Remote Support Software Test by c't

(English translation)

isLlight™ iSupport

Remote control software	ISL Light
Rating	
Vista assistance (UAC)	⊕ ⊕
Connection adjustment (Colours, Desktop background, Aero off, Region and application sharing)	⊕
Reporting and session recording	⊕ ⊕
Setup and installation	⊕ ⊕
⊕ ⊕ very good ⊕ good ○ satisfactory ⊖ poor ⊖ ⊖ very poor	c't

Reiko Kaps

Support providers

Fast remote support for Vista desktop

There is no need for driving to your parents, friends or customers when they need help with their computers. Remote assistance applications that pass through remote firewalls and routers enable you to establish a connection with the remote computer over the Internet. We tested several remote desktop support products in this c't test.

System administrators and helpdesk operators in most cases remotely administer computers of their clients. Remote maintenance software and private networks make travelling to a customer unnecessary. An ordinary computer whiz does not always have such refined infrastructure available, when relatives or friends need help with Windows Vista, Word or printer.

Normally, there are few instances where advice on the phone can help solving solve the biggest of problems, as the supporter must explain every click of a mouse, ask for the result of every action, and finally trust the client to provide correct descriptions of what is going on. Problems could surely be solved faster if supporter was actually able to see the remote Windows desktop or even take control of client's mouse or keyboard.

Remote Desktop (RDP) tool built-in the Microsoft Windows or VNC (Virtual Network Computing) make resolving such situations easier. Desktop content of the remote computer is transferred through the network to supporter's monitor, who can in addition control the remote computer's mouse and keyboard, or transfer files and short messages between supporter and user.

Obstacles

When a user starts a Windows Remote Desktop software, her or his computer starts operating as a server, which offers its desktop over the network. When supporter wants to control this desktop, the network router must forward the supporter's request to the client, which then forwards the Remote Desktop port into local client network, of the computer that is to be administered. The c't magazine's remote maintenance tool [1, 2, 3] reverses this procedure: VNC server on thel

Remote support software user side connects to supporter's computer. It is only the user who has to engage port forwarding on the router, which sends data from the VNC server to the VNC client (in this case supporter).

Routers or firewalls cannot be set up for port forwarding if supporter uses a mobile connection or WLAN-hotspot. In cases, when supporter's and user's computers are placed in local networks, they both use NAT (Network Address Translation) to access web. Therefore, such computers cannot directly connect to each other. In these cases remote assistance connections fail at the network router.

Web ambulance

Remote support products which we tested are designed to perform the same tasks as Windows Remote Desktop or VNC. The remote desktop support products create a connection between supporter and user, but not directly between the two computers.

Since both supporter and user have no problems accessing the Internet, our test candidates forward the session through an additional commonly accessible computer. This in-between computer (proxy) creates a session, which can be accessed by both supporter and user and logged into by using passwords or certificates. Proxy then interposes between both sides and connects them by a data tunnel, enabling the supporter to work on user's desktop.

Many professional supporters miss additional functionalities in freeware remote maintenance programs such as actions log or video recording of the session. This could allow the supporter to prove his or her actions in case of disputes. Many remote support programs enable file transfer, which is usually completely sufficient for small tasks. However, if entire hard disk or folders need to be protected, a file manager or backup program is a better choice. People who regularly administer more than one computer will appreciate computer management, as it collects customer information, session protocols and other data.

First aid

18 remote support programs had to prove themselves in our test. They had to establish a remote desktop connection between supporter and user, with both of them accessing the Internet from a local network. Connection should be established without setting up any port forwarding on router.

Programs such as LogMeIn and Instant Housecall are similar to a web service, which provide desktop over a browser or separate software. Supporters must log on to the web page beforehand. Some candidates require the supporter to be the one who invites the other side to the session over e-mail, Instant Messenger or phone, while in other cases

user invites the supporter. When the invitation is accepted an actual help session starts over a link on the web page.

Other programs, such as Netviewer, fastviewer and TeamViewer do not have a web interface and authenticate towards the proxy server with a key, which is in fastviewer and Netviewer cases combined with the license: supporter and user need harmonized software in order to make use of remote assistance. Other freeware solutions, such as TeamViewer and CrossLoop only need a one-time password to establish a connection.

Criteria

All tested programs had to prove their ability to control user's Vista desktop, which is accessing the Internet from a local network. Supporter's computer was also inside a local area network (LAN) behind a router that blocks unwanted data packages from the Internet.

Vista introduced User Account Control (UAC), which controls startup of programs on the second desktop in the background. When some software requires administrator permissions, UAC covers user's desktop with a dialogue which requires the user's permission. Some candidate programs leave UAC management to the local user or even cannot work with UAC (e.g. CSpace). Others install a service or require administrator permissions to allow the supporter to confirm UAC dialogs and then control started programs (e.g. fastviewer).

Remote desktop software VNC transfers passwords, mouse movements and keystrokes in a non-encrypted form. People who use VNC therefore transfer data over SSH or virtual private network (VPN). Products we tested encrypt the data upon transfer using SSL or some other encrypting protocol. Users identify towards the tested programs with certificates or via HTTPS based login.

Communication between supporter and user in most tested cases takes place over an in-between server, what in principle allows the server to record all transferred data. Most of the test candidates are commercial therefore there is no source code available so we have to trust the manufacturers that encryption and overall security of the programs is handled properly. Only CSpace and Fog Creek Copilot allow an inspection of anti-theft protection in their code.

Remote control software transfers graphical user interfaces of desktops. This means that the amount of data to be transferred depends on number of colours shown on the display and refresh rate. High values of these settings can quickly overburden slow connections over analogue modem or mobile access. Some test candidates offer extra options for such cases: automatically or by using controls they reduce number of colours transferred, turn off user's background image

or limit remote desktop to only specific parts of the desktop or even individual application windows. Some even disable Vista's 3D-look during the session. Animation and transparent windows cause additional traffic that should be avoided especially with slow connections.

Even though the task is identical, the usage concepts of test candidates differ substantially. NTRconnect or Netviewer are more likely to be used for managing own computers or entire network. Others, such as Instant Housecall or CrossLoop connect supporters with users, who need help with software or hardware installation. WebEx or pcvisit 8 organize virtual meetings among users.

We tested the candidates' procedures, including how supporter and user establish a connection, using well tested remote control applications. Many programs prefer web based setup, while others consist of separate pieces of software for supporters and users. Only a few run without installation. Most programs can be upgraded in license, which is subject to additional costs.

What we missed

On closer examination, some of the earlier test candidates no longer met our criteria or even completely failed our connection tests. Programs like Remotesupportsystem, Radmin and MSN Live Messenger fail when connections are made from a local network to a local network and port forwarding is therefore needed on network router.

Netop On Demand froze right after the program started because it could not find the MSVCR71.DLL library. Installation program obviously did not install the file, which is also not a part of the standard Vista operating system setup. We addressed a question to the Danish Netop-Support, but are still waiting for their respnse. Similarly,we were unable to create remote access session using Laplink Everywhere, and are yet to receive suitable support from them.

