Global deduplication for encrypted data

Improve efficiency and reduce costs with client-side global deduplication
Global data deduplication provides important benefits over traditional deduplication processes because it removes redundant data through entire enterprises, not just single devices. Global deduplication increases the data deduplication ratio—the size of the original data measured against the size of the data store after redundancies are removed.

This helps reduce the amount of storage required at a time when businesses face exponential storage growth.

Chief benefits of global deduplication include:

- Reductions in storage of up to 60%
- The most optimal deduplication ratio
- Enterprise-wide reach
- Massive reductions in backup-related WAN traffic

By shrinking storage capacity needs, data deduplication can cut storage costs quickly. At the same time, businesses today need to access and utilize their data in real time, making the most recent and relevant information available. By eliminating redundant data, deduplication technology makes it simpler for data to be managed across various business units and geographic regions.
Global deduplication for encrypted data

Global deduplication is also especially effective when applied to encrypted data. Without global deduplication for encrypted data, IT departments are forced to pit security needs against storage budgets. But global deduplication for encrypted data means businesses don't have to decrypt data, leaving it vulnerable for a window of time, to apply the deduplication process.

Traditional data dedupe techniques fall into two broad categories, depending on where the process takes place.

- Client-side dedupe occurs at the source, where the data is stored.
- Target-side dedupe takes place on the server, after the data has been sent to its archival storage location.

While both forms of deduplication generally provide the same level of storage savings, client-side dedupe provides additional efficiencies through reductions in network bandwidth consumption. Client-side global deduplication takes the traditional approach a step further, providing maximum efficiencies.
Global deduplication for encrypted data

Traditional deduplication processes apply deduplication technology to original data blocks—also referred to as data chunks—prior to encryption. Client-side global deduplication is applied to data blocks after encryption, and the data does not have to be decrypted during the process. Here’s a view of the traditional deduplication workflow—and another using global deduplication for encrypted data.

**With traditional solutions**

1. Original
2. Deduplication
3. Encryption
4. Stored

**With global deduplication for encrypted data**

1. Original
2. Encryption
3. Deduplication
4. Stored
Global deduplication for encrypted data

Carbonite is the only endpoint data protection vendor that can perform client-side global deduplication on encrypted data. Here’s how it works:

**Client-side processing**

With Carbonite Endpoint Backup, each block of data is processed on the client. Each file is disassembled into a set of variable length blocks that are then processed on the client. After scoping rules have been applied to a data block, a unique block encryption key is generated.

**Block encryption**

This key is used to encrypt the block, using AES 256-bit encryption. The block encryption process ends after each data block has been encrypted. And as a final step, the block encryption key is then itself encrypted and any clear text representation of the key is removed from the system.

**Data deduplication**

Following data deduplication, each file can be represented by a simple index that associates a list of unique data blocks with their order of arrangement. It identifies the block encryption key required to completely reassemble an instance of the original data.
Global deduplication for encrypted data

Carbonite Endpoint Backup

Carbonite Endpoint Backup provides global deduplication for network efficiency and storage savings. Our client-side global deduplication feature removes redundant data across the entire organization, not just individual systems. In addition, our deduplication technology is executed on encrypted data using unique encryption keys for each block of data, so businesses get the benefits of deduplication without sacrificing data security.

Gartner rated Carbonite number 1 in the categories of performance and storage efficiency among endpoint backup providers. Our patented global deduplication technology is the primary feature that differentiates us as the market leader.

Key benefits to Carbonite Endpoint Backup global deduplication include:

- **Storage reduction**
  Shrinks data in storage up to 60%

- **Secure cloud delivery**
  Each block of data is encrypted using AES-256 bit encryption and the Block Encryption Key is itself encrypted

- **Security**
  Can be applied to encrypted data throughout the enterprise without leaving data vulnerable

- **Privacy**
  Access can be scoped at the “Everyone” level, and down to the “Individual” level

- **Client-side processing**
  Data is deduplicated before it’s sent to the vault, maximizing network efficiency

Contact us to learn more

Phone: 800-683-4667
Email: DataProtectionSales@carbonite.com