

Accessing voice via internet

by David Neiger

While Voice over IP (VoIP) technology has been available to corporate and enterprise customers for several years, it is only in the last few months that various telecommunications companies have produced offerings for the small business and home users.

The concept of VoIP is relatively simple. Rather than using a switched network to transfer calls (like the standard telephone system), the voice is digitised and transmitted in packets using the IP protocol of the internet. Voice compression technology is used to reduce the amount of data required for a telephone call. Whereas a standard telephone call uses around 64Kb/s of data, VoIP technology compresses that to under 8Kb/s allowing over eight simultaneous telephone calls to be carried on the same amount of bandwidth as a single call. Silence suppression further reduces bandwidth by only transmitting packets of data when someone is actually speaking.

In the past (late 1998), Ozemail and a few other ISPs provided this technology to allow cheaper intercapital phone calls. You would dial the local Ozemail number, enter your PIN number, then enter the phone number for the call to be transferred over the Ozemail internet network. Unfortunately, the quality was poor and drop outs were frequent. Calls were cheap compared to Telstra rates. This service is no longer available as it has been superseded by other technology.

EfTel (www.flatworld.com.au) offers a similar VoIP service where you could call between major capital cities for 4.9c/min capped at 99c. As with the old Ozemail phone service, you need to dial the local POP (point of presence) and then enter the number. However, you do not need to have a broadband internet connection nor install any additional equipment and you do not pay any data charges in addition to the call charges. Call quality is variable with some calls being very clear and other calls being unintelligible.

More recently available are VoIP services which allow you to make and re-

ceive calls directly from your own equipment utilising your broadband internet connection.

Freshtel (www.freshtel.net) offers the Firefly product which allows you to make and receive calls using the speakers and a microphone or USB handset that plugs into your PC or notebook. The Firefly software is free to download and calls between Firefly users are free of call charges. Firefly can also be used to make calls to standard telephone numbers on a prepaid basis. Call rates are 6.9c/min to Australian land lines, the US and other overseas destinations. However, at this stage calls cannot be received from standard or mobile telephone numbers.

Freshtel claims that the data usage is 3Kb/s which means that you will use 1Mb



The Engin voicebox.

of data for every five to six minutes on the phone. The computer must be left on to receive or make calls. If not, calls will divert to a voicemail system.

Broadband Phone (www.broadbandphone.com.au) is a company established by Dr K C Chan. To use Broadband Phone you need to purchase an IP phone handset (\$249) and subscribe to the service at \$15.95 per month. This service fee includes 50 local untime calls with additional untime local calls charged at 15c per call. STD calls to any landline in Australia are charged at 10c/min with competitive rates to overseas destinations. Unlike the VoIP offerings discussed previously, Broadband Phone gives you a real telephone number (Sydney, Brisbane, Melbourne or Perth)

which allows you to receive calls from anyone. This number follows you everywhere so if you move offices (interstate or overseas) you can take your telephone number with you (subject to Australian Communications Authority regulations). This is ideal if you want to set up a virtual office in another capital city as this city becomes your local call zone and callers will be able to contact you on a local number. Calls are billed in arrears directly from your credit card. Data usage is claimed to be 6Kb-8Kb for a 1.5 minute call with no data use when the phone is idle.

I tested the Engin voicebox (www.engin.com.au), a device that plugs into your broadband router via ethernet and allows you to connect any type of telephone handset. Like with Broadband Phone, you need to purchase a Sipura voicebox (\$149) and subscribe to the service (\$19.95 per month). The basic service does not include any free calls, but there are other plans available with call credits.

10c untime local calls are available to any destination within the Engin service areas (currently all capital cities, Gold Coast, Geelong and parts of the NSW coast). STD calls out of the Engin service area are charged at 10c/min with low rates to the US, UK, NZ and other overseas destinations.

To comply fully with proposed ACA regulations, you are allocated a local number in your geographic area. While it is technically possible to move the voicebox to another location and still make and receive calls, under present regulations Engin may need to allocate another number, although they are working on technology to legally allow you to keep your number wherever you move.