In addition, just before the editorial deadline, TeamViewer introduced a host module for their remote assistance software, which enables administration of computers that currently have no users logged on. Unfortunately, Citrix's GoToMyPC has not been tested yet, therefore we will test this program, the TeamViewer Host and candidates Netop Ondemand and Laplink Everywhere in the next article.
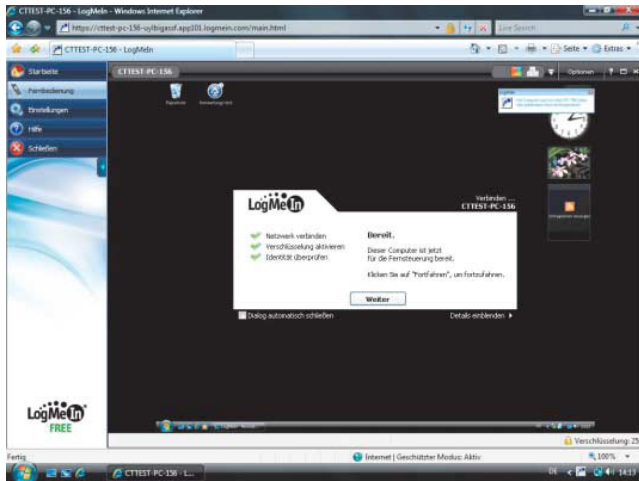
LogMeIn remote support functions as Add-on or Java-Applet in the browser – if required, the program can also show the desktop as a picture and controls it over an input field.

Test configuration

Our test environment consisted of two local networks, each connected to the Internet through a router. One network was connected to the Internet by a VDSL link, while the other connected to a high speed leased line (155 Mbit/s), with a firewall blocking outgoing HTTP traffic. Unencrypted Internet traffic passed through a proxy that responded to browser requests on port 8080.

The supporter's computer on VDSL-LAN link was running Windows Vista Ultimate. The supporter had to establish a connection and remotely control the user's computer which was in LAN, secured by a firewall and behind a proxy. User's computer was running Vista Business with 3D Aero graphic user interface turned on.

Our test measured the time needed for the supporter to access "Hosts" file in %WIN-DIR%/System32/drivers/etc directory using Windows Explorer, open it with Notepad and edit few lines of the file. In order to neutralize possible false clicks we used the average value of three measurements. Simultaneously, a special test program measured network load, to illustrate remote desktop support software's behavior at low speed links (see table on page 139).

LogMeIn Free and Pro

LogMeIn offers the Free version of their software at no charge for private and commercial use. After logging on to their web page the supporter installs client software on a computer. When password is entered the program transfers Windows desktop in one direction and mouse movements and keystrokes in the other direction. After installation of the client software, the computer appears as a shortcut in the "My computers" tab in the supporter's
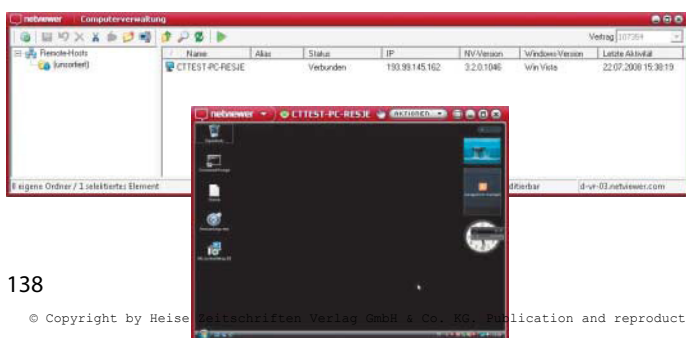
LogMeIn account. If more computers are to be added to the list, supporter needs to log from those computers to LogMeIn using the same account. This needs to be done at least once for each computer. The functionality to invite remote computers is not available in the free version of LogMeIn, which makes LogMeIn Free more suitable for administration of supporter's own computers than for providing spontaneous remote help to third parties.

Following the installation, the supporter simply starts the remote control session through a web browser, which installs required software as an extension. Therefore, one finds several different procedures in the settings menu, such as ActiveX, Mozilla, Java and HTML. Because of the latter, displaying the remote desktop is possible even in Linux. However, management is rather peculiar in this case: windows cannot be moved by mouse, and an input form is used for sending keystrokes to the other computer. If Java or Plug-in are installed in a browser, management works the same way as in other remote access programs. Using LogMeIn, remote computers are managed smoothly and without noticeable delays, especially on slow connections.

Payable LogMeIn Pro is also able to exchange data and forward sound and printing from the remote computer. User's drives can be used as network drives and files can be synchronized between both computers. In addition, the program can invite other users by e-mail to a common remote assistance session.

Netviewer remote admin

Remote control solution of the German company Netviewer consists of a program that is installed on user's computer and a corresponding component which runs on sup-

porter's computer with no additional setup.

In the menu the user can check connection status, abort current session or define time periods during which the user does not allow remote assistance. Additionally, he or she can turn off different parts of the Windows desktop – for example, supporter can be prevented from viewing the active e-mail client.

A window appears on supporter's computer showing if users' computers are currently available or if remote assistance is denied at a given moment. Management component lists all computers running the program with associated license. The program presents user's desktop very accurately and can resize the display continuously, which is very convenient on smaller screens and when many computers are administered simultaneously.

Supporter's software manages several accesses and categorizes users' computers into profiles that can be assigned to different supporters.
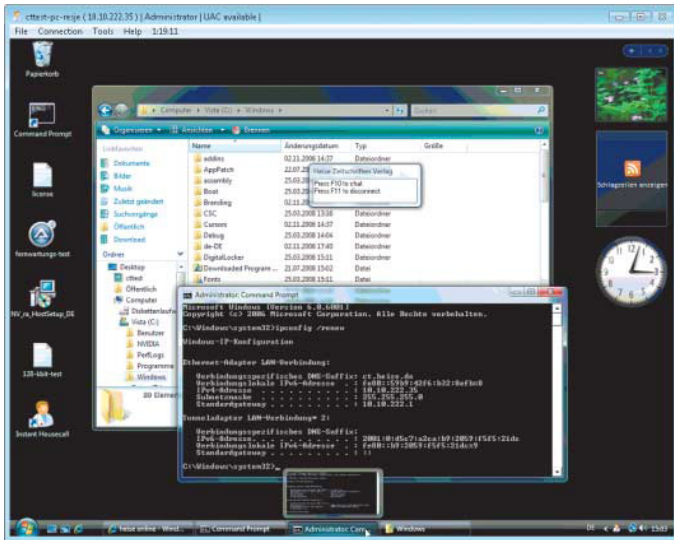
TeamViewer

TeamViewer is free for private use and requires no installation for its operation. However, it can be installed for permanent use. The manufacturer offers the program as full version, which contains both supporter and user functionality. Another module for customers does not include supporter's functionality. It displays the desktop and takes inputs through the Internet.

TeamViewer uses a special window to manage the establishment of a connection. User sends an ID and password to the supporter, which are shown by the program on the left of the screen below the "Waiting for connection" message. Supporter enters this information into an input field on the right side, selects connection type and starts remote assistance. View and control direction can be changed in a menu, if supporter wants to show anything to the other side.

In TeamViewer's Options one can disable connecting to the Internet, making remote control work only in local network. Under Settings there is an option to compose a text

Netviewer is able to reduce the size of displayed remote desktops to the size of a post stamp.
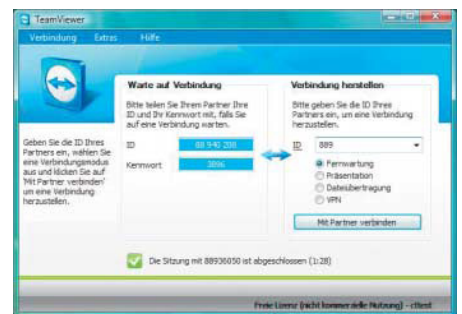
TeamViewer is free for personal use and connects two computers without installation.

Instant Housecall provides users with a targeted call of an expert, who can use remote administration to help and consult with other professionals.

with URLs for program download and forward it using a standard e-mail client.

