旅遊健康學刊　第三卷　第一期　民國九十三年十月，頁 28~34
Journal of Tourism and Health Science, Vol. 3, No. 1, October 2004, pp. 28~34

Exploring Streaming Media in the Travel Industry

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ABSTRACT

The development of the Internet during the 1990s has provided a new electronic infrastructure which facilitate new means of communication and information exchange. The tourism industry is one of many industries that are highly dependent on information by means of promotion in different media. Millions of travelers already have gained access to the Internet and the number of Internet users is still growing rapidly. Recently, by way of streaming media technology, audio and video streaming over the Internet has become more popular. This technology brought the multimedia materials including video and audio to the Web without having long time waiting. With streaming media technology, hotels, travel agents, theme parks, airlines, car rentals and restaurants can have a multimedia material ready to play for their potential customers all over the world. In additions, streaming technology can also be used in the tourism education purposes, such as long distance learning, video on demand (VOD), etc.

This paper first describes the technology of streaming media, then illustrate how this technology can be used in the travel industry, and finally this paper constructs an Internet-based multimedia interpretation system at Taipei Confucius Temple, Taipei, Taiwan as an example of how to apply the streaming media in the travel industry.

Key Words: Streaming Media, Quick Time Movie, Video On Demand (VOD)

Effective communication is of vital importance to tourism marketing activities. The tourism industry is one of many industries that are highly dependent on information by means of promotion in different media. The advent of radio, television and now the Internet have accelerated communication activities. Millions of travelers already have gained access to the Internet and the numbers of Internet users is still growing rapidly. Recently, by way of streaming media technology, audio and video streaming over the Internet has become more and more popular. More specifically, Forrester Research projects indicated that by the year 2004, Americans will spend $28.9 billion online for leisure travel, and $20.3 billion for business travel. Arbitron reports that in January 2001 alone, there were 30 million people using streaming media. Users increasingly expect video to be part of their online travel experience.

Traditionally, watching the video and audio on the Internet is almost an mission-impossible task. Now, with this technology, the traveler can easily gain the multimedia travel information (video, audio) over the Internet in their home computers. Other than a few seconds of delay before the file starts to play, the potential customers don't have to wait to start watching, no matter if the file lasts 30 seconds or 30 minutes. This is a big step for the whole electronic commerce industry as well

as the travel industry. With streaming media technology, hotels, travel agents, theme parks, airlines, car rentals and restaurants can have a multimedia material ready to play for their potential customers all over the world. In additions, streaming technology can also be used in the tourism education purposes, such as e-learning, video on demand (VOD), etc., This paper first describes the technology of streaming media, then illustrate how this technology can be used in the travel industry, and finally this paper construct an Internet-based multimedia interpretation system at Taipei Confucius Temple, Taipei, Taiwan as an example of how to apply this technology in the travel industry.

LITERATURE REVIEW

The emergence of web-based streaming media provides an alternative channel for the tourism industry to delivery destination-related information in the forms of video and audio, and this allows potential travelers to get more flavorful information to form more vivid destination images. Individuals actively seek visual or aesthetic information to make "more informed" judgments when making the decisions required for a pleasure trip.

Gunn (1972) have demonstrated that there is a positive relationship between positive perceptions of destinations and decision-making. The importance of image formation is especially relevant to tourist development because a tourist's image is generally very resistant to change once it has been formed. Hunt (1975) stated that a positive image motivates travel to the given destinations by promising positive rewards from travel there.

Currently, the use of streaming media in the travel industry is rare. However, the trend to use streaming technology in innovative ways for the travel industry will become more and more popular. For example, the City of Seattle (http://www2.ci.seattle.wa.us/media/) is committed to using streaming media available to deliver information that is useful, relevant, and appropriate formats available on the Internet.

Launched in early 1999, AdventureTV.com (http://www.adventuretv.com/) has become the leading branded streaming media broadcaster and distributor of content that covers the adventure travel, and nature oriented educational infotainment niche. It also offers on-demand video focusing on broadband distribution of interactive content; serving as an aggregator and distributor of travel, educational, nature, and adventure destination video.

Founded in 1999, the travelago (http://www.travelago.com/) offers the video destination guide for leisure and business travel. It provides travel destination and tourist information for US and international vacation hot spots.

