Introduction to CubeOne

- Premium DBMS Encryption Solution -

eGlobal

Global Technology, Make IT easy

Company introduction

Global Technology, Make IT easy

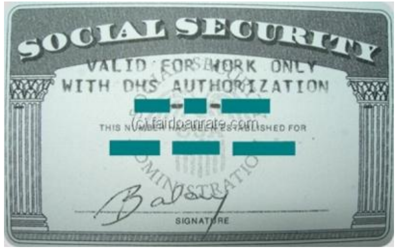
- eGlobal Systems Co., Ltd
- DBMS Security Company established in October, 2004
- Employees : 19, the majority of which are professional engineers.
- Sales : USD 7.2 million in 2012, USD 8.6 million in 2013
- Not to do direct sales channel, but formed partnership with 20 domestic and 1 Japanese re-sellers

Important personal information

Credit card number

Bank account number

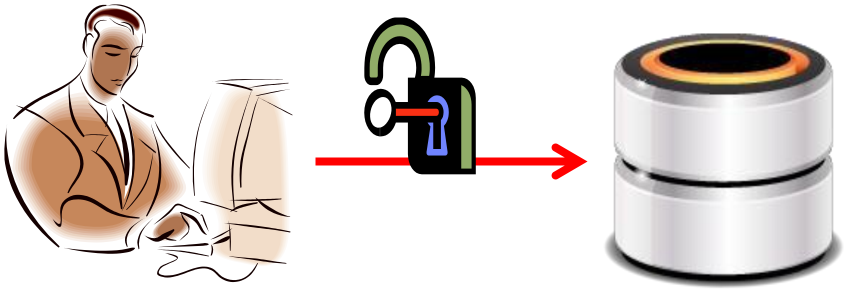
Social security number



Passport number, Driver license number, medical history, password, etc.

Two approaches to protect personal information

1 Access control



Should be applied

2 DB Encryption

**SHALL be applied.
This is the ultimate method
to protect important personal
Information.**

Product introduction

High-performance and column-level encryption solution specifically designed for massive DB

