METHOD AND APPARATUS FOR WRITING DATA ONTO MAGNETIC TAPE

6. ABSTRACT

A method of writing data onto a magnetic tape storage medium in the form of data blocks and error correction code blocks. Data is received from a data source and formatted into data and error correction code blocks. Data entities are created from the data and error correction code blocks. Data envelopes are defined to include one or more such data entities. The data envelopes are sequentially written onto the magnetic tape medium. The data and error correction blocks within the data envelopes may be arranged in any order without regard to the physical channel or positional placement. Blocks containing user data and those containing internally generated error recovery information are freely intermixed with random duplications allowed. Block placement topology heuristics can be freely applied within envelopes, and are typically driven by error handling considerations. Block write errors are repeated and migrated into other data channels as necessary. Blocks within data envelopes are reordered when read from the magnetic tape storage medium and missing blocks are recovered according to conventional error recovery schemes. Data envelopes are well ordered thus providing data checkpointing, logical data append functionality, and overall synchronization.

FIGURE 1