USING THE CLOUD COMPUTING AT THE LIBRARIES ENVIRONMENT IN THE ARAB REGION

NAHED MOHAMMED SALEM

Department of, College of Arts and Social Sciences, Sultan Qaboos University, Oman
E-mail: naheds@squ.edu.om

Abstract— This study Discusses using cloud computing in libraries environment in the Sultanate of Oman and Egypt? And how far librarians are aware of cloud computing services and its advantages and identify the challenges faced by libraries in using. The study found that libraries in Oman use cloud computing at average percentage and low percentage in Egypt. Technical challenges and poor technical infrastructure and weak internet are the greatest challenges facing libraries in using cloud computing. Accordingly, the study recommended improving communication and internet quality and developing librarians' technical skills through all means.

Index Terms— Cloud computing, Libraries, environment, Oman, Egypt.

I. INTRODUCTION

Computing is the fifth stage of internet development passing through internet protocols, and Email, then searching internet and social networks as computing uses are variegated, some are un-aware that they use computing when using Email from Google or Yahoo, some share in making files through Google drive, and other applications considered as cloud computing services. Cloud computing services will offer an integrated solution for all library processes, and libraries will move to mechanical use, exploiting internet application, creating new library to manage all library processes by a new method saving time, money and effort. According to this new technology trend, we find many libraries change their applications and services to cloud computing. Accordingly, this study will try to find out the position of cloud computing in Arab libraries environment represented in academic libraries in Oman and Egypt.

The study aims at identifying the fact of using cloud computing in academic libraries in Oman and Egypt, and problems facing libraries when applying cloud computing. According, the study offered the following questions:

1) What is the fact of using cloud computing in academic libraries in Oman and Egypt, and how far librarians are aware of advantages of using?
2) What are the challenges facing libraries in academic libraries in Oman and Egypt?

II. METHODOLOGY

The study depended on descriptive method of using cloud computing in Arab libraries represented in academic libraries in Sultan Qaboos University (main library, medical library, Faculty of economy and political science library) and Alexandria University (Central Library of the University, Medical Libraries, College of Engineering Library) by using questionnaire as a tool of data collection. Questionnaire was districted to all librarians of studied libraries but response was weak due to embarrassment of some as they can't answer and the researcher's non desire to press on some to answer for having actual answer, was 73 questions as three questions were removed because they were not filled correctly; according study sample was 70 librarians from 6 libraries. Table 1 displays number of librarians of every library and number of true answer.

A. Qualification

The qualifications were identified as stated in Table 2. It is clear that more than half the sample from Library and information specialization and others from information technology, this proves that specialists' level is incorporated in the system of using technology and entering cloud computing world.

B. Technical Qualification Type

Table 3 represents the technical qualification for librarians. It has been stated that information technology revolution and using computing in the field of libraries made librarians develop their technical skills to adopt computing and acclimatize [1]. It is clear to us that the level of Technical Qualification for librarians is average. It is noted that the technical qualification in the Sultanate of Oman is better than Egypt. So the study believes that the affair needs more effort from librarians to develop their technical levels. In [5],it has been stated that technical skills its mastering is very important for libraries employees.

III. RESULTS AND DISCUSSION

This study offered number of questions and librarians answers reflected using cloud computing in libraries. As shown in Table 4, the study tried to identify fact of using cloud computing, the highest use rate was using email 100% of total sample in Oman and 70% of total sample in Egypt, followed by YouTube, then Social Networks, and the least used was Amazon S3.Librarians have indicated the use of some computing services in Some of library operations such as the reference service, Collection Development, cataloging and classification. But cloud computing was

not used in sharing information sources, or cooperation between libraries. by reviewing intellectual literature [2]-[5], It is clear that computing is a fact imposed on libraries, also libraries profited from applying cloud computing before promoting this concept, as libraries apply many technical processes of cataloging, classifying and providing services to users through programs unavailable to and unused upon their computers but setup on other servers. Librarians use cloud computing even if unaware of such use.

Table 1: Number of employees and answer collected from questionnaire

Country	Name of library	No. of employees	No. of Questionnaire Answer	Percentage of Employees Answers in every library
Oman	Main Library	80	11	13.75%
	Medical Library	16	6	37.5%
	Faculty of economy and political science library	10	3	30%
	Total	106	20	18.8%
Egypt	Central Library of Alex. University	120	12	10%
	Medical Libraries in Alex. University	65	27	41.5%
	College of Engineering Library in Alex. University	43	11	25.5%
	Total	228	50	21.9%

Table 2: Qualification of librarians

Qualification of librarians	Oman		Egypt	
	Number	Percentage	Number	Percentage
Bachelor of Library and information science	9	45%	30	60%
Bachelor of information Technology	2	10%	3	6%
Master of Library and information science	6	30%	12	24%
Others	3	15%	5	10%
Total	20	100%	50	100%

