Project Phase 2

Due date: Friday, 19.11.2021 @ 23:59

The goal of the project is to expand your Peerster's functionality in a non-trivial way. There is a reasonable amount of freedom regarding what you can choose, however, you need to motivate how your project idea enhances Peerster's functionality.

This means:

- Since you build on Peerster, your project will be a peer-to-peer decentralized application.

- You should clearly motivate why you want to add a specific functionality by reasoning how it is useful in the real world; this means, do not simply implement an algorithm without a clear practical goal in mind.

- The project should be non-trivial, which means not just coding complexity, but also showing an understanding of the problem you are addressing from a practical perspective.

- Each team member needs to have a distinct contribution, on which they will be evaluated.

- No winners in a losing team!

Topic

Based on our feedback for Phase 1, you should expand your proposal or change it partially / completely. You're free to choose any topic that you are passionate about, as long as you follow the requirements above. In case you still couldn't come up with a reasonable idea, here are some suggestions on what can be done that you can use as inspiration.

- Peer-to-peer video or audio streaming

- Implement some incentives (economic / social / game theoretical) for Peerster file sharing

- Implement some kind of Sybil-attack-resistance protocol

- Implement threshold secret-sharing on Peerster (how to get good identities, how to handle churn)

- Implement a reputation system on top of Peerster

- Implement a name-lookup service for files and/or peers

- Implement a flavor of content-based routing for efficient content delivery

- Implement e-voting in Peerster

Deliverables

At this stage, we ask you to deliver one coherent write-up per team (only one team member submits the write-up). Your write-up is a working draft for the final project document, which you will provide in January. This means, in each intermediate phase of the project you will add more contents to this write-up. The more complete the intermediate versions are, the easier it is for you to prepare the final document.

Write-up contents

For each section of the write-up, we specify in parentheses how much text is expected. We expect each team member to contribute, uniformly.

Topic Changes w.r.t. phase 1 of the project (if applicable) (1 paragraph per team)

Briefly describe the main points where your topic differs from the Project phase 1 submission. Applicable only if you've received feedback from us that suggested changing your topic either completely or in a non-trivial way. **You can neglect this section if we agreed with your topic but suggested minor added functionality.**

Introduction (1 paragraph per team)

Briefly describe the problem that your project is trying to solve and explain your motivation for selecting this problem, that is explain why it is an important problem to work on.

Related work (1 paragraph per team member)

If previous works have also tried to solve this problem, what are the main approaches that they use and what are their drawbacks and limitations? Try to summarize the main idea of their approaches and describe how your approach compares to theirs. For instance, in an anonymity

project, you could say systems 1, 2 and 3 use *mixnets*, while systems 4 and 5 use different network paths.

However, unlike research projects where the novelty should be concrete, we **don't expect** you to implement something that surpasses the state of the art.

System Goals & Functionalities (~1 paragraph per team member)

State concisely yet concretely the goals of your project and the functionalities that you envision to implement. For instance, in Peerster, one of the goals is spreading rumor messages and one of the functionalities is that a rumor message sent by a peer spreads through the network in a few seconds.

Architecture and Building Blocks (~1 paragraph per team member)

What will be the overall architecture of your system and how are different parts going to work together? Please draw relevant diagrams (class diagram and/or activity diagram and/or sequence diagram) and specify which team member is responsible for which part.

What are the algorithms you are going to use in your project? For each algorithm you plan to use, include the pseudocode.

3rd party libraries (~1 paragraph per team)

What 3rd party libraries are you planning to use (this should not include the packages in the standard go library)? In general, we expect you to code everything yourself without the help of 3rd party libraries, but under specific requirements we allow you to use appropriate libraries. **If you plan to use any third party library, you should get the acceptance from the TAs, before starting the implementation.**

Outcomes (~1 paragraph per team member)

State the set of outcomes, deliverables of your project. You should also clearly mention how you plan to evaluate your project (performance, security, simplicity and etc)

Submission

You will need to submit your write-up in **PDF** format on Moodle. Only one team member per group submits the file.

Grading

This document will not be graded. However, you should note that the phase 2 submission (this) is **compulsory** for the teams who haven't sent anything in phase 1 or you received a *not-accept* decision for phase 1.