Ipicture.com (http://www.ipicture.co.uk/uk/ index.cfm) offers video clips (Apple Quick Time format) of the country of the user choice.

In additions, Cayman Island (http://www.caymanislands.ky/) provides video clips. (both RealNetwork and Windows Media formats at different bandwidth).

ABOUT STREAMING MEDIA

Streaming Media is a method of making audio, video and other multimedia available in real-time over the Internet or corporate intranets, with no download wait and no file to take up space on the user's hard disk. With streaming media technology, the user can play multi-media online without waiting.

WHY STREAMING MEDIA

However, someone may argue that why not to have download media directly from a web page and play it back while the entire file has been downloaded to the computer. It is true that the growing bandwidth of computer networks, together with the more efficient use of that bandwidth to download the media data into a file, then opened and played the file. Playing the data directly as it downloads presents a number of advantages. Downloaded media requires large amounts of disk

space on the users system. Streaming media avoids this because the client workstation stores only a few moments of content as a buffer in RAM, rather than the entire content on disk. Further, Streaming media allows the viewer to jump directly to the section of the content of interest. On the contrary, the download media or conventional media where the entire content of a media file is downloaded. When the user skips to a different section of a streaming presentation, the server jumps directly to that point in the presentation, and transmits only the requested information. Streaming media is a natural fit for live network broadcasts. A camera can be connected to a PC (Server), its signal encoded and sent out immediately over the network. The client receives display, then discards the broadcast. No large files are generated on the client or the sever. In summary, streaming media helps to solve the problem of making multimedia content immediately available, whereas the Downloaded media requires large amounts of disk space on the users system. Moreover, it is a trade-off between the time consuming and the quality of the multimedia quality.

TYPES OF STREAMING MEDIA

Streaming media allows audio and video to be delivered via the Internet through continuous and simultaneous download and playback. Streaming media requires special software, called players, such as RealPlayer, Windows Media Player and Apple Quick Time Player.

There are three types of streaming media formats, namely, RealNetwork, Windows Media Technology, and Apple Quick Time described in the following:

QuickTime current player, 6.0 at the time of this writing, will play so many varieties of media that we can't mention them all here. Apple has tried very hard to make QuickTime compatible with all open standards. However, currently QuickTime won't play: Real Media and Windows Media Player.

RealMedia was developed by the RealNetwork Corporation. Currently it is the most popular streaming media software both on and off campus. Their proprietary compression techniques provide high quality video with limited bandwidth. The Real Media playback codec is planned to include compatibility with QuickTime, but at present it only accommodates video encoded with RealMedia encoders. Of these, there are essentially two from which to choose: Version 5.0, compatible with Mac and PC, but an older technology; G2, offering better quality but only compatible on the Mac platform with G3 processors.

Windows Media was developed by the Microsoft Corporation. The Windows Media provides streaming audio and video support for NT server. Originally, the Windows Media was derived from the NetShow. NetShow provides live multicasting of audio and on-demand streaming of stored audio, illustrated audio (audio synchronized with images), and video. NetShow 3.0, streams Advanced Streaming Format (ASF) at a variety of rates. NetShow can also stream Powerpoint presentations, making it very useful for directly streaming class notes. Unlike the RealMedia, Windows media provides free download tools to produce streaming media. Simply because of the ubiquity of Microsoft operating systems and the Explorer browser, this codec is well worth considering for the PC platform. Some of its capabilities have yet to be brought to the Mac platform.

HOW TO MAKE STREAMING MEDIA

There are five steps to make streaming media described in the following: (As shown in Figure 1)

Step 1: To make streaming media, the users first need to prepare some source material (such as audio, video and other content). The way to get multimedia material is the process of acquiring video, such as videotaping or shooting or recording audio.

