Hackathon Proposal: Mnemosyne Implementation

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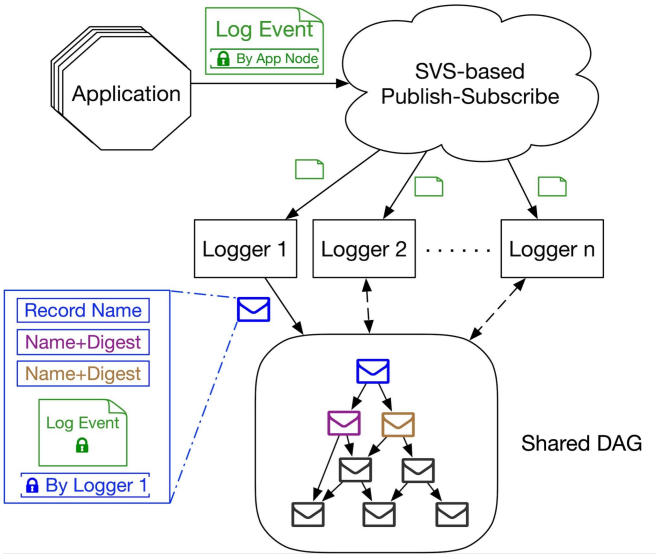
Problem Statement:
Named Data Networking (NDN) provides secure networking primitives for building distributed data-centric applications. These distributed applications share a common need with single-server applications: event logging for system monitoring. However, a logger for distributed applications brings new requirements, such as authorization, immutability, and resiliency requirements. Therefore, a new framework is needed for logging for distributed systems.

Contributions:
This project will implement Mnemosyne, a framework to solve the above needs over NDN. This implementation will serve the need for evaluation of the design designed in the poster, as well as addressing the logging need of Hydra, the distributed repo over NDN.



Tasks:
The prototype implementation should be based on C++, using the codebase from DLedger. The prototype will use NDN-CXX, SVS, and LevelDB.
The main implementation tasks include:

- Storage Driver Setup: Use of LevelDB or other storage systems
- Implementation of Synchronization of shared DAG using SVS
- Application Logging Interface with SVS Sub/Sub API
- Redundant Log Mitigation with Back-off algorithm
- Security bootstrapping and verification

Required Knowledge:
The project members are expected to have basic knowledge of NDN and its security framework.

Expected Outcomes of the Project:
Mnemosyne's prototype codebase will be built in this project. This codebase can be used for the basic evaluation of performance and stability. The code should be also ready to be integrated with Hydra with some additional adapter code.