TeamViewer with its default settings allows the supporter all actions and full control. To change default settings and confirm mouse and keyboard control to the supporter each time they connect, the user needs to activate this in Properties, Security tab. TeamViewer leaves the hassle of working with UAC dialogues and programs, started via UAC, to the user. Only a warning is shown on supporter's monitor.

Instant Housecall

Instant Housecall first requires the supporter to create an account on the web page and then install the software. Users follow a special URL to install the necessary software and use it to connect to the specified supporter. If the assistant is not logged on at that moment, user can leave a message and ask for a return call.

During the session, a status window is shown on the user's side with information about key combinations for chat and termination of the session. The program not only supports sessions for two participants, it makes it possible to invite other supporters if the first supporter needs additional help. Instant Housecall is aiming at computer experts who offer services to their customers. In addition, it has a charging module and customizable welcome web page. At the end of the session the program automatically removes itself from user's computer.

CrossLoop

Beta version of the CrossLoop web service operates a database of IT experts, who offer their knowledge against payment to the customers. Software requires no account: if a

user starts the program, a session password is created, which needs to be communicated to the supporter. He or she then enters this session password into the program, which creates a connection to the user's desktop. In our tests CrossLoop still caused some problems: it disables the wallpaper, but does not disable the Aero background. Control over CrossLoop feels slow, despite the high speed link. In addition, the program has problems with Vista's UAC dialogues, which cause premature termination of the remote support session.

WebEx

WebEx is almost entirely a web service. Sessions in WebEx are called Meetings and are started by the supporter in browser interface. Then, one or more users are invited by e-mail or phone. Users can also sign in a WebEx Meeting by providing a session number. While signing in, WebEx installs the connection program using ActiveX or Java, which then connects session members over remote desktop, chat or additionally VoIP. Alternatively, WebEx loads a management program that works without installation and adding extensions to the browser. When a user enters a web meeting, only a chat window is displayed.

All other connection settings are controlled by supporter. He requests view and control of a screen from the user and shows his own desktop or grants remote control to other users. WebEx can limit the sharing to

Remote assistance software CrossLoops connects two computers over remote desktop. However, in the Vista environment, remote control stops when UAC dialog pops up.

Remote control software

Name	LogMeIn Free	LogMeIn Pro	Netviewer remote admin	TeamViewer	Instant Housecall
Version	4.0.734	4.0.734	3.2.0 Build 1046	3.6.4682	4.2. (4.4 Beta)
URL	www.logmein.de	www.logmein.de	www.netviewer.com	www.teamviewer.de	www.instanthousecall.com
Producer / provider	Logmein	Logmein	Netviewer AG	TeamViewer AG	Instant Housecall Inc.
Prerequisites	Browser, Windows	Browser, Windows	Windows	Windows, MacOS X	Windows
Account at provider	✓	✓	–	–	✓
Without installation viewer/host	– / –	– / –	✓ / –	✓ / ✓	– / –
Functions					
Connection information / breakup possible	✓ / –	✓ / –	✓ / ✓	✓ / ✓	✓ / ✓
Chat / Filetransfer	– / –	✓ / ✓	– / ✓	✓ / ✓	✓ / ✓
Session recording (video)	✓	✓		✓	–
Logging	ODBC, Syslog, Text file	ODBC, Syslog, Text file	text file	text file	on website
Only show / control	– / ✓	– / ✓	✓ / ✓	✓ / ✓	– / ✓
Parallel connections / Remote login	✓ / ✓	✓ / ✓	✓ / ✓	✓ / –	✓ / –
Host can disable Input / Display	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	– / ✓
Query at connection start / auto disconnect when idle	✓ / ✓	✓ / ✓	✓ / –	✓ / –	✓ / –
Desktop region and application sharing	–	–	–	✓	✓
UAC / Admin programs control	✓ / ✓	✓ / ✓	✓ / ✓	– / –	✓ / ✓
Remove desktop background / Aero off / Scalable view / Refresh desktop	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	– / ✓ / ✓ / ✓	✓ / ✓ / – / ✓	– / – / ✓ / –
Extras			optional: chat, session recording, region sharing	direct IP connection, VPN	Payment and ticketing module
Costs					
Free for home use / License	✓ / –	– / 1 PC 55€ yearly	– / 1-year license from 388 €	✓ / 6 month license from 170 €	– / from 50 $ a month
Trial version / Duration	– / unlimited	✓ / 30 days	✓ / 14 days	–	✓ / 15 days
Technical characteristics					
Encryption	AES 256	AES 256	SSL	AES 256	SSL
Connection establishment	Server	Server	Server	Server	Server
via Proxy	✓	✓	✓	✓	✓
Rating					
Vista assistance (UAC)	⊕⊕	⊕⊕	⊕⊕	○	⊕⊕
Connection adjustment (Colours, Desktop background, Aero off, Region and application sharing)	⊕⊕	⊕⊕	⊕	⊕⊕	○
Reporting and session recording	⊕	⊕	⊖	⊕	⊖
Setup and installation	○	○	○	⊕⊕	⊕

¹ Colours, Desktop background, Aero off, Region and application sharing

⊕⊕ very good	⊕ good	○ satisfactory	⊖ poor	⊖⊖ very poor	✓ existent	– non existent	n.d. no data

individual windows and is able to record entire session as a video.

pcvisit 8 and 4 Remote

One or more participants can be invited to a session by the pcvisit8 supporter. Users need to run a software module for connecting to the supporter after the session number is entered. When the connection is established a yellow-grayish window is displayed, showing the computer is participating in a pcvisit session..

Users can mutually exchange view and control of their Windows desktop, start a conversation or transfer files. Supporter can record the session as video. pcvisit composes a log of the session and transfers speech over Voice-over-IP module to other session members. pcvisit 4 Remote from the same manufacturer can only connect 2 computers. User installs the host module of the software. Supporter only starts a guest module, which can be used without prior installation. User needs to communicate the session information to the supporter, who then enters it into his guest module, which then establishes a connection with the user and displays remote desktop.

pcvisit 4 Remote is therefore more suitable for permanent help than for spontaneous rescue missions. Just as its big brother pcvisit 8, it works with Vista's UAC dialogues, which can be confirmed remotely.

Techinline

In Techinline, a remote support session is held completely inside a web browser. Content of the screen, mouse movement and keystrokes are transmitted by software, installed by the browser when the web page is opened.

User creates a session on the web page and supporter connects to it using suitable session identification. The supporter is now able to see and manage remote desktop or allow control over his own desktop to the user. Techinline displays no separated and permanent information regarding the status of the connection; this is shown in the browser window only.

UAC dialogues have to be confirmed on the managed (client) computer. Techinline is
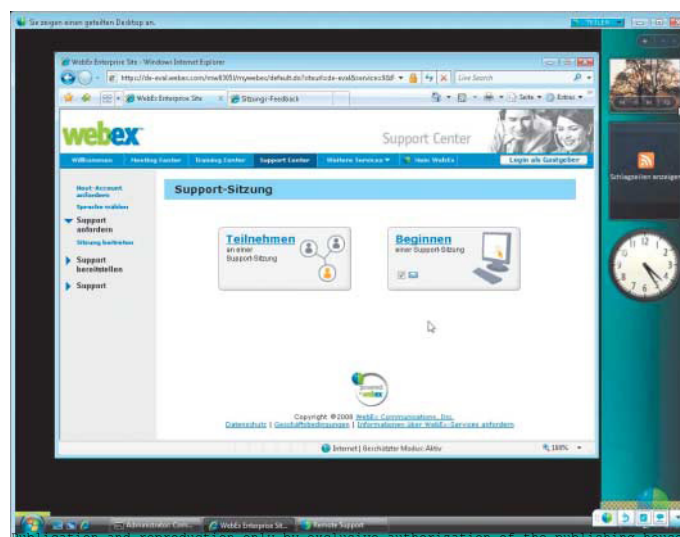

Remote access, data transfer and chat are available to all participants of remote support session that WebEx starts through a browser.

