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Web Technologies Performance Analysis for Different Platforms and Hardware Architectures

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Abstract-- **Performance is an important aspect either in real life, which is a Traditional Performance (TP) or virtually which is the world of technology, however technologies and performance together plays important roles in real life developments. This paper looks into Web Performance (WP) using different technologies (Modernize Performance), it is also important to know that Traditional Performance still very primitive, therefore the result of expirement is important to compare the performance of different technologies and the example would be a librarian performance. The result is vary based on the person's abilities and their work task, however if the person chosen to search for a particular book, he/she requires time to complete a particular task, therefore Traditional Performance of a library book finding called Traditional Variability (TV), which is rate between active and passive librarian performance during a book search. TV gets larger while they search for books in TP, thus the results become unsuitable, random and time consuming during the effort. Beside sometimes the task extremely impossible to calculate even approximate search and time consume for finding a book since the high rate of variability, nevertheless modemize performance for book finding time consume is need less time than the Traditional Library (TL) and searching result which is much better and much lower variability ratio than the TP. Nevertheless the variation also vary between different type of web technologies and their time consume namely Active Server Pages (ASP) and Private Home Page (PHP) to design web application i.e. web library system is more accurate and predictable results than the in the searching time-consume as well as comparision between the two different technologies.**

In the University of Sulamani, Faculty of Science the TL brick-and-mortar replaced with the web based library system and designed by different web technology Active Server Pages (ASP: commercial Microsoft) or Hypertext preprosseor (PHP: open source) to investigate the results of web variability (WV) search time-consume between both web technologies. This paper describes the development and implementation of two identical web applications i.e. web-library application in PHP and ASP.NET. We conduct automated testing to determine and analyze applications‟ performance by developed web applications in PHP 5.3.0 and Visual Studio 2008 using ASP.NET 3.5 to automatically measure and compare the applications performance. The use as database servers is SQL Server 2005 with ASP.NET 3.5 and MySql 5.1.36 with PHP. The development and implementation of a Web-library (WL) application based between the PHP with MYSQL and the ASP with SQL. This similarity helps to establish realistic comparison of applications performance and variability by two different types of web technologies and run on 32-bit and 64-bit computer hardware Architecture. The applications performance and variability measured with help of automated PHP scripts and ASP scripts.

Keywords-component; Web Technlogy; Web Performance Technology; ASP; PHP; Performance Measurement; Traditional Variability; Web Variability.

I. INTRODUCTION

WP stands for "Web Performance" this term used to discuss the speed of web technologies that are relaied on during the design and developments, as the faster website shown to enhance visitor attentions loyalty and satisfaction (1). WP (or modemize performance) solve the uncertainty long searching time consume, improve the poor QoS and decrease variability searching time consume of the trdinitional library .

Every era of business yields new strategies and new ways of doing business with the advertisements of radio and television came the first mass-market advertising and good recommendation tools. Now, the internet has so radically changed business. The term of commerce refers to all the activities in which a company or individual engages to (2), all modification in the history of web technology occurred by internet from past up to now is called generation(3), for example TL change to web-library and grow rapidly because search results time-consume of web-library application are increasingly becoming vital focus. Net (Web) Generation defines technology broadly. It is not just computers and the Internet, but whatever digital devices or applications that help a student meet their needs and become a key component of the Web Generations (4). Before Internet revolution, the regular library (RL) categories were in the

traditional style; therefore, the performances, vailability and quality of services (QoS) of RL were in a very low stage because of the communication facilities were very primitive and human ability is different from person to other. At that time, the only way to find books is words of mouth in the library location. The problem with the RL is very primitive and time not accurate; it is very difficult to approximate the necessitate time for finding sources. Furthermore, time-consuming in the primitive generation library relies on the activity of the seeker (books) as well as library staff. The active person seeker (books) needs less time to find a book than the passive seeker (5). The traditional performance (TP), traditional vailability (TV) and traditional quality of services (TQoS) have much improved since the internet, web technologies, digital devices or applications appears. Presently, it is impossible with no internet facility because the internet becomes part of our life and internet in almost every field of life. The use of internet mostly in form of web applications and use web applications for paying utility bills, social networking, email, online transactions(6), web base learning,web recruitment system etc. The popularity of Internet and web application creates new generation by modifes library to web-library, TP to web performance (WP), TV to Web vailabilty (WV) and TQoS to Web QoS (WQoS). There are two different types of technologies such as PHP (Hypertext Preprocessor) and ASP.NET. In this paper, we compare the both menthioned technologies in the term of WP by searching time resopne between both technologies by deveplop identical applications and run automated scripts on both applivation to measure and record response time of applicationsm The proposed web application namely web libray developed in PHP and ASP.Net. the performance of both technologies by develop identical applications and run automated scripts on both applications to measure and record response time of both applications.The paper starts with the background used for this research. Then, a brief description of the system as well as the trial that took place, subsequently a discussion of the survey results is present. Finally, the paper finished with a summary and conclusions.

