

# Sureline Systems Expands Patent Portfolio

*Awarded Patent for Innovative Computer-Implemented Method of File System Deduplication*

SAN JOSE, CA, UNITED STATES, August 21, 2018 /EINPresswire.com/ -- [Sureline Systems](http://SurelineSystems.com), a leader in enterprise-class on-premises, remote and cloud, physical and virtual server Migration and Disaster Recovery solutions, announced that a patent was issued by the United States Patent and Trademark Office (USPTO) on August 14, 2018, Patent Number 10,049,016, entitled "Distributed Garbage Collection for the Dedupe Storage Network" covers the company's innovative cloud migration and disaster recovery solutions.



## Patent Abstract

A computer-implemented method of a dedupe file system comprising: replicating a dedupe file system specific metadata of a backup image; replicating one or more data chunks of the backup image; replicating the backup application specific metadata; and advertising to the backup application that the backup image is read ready.

"This new patent is the third granted to Sureline Systems with additional patents pending and shows our commitment to bringing innovative technology to the evolving IT infrastructure around Cloud," says Ravi Goyal, Co-founder, President and CEO of Sureline. "There is a growing interest in moving enterprise applications and workloads across Clouds and on-prem data centers transparently. Sureline's SUREedge, based on innovative and patented technology, offers enterprise class software solutions for application mobility."

## Brief Summary of the Invention

In one embodiment, a computer-implemented method of handling garbage data chunks in a replication operation of a dedupe file system comprising the step of determining when the garbage collection operation is initiated. The method includes the step of recording the initiation time of the garbage collection. When the garbage collection operation is in a data deletion state, for each garbage data chunk, the method implements the following steps: acquiring, with the garbage collection operation, a write lock for the data chunk; determining that a hard link count of data chunk; if the hard link count is one (1), marking the data chunk as garbage data chunk; and moving, with the garbage collection operation, the garbage data chunk to a temporary trash directory. The method includes the step of deleting, with the garbage collection operation, the dedupe file system specific metadata of backup images, which are expired. The method includes the step of listing, with the garbage collection operation, one or more new backup images created as a result of a replication operation after the initiation time of garbage collection operation. For each such new backup image, the method reclaims the garbage collection operation, one or more data chunks included in a backup image that is a part of the temporary trash directory, and wherein the garbage collection operation recovers the one or more backup data chunks to the dedupe file system. The method includes the step of deleting, with the garbage collection operation, all the remaining data chunks present in the temporary trash

directory. In another aspect, a computer-implemented method of a dedupe file system includes the step of replicating a dedupe file system specific metadata of a backup image. The method includes the step of replicating one or more data chunks of the backup image. The method includes the step of replicating the backup application specific metadata. The method includes the step of advertising to the backup application that the backup image is read ready.

For the full text including U.S., International and CPC Class information, use the following link:  
<http://patft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetacgi%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=10049016.PN.&OS=PN/10049016&RS=PN/10049016>

#### About Sureline Systems

Sureline's patented, award winning SUREedge® is a proven enterprise-class software solution for Cloud Migration, Cloud Disaster Recovery, Datacenter Consolidation and Application Mobility. SUREedge reduces risk through encrypted and efficient data transmission, and reliable transformation of the entire application, its data and interdependencies from source server to the target server virtualization or Cloud. It is easy-to-deploy and manage through a single UI, with automated discovery, no agents to install, and is completely non-disruptive. SUREedge is source and destination agnostic working to/from any physical server, any hypervisor (including hyperconverged infrastructures), any cloud, and any storage. Customers worldwide trust SUREedge to meet their workload migration, disaster recovery and application mobility objectives. Sureline is headquartered in San Jose, CA., and its products and services are available through a global network of VARs and technology service providers.

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