Computer Science Honours Project Proposal

Evaluation of Windows 7 Beta 1 (Build 7000)

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1. Statement of the Problem

Windows Vista dubbed by Microsoft as their best OS to date was not received warmly by many customers due to its high demand for computing resources, ceaseless security notifications, lack of compatibility with older applications and many reported crashes especially in its early stages. It has been patched several times in order to counter these bugs with the latest patch expected to be released sometime this year. As a result of the *Vista* disappointment, Microsoft has been eager to get people to use *Windows 7* which they claim to be an improvement. The purpose of this project is to evaluate this new Operating System (OS) by investigating the response and implementation of its various attributes.

2. Background

According to xbitlabs.com *Windows Vista* did not spread out as rapidly as Microsoft expected for many reasons [4]. The former suggests that the corporate sector believed it was a bad idea to spend substantial financial resources on software upgrades during an economic crisis while IT-professionals played their usual waiting game of waiting for the release of the first service pack. As for the home users who have been using *Windows XP* for a long time a hostile reception was inevitable. Considering that *Windows XP* has been in the market for such a long time and that the transition from Windows 98 to *Windows XP* was not a smooth one critics have been questioning the timing of the release of the Windows 7 OS. *Vista* has been around for less than three years and claims have been made that Microsoft is making a rushed decision by releasing a whole new OS instead of taking their time to fix the bugs in *Vista*.

Some skeptics claim that *Windows 7* is *Vista* with bugs taken out of it with some critics going as far as claiming that *Windows 7* is just a *Vista* patch. Anderson asked John Curran, head of the Windows client group in the UK, during a *Windows 7* briefing that, "Since under the covers it is so similar to *Windows Vista*, how does Microsoft justify calling it a full new version? [1]" Curran is said to have responded by mentioning new features: Digital Living Room Network Alliance (DLNA) compliance in Windows Media Player (WMP) for easier media sharing, Bitlocker to Go for encrypting USB storage devices, Direct Access for network access without VPN, and new support for sensors and devices that will enable location-aware laptops. In his article, "First *Windows 7* beta puts fresh face on" Anderson goes on to give a rather half hearted comment "…distinguishing between applications and the core operating system is a matter of debate [1]."

Despite this antagonism, *Windows 7* has been widely anticipated since developers got the first glimpse of it at Microsoft's Consumer Electronics Show (CES) 2009 booth tour held in Las Vegas on the 9th of January [2]. At the Show, Steve Ballmer, Microsoft's CEO is quoted to have said that they are working hard at putting all the right ingredients such as simplicity, reliability and speed into *Windows 7* [2]. He is also reported to have described *Windows 7* as a slick, fast, user-friendly successor to *Vista* and that *Windows 7* will be "the best version of Windows ever." Microsoft has also promised that the new OS will have faster startup and shutdown times, fewer security alerts, and will provide better power management leading to improved battery life on laptops [3]. They also say that *Windows 7* will support multi-touch interfaces, simplified home networking, and easier management of peripheral devices such as cell phones and digital cameras. In addition, Microsoft has also promised that the OS will have an updated Taskbar, new animated desktop effects, context-sensitive menus and a smarter desktop search tool [5].

Microsoft is aiming for an earlier commercial release in late 2009 of the completed product, a shift from the initial proposed release in 2010. However, the company has not announced the exact date of *Windows 7*'s commercial release [6]. A Beta version of the OS has however been released. This will be the only beta version of *Windows 7* made available to the public. A critical evaluation of *Windows 7* is therefore necessary in order to identify existing bugs as well as establish usability of the OS. The release of *Windows 7* Beta 1(build 7000) in January 2009 provides an opportunity to evaluate the OS to come up with a detailed account of what features it possesses and the software it can support. This would allow consumers and businesses to make

informed decisions when choosing an OS to use. This project will also seek to evaluate some features common to the new OS and its predecessors to find out if there have been any changes and what impact they have.

