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(54) **SYSTEM AND METHOD FOR DISTRIBUTING MEDIA CONTENT USING TRANSFER FILE THAT ELIMINATES NEGOTIATI0N BETWEEN SERVER AND CLIENT IN POINT-TO-MULTIPOINT DISTRIBUTION**

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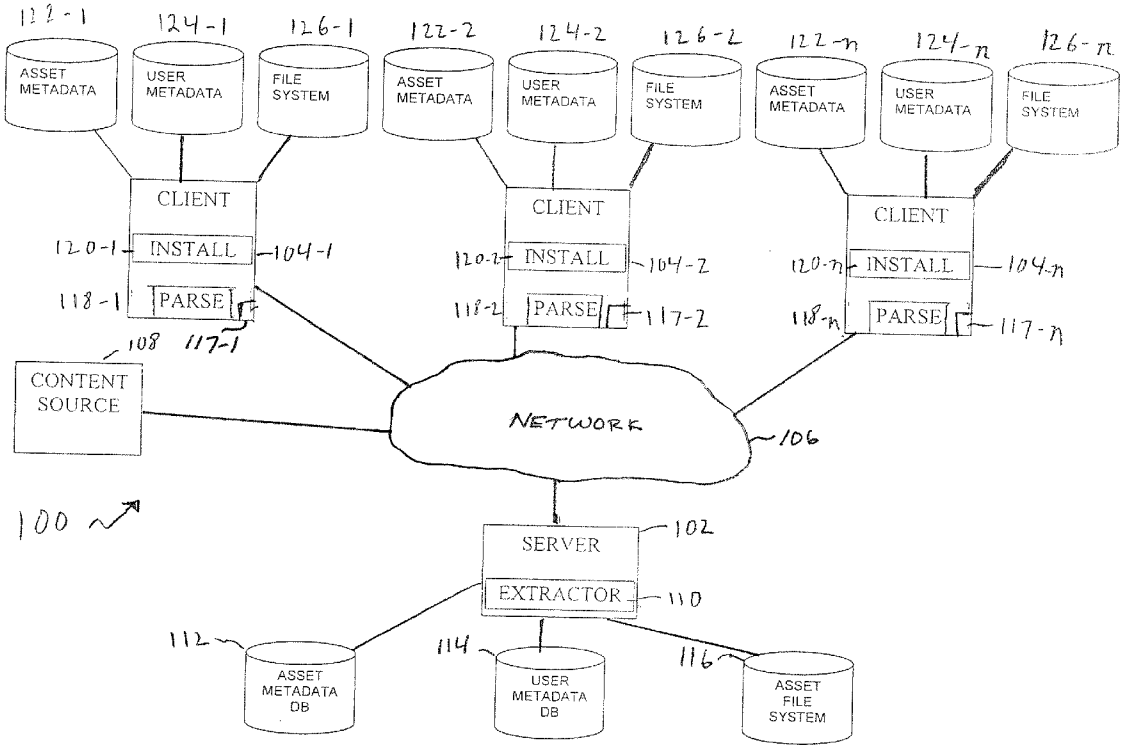
(57) **ABSTRACT**

Transfer file format, system, signal, and method for performing distribution of media content across computer networks. Transfer file and signal includes signature identifying format of file, header containing information about various parts of transfer file, asset metadata describing technical details about media content, media content that is capable of being displayed to user by client computer system using media player program, and user metadata that is capable of being displayed to user. Server is capable of connection to asset metadata database, file system, and user metadata database, and includes extractor module for retrieving asset metadata from media asset database, media content from file system, and user metadata from user metadata database, and assembling them into transfer file. Extractor module places header and signature in transfer file, and transfer file is sent across computer network to clients that parse and install parts of transfer file into local systems.



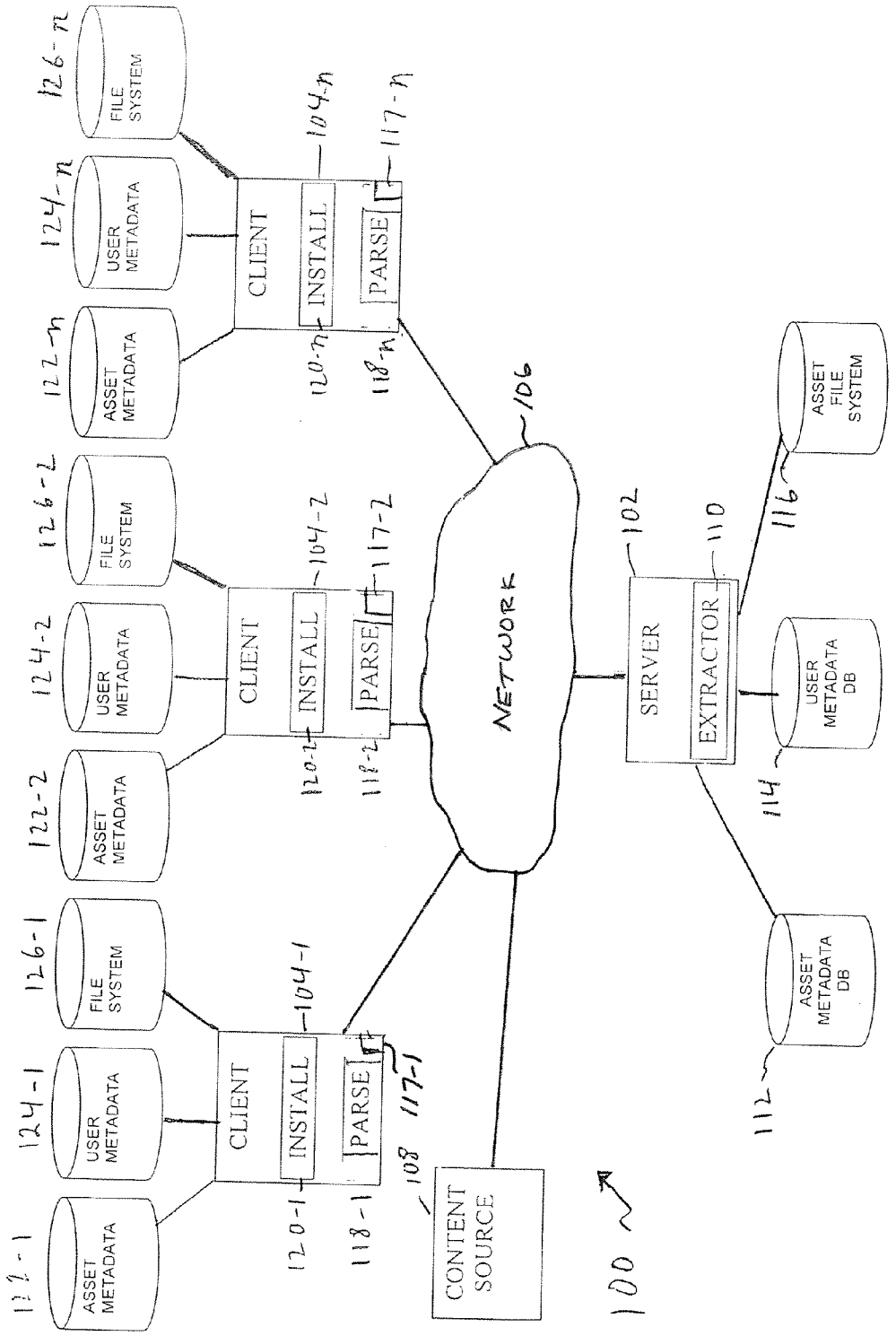

ASSET METADATA
USER METADATA
FILE SYSTEM
CLIENT
INSTALL
PARSE
NETWORK
CONTENT SOURCE
SERVER
EXTRACTOR
ASSET METADATA DB
USER METADATA DB
ASSET FILE SYSTEM
100
102
104-1
104-2
104-n
106
108
110
112
114
116
117-1
117-2
117-n
118-1
118-2
118-n
120-1
120-2
120-n
122-1
122-2
122-n
124-1
124-2
124-n
126-1
126-2
126-n

FIG. 1

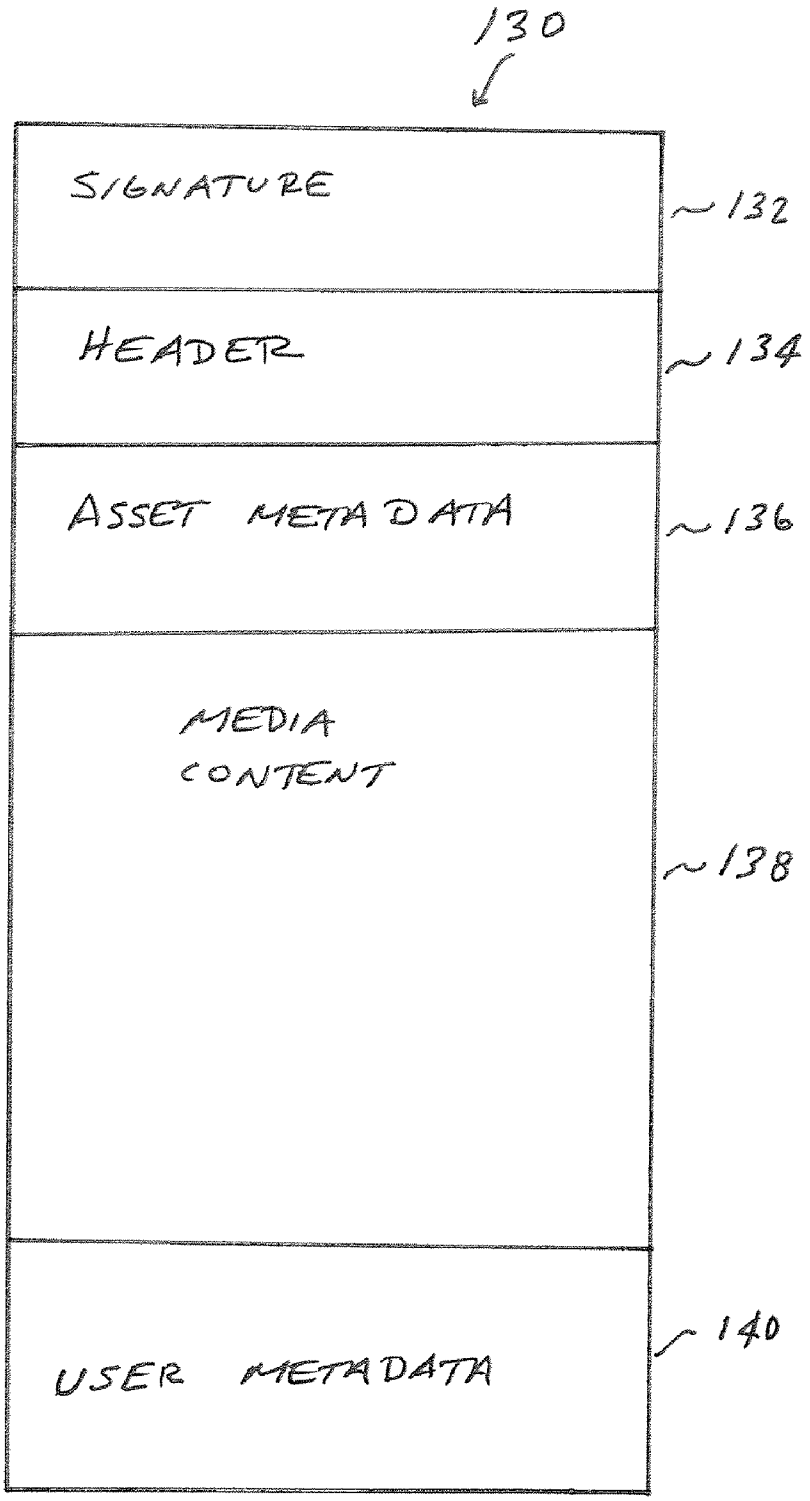

130
SIGNATURE
132
HEADER
134
ASSET METADATA
136
MEDIA CONTENT
138
USER METADATA
140

FIG. 2

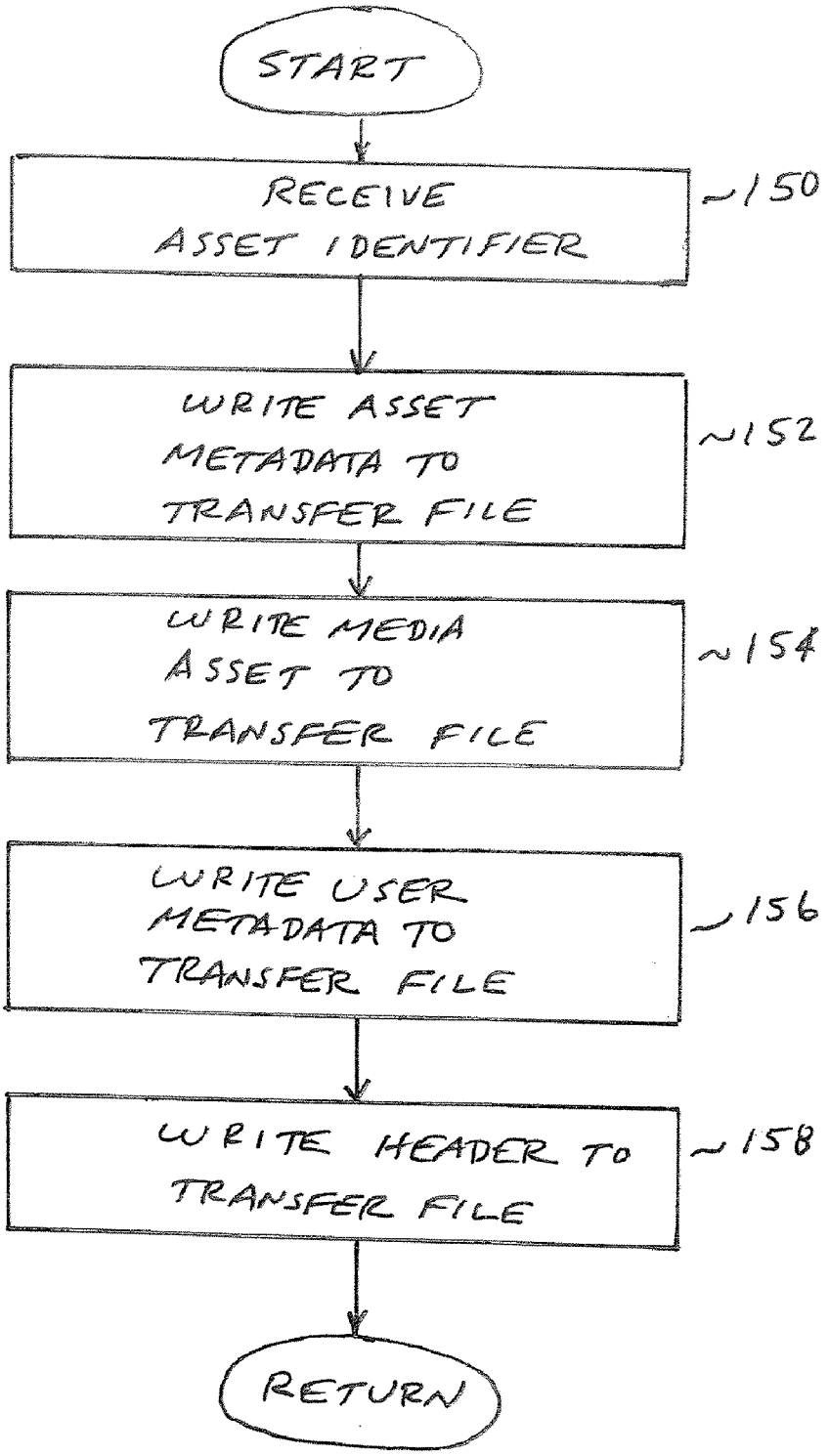

START
RECEIVE ASSET IDENTIFIER
150
WRITE ASSET METADATA TO TRANSFER FILE
152
WRITE MEDIA ASSET TO TRANSFER FILE
154
WRITE USER METADATA TO TRANSFER FILE
156
WRITE HEADER TO TRANSFER FILE
158
RETURN

FIG. 3

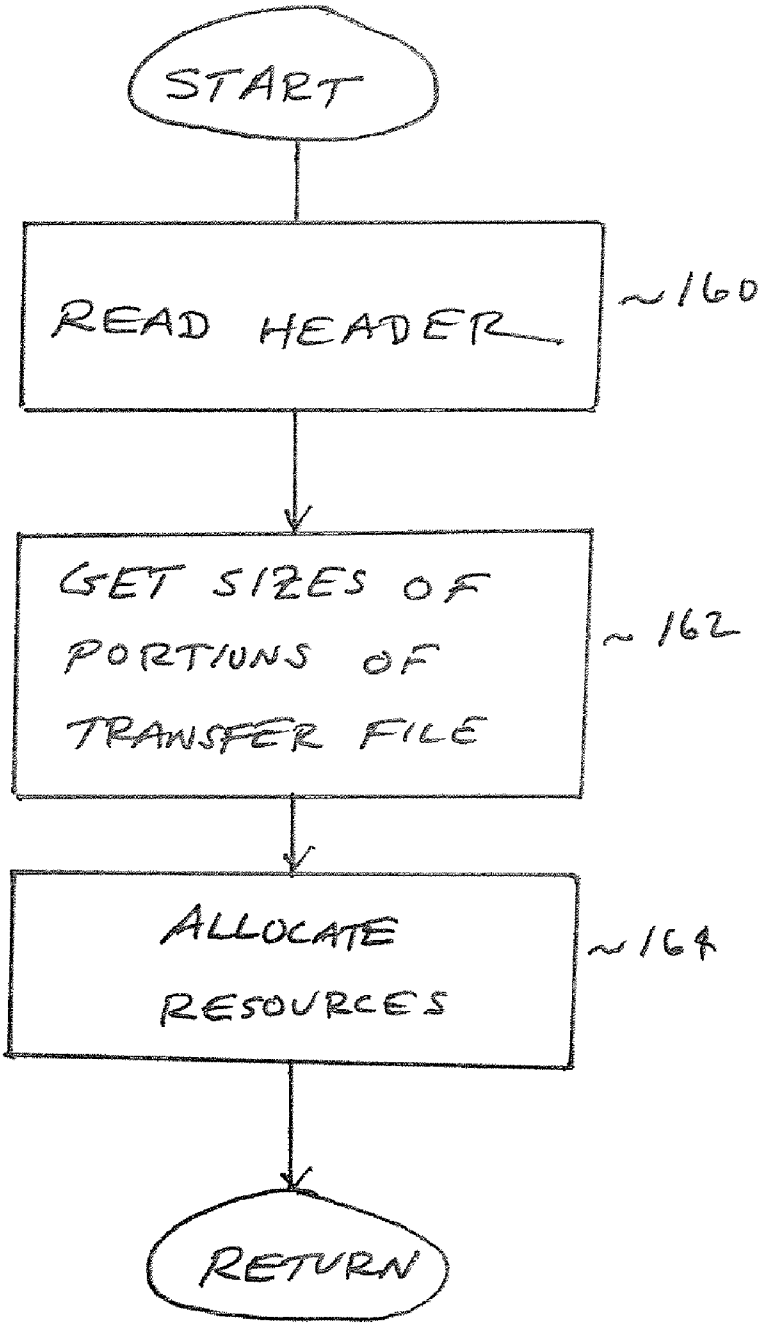

START
READ HEADER
~160
GET SIZES OF PORTIONS OF TRANSFER FILE
~162
ALLOCATE RESOURCES
~164
RETURN

FIG. 4

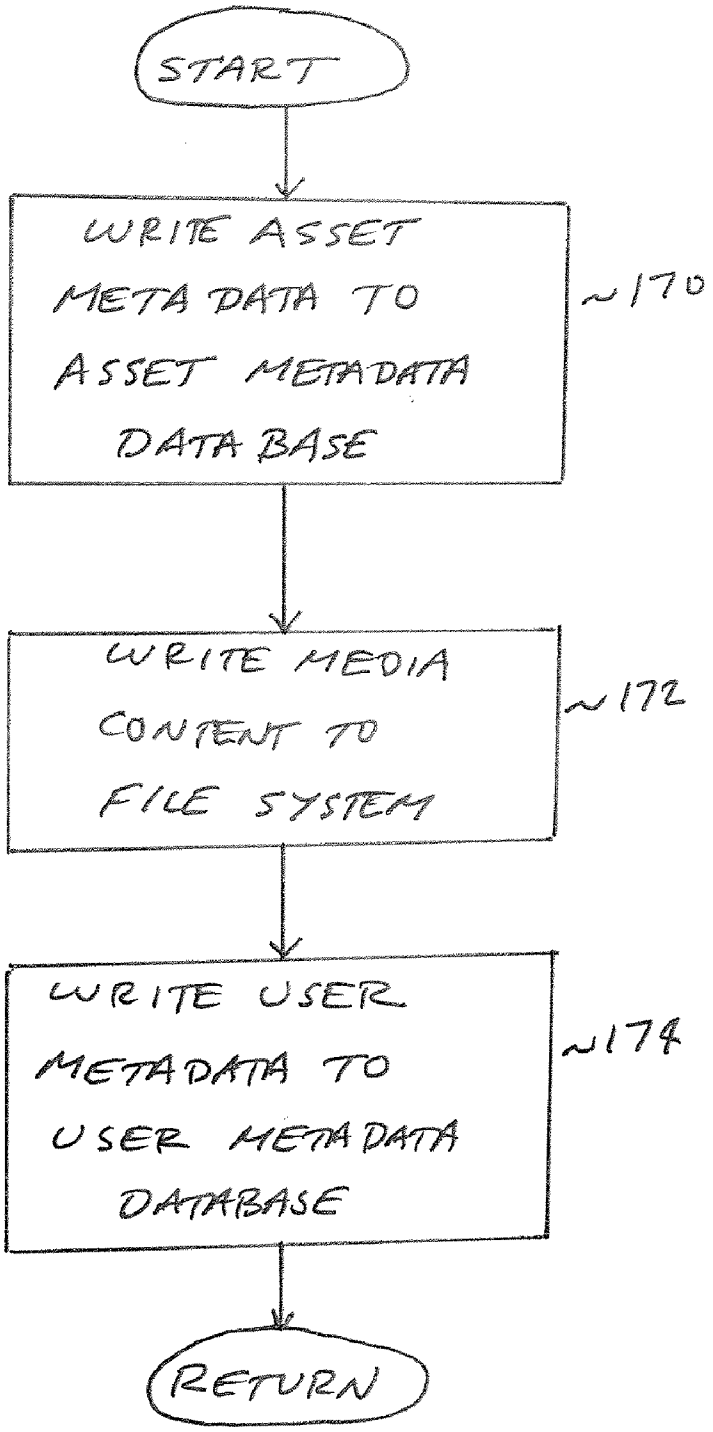

START
WRITE ASSET METADATA TO ