

Application-Aware Local-Global Source Deduplication for Cloud Backup Services of Personal Storage

Abstract:

In personal computing devices that rely on a cloud storage environment for data backup, an imminent challenge facing source deduplication for cloud backup services is the low deduplication efficiency due to a combination of the resource-intensive nature of deduplication and the limited system resources. In this paper, we present ALG-Dedupe, an Application-aware Local-Global source deduplication scheme that improves data deduplication efficiency by exploiting application awareness, and further combines local and global duplicate detection to strike a good balance between cloud storage capacity saving and deduplication time reduction. We perform experiments via prototype implementation to demonstrate that our scheme can significantly improve deduplication efficiency over the state-of-the-art methods with low system overhead, resulting in shortened backup window, increased power efficiency and reduced cost for cloud backup services of personal storage.