CrossLoop	WebEx	pcvisit 8	pcvisit 4 Remote
2.2 (Beta)	6.5	8.2.1.2238	4.3.2.1950
www.crossloop.com	www.webex.de	www.pcvisit.de	www.pcvisit.de
CrossLoop	WebEx/Cisco	pcvisit Software AG	pcvisit Software AG
Windows	Browser, Windows	Windows	Windows
–	✓	–	–
– / –	– / –	✓ / –	✓ / –
✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
– / ✓	✓ / ✓	✓ / ✓	– / ✓
–	✓	✓	
– (only with account)	on website	text file	text file
✓ / ✓	✓ / ✓	✓ / ✓	– / ✓
– / –	✓ / –	✓ / –	– / –
– / –	– / –	– / –	✓ / –
✓ / –	✓ / –	✓ / –	– / –
–	✓	✓	–
– / –	✓ / ✓	✓ / ✓	✓ / ✓
– / – / – / ✓	– / ✓ / ✓ / ✓	– / ✓ / ✓ / ✓	– / ✓ / ✓ / ✓
	Internet-Telephone, Camera, Control direction change, desktop as whiteboard	Telephone (VoIP)	Automatic reconnect
✓ (Beta)/–	– /1 month license from 45 €	– /3 Installations from 790 €	– /1 host and 1 guest from 271 €
–	✓/14 days	✓/14 days	✓/14 days
SSL	SSL	Blowfish 128 bit	Blowfish 128 bit
Server	Server	Server	Server
✓	✓	✓	✓
⊖⊖	⊕⊕	⊕⊕	⊕⊕
○	⊕⊕	○	○
⊖	⊕	⊕⊕	○
○	⊕	⊕	⊕

pcvisit 8 collects all information about connection and connected users in a single window.
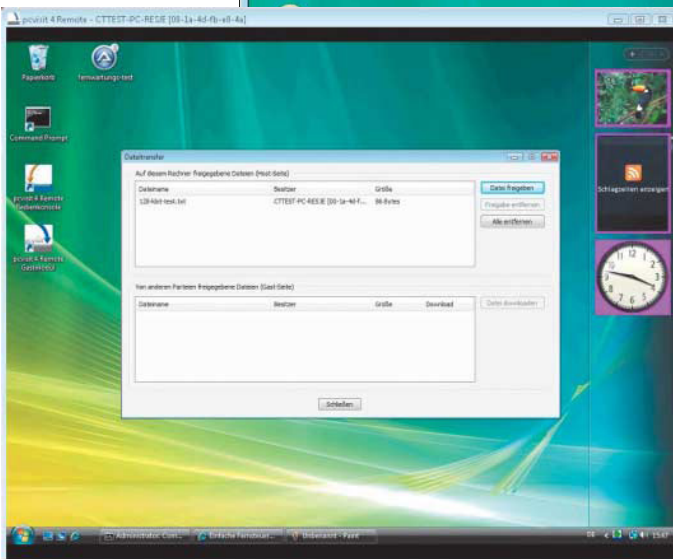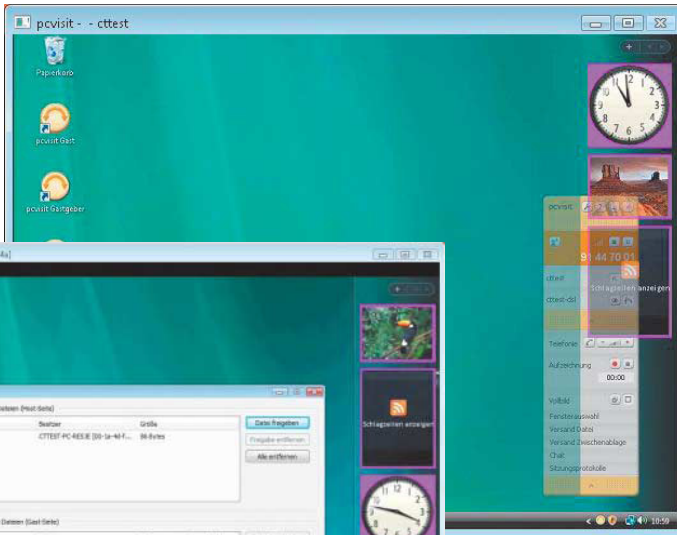
pcvisit4 Remote only connects two computers, but uses similar usage concepts as its big brother pcvisit 8.

Remote control software

Name	Techinline Remote Support	Beam2Support	Rapid Assist	Anyplace Control	NTRConnect Pro
Version	1.2.0.4.	2.1.0.70214	nTeras Jaunt 1.75c32	4.6.0.0	1.0
URL	www.techinline.com	www.beam2support.com	www.rapidassist.com	www.anyplace-control.com	www.ntrconnect.com
Producer / provider	Techinline Limited	BeamYourScreen	nTeras	Anyplace Control Software	NTRGlobal
Prerequisites	Browser, Windows	Windows	Windows	Windows	Browser, Windows
Account at provider	✓	✓	✓	✓	✓
Without installation viewer/host	–/–	✓/✓	–/–	–/–	–/–
Functions					
Connection information / breakup possible	✓/✓	✓/✓	✓/✓	✓/–	✓/✓
Chat / Filetransfer	✓/–	–/✓	✓/–	–/–	✓/✓
Session recording (video)	–	✓	–	–	–
Logging	PDF and Excel file	on Website, CSV-export	–	In host program	on Website
Only show / control	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓
Parallel connections / Remote login	–/–	–/–	–/–	–/–	–/–
Host can disable Input / Display	–/–	–/–	–/–	✓/✓	✓/✓
Query at connection start / auto disconnect when idle	✓/–	✓/–	✓/–	✓/–	–/✓
Desktop region and application sharing	–	✓	–	–	–
UAC / Admin programs control	✓/–	✓/–	✓/–	✓/✓	✓/✓
Remove desktop background / Aero off / Scalable view / Refresh desktop	✓/–/✓/✓	–/✓/✓/–	✓/–/✓/✓	✓/–/✓/✓	–/✓/✓/✓
Extras		View direction change	Desktop as Whiteboard	Direkt connection to LAN-PCs, Messages from Admin to Host	KeyCard logon
Costs					
Free for home use / License	–/monthly 30$, 5 sessions 20$	–/from 35$ monthly	–/ on request	–/1 PC from 50$ for 1 year	✓/1 PC from 60$ per year
Trial version / Duration	✓/15 days	✓/7 days	✓/30 days	✓/30 days	✓/30 days
Technical characteristics					
Encryption	SSL	AES 256	SSL	RC4 128 Bit	AES 256
Connection establishment	Server	Server	Server	Server	Server
via Proxy	✓	✓	✓	✓	✓
Rating					
Vista assistance (UAC)	○	○	○	⊕⊕	⊕⊕
Connection adjustment (Colours, Desktop background, Aero off, Region and application sharing)	⊕	○	⊖	○	⊕
Reporting and session recording	⊕	⊕⊕	⊖⊖	○	○
Setup and installation	○	⊕⊕	⊕	⊕	⊕

¹ Colours, Desktop background, Aero off, Region and application sharing   ² upon request

⊕⊕ very good   ⊕ good   ○ satisfactory   ⊖ poor   ⊖⊖ very poor   ✓ existent   – non existent   n.d. no data

unable to control programs started by UAC, however, the connection remains established. Techinline does not turn off graphical effects in Vista environment, which causes control to feel somewhat lazy on slow connections.

