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Background on DOTS – 1000+ Year Archival Data Storage

The problem of data preservation is twofold. First, the physical media on which data is written must be preserved, and this media must continue to accurately hold the data that is entrusted to it. Second, even if the storage medium survives intact, it will be of no use unless one can read and understand the data that's on it.

In conversations with the National Archives (NARA) and the Library of Congress, archivists are firm in their conviction that the only successful archival methods over the years have involved mediums where you can "see" the information, and that the method to retrieve the information is not complex. With visual technologies such as photographic prints or negatives and paper text documents, one can look directly at the medium to access the information. With all magnetic media and complex optical storage, a machine and software are required to read and translate the data into a human-observable and comprehensible form. If the machine or software is obsolete or lost, the data is likely to be lost as well.

It is critical that the method employed to protect the data must be unencumbered by complicated technology. DOTS™ is designed to ensure both those preservation and comprehension demands can be met.

UNLIKE ANY CURRENT FORM OF DIGITAL STORAGE

DOTS™ is the only digital storage designed to be read with a camera employing standard image processing techniques. Data is recorded visually on patented phase-change metal alloy tape at a microscopic density that rivals the capacity of current magnetic tapes. DOTS™ can record data, visible text, and imagery on the same media. Using a visible method to represent the data ensures, as long as cameras and imaging devices are available, the information will always be recoverable.

SECURE & STABLE WITH UNMATCHED ARCHIVAL LIFE

Tests by Carnegie Mellon University concluded that DOTS™ is archival for 1,000 years. It is non-magnetic, chemically inert, immune to electromagnetic fields (including EMP), and can be stored in normal office environments or extremes ranging from -9º to 66º C (16º to 150º F) removing significant challenges and costs found in magnetic media. DOTS™ is Write-Once Read Many storage, Tamper Proof, cannot be erased, and supports external compression and data encryption, making it a secure and robust archive technology.

PLUG & PLAY COMPATIBILITY

DOTS™ drives and tape cartridges will be identical in dimension to industry standard LTO form factors, and "plug-and-play" compatible with existing tape archiving systems, including robotic tape libraries and support for LTFS, thus easing and accelerating adoption.

GAME CHANGING – NO MIGRATION – ELIMINATES FILE FORMAT DEPENDENCIES

DOTS™ will transform the digital archiving market by eliminating the need for current practices of making new copies of magnetic media every 3 to 5 years in order to preserve 100% of targeted digital assets. Archive migrations are time consuming and costly, despite the advances in software automation tools to ease the process. In addition, our proven Bit Plane Image format that DOTS™ can employ, ensures images and sound files can be stored visually and recovered at anytime deep in the future, eliminating the need to periodically migrate archived material because of outdated file format issues.

Over $120 million of R&D was invested by Eastman Kodak to develop, manufacture, test, and validate the DOTS™ system technology. GROUP 47 has acquired all of the patents, designs, trade secrets and manufacturing processes, and has extended this portfolio with the filing of 11 additional patents of our own. These new patents dramatically improve and simplify the hardware design, enabling DOTS™ recorder/readers to employ existing imaging and laser technologies, reducing system complexity by an order of magnitude. DOTS™ media manufacturing uses standard and well-established techniques, similar to those used for metal evaporated media and DVDs.

BENEFITS OF DOTS™

With a shelf life of no less than 100 years, G47 DOTS™ significantly reduces the risk of data loss and ensures that data will always be recoverable. DOTS™ media eliminates forced data migration and is immune to the effects of hostile electromagnetic environments. DOTS™ media will provide significant reductions in O&M costs by substantially reducing the amount of energy required for HVAC environmental controls within data storage facilities and by eliminating the need for migration and data integrity rechecks.

DOTS™ is a low cost, secure, green, environmentally-friendly way to truly archive data long term. By storing data with DOTS™, the problems of hardware obsolescence, extensive monitoring for degradation, costly forced migration, and stringent environmental controls, have been solved.

Because the DOTS™ media is immune to hostile electromagnetic environments, is chemically inert, and requires no special environmental storage considerations, DOTS™ is also ideal for data storage in fielded collection platforms, receiving stations and long-term repositories.

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