Excellent performance at PoC and BMT

100% operating success rate and fault-tolerance structure

Installed on more than 6,500 servers & more than 600 excellent client references

cube One™

HYUNDAI MOTOR GROUP

SAMSUNG

Volkswagen

Audi Vorsprung durch Technik

SK telecom

KEB Korea Exchange Bank

KDB Bank

ING

MetLife®

NTS NATIONAL TAX SERVICE

SUPREME COURT OF KOREA

MINISTRY OF JUSTICE · REPUBLIC OF KOREA

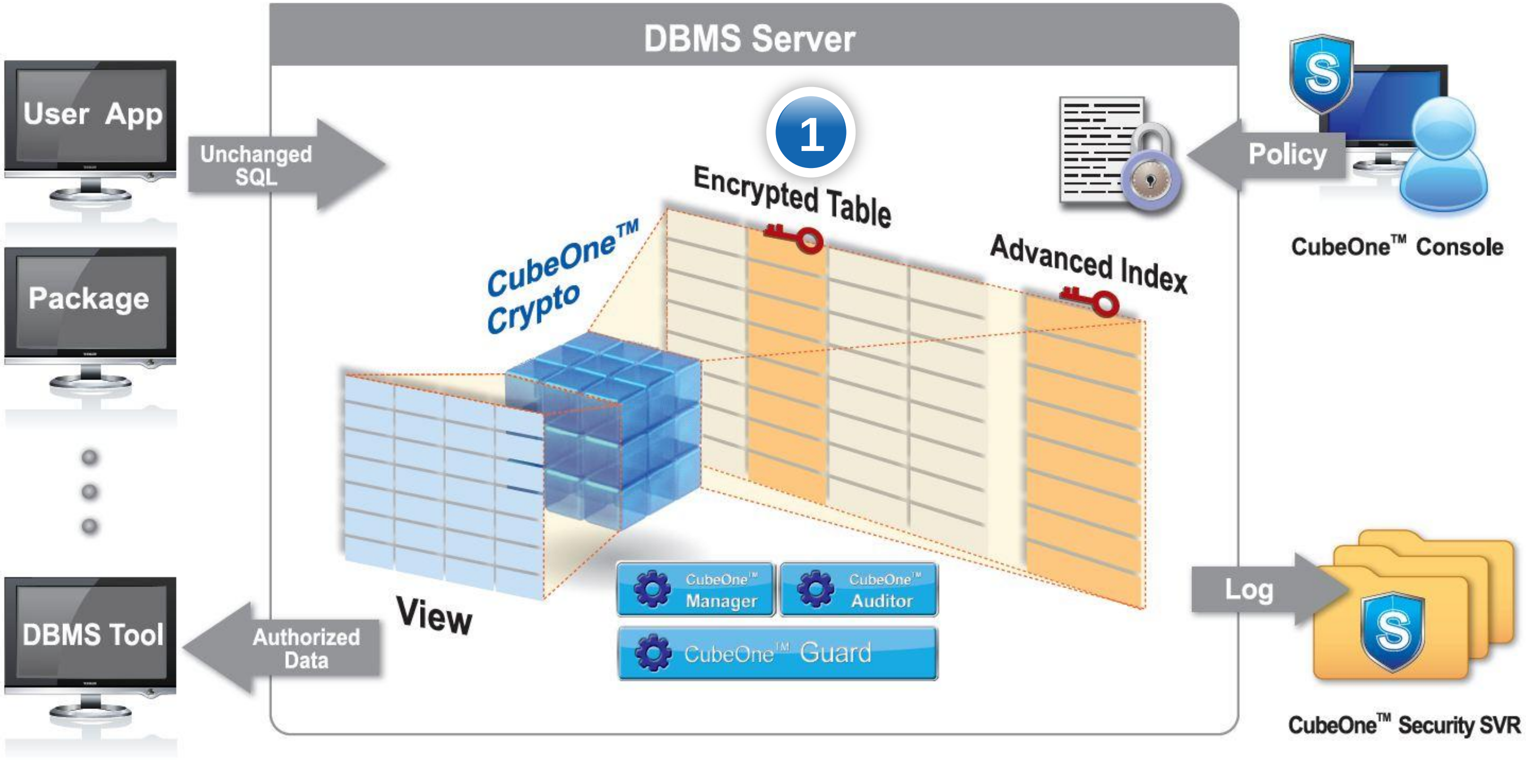
SEOUL SEOUL METROPOLITAN GOVERNMENT

KOREA COMMUNICATIONS COMMISSION

Major strong points

1 Column-level encryption

Efficient method for only encrypting critical columns, i.e., columns containing important personal information.
(Table space method encrypts the entire table.)

