

METHOD AND APPARATUS FOR MULTIMEDIA FILE TRANSCODING

Technical Field

The present invention relates to multimedia processing, and particularly, to a method and apparatus for multimedia file transcoding.

Background

Along with the fast growing information technology, multimedia technologies have been widely used in people's work and study. Achievements in network technologies are driving the multimedia technologies to grow further to become the fastest growing technology in the information industry. For further development of multimedia services and to satisfy the diversified requirements of people's work and daily life, pluralities of audio and video encoding standards are created for different service requirements by a number of standardization organizations, e.g., the H.263 standard for visual telephone service and video conference service, the MPEG-2 standard for digital video broadcasting (DVB) service, high density TV (HDTV) service and DVD, the MPEG-4 standard for internet stream media services, the H.264 standard for high performance video compression and being network friendly, and so on.

Since there are multiple audio and video encoding standards and different requirements for compression efficiency, decompression speed, target device of code streams in multimedia applications, there are various media files which have different file formats, video formats and compression formats. In order to make fully use of current multimedia resources, there is a transcoding technique for converting a file between multiple audio and video encoding standards. At present, the transcoding technique is catching more and more public attention, and more and more research work and developments are done in the field.

Software or hardware tools performing conversion between multiple audio and video encoding standards are referred to as transcoders. Since there are various target devices, e.g., the most frequently used devices including various models of mobile phones, various models of handheld entertainment devices such as MP4, MP3, PSP and so on, sometimes it is hard to select transcoding parameters that can be used by the handheld device for

display a media file and it is even harder for an ordinary user to identify a set of transcoding parameters suitable for the handheld device of the user from a collection of rather complex and highly technical transcoding parameter options, which thus places an invisible obstacle for users who may want to use a transcoder. In addition, a transcoder may generally occupy a large amount of CPU resources when transcoding a source multimedia file into a target multimedia file according to transcoding parameters. When multiple users need to transcode the same source multimedia file using the same transcoding parameters, multiple transcodings performed are a waste of resources.

Summary

Embodiments of the present invention provide a method and an apparatus for transcoding a multimedia file to solve a problem of resource wasting in current transcoding of multimedia files.

The present invention is achieved through the following technical schemes.

A method for multimedia file transcoding may include:

A, receiving a source multimedia file and at least one transcoding parameter provided by a user; and

B, searching in a peer-to-peer (P2P) network for a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter, and downloading the target multimedia file from the P2P network.

An apparatus for a multimedia file transcoding may include:

an information receiving module, for receiving a source multimedia file and at least one transcoding parameters provided by a user; and

a peer-to-peer (P2P) network managing module, for searching in a P2P network for a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter, and downloading the target multimedia file from the P2P network.

In view of the foregoing technical schemes, embodiments of the present invention receive a source multimedia file and at least one transcoding parameter inputted by a user, search in a P2P network for a target multimedia file obtained by using the source multimedia file and the at least one transcoding parameter, and download the target multimedia file from the P2P network, therefore, there is no need for each user to perform

the transcoding when multiple users need to transcode the same source multimedia file using the same transcoding parameters, and resources will not be wasted in transcoding the same multimedia file in multiple devices.

Brief description of the drawings

Fig. 1 is a flowchart illustrating a method for transcoding a multimedia file according to an embodiment of the present invention.

Fig. 2 is a block diagram illustrating a basic structure of an apparatus according to an embodiment of the present invention.

Fig. 3 is a block diagram illustrating a detailed structure of an apparatus according to an embodiment of the present invention.

Detailed description of examples

The present invention is further explained hereinafter in detail with reference to the accompanying drawings as well as embodiments so as to make the objective, technical solution and merits thereof more apparent. It should be appreciated that the embodiments offered herein are used for explaining the present invention only and shall not be used for limiting the protection scope of the present invention.

