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10 Years of Impact and Inspiration

The SESC 2016 CI Survey

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Software Engineering Support Centre

- Funded by EPSRC as to provide practical software engineering tools to academic community, with a focus on the Collaborative Computational Projects
- Run by the Software Engineering Group, part of the Scientific Computing Department at the Rutherford Appleton Laboratory

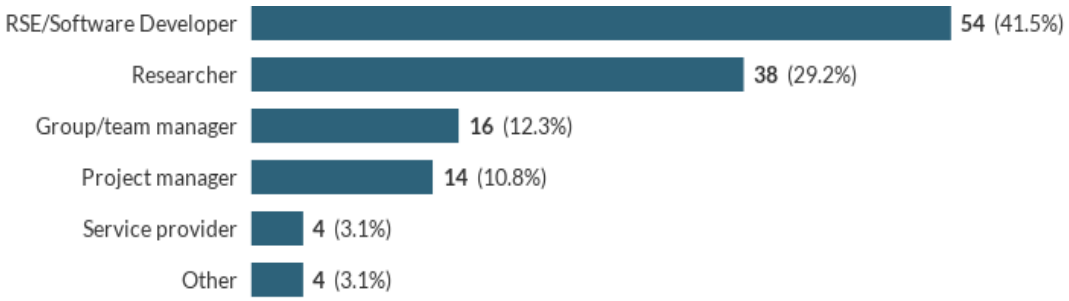
CI Survey

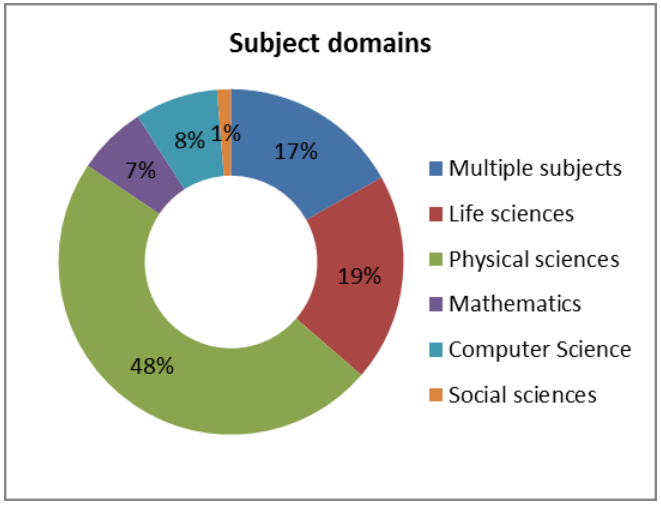
- Aims
  - Understand the current practice in the academic community
  - Test the requirements for planned developments

- Survey ran November 2016
- 83 respondents from UK RSE community & CCPs community

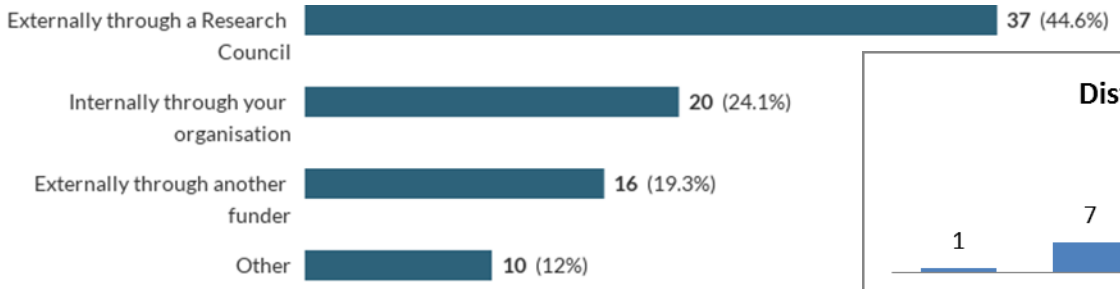
- http://purl.org/net/epubs/work/33360356