Step 2: To have their content digitized and encoded before the computer can process the

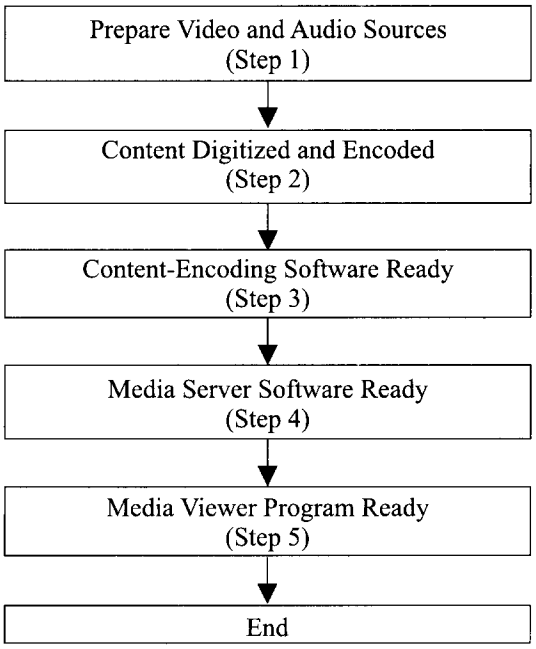

Fig. 1. Five Steps for Making Streaming Media

multimedia material. Before your audio or video (content) can be delivered over the Internet, they must be put into a digital format (this process is called digitizing) and then compressed (this process is called encoding). Both RealNetwork and Microsoft Windows Media recommend the video capture card is namely "Osprey 100 video-capture card". This video capture card has been tested and proved that having a good capability in the video image quality. It is perfect for live broadcasts or video on-demand (VOD) from the input source such as VCR, camcorder, Beta SP, PC Cameras, or any other analog video source. However, most of MPEG-1 compression cards are not suitable for producing streaming media.

Step 3: To have Content-encoding software ready, such as RealSystem Producer Plus for the RealNetwork System, Windows Media Tools for the Microsoft Windows Media System, and QuickTime 4 Pro for the Apple Quick Time System.

Step 4: To broadcast streaming video, the users need to have media a server software ready, such as RealSystem Server Plus for the RealNetwork System, Windows Media Server for the Microsoft Windows Media System, and Quick Time Streaming Server for the Apple Quick Time System. However, if the users don't want to put their streaming media on the media server, it is not necessary to have a server software. Just put streaming media on the web server in stead. The disadvantage of putting streaming media on the web server is the copyright problem. It is very easy for the viewer to download streaming media you leave on the web server and to have illegal duplication without permission.

Step 5: To view streaming video on the Internet, the users need to offer streaming media viewer plug-in program, such as Real Player Gold for the RealNetwork System, Windows Media Player for the Microsoft Windows Media System, and Quick Time 6 Movie Player for the Apple Quick Time System.

Moreover, with a higher bandwidth connection, more frames per second could be received. With a 128 kbps ISDN connection for example, 32 5K frames could be delivered per second. A dialup Internet connection just does not have enough bandwidth to enjoy a very rich multimedia experience. Therefore, it is highly recommended having a ADSL or Cable Modem to enjoy a rich multimedia experience.

STREAMING MEDIA APPLICATIONS

Streaming media can be used in many fields, such as entertainment (movie & music introduction, fashion TV, films, news broadcasting, game development and sports), corporate commercials (corporate introduction, demonstration, product information, sales & marketing, human resource & training, video conference), real estate, sports, hobbies, special interest. Still, streaming media today is used mostly for consumer applications on news broadcast and entertainment Web sites such as CNN.com and Launch.com. These sites use streaming technology to offer content, audio and video that isn't getting on radio and television. In a business setting, the most common uses for

streaming media are business communication, training (video-based distance training, video conference), product demonstrations, and education (video on demand).

THE DEFECTS OF STREAMING MEDIA

Low bandwidth and poor quality continue to limit the successful distribution of audio and video on the Web. One of the major problems for streaming media is the quality of the video. Since most users still do not have sufficient bandwidth to receive streaming video in an acceptable quality. Therefore, the quality of streaming video won't improve to a full screen of motion picture until the bandwidth problem has been solved. In contrast, streaming audio has sufficient quality to be used whenever audio is an appropriate way of communicating with the user. Since the size of streaming audio is quite small compare to streaming video, the quality of streaming audio is still acceptable.

