order to simplify handling them, the way of storing file metadata is going to be changed to store Base64 encoded, serialized Protobuf metadata objects as extended attributes.

This approach also gave us the advantage to easily compress the metadata, allowing an average compression ratio of 0.5 and saving 50% of space consumed by metadata. This can mean saving up to hundreds of GB storage space per FST machine which could be used as effective storage space instead.

The compression is based on the ZStandard algorithm using a pre-trained compression dictionary for better compression ratios. We extended it with a wrapper to eliminate bottlenecks and making it thread-safe in order to be able to use it in a massively concurrent environment without losing much time with synchronization.

FST has been extended with an automatic conversion detection from the old way to the new approach in order to be able to perform the conversion in case of necessity on its own.

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