Trust Challenges in Reusing Open Source Software: An Interview-based Initial Study

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ABSTRACT

Open source projects play a significant role in software production. Most of the software projects reuse and build upon the existing open source projects and libraries. While reusing is a time and cost saving manually maintaining and tracking the required updates for all of the dependencies is a complex task, several automated tools have been recently developed. Apache Ant [15], Apache Maven [12] and Gradle Build Tool [2] are among these tools that facilitate efficient

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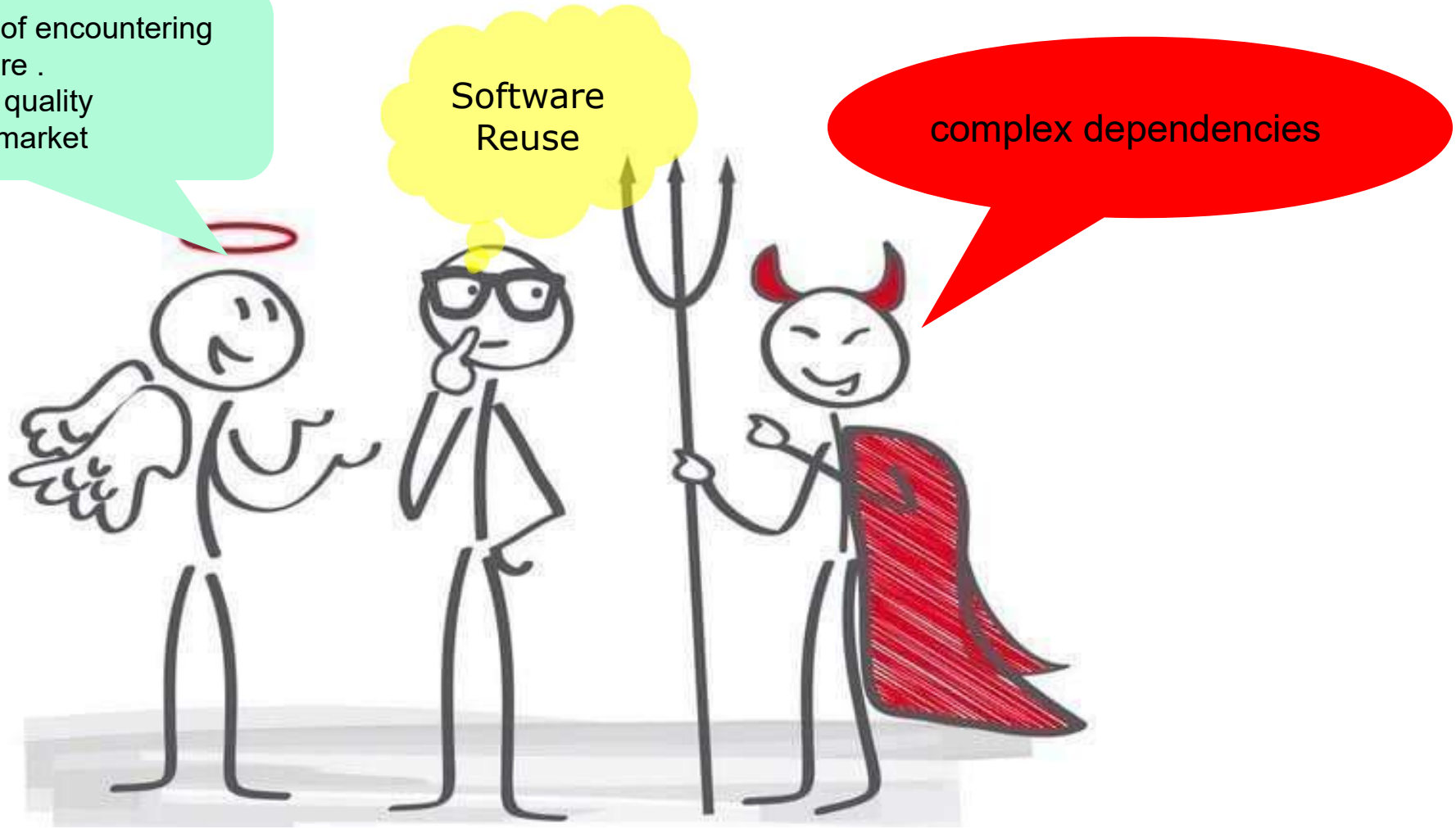
Introduction