According to an embodiment of the present invention, after a source multimedia file and at least one transcoding parameter provided by a user is received, a target multimedia file obtained based on the source multimedia file and the at least one transcoding parameter is searched in and downloaded from a peer-to-peer (P2P) network according to the source multimedia file and the at least one transcoding parameter. Therefore, when a user wants to transcode a source multimedia file into a target multimedia file, the target multimedia file will be searched in an underlying P2P sharing network according to the source multimedia file and the at least one transcoding parameter; when the target multimedia file is found, it is directly downloaded from the P2P network. Thus, when multiple users need to transcode the same source multimedia file using the same transcoding parameter, there is no need for each user to perform the transcoding, thus the problem of a large quantity of CPU resources of a lot users being occupied for performing the same transcoding process can be avoided. The target multimedia file is downloaded instead of being generated from transcoding, thus CPU resources are saved and it is much easier for users to use.

A detailed description of examples is hereinafter given with reference to specific implementations and the accompanying drawings.

Fig. 1 is a flowchart illustrating a method for transcoding a multimedia file according to an embodiment of the present invention. As shown in Fig. 1, the method may include the following procedures.

In block S101, a source multimedia file and at least one transcoding parameter provided by a user is received.

The transcoding parameter may include a parameter of a target multimedia file, such as one of a file container format, a video format, a video size, a video frame rate, a video code rate, an audio format, an audio code rate, an audio sampling rate, the number of audio tracks, and so on.

In block S102, a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter is searched for and downloaded from a P2P network.

It should be noted that the above procedures in blocks S101 and S102 may be implemented by a transcoder or a function module in a transcoder, and the implementing device is not restricted herein.

Detailed implementation of the block 102 may be determined based on whether there is an inquiry server in the P2P network. Exemplary implementations of block S102 respectively for a P2P network having an inquiry server and for a P2P network having no inquiry server are described below.

When the P2P network has an inquiry server, the block S102 may include the following procedures.

A1, an inquiry request for a target file is sent to an inquiry server in the P2P network. The inquiry request may include information of the source multimedia file and information of the at least one transcoding parameter to enable the inquiry server to search for and return a list of clients corresponding to the information of the source multimedia file and the information of the at least one transcoding parameter in the inquiry request.

According to an embodiment, the information of the source multimedia file in the inquiry request is information for identifying the source multimedia file, and may include a Hash value of the source multimedia file, or other information that can be used for identifying the source multimedia file.

According to an embodiment, the information of the at least one transcoding parameter in the inquiry request is information for identifying the at least one transcoding parameter, and may include a playing effect or other information that can be used for identifying the transcoding parameter. In order to accurately identify the relationship between the transcoding parameter and the information of the transcoding parameter, for example, when the information of the transcoding parameter is a playing effect, the relationship between the playing effect and the transcoding parameter should be established in advance. For example, when the playing effect is “the best playing effect”, corresponding transcoding parameters may include: a video format, a video size, a video frame rate, a video code rate, an audio format, an audio code rate, an audio sampling rate, the number of audio tracks; when the playing effect is “the worst playing effect”, corresponding transcoding parameters may include: a video format, a video size, a video frame rate, a video code rate, an audio format, an audio code rate, an audio sampling rate, the number of audio tracks.

A2, a target multimedia file which is obtained by transcoding the source multimedia file using the transcoding parameter is downloaded from clients in the list of clients returned by the inquiry server.

Thus, the target multimedia file corresponding to the source multimedia file is obtained.

Preferably, according to another embodiment, after the step A2, the method may further include the following step:

A3, after the target multimedia file is downloaded in step A2, the inquiry server adds a client that downloaded the target multimedia file into the list of clients.

To further clarify the above steps A1 to A3, an example is described herein.

Suppose the name of a source multimedia file provided by user A is “hacker.avi”, a transcoding parameter provided by user A is “target device is a PSP, the best playing effect”, and a relation which associates the transcoding parameter with information of the

transcoding parameter is established in advance. If the information of the transcoding parameter is an integer, the relation between the information of the transcoding parameter and the transcoding parameter may be: the transcoding parameter of "target device is a PSP, the best playing effect" is corresponding to 1, and the transcoding parameter "target device is a PSP, the worst playing effect" is corresponding to 2. In step A1, an inquiry request for target file is sent to an inquiry server in the P2P network, and the inquiry request may include information of a source multimedia file, e.g., a Hash value of the source multimedia file and the integer number 1. When the inquiry server finds out it stores a list of clients corresponding to the information of the source multimedia file in the inquiry request, e.g., the Hash value and the integer 1, the inquiry server returns the list of clients to the client of user A. If the inquiry server does not have the list, the inquiry server returns a message indicating a downloading failure to the client of user A.

