

### **1. What project would you like to work on and why?**

I want to work on project “*Prevention of Pollution Attacks*”. There are two ways of solution: strategy based on trusted peers (STrPe) and strategy based on trusted peers with digital signatures (STrPe-DS). I want to implement both of these strategies during GSoC.

In addition, I want to try to design the strategy without the third trusted party. It is the most interesting problem for me, but I don't think I can provide the solution by the end of GSoC. So the main work is to implement STrPe-DS for P2PSP.

I want to work on this project because it satisfies my interests. My main work on the university is traffic optimization in p2p-networks and fault-tolerance of p2p-networks. This project will greatly improve my work at the university. Also, I would like to work on this project even after GSoC program in order to design and implement the solution to prevent pollution attacks without third trusted party.

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### **2. Propose an idea of how are you going to develop the project. Please, try to give as much information about this topic in your proposal, for example, milestones, time scheduling, deliverables, etc.**

I want to implement both STrPe and STrPe-DS strategies for prevention of pollution attacks. So there will be 2 milestones – implementation of STrPe strategy and implementation of STrPe-DS strategy.

Here's time schedule:

- Week 1 (25 May – 1 May) – implementation malicious peer (peer which sends poisoned chunks)
- Week 2 (1 June – 7 June) – start to implement trusted peer logic (send hash of received chunk and end-point address of peer to the splitter)
- Week 3 (8 June – 14 June) – start to implement splitter logic to handle messages from trusted peers
- Week 4 (15 June – 21 June) – implement the logic to expel malicious peers from the team
- Week 5 (22 June – 28 June) test&debug of STrPe, fix possible bugs
- Midterm – by this date I want to have the implemented STrPe mechanism (may be with some minor flaws)
- Week 6 (6 July – 12 July) – implementation of digital signature of chunks
- Week 7 (13 July – 19 July) – implementation of complaints about not received or poisoned chunks on peer side
- Week 8 (20 July – 26 July) implementation of gathering complaints on splitter side
- Week 9-10 (27 July – 9 August) implementation a logic to expel malicious peers from the team (the most important task)
- Week 11-12 (10 August – 23 August) test&debug and fix possible bugs

- “Pencils down” – to this date I will have the implemented logic of STrPe-DS strategy of pervention of pollution attacks

During the main work, described in schedule, I want to design strategy to prevent pollution attacks without trusted party.

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**3. Tell us about your experiences in free software development. Point us to a code sample: something good and clean to demonstrate that you know what you're doing, ideally from an existing project. Please, include your contributions in GitHub, Launchpad, Google Code, etc.**

To be honest, I have no experience in free software development, so it will be my first time. I have some experience with researching of p2p-networks, here is my implementation of BitTorrent protocol for PeerSim simulator - <https://github.com/ishakirov/peersim-bt> . Also, I have small contribution to P2PSP – implemetation of CIS of rules in PeerSim simulator - `lp:~im-shakirov/p2psp/sim` .

I have some experience with Python, not in public, but I wrote some useful scripts for my everyday needs (like a parsing html documents, acm problems, etc.)

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**4. Why do you want to work with P2PSP Project in particular?**

I want to work with P2PSP Project because it satisfies my interests in p2p networks, also I believe it is a very perspective product – p2p video streaming can provide a better QoS than traditional C/S architecture. In addition, video streaming is very popular nowadays – i.e. twitch.tv. Also I am planning to contibute to P2PSP after the GSoC program would have ended, in particular I want to design and develop the defense strategy without third trusted party.

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**5. Will you be working full-time on the project for the summer, or will you have other commitments too (a second job, classes, etc)?**

I suppose to spend 30 hours a week for the project. Yes, I have the second half-time job, but I think it is not a problem.

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**6. What is your ideal approach to keeping us informed of your progress, problems, and questions over the course of the project?**

I want to report about results and progress in the blog on blogspot platform and link to posts at the mailing list.

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**7. How can we contact you to ask you further questions?**

E-mail: [im.shakirov@gmail.com](mailto:im.shakirov@gmail.com)

Skype: qshaman92

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**8. What school are you attending? What year are you, and what's your major/degree/focus? If you're part of a research group, which one?**

I am currently studying at Perm State National Research University at the faculty of math and mechanics. I have already bachelor's degree. My main work (diploma) is about fault-tolerance and traffic optimization in p2p-networks.