Chapter LI
An Innovative Desktop OSS Implementation in a School

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ABSTRACT

This chapter presents a case study of a migration to open source software (OSS) in a South African school. The innovative aspect of the case study lies in how the entire implementation was motivated by the collapse of the school's public address system. It was found that an OSS-based message system provided a more cost-effective replacement option whereby the speakers in the school were replaced with low-cost workstations (i.e., legacy systems) in each classroom. Interestingly, this OSS implementation happened despite the fact that, in South Africa, Microsoft Windows and MS-Office are available free of charge to schools under Microsoft's Academic Alliance initiative. The chapter also analyzes some critical themes for adoption of OSS in the educational environment.

INTRODUCTION

There has been an increased interest and awareness of OSS in South Africa (RSA) for various reasons. The work of the Shuttleworth Foundation (TSF) is one reason. In addition, OSS is increasingly becoming a practical alternative to support efforts to cross the digital divide in developing countries. OSS is stable and, arguably, more reliable than its mainstream proprietary competitors (Wheeler, 2005; Whittle, 2002). The availability of OSS support for the development community (GITOC, 2003) is, indeed, an added advantage.

OSS source code can be modified to solve scalability issues (Hughes, 2003; Wheeler, 2005), and some research suggests that OSS may be more secure than proprietary software (Arendse, Colledge, & Dismore, 2002; Wheeler, 2005a). It is also cost effective in that it is capable of running on older hardware, prolonging the hardware's useful lifetime (GITOC, 2002).

While OSS has been accepted for some time as a viable alternative to proprietary software (PS) in the network server market, desktop usage of OSS still remains fairly limited (Prentice & Gammage, 2005). The high PS licensing and

computer hardware costs in South Africa relative to the developed countries in combination with the several other perceived advantages of OSS have prompted several OSS on the desktop pilot projects in the education, public, and private sectors.

RESEARCH METHODOLOGY

The aim of this research is to explore a deeper understanding of issues that arise out of and inform migration into desktop OSS. It is an inductive, qualitative, and exploratory study. Research design was followed by data collection, analysis, interpretation, and drawing of conclusions that, in turn, informed the migration model.

A case study research method was considered relevant to the purposes of the study. This method has already garnered significant acceptance in the field due to its ability to provide subtle yet deep insights into social phenomena surrounding information systems (Klein & Myers, 1999; Walsham, 1995). The case study method enables investigations of social phenomena in their natural, real-world context and attempts to extract a deep, rich understanding of these phenomena (Benbasat, Goldstein, & Mead, 1987; Broadbent et al., 1998). A set of qualitative questionnaires were used to collect data through interviews. Data from existing documents and field observations were used as a support framework to the case study.

Thematic analysis was utilized to analyze data obtained in the case study. This involved extracting the common experiences/phenomena mentioned in multiple interviews and grouping together all specific talk related to these experiences. Themes were then identified by bringing together these fragments of conversation to form a comprehensive picture of the experience or phenomenon (Aronson, 1994).

Data for the case study were collected by conducting semistructured interviews with the school's IT manager, network administrator, staff members, and pupils. In addition, several docu-

ments provided to the researchers were analyzed, including a proposal to introduce a computer-based announcements system at the school, as well as basic internal training documentation for the Red Hat desktop environment.

BACKGROUND

Arguments Supporting OSS Usage in Education

Information and communication technologies (ICTs) are a key resource required in the field of education, especially in countries affected by the digital divide (Kotschy, 2002). Most of the affected countries are in Africa, where digital divide studies reflect wider ICT access and developmental inequalities. The existing ICT infrastructure within SADC countries, for example, is more developed in urban than in rural areas (bridges.org, 2002). Countries such as the DRC have outdated and costly telecommunications infrastructure inherited from colonial times, while landmines as a result of civil wars render most areas unusable in countries such as Angola (Bridges.org, 2003). ICTs have the potential to improve the quality of education as well as the quality of life for the people exposed to the technology (Tong, 2004). One of the largest barriers to utilizing ICTs in education is the cost of proprietary software (Tong, 2004). Additional barriers include the security risks associated with proprietary software, the trend of increasing proprietary software license costs, and the cost of hardware required to run proprietary software, especially as newer versions are released and support for older versions is discontinued (Glance, Kerr, & Reid, 2004). There is evidence that educational institutions, particularly tertiary educational institutions (TEIs), are showing significant interest in desktop OSS owing to the aforementioned factors (Conlon, 2004). Additional factors identified by a group of surveyed TEIs included the potential

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