In step A2, after receiving the list of clients returned by the inquiry server, the client of user A downloads the target multimedia file from clients in the list of clients.

In step A3, after the downloading in step A2 is completed, the inquiry server adds the client of user A into the list of clients.

The above is a description of the implementation of block S102 when the P2P network has an inquiry server. The following describes the implementation of block S102 when the P2P network does not have an inquiry server.

When the P2P network does not have an inquiry server, the block S102 may include the following procedures.

B1, an inquiry request is sent to clients in a client list stored in the client of user A in advance. The inquiry request may include information of a source multimedia file and information of at least one transcoding parameter to enable the client receiving the inquiry request to return a list of clients which store the information source multimedia file and the information of the at least one transcoding parameter.

According to an embodiment of the present invention, when the client receiving the inquiry request stores a list of clients corresponding to the information of the source multimedia file and the information of the at least one transcoding parameter in the inquiry request, the client directly returns the list of clients; when the client does not have the list, the client may send the received inquiry request to clients in a client list stored in

the client in advance, and the process is repeated until a client which has the list of clients corresponding to the information of the source multimedia file and the information of the at least one transcoding parameter returns the list of clients. It should be noted that if it turns out to be that there is no client that stores the list of clients corresponding to the information of the source multimedia file and the information of the at least one transcoding parameter, the last client that receives the inquiry request may return a message indicating a downloading failure.

B2, a target multimedia file which is obtained by transcoding the source multimedia file using the transcoding parameter is downloaded from clients in the list of clients received.

Thus, the target multimedia file corresponding to the source multimedia file is obtained.

Preferably, according to another embodiment, after the step B2, the method may further include the following step:

B3, after the downloading is completed, the client which has downloaded the target multimedia file informs all clients in the pre-stored client list to add the client into respective list of clients corresponding to the information of the source multimedia file and the information of the at least one transcoding parameter.

To further clarify the above steps B1 to B3, an example is described herein.

Suppose the name of a source multimedia file provided by user A is "hacker.avi", the transcoding parameter provided by user A is "target device is a PSP, the best playing effect", and a relation which associate the transcoding parameter with information of the transcoding parameter has been established in advance. If the information of transcoding parameter is an integer, the relation between the transcoding parameter and the information of the transcoding parameter may be: the transcoding parameter of "target device is a PSP, the best playing effect" is corresponding to the integer 1, and the transcoding parameter of "target device is a PSP, the worst playing effect" is corresponding to the integer 2, and etc.. In the above step B1, the client of user A may send an inquiry request to each client in a pre-stored IP list of clients. The inquiry request may include information of the source multimedia file such as a Hash value and integer 1. If the client receiving the inquiry request stores a client list corresponding to the

information of the source multimedia file such as the Hash value and the integer 1, the client directly returns the client list to the client of user A. If the client does not store the client list, the client may send the received inquiry request to clients in a client list stored in the client. Then the process is repeated until a result is returned to the client of user A. If there is no client that stores the list of clients corresponding to the information of the source multimedia file such as the Hash value and the integer 1 in the inquiry request, the last client that received the inquiry request returns a message indicating a downloading failure to the client of user A.

In step B2, after receiving the client list, the client of user A downloads the target multimedia file from clients in the client list.

In step B3, after the downloading of step B2 is completed, the client of user A informs all clients in the pre-stored client list to add the client of user A into respective client list corresponding to the information of the source multimedia file such as the Hash value and the integer 1.