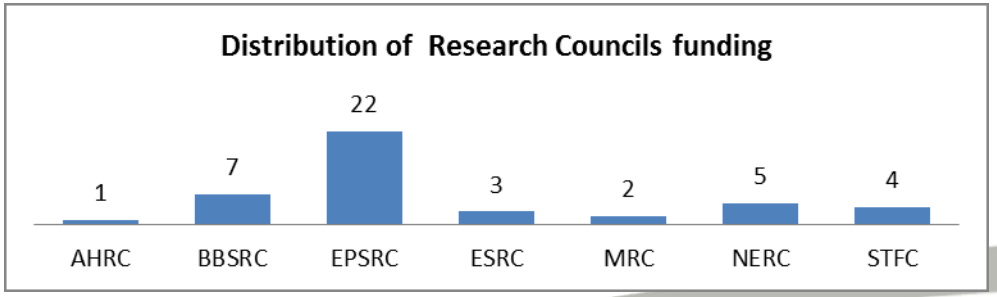
Profile of respondents





Who funds the software





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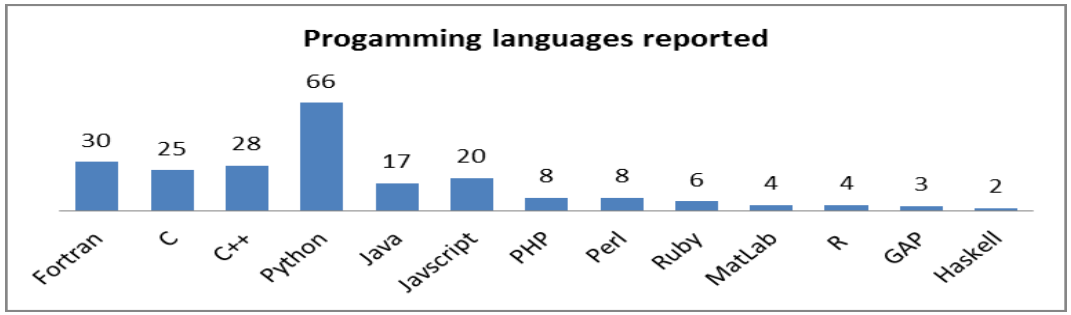
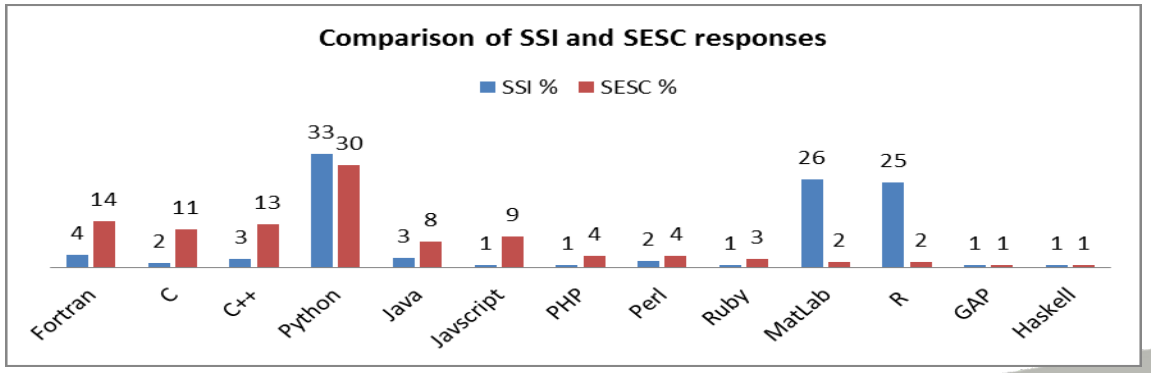
Current practice

Programming Languages

- Most popular languages, Python, Fortran, C++ & C

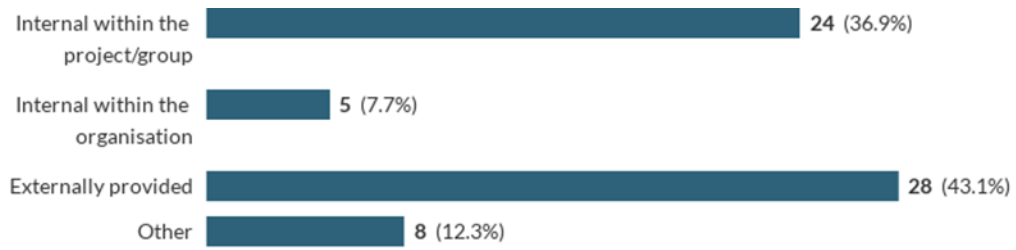




Hettrick, S., Philippe, O., Chue Hong, N., Sufi, S., Silva, R., & Peru, G. (2016). Software used in research based on combined surveys [Data set]. Zenodo. http://doi.org/10.5281/zenodo.60276

