

# **Enabling Secure and Space-Efficient Metadata Management in Encrypted Deduplication.**

## **ABSTRACT:**

Encrypted deduplication combines encryption and deduplication in a seamless way to provide confidentiality guarantees for the physical data in deduplicated storage, yet it incurs substantial metadata storage overhead due to the additional storage of keys. We present a new encrypted deduplication storage system called Metadedup, which suppresses metadata storage by also applying deduplication to metadata. Its idea builds on indirection, which adds another level of metadata chunks that record metadata information. We find that metadata chunks are highly redundant in real-world workloads and hence can be effectively deduplicated. We further extend Metadedup to incorporate multiple servers via a distributed key management approach, so as to provide both fault-tolerant storage and security guarantees. We extensively evaluate Metadedup from performance and storage efficiency perspectives. We show that Metadedup achieves high throughput in writing and restoring files, and saves the metadata storage by up to 93.94% for real-world backup workloads.

## **SYSTEM REQUIREMENTS:**

### **HARDWARE REQUIREMENTS:**

- System : Pentium i3 Processor.
- Hard Disk : 500 GB.
- Monitor : 15'' LED
- Input Devices : Keyboard, Mouse
- Ram : 4 GB

### **SOFTWARE REQUIREMENTS:**

- Operating system : Windows 10.
- Coding Language : Java
- Web Framework : Flask

### **REFERENCE:**

J. Li et al., "Enabling Secure and Space-Efficient Metadata Management in Encrypted Deduplication," in IEEE Transactions on Computers, doi: 10.1109/TC.2021.3067326.