Beam2Support

Beam2Support is straightforward and installation-free. Only an account has to be made on the manufacturer's web site. When access data is entered the program creates a session password, which is later used by supporter and user to connect computers.

Beam2Support can share only a region of the display as well as entire programs and the supporter can transfer the control of his screen over to the user. The program records the remote control session as a video, which can be played back in a separate player.

In Vista, Beam2Support is unable to control programs started by UAC. Its whiteboard function allows drawing signs on the other desktop. It is also possible to turn on an additional mouse cursor, which can be used to spot menus and icons.

Rapid Assist

Rapid Assist establishes a remote support session following a login using the web browser. A software named nTeras Jaunt, needed for starting the session, is installed automatically. User is also able to enter an URL to connect to the session, which again requires an installation of the control software.

Rapid Assist feels very easy to use: the main window displays information about the session, access URLs and connection speed. Remote support contains the whiteboard function, which can be used for marking parts of the desktop, icons or menus and setting markers that remind users to perform a

mouse click. Nevertheless, supporter cannot control programs started by UAC.

Anyplace Control

User installs host module on his computer in Anyplace Control. The installation program checks for an account and if it has not been created yet, it will create one at the manufacturer. Host module allows the supporter all actions on client computer. If user wishes to confirm supporter's actions, a few options must be enabled beforehand.

Supporter controls the connection quality by setting number of colours transferred, connection speed and image

Remote support software Techinline connects Windows desktops through a browser. Session protocols and transfer quality controls are displayed as well.

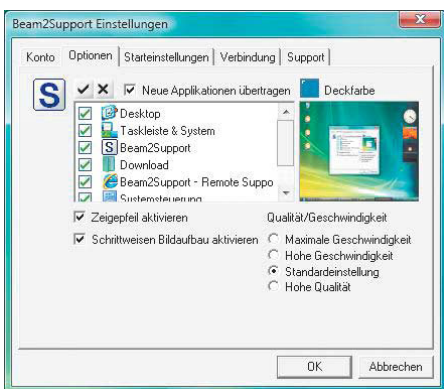| fastviewer	ShowmyPC Free	CSspace	Fog Creek Copilot
2.6.011	2941	127	000197
www.fastviewer.com	www.showmypc.com	www.cspace.in	www.copilot.com
Fastviewer GmbH & Co KG	ShowMyPC	Tachyon	Fog Creek
Windows	Windows (Mac OS X/Linux)	Windows, Linux	Windows, Mac OS X
–	–	–	✓
✓/✓	✓/✓	–/–	✓/✓
✓/✓	✓/✓	✓/✓	✓/✓
✓/✓	✓/✓	✓/✓	–/✓
✓	–	–	–
CSV data	–	–	–
✓/✓	✓/✓	–/✓	–/✓
–/– (license dependant)	–/–	✓/–	–/–
–/–	–/–	–/–	–/–
✓/–	✓/–	✓/–	✓/–
✓	✓	–	–
✓/✓	–/–	–/–	✓/✓
✓/✓/✓/✓	✓/–/✓/✓	–/–/–/–	✓/–/✓/✓
encrypted file storage on server, Whiteboard	own SSH may be used as Rendezvous-Server		
✓/from 107€	✓/from 14$ for a month	✓/OpenSource	–/day license 5 $, month and time tariffs
✓/connection limited to 5 Minutes²	–	–	✓/15 days
AES 256	SSHv2/AES 256	TLS	SSL
Server	SSH-Server	Directory-Server, Dynamic Hash Tables	Server
✓	✓	✓	✓
⊕⊕	⊖⊖	⊖⊖	○
⊕	○	○	⊖
⊕	⊖⊖	⊖⊖	⊖⊖
⊕⊕	⊕⊕	⊖	⊕⊕

transfer interval (refresh rate), all found in Admin module. In this manner the control can still be reasonably acceptable even on slow links and with 3D user interface turned on. UAC started programs can also be controlled if Anyplace Control is started as a system service. Anyplace Control can also connect directly to an IP address in LAN or Internet.

Beam2Support works without installation and is able not to show programs and parts of the screen.

NTRconnect Free and Pro

NTRconnect creates an account on manufacturer's web page during installation. Even if Free version has been selected, the system defines the version as Demo of the Pro release. After logging on to the web page, the browser displays a list of computers, connected to the account.

Supporter can add a new computer to the list but first needs to login from that respective computer to NTRconnect and install necessary software through the web page. After installation the supporter is able to invite users using the software. Differences between Free, Demo and Pro version are not exactly defined: Pro version supports chat, which is missing in Demo version. Demo, though, does support file transfer. On our systems, NTRconnect displayed an error message when the remote support session finished, but apparently that did not have any further consequences.
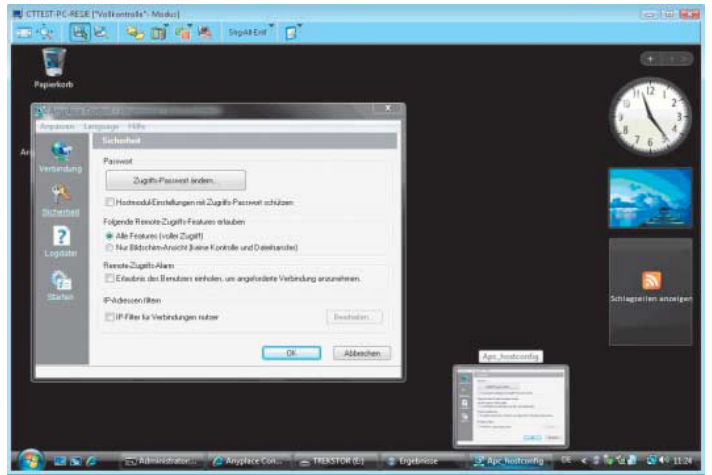
fastviewer

Fastviewer is installation free for both users and supporters. Supporter first starts a
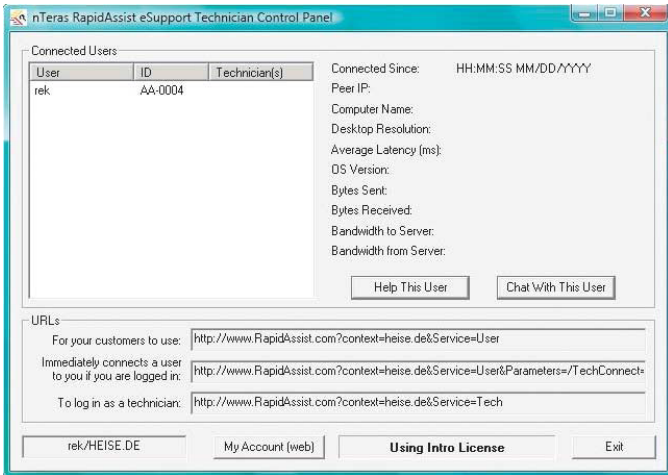
Remote suuport Rapid Assist runs over manufacturer's web page – the installation also starts only after login.

Connection settings can be quickly accessed and changed through a menu in the Remote desktop window in Anyplace Control.

management module, which immediately creates a session password. User enters this access code in customers' module, which establishes a connection to the supporter. fastviewer authenticates both sides by checking software certificate. There is no need to create an account on the manufacturer's web page.