3. System Requirements

According to Microsoft, *Windows 7* Beta's "Minimum recommended specifications call for: 1 GHz 32-bit or 64-bit processor; 1 GB of system memory (RAM); 16 GB of available disk space; support for DirectX 9 graphics with 128 MB memory (to enable the Authentic, Energetic, Reflective and Open (AERO) theme); DVD-R/W Drive; Internet access (to download the Beta and get updates)." It is of interest to note that the Windows specifications are identical to those required by *Vista* as pointed out by Oiaga that current *Vista* users will not need any hardware upgrade in order to move up to *Windows 7* [7]. This high demand for computing resources is no longer a serious issue as the prices of hardware have gone down in the last two years. I will be testing *Windows 7* Beta 1 (Build 7000) on a machine with the following specifications:

Intel Core 2 Quad processor (Q9400 - 2.66GHz, 6MB L2 cache)

4GB RAM

500GB SATA hard drive with 32MB cache

DVD writer with LightScribe

G45M Digital motherboard with 1GB network port

Front multi-card reader with USB and firewire

Front audio

DVI and VGA connector

eSATA

8 x USB

4. Design considerations

A variety of tests will be carried out on *Windows 7* in order to determine its a) performance against its predecessors such as *Vista* and *XP* b) security capabilities c) usability d) backup and search capabilities e) software compatibility and other operating system functionalities. What this means is that black box or functional testing will be carried out. Details of how the software works cannot be accessed since Windows is proprietary software. Hardware compatibility tests

may also be conducted if various hardware platforms are provided to try and determine minimum best hardware platform upon which the *Windows 7* gives the best output. Some of the tests to be carried out include:

4.1.Installation

The installation process will be observed as it runs and the options provided by the operating system as it runs will be noted. Complexity of the installation process will be compared against its predecessor and the findings will be noted. The percentage of decompression will also be noted.

4.2.Usability

Ease with which a new user gets to understand how to use the basic functions of the operating system will also be measured against a set of standardized operations. In this case people with various levels of computer literacy will be asked to assist in this survey and the results will be documented. This aims to test whether someone moving from either *Windows XP* or *Vista* will find it easy, or complicated to get accustomed to the new operating system. Usefulness of help files, their correctness as well as error messages will also be observed and noted.

4.3.Software compatibility

This attribute will be tested in various ways including installation of software such as TNTMips and Nero Startsmart on a new *Windows 7* installation to find out whether the software will install. Microsoft products such as MS Office 2003 and 2007 will also be tested to find out whether they can run smoothly on the new platform as well as verify whether one of the two is superior. Tests will also be done using games that use a lot of graphics such as FIFA 2008 and Need for Speed Underground in order to find out how well *Windows 7* manages its graphics usage. Furthermore, upgrades will be tried on machines already running *Vista* or *XP* to find out whether this is possible. Software running on these machines will be tested to find out whether they have not crashed. Lower versions of Microsoft OS will be tested to find out whether they can be installed after *Windows 7* has been installed. In other words the researcher will be trying to find out whether a dual boot is possible with lower versions of Windows after *Windows 7* has been installed.

4.4.Minimum Hardware Requirements

This attribute will not be easy to measure as people from different walks of life have varying uses for computers in their day to day activities. However this attribute will be measured against standard home operation conditions to determine the minimum hardware requirement for an individual to fully exploit the available functionality in the OS. The minimum requirements will also be compared against *Windows 7*'s predecessors' hardware requirements.

4.5. Deployment Test

The deployment tests will be conducted in order to determine *Windows 7*'s ability to be deployed on a large scale from a single source. One of the most popular ways of large scale deployment is through the use of GHOST. GHOST will be used to deploy *Windows 7*. The aim is to create a single install image on one machine and then deploy the image to several other machines on the network.

5. Timeline

Activity	Proposed Deadline
Prepare and present project proposal	09/03/2009
Install *Windows 7* Beta 1 and understand how it works	06/03/2009
Build project website	12/11/2009
Test *Windows 7* Beta 1 usability	24/04/2009
Test *Windows 7* Beta 1 software compatibility. Graphics/Games tests will also be implemented at this stage.	08/05/2009
Test *Windows 7* Beta 1 file transfer speed as well as speed of response	22/05/2009
Literature Review	26/06/2009
Test *Windows 7* Beta 1 security features including how it cooperates with antivirus software	30/07/2009
Test *Windows 7* Beta 1 file handling system	13/08/2009
Test *Windows 7* Beta 1 for minimum hardware requirement (depends on availability of other test machines)	27/08/2009
Investigate other ways of testing an operating system and implement them possibly testing backup facilities, ready boost, searchable indexing as well as performance.	30/09/2009
Project write up	30/10/2009

6. Possible Extensions

The results obtained from this research may be used to improve various OS components in the final *Windows 7* commercial release. These results may also be used as minimum requirements when constructing operating systems in future. Furthermore the tests applied to this OS may be used in evaluating other operating systems as well as set a starting point for establishing other means of testing operating systems.

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