Applications of Web based Operating System

Mr. Rajesh Sharma
Research Scholar ,
Department of Computer Science
NITK,Surathkal ,India

Abstract : WebOS (Web based operating system) is a new form of Operating Systems. You can use your desktop as a virtual desktop on the web, accessible via a browser, with multiple integrated built-in applications that allow the user to easily manage and organize her data from any location. Desktop on web can be named as WEBtop. A new form of computing known as cloud computing can help us to design web based operating systems for future. This paper starts with a introduction of WebOS and its benefits . For this paper , We have reviewed some most interesting WebOS available nowadays and tried to   provide a detailed description of their features. We have identified some parameters as a comparison criteria among them. A technical review is given with research design and future goals to design better web based operating systems is a part of this study .Findings of the study conclude this paper .

Keywords

WEBtop   WebOS   Cloud Computing
User interface   Open source

1. Introduction

The web operating system is evolving as a form at a rapid pace, promising to free us from Windows once and for all. If you want to take the desktop to your web browser, one contender is well on the way to making it possible.

Web Operating Systems (WebOS) is: "A software platform that interacts with the user through a web browser and does not depend on any particular local operating system."Web operating systems are also commonly referred to as Web desktops or WEBTOPS.

"A web desktop or webtop is a network application system for integrating web applications into a web based work space. It is a virtual desktop on the web, running in a web browser as software. Web desktops often are characterized by an environment similar to that of Windows, Mac, or Linux, but are now considered to have much more functionality being dependent on the internet. Typical benefits include the ability to save work and settings over the internet rather than to the local desktop."

The first occurrence of the term "WebOS" is in the name of a computer research project started by University of California, Berkeley in 1996 (that is now continuing at Duke University), which describes it this way: "WebOS provides basic operating systems services needed to build applications that are geographically distributed, highly available, incrementally scalable, and dynamically reconfiguring."

Now you can think WebOS as a virtual desktop on the web, accessible via a browser, with multiple integrated built-in applications that allow the user

to easily manage and organize her data from any location.

2. Benefits of WebOS

In a normal window based operating system ,you need to use your own resources like hard disk , memory and only your OS based applications can run ,like you can not work with MS office in Linux . A WebOS gives you freedom of work from any terminal from any location using a web browser. The notion of the web operating system attempts to unify your web applications to some extent, providing you with a single point of access through which you can utilize tools and services, store your files, read your emails and return to and from any computer on the planet.

Just as you can store your Google documents and spreadsheets on the web, and access them from any terminal, irrespective of its operating system using , is a good example of a web based OS . This is a new form of work with computers and an attempts to make your entire desktop a   WEBTOP .

3. Research Methodology

For this paper , We have reviewed some most interesting WebOS available nowadays and tried to provide a detailed description of their features. You will find out that some of them have already reached a good level of implementation, while others are still at their early stages. While reviewing these services We have identified the following parameters as a comparison criteria for this list:

- **Open API:** the typology of Application Programming Interface that it uses
- **Open-source:** the possibility for users and developers to contribute to the enrichment of the WebOS by creating new applications and widgets

- **Integrated apps:** the applications that the WebOS features by default (which could be a text editor, an instant messenger, etc.)
- **Audio-video Player:** the availability of a media player within the WebOS
- **Photo editing tool:** the availability of a tool that allows the user to edit images
- **E-mail client:** the presence of an email client
- **Instant Messaging:** the availability of an integrated instant messenger
- **Calendar:** the existence of a calendar
- **Collaboration - Conferencing tools:** the presence of online collaboration tools (such as VoIP, web conferencing tools, etc.)
- **Mini-Browser:** the integration of a web browser
- **File storage:** the amount of space – if available – to store files online
- **File sharing support:** the support for file sharing with other users
- **Desktop Search:** the presence of a desktop search engine within the WebOS

A technical review is given with research design and future goals to design better web based operating systems is a part of this study .Findings of the study conclude this paper .