If the user started customers' module as administrator, supporter can confirm UAC dialogues as well as manage programs started through UAC. fastviewer resizes transferred desktop continuously and is able to black out programs that are not supposed to be
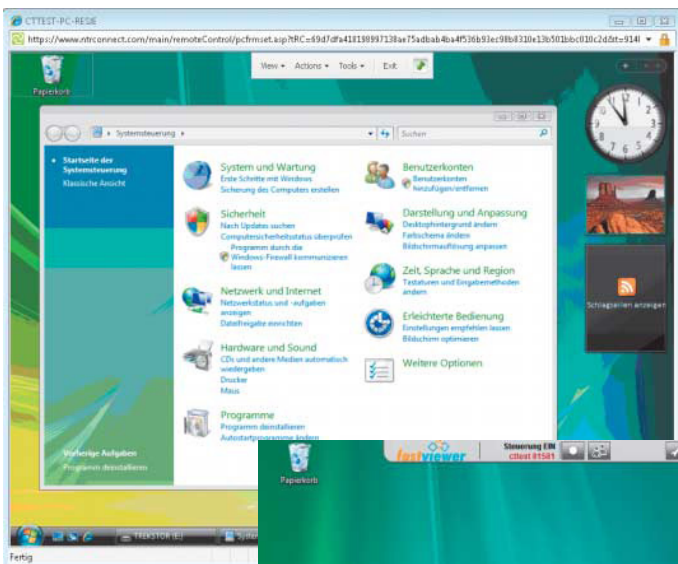
seen or controlled by supporter. Supporter can exclude user's background from the desktop transfer. Besides direct file transfer, this TÜV (German quality assessment company) certified program can also transfer files by using encrypted deposition on server.

ShowMyPC

ShowMyPC connects two computers over remote desktop. Using a simple interface, the program invites participants to a password protected remote support session. Supporter uses this password to connect

to the session. Manufacturer's SSH server is used as the middle point, but you can use your own server as well.

User interface seems very clear and consists of only a small number of control elements. ShowMyPC uses built-in VNC server to transfer desktop content, clicks and keystrokes. The program faces problems with Vista's UAC dialogues: if UAC dialogues occur during the session, ShowMyPC crashes. However, User Account Control can be manually deactivated in program settings. The program does not turn off graphical effects of Vista's desktop.

CSpace

In contrast with other test candidates, CSpace puts its bets on the Instant Messenger concept. The program does not use a central server and instead uses Dynamic Hash Tables (DHT). DHT creates a Peer-to-Peer network among clients, which makes the central point redundant. CSpace users

NTRconnect shows settings and protocols in a browser, while the remote control itself runs in an additional window.

fastviewer can resize user's remote desktops steplessly, however administrator rights are required for running UAC programs in the Vista environment.

Displaying Windows desktop is shown over a built-in VNC server in ShowMyPC, which is unsuccessful at Vista's UAC dialogues.

identify themselves with a pair of keys, and public keys are deposited on a list server during installation. This is where you can find the appropriate public keys, based on session identification and import them to your list of friends. If supporter wants to control a remote computer from his list using remote desktop, CSpace first asks for permission from the user on the other side. With few access rules on the user's side, requests can also be permanently inhibited.

IM client connections are encrypted by the program. You will not find any dialogues for specifying a proxy server in the user interface of this open-source program, but this can be solved by setting the http_proxy variable. So far, remote control with CSpace using VNC is not compatible with Vista: UAC dialogues end remote support prematurely and Vista graphical effects slow down the remote control considerably. During our measurements, Aero was turned off and number of colors was reduced, otherwise the remote control was very slow and lazy.

Fog Creek Copilot

After logging in, supporter creates a session on the Fog Creek web page together with a twelve-digit session code. User uses the same number to log on to Copilot's web page and downloads required client software, that runs without installation. Fog Creek, the manufacturer, configures the program during download in accordance with the session number, so the connection to the correct supporter is established immediately.

Fog Creek uses VNC for transferring desktop content, mouse clicks and keystrokes. In addition, the company has disclosed all of the source code of their software. In Vista, UAC dialogues have to be confirmed by the user, but then the supporter can control programs started by user account control. Program transfers files from the user to the supporter and vice versa. However, a full scale file manager is missing.

Speed				
Product	**Time in seconds** [1] ◄ better		**Traffic in kBit/s (medium/max)** ◄ better	
LogMeIn Free	32,2		39,1/183,4	
LogMeIn Pro	32,2		38,7/182,8	
Netviewer remote admin	32,8		193,1/527,2	
TeamViewer	45		165,4/583,8	
Instant Housecall	59		96/288	
CrossLoop	100		54/80	
WebEx	36,8		78,10/473	
pcvisit8	32,8		80/410	
pcvisit4 Remote	37,8		74/406	
Techinline Remote Support	52,3		233/537	
Beam2Support	48		177,78/261,6	
Rapid Assist	43,6		160/400	
Anyplace Control	32		254,61/573,8	
NTRconnect Free/Pro	27		138,61/326,8	
fastviewer	36,5		111,34/472,40	
ShowMyPC Free	73,5		120/340	
CSpace	51,2		185/1088	
Fog Creek Copilot	78,9		240/960	

[1] Time needed to open, change and save the Hosts file on the remote computer.

The program does turn off background on user's side, but leaves Vista's 3D interface and transparent windows turned on. We also missed dialogues for setting number of colours and other connection parameters. User can abort connection at any time using controls in a large status window.

Conclusion

Users who only occasionally need to provide help to their friends, can use free options such as LogMeIn, TeamViewer or CSpace. If a larger number of computers require regular support or if new customers need help with setting up of their computers, payable programs with additional functions, such as Instant Housecall, Beam2Support, NTRconnect or Anyplace Control will be much more useful. For web sessions with more participants we recommend programs like WebEx or pcvisit 8, which also create session logs and capture videos of sessions.

Fastviewer is lean, requires no installation on either supporter's or user's computer and includes all remote support functionality in Vista. TeamViewer and Beam2Support also do not need installation, but are not fully compatible with Vista's UAC. Those who need to administer Vista with UAC turned on, will almost inevitably have to use a commercial product.

Literature

[1] Johannes Endres, Große Hilfe per Internet, Windows-Fernsteuerung auf Doppelklick, c't 5/08, S. 124

[2] Andreas Beier, Johannes Endres, Apfel, weit vom Stamm Mac-Rechnern aus der Ferne helfen, c't 13/08, S. 190

[3] Reiko Kaps, Ersthelfer für den Linux-Desktop, Hilfeleistung per Shell-Skript und Virtual Network Computing unter X Window, c't 7/08, S. 194
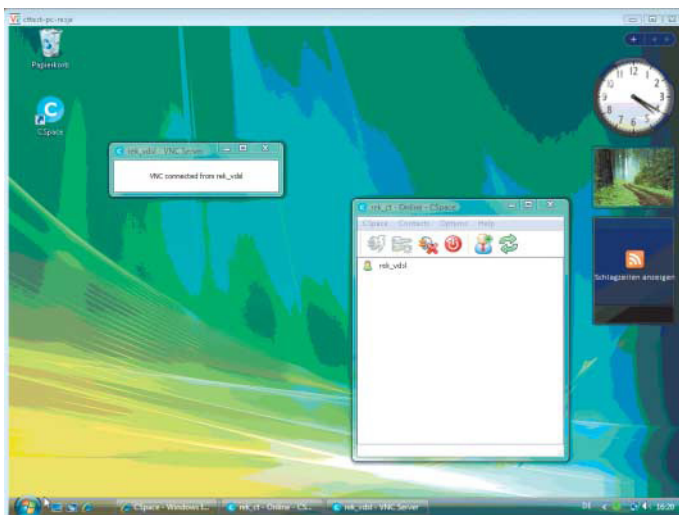
Instant Messenger CSpace administers remote computers with Windows over VNC but the program freezes with UAC programs in Vista.
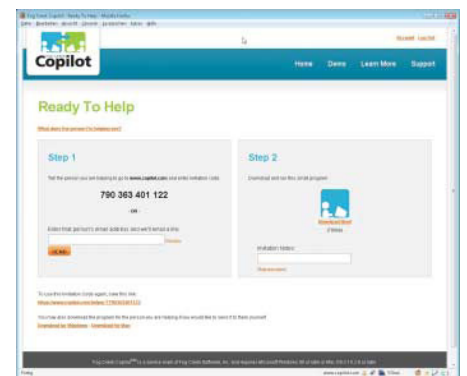
Display of desktops are resized freely in Fog Creek Copilot. If programs are started through UAC, the execution must be granted by the user.