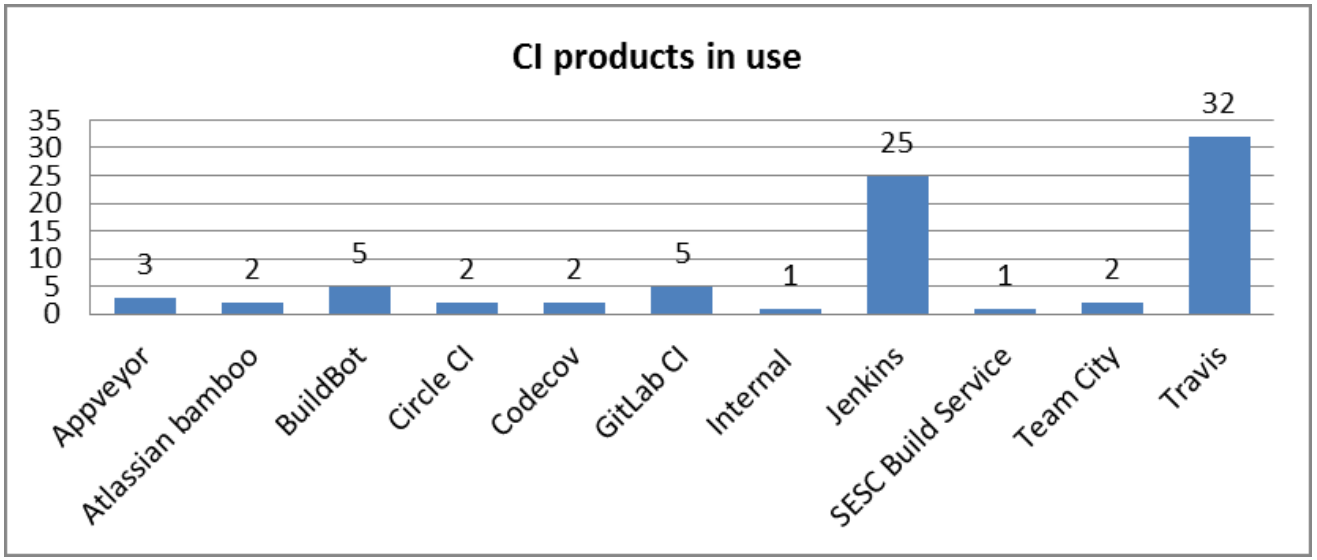
CI usage

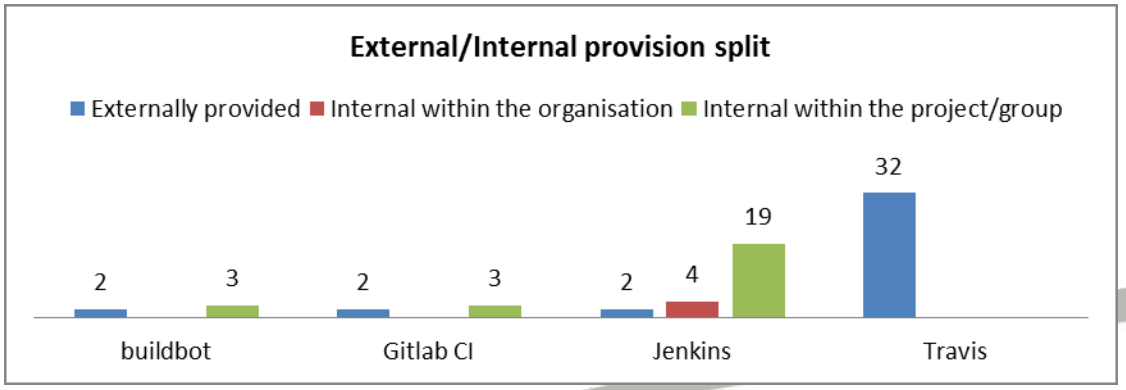
- 75% respondents use CI, rising to 82% for developers
- Service provision:



- Other: developers may use more than one CI service, depending on what they work on

