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Service Level Agreements for the Digital Library

Masitah Ahmad*, Jemal H. Abawajy

Parallel and Distributed Computing Lab, Scholl of Information Technology, Deakin University, 3216, Victoria Australia

Abstract

Digital libraries offer a massive set of digital services to geographically distributed library patrons. The digital services are commonly sourced from third-party service providers for charge. As externally sourced digital services are becoming prevalence, issues regarding their quality assessment are gaining critical importance. Unfortunately, sourcing digital services from external providers has brought with it stringent quality of service (QoS) demand from the library service users. Currently, there is no way for ensuring QoS between the digital service providers and the library management. In this paper, we propose service level agreements (SLAs) to capture the QoS requirements of the digital service users and the commitments, as well as adherence of the digital service providers.

1. Introduction

Digital libraries have become more prevalent in the library and information science fields. They provide access to digital services in a coherent and economical manner to geographically distributed library patrons. The digital services include desktops, online database, electronic publishing (e-publishing), electronic journal (e-journal), electronic books (e-books), web-portal etc. An advantage of the digital libraries over the conventional libraries is that the former has the potential to store much more information with extremely little or no physical space. Increased accessibility as well as availability to none traditional constituencies of a library for reasons such as geographic location or organizational affiliation is another important advantage of the digital libraries over the

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* Corresponding author. Tel.: +61043098244; fax: +613 5227 1722.
  E-mail address: mahma@deakin.edu.au

traditional libraries. Moreover, digital library users can access some of the digital services from anywhere at any time thus saving their time (Kaur & Singh, 2012).

Digital library has changed the business model from buy-and-use to rent-and-use business model. The advantage of this change is that the libraries will be able to tailor their services to the needs of their current and future users. This in turn, will enable the libraries to be strongly linked to their communities and rapidly adjust to the changing world around them.

As libraries are dedicating increasingly large components of their budget to electronic resources (Plum, et. al, 2010), issues regarding digital services quality evaluation have recently become an area of considerable interest. Several tools such as SERVQUAL to assess service quality within library domains have been developed and widely used. It has been shown that a considerable mismatch exists between the SERVQUAL dimensions and digital service features (Parasuraman et al., 2005). To address such disparity, Vinagre et. al. (2011) developed a tool called dlQUAL that allow the assessment of service quality. Survey-based instruments mainly focus on digital service users as such the data they collect are user impressions or opinions and it's prone to errors (Plum, et. al, 2010). Several approaches such as COUNTER (Counting Online Usage of Networked Electronic Resources) [www.projectcounter.org] and SUSHI (Standardized Usage Statistics Harvesting Initiative) [www.niso.org/workrooms/sushi] that provide statistics of digital service usage also exist. However, the usage data collected are not systematically linked to the desired level of service performance, nor are the results comparable to other institutions (Plum, et. al, 2010).

Despite the great plethora of studies on service quality assessment for library and information science, only a limited number of academic literatures addressed digital service quality evaluations (Vinagre et. al., 2011). The common threat among the existing tools and approaches is that they are all designed to evaluate the performance of the services after they have been deployed. However, digital services provided by digital libraries often include services that exist outside the physical and administrative bounds of the library. These digital services are often contracted from third-party digital service providers for charge. Therefore, we believe that quality of service assessment for digital services requires including the element of third-party service provider. To the best of our knowledge, we are the first to address the integration of Service Level Agreements (SLAs) in the evaluation of library systems.

SLAs have become a valuable tool to help manage service expectations and monitor quality of service (QoS) attributes of services. In digital library, the specification and management of QoS is necessary to enhance user experiences. QoS represents the parameters that can be used to characterise and assess the functional and non-functional aspects of digital services. Some of these parameters are objective in nature and can be automatically measured, whereas others are subjective in nature and can only be measured through user evaluations (e.g., focus groups). Harris & Rockliff (2003) discussing the scope and contents as well as the role of service agreements in Australian health libraries. Comuzzi et. al (2009) focused on establishing and monitoring SLAs for complex service based systems. The authors use business, software and infrastructures services as a SLA hierarchies spanning through multiple domain and layers of a service economy. The authors applying the framework to industrial use cases. However, the proposed SLAs framework specifically on the service provider side only. Therefore, the approach is not suitable for digital library QoS measuring where QoS in the library is also expressed by parameters that focus on the interactive relationship between the libraries with the people whom it is supposed to serve (Hernon & Altman, 2010).

Alhamad et. Al (2010) proposed an approach for SLA framework in cloud computing. The authors use non-functional requirements of services such as availability, scalability and response time to define the SLA parameters for each type of cloud service (Infrastructure as a Service, Platform as a Service, Software as a Service and Storage as a Service). However, the above work is not in direct with the context of SLAs in Digital Library. Moreover, the services in this framework are focusing only toward cloud computing environments. Apart from the nominal work of Harris & Rockliff (2003), creating and implementing service level agreements in libraries does not exist in the published literature. Thus, an approach that guarantees the expected quality of digital services prior to their deployment as well as after they deploy is necessary. In the digital library settings, service level agreements (SLAs) are enormously beneficial if libraries are to achieve their stated mission of serving their patrons. However, there are no academic articles that address SLAs as a tool to create a level of digital service quality in Library. Therefore, the study of such a method is suitable and relevant to be considering because it is increasing in the Digital environments.