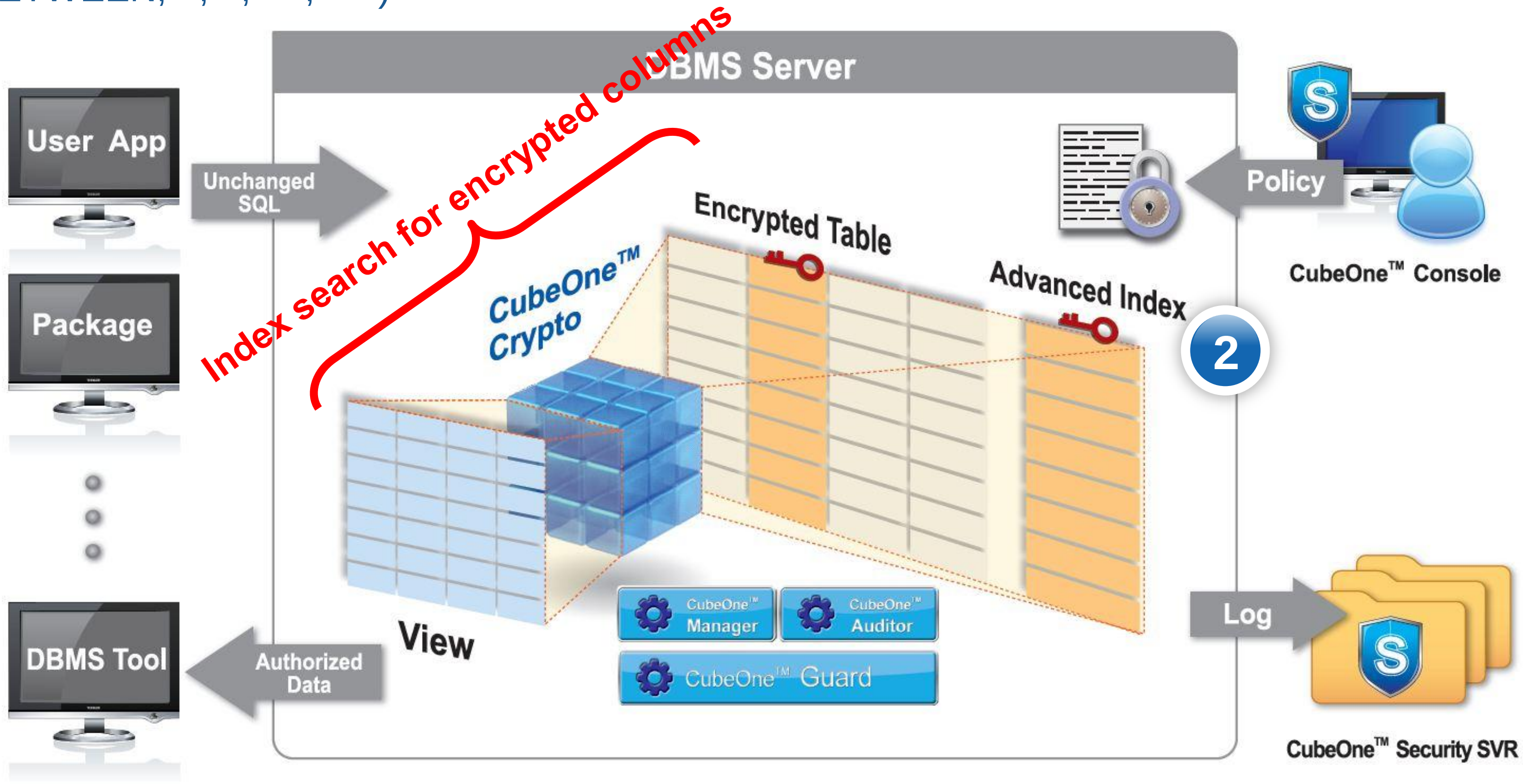


Major strong points

2 Advanced Index Search

Index searching of encrypted columns can be done using encrypted index

As the index for encrypted columns has been created and the order of data is maintained after the encryption, it is not only possible to prevent a full table scan but is also possible to prevent matching and range search
(e.g. LIKE, BETWEEN, >, <, >=, <=)



Major strong points

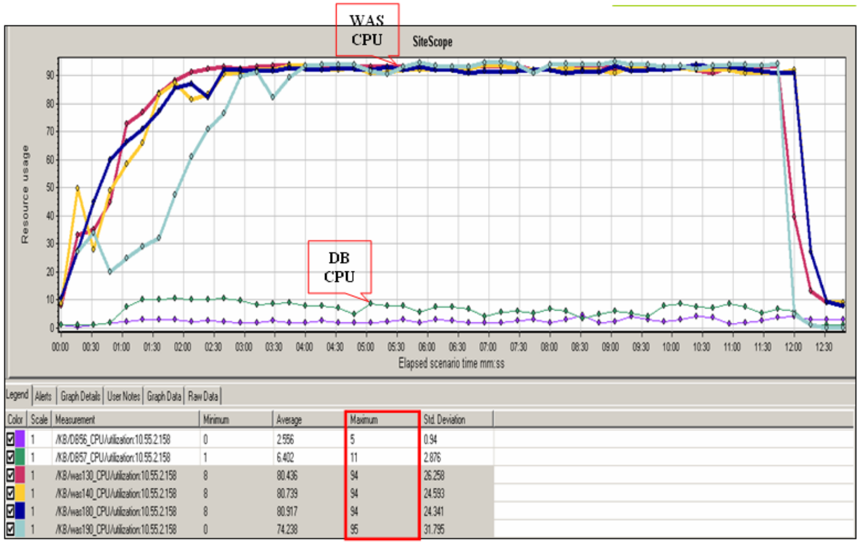
3 High performance

Almost no OLTP performance degradation, even after encryption.

