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Database TDE Master Key Protection

Case Study

Using Data Privacy Manager to secure Oracle and MS SQL Server native TDE master keys with encryption and access control

The Challenge

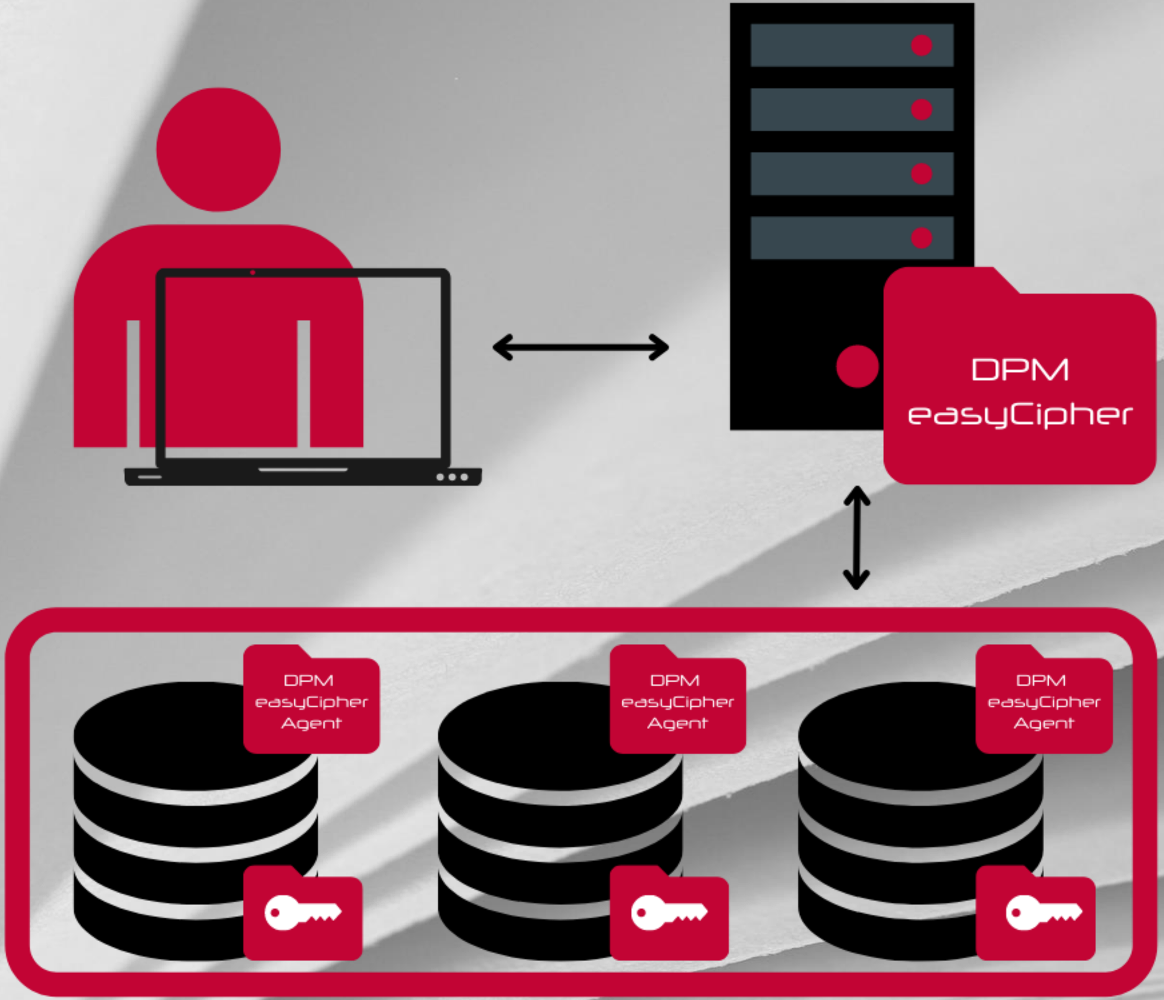
The client required two single policy-based solution to protect key wallets and master keys in multivendor databases using native transparent data encryption from system administrators. The environment consisted of two database vendor types and versions being Oracle Transparent Database Encryption (TDE) and Microsoft MS SQL Server TDE used to protect credit card data. The client did not have the financial or technical resources to change existing architecture, network systems and integrate and maintain proprietary hardware security modules for master keys nor did they want to change established enterprise-wide data backup workflow for encryption keys.

The Solution

DPM was used to protect the database key files:

- DPM easyCipher Agent was installed on each database server
- DPM easyCipher Manager was installed on a new virtual machine
- An encryption and access control policy was applied to encrypt the key files or master database with keys to allow only databases to access them

The client continued to use database TDE provided by Microsoft and Oracle



The Benefits

1. No application code changes, or database reconfigurations were required. DPM transparently protected the TDE master key files or master database with AES256
2. Protection is managed by the security admin and not the DBA
3. Protection from all users, including the OS admin user. Only the database process user is allowed to access the database folder and decrypt the keys
4. A consistent policy was applied across multivendor databases - Oracle 11gR2, 12c, MS SQL Server 2012 and 2014 databases. In the future, the same method would apply to newer versions and different database vendors
5. The same solution can be applied to protect other database secrets such as configuration files, log files, or even databases without TDE
6. The customer was able to schedule usage of the same solution to protect other database secrets such as configuration files, log files, and other databases without TDE
7. Key backups in DPM easyCipher used the same people and processes of backup method as existing database and system backup

Randtronics LLC

Redwood City CA 94065 United States
+1 (650) 241 2671
enquiry@randtronics.com

Randtronics Pty Limited

S1.1, Level 1, Building A 64 Talavera Road
North Ryde, NSW 2113 Australia
+61 418 226 234