

## **AstroGrid Software Foundation : pre-proposal under urgency procedure**

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Goals We propose to create and run the AstroGrid Software Foundation as an open source software project modelled on the very successful Apache project. This will (i) maintain and support the technical infrastructure software suite built by the AstroGrid project; (ii) provide a stable code base for deployment by UK facilities, missions, and data centres; and (iii) co-ordinate contributions to continue development of this shared codebase, which will come from existing and future projects. A very small team (1.25 FTE spread over three staff) is required for the necessary co-ordination, support, testing, integration, and documentation on which community-based contributions will rely.

Background. Since mid-2008, a consortium of 34 UK facilities, missions, data centres, and projects had been developing the VOTC:UK concept, aimed at developing a shared infrastructure for UK astronomy data management. This is needed to keep up with scientific user requirements in the Virtual Observatory (VO) era, to give UK astronomers a competitive edge, and to save money in the long term by sharing development and code. The plan had been to pool effort from existing facility and project staff, seen as part of meeting their own deliverables, but also to maintain a "core team" built from the existing AstroGrid staff. The starting point would be the software suite constructed by AstroGrid, but maintained and developed by the new pooled facility+core team. The aim is to build a *facility class data infrastructure*.

AstroGrid products. AstroGrid ends in March 2010. It has produced three related products. (i) User software for astronomers. In the year following release in April 2008, 2670 copies of VO Desktop, and 4715 copies of Topcat, were downloaded by astronomers, and the website receives approximately 15,000 visitors per year. (ii) Working services, such as the Registry, giving access to eight thousand datasets worldwide, and VOspace. The Registry receives a query approximately every thirty seconds. (iii) A suite of technical background infrastructure software. This is to enable facilities and data centres to set up and run VO compliant data services, to set up and run registries, virtual storage, and workflow systems, and to provide an API for anybody to write new VO tools and applications. This technical software suite is being increasingly deployed worldwide at the very same time that the AstroGrid project is completing. The logic of the VOTC:UK concept was that the way to protect, preserve, and further develop this crucial but largely invisible body of software is to see it as a shared responsibility of the projects that need it.

Timing problem The problem of course is that we are on the verge of losing a number of key staff, with crucial skills and experience. The VOTC:UK consortium therefore requested an accelerated review. PPAN kindly accepted this. The result was that while PPAN were supportive of the concept, convinced of the strong case for VO development, and felt strongly that STFC should develop a coherent data management strategy, they were not yet convinced by the specific proposal in its current form.

New plan Our plan is now to continue AstroGrid as an open source project, creating the "AstroGrid Software Foundation (ASF)", following the methodology employed by the Apache, Linux, and Python communities. Technical staff from facilities and data centres will be able to contribute to (as well as deploy) the codebase, very much as originally intended. Likewise various combinations of the original VOTC:UK partnership will seek funding from EPSRC, JISC, STFC, EU etc for one-off projects to create new components which can be contributed, and so the volume of effort on the AstroGrid codebase can naturally grow and shrink according to need and available resource. We expect that European partners (especially ESA, ESO, and CDS) will also contribute. However this plan is only plausible if there is a bare minimum of effort dedicated to the ASF. We estimate the requirement as 1.25 FTE spread across three staff : 0.25 FTE on co-ordination and strategy, and 1.0 FTE on testing, integration, maintenance, documentation, and liaising with contributors. The proposal would be to fund this level of core support for three years from April 2010, and to assess progress and impact midway through.

Possible economic impact As part of creating the ASF, our intention is to create a charitable "Company Limited by Guarantee". This is a standard mechanism in the open source world allowing flexibility on a variety of "members", but also allowing the possibility of attracting sponsorship other than grants. The main goal of the ASF will be protecting and developing the legacy code for research purposes; however we will also be investigating the commercialisation of code and services derived from the AstroGrid product. We would create a related trading company to exploit these opportunities.