

News Release

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Hitachi Solutions Announces Availability of Credeon Secure Full-text Search

***-- Secure High-Speed and World-Leading Searchable Encryption Technology
Integrated into Full-Text Searches --***

- Hitachi Solutions will begin providing Credeon Secure Full-text Search, which applies its high-speed searchable encryption technology to a full-text search engine.
- Cloud storage vendors can provide both high levels of security and expansive services at a realistic speed.
- NFR Single User Edition (Not for Resale) now available for new technology reviews in North America, a market with substantial cloud storage requiring advanced security cloud technology.

Tokyo, April 27, 2015 --- [Hitachi Solutions, Ltd.](http://www.hitachi-solutions.com) will begin providing Credeon Secure Full-text Search, allowing its users to search a complete document database with a total character count of one million words within 0.01 seconds while the files remain heavily encrypted.

Using this product allows users to easily find documents when the vast amounts of contents remain tightly encrypted in storage. Cloud storage vendors can use it to provide both high levels of security and expansive services at a realistic speed.

In recent years, more and more corporations have started using cloud storage to manage and share data easily and at a reasonable cost. In such cases, encrypting the document files can ensure a certain level of security. However, the security measures are uncertain for the search index data, even though the search index data contain almost all the contents of the documents. This issue has often discouraged the use of cloud storage.

Hitachi Solutions applied the searchable encryption⁽¹⁾ technology developed by the Research & Development Group at Hitachi, Ltd., to the full-text search and developed a secure full-text search technology. Credeon Secure Full-Text Search uses this technology to provide a high-speed, full-text search while maintaining high levels of security.

"We're very excited to release this product applying searchable encryption technology to full-text searches ahead of other companies," said Shigeki Ishihara, General Manager, Cross Industry Solution Business Division at Hitachi Solutions.

"We hope that cloud service vendors will evaluate this technology and provide secure and convenient cloud services to users around the world."

Hitachi Solutions will start to provide the NFR Single User Edition (Not for Resale) for technology review in North America, a market with substantial cloud storage requiring advanced security cloud technology. That includes some technical documentation and support for Apache Solr on Linux.

In the future, Hitachi Solutions will apply this secure full-text search technology to other full-text search engines and document management products.

About Credeon Secure Full-text Search

- **Using Searchable Encryption Technology to Ensure High Levels of Security**

Because the system uses a random number when encrypting, the ciphertext will appear completely differently even if it was encrypted from the same plaintext. This makes it essentially impossible to determine what the original data was.

Conventionally, systems have used deterministic encryption technology to search ciphertext. However with deterministic encryption, the same ciphertext is generated repeatedly from the same plain text. To avoid this problem, the new Hitachi technology uses probabilistic encryption.

- **Achieving Performance on the Same Level as Full-Text Searches of Plain Text**

Even for a vocabulary list with one million words, the system can perform searches in just 0.01 seconds.

Using homomorphic functions⁽²⁾ and symmetric-key encryption scheme⁽³⁾, this product minimizes the processing load when searching for matches with the ciphertext. Furthermore, Hitachi has also developed technology that can process the search trees necessary for high-speed searches with the ciphertext.

- **Patented or Patent-Pending**

The searchable encryption technology achieves both high levels of security and high performance through a heavy-duty encryption algorithm that uses random numbers, the combination of homomorphic functions and common key encryption algorithms, and through search trees for high-speed searches. This system has been patented or is patent-pending in the United States and other countries. The secure full-text search technology is also patent-pending in the United States and other countries.

About Hitachi Solutions

As one of the core companies of Hitachi Group, Hitachi Solutions provides IT solutions to various corporations in a wide variety of industries. It is a top-class vendor in the field of data leak prevention in Japan, and one of the main products, the data leak prevention solution "Hibun," is used in approximately 7,400 companies in 36 countries. Furthermore, the encryption and key management technology of "Credeon," sold by Hitachi Solutions America, is used in cloud service vendors in North America.:

<http://www.hitachi-solutions.com/securesearch/>

Note:

- (1) In addition to "encryption" and "decryption," the standard encryption functions, this technology confirms if two encrypted texts were the same data before encryption while they're still encrypted.
- (2) "Homomorphic" refers to a mapping from one algebraic system to another of the same type, maintaining the algorithm of the algebraic system. For example, regarding two values, x and y , a function f , which results in $f(x)+f(y)=f(x+y)$ is called a homomorphic function.
- (3) "symmetric-key encryption scheme" refers to an encryption method where the encryption key and the decryption key are the same. Many representative methods are designed with emphasis on processing efficiency, and are suited for encrypting massive amounts of data.

* "Credeon" is a registered trademark of Hitachi Solutions, Ltd.

* All company and products names are the trademarks or registered trademarks of their respective owners.

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