According to embodiments of the present invention, other schemes may be adopted for searching for the target multimedia file according to the transcoder adopted, and should not be limited to the above examples. According to an embodiment of the present invention, a P2P network connecting the user with other users is established in advance. When receiving the source multimedia file and the transcoding parameter inputted by the user, the client searches in the P2P network for the target multimedia file which is obtained by transcoding the source multimedia file using the transcoding parameter. If the target multimedia file is not found in the P2P network, the client transcodes the source multimedia file using the transcoding parameter to generate the target multimedia file. The transcoding process belongs to prior art, and will not be described further.

When the target multimedia file is found in the P2P network, the target multimedia file may be directly downloaded from the P2P network. Alternatively, options may be outputted to a human-computer interaction interface to make the user select a manner of obtaining the transcoded multimedia file via the human-computer interaction interface. According to the manner selected by the user, the target multimedia file is obtained by downloading from the P2P network or by transcoding the source multimedia file using the transcoding parameter.

During searching of the target multimedia file in the P2P network, if the transmission speed of the P2P network is slow, it may take a long time to search for the target multimedia file in the P2P network, which may adversely impact the service experience perceived by the user. To avoid such problems, an embodiment of the present invention may further include the following steps:

If the target multimedia file is not found in the P2P network within a pre-set period of time, the client transcodes the source multimedia file using the transcoding parameter to generate the target multimedia file. The pre-set period of time may be set by the user and is only related with the value set by the user, or may be obtained from statistics and embedded in the software (generally, there is little chance of getting the target multimedia file after the pre-set period of time expires).

It can be seen from the above that although transcoding of a source multimedia file according to a transcoding parameter may occupy a lot of CPU resources, when the network speed is slow, it may also take a long time to search for and download a target multimedia file from the P2P network. An embodiment of the present invention makes an attempt to find a balancing point between transcoding speed and resource consumption. According to the embodiment, the method may include the following steps between block S102 is performed.

The time needed for transcoding is estimated based on the source multimedia file and the transcoding parameter. When the time estimated is longer than a pre-set time, block S102 is performed; otherwise, the source multimedia file is transcoded by using the transcoding parameter to obtain the target multimedia file.

The method of estimating the time needed for transcoding based on the source multimedia file and the transcoding parameter may include:

the time needed for transcoding = a basic time $\times$ a coefficient corresponding to the resolution ratio of the source multimedia file $\times$ duration of the source multimedia file $\times$ a coefficient corresponding to the encoding format of the target multimedia file $\times$ a coefficient corresponding to the computing capacity of the user PC. Each coefficient is an average value obtained from tests on several testing machines. For example, supposing the coefficient of the encoding format of H.263 is set as 1, when the encoding

format of the target multimedia file is H.264, the coefficient of the encoding format of H.264 may be set as 2.3 since the complexity of H.264 is higher than that of H.263.

Estimation of the time needed for transcoding in other embodiments may adopt other estimating algorithms based on practical needs of the transcoding, and the algorithm is not limited to the above examples.

For facilitating sharing of the target multimedia file, according to an embodiment, after transcoding the source multimedia file using the transcoding parameter to obtain the target multimedia file, the method may further include the following step:

sharing the target multimedia file in the P2P network for other users in the P2P network to download.

The above are descriptions of the method of the present invention. The following are descriptions of the apparatus of the present invention.

Fig.2 is a block diagram illustrating a structure of an apparatus according to an embodiment of the present invention. To be concise, only the parts related with the embodiment of the present invention are shown in Fig.2. In practice, the apparatus may be a transcoder or other apparatuses that have transcoding capabilities, and this is not limited in the present invention.

As shown in Fig. 2, the apparatus may include the following components.

An information receiving module 21 is for receiving a source multimedia file and at least one transcoding parameters provided by a user.

The transcoding parameter may include, but not limited to, a format of file container, a video format, a video size, a video frame rate, a video code rate, an audio format, an audio code rate, an audio sampling rate, the number of audio tracks, and so on.

A P2P network managing module 22 is for searching in a P2P network for a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter received by the information receiving module 21, and downloading the target multimedia file from the P2P network.

