

Mongodog: Eliminating orphaned data for MongoDB deletion

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Abstract

The DELF [5] and K9db [6] papers highlighted the possibility of creating systems and frameworks that developers can use to catch ownership and access relationship mistakes early on and provide mechanisms for correct data access and deletion. We saw that K9db is limited in that it is an entire database that is built on MySQL and thus requires major reworks to existing infrastructure to integrate it and that DELF is a closed-source framework from Meta that focuses on a graph model database. Mongodog provides compile time data ownership validation and runtime safe deletion of data to ensure that no data that is owned by a data subject is orphaned upon deletion of the respective data subject. This is done through Rust procedural macros that provide developers an easy to integrate library that handles all the complications of safe deletion of data. We then go onto build examples that demonstrate its ease of use and deletion capabilities.