CI Tools





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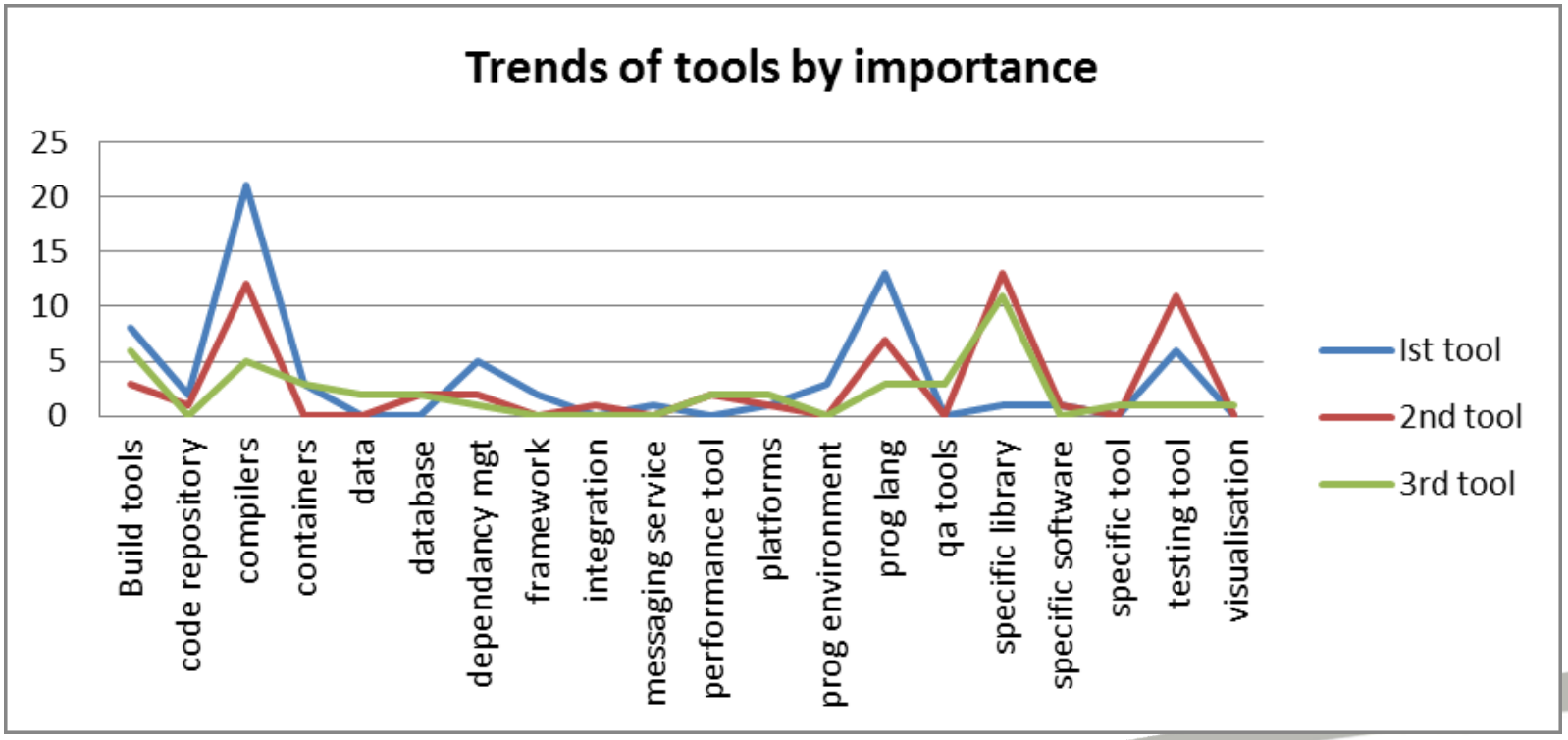
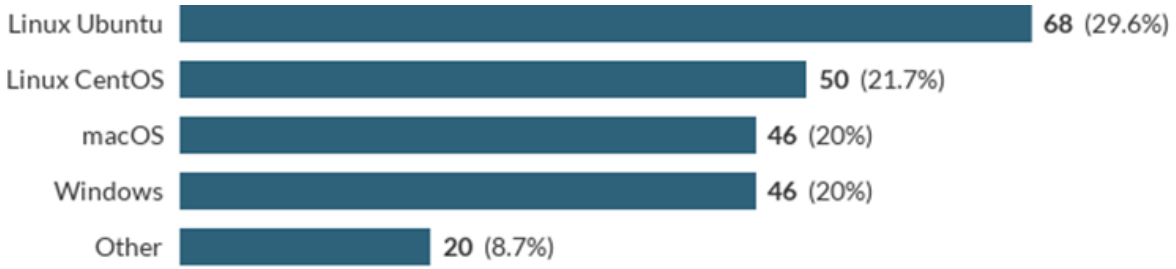
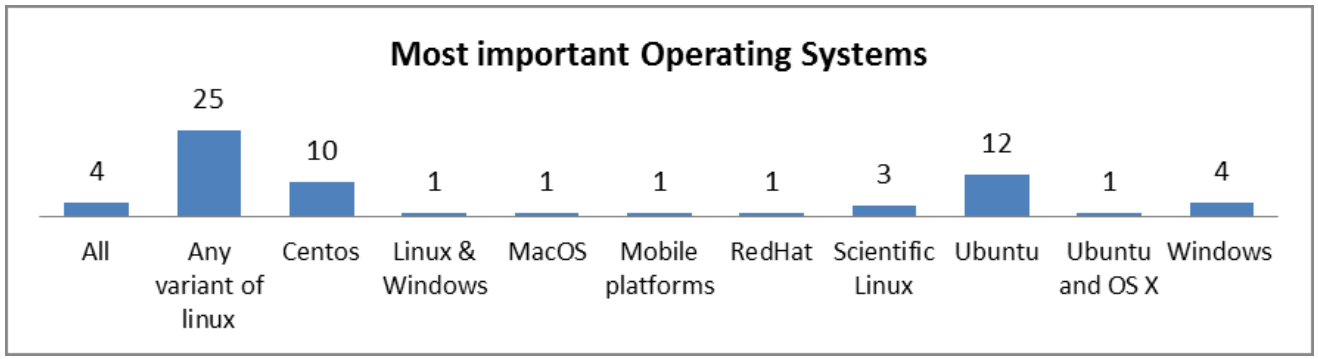
Tools needed to build code