II. BACKGROUND

The terms WL, WQoS, WV and WA in Computer Science means different outcomes to different areas. There are infinite number of reasons why most of students, teachers and Libraries' staffs uninterested to use RL. For example (inefficiency of time and space, unreliability, absence of interaction between the users and RL, inaccurate results of time searching or waste of time, inexact calculation counter for variability and availability, etc. The inconvenience of TV results rate of searching, TA, TP and TQoS of the traditional brick-and-mortar in the Scince Faculty's library encouraged us to design dynamic WL by ASP.Net and PHP. The supplementary advantages of the proposed system have an effect role to the better Quality of Service (QoS) [8] by ASP.Net and PHP. WQoS, WA, WV and WP are more privileged than the TQoS, TA, TV and TP in TL or physical Library. Because of the results between ASP and PHP in WL are very close to each other. In addition, both of the web technologies namely PHP and ASP results much better than the TL results. For example, availability of WL is 24 hours and 7 days a week, WV results between PHP and ASP.Net are very close to each other and WP and WQoS are better than the RL. Apart from all mentioned before, the book borrower does not need to attend to the library location. In order to avoid some of the minor technical problems of WL, such as uncovers network, heath effect of human (eyes). seven day a week are available. Also teachers and students are saving time, money and effort .the only disadvantage of using WL by students are decrease the physical activity and sitting for long time in front of computer is not unhealthy. The proposed system designed to run either on a single desktop computer or on client/server base networked computers with any network scale (for example; intranet, extranet and internet) [7]. The installed copy of the system in a single personal computer (PC); couldn't be considered as a traditional, because it's located on any PC-machine, and can make a communicating environment between seekers and library also more powerful, reliable and economical than the physical library because Web-library can reduce the size of library. Almost all of the work of web applications takes place on the server, except the specific application called *"web server,"* which is responsible for communication with the browser. A relational database server stores whatever information the application requires. One of the easy web languages used to handle requests between the Front-end (Browser) and database server (MYSQL or SQL server) is PHP or ASP, and Web server (Apache) or information internet service (IIS). All the used tools should be support by the OS (operating system); that means the Web server, programming languages and database server must be familiar for the selected OS. The proposed systems run on single computer and called (one or single Tier Architecture). Fig.1. shows the flow diagram of Client/Server Based Architecture by presentation layer (HTML), business Tier (PHP&APPACHE), Data Tier (MYSQL).

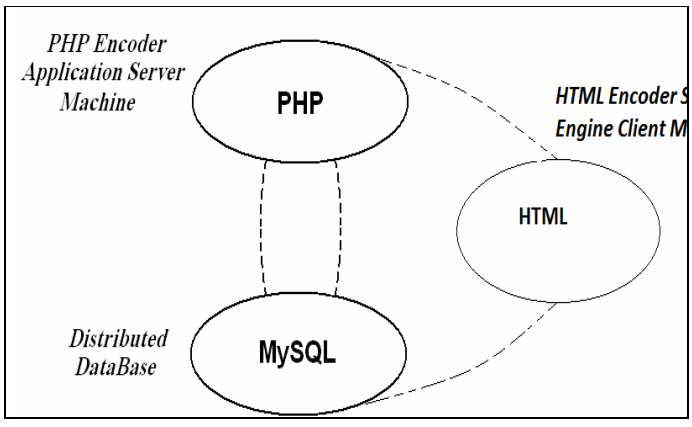

Figure .1: Client/Server based Tier Architecture for WL by HTML, PHP, APPACHE and MYSQL