4. Review of 10 web OS

Cloudo

Formerly known as Xindesk, Cloudo is an open internet-based operating system that is written in PHP and runs the LAMP software bundle. It makes full use of the area of the browser and seamlessly integrates with the iPhone's mobile browser. Written using open technologies, this browser based OS is high on features and usability. Currently in Public Beta, it opens to consumers next year.

EyeOS

One of the first implementations of the web-based OS that you can run on your own server, EyeOS offers a credible amount of customization options as long as your web server runs PHP5 and Apache. EyeOS also offers GUI customization options which means that you can set up an OS the way you and your users want it – highly recommended for those who need to set up their own Web OS.
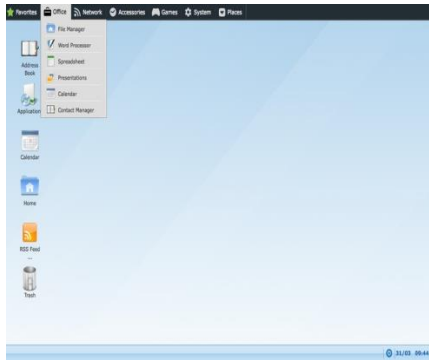

Fig 1.1 Screenshot of the EyeOS

G.ho.st

Short for "Global Hosted Operating SysTem", Ghost Inc.'s web-based operating system is built for all those consumers who need to set up an online cloud-computing base without any hassles. The working environment is very similar to most operating systems that users use, and users can add more applications in the near future.

Glide OS

TransMedia's Glide OS is yet another entrant into the competitive world of cloud computing. However, with Intel's plans of putting Glide into their ultra-mobile PCs, this is one online OS that is not to be trifled with. Packing a host of applications in its basic version, Glide does an admirable job of providing easy cloud computing for its users on both the PC and mobile platforms.

Lucid Desktop

Lucid Desktop (formerly known as the Psych Desktop) is built on a base of PHP5 and is a prosumer-oriented web desktop service. This desktop can be installed on to a web server like EyeOS, and is remarkably simple to use and write code for. With its proximity to Linux's code, Lucid Desktop will be a sure hit with the Linux-loving masses.

Online OS

A welcome departure from the masses, Online OS is written in Javascript and uses AJAX for its fast and user-friendly work. The demo desktop looks like the Windows XP desktop (the registered version can be made to look like KDE or Mac OSX) and loads very fast (although there are a few glitches here and there when components fail to load quickly). It has file-management and other abilities, but most of its applications are not part of the OS itself – rather, they launch outside of it, making Online OS a sort of a portal to these apps.

qWikiOffice

This is one of those few online operating systems that make use of the EXT-JS library for its functioning. Coupled with cutting-edge GUI, qWikiOffice is indistinguishable from an ordinary OS when it works. However, it is still under development and there are no releases as yet.
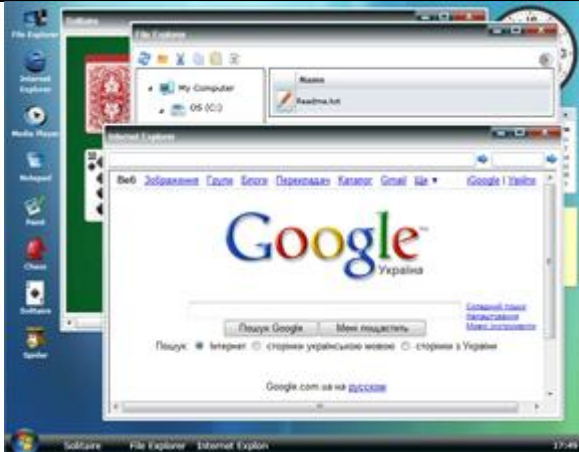
Windows4all

Fig 1.2 Windows4All - The Silverlight based Web OS

Using Microsoft's Silverlight technology, Windows4all is an online virtual operating system. With a Vista-like GUI and desk bar, this is for all those Windows fanatics who need to use their favourite OS on computers that do not have Windows installed.

DesktopTwo

Labelled a "Webtop", this cloud OS is one of the premier services offered online, developed by Sapotek. The goal of the developers is to convert the internet into a full fledged platform for working instead of relying on hard-drive based applications. It is a playground for developers as they have released their code under AGPL license.