- We asked about the tools needed to build & test code



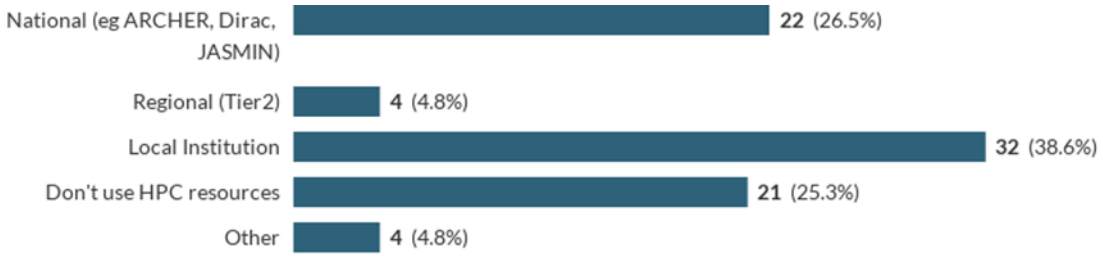
Operating systems tested on





Current HPC usage

- High proportion of HPC users in survey
  - Other included TITAN, or more than one of the options



Future plans

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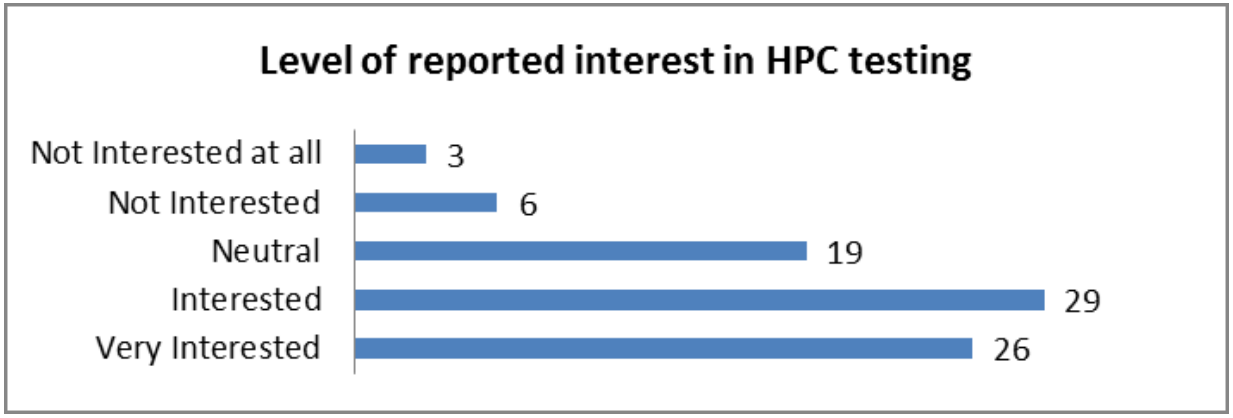
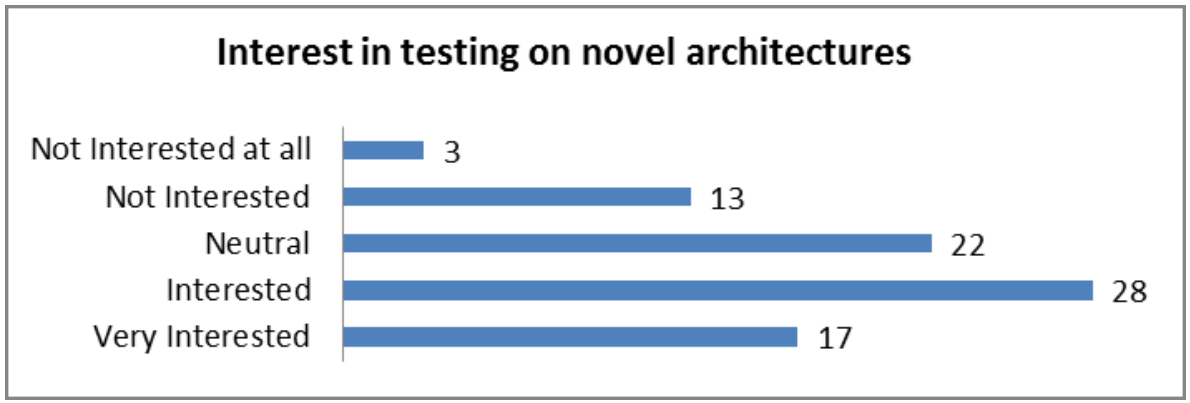
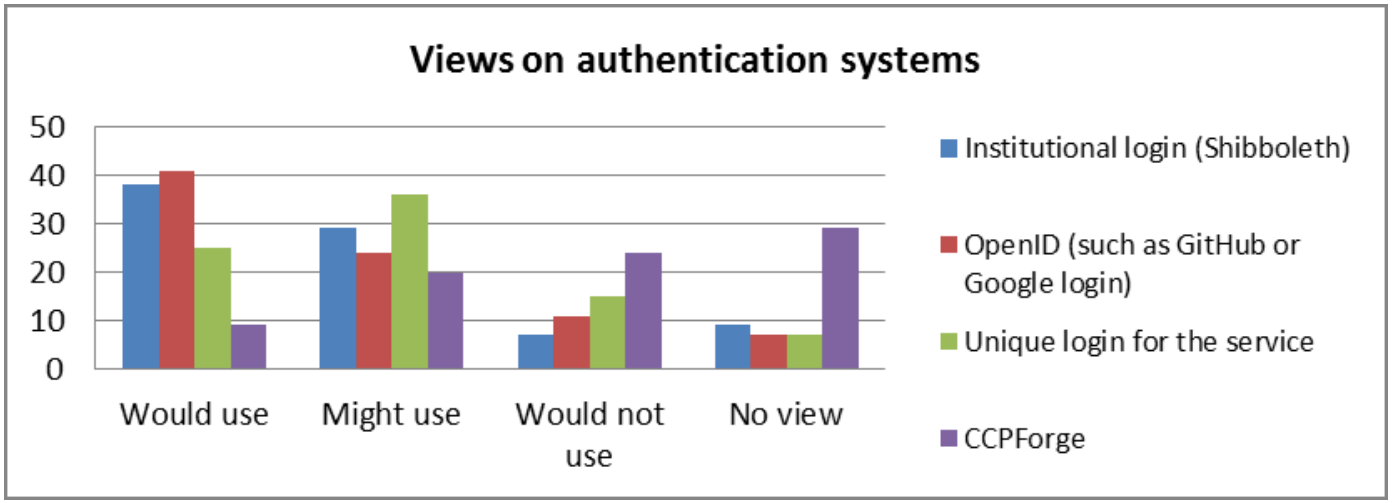
Interest in HPC testing