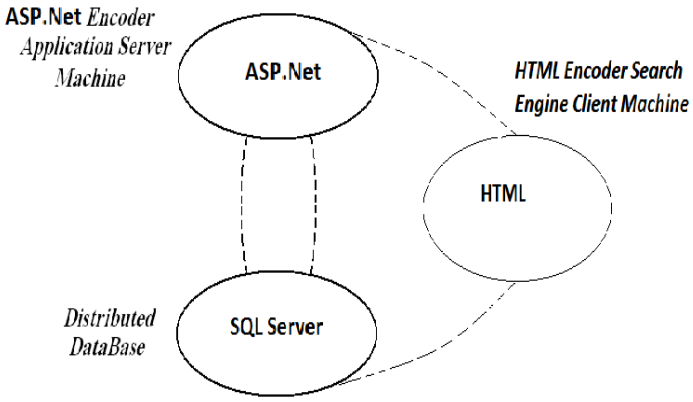

Figure .2 Client/Server Based Tier Architecture WL by HTML, ASP, IIS and SQLServer

Figure 2 shows the flow diagram of Client/Server Based Tier Architecture by presentation layer (HTML), business Tier (ASP.Net &IIS), Data Tier (SQL SERVER).
The main components of this paper divided into three categories, the first category is for traditional librarys' part (Physical Module), the second category is for Web based library' part (Open Source Module) and the third and last category is for web based library' part (commercial Microsoft Module). Both categories (second and third) have the following major inputs, functionality, and outputs:

A. Inputs:

1. The seeker should provide the user profile, including personnel information and his/her demands.
2. After the seeker gets a user's account, in the registration phase, seeker assigns password to the system.
3. Correct user's account and password can login to the system.
4. After seeker log in to the system, a search engine appear and seekers enter book information to the search box.
5. Seekers can upload books to the system with the permission of administer(s).
6. System shows time-consume of finding or listing any resource.

B. Functionality

1. Registration: New seekers can register and get new accounts.
2. Authentication: Registered seekers and administer(s) can get access to system through their own passwords.
3. Storage: The profiles of seekers and available resources store in a dedicated database.
4. Distributed I/O: use 1-tier model to organize the workflow of the system.

C. Outputs:

1. Displays in details the profile of any registered seeker
2. Display the search results for the seekers about the available resources with time consume
3. Display a list of resources that match seeker's requirement, nominates, and list the best resources using the system matchmaker.
4. Matched and listed resources by the system could be downloading by the seeker to the external disk or seekers can emails to his/her account.

D. Specifications and Aspects

1. Seeker becomes a member of the system, and the user added to the database by filling out and signup registration a digital form.
2. System administrator can login via different user's name and password.
3. Seekers can login to the system via their own user's name and password.
4. Seeker can use search engine and it is build-in as module in the established system, for the reason of recommendation.
5. Users can navigate most of the resources.
6. Provides hyperlinked email facility for communication

III. SYSTEM REQUIRMENT

In order to implemention and test our propsed system. We need to have three different computers hardware and several diffrents type of software.

4.1 Software Requirements:

All softwares and applications that used for designing proposed system:

4.1.1

Language: XAMPP
X meaning "cross" platform,
A for Apache HTTP server,
M for MySQL,
P for PHP, and P for Perl. [9]

Database: MYSQL.connector
Operating System: Windows7
Application Notepad++

4.1.2

Language: Visual studio 2010 (ASP, SQL, information internet system (IIS), Visual Basic)
Database: SQL Server
Operating System: Windows7
Application: TextPad

4.2 Hardware Requirements:

All computer hardware architectures that used for testing the Proposed system, which are three different Architectures

4.2.1.1

Sony Vaio VGN-NS2.0j, Laptop
Processor: Pentum (R) Dual Core, CPU 2.00 GHZ, RAM 3GB (2.87 GB.usable), System type 32 bit

4.2.1.2

HP-Hewlett Pakared, HP pavilion g6 Notebook Pc Laptop
Processor: AMDE2-3000 MPU with Randum HD Graphic (1800 GHZ), RAM 6GB (5.48 GB usable), System type 64 bit

4.2.1.3

Dell, XPS 8500 Intel Core i5-3450 Processor (3.10 GHz with Turbo Boost up to 3.50GHz) Desktop
Processor: 400 GB, System type 64-bit

The main reason for considering three-tier architecture for the Online Bookstore is as follows: Flexibility, Reusability, Team Work and security [10]