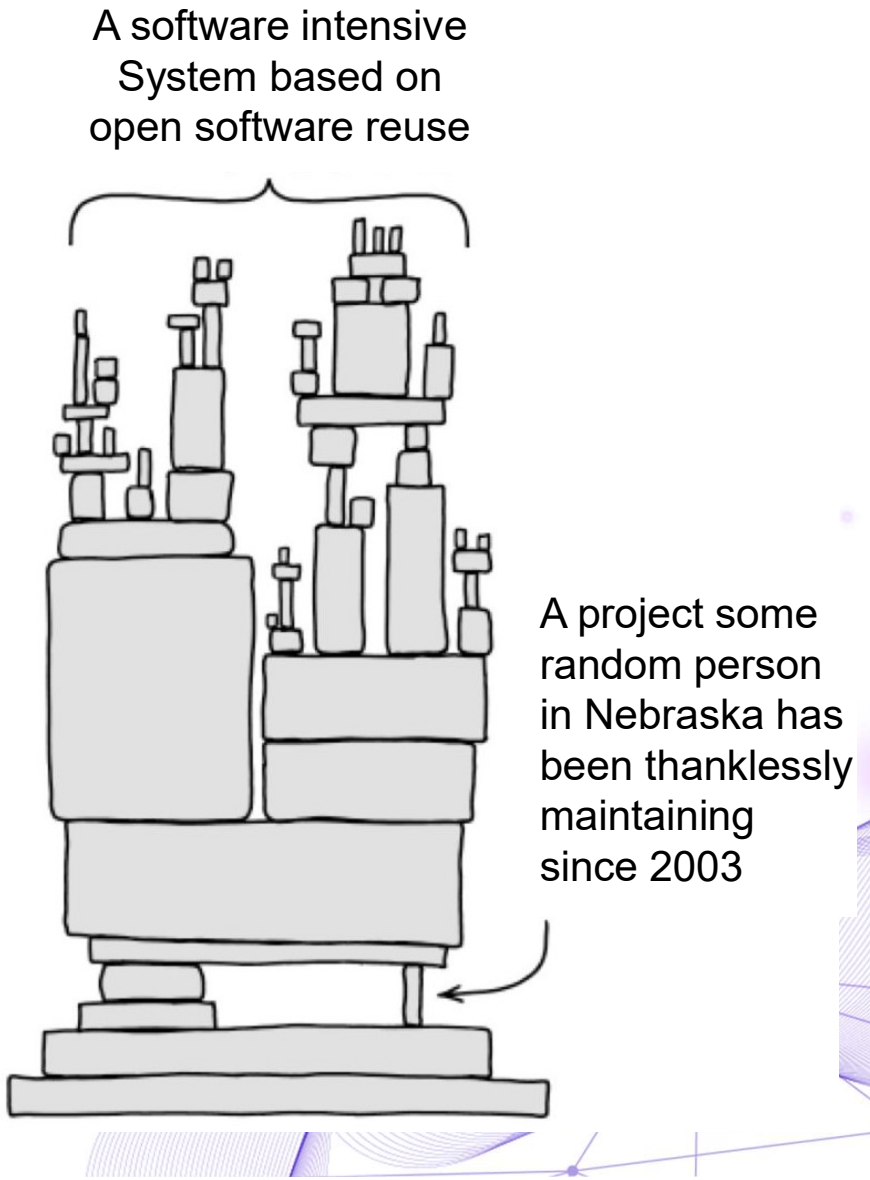
Software Reuse Dilemma

1. Decrease the risk of encountering unanticipated failure .
2. Increase software quality
3. Decrease time to market

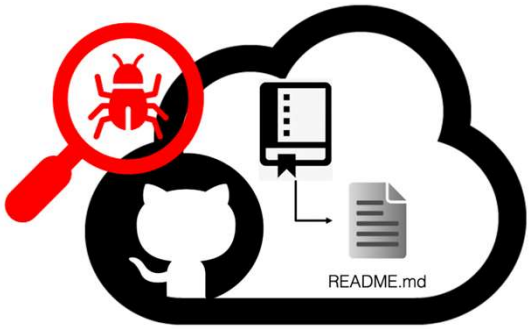


- Complex dependency chains require maintenance
  - New issues
  - People leave
  - …

How to prevent it?

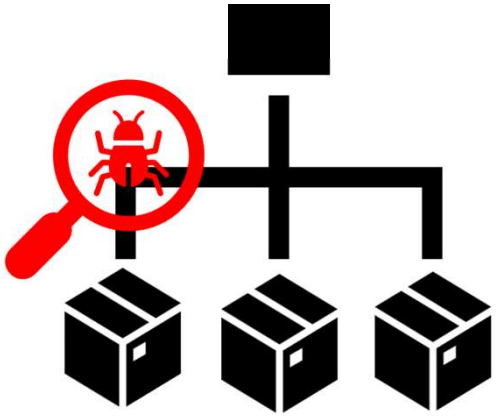


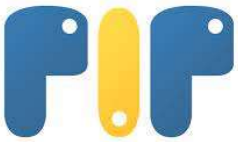
Related Work



Static code analysis of open-source software repositories

Dependency chain tracing in software ecosystems





Trust Factors?

Developers' point of view must be considered.