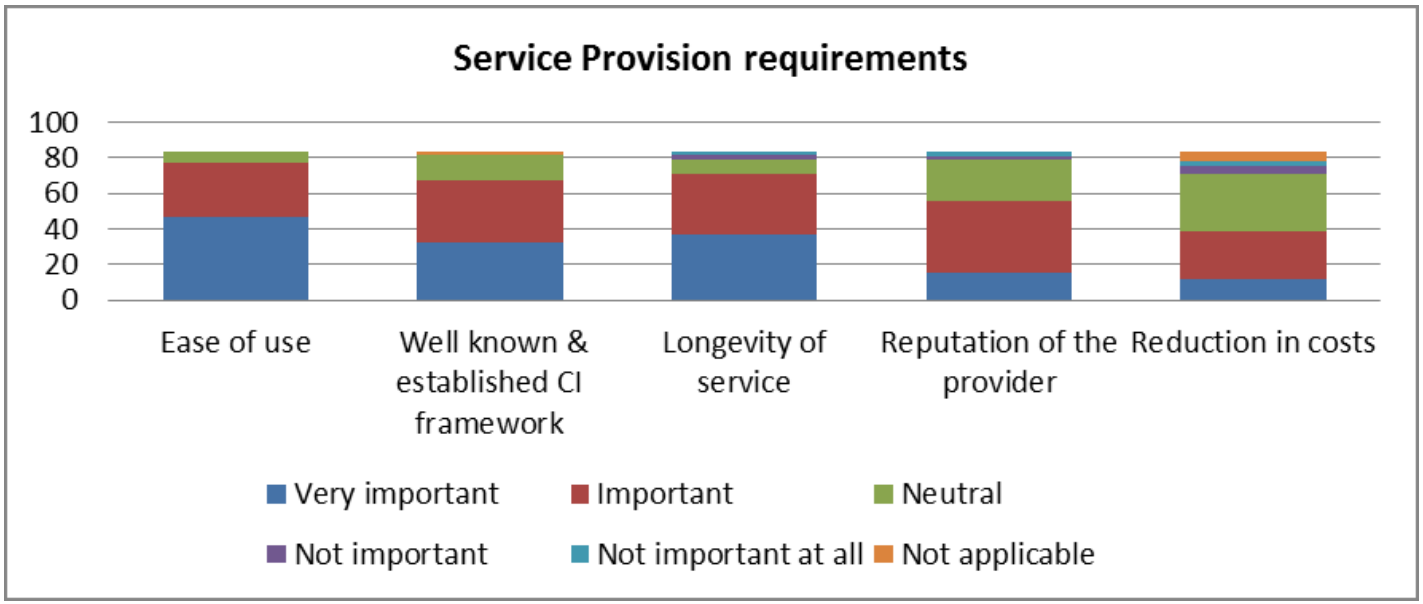


ARM (includes AArch64)
Xeon Phi (includes Knights Landing, KNL, Knights Corner, MIC)
GPGPU (includes NVIDIA, AMD)
FPGA
Power (includes Power8, Power8+)

