# Implementation of security features in storage products

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Accompanying the growing demand for personal data protection, the importance of information security of storage products is increasing. Toshiba provides hard disk drives (HDDs) suitable for various applications, including client HDDs for personal mobile devices and multifunction printers (MFPs), and enterprise HDDs for data centers.
Security requirements for HDDs include prevention of data leakage in the event of theft or loss. A function for wiping out all data is also required for HDDs to prevent data leakage after disposal.
To meet these customer requirements, we develop self-encrypting drives (SEDs). Toshiba's high-capacity, high-performance nearline HDDs for cloud data centers automatically encrypt the written data internally using AES*1, a standard encryption algorithm specified by the U.S. National Institute of Standards and Technology (NIST). These HDDs also support access control using the ATA*2 Security Feature Set (in the case of ATA models), TCG*3 Opal SSC*4, and TCG Enterprise SSC to prevent retrieval of protected data without password authentication. These features provide data leakage protection.
Furthermore, our HDDs for cloud data centers incorporate Cryptographic Erase that allows the user to instantaneously invalidate all data in the drive simply by changing a data encryption key without a costly overwriting process.
Certified under the Cryptographic Algorithm Validation Program (CAVP) based on FIPS PUB 140-3 of the U.S government (A1637, A1638, and A1645), the encryption algorithm of these HDDs provides a guaranteed security reliability. In addition, we are preparing to obtain CMVP*5 certification based on FIPS PUB 140-3 for the MG09*CP18/16TA*6. Under CMVP, a third-party organization evaluates the entire HDD unit as a cryptographic module in terms of its design, implementation, and operation.

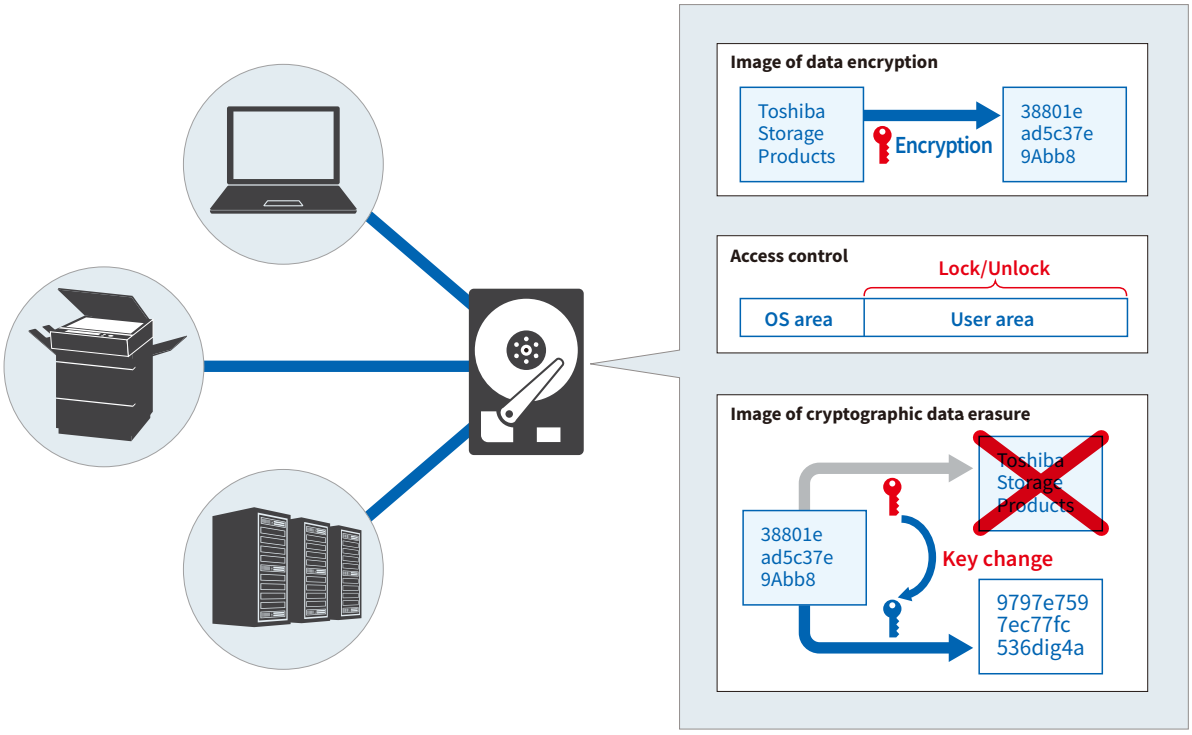


**Image of security features of storage products**

*1 AES : Advanced Encryption Standard
*2 ATA : Advanced Technology Attachment
*3 TCG : Trusted Computing Group
*4 SSC : Security Subsystem Class
*5 CMVP : Cryptographic Module Validation Program
*6 MG09*CP18/16TA : MG09SCP18TA, MG09ACP18TA, MG09SCP16TA, MG09ACP16TA