Reiko Kaps

Private lessons

Another four remote support products for Windows Vista

Remote support software enables the supporter to establish a connection with a client and displays remote Vista desktops over the Internet, regardless of whether supporter and user are on the road, in an Internet cafe or on a train. Time consuming phone calls and misunderstandings, as well as actual computer problems, have now become a thing of the past.

Computer assistance over the phone often faces terminology obstacles: many of the less computer literate users are unfamiliar with terms like startup menu, browser or file manager. If supporter would be sitting next to the user, problems could be seen, recognized and solved faster.

Such functionality is provided by remote support applications, which are able to display user's desktop over the Internet and allow the supporter to control the remote mouse and keyboard.

Four more candidates joined the group of 18 remote support products, which we already tested in the article „Supporters" in c't 19/08. Our test environment consists of two computers, both running in a local area network where Network Address Translation (NAT) is used to access the Internet. Supporter could be accessing the Internet over a phone or WLAN hotspot. In contrast to the remote access solutions, such as c't magazine's own remote support tool [1], the supporter is not allowed to configure the routers which are part of the test environment; therefore, port forwarding into the local network and consequent direct connections between supporter and user are not possible. However, both user and supporter can establish outgoing connections to the Internet.

As with previously tested programs, Teamviewer Host, GoToMyPC, Laplink Everywhere and ISL Light also use an Internet server to get connected and transfer remote support sessions without interfering with routers, eliminating the need for network configurations.

Criteria

Test computers were in separated local networks, and each network was connected to the Internet through a router. Windows Vista Ultimate was installed on the supporter's computer. User worked on a computer with Vista Business, with 3D Aero interface turned on.

Since several classic remote maintenance tools, e.g. VNC, get confused when they have to deal with Vista's User Account Control (UAC), the candidates had to prove they can cope with it. UAC is running on the second Windows desktop and appears only when a certain program in Vista needs administrator permissions.

Remote support programs should be able to encrypt data transferred over the Internet. A weak point may therefore be the manufacturer's server, which operates as the middle point in the communication. In principle, it could also log communication between supporter and user.

Remote support programs display the user's screen to the supporter and enable the supporter to control the user's mouse and keyboard. High colour depths, monitor resolutions and refresh rates can cause a large amount of data to be transferred, which can choke slow Internet connections.

3D Aero interface in Vista presents another burden for the network with its animated windows and transparent frames.

Remote support programs should automatically or by using manual controls switch off desktop background, Vista's 3D desktop or decrease number of colours. All of this helps unburden the network connection. User interfaces of Teamviewer Host, GoToMyPC and Laplink Everywhere follow demands of users who need permanent remote maintenance of their own computers. ISL Light's target group are users who offer their services to others and solve problems spontaneously. ISL Light needs no installation on user's or supporter's computer and works even on Mac OS X and partially Linux.

Like programs from the previous test, manufacturers of Teamviewer Host, GoToMyPC, Laplink Everywhere and ISL Light also provide additional functionality, subject to additional costs or offer other packages in their portfolio, which, for example, allow online meetings and presentations for multiple users.
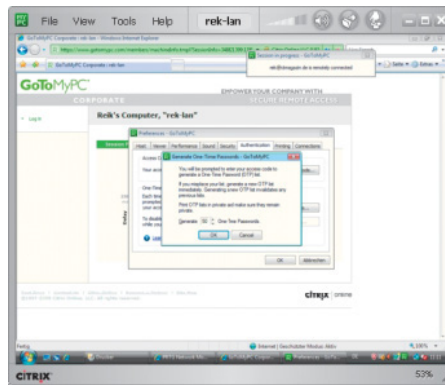
Teamviewer Host

Recently released Teamviewer Host is installed as a system service. It does not create remote support sessions by itself. Compared with the Full version some of the elements of the graphical user interface are missing. The full version was already described in the previous test. Program waits for incoming connections, triggered by supporter's Full version of Teamviewer towards the Host computer. Authentication is provided by static session ID and password, which are set at installation. Connection works even when no Windows user is yet logged on.

When supporter establishes a connection, desktop view direction can be freely switched between supporter and user. Like Host-Mode in the Full version, Teamviewer Host can also manage UAC dialogues and programs, started by UAC. The program only adds an icon to the task bar, which offers some status information and provides access to settings. In the default setting,
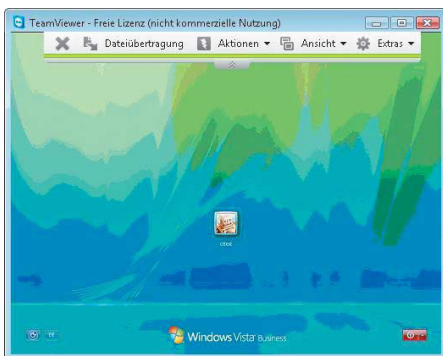
Teamviewer Host controls your own unattended Vista computer over the Internet.

In addition desktop content, GoToMyPC also forwards sound and print jobs. It creates one-time access passwords and invites supporter to your own computer if needed.

supporter has full control over user's computer.

Teamviewer Host forgets to disable Vista's 3D interface after logging on to a remote computer – a bug, according to the manufacturer, which is going to be removed in future releases. If Windows user is already logged on, Teamviewer Host will do this trick, which significantly improves perceived connection speed. If supporter logs off Windows using the startup menu, Teamviewer Host's display freezes. Program has its own logout function, where this behavior does not occur.

GoToMyPC

After logging on GoToMyPC web page, the user has to install the program, obtained from the manufacturer's website. A password is set during installation, which is later used for connecting through GoToMyPC web page to the user's computer. If one wishes to access more than one computer, these computers can be added through a web page of GoToMyPC. If the user needs help from other persons, icon in the task bar starts an invitation function, which sends time limited invitations via e-mail. Supporter receives an URL in the mailbox, which is used by GoToMyPC to start the program for showing desktop on supporter's computer and establishes a new session. If user approves the connection or even control, his remote desktop is displayed to the supporter. On supporter's side, GoToMyPC starts from the web browser, needs no installation and works in Windows, Windows CE, Mac OS X, Linux as well as in other Unix systems like Solaris.

GoToMyPC manages UAC dialogues as well as programs, started with administrator permissions. Embedded file manager synchronizes entire folders between both computers. On the web page you can also find session history, including sessions where

connection failed. Supporter can listen to outgoing sound from user's computer. Print-outs of remote programs can be redirected to supporter's printer. GoToMyPC also creates a list of One Time Passwords (OTP), which grant access to own computer and offer a higher level of security than the permanent password.
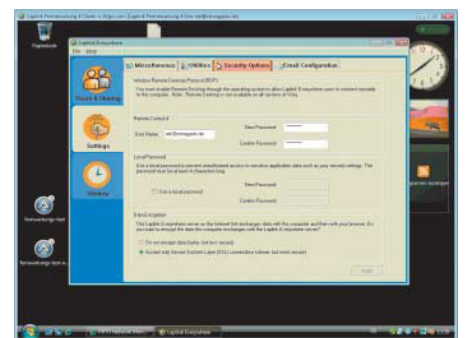
Laplink Everywhere

We did not test Laplink Everywhere in the previous test since their support department had not resolved some problems until now, after a four week delay. To use Laplink Everywhere and access your own computer, an account must be created on the manufacturer's web page and then the software needs to be installed – only a browser is needed for using the program. Access to the computer is then possible through the Laplink web page: file transfer and remote control are started from there.

