Topic Proposal – Abhishek Grover

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# Cap’n proto vs Flatbuffers

* Captain proto and flatbuffers are serialization protocols and libraries that have made serialization really fast.
* The goal of the project is to study and compare the two libraries based on various parameters.
* All distributed systems depend on exchanging messages. There are several new message serialization formats with different strengths and weaknesses [ycomb, capncmp]. In particular, Cap'n Proto, FlatBuffers, and Simple Binary Encoding (SBE) have the benefit of zero copy and parsing cost. And while they've been discussed, they haven't been quantified to verify predictions. This project aims to create a set of microbenchmarks that can be used by programmers to decide which format best fits their needs. Microbenchmarks will include evaluation of zero value fields (optional vs. compressed values), locality as message format evolves (adding new fields at end vs. using field numbers), security (no bounds checking), mutations, random access, and streaming.
* The Flatbuffers project has some benchmarks [flatbufbench], but they aren't necessarily convincing, and it's not clear the benchmark source code was made available with Flatbuffers. In addition to message formats designed to specifically test the features mentioned above, it might be interesting to leverage projects that already use one of the formats.

**IMMEDIATE GOALS**

* For this project my initial plans are to meet Andrew and Carlos and discuss the goal of the project.
* I will be reading the documentation of both the libraries to get a better idea about them.
* Next I will look into the various parameters based on which the two should be compared.
* The last step shall be using both the libraries in a benchmark object and analyzing it for comparison.