Table 3: Technical qualification for librarians

Type	Oman		Egypt	
	Number	Percentage	Number	Percentage
Scientific qualification	7	33%	8	16%
Training	13%	65%	42	84%
Total	20	100%	50	100%
Level Technical Qualification				
High	11	55%	15	30%
Average	8	40%	18	36%
Weak	1	5%	17	34%
Total	20	100%	50	100%

C. Advantages of Cloud computing

Table 5 proved that the most common advantages of cloud computing as viewed by librarians were economizing costs of operating and maintenance at 65% in Oman and 56% in Egypt, then cloud Computing allows free applications and rapid flexibility of use. when applying computing, there is no need for purchasing programs packages for all computers in library, according, equipment and programs costs will be reduced whatever number of equipment and programs in library may reach as less number of servers in library will required which means maintenance costs reduction, also programs are automatically updated, according no need for paying additional expenses for updating or upgrading the library programs, also computing have many advantages in the field of reducing costs of library, services exchange, groups development and share, and expanding cooperation between libraries reached 65% in Oman, 36% in Egypt.

Table 4: Using cloud computing services in libraries

Cloud Computing Services	Oman		Egypt	
	Used		used	
Email	20	100%	35	70%
Google Drive	13	65%	17	34%
Google Doc.	13	65%	13	26%
Office Live	10	50%	8	16%
Social Networks (Facebook, Twitter)	15	75%	32	64%
Amazon S3	7	35%	8	16%
Google Cloud Storage	9	45%	4	8%
YouTube	14	70%	34	68%
From Total	20		50	

Table 5: Advantages of cloud computing

The Advantages of Cloud Computing	Oman		Egypt	
	Agree	Disagree	Agree	Disagree
Environment Remote Hosting	3 15%	17 85%	3 6%	47 94%
Economizing costs of operating and maintenance	13 65%	7 35%	28 56%	22 44%
Establishing collections of nature data, exchange services and groups development as sharing	11 55%	9 45%	18 36%	32 64%
Multi used of computing at the same time	11 55%	9 45%	24 48%	26 52%
Payment according to use	4 20%	16 80%	4 8%	46 92%
cloud Computing allows free applications and rapid flexibility of use	12 60%	8 40%	25 50%	25 50%
Expanding cooperation between libraries	10 50%	10 50%	17 34%	33 66%

Table 6: Challenges of cloud computing in libraries

Challenges of Cloud Computing	Oman		Egypt	
	Agree	Disagree	Agree	Disagree
Weakness own technology infrastructure	13 65%	7 35%	50 100%	0 0%
Problems of information security and privacy	16 80%	4 20%	35 70%	15 30%
Lack of Knowledge for specialists and users	13 65%	7 35%	33 66%	17 33%
Intellectual property less (Copyright)	7 35%	13 65%	23 46%	27 64%
Communicative challenges (Communicating with internet)	17 85%	3 15%	50 100%	0 0%
Technical challenges (show information retrieval)	13 65%	7 35%	50 100%	0 0%
Retaining a copy of the library filed on internet from internet services offers although the library deleted	9 45%	11 55%	17 34%	33 66%
Cloud provider control over infrastructure	13 65%	7 35%	18 36%	32 64%

By [1] due to the great effort of computing that will change academic libraries environment future with great capacities of mutual cooperation. Environment remote hosting was used at 15% in Oman, 6%in Egypt. Payment request reached 20% in Oman, 8% in Egypt. These low rates which provide librarians unawareness of what can be offered by these advantages to libraries of big storage space, and making the library select from services and programs what may be profitable and payment upon use due to saving high costs that may be borne by libraries which was affirmed by [4] that the most important advantage offered by cloud is allowing library to rant anything at any time depending on needs.

D. Challenges of Cloud computing

Table 6 proved that most common fears of applying cloud computing were communicative challenges and internet availability from which Arab World libraries suffer, internet interruption or weakness means losing all computing advantages and services by library, as internet is used to link between applications and documents. If internet communication is not available, nothing will be reached. Followed by security and privacy at 80% in Oman, 70% in Egypt; agreed upon affairs by all studies about computing and its challenges of libraries fears of hacking, as in case of losing these data or if there is no a backup copy, this library will be endangered depended on cloud, also specialists and users un awareness reached 65% in Oman, 66% in Egypt. the greatest challenges stated by many studies that information and technical illiteracy if the challenges facing librarians for using cloud computing services and as it become a fact imposing itself on libraries, no existences well be for any one lacking technical skills and was confirmed by [3] due to considerable change expected to be made by computing in libraries systems and their business which may force specialists to develop their knowledge and skills to meet new need and change requirements.

CONCLUSION

The study proved that libraries in Oman used application of cloud computing at average percentage and low percentage in Egypt. The highest use was for Email and Social Networking. The most profitable advantage is economizing costs of operating and maintenance and the least profitable advantage was payment upon request. The greatest challenge of applying cloud computing was weak communication and internet suffered by all our libraries in Arab world and electricity interruption. The study recommended developing technical skills of librarians, Improving the technology infrastructure especially in Egypt, and identifying cloud computing related matters, for example real cost and value of computing services, documentation, security, privacy and coding and improving communications and internet quality.

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