**CONCLUSION**

In this paper, we propose POD, a performance-oriented deduplication scheme, to improve the performance of primary storage systems in the Cloud by leveraging data deduplication on the I/O path to remove redundant write requests while also saving storage space. It takes a request-based selective deduplication approach (Select-Dedupe) to deduplicating the I/O redundancy on the critical I/O path in such a way that it minimizes the data fragmentation problem. In the meanwhile, an intelligent cache management (iCache) is employed in POD to further improve read performance and increase space saving, by adapting to I/O burstiness. Our extensive trace driven evaluations show that POD significantly improves the performance and saves capacity of primary storage systems in the Cloud. POD is an ongoing research project and we are currently exploring several directions for the future research. First, we will incorporate iCache into other deduplication schemes, such as iDedup, to investigate how much benefit iCache can bring to saving extra storage capacity and improving read performance. Second, we will build a power measurement module to evaluate the energy efficiency of POD. By reducing write traffic and saving storage space, POD has the potential to save the power that disks consume. We will compare the extra power that CPU consumes for computing fingerprints with the power that the storage saves, thus systematically investigating the energy efficiency of POD.