Video conferencing

Online video conferencing offers the prospect of a great saving in time and travel costs. In the first of a two-part feature, Darren Lock looks at the main software options

It wasn't that long ago that if you mentioned video conferencing it conjured up images of a high-powered international business deal being struck between several gentlemen scattered around the world, using the latest hi-tech equipment.

But with the proliferation of the Internet and the development of personal computers that can actually handle the strain of such multimedia gymnastics, the world of video conferencing is beginning to enter the home with a flourish.

So what do you need to join in with this communication revolution? First a PC is needed. Then a video capture card and video camera. For the latter, there are packages available from Hauppauge and Pace that include a PC video camera connected to an internal PCI card in the computer. There are also some cameras available that take advantage of USB motherboards and can do without the need for a video card – Pace and Kodak have USB cameras available. Whether PCI or USB-based, these products are aimed squarely at the fledgling video conference user (the Hauppauge WinTV CCD bundle even includes the Microsoft Netmeeting software).

If you run Windows 95 with Internet Explorer 4, or have been brave enough to upgrade to Windows 98, you'll probably already have Microsoft Netmeeting installed on your machine. This has the advantage of being one of the few FREE pieces of video conferencing software available. Its direct competitor is an application from White Pine Software called CU-SeeMe.

Strange new world

With a camera in place and software installed, you will be ready to explore this strange new world of Internet communication. But how you communicate will be determined by the software that you have chosen to use. All video conferencing applications allow the user to engage in direct connection (or DC – in net slang) with other users. It's a bit like using the telephone but instead of dialling a telephone number; you will need to know the other user's IP address. This could cause problems if your friend uses a service provider such as AOL where a different IP address is given everytime the user logs on.

Applications such as CU-SeeMe rely on reflectors as the point of communication. A reflector is a server where a number of users can communicate without using a direct connection. They are a bit like the chatrooms of Internet Relay Chat (IRC). The only problem with these reflectors is that they become busy and only a finite number of users can be connected at one time. And the busier the reflector the slower performance will be – video will become choppy and sound broken.

Different approach

Microsoft Netmeeting uses a slightly different approach to communication. Gone are reflectors, replaced by directory servers that spew huge great lists of users currently logged onto the network. It can be like searching for a needle in a haystack but Netmeeting is geared towards the direct connection approach. Gone are IP addresses. Here just add a

Speed Dial to your list of friends and check if they are online.

So what does the future hold? Even over the past two years, there have been dramatic improvements in the performance of video conferencing software. With more and more Internet Service Providers offering 56k connection, the average home PC becoming faster and cameras getting cheaper, it won't be long before everyone has used video conferencing to chat to a friend.

Microsoft Netmeeting

This application has been around a while now but it has only been recently that Microsoft has refined the video capabilities of their product. The early versions of Netmeeting were 'chat-based' and didn't have any video capabilities at all.

The plus point is that Netmeeting is essentially free – it can be downloaded from the Microsoft website at http://www.microsoft.com/netmeeting. Also, copies of it can be found on many of the installation CDs that come with a video capture or TV tuner cards, or on the cover discs of Internet magazines.

The other plus point is that the video quality is marginally better than any other piece of software around – but remember, much depends on your internet connection and the equipment that you and your caller are using. But here's a good tip – while some of the Microsoft Netmeeting servers are very erratic and can take an age to log on, a little known Netmeeting server located in the UK however offers much better performance. Just go to ils.kencomp.net and you'll find significant speed and quality improvement.

But there are quite a few bad points to Netmeeting too. The software can a be little unstable and some users will find that older versions of Netmeeting will not recognise their video card and refuse to work. There's also the problem of only being able to send your video to one person at a time which rules out any video-based conference larger than two people.

Fortunately, this problem can now be solved thanks to White Pine (the developer of Netmeeting's main rival CU-SeeMe). It has a piece of software called MeetingPoint which allows users of Netmeeting, Intel's VideoPhone and other H.323 applications to communic ate using IP multicasting.