Google Chrome OS

Google's highly anticipated (slated for release in 2010) cloud computing OS is still largely open to speculation as Google has not released much information since its blog post on the Chrome OS and we have reason to believe that it will be as groundbreaking as its Browser.

Technical Review

WebOS provides OS services using wide-area network and applications, there is a need to include mechanisms for resource discovery, a global namespace, remote process execution, resource management, authentication, and security. On a single machine, application developers can rely on the local operating system to provide these abstractions. In the wide area, however, application developers are forced to build these abstractions themselves or to do without. This ad-hoc approach wastes programmer effort and system resources. To address these problems, WebOS provides basic operating systems services needed to build applications that are geographically distributed, highly available, incrementally scalable, and dynamically reconfiguring. An application that demonstrates the utility of WebOS tested using Rent-A-Server application , which is a web server capable of dynamically replicating itself geographically in response to client access patterns.

5. Design goals and direction

5.1 User interface

The study indicate that a suitable user interface is a prime design goals for any Web OS ,user interface should be in a form that include using minimal screen space by combining applications and standard Web pages into a single tab strip, rather than separating the two. Designers should consider a reduced window management scheme that would operate only in full-screen mode. Secondary tasks would be handled with "panels": floating windows that dock to the bottom of the screen for tasks like chat and music players. Split screens can be used for viewing two pieces of content side-by-side. We propose the use of search and pinned tabs as a way to quickly locate and access applications after review some web OS.

5.2 Architecture

The study shows that in preliminary design we should use a three-tier architecture: firmware,

browser and window manager, with system-level software and user end services.

- The firmware contributes to fast boot time by not probing for hardware. The firmware will also contribute security services by verifying each step in the boot process and incorporating system recovery.
- System-level software will include the OS kernel that has been patched to improve boot performance. User end software has been trimmed to essentials, with management by Upstart, which can launch services in parallel, re-spawn crashed jobs, and defer services in the interest of faster booting.
- The window manager will handle user interaction with multiple client windows much like other X window managers .

6.Findings

We find out that most of the Web OS, are based on the Internet browser interface which almost every PC user is familiar with and having with their PC . WebOS are faster then normal OS as most of the web OS version boots up in under 10 seconds as we tested , some Web-based program leverages the advantages of cloud computing ,so that all your data is located online and can be accessed via any computer. In fact, a Chrome-based Netbook will save the last open Web page or application online such that you can log into any portable using Google's OS and resume exactly where you left off.

Security is also tight, as all applications are Web-based and sandboxed. Hence, programs do not have the ability to corrupt the machine's operating system with viruses or malware. Some WebOS based applications claimed that all firmware upgrades are free and automatically downloaded, unlike normal windows based OS which demand hundreds of dollars for new OS versions.

6.1 Some Limitations reviewed

Due to the tight integration between the operating system and the Internet, what happens when one is cut off from the Web ? Despite high Net penetration rates worldwide, a traveler to a foreign land may not want to pay for online access, which, in some countries, can be very expensive. We tested that Chrome-based Netbook is able to open multimedia files and play videos, but there is no built-in application to open Word or PDF documents. The fact is that some currently available WebOS have no provisions for installing third-party software is another limitation .

Further concern is data security. With traffic taking place between the WebOS and the Internet cloud, hackers can sniff out Internet packages and intercept information between a PC and a Wi-Fi router. Most companies use encryption via VPN software to hinder hacking attempts, but this may not be possible with some WebOS like Chrome OS.

7. Conclusion

In Future you will work with many WebOS , We should think for the future design and risks involve to develop a next-generation operating system. However, we wonder if the lack of offline capability might hinder its adoption since most of the time PC users take their machine overseas where Internet access may be spotty or expensive. Still, there is about many years to go to take full advantages of Web based operating systems.

The conclusion is that a web-based operating system will imminent in Web 2.0's age, and we should design new WebOS based on reviewed services that will give users the power of computing on the Web. No more hard-drive backups required – just turn on your browser and get going with these Web OS services after some years.

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