Focus group 2 - Software workshop 16 Jan 2017

Problem(s) that the group wants to solve:
Testing software across different platforms and finding testers

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Defining the problem

Technical - users - wider issues, cultural

Multiple OS (mac, win, linux)
Portability and reproducibility on multiple platform (Travis-CI [unix, OSX], Appveyor [windows])
Licenses for different OSs when cross-platform testing
Dependencies - keeping up to date, reducing number vs. re-using code
(@cultural change: Research environment - no incentives; REF outputs) -> long term

- different OS
- appveyor, travis,
- virtual env
- open/free software vs proprietary software
- dependencies: balance reuse vs own/control
- github repo
- test/works over time, sometimes breaks
Quick wins:
Use less dependencies or integrating dependencies with good practices.
Use linux?
Github submodule with versioning of the dependencies
Python: virtual environments

Long-term solution(s):
Using docker or equivalent
Incentivise for code portability and good programming practices
Packaging projects (and making available via a package manager incl. tracking dependencies)
Preparing dummy data to do tests with (confidentiality + runtime)
Writing code with a generalised use in mind (requires experience)
Planning for software maintenance (already in application for grant)

- confidential data: use small/dummy data, also good for testing

Cultural:
- buddy evaluation, pair programming,
- cultural, hard to foster collaborative work,
- do convince that sharing/collaborating is better/faster
  - Funders: benefits of testing/data => should request more good programming practices upon submission
  - Ask for good software as reviewer
  - Establish community based standard and guidelines, best practice
- Data management plan -> software management plan
- Publish data management plan

Summary:
- software engineering (packages vs scripts)
- jupyter: binder across platforms = cloud computing no need for any mac win or linux specificity

- Use cases: bioinformatician works with biologists