

TECHVIEWS

# New trend in internet based services

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THE internet is a modern marvel, which gradually incorporated almost everything and became an integral part of our daily life. From technical standpoint this giant network embodies some distinctive features compared to the conventional Public Switched Telephone Network (PSTN). For instance, PSTN is based on circuit switch technology, where a dedicated point-to-point link is established for communication. Obviously this scheme is not efficient because resources are not properly utilised. On the other hand internet is based on soft-switch technology where information is sent as a series of packets. This ensures optimum utilisation of resources. Nowadays it is possible to bypass the PSTN to initiate voice call and send fax. Needless to say this new mode of voice and fax services will bring a revolutionary impact in modern communication system. In this article I sequentially discussed two exciting internet based services such as VoIP and FoIP.

## Voice over Internet Protocol (VoIP)

When we speak we generate a 4KHz signal. This signal is digitised and transmitted over the internet as series of packets. This is the fundamental concept of VoIP and it resembles the existing email system. Chronological development of VoIP technology reduces phone charge dramatically or offers completely free phone call.

## Circuit Switching Vs. Packet Switching

Circuit switching is a switching technology that establishes an electrical connection between two devices through one or more intermediate switching nodes. The telephone system uses circuit switching for more than 100 years. When a call is made between two parties, the connection is maintained for the duration of the call. Here the bandwidth is guaranteed, and delay is essentially limited to propagation time.

Packet switching on the other hand is a method of transmitting messages through the data networks, in which long messages are subdivided into small packets. The packets are then transmitted along the different paths or sometimes in a predefined path to the destination. Packet switching is a very efficient method and it lets the network route the packets along the least congested and cheapest lines. In packet switching link is also freed up so other computers share it as well.

## VoIP Features

VoIP or net-phone employs packet switching technology to provide the phone service. Currently both hardware and software based services are available for the subscribers. Compare to the software-based services the hardware-



based services ensure more clear voice and reliability. To use the hardware-based services, a broadband connection is mandatory. The hardware based services give you two options: adaptors and all-in-one phone units or IP phone. **Adapter:** Analog Telephone Adaptor (ATA) allows you to connect a standard phone to your computer or your internet connection for use with VoIP. The ATA is an analog-to-digital converter. It takes the analog signal from your traditional phone and converts it into digital signal for transmission over the internet. Service provider such as Vonage provides ATA free of cost with their service. You just plug the phone jack into the ATA, and ready to make VoIP calls. Some ATAs come with additional software for PC based configuration.

**IP Phone:** IP phone is a specialised phone with a built-in adapter. This device directly connected to the router through RJ-45 ethernet connector has all the essential components to handle the IP call. Soon, Wi-Fi IP phones will be available allowing subscribing callers to make VoIP calls from any Wi-Fi hotspot.

The prime advantage of software based services is the cheap rate or free service facility. Aside from this software based services suffered from poor voice quality although some services offer good quality than cell phone voice.

Although no service charge required but you need to collect some basic components such as software, microphone, speakers, sound card, and an internet connection to use this sort of services. Skype is a lucid example of soft-

ware-based service and it offers PC-to-PC calls for free and PC-to-landline for some charges.

## Skype Vs. Vonage

Skype and Vonage both are VoIP services and offer low cost internet phone service to the people, but their service strategy is quite different. To use skype service you need to download free software from the Skype website. This program is the Skype soft-phone client, which includes an on screen keypad you can use to make calls. This software has good user interface that helps users to add contact, make calls, and import contact information from the address book. If you have no account at the Skype website this program guides you to follow the steps to create user name and password.

The Skype application looks and functions like an Instant Messaging (IM) client. As with an IM client, you can change your online status, look at your contact list and decide whom you want to talk to. In order to use these functions and to make calls, your computer has to be on and connected to the internet, and your Skype application has to be running. Calls to other Skype users are free. To receive incoming calls from traditional phones, you must purchase Skype credit and use the add-on service.

Unlike Skype, Vonage requires additional hardware to use its VoIP service. You sign up for the service at the Vonage website. According to your need Vonage will ship relevant equipments to you.

Skype uses a peer-to-peer network, much like KaZaA, and a proprietary protocol. Vonage, on

the other hand, does not use peer-to-peer technology, and it uses Session Initiation Protocol (SIP) to handle the call's data.

The quality of VoIP service depends on internet connection and the equipment used to make and receive calls. If the data packets are lost or slowed down in transit, the call can become distorted or pieces of the conversation can disappear entirely.

**Fax over Internet Protocol (FoIP)** FoIP is a new reality in the internet world. FoIP follows the same principle as VoIP. Earlier, IP faxing has some limitations such as absence of confirmation beeps and indication of each successful transmission, which are common in the traditional fax system. The latest generation of FoIP systems combines the benefits of traditional faxing and in the same time cut down the cost. The fax information is transmitted as "IP packets" via the internet instead of as analog signals via phone lines.