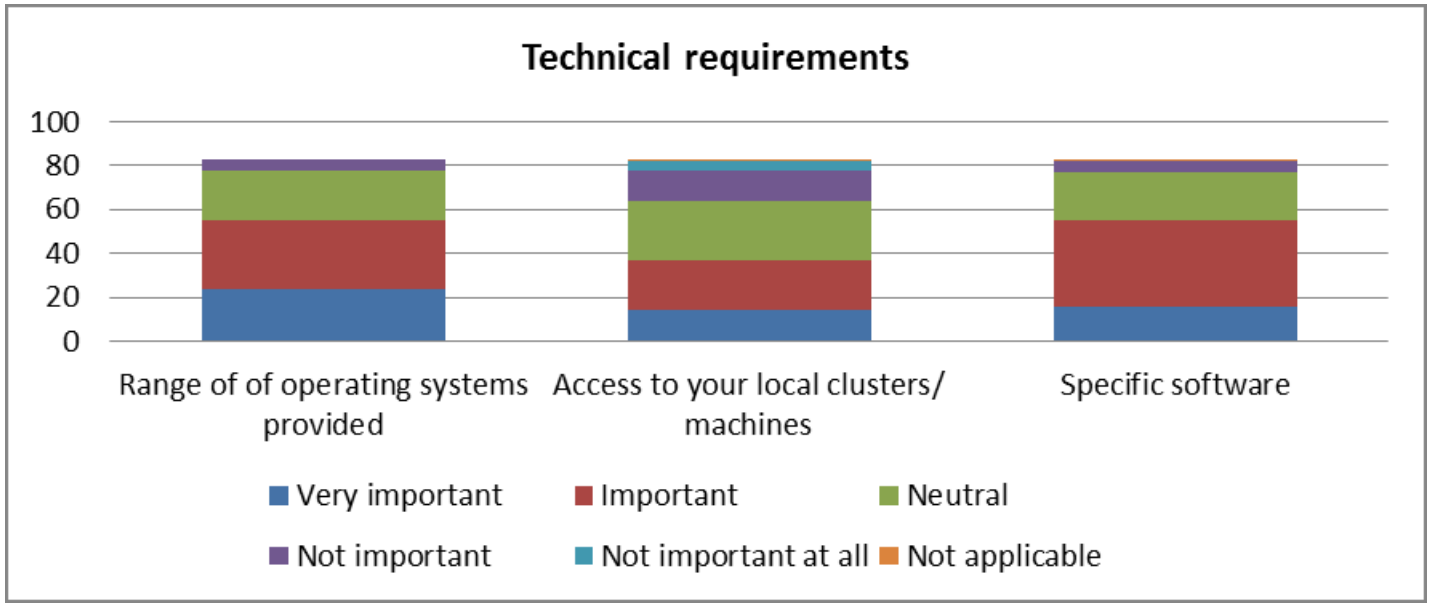
Authentication methods



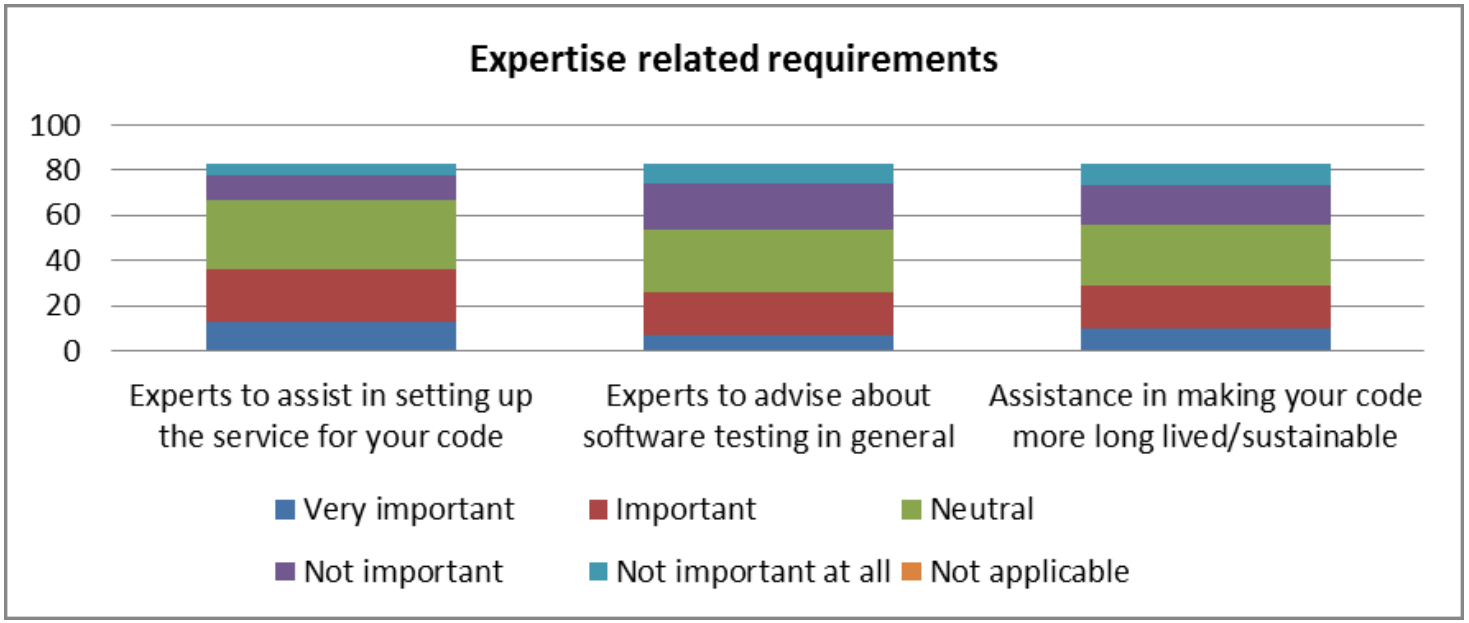
Service Characteristics I



Service Characteristics II



Service Characteristics III



Conclusions

- Widespread use of CI: Travis & Jenkins most popular
- There is an interest in HPC testing

A Central Service needs to

- be seen to be sustainable over a long time period
- provide testing access to national and regional HPC
- provide the right support for programming languages through access to compliers and libraries
- provide access through Shibboleth and OpenID
- be easy to use, through the CI system chosen and the support provided

Thanks & Contact

- Catherine.jones@stfc.ac.uk

- Thanks to EPSRC & SSI for feedback on the survey design
- SESC Team: Steven Lamerton, Alan Kyffin & Gemma Poulter