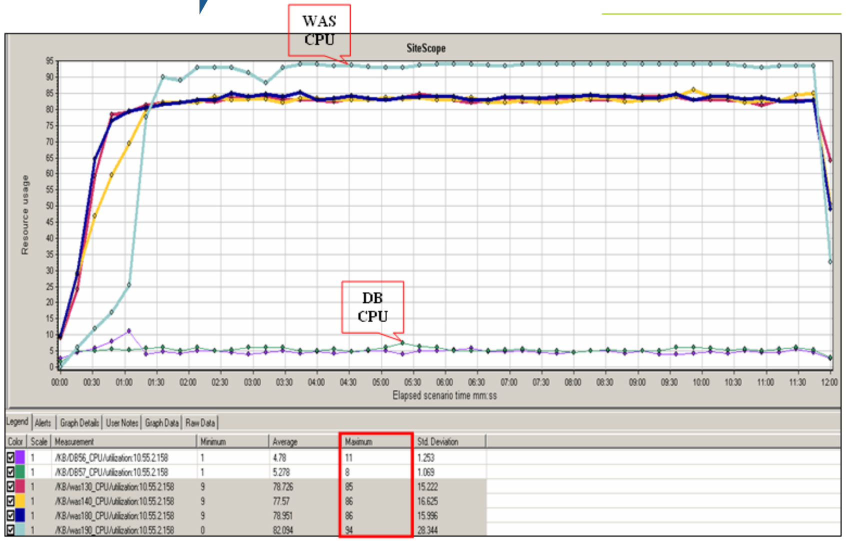
Before encryption

Almost no performance degradation (under 5%)

After encryption



Color	Scale	Measurement	Minimum	Average	Maximum	Std. Deviation
☑ 🟪	1	/KB/DB56_CPU/utilization:10.55.2.158	0	2.556	5	0.94
☑ 🟩	1	/KB/DB57_CPU/utilization:10.55.2.158	1	6.402	11	2.876
☑ 🟥	1	/KB/was130_CPU/utilization:10.55.2.158	8	80.436	94	26.258
☑ 🟨	1	/KB/was140_CPU/utilization:10.55.2.158	8	80.739	94	24.593
☑ 🟦	1	/KB/was180_CPU/utilization:10.55.2.158	8	80.917	94	24.341
☑ ▨	1	/KB/was190_CPU/utilization:10.55.2.158	0	74.238	95	31.795



Color	Scale	Measurement	Minimum	Average	Maximum	Std. Deviation
☑ 🟪	1	/KB/DB56_CPU/utilization:10.55.2.158	1	4.78	11	1.253
☑ 🟩	1	/KB/DB57_CPU/utilization:10.55.2.158	1	5.278	8	1.069
☑ 🟥	1	/KB/was130_CPU/utilization:10.55.2.158	9	78.726	85	15.222
☑ 🟨	1	/KB/was140_CPU/utilization:10.55.2.158	9	77.57	86	16.625
☑ 🟦	1	/KB/was180_CPU/utilization:10.55.2.158	9	78.951	86	15.996
☑ ▨	1	/KB/was190_CPU/utilization:10.55.2.158	0	82.094	94	28.344

Major strong points

4 Safe key management

Perfect key management with no loss of data and key simultaneously

Encryption/decryption key is stored in shared memory after the conversion of data, not stored in AP server disc or DBMS.
It is also zeroed out when shutting down the server.

5 Authorities separation and access control

Only a security manager has the authority to control access to encrypted data.

DBA has the authority for DB management and cannot access encrypted data unless the security manager authorizes it.
Access control is primarily managed by user(work group), IP/MAC address, application and system name, then by period of use, hours of use, date, etc.

Thank You

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