Chapter 19
Content in the Cloud:
Towards a Green Information Service Model

Gobinda G. Chowdhury
Northumbria University, UK

ABSTRACT

This chapter reports on a study that aims to design the conceptual model of a Cloud-Based Green Information Service. It is noted that Green ICT can play a key role in saving the environment. It is also noted that Cloud computing facilitates the development of an economically and environmentally sustainable model for Green Information Services. However, such a model should have different layers, and some specific research and development activities are to be undertaken for each layer of the Cloud Information Service architecture.

INTRODUCTION

The following are some recent headlines that show how Cloud computing is gaining momentum in various academic and research, businesses and government activities and thereby influencing our daily lives:

Cloud computing has been an information technology buzzword for many years. Now it is going mainstream (Weber, 2010).

The cloud is, finally, about to change our lives—and it will all start with content. (Ulanoff, 2011).

U.K. government policy makers will be able to work securely on classified documents across departments for the first time thanks to a deal

with cloud computing and content management service provider Huddle (Rooney, 2011).

The Joint Information Systems Committee (JISC) in the UK has been taking some major initiatives for taking academic and research information services in the Cloud. JISC has recently announced that:

JANET (UK) will deliver the national brokerage to aid procurement of cloud services between higher education institutions and commercial suppliers and Eduserv will provide a pilot cloud infrastructure for higher education institutions (JISC, 2011a).

According to Dr. Malcom Read (the then Executive Secretary of JISC), a federation of clouds for education and research could be extended across the whole of Europe (JISC, 2011b).

Library and information services, as we understand them today, i.e. those that provide individual and communities of users shared access to commercial as well as free information resources, have existed for several centuries. However, all through these years they have changed and adapted to new technologies and emerging socio-economic practices, and the changing user behaviour and usage patterns. Information and Communication Technologies (ICT) have been a major driving force behind the evolution of information services over the past few decades.

Internet, web and mobile technologies have been the recent major forces behind the creation of a new era of digital information systems and services that have significantly changed the ways in which we create, distribute, seek, access, use, share and re-create information. On the one hand there has been an unprecedented growth in the volume and variety of digital information, and on the other there has been an exponential growth in the use of computer and communication technologies. However, the increasing use of ICT (information and communication technologies) in the creation,

management and use of information have significant economic and environmental implications. Individuals, institutions, governments, businesses, etc. are making increasing use of computing and communication technologies which demand more economic resources for acquiring, managing, and upgrading technologies because of the relatively short lifespan of computer and communications equipment. This on the one hand make the task of planning, management and implementation of projects that require substantial use of ICT more and more difficult, and on the other hand the increased use of ICT makes more demands on energy consumption which have adverse environmental impacts. It is estimated that universities and colleges in the UK alone:

- "Utilise nearly 1,470,000 computers, 250,000 printers and 240,000 servers
- Will have ICT-related electricity bills of around £116m in 2009, and
- Are indirectly emitting over 500,000t of carbon dioxide (CO_2) emissions from this electricity use" (James and Hopkinson, 2009).

It is estimated that globally ICTs contribute to about 2% of the current GHG (green house gas) emissions (The Climate Group, 2008), and it is going to increase rapidly over the coming years. However, it is also estimated that improved and appropriate use of ICT can reduce "annual man-made global emissions by 15 per cent by 2020 and deliver energy efficiency savings to global businesses of over EUR 500 billion" (The Climate Group, 2008). This can be achieved by using Green ICT and Cloud computing technologies that facilitate shared use of computing and networking resources and thereby avoiding wastage of computing resources and the corresponding energy consumption while at the same time providing round the clock access to the resources – content, hardware, software, networking, etc. – by utilizing advanced technological facilities for scheduling

Related Content

In the Eye of the Storm: ERM Systems are Guiding Libraries' Future
Ted Koppel (2008). *Electronic Resource Management in Libraries: Research and Practice (pp. 374-382).*
www.irma-international.org/chapter/eye-storm-erm-systems-guiding/10045

The Research Habits of Graduate Students and Faculty: Is There a Need for Reference Sources?
Miriam Matteson (2012). *E-Reference Context and Discoverability in Libraries: Issues and Concepts (pp. 46-60).*
www.irma-international.org/chapter/research-habits-graduate-students-faculty/57912

SWOT Analysis of Internet of Things in the Library and Information Science Environment
Anna Kaushik (2020). *Handbook of Research on Emerging Trends and Technologies in Library and Information Science (pp. 1-12).*
www.irma-international.org/chapter/swot-analysis-of-internet-of-things-in-the-library-and-information-science-environment/241549

Discovering Authoritative Reference Material: It's all about "Location. Location. Location."
Lettie Y. Conrad (2012). *E-Reference Context and Discoverability in Libraries: Issues and Concepts (pp. 137-147).*
www.irma-international.org/chapter/discovering-authoritative-reference-material/57920

Trends in Web-Based Services in Academic Libraries
Lynn M. Fountain (2000). *World Libraries on the Information Superhighway: Preparing for the Challenges of the New Millennium (pp. 80-94).*
www.irma-international.org/chapter/trends-web-based-services-academic/31491