In an embodiment of the present invention, the P2P network managing module 22 may establish the P2P network with other users when the apparatus is startup or when the information receiving module 21 received the source multimedia file and the transcoding

parameter. The target multimedia file refers to a multimedia file obtained by transcoding the source multimedia file using the transcoding parameter.

The above gives a brief description of the apparatus provided by embodiments of the present invention, and the following will describe the apparatus provided by embodiments of the present invention in detail.

Fig. 3 is a block diagram illustrating a structure of an apparatus according to an embodiment of the present invention. As shown in Fig. 3, the apparatus may include an information receiving module 31 and a P2P network managing module 32. The information receiving module 31 and the P2P network managing module 32 are similar with the information receiving module 21 and the P2P network managing module 22 of Fig. 2, thus will not be described further.

When the network speed is slow, it may take a long time to search for and download the target multimedia file from the P2P network. To balancing the transcoding speed and resource consumption, the transcoder of an embodiment may also include a transcoding time estimating module 33 and a transcoding module 34.

The transcoding time estimating module 33 is for estimating the time needed for transcoding based on the source multimedia file and the at least one transcoding parameter. The method of the transcoding time estimating module 33 estimating the time needed for transcoding based on the source multimedia file and the at least one transcoding parameter may include:

the time needed for transcoding = a basic time $\times$ a coefficient corresponding to the resolution ratio of the source multimedia file $\times$ duration of the source multimedia file $\times$ a coefficient corresponding to the encoding format of the target multimedia file $\times$ a coefficient corresponding to the computing capacity of the user PC. Each coefficient is an average value obtained by performing tests on several testing machines. Estimation of the time needed for transcoding may adopt other estimating algorithms based on practical needs of the transcoding, and the algorithm is not limited to the above examples.

The P2P network managing module 32 is further for judging whether the time needed for transcoding estimated by the transcoding time estimating module 33 is longer than a pre-set time, searching in the P2P network for and downloading the target

multimedia file corresponding to the source multimedia file and the transcoding parameter received by the information receiving module in response to a determination that the time needed for transcoding estimated by the transcoding time estimating module 33 is longer than a pre-set time, or sending an instruction to the transcoding module 34 in response to a determination that the time needed for transcoding estimated by the transcoding time estimating module 33 is not longer than the pre-set time.

The transcoding module 34 is for transcoding the multimedia file according to the at least one transcoding parameter after receiving the instruction to generate the target multimedia file.

According to another embodiment of the present invention, when the transmission speed of the P2P network is slow, it may take a long time to search in the P2P network for the target multimedia file, which may deteriorate the service experience perceived by the user. To avoid the problem, the P2P network managing module 32 of an embodiment of the present invention may instruct the transcoding module 34 to transcode the source multimedia file using the transcoding parameter to generate the target multimedia file when the target multimedia file is not found in the P2P network.

Preferably, as shown in Fig. 3, the transcoding module 34 may include an audio video separating unit 341, a video transcoding unit 342, an audio transcoding unit 343 and a target file generating unit 344.

The audio video separating unit 341 is for parsing the source multimedia file received by the information receiving module 31, and separating the source multimedia file into an audio stream and a video stream. The process belongs to prior art, and will not be described further.

The video transcoding unit 342 is for transcoding the video stream obtained by the audio video separating unit 341 according to the at least one transcoding parameter received by the information receiving module 31. The process belongs to prior art, and will not be described further.

The audio transcoding unit 343 is for transcoding the audio stream obtained by the audio video separating unit 341 according to the at least one transcoding parameter received by the information receiving module 31. The process belongs to prior art, and will not be described further.

The target file generating unit 344 is for combining a video stream obtained by the video transcoding unit 342 with an audio stream obtained by the audio transcoding unit 343 to generate the target mutli-media file. The process belongs to prior art, and will not be described further.

For facilitating sharing of the target mutli-media file, the transcoder of an embodiment of the present invention may also include a file sharing module 35. The file sharing module 35 is for sharing the target mutli-media file generated by the transcoding module 34 in the P2P network for other users in the P2P network to download.

