Framework Visualizing of 32-Bit System Updates Response to use 64-Bit Apps Operations Implications Based on System Troubles and Apps Updates and Errors/Framework Visualizing of 32-Bit System Updates Issues with use 64-Bit Apps Updating and Operations

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SHORT COMMUNICATION

The development of the systems versions is dramatic based on the buses lanes, memory and registers. As known in the computing the general rule that if the RAM is under 4GB, don't need a 64-bit CPU but if the RAM more than 4GB it need. Some users find that a 32-bit is enough memory and good performance, in contrast to huge size applications that need more memory and fast processing should use faster processor. Some applications used for processing images, videos and 3D rendering utilities need faster CPU like 64-bit system. Regard security there is the software patching especially in networking environment to cover and mitigate discovered security vulnerabilities. System compliance and computer risk is from the reasons to software patch and update. Usually if the software vendor does not release new versions of software it will discover vulnerabilities and become under attack, especially if the software application widely deployed.

There are many applications need updating in parallel with Operating System updates. From these applications that the user usually uses are MS Office, Email clients, PDF (Acrobat Reader), Browsers (Firefox, Internet Explorer) and others. These applications are most have security issues and need updating. The difference between 32-bit system and 64-bit system is the memory imposed on 32-bit, while all 32-bit applications may utilize up to 2GB to 4GB of RAM for its purposes depending on the OS. 64-bit system is required from 4GB and more which limit in the range of Tera Byte. There are some issues occurring to daily applications use as Responding of system (OS) updating and existing of new Operating System versions. While there is system response occurring after updating and new applications versions available for the system 32-bit and 64-bit installed software and vice versa. The issues of non-equal systems and effect of updated and not updated software that this research covers.

AIMS AND OBJECTIVES

The aims of this research is to identify the implications of updating operating system especially if it 32-bit under use of 64-bit applications operations a trouble face the users in case of that users use many 64-bit applications. It is Identification of 32-bit system updating troubles under operations and updating of 64-bit applications. Also identify of updating implications of 64-bit software that working under 32-bit system implications.

Usual users face many troubles in case of updates of systems need under 64-bit- applications operations. In contrast there is needs for applications updating that whenever these updates available under 32-bit system and check about conflict of each other from updating under non valent systems and apps which is 32-bit or 64-bit. Updating of systems and apps with non valent is from the main objectives. Sometimes confliction of system updates and apps updates-upgrades are very critical issue that remote servers of the systems and apps impose. Identifying system updates troubles is from the common troubles that public facing and apps therefore slowing speed effect, as well as the applications errors when execution and during operations.

LITERATURE

Brien Posey,2000-2016, in the article titled: Run 32-bit applications on x64 Windows, he mentioned that in case using 32-bit applications on 64-bit operating system the system use what is known as WOW64 to allow 32-bit applications to run. Microsoft has created a new folder named SysWOW64 used to store the 32-bit DLLs for 32-bit applications run. in the x64vof Windows, only 64-bit applications are usually installed in the Program Files folder on the other side 32-bit applications are installed in a folder named Program Files (x86).

In the 32-bit systems, there is what can call it: SHGetSpecial Folder() function is used to determine the name and location of the Application Files folder. In the 64-bit system, the function looks at whether the Setup application was running 32- or 64-bit code and performs folder redirection based on that application.

Also regard the Migrating 32-bit Managed Code to 64-bit, by Microsoft team, 2005; every application and every operating system has what can call it abstract data model. Most applications do not expose data model, but the model as guider as which application's code is written. In the 32-bit applications model, integer, long and pointer data types are 32 bits in length.

In 64-bit system there is no parity is data types size, which making all data 64-bits in length would be wasting space, because most applications do not need the increased data size. In some selected cases the applications need the ability of 64-bit data.

Microsoft Office 2016, by default installs the 32-bit version. Most PCs computers are running 64-bit versions of windows. MS Office is widely use by users based on that better to install 64-bit rather than continue to use 32-bit. There are some reasons according to Microsoft to use 64-bit version of office. From these reasons that are users work with large size of data sets like enterprise-scale Excel workbooks with complex calculations, many PivotTables, data connections to external databases and Power Pivot and the office user working with extremely large pictures, videos, or animations in PowerPoint. Also other reasons to chose 64-bit of office versions is and working with files over 2GB in Project,

In the article titled: "How Windows 64-bit Supports 32-bit Applications" written by Remah, 2015, pointed and explained that under windows 64-bit system, 32-bit applications run in this system as emulator of 32-bit system. This can called Windows 32-bit on Windows 64-bit operating system or WOW64-bit as abbreviation which is intercepts all operating system calls made by a 32-bit application.