In fact, for the travel industry, airlines, hotels, travel agents, tour operators, cruise lines, travel marketers, as well as corporate trainers, can cost-effectively showcase compelling video in the dynamic online environment to increase sales and attract the potential travelers. Streaming media lets travel companies provide site visitors with tours of travel destinations, conduct creative online promotions, and enable customers to share their own video journeys. Additionally, travel businesses can use compelling streaming video and audio in their corporate training efforts. In summary, streaming media applications in the travel industry include:

- **Digital Video Library:** to develop a digital video library system with searching and browsing capabilities for use in hospitality education and training, tourist information, and electronic entertainment system.
- **Distance Learning or Interpretation Service:** to provide e-learning (distance learning) or interpretation service at the theme park or VOD (Video On Demand) for tourism educational purposes or interpretation service (as shown in Figure 2).
- **Streaming Live Cast:** to offer live traveler information at the attractions for destination marketing or weather report uses (as shown in Figure 3).
- **Video Travelogues:** to create and share travelers' video journeys who provide value-added pre-trip video services to potential tourists by offering intelligent searching and browsing capabilities (as shown in Figure 4).
- **Destination Promotion:** to produce short streaming video tailored for Internet distribution (as shown in Figure 4).
- **Virtual Tours:** to deliver original and branded destination in virtual reality embedded with virtual reality over the Internet. (as shown in Figure 5).
- **E-Commerce Integration:** to integrate with existing advertising and e-commerce framework.

Therefore, from the above discussion, we conclude the advantages of streaming media as following:

- to effectively identify and evaluate experiential attributes of the destination prior to actual travel experience.
- to save costs for information search and facilitate the search for experiential information.
- to modify tourist's destination image.
- to enable tourists to become more confident about their trip.
- to increase satisfaction with actual travel experience.

INTERNET-BASED MULTIMEDIA INTERPRETATION SYSTEM

As described above, streaming media can be used in the travel industry in many fields. This study conducted a project to create an Internet-based multimedia interpretation system at Taipei Confucius Temple, Taipei, Taiwan as an example of how to apply streaming media technology in the

