

4. Internet Audio Products

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Volume 2, Number 2, January 2002

URI: <https://id.erudit.org/iderudit/1073060ar>

DOI: <https://doi.org/10.19173/irrodl.v2i2.43>

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Publisher(s)

Athabasca University Press (AU Press)

ISSN

1492-3831 (digital)

[Explore this journal](#)

Cite this note

Weaver, D., Guspie, D., Cox, N. & Baggaley, J. (2002). 4. Internet Audio Products. *International Review of Research in Open and Distributed Learning*, 2(2), 1–4. <https://doi.org/10.19173/irrodl.v2i2.43>

Article abstract

Online audio methods have evolved as a means of providing unlimited and inexpensive/free international audio communication. They are becoming popular in distance education (DE) as an alternative to the asynchronous conferencing methods (Report 3 in this series). Current types of Internet audio connectivity provide: (a) direct between individuals (Internet phone); (b) shared places or forums on the Internet where groups can meet (audio-conferencing); and (c) a variety of PC-to-PC and PC-to-phone methods. However, products differ in terms of lag time, delay, quality of voice, and stability of service and connection. The report compares current online audio packages in terms of their technical features and reliability.

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January - 2002

Technical Evaluations Report

4. Internet Audio Products

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Abstract

Online audio methods have evolved as a means of providing unlimited and inexpensive/free international audio communication. They are becoming popular in distance education (DE) as an alternative to the asynchronous conferencing methods (Report 3 in this series). Current types of Internet audio connectivity provide: (a) direct between individuals (Internet phone); (b) shared places or forums on the Internet where groups can meet (audio-conferencing); and (c) a variety of PC-to-PC and PC-to-phone methods. However, products differ in terms of lag time, delay, quality of voice, and stability of service and connection. The report compares current online audio packages in terms of their technical features and reliability.

Trials of Free Products

Few online audio products contain audio features only. Fully featured products include applications for administering conferences and for reinforcing their value – e.g., integration of email, file sharing, and file transfer; simultaneous text chat, instant messaging (for one-to-one communication), whiteboard, and Web searches/ tours (i.e., the ability of a user to take control of the other users' browsers in order to demonstrate webpages). Eight online applications were reviewed (September to December 2001) in their most up-to-date versions. Emphasis was placed upon whether or not each provided the collaborative features found to be useful by the needs assessment study (see Report 2 in this series). All of the products were tested at least twice with the same configurations of equipment, connection, and users, so as to increase test-retest reliability.

1. **Groove:** (see also Report 2 in this series). This integrated package of collaborative tools includes good quality audio-conferencing, and the greatest variety of educational support tools in this series of products: a simple and intuitive file-sharing facility; several whiteboards; a notepad; email integration; and a useful tool for tracking actions and messages. The application is designed as a series of webpages rather than in the telephone handset format favoured by some other products. It would be improved with more tools enabling ease of connection between users. At the time of testing, contacting other users involved emailing to invitations to a *Groove* "room." No indication was available of whether or not the other users were online or had received the invitation. The only online status indicators were in the chat room mode. The product was subject to audio delays and interference sounds in the push-to-talk mode. Subsequent tests will determine whether these problems persist.

2. **ICQ:** is a popular communication tool for one-to-one (rather than conferencing) communication. It serves one of the largest online active communities and has strong commercial viability. The product features high-quality audio; multi-party text chat; PC-to-phone connectivity (for a fee); a good search directory; and efficient online status indicators in its various modes. It integrates well with email, and makes effective use of emoticons (e.g., smile icons J). Its other educational application features are limited to text chat, email, and file transfer. Its usage is fairly straightforward, with a basic and advanced mode, and a comprehensive online tutorial. Its more sophisticated features require practice and guidance by an experienced user. Occasional server problems cause inconsistent delivery of text messaging. With the addition of whiteboards and multi-party voice conferencing, the product could be without equal for DE users.

3. **NetMeeting:** is a popular Microsoft PC-to-PC conferencing product, integrated into many versions of Windows. It has high-quality audio for a limited number of users, video connectivity in some of its modes, and a good array of educational support tools: e.g., file transfer, and whiteboard. Occasional delays occur in the audio transmission. The product's connection procedures are relatively complex, requiring users to know one another's Internet protocol (IP) addresses in order to make contact. As most users with dial-up and cable modem connections have a different IP address each time they log-on, the creation of a call or conference requires time-consuming advance coordination by other means (e.g., email). Not all sharing features work consistently: our tests noted the occasional failure of various features, whether because of user error or infrastructure failure.