Hardware	Platform	Response-time	Apache-version
32 bit	Window 2003	1.0452	2.2.4
32 bit	Window XP	0.0156	2.2.4
32 bit	Window 7	1.7086	2.2.4

IV. RESULTS AND DISCUSSION:

The proposed system evaluated by two seminar evaluations, which took place in the main computer LAB in Computer Department at Sulamani University, with nearly twenty five participated graduated students and staffs from different faculties. However, the second seminar-evaluation took place in the main Library of the Sulamani University. Before evaluation, the size of proposed system which designed by ASP.Net and SQL server were 14.8 Mbyte, but same system designed by PHP and MYSQL were 6.62 Mbyte. The designed WL by open source (PHP&MYSQL) is much lighter than the commercial Microsoft (ASP.Net& SQL Server). There were three hundred books in hardcopy and softcopy (PDF). We put all three hundred hardcopy books of three Library shelves. As usuall, the hardcopy books are usually occupied big space in the traditional library, but the same three--hundred softcopy books with size of 625 Mbytes were fited into a CD. Afterthat we added all books one after another by title and Author name to the databases (MYSQL and SQL server) of the proposed systems. The both designed proposed systems namely Php&Mysql and ASP.Net&SQLserve installed on the mentioned three computers. The general purposes of the seminars were to offer training, find about how to work out to use of the proposed systems and let the trainee that the total size of systems desgined by php&MYSQL (631 Mbytes) is much lighter than ASP.NET&SQLServer (639.8 Mbytes). In the first seminar-evaluation, the proposed system software application install on three different types of computer Architecture as been mentioned in sections (4.2.1.1, 4.2.1.2, 4.2.1.3). It is imposible to achieve any operation (test) to our propose system without software and hardware because the hardwires and software are complete each other. Obviously, operating and testing of our proposed system on different types of computer hardware architecture and software provide different searching response time. The lower response time will better system in the respect of Performance, Availability, Variability, reliability etc.

After running and testing our proposed system with different web technology, web server, operating systems and computer hardware Architecture (32 bits and 64 bits), the four tables below shows all results and the best and less response-time is table 3. The operating system of window XP namely (WISA) is best result and lower response time. The versions of window operating system's web server for example; windows 2003 with IIS 7, Windows XP with IIS 5.1 and Windows 2003 with IIS 7. Table5 shows the range of lowest response-time to highest response time; for example, the first evaluation results response time is in table 3 that includes (Window XP, IIS version 5.1 and 32 bits). The second evaluation results response time is in table 1 that includes (Window XP, Apache version 2.2.4 and 32 bits). The tables4&2 evaluations response time are higher than others.

TABLE I. WINDOW APACHE MYSQL PHP (WAMP) WITH 32 BIT ARCHITECTURE

WINDOW APACHE MYSQL PHP (WAMP) With 32 Bit Architecture

TABLE II. WINDOW APPACHE MYSQL PHP (WAMP) WITH 64 BIT ARCHITECTURE

Hardware	Platform	Response-time	Apache-version
64 bit	Window 2003	2.1396 sec	2.2.4
64 bit	Window XP	1.066 sec	2.2.4
64 bit	Window7	1.809 sec	2.2.4

WINDOW APACHE MYSQL PHP (WAMP) With 64 Bit Architecture

TABLEIII WINDOW IIS SQLSERVER ASP (WISA) WITH 32 BITS ARCHITECTURE

Hardware	Platform	Response-time	IIS version
32 bits	Window 2003	1.046 sec	7
32 bits	Window XP	0.005 sec	5.1
32 bits	Window 7	1.032 sec	7

WINDOW IIS SQLSERVER ASP (WISA) With 32 Bits Architecture

TABLE IV WINDOW IIS SQLSERVER ASP (WISA) WITH 64 BITS ARCHITECTURE

Hardware	Platform	Response-time	IIS version
64 bits	Window 2003	1.645 sec	7
64 bits	Window XP	1.004 sec	5.1
64 bits	Window7	1.039 sec	7

WINDOW IIS SQLSERVER ASP (WISA) With 64 Bits Architecture

TABLE V Range of lower-respose time to higher response-time

Types	Response Time	table	range
WISA 32	0.005 sec	3	1
WAMP32	0.0156 sec	1	2
WISA64	1.004 sec	4	3
WAMP64	1.086 sec	2	4

Range of lower-response time to higher response-time

Finally, the all outcomes from the system evaluation provide an excellent idea to become conscious that cooperation lowest response time searching in seconds. The table5 shows results in order and the WISA with 32 bits computer hardware Architecture more suitable then the others. Through testing, it proved that the responsive (quick to response) web page loads faster than the non-responsive web page. The first result is an example of responsive because the range of the result is lower than the other three results. The figure 3 shows first in range of lower response time by WISA with 32.