CU-SeeMe

White Pine's CU-SeeMe has also been around for a long time, but nothing has real-

CuSeeMee allows up to six people to communicate together

ly changed. Anyone familiar with Internet Relay Chat will feel at home with this application. You don't have to worry about directory servers and lists of users. All communication is done through a reflector or "ref" and these can be regarded a little like a chat room server.

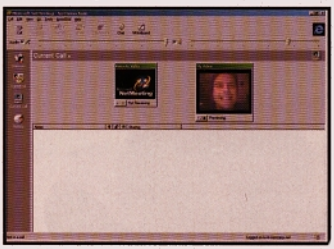
The good thing about CU-SeeMe is that the reflectors allow more than one user to send and receive video. So you can have quite a few video windows open while you communicate (though this is limited by the speed of the PC). Also the reflectors are usually packed with people and you will soon make a new friend or two!

Video performance is quite good and it can be quite fun having several video feeds coming into your home from around the world. There is also a sense of community amongst the reflectors – if you spend enough time skipping around, you'll soon bump into a familiar face.

One significant problem problem with CU-SeeMe is that the reflectors can be a little difficult to connect to (as most of them are physically located in the US) and, at peak times when a lot of Americans are connected, full performance slows down to an irritating crawl.

Also, many of the reflectors are not working, so you can spend allot of time trying to connect to them – there's a website that monitors which reflectors are working and a full list can be downloaded from the White Pine website along with the demonstration version of the software at http://www.cuseeme.com.

Perhaps the biggest drawback, is that White Pine, unlike Microsoft, charges for its software. If you are interested in buying, it's a good idea to download the trial version and see if your PC can cope.



Microsoft NetMeeting is more geared to one-to-one conferencing

Other software

There are plenty of other worthwhile video conferencing packages out there that can be considered.

Intel's Video Phone: This package for the PC is interesting because it can not only connect to other users via an Internet connection but can also connect using a standard telephone call. Intel is packaging the software around a camera bundle which comes in both USB and PCI versions from http://www.intel.com/createshare/selector.htm

VDOnet's VDOPhone: This uses algorithmic compression to allow the user to send and receive video of up to 15 frames per second over a standard Internet connection. Not a bad performance spec but, again, this software is not free, though there is a trial version available for download. Check out http://www.vdo.net.

Cinecom's CineVideo Direct: This is aimed squarely at the business user and offers LAN/WAN and intranet support. Again, this is another commercial product, but there is a trial version which is now easily located at and available from http://www.cinecom.com/download.htm. There is also a number of network support products available from Cinecom that will allow users to conduct true live video, full duplex audio, and text conferencing.

A new product that hasn't reached our shores yet is the Space Cam from Play Incorporated – the people that brought us the clever Snappy video capture device, and recently the amazing Trinity TV station software. The Space Cam seems designed for all gizmo freaks and has a look that can only be described as futuristic. The camera and software package promises 30 frames per second video streaming and a software interface that will make you feel as if you are a TV star. Not convinced? Check out the website at http://www.play.com/products/spacecam/index.html

Part 2, Making it work

The Space Cam promises a more user-friendly interface if the PAL version becomes available

Dedicated videophones could one day become commonplace

February's *Computer Video* carried part one of a feature on videoconferencing. This gave details of the two top home Internet videoconferencing packages, Microsoft's NetMeeting and White Pine's CU-SeeMe. Both packages are geared to the Windows platform but being H.323 compatible should be compatible with Mac conferencing software supplied with Mac PC cams. The following is a simple guide to installing the two programs onto your system.

Video input: In addition to a computer setup equipped with soundcard and modem, the first requirements for full videoconferencing are a video input device and microphone at every end of the intended conference. Most video capture cards and PC cameras are compatible with NetMeeting or CU-SeeMe.

Getting NetMeeting: NetMeeting is part of the suite of Internet applications being touted by Microsoft. If there's Internet Explorer 4.0 installed on the PC, you can be pretty sure that NetMeeting is also installed. If it isn't or you are running a Netscape web-browser (or have some other configuration that excludes NetMeeting), the application can be downloaded free from Microsoft's website at http://www.microsoft.com/netmeeting – the executable is about 2MB in size and should take about 15 minutes to download if there's a good connection speed and the wind is blowing in the right direction.

