

Shibboleth Consultation and Review

Future Models for Shibboleth

1. Background

This report is the second part of the investigation into the most appropriate structure for a 'phase 2' Shibboleth to meet the requirements of stakeholders and project participants. It should be read in conjunction with the findings from the Shibboleth Futures public consultation (Shibboleth Review and Consultation A). The report forms part of the change management workpackages for the Shibboleth Consortium (SCC5).

The Shibboleth Consortium was formed to address the sustainability of Shibboleth in light of the progress it has made since its inception. The Programme Plan for the Shibboleth Consortium identifies the following key drivers for change:

- Restraints of the current funding and operational model;
- Additional requirements for global scalability;
- Achieving a sustainable future.

One of the core issues for the Shibboleth Consortium is the need to identify the best mechanism for sustaining Shibboleth moving forward.

Shibboleth is currently funded by Internet2, JISC and SWITCH. As a structure, this differs from many open source projects within foundations where staff effort is 'donated' by institutions (such as universities) rather than directly funded. As such, Shibboleth is starting off from a slightly different position from other similar efforts.

The core requirements for a phase 2 Shibboleth can be summarized as:

- 1. Legal structure:** Shibboleth as an organization needs to be able to operate as or have access to the functionality of a legal entity primarily to allow it to manage the flow of money and sign contracts but also to improve its status and interaction beyond the confines of a project. The Shibboleth Futures survey highlighted the fact that stakeholders needed increased confidence in the stability of Shibboleth. There are primarily three options open for the Shibboleth Consortium to consider:
 - a. Establishing a new legal entity for Shibboleth.
 - b. Consuming Shibboleth within an existing legal entity.
 - c. Forming an administrative partnership with an existing legal entity.
- 2. Function and process:** the Shibboleth Futures consultation identified a clear need to improve function and process for Shibboleth as an organization. Some of these areas have been tackled by the Consortium (particularly improved infrastructure) but other areas such as stakeholder engagement processes and code contribution processes need to be improved.

- 3. Clarity of ownership:** On paper, Shibboleth currently operates in an ownership model familiar to many open-source projects, where developers agree to submit code against a perpetual, royalty free license but the code rights remain with the developer organization / individual. However, the complex layers of funding provided to the Shibboleth project has lead to confusion as to the ownership of the project, its code and the rights to exploit the code and brand. Clarity is needed to ensure that Shibboleth can be sustainable and to avoid future disagreements of forking of the code.

2. Overview

As part of the change management workpackages for the Shibboleth Consortium, it was agreed that a review of existing foundations and organizations would be carried out to both consider possible homes for Shibboleth and make recommendations of 'lessons learnt' that could be relevant to Shibboleth futures.

The following organizations were identified as sources of investigation:

- Kuali;
- Sakai;
- JASIG;
- Apache;
- Moodle;
- OIX;
- Identity Commons;
- Free Software Foundation;
- Eclipse Foundation;
- OpenAFS.

An initial overview of these organizations was carried out and is attached as annex A to this report. From this, a review sheet has been established for each individual organization.

3. Operational Requirements

Identifying the operational requirements of Shibboleth is complex due to the current make-up of staff involved in the project. However, the following requirements are broadly recommended as a baseline for a future Shibboleth.

- **Developers** . The primary focus for funding should be on supporting current developers and adding capacity where-ever possible and appropriate.
- **Technical lead** . As the committers base grows, it will be important for a strong technical lead to be identified to co-ordinate technical input and roadmap.
- **Direction** . Direction for the project will mostly be sought from a governance board.
- **Operational management** . It is essential that phase 2 Shibboleth has clear and daily operational management. The extent of this role will vary depending on the

future model chosen, but it is currently recommended that this should be considered a full FTE role.