FoIP allows traditional fax machines to transfer data over the internet using gateways between phone lines and the internet. If you want to skip the phone network entirely, you can use an IP fax machine that connects directly to the internet. When you're transmitting a fax between two IP fax machines the transmission cost is the same as for email, and it's faster because transmission is entirely via broadband channels.

The FoIP setup is a lot like the VoIP setup, and you can even send IP faxes using a VoIP server. However, since a fax requires more bandwidth than a voice, a VoIP

server doesn't automatically work seamlessly for transmitting faxes. It typically requires some modifications, which you can make by installing a piece of software. Some companies also make servers that are optimised for both VoIP and FoIP applications.

## FoIP System

FoIP involves two primary transmission methods such as store-and-forward and real-time.

**Store-and-forward:** In this scheme, fax information is transferred from fax server to fax server as email attachments, and uses low-level internet protocol like SMTP. In this approach the major setback is that the fax machines are not exchanging information in real-time, so it doesn't consider as a general fax session. For instance, machines can't exchange technical details and the sender does not receive acknowledgement for the received pages.

**Real-time:** In this scheme, fax information is transferred from fax server to fax server as IP data packets using a high-level internet protocol such as TCP or UDP. These protocols allow for real-time connections that let the fax machines exchange information along each step of the way. A real-time IP fax feels just like a traditional phone-line fax.

Some possible configurations for the real-time IP faxing system are presented below:

- G3 (traditional) fax machine to G3 fax machine
- Fax-equipped PC to G3 fax machine
- IP fax machine to G3 fax machine
- IP fax machine to IP fax machine

IP addresses are closely associated with these methods. When you're sending a fax from one IP fax machine to another IP fax machine the phone number is immediately converted to the corresponding IP address for the receiving machine. If you're sending a fax from an IP fax machine to a G3 fax machine, the IP fax machine uses the destination phone number to generate the IP address of the fax server located closest to the receiving machine.

The phone-line faxing is based on T.30 protocol and real-time IP faxing is based on T.38 protocol. T.38 converts traditional fax data into an internet friendly format. It's basically a method of packaging T.30 fax signals and data as IP packets on the sending end and turning these IP packets back into T.30 signals and data on the receiving end.

Despite these problems FoIP considers as a breakthrough technology because it introduced real-time IP faxing. On the other hand, it also an economic way to send long distance faxes.

For further reading please visit these sites: [soft-switch.org](http://soft-switch.org), [webpedia.com](http://webpedia.com), [answrs.com](http://answrs.com), [wikipedia.org](http://wikipedia.org)

The author is a computer engineer.

## Commodore 64

The Commodore 64 is the best selling single personal computer model of all time. Released in August 1982, the Commodore 64 is commonly referred to as the C64 and occasionally known as CBM64, C-64 or VIC-64. The Commodore 64 casing has affectionately been nicknamed the "breadbox" and "bullnose" due to its shape. Introduced by Commodore Business Machines in August 1982 at a price of US\$595, it offered 64 kilobytes of RAM with sound and graphics performance that compared favourably with IBM-compatible computers of that time. During the Commodore 64's lifetime (between 1982 and 1994), sales totaled around 17 million units.



TECHNEWS

# Microsoft unveils Vista for business

AFP, New York

MICROSOFT rolled out the latest version of its all-conquering Windows operating system for business customers, hoping corporate users will blaze a trail for the new Vista platform.

Consumers will be able to buy the much-delayed Vista and the final version of Microsoft's Office 2007 business applications software from January 30.

By then, Microsoft hopes, major business customers will have signed on in droves to show the capabilities of the successor to the Windows XP operating system for personal computers.

Microsoft chief executive Steve Ballmer said the company expected to attract over 200 million users worldwide of Vista and its attendant software tools by the end of next year.

"During the last decade, Windows 95 and Office 95 transformed the way people work," he said in remarks prepared for a glitzy press launch in New York's Times Square.

"These new products announced today are the most advanced work that Microsoft has ever done, and I believe they signal the beginning of a new wave of innovation that will have an even more profound impact during the next decade," he said.

It has been five years since Microsoft introduced Windows XP. The Windows system is used by approximately 90 percent of the world's PCs with 70 percent of the machines running on XP.

Vista features that promise to be of particular interest to businesses include BitLocker, which encrypts data stored on computer hard drives, according to Michael Cherry of independent consultancy Directions on Microsoft.

"If the drive is lost or stolen, you've lost your hardware but no one can read the data," Cherry



Microsoft CEO Steve Ballmer

said of BitLocker, which was in Vista for enterprise servers and the premium Vista version for PCs.

"Those embarrassing stories we read in the news should be reduced," he said.

Corporate clients may be averse to becoming "early adopters" until Microsoft has had time to iron out any glitches in the new operating system, analysts believe.

But Microsoft insists that it has worked overtime to eliminate bugs, having worked with hundreds of thousands of software partners, companies and experts in the lengthy development of Vista.

According to a Capgemini study commissioned by Microsoft, early adopters expect "dramatic gains" in their productivity through using Vista and software such as the new Exchange Server 2007 platform.

Ballmer said the new suite of Vista products could generate more than 250 billion dollars in extra revenues for companies through making their computing lives easier.