Laplink Everywhere uses not only its own built-it Remote Control 4 for Windows remote control. It also offers Secure VNC, which has to be installed separately, as well as the Remote Desktop, which is available in some versions of Windows and can be activated through desktop properties.

Remote support through Secure VNC and remote login are not possible in Vista. Both remaining remote control options cannot resize remote desktops, while Vista's UAC dialogues and the programs which they start are fully controllable with Vista's Remote Desktop and Remote Control 4 without any problems.

A file manager is available in Laplink Everywhere for transferring data, which works inside browser and allows the use of drag and drop. In addition, the program can export Internet Explorer bookmarks and is able to show e-mail from Outlook or Windows Mail in its web interface. If Google desktop search is installed on remote computer, web browser can be used for searching in remote computer's folders.

Laplink Everywhere shows bookmarks and e-mail in the browser and uses Remote Desktop or built-in Remote Control 4 to control a computer with Vista operating system.
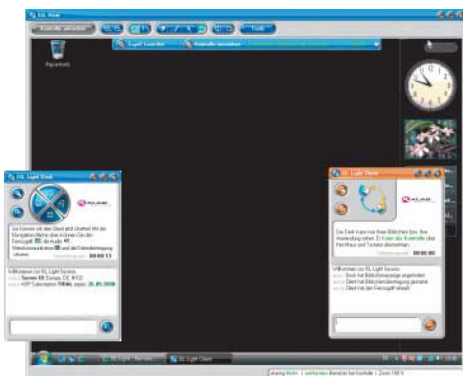
ISL Light

Supporter needs to create an account at the manufacturer website before using ISL Light. Subsequent supporters can be registered through the web page, which also provides session reports and sets connection defaults. After logging on, supporter starts ISL Light Desk directly from the website. The software runs without installation in Windows and Mac OS X. Linux users receive a distribution and browser dependent executable file .desktop (Opensuse, Firefox) or follow respective URLs for Debian and RPM packages (Ubuntu, Firefox), which are then imported by the distribution specific packet manager.

Following start of the program, when supporter's account details are entered, the application generates a session code which can be obtained by clicking the slightly unclear "get code" button. Supporter then communicates the session code to the user. User starts the ISL Light Client and enters the session code. Both sides can now send text messages using an Instant Messenger-like interface.

Remote support is started by supporter who either offers his own desktop to the other side or requests remote desktop and control of user's computer. If user grants this request, ISL Light Client displays a menu bar with options to terminate the session or withdraw control of a mouse and keyboard from the supporter. Program supports a Whiteboard function for drawing on or marking areas of user's desktop and can also transfer audio and video, as well as record the entire session, if user agrees. A separate program replays these recordings or exports them as MPEG, AVI or FLV.

Administrator mode is activated automatically whenever supporter starts Vista programs that require administrator permissions via UAC. The program user interface appears very colorful at first; but it displays connection status information in several

ISL Light is used by computer experts not only to help Vista users but also to help users in Linux and Mac OS X environment.

places and arranges user controls of the program in a clear manner, so they cannot be overlooked.

Conclusion

ISL Light joined the group of candidates for its rapid and spontaneous help in Vista. Its rich set of features, support for Vista's UAC and fast operation makes it stand alongside programs such as fastviewer, but then it steps forward when it comes to platform independence.

Teamviewer Host and GoToMyPC can be added to the group of programs intended for long term use like Logmein or Netviewer, all of which need to be installed prior to remote desktop session. Even though it has some useful functions, such as display of e-mail and desktop search within browser, Laplink Everywhere falls a bit behind because of its lack of remote login in Vista. All four candidates master Vista's User Account Control, with small differences when it comes to setting connection quality, that is to switching off the 3D interface. (rek)

Literature

[1] Fernwartungsgenerator bei heise Netze, www.heise.de/netze/tools/fernwartung

[2] Reiko Kaps, Souffleure, Schnelle Hilfe für Vistas Desktop, c't 19/08, S. 136

Speed

Product	Time in seconds[1] ◄ better	Traffic in kBit/s (medium/max) ◄ better
Teamviewer Host	30,25	158,8/520
GoToMyPC	35,6	116,75/221
Laplink Everywhere	42,74	67/360
ISL Light	30,31	85/440

[1] Time needed to open, change and save the Hosts file on the remote computer.

Remote control software

Name	Teamviewer Host	GoToMyPC	Laplink Everywhere	ISL Light
Version	3.6 4804	6.1	4.0	3.1.2
URL	www.teamviewer.de	www.gotomypc.com	www.ll2go.com	www.islonline.com
Producer / provider	Teamviewer GmbH	Citrix Online	Laplink	XLAB
Prerequisites	Windows/Vollversion	Windows	Windows	Windows/Linux/Mac OS X
Account at provider	–	✓	✓	✓ [1]
Without installation viewer/host	✓/–	✓/–	✓/–	✓/✓
Functions				
Connection information / breakup possible	✓/✓	✓/✓	✓/✓	✓/✓
Chat / Filetransfer	✓/✓	✓/✓	–/✓	✓/✓
Session recording (video)	✓	–	–	✓
Logging	text file	on Website	in software	on Website, CVS-Export
Only show / control	✓/✓	✓/✓	–/✓	✓/✓
Parallel connections / Remote login	✓/✓	–/✓	–/✓	–/–
Host can disable Input / Display	✓/✓	✓/✓	–/–	–/–
Query at connection start / auto disconnect when idle	✓/–	✓/✓	–/–	✓/–
Desktop region and application sharing	✓	–	–	✓
UAC / Admin programs control	✓/✓	✓/✓	✓/✓	✓/✓
Remove desktop background / Aero off / Scalable view / Refresh desktop	✓/✓/✓/✓	✓/✓/✓/✓	✓/✓/–/–	✓/✓/✓/✓
Extras	Control direction change	One time passwords, Print and Sound transmission	Remote Desktop and Secure VNC (not under Vista)	Whiteboard, Audio and Video, own Server
Costs				
Free for home use / License	✓/6 month license from 170 €	–/from 16 € monthly	–/from 8 € monthly	–/from 100 €
Trial version / Duration	✓/14 days	✓/30 days	✓/15 days	✓/15 days, Server 30 days
Technical characteristics				
Encryption	SSL	SSL	SSL	SSL
Connection establishment	Server	Server	Server	Server (Grid)
via Proxy	✓	✓	✓	✓
Rating				
Vista assistance (UAC)	⊕⊕	⊕⊕	⊕⊕	⊕⊕
Connection adjustment (Colours, Desktop background, Aero off, Region and application sharing)	⊕	⊕	○	⊕
Reporting and session recording	⊕⊕	○	○	⊕⊕
Setup and installation	○	○	○	⊕⊕

[1] not necessary with Server license

⊕⊕ very good　⊕ good　○ satisfactory　⊖ poor　⊖⊖ very poor　✓ existent　– non existent　n.d. no data　c't

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*Articles »Support providers« and »Private Lessons« are the
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»Souffleure« and »Nachhilfe« published in c't magazine
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