- **Communication and engagement.** Communication and engagement is an important role within the project, but one that is often overlooked from an expense perspective. Although this role could be combined with that of an operational manager, serious consideration should be made to how this role could be filled, possibly relating to private consultation and support.
- **Infrastructure.** Much of the infrastructure for the project is already established and is lightweight in nature. A modest sum is required for ongoing hosting and maintenance.
- **Expenses.** Although the Shibboleth team has always managed its geographical distribution very effectively without the need for excessive travel, it remains essential that the ability to support face-to-face meetings is in place and that the
- **Overheads.** Overheads are invariably the most complex area to calculate and depend greatly on the form that a phase 2 Shibboleth will take. One of the major considerations for the future Shibboleth model will be the requirement of possible partner organizations or home foundations relating to estates costs, which could present income difficulties for the project. A sum of at least 20% of above costs should be considered.

It is currently estimated that a 'phase 2' Shibboleth built on this premise would need to attract funding of £600,000 - £650,000 per annum.

4. Review Process

The identified foundations and organizations were reviewed against a range of criteria to evaluate possible future models for a phase 2 Shibboleth and to consider the requirements such an organization might have.

4.1 Employment

The ability to employ and manage employment law will immediately add layers of complexity and expense to a project such as Shibboleth. At the present time, it is not envisaged that a phase 2 Shibboleth would need to be able to directly employ people, but would rely on contractual relationships with partner organizations. This is in line with the models adopted by the reviewed organizations (with the exception of Moodle).

A future Shibboleth organization should be able to put in place contractor arrangements with: educational institutions worldwide, private consultants and not-for-profit companies.

As a project, Shibboleth currently deals with two contractual models for payment: salary plus overheads/costs for those employed within educational institutions and daily rates for external contractors. For clarity of financial management, it may be preferable to move to a process of paying daily rates for all those involved in Shibboleth.

A phase 2 Shibboleth should also consider its position in relation to how team members identify themselves in line with a communication strategy for the new organization. This should include use of shibboleth email addresses, job titles and contractor relationships with other organizations.

In terms of employment, phase 2 Shibboleth needs to put in place much stronger day-to-day management for non-development areas. Management input for shibboleth to-date has been piecemeal contributions of time from a variety of individuals, which has led to a lack of clarity of role, direction and coordination across the team. Whilst the project has sought to establish a process for managing 'donated' time for development activities, there is no effective process for donation of management activities and donated coordination effort does not provide strength for the project.

4.2 Finance

Clearly one of the key drivers for a 'phase2' Shibboleth is to attract funding for activities from a wider stakeholder contingent. Whilst a wide variety of business models have been examined as part of the review process, it is assumed that the most effective model for a future Shibboleth organization will be one of subscriptions and membership.

A future Shibboleth organization will need access to finance management and accountancy services, but is unlikely to need to employ such services fulltime. An appropriate financial relationship with a partner organization is the preferred model.

The Shibboleth Consortium has already begun to explore alternative models, such as direct grants for focused activities from bodies such as NLNet.

4.3 Estates

It is unlikely that Shibboleth as an organization will ever aspire to own estates, but it will be obliged to contribute to estate costs for staff employed by partner organizations. The Consortium need to carefully consider estate costs models, particularly when working in partnership with educational institutions that tend to have complex requirements for overhead cost models.

4.4 Code Management

A benefit often gained from joining existing foundations or organizations is the economy of scale gained through use of existing systems. However, over the past year the Shibboleth Consortium has worked to improve its existing infrastructure and is now able to provide full infrastructure services (including code / bug management) at a very cheap annual cost. It is unlikely that any benefit could be gained from moving the infrastructure for a third time in to a new environment.

One of the focuses for the Shibboleth Consortium during its first year of operation has been to examine the current way in which the Shibboleth code-base is managed from both a licensing and code contribution perspective. Minor changes have recently been made to the Shibboleth license statements to reflect IPR and license rights, and the Shibboleth

Programme Plan sets out the revised process for managing contributions to the code. Both of these processes will support code management as phase 2 Shibboleth is rolled out. No additional lessons were learnt through the review in relation to code management.