"No set of product releases in history has ever offered this level

of opportunity for the industry as a whole," he said.

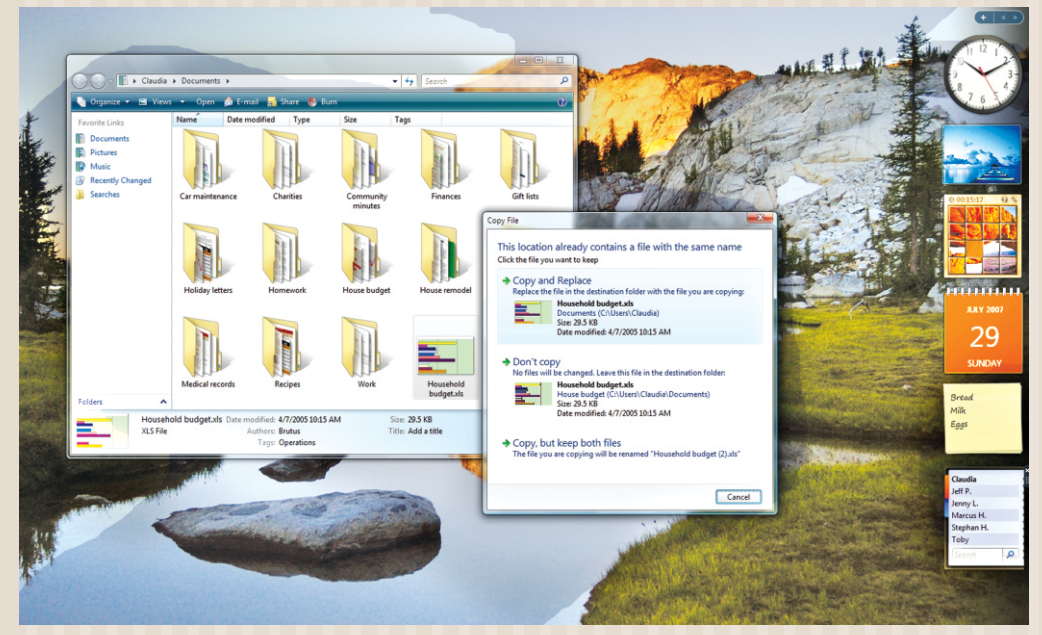
Microsoft is touting Vista's increased security over XP, and the ability it gives corporate IT officers to control large banks of desktops computers centrally.

Exchange Server 2007 will streamline companies' in-house and external communications, the company says, while in-built search technologies will help users to find information more easily.

And Microsoft has taken a leaf from its rival Apple Computer in incorporating "Aero" transparency software into Vista that enables users to see through a page to view what is beneath it on the screen.

However, the launch delays are believed to have hurt holiday-season PC sales because shoppers could be averse to buying computers with operating systems that are soon to be obsolete.

Microsoft has tried to mitigate damage to end-of-year sales by offering buyers coupons for free or low-cost upgrades from Windows XP to Vista.



PHOTOTECH



## THE BOT SINGER

A life-size robot (C), named EveR2-Muse, resembling a Korean woman in her 20s, which can sing, talk and dance is displayed during a robot exhibition in Seoul on October 19. South Korean scientists are working on a new-generation android that can walk and talk like a human.

PHOTO: AFP

TECHNEWS

# New Asus casing for 3D gaming

STARTECH DESK

GLOBAL Brand Pvt. Ltd., the sole distributor of Asus in Bangladesh has recently introduced the VENTO 7700 casing, which incorporates advanced ventilation technology, easy tool-less installation design and superior scalability to build a powerful 3D gaming machine, says a press release. A unique vertical front panel door further provides quick access and protection for drive bays.

**Ventilation technology** The VENTO 7700 provides two 80mm rear fans and one 80mm front fan to maximize airflow inside the casing. The side ventilation hole with air duct further pulls in cool air to lower CPU temperature.

## Magic Mask Vertical front panel door

This feature serves to protect the components on the front panel while maintaining the sleekness of the casing. Simply press down the door to unlock it.

The door then swings smoothly upwards, revealing an array of optical drives, card readers and other input/output devices that can be accommodated by the VENTO 7700. Furthermore,



compared to panel doors that swing open sideways, users no longer have to worry about slamming the door against items on their desks.

## No screwdriver and screws

No more tightening and loosening countless screws just to open the case to change a memory stick or install a CD burner. The screw-less locks holds devices firmly in place with user-friendly clips, while the hard drive cage is designed to face the side panel door. Compared with the typical cage designs that face the rear of the case, the VENTO 7700 enables easy hard drive installation without the need to stretching hands into the chassis. The detachable cage and drive bays are also based on the tool-less concept.

## Outstanding scalability

The ASUS VENTO 7700 provides support for four 5.25-inch and four 3.5-inch drive bays, seven PCI slots, four USB 2.0 ports and two audio ports to support an array of optical drives, hard disks, sound cards, LAN cards and peripherals.

The product has a price tag of Taka 14,500/- only.