Call quality is excellent and virtually indistinguishable from a call made over the standard telephone network, although I did notice a slight delay when calling overseas and the occasional drop outs.

There is little doubt that VoIP will, in time, change the telecommunications markets but it is still early days and there are a few technical issues that need to be sorted before I would recommend disconnecting your land line and relying solely upon VoIP. ■

New products

Voice-over-IP

A telephone that uses voice-over-IP has been released by Broadband Phone Pty Ltd.



Broadband phone.

The handset is similar to that of a fixed-line telephone but instead of connecting to the public system telephone network it relies on broadband via ADSL or cable modem.

Calls on the plug and play handset can be made and received like a normal telephone.

Assigned phone numbers will be fully portable, allowing calls to be connected regardless of the physical location of the end users.

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Touch screen for Clipsal's Wireless C-Bus Home Automation System.

Wireless smart home technology

Clipsal Integrated Systems is launching its Integrated System's Wireless C-Bus Home Automation System.

The system uses distributed intelligent control nodes and 128-bit encrypted two-way communications. The units work seamlessly with wired (twisted pair) C-Bus installations.

Included in the system are Wireless Wall Plates to allow standard 240V wall switches to be replaced directly. The two-wire devices (240V active and load) require no neutral connection and can be programmed to function as an on/off switch, a dimmer or a number of other options.

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Spatial controller

Spatial Freedom Pty Ltd is taking preorders for the astroid 6000 spatial controller. Spatial controllers provide spatial control of 3D images and objects by sensing a light fingertip push and twist applied to a sprung ball sensor. The 3D image or object moves and spins as though gently pushed around by the fingers.

The astroid introduces a new feature called a scroll hat. It acts like a wheel on a computer mouse but adds left/right scrolling. Gently pushing the hat in any 2D direction scrolls the image accordingly. Pushing harder produces faster scrolling. The scroll hat is useful in any application, including office applications.

The astroid currently supports Catia, Pro/E, Solid Edge, and Unigraphics NX,



The astroid 6000 spatial controller.

while support for other popular 3D CAD programs will follow.

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Safety system

Pilz Safe Automation has released the PNOZmulti safety system. Extra fieldbus modules now connect the multifunctional, modular safety system PNOZmulti to DeviceNet, Interbus, CANopen and CC-Link, as well as PROFIBUS-DP.

Connection is configured using drag and drop tools. The expansion modules allow diagnostic data and controller information to be downloaded from the PNOZmulti to the standard controller via the standard fieldbus.

The system is suited to monitor more than four safety functions up to 80I/O and incorporates a range of standard functions.

Safety functions, such as emergency stop, two-hand or speed monitoring are also configured using PNOZmulti Configurator software. The configuration is stored on a chip card and is downloaded to the PNOZmulti base unit, reducing wiring and



The PNOZmulti safety system communicates with all common standard fieldbus systems.

installation times. The card can be used to copy the configuration to multiple installations, while changes to the safety system are made on screen without the need for rewiring.

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Combined antenna and radio electronics

Innoveng Antennas, as part of its Bridgepoint range of products, has released the Bridgepoint Lite, a single WiFi enclosure, which packages the antenna and radio electronics.

It is suitable for CPE applications and point-to-point links. The enclosure simplifies the installation of the wireless equipment by reducing the number of items required and the time taken for a typical outdoor installation.

Bridgepoint Lite has an integrated 13dBi, 43° beam width antenna in an enclosure which provides 200mm x 200mm x 40mm of space for mounting the WiFi radio electronics. The enclosure is watertight sealed and closed

using screws. Access for the network cable to the radio electronics is via a waterproof CAT5 Ethernet gland. A stainless steel azimuth and elevation swivel bracket is provided with hardware for mounting to poles of up to 55mm diameter.

Bridgepoint Lite is supplied standard with an internal MMCX pigtail to connect the antenna to the customer mounted WiFi radio. Items such as connectors and mounting holes can be customised for user specified electronics. With standard off-the-shelf 802.11b radio electronics this unit typically attains a 3km, 11Mb/s links in the frequency range 2.4GHz to 2.497GHz.

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