4.5 Communication

Many of the comments received in the Shibboleth Futures Survey pointed to the need for improved communication regarding Shibboleth. The Shibboleth Consortium has begun to address some of these concerns by:

- Establishing regular community calls with alternating timezones;
- Refreshing developer calls to allow for greater transparency and developer engagement;
- Reviewing mailing lists and restating the purpose of all lists.

The successful foundation models have ensured that they have invested well in community engagement. An area that should be addressed by a phase 2 Shibboleth is event management and requirements for annual conference / stakeholder events.

4.6 Legal

An essential and immediate question for consideration is whether there is a need to establish phase 2 Shibboleth as a new legal entity, or whether the legal requirements of the organization be met through a partnership arrangement. Should a suitable existing foundation be identified, there will be no significant reason to establish a Shibboleth legal entity, but this question will need to be examined if an appropriate home is not found.

An action that should be carried out as soon as possible is establishing trademarks for Shibboleth outside of the US. Internet2 currently own the trademark for Shibboleth within the US, but no attempt has been made to extend this coverage. The global market for Shibboleth makes this essential.

One of the drivers for JISC in the UK to establish a membership model for Shibboleth is anti-competition law. As a body, JISC is closely scrutinized to ensure that it does not overly invest in single products (whether open source or commercial) so as to inappropriately effect the market. Ongoing grant funding to Shibboleth could be viewed in this light, whereas a membership model provides a more comfortable framework for contributions to strategically important software.

4.7 Governance

It is clear that if a phase 2 Shibboleth is to have a wider membership base with associated contributions, it will need to have a governance model that represents this widening core interest. Experience from the review suggests that a model whereby community members are asked to put their names forward for board roles with an associated member voting system would be appropriate and easy to manage.



The Shibboleth Consortium should have well defined parameters for such a Board well in advance of establishing phase 2 Shibboleth. The purpose of the Board must be completely clear to all members to avoid confusion over its purpose.

4.8 Membership

The review process clearly indicates that a simple membership structure is the best way forward for a phase 2 Shibboleth. Tiered membership should be used, but this should be kept to a minimum to avoid confusion. Organizations should be given the option to donate to the project as well as join as formal members.

4. Recommendations

Based on analysis, current environmental pressures and project timescales, this investigation concludes that it is unlikely that there is an existing foundation that could provide an effective home for Shibboleth.

The review finds that the model adopted by Sakai provides the most 'lessons learnt' for Shibboleth and should be used as an excellence model for the development of 'phase 2 Shibboleth' in terms of structure, but more importantly openness and engagement.

Should this recommendation be accepted, the Shibboleth Consortium should consider carefully whether a phase 2 Shibboleth needs its own legal identity, or whether it could form a close partnership with an organization that could provide the appropriate legal and administrative cover. To support this process, this review makes the following observations:

- An academic institution is unlikely to provide an effective partnership from the point of view of flexibility and sustainability;
- An ideal partner should be one that has an interest in Shibboleth, but not a desire to 'own' or profit from the project;
- Membership of Shibboleth can be effectively established without the need for Shibboleth itself to be a legal entity (cf. UK federation);
- An ideal partner is likely to be a small organization;
- An ideal partner should not 'top-slice' funding received for Shibboleth but agree an appropriate administrative overhead with the team;
- A not-for-profit partner would be preferred.

Should the Consortium conclude that a legal entity should be established for a phase 2 Shibboleth, the following observations are made:

- A partner organization will still be required to support (at a minimum) the financial and accountancy requirements of phase 2;
- Careful consideration will be needed as to the appropriate country in which to establish the legal entity;
- Establishing such a legal entity will be a lengthy process with associated legal costs – such costs are currently not budgeted within the Consortium.

Other observations:

- Shibboleth currently lacks coherent day-to-day management. A future structure should appoint an operational manager for phase 2 Shibboleth;
- Communication efforts need to be considered carefully as part of phase 2 Shibboleth – for example, should an annual 'Shibboleth' conference be established independently of Internet2?