Figure .3: response time of searching by WISA with 32 bits and became a responsive web page

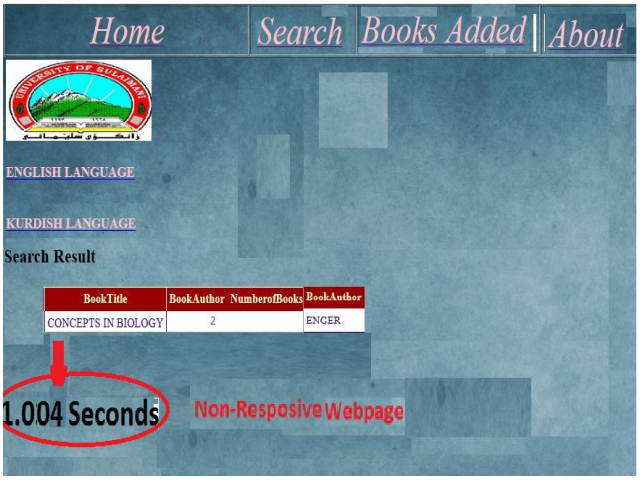

Fig .4: response time of searching by WAMP with 64 bits and Became a Non-responsive web page

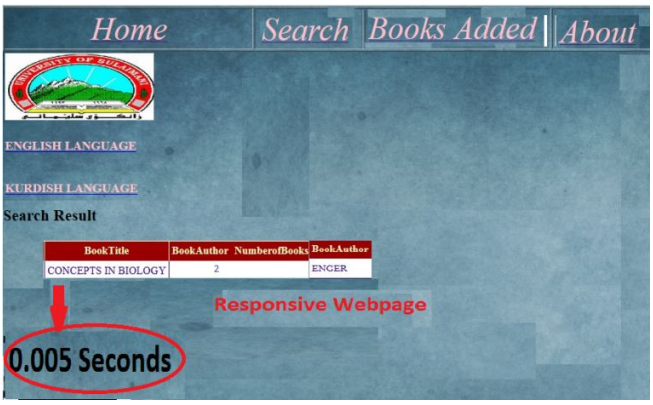

Figure .5: response time of searching by WISA with 64 bits and became a Non-responsive web page

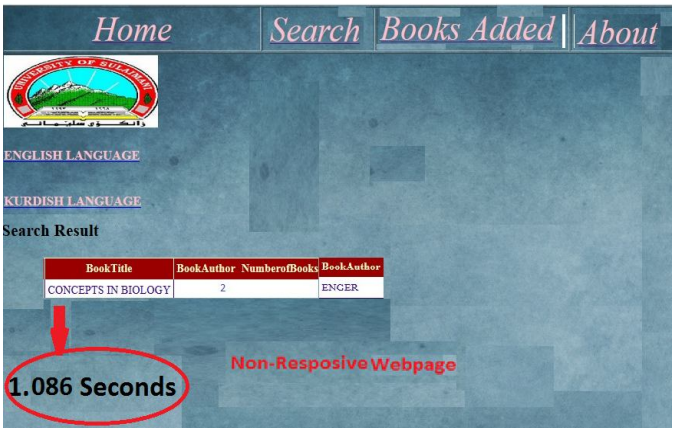

Figure .6: response time of searching by WISA with 64 bits and became a Non-responsive web page

6. CONCLUSIONS

Since another new modification introduced in the versions of dynamic web components, newer mentioned generation in WAMP and WISA has a great role in to online technologies. The WAMP & WISA versions are lots and our proposed system tested on several commercial operating systems with 32 and 64 bits hardware. Our proposed system found out the lowest time response with commercial operating system, the only reason why PHP is better than ASP.net is that PHP is open source. IIS5.1 faster than IIS7, but the security level of IIS7 is much higher than IIS5.1. Our future work will be testing our proposed system on open source and PHP support Apache more than IIS.

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