

CLAIMS

1. A computer-implemented method comprising:
 - maintaining, by a storage system, a data log file in a source storage device of the storage system;
 - identifying one or more characteristics of the data log file and one or more characteristics of the source storage device;
 - determining a migration metric of the data log file based on the one or more characteristics of the data log file and the one or more characteristics of the source storage device;
 - determining whether to migrate the data log file according to the migration metric;
 - and
 - in response to determining migrating the data log file, migrating the data log file from a source location in the source storage device to a destination storage device.
2. The computer-implemented method of claim 1, wherein the one or more characteristics of the data log file comprise at least one of the following: a data type, a creation time, a data size, an activeness, a garbage ratio, or a fragmentation level of the data log file.
3. The computer-implemented method of claim 1, wherein the one or more characteristics of the source storage device comprise at least one of the following: an access speed, an access bandwidth, an access latency, a usage, a garbage ratio, a fragmentation level, or an input/output (I/O) request of the source storage device.
4. The computer-implemented method of claim 1, wherein the migration metric comprises a migration score, and wherein determining a migration metric of the data log file based on the one or more characteristics of the data log file and one or more characteristics of the source storage device comprises:
 - determining a migration score of the data log file based on at least one of a usage level, an access frequency, an original data creation time, or a migration cost.

5. The computer-implemented method of claim 4, further comprising:
 - determining whether the migration score of the data log file reaches or exceeds a predetermined threshold;
 - in response to determining that the migration score of the data log file reaches or exceeds the predetermined threshold, determining to migrate the data log file; and
 - in response to determining that the migration score of the data log file is below the predetermined threshold, determining not to migrate the data log file.
6. The computer-implemented method of claim 1, wherein the storage system comprises a first tier storage device and a second tier storage device, wherein the first tier storage device has a performance characteristic that is superior to the performance characteristic of the second tier storage device, wherein the performance characteristic comprises one or more of an access speed, an access bandwidth, or an access latency.
7. The computer-implemented method of claim 6, wherein the source storage device is the first tier storage device and the destination storage device is the second storage device, and wherein migrating the data log file from the source location in the source storage device to the destination storage device comprises migrating the data log file from the first tier storage device to the second tier storage device.
8. The computer-implemented method of claim 6, wherein the source storage device is the second tier storage device and the destination storage device is the first storage device, and wherein migrating the data log file from the source location in the source storage device to the destination storage device comprises migrating the data log file from the second tier storage device to the first tier storage device.
9. An apparatus for data processing and storage, the apparatus comprising a plurality of modules for performing the computer-implemented method of any one of claims 1 to 8.
10. A system for data processing and storage, comprising:
 - one or more processors; and

one or more computer-readable memories coupled to the one or more processors and having instructions stored thereon that are executable by the one or more processors to perform the computer-implemented method of any one of claims 1 to 8.