Analysis of I/O Performance for Optimizing Software Defined Storage in Cloud Integration

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Abstract— This paper introduces the essentials for implementing software-defined storage using a combination of on-premises and public cloud storage. We deploy three fundamental factors (chunk-meta data cache, data distribution processing and block-object storage interface) to combine storages. In order to provide customer with best performance of storage, it is essential to analyze I/O performance according to characteristics and configuration of the combined storages. As a result, we measure I/O performance of the deployed storage and the data write speed is increased up to 44% when the size of one chunk data was changed from 4MB and 128MB. Also, the data storing time is reduced if the number of physical storage devices increase. Additionally, the disk I/O performance decreases when the number of program to provide interface for object storages is increased in a single physical storage.

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