In embodiments of the present invention, the structure of the P2P network managing module 32 is in connection with whether the P2P network has an inquiry server. When the P2P network has an inquiry server, the P2P network managing module 32 may include a first inquiry request sending unit and a first file downloading unit.

The first inquiry request sending unit is for sending an inquiry request for target file to an inquiry server in the P2P network. The inquiry request may include information identifying the source multimedia file and information identifying the transcoding parameter to enable the inquiry server to return a list of clients corresponding to the source multimedia file and the transcoding parameter.

In an embodiment of the present invention, the information of the source multimedia file in the inquiry request may be a Hash value of the source multimedia file. The information of the transcoding parameter in the inquiry request may be a playing effect. A relation between the playing effect and the transcoding parameter needs to be established in advance.

The first file downloading unit downloads the target multimedia file corresponding to the source multimedia file and the transcoding parameter from clients in the list of clients returned by the inquiry server.

When the P2P network does not have an inquiry request, as shown in Fig. 3, the P2P network managing module 32 may include a second inquiry request sending unit and a second file downloading unit.

The second inquiry request sending unit sends an inquiry request to each client in a client list stored in the apparatus in advance. The inquiry request may include information for identifying the source multimedia file and information for identifying the transcoding

parameter to enable a client receiving the inquiry request to return a list of clients corresponding to the source multimedia file and the transcoding parameter.

According to embodiments of the present invention, when the client receiving the inquiry request stores a list of clients corresponding to the source multimedia file and the transcoding parameter, the client returns the list of clients; when the client receiving the inquiry request does not store a list of clients corresponding to the source multimedia file and the transcoding parameter, the client sends an inquiry request to clients in a pre-stored client list. The inquiry request may include information of the source multimedia file and information of the transcoding parameter. And the process is repeated until a client is found to store the list of clients corresponding to the source multimedia file and the transcoding parameter. If there is no such client, a message indicating downloading failure is returned to the apparatus.

The second file downloading unit downloads the target multimedia file corresponding to the source multimedia file and the transcoding parameter from clients in the list of clients received.

The apparatus of the present invention are described in the above.

In view of the foregoing technical schemes, when a source multimedia file and at least one transcoding parameter provided by a user is received, a target multimedia file corresponding to the source multimedia file and the transcoding parameter is searched for and downloaded in a P2P network. Therefore, when multiple users want to transcode the same source multimedia file using the same transcoding parameter, it is not necessary for each user to perform the transcoding, thus resources can be saved.

Further, embodiments of the present invention estimate the time needed for transcoding, search for and download the target multimedia file from a P2P network according to the source multimedia file and the transcoding parameter when the time estimated is longer than a pre-set time, and transcode the source multimedia file according to the transcoding parameter to generate the target multimedia file when the time estimated is not longer than the pre-set time, thereby obtain a balance between the transcoding speed and resource consumption, save as much resources as possible for users, and obtain the target multimedia file within a reasonable length of time.

The foregoing description is only preferred embodiments of the present invention and is not for use in limiting the protection scope thereof. All the modifications, equivalent replacements or improvements in the scope of the present invention's principles shall be included in the protection scope of the present invention.

Claims

1. A method for transcoding a multimedia file, comprising:

receiving a source multimedia file and at least one transcoding parameter provided by a user; and

searching in a peer-to-peer (P2P) network for a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter, and downloading the target multimedia file from the P2P network.

2. The method of claim 1, wherein searching in a P2P network for a target multimedia file and downloading the target multimedia file from the P2P network comprise:

sending to an inquiry server in the P2P network an inquiry request which includes information identifying the source multimedia file and information identifying the at least one transcoding parameter to enable the inquiry server to return a list of clients which store the source multimedia file and the transcoding parameter;

downloading the target multimedia file corresponding to the source multimedia file and the transcoding parameter from clients in the list of clients returned by the inquiry server.

3. The method of claim 1, wherein searching in a P2P network for a target multimedia file and downloading the target multimedia file from the P2P network comprise:

sending, to each client in a client list stored in a local machine in advance, an inquiry request which includes information identifying the source multimedia file and information identifying the at least one transcoding parameter to enable a client receiving the inquiry request to return a list of clients corresponding to the source multimedia file and the transcoding parameter;

downloading the target multimedia file corresponding to the source multimedia file and the transcoding parameter from clients in the list of clients received.

