

NLB DIGITAL PRESERVATION SERVICES PROJECT - Status Update

NATIONAL LIBRARY BOARD SINGAPORE

1. Background

To realize our L2010 Vision of Libraries for Life, Knowledge and for Success, NLB adopted an architectural approach to the development and delivery of services. Simply put, to build a digital infrastructure for the management of digital content life cycle that covers both digital object curation and digital preservation. This infrastructure delivers basic services like utilities, which are combined to form aggregated services that patrons need. By changing the way the basic services are combined to form aggregated services gives NLB the agility to deliver new services rapidly. Following the same philosophy we designed digital preservation services as a set of basic services, which can be customized and deployed to meet the needs of the users.

At the last CDNLAO meeting in Tokyo, CEO of NLB presented a model of DPS as a common shared service. This report is a status of the NLB DPS project. There are other DPS projects in other national libraries, which are more advanced and also better funded.

2. Digital Preservation Services Project

The Digital Preservation Services Project was formulated in 2007. Even though there are varying definitions for digital preservation, we adopted as a “set of actions required to maintain digital information in an accessible and authentic form, for as long as required for access across changing technical environments”.

As suggested by various digital preservation practitioners, to have archival thinking, the Functional Requirements for Record Keeping were adopted to support cultural artifacts. Being a National Library for Singapore, we have been mandated to be legal deposit Library and hence we have statutory requirements to preserve the Legal deposit material that is collected, to preserve literary and cultural heritage of Singapore. Some of the functional requirements for digital preservation that is common for both archives and libraries, are:

- a. The systems/organizations should comply with the legal and administrative requirements. [For example, the Preservation system should issue a digital receipt for the material received from the depositor that is non-repudiable and admissible in the court of law]
- b. The organization providing preservation services should have policies, assigned responsibilities, and formal methodologies for their management. The systems supporting preservation services and repositories should conform to the policies and business practices. The preservation services

should be credible, in the sense that should control the quality of information entities in a consistent and accurate to assure the entities held are credible.

- c. The functional requirements include ingest processes, trusted repository functions, support for preservation actions and access. Unlike physical preservation repositories, the accesses to digital preservation are expected to be 3 to 4 times of accesses in a physical repository. The initial estimated figures are about 10 to 15% of the preserved content will be accessed per year.

3. Revenue Generation Models

Financing the Digital Preservation Systems is a long-term financial commitment. We investigated three Revenue Generation Models, Advertisement Model, as used by Amazon.com, Pay-as-you-Use Model, and Utility or Subscription Model. Digital Preservation needs to be supported by the community that nourishes the memory and values the connection between the past, present and the future. Fortunately in Singapore all memory institutions come under Ministry of Information Communication and Arts (MICA). Our Ministry was quite supportive and encouraged us to institute Utility/Subscription Model where the institutes that use preservation services will pay for the services provided by the shared services centre.

The Digital Preservation Services centre is being now built to provide preservation services to various institutes.

4. Business Model

The Business Model that is being currently used is encouraging the self-sustenance of the Digital Preservation Services centre. That is the capital costs that have gone into the development of Preservation Policies, Procedures, Systems are shared in the form subscription. In the case of Digital Preservation Services, systems and procedures that support Digital Preservation should be preserved (that is, the computer software/hardware/storage systems should be continually migrated, similar to intellectual entities that need to migrate to preserve access perpetually.) The cost of continual evolution of Digital Preservation Platform is built into the capital cost that is required. At the present we expect that we may have to use systems renewal cycle of 5 years. We followed the Resource Identification Model as suggested by Ms Anne R Kenney, (Cornell University) Cost Categories (Startup costs, Ongoing Costs, and Contingency Costs), and Cost Centres (Capital Costs, Direct Operating Costs, and Overhead). The major cost is expected to come from Procedural Infrastructure, while the license fees amounted to about one-third of the total start-up cost. The base system provides for all three forms of submission of digital artifacts low volume (individual items either deposited or donated), manual assisted submissions and bulk submissions (where publishers' systems

automatically submit the published materials), In the interest of administration simplicity we bundled as subscription costs.

For the computation of on going costs, we used the Model for Digital Preservation Costs suggested by Paul Wheatley of British Library. Note that in Digital Preservation the costs are less sensitive to the number items preserved and accesses to preserved items.

The estimated costs reported thus far are Digital Preservation setup costs at an average of US\$ 0.30 per item ingested. The trusted store costs is US\$ 0.03 per item per year. This is the cost incurred to ingest and store in a trusted repository and provide access to the items in the repository.

The reported on going costs for preservation actions depends on the nature of the objects and the format that is being used for preservation and access. The expected cost for typical e-monographs as reported by BL over a period of 10 years is US\$ 5. The costs are just a guideline for budgetary purposes and we expect that these costs will be the upper bound.

The current Business Model we are using is primarily cost-plus model. The subscription is pegged to recover the cost and contingency cost to mitigate the risk.

5. Governance Model

The Governance model for the Digital Preservation Services center is where the outsourcing partner provides services to various users. The Preservation Directors and CIO's of the user institutions provide directions and NLB (the operator of Digital Preservation Services) collaboratively agree on the preservation platform services that are common to most of the organizations. Any special services that are required by user institute to meet their specific needs are charged solely to that institute, so that cross subsidy of preservation costs among the institutes is discouraged. NLB provides the detailed records so that user institutions are abreast with the cost information.

6. Current Project Status

The DPS is a realization OAIS-RM implementation. Following our procurement processes we have selected Rosetta from Exlibris as base system. We opted for a commercial platform that is open and flexible to support our preservation policies. Being open platform it makes possible for us share accesses and form a grid of preservation repositories. We are in the process of finalizing the requirement specifications so that we could accommodate all the agencies requirements as much as possible.

In parallel we are developing processes infrastructure and we are in the process of implementing the Preservation test bed, to facilitate the testing preservation plans and debug the operational procedures. As librarians need to be trained in the archival aspects specifically in the areas of archival value assessment and capture of

contextual information, we have decided to have a test bed to assist in developing digital preservation skills with in the team.

The test bed is now being tested and configured. We plan to rollout digital preservation services in Oct 09, and have user acceptance tests for the next three months. We expect to be operational by end 2009.