WOW64-bit system mechanism work is by pass to the operating system kernel and any output data from the 64-bit system call is convert into a format appropriate for calling application before being passed back.

The WOW64 system runs in user mode while 32-bit applications code must also run in user mode.

RESEARCH IMPORTANCE AND PURPOSE

The importance of this proposal is that the updating of the various applications and software and the systems are from the imposed for software development. In some safe, efficiency and security cases the updating and sometimes upgrading of the apps is necessitated.

For the public and computers users, they could face some troubles and systems hung and stopping of some usual used apps. The research proposal is describe these troubles and usual issues of updating of systems and apps. These visualization is based on that if there is no valent between systems and apps, in the aspect if system is 32-bit and some applications are 64-bit and vice versa.

Implications and responding of apps from system updating in case that is from security and increase efficiency for this system is from the main issue to be covered for the public, especially after connecting to the internet remote servers and the updating is being imposed for common or usual used app or software.

METHOD

The flowchart is shown below, based on the system and application and their updating. The testing of updating response is being under three operations cases: inputting, processing and outputting the data the figure shows the direct communication between system and the application in if it updated (connect to network) or not. The operations used by users with the three cases:
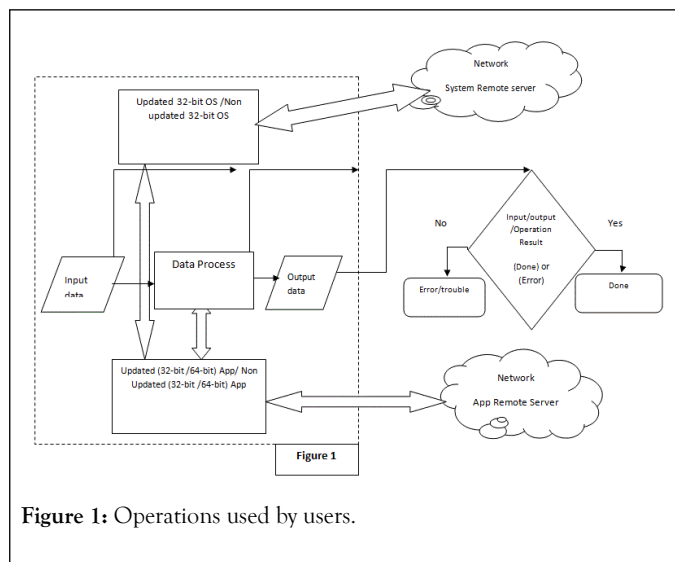

Figure 1: Operations used by users.

PROCEDURES

The research methodology procedures is dividing in four cases based on the three operations (input data, operation process and output process) that user go through and each case has a letter symbol for separately identification (Table 1):

Table 1: Research methodology procedures.

Non Updated	Non Updated	Non Updated
32-bit System	32-bit System	32-bit System
Input data	Process data	Output data
Updated 64-bit App	Updated 64-bit App	Updated 64-bit App
A	B	c

Updated	Updated	Updated
32-bit System	32-bit System	32-bit System
Input data	Process data	Output data
Non- Updated 64-bit App	Non Updated 64-bit App	Non Updated 64-bit App
D	E	f

Updated	Updated	Updated
32-bit System	32-bit System	32-bit System
Process data	Process data	Output data
Updated 64-bit App	Updated 64-bit App	Updated 64-bit App
G	h	i

The Table 2 below is describes the results of operations have been achieved whether are Updated, Non Updated or both Updated cases and whether that data operation is at input, process or output stages of the application that the user use. Done is result with normal output while the error and trouble result is indication that there is problem in such operation on one of the cases:

Table 2: Results of operations have been achieved.

Symbol	A	b	c	d	e	f	g	h	i
Done	√	√	√	√	√	√	√	√	√
Trouble/Error	×	×	×	×	×	×	×	×	×

Choosing the application according to user using or the common applications and software that most operations occurring on GUI, which is inputting, processing or outputting.

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