If you are running Windows 98 the latest version of the NetMeeting software can be downloaded direct by clicking the 'Windows Update' button in the startup bar or by aiming your Internet browser at http://windowsupdate.microsoft.com/)

Getting CU-SeeMee: CU-SeeMe is slightly different in that it is not a free piece of software. A trial version of the software can be downloaded from the White Pine website at http://www.cuseeme.com but this is only for evaluation purposes and quits after 15 minutes of continuous use. The full version of the software weighing in at a healthy 9MB and taking about an hour to download, can be purchased online at the same website for $89 (about £42). Or you can opt for a CU-SeeMe camera kit which includes the software and a colour PC camera for $124 (about £76).

NetMeeting installation

Once you have downloaded the file from the Microsoft website, run its setup program – all files will be installed to the default c:\program files\netmeeting folder.

The first time NetMeeting is launched, an installation wizard takes the user through the simplified configuration process asking for details such as modem speed and type of connection – NetMeeting supports ranges from 14,400k modems up to ISDN connections.

Audio tuning: Next, an audio tuning wizard sets about its business to make sure the sound card is working. Keep your microphone handy as you'll be expected to take part in this test. During the audio wizard, the user is given the choice of which audio devices to use for transmitting and receiving audio, and the loudness of the reception and transmission is set. If no microphone is connected or there is poor performance, the user will be informed by the application.

The installation wizard then asks users to enter relevant personal information (e-mail address, geographical location, screen name etc.) and which network server to log onto.

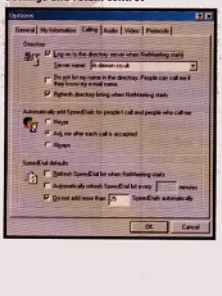
Video performance: Oddly, at no time during NetMeeting's installation process are the video capabilities of the machine tested by the setup wizard. It is all down to the user to tweak video performance manually using the options offered in Tools/Options/Video menu. In this menu, the user can configure the device controlling the camera – and, if you are lucky enough to be running a system with a multiple configuration, select which source you wish to use.

From here, the user can also set the size of the output image and its quality. But, remember that there's usually a trade off between quality and picture size on the one side, and smoothness of transmission on the other. Of course, the faster the connection speed between the parties involved in conferencing the better, which is why ISDN at both ends of a two-way conference will provide superior results.

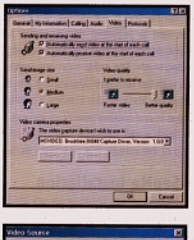
The controls governing the brightness/contrast/hue/saturation can be accessed and altered from the Tools/Options/Video menu too.

Using NetMeeting: After entering NetMeeting, the user is presented with the current directory screen. Here current users logged into the directory server are listed. To communicate with a user, it's just a matter of double-clicking the mouse on their entry.

Use these speed dial settings and retain control

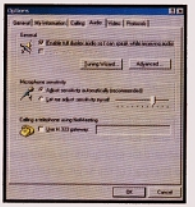


MS NetMeeting – setting up the video card

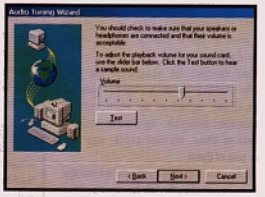


Adjust settings to improve camera image

Full duplex audio lets both parties speak at will



NetMeeting – audio wizard



NetMeeting – connected & attached to directory server

If the connection is successful, the current call screen is activated and presents two windows containing the incoming and outgoing video feeds. The caller can now communicate with the recipient by speaking into the microphone. You can also activate a chat box and type in and receive instant messages.

To finish a call, click the hang up icon at the top of the screen. It is as simple as that.

CU-SeeMe installation

After launching the setup program (this is presuming the full version is being run), the user is greeted by the registration screen in which a pre-paid registration code unlocks the software for full use. Then the CU-SeeMe Setup assistant guides the user through the installation of the application.

There are five steps to follow before the user can operate the software. The first and second steps involves inputting all the data about oneself (screen name, e-mail address, etc.) and registering to the Four11 Directory service so that this data is available for everyone to make contact.