4. **Net2Phone:** is a hybrid IP Audio tool that facilitates discounted long-distance calling by allowing a computer to connect with a telephone on the Public Switched Telephone Network (PSTN). The tool has an intuitive, user-friendly interface and its operation requires little technical skill. A problem with the application is that the necessary phone lines are not always available. The party initiating the call (the PC user) is billed for the call whether or not it remains connected. Gaps in audio transmission, and overlaps between the audio contributions can create confusion, particularly for the receiving party at the phone end of the connection.

5. **PalTalk:** is one of the easier to load and learn products, with a compact 1 MB download, high-quality audio, and an online support service. One's online contacts (pals) are clearly listed, and indications of whether or not they are currently online/ online but unavailable, etc. Adding names/ pseudonyms to the contacts list is a simple process. Optional one-to-one and group connections are provided, with no apparent limit to the number of simultaneous users in the conferencing mode. Occasional loss of transmission is noted and problems of audio clarity, articulation, and lag. The product contains simultaneous text-chat and webcam video features, though is otherwise a bare-bones audio product. Its educational value would be improved with the addition of, for example, a whiteboard, file transfer, Web-tour, and email integration facilities. The product is free-of-charge with banner advertising, though this can be removed for an annual fee (approximately US \$10.00) or with pop-up display prevention software.

6. **Roger Wilco:** is a popular communications tool among online gaming enthusiasts. It provides high-quality audio in a simulated walkie-talkie mode. Multi-party connections are available in push-to-talk mode only. The product does not feature online status indicators or search directories, and to join in a conference each user has to enter the IP

address of the person hosting it (see the problems reported in the *NetMeeting* section). The product's text chat, email, and file transfer are useful as educational support, and it makes effective use of emoticons. Occasional interference with other programs is observed, and use of the product is not recommended while ICQ is running.

7. ***Yahoo Messenger:*** This is a good product for two or more persons, fairly user-friendly, and with very good audio quality. Connecting with other users is straightforward. When others are speaking their names and an icon appears next to the audio-level meters. The hands-free option works well. Currently, the product's only tools with particular educational value are text chat and file transfer. Other features include emoticon faces, different font options, instant messaging, a calendar, and an overview page. Non-educational features include: news, stocks, and sports information. A disadvantage of the product is that users must become *Yahoo* members (no fee), using a *Yahoo* password. Also, the disk storage required to operate the product is almost 4 MB compared with, for example, 1 MB for *PalTalk*.
8. ***4ecalls:*** is a hybrid PC-to-Phone technology (like *Net2Phone*) that enables a PC to place calls on the PSTN (Public Switched Telephone Network). One of its current advantages is the low calling rates: e.g., three cents within N. America and France; four cents to Australia and the UK, and five cents to Brazil. The tool uses a downloaded dialer at the PC end of the connection. As with other PC-to-Phone technologies, the audio is clearer for the PC user than for the telephone user. Delays in transmission can interfere with the receiver's audio. At the time of testing, this product was undergoing a server upgrade, and its reliability was low. Prior to the upgrade, the evaluation team was able to place calls successfully once or twice in every five attempts.

N.B. Three other audio products (*HearMe*, *FireTalk* and *Talk City*), were also tested by the CDE's evaluation team. Since then, *Talk City*'s audio and download support appear to have been discontinued, leaving only its text chat mode in operation. *FireTalk* and *HearMe* were discontinued earlier in 2001. *FireTalk* had offered the most efficient and sophisticated of all online audio services of which we are currently aware, and had become the de facto standard for synchronous audio communication in the CDE's graduate program, with regularly scheduled international seminars and events. The evaluations contained in this report and Report 2 of the current series have led the CDE to adopt *PalTalk* as its audio-conferencing substitute.

Conclusions

In comparing the features of the different online audio products, the CDE has selected *PalTalk* as its current standard. Frequent changes of software would be problematic for both students and teaching faculty, involving time-consuming coordination and re-learning. As some users have access to limited disk space, there are advantages to using stand-alone products such as *PalTalk*, and complementing them with other non-integrated products: e.g., the file-sharing facilities of *Stuffincommon* (see Report 2 in this series). Most products restrict audio contributions to one person to speak at a time, which is useful in most conferencing situations though requires moderation by a facilitator with technical experience of the product. Current problems common to many online audio applications are their platform dependency (e.g., PC as opposed to Mac), and the lack of technical infrastructure provided for them by educational institutions. Institutional firewalls and bandwidth limitations often prevent their use altogether, forcing DE teachers to

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conduct their classes from home! DE providers will need to deal with these issues as student demand for online audio communication increases.

The [next report](#) in this series will review online course management systems.

N.B. Owing to the speed with which Web addresses become outdated, online references are not cited in these summary reports. They are available, together with updates to the current report, at the Athabasca University software evaluation site: cde.athabascau.ca/softeval/. Italicised product names in this report can be assumed to be registered trademarks.

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