4. The method of claim 1, further comprising:

transcoding the source multimedia file by using the at least one transcoding parameter to generate the target multimedia file when the target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter is not found in the P2P network.

5. The method of claim 4, further comprising:

determining a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter is not found in the P2P network when information of a client which stores the target multimedia file is not received within a pre-set length of time.

6. The method of claim 1, further comprising:

estimating a time needed for performing transcoding based on the source multimedia file and the at least one transcoding parameter;

wherein searching in a P2P network for a target multimedia file and downloading the target multimedia file from the P2P network comprise:

judging whether the time estimated is longer than a pre-set time, performing the step B if the time estimated is longer than the pre-set time, or transcoding the source multimedia file by using the at least one transcoding parameter to generate the target multimedia file if the time estimated is not longer than the pre-set time.

7. The method of any of claims 4-6, further comprising:

sharing the target multimedia file in the P2P network for other users in the P2P network to download after the target multimedia file is generated.

8. The method of claim 1, wherein the receiving, searching and downloading steps are implemented by a transcoder or a function module in a transcoder.

9. An apparatus for transcoding a multimedia file, comprising:

an information receiving module, for receiving a source multimedia file and at least one transcoding parameters provided by a user; and

a peer-to-peer (P2P) network managing module, for searching in a P2P network for a target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter, and downloading the target multimedia file from the P2P network.

10. The apparatus of claim 9, wherein the P2P network management module comprises:

a first inquiry request sending unit, for sending to an inquiry server in the P2P network an inquiry request which includes information identifying the source multimedia file and information identifying the at least one transcoding parameter to enable the inquiry server to return a list of clients which store the source multimedia file and the transcoding parameter; and

a first file downloading unit, for downloading the target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter from clients in the list of clients returned by the inquiry server.

11. The apparatus of claim 9, wherein the P2P network management module comprises:

a second inquiry request sending unit, for sending to each client in a client list stored in the apparatus in advance an inquiry request which includes information identifying the source multimedia file and information identifying the at least one transcoding parameter to enable a client receiving the inquiry request to return a list of clients storing the source multimedia file and the at least one transcoding parameter; and

a second file downloading unit, for downloading the target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter from clients in the list of clients received.

12. The apparatus of claim 9, further comprising a transcoding time estimating module and a transcoding module, wherein

the transcoding time estimating module is for estimating the time needed for transcoding based on the source multimedia file and the at least one transcoding parameter;

the P2P network managing module is further for judging whether the time needed for transcoding estimated by the transcoding time estimating module is longer than a pre-set time, searching in the P2P network for and downloading the target multimedia file corresponding to the source multimedia file and the at least one transcoding parameter received by the information receiving module in response to a determination that the time needed for transcoding estimated by the transcoding time estimating module is longer than a pre-set time, or sending an instruction to the transcoding module in response to a

determination that the time needed for transcoding estimated by the transcoding time estimating module is not longer than the pre-set time; and

the transcoding module is for transcoding the multimedia file according to the at least one transcoding parameter received by the information receiving module after receiving the instruction to generate the target multimedia file.

13. The apparatus of claim 12, wherein the transcoding module comprises:

an audio video separating unit, for parsing the source multimedia file received by the information receiving module, and separating the source multimedia file into an audio stream and a video stream;

a video transcoding unit, for transcoding the video stream obtained by the audio video separating unit according to the at least one transcoding parameter received by the information receiving module;

an audio transcoding unit, for transcoding the audio stream obtained by the audio video separating unit according to the at least one transcoding parameter received by the information receiving module; and

a target file generating unit, for combining a video stream obtained by the video transcoding unit with an audio stream obtained by the audio transcoding unit to generate the target mutli-media file.

14. The apparatus of claim 12 or 13, further comprising:

a file sharing module, for sharing the target multimedia file generated by the transcoding module in the P2P network for other users in the P2P network to download.