
NYU Distributed Systems: Final Project Ideas

These are all suggestions. You do not need to pick from these lists, these are just some ideas. However, thinking about a project that leads to you building something (e.g., an application) that you can use (and is hopefully fun) is a good way to go about finding a final project.

- AT Proto is a protocol that was first developed for Bluesky, but has since been used to build a number of decentralized applications including a Git repository hosting service and a blogging platform. People have been collecting ideas of things to build on top of AT Proto, see for example [here](#) and [here](#).

Build an interesting application using AT Proto. You could build an idea listed in the list, or your own.

- Cap'n Web (also see this blog post) is an updated version of Cap'n Proto that supports a capability based security mechanism. The core idea is that reference to an object proves that you have access to it. Concurrently, Ink & Switch have been discussing a local-first capability based access control approach called Keyhive. Build and evaluate a text document sharing system that uses capability based security. In particular, you should compare this to existing systems, e.g., Google Drive or Dropbox for sharing data.
- Local-first software (also see this) is a distributed programming paradigm that has been proposed as a way to build distributed programs where data is not centralized, but yet enable collaboration. Build a collaborative text editor or game using the local-first approach.
- Recently, Amazon and others have been using “lightweight formal methods” to prevent bugs. This approach, which has been described in this paper and other places combines verification and theorem proving approaches with other techniques to improve the reliability of distributed programs. Apply this approach to an open-source distributed program (e.g., etcd, ZooKeeper, some smart contract) or build a distributed system to which you apply this approach.