The third step asks users to select their network configuration. The software supports most modems, ISDN connections and high-speed LAN T1 connections.

The fourth step tests the video setup – users are able to select their preferred video device, adjust the capture format, and take a snap for a personalised electronic contact card for distribution to other users.

The final part of the setup enables users to fully test their audio capabilities, selecting which audio device to use and the loudness of the transmission and reception.

With that complete, you'll be ready to take part in some serious online video conferencing.

Making contact: On activation, the CU-SeeMe screen presents a series of contact cards. These represent the chatrooms or conferences available. By double clicking on one of these contact cards, you can enter one of them.

Once inside a conference, icons from the participant panel on the left-hand side of the screen can be dragged into your video area and the video feeds activated. As we explained previously under the Video Performance section of installing Microsoft's NetMeeting, the quality of the video feeds is largely down to the speed of the slowest modems being used as well as the size of the images chosen.

Most of the communication is made via the scrolling text chat panel in the centre of the screen even though audio can be transmitted via microphone. When finished, the chat can be terminated by simply clicking on the hang up icon.

Darren Lock

Cheaper calls

One of the main attractions of video conferencing via the Internet is the relative cheapness of the local call charge connection. While we all envy the free local calls enjoyed by most Americans, careful use of the reduced cost schemes offered by telephone operators and Internet Service Providers elsewhere can reap considerable rewards. Some UK examples are given below:

BT: The full Local Call rate is currently Monday to Friday 4p a minute 8am-6pm and 1.5p a minute 6pm-8am; weekends 1p a minute 12pm Friday-12pm Sunday. Costs can be brought down by 10% by nominating the Internet access number as one of the ten available Friends and Family numbers. This saving can be doubled by nominating your Net connection number under BT's Best Friends scheme. A further discount. of 10% is available on BT's Premier Line service which costs £6 a quarter.

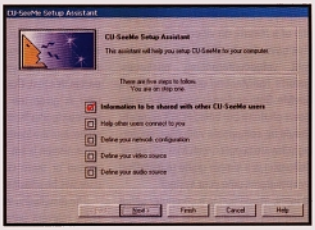
Cable & Wireless: C&W doesn't offer special discounts but charges lower fees as standard: Monday to Friday 3.95p a minute 8am-6pm, 1.18p a minute 6pm-8pm; weekends 0.8p a minute 12pm Friday-12.pm Sunday. The company also provides a cash rebate on its bills of 100 evening rate local mins each month, plus more according to usage.

ISP: Some Internet Service Providers offer cheaper local rates. An example is ClaraNet (0800 355 1000) which claims to save you 40% off phone charges. However, similar savings are not available from free Internet Service Providers such as Freeserve as they make their income from the difference between the local call charge you pay and what they pay on the telephone time market.

Parental guidance

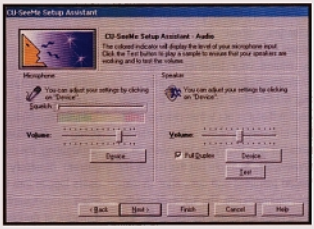
A feature that CU-SeeMe has over MS NetMeeting is a Parental Guidance option. The Internet and the world of home video conferencing might appear to be a jolly fun place but there are some dubious characters out there.

The Parental Guidance option in CU-SeeMe controls various aspects of the application from whether or not the user can allow incoming calls to whether multicasting can take place. This can be quite useful for protecting yourself and your children – remember, you never know what or who is at the other end of the camera and the Internet is a pretty difficult place to regulate and police. NetMeeting leaves you to fend for yourself.

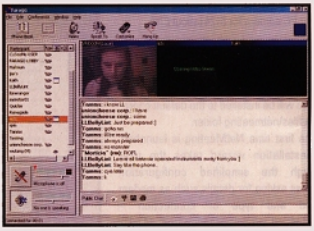


CU-SeeMe Setup Assistant

CU-SeeMe Setup Assistant – testing the video card



CU-SeeMe Setup Assistant – testing the sound card



Using CU-SeeMe