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1. Performance impacting factors

DPM easyCipher is a software that is installed at a kernel level on Windows or Linux to provide encryption/decryption and access control for files and folders. There are a number of parameters that will impact the performance of the system after encryption is applied. Those parameters are:

- Number of CPUs, memory
- Usage of SSD disks
- File size and number of files
- Configurations of the target databases (use cache etc.)

During production implementation the above characteristics are considered to design the best architecture to satisfy OLTP and batch performance requirements.

2. Test system configurations

The following system was used for performance benchmark in our lab.

- VM running on VMWare ESXi
- Intel® Core™ i7-4790 CPU @3.60 GHz (4 cores)
- 16 GB RAM
- Windows Server 2019 64-bit
- Microsoft SQL Server 2017
- DPM easyCipher Agent v2.5.3.0

3. Test model

During testing we used industry standard TPC-C benchmark model from Transaction Processing Performance Council (TPC). During tests we created TPC-C datasets with 500 warehouses and measured TPM (transactions/minute). The tests were repeated on databases with no protection and on databases with DPM encryption and access control applied.

4. Test results

TPC-C tests	Clear database	Encrypted database
Run 1	4782 TPM	4408 TPM
Run 2	4577 TPM	4482 TPM
Run 3	6061 TPM	5734 TPM
Average	5140 TPM	4874 TPM

The results show that DPM encryption is efficient with minimal impact on performance of the database is minimal (less than 6%).