A Scale-out Key-value Store for Flash Storage and RDMA

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ABSTRACT

Scale-out persistent key-value stores are at the heart of modern data processing systems. However, they exhibit high CPU and I/O overhead because they use TCP/IP for their communication across servers and target HDDs as their storage devices. With the advent of flash storage and fast networks in datacenters, there is a lot of room for improvements in terms of CPU efficiency. In this paper we design a scale-out version of Kreon, an efficient key-value store tailored for flash storage, that uses RDMA for its communication. RDMA's lower protocol overhead and µs latency reduces the impact imposed by replication as well as the latency experienced by the client.