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PuddleStore is a distributed file system based on OceanStore. From the client's perspective, our file system has the interface of a basic Unix filesystem. Under the hood, the infrastructure is meant to allow data to reside anywhere on the network and be available everywhere. It also makes guarantees about the order in which updates appear at clients. Our implementation of PuddleStore uses a Distributed Object Location and Retrieval (DOLR) service, Tapestry, to store and replicate file data blocks, as well as Zookeeper to maintain linearizability of file metadata. In addition to basic file system functionalities, we also implemented read-write file locking; pre-fetching of data blocks; and a basic Access Control List (ACL) system. These modifications improve the performance and security of the file system.