Fig. 2. Distance Learning System at Cornel University

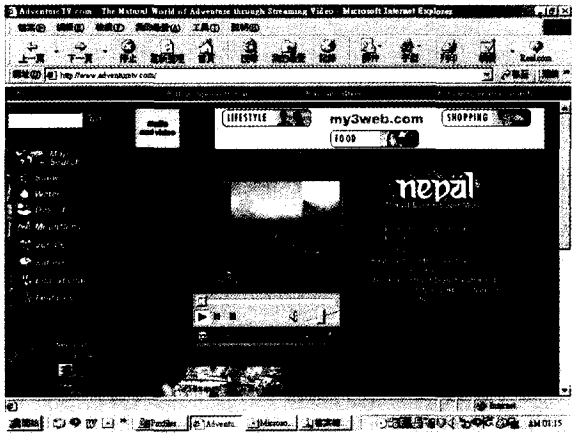

Fig. 4. Video on Demand at Adventure TV Website

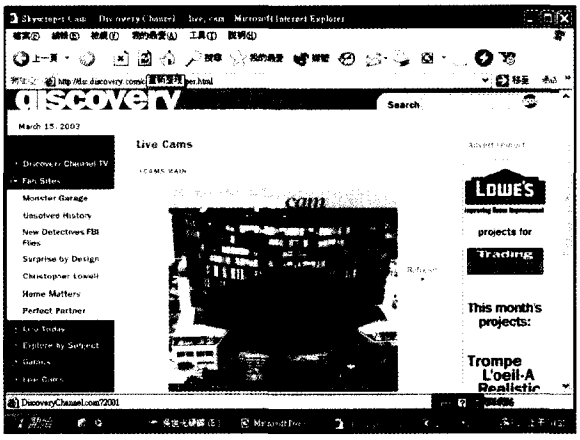

Fig. 3. Streaming Live Cast System at Discovery Channel

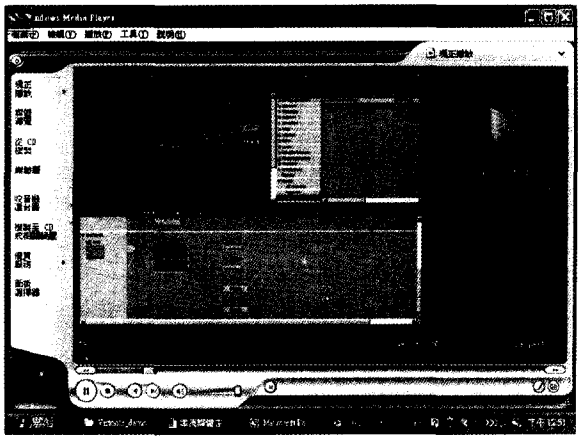

Fig. 5. irtual Tour at Fisherman's Wharf, Tamsui, Taiwan

travel industry. With this system, the travel agents can provide potential travelers for their pre-trip and in-trip tourist information. As shown in Figure 6 & Figure 7, the Internet-based multimedia interpretation system delivered multimedia (audio and video) information by using technology of streaming media. This is an innovative way to deliver tourist information that is useful, relevant, and appropriate, in the richest and most informative formats on the Internet. The video shows the interpreter guiding tourists to Taipei Confucius Temple and illustrating each attraction inside Taipei Confucius Temple. PowerPoint slides were used to present the interpretation contents of the inter preter. The PowerPoint slide will automatically change itself to the topic that the interpreter is talking to. In the future, this PowerPoint slide can be replaced by Virtual Reality. This example demonstrates that the system can be used for potential travelers to share their own video journeys over the Internet as well as for the travel industry as a cost-effectively showcase to increase sales and attract the potential travelers. Additionally, travel businesses can use it in their corporate training efforts (such as on job training).

CONCLUSIONS

The emergence of web-based streaming media provides an alternative channel for the tourism industry to delivery destination-related information

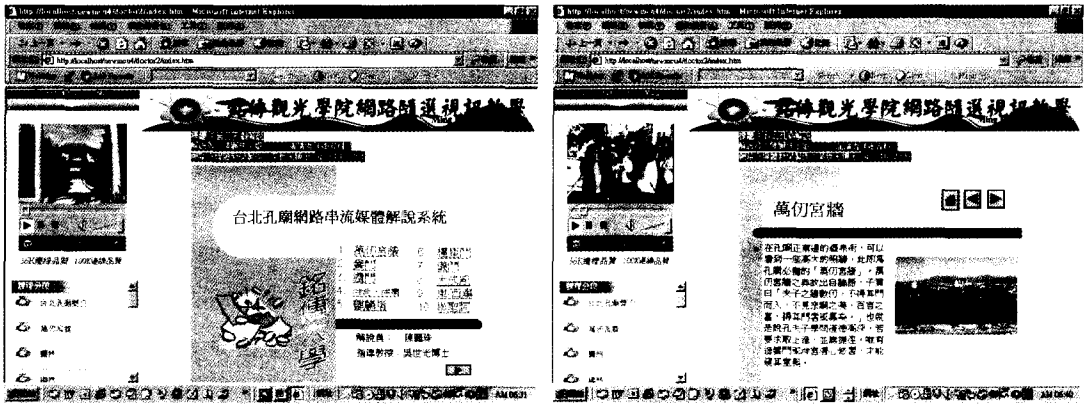

Fig. 6. Internet-based Multimedia Interpretation System (a) & (b)
(http://210.59. 104.249/doctor2/doctor2/index.htm)

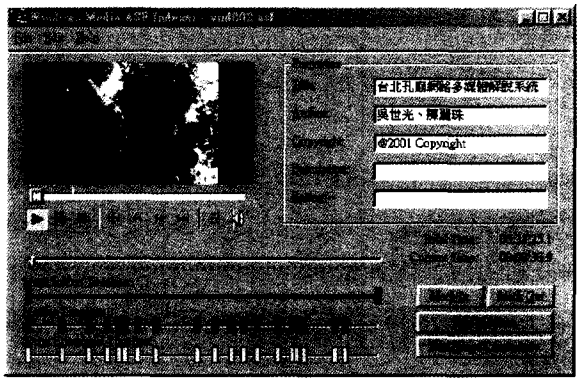

Fig. 7. Streaming Media Index System

in the forms of dynamic images and sounds, and this allows potential travelers to get more flavorful information to form more vivid destination images.Instead of downloading an entire file to a consumer's system before it begins to play, streaming media downloads the beginning of the file, starts playback, and then streams the remainder of the file in the background while the file continues to play. This process allows potential travelers to enjoy rich media content immediately instead of having to wait for an entire file to be downloaded before playback begins.

In the future, streaming video will exist in any platform, such as PC, cell phone, PDA (PALM) It will become a very good communication way and very useful tool for the potential travelers.

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