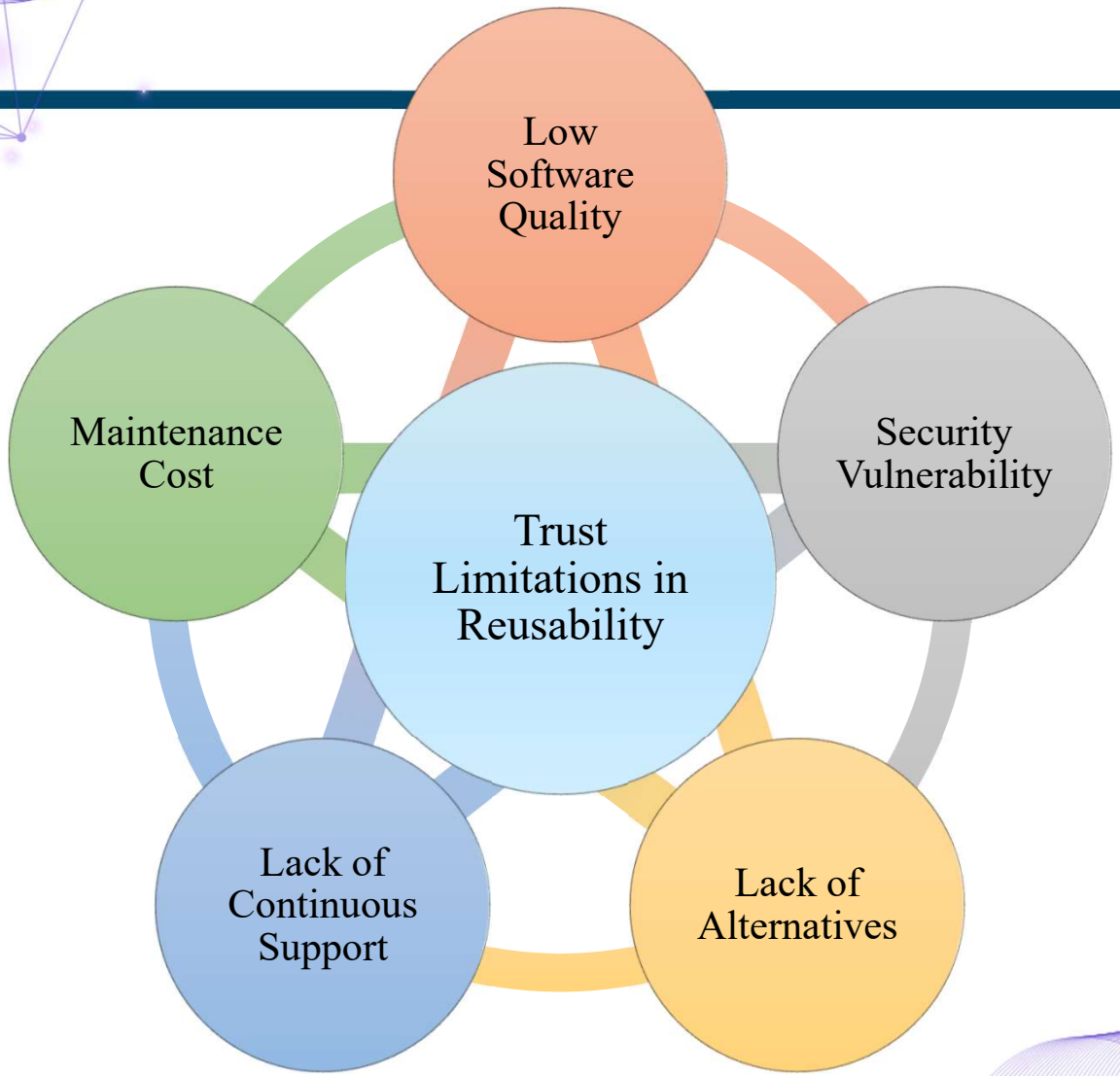
Survey

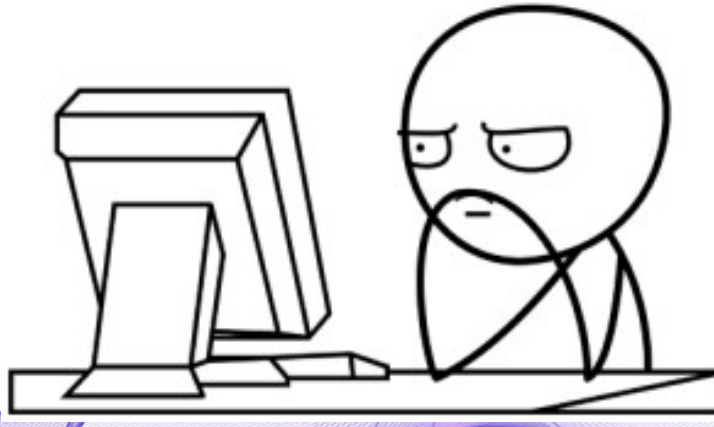
Semi-structured interview

- Structure
  - Section A: Introductory information (e.g., experience, domain of expertise, size of company...)
  - Section B: company's guidelines regarding reusing open-source software components
  - Section C: Challenges and the solutions for mitigating the issues of reuse

- Preparation
  - Brainstorming
  - 5 pilot interviews
    - similar understanding and interpretation of the question
  - mid-level developers with at least 5 years of experience as interviewees
  - diversity in field of work

Results


Low Software Quality
Maintenance Cost
Security Vulnerability
Trust Limitations in Reusability
Lack of Continuous Support
Lack of Alternatives



Conclusion and Outlook

Summary

- Trust as neglected challenge in reuse of open-source software
- Survey: Semi structured interviews with developers of different domains
- Five challenges and solutions in reusing open-source software are introduced

Limitations

- Summary of observations; not a proof, a proposal or a guideline
- Internal and external validities are considered

Outlook

- Comprehensive interviews that covers many working domains and disciplines
- Proofing the results
- Develop some methods based on findings


END OF PRESENTATION
THANKS FOR YOUR ATTENTION