

Data Integrity with the SaaS BackupGrid

Introduction

Today, more companies than ever recognize the value and convenience of using online backup to protect their server data. For any enterprise considering the SaaS BackupGrid—or any other online backup service—ensuring the integrity of data both during backup and restore transmission operations, as well as on data stored for longer retentions, is critical to guarantee that you can recover your data when disaster strikes. The SaaS BackupGrid, which offers on-disk retention for up to seven years, ensures that data under protection is error-free during backup, transmission, storage and restoration.

Data in Transit

For ongoing backups and restores, data integrity checks take place on all packets of data sent between protected servers, vaults, and TurboRestore Appliances, because the SaaS BackupGrid uses the Secure Sockets Layer (SSL) protocol on top of TCP/IP. These checks ensure that any alterations, additions, or deletions of data during transmission—either accidental or malicious—are detected and corrected by re-transmitting the data. In addition, the SaaS BackupGrid transmits the file ID and block number information redundantly, and validates that the data blocks arrive in the expected order, without gaps, and that the header information is consistent.

When messages arrive at the vault, they are written to disk. The SaaS BackupGrid vaulting software does no processing on the backed-up data. It arrives compressed and encrypted, and is stored this way. The SaaS BackupGrid vaulting software executes on standard Windows® 2003 servers with RAID 5 disk systems, and the software uses standard Microsoft file system I/O. Source server applications, such as

SQL Server and Exchange, also rely on the integrity of the Microsoft file system.

Data in Vaults

Unlike most applications, the SaaS BackupGrid takes special steps to validate the integrity of the data on disk. The SaaS BackupGrid vaults employ proprietary technology to index, catalog, and organize the data blocks. This technology enables the SaaS BackupGrid to run four types of consistency checks:

- On every write operation, the SaaS BackupGrid validates the header information to ensure that blocks are written in the intended order, and that the header information is consistent.
- Once a day, a block consistency checker runs automatically. This validates that all the blocks are present that the vault should have in order to restore the latest backups. The block consistency check operates against the SaaS BackupGrid's block index files, but does not actually read the encrypted data blocks from disk.
- Every two weeks, a full catalog consistency checker runs automatically. This validates that, if requested, every file could be completely restored, but does not actually read the encrypted data blocks from disk.
- Once a month, a data consistency checker runs automatically. This simulates a full restore of the latest version of every file. It reads the encrypted data blocks from disk to flush out lurking disk errors.

In addition, the "rotation" software helps ensure the integrity of data at rest. As time passes, various backup versions reach the expiration of their retention periods, but some of the data blocks—the ones that

have been static—are still needed and are “moved forward” into a new baseline by the rotation software. This process involves copying the blocks, and provides an additional check that disk blocks are accessible, and that the header information is correct. Unlike tapes, which age on a shelf until you attempt a restore, with the SaaS BackupGrid, data is read and rewritten throughout its retention period, thus regularly testing the integrity of the storage systems and software.

Mirrored Data Centers

For high availability, Utility Backup Solutions has partnered with Iron Mountain to maintain all backup data on two independent vaults at separate geographic locations. Backup data that arrives at the primary vault is then sent to the secondary vault where it is revalidated and stored in the same manner as on the primary vault. If there should ever be an unrecoverable error on one of the vaults, the other vault provides continuity of ongoing backups and the ability to restore historical versions. The vaults continuously cross-check with each other to ensure that each has the same set of backup versions, and they cross-replicate between each other as necessary. When a vault comes back online after repair, it automatically acquires data that it is missing from the other vault.

About Utility Backup Solutions

Data is the lifeblood of any company, and data backup in the modern era should be as simple as ‘plugging in’ to a utility that is always on, always reliable and can actually deliver when you need it.

Utility Backup Solutions offers best-of-breed, one-stop data protection and recovery solutions designed specifically to address the special needs of today’s small- and-medium-sized businesses. With our automated solutions for servers, our customers can reduce operational costs, focus staff on new initiatives and improve workforce productivity, adhere to regulatory and compliance concerns and achieve total peace-of-mind.

The SaaS BackupGrid service, based on Iron Mountain’s award-winning LiveVault platform, is a comprehensive solution for online protection and recovery of server data for small-and-medium businesses in North America. The SaaS BackupGrid is offered in a utility billing model—that is, the services provided to our customers are consumption-based, pay-as-you-go software-as-a-service subscriptions.

With Utility Backup, you can finally abandon the administrative and financial burden of a legacy magnetic tape backup program, and join the thousands of satisfied customers enjoying the “set-it-and-leave-it” reliability of a modern data protection solution.

We pride ourselves on offering a valuable and effective solution to a real problem for our customers. We believe in transparency, customer satisfaction, and providing true value. If we are successful, we believe we will be rewarded with long customer relationships.

Contact Us

Utility Backup Solutions, LLC
570 El Camino Real #150-501
Redwood City, CA 94063-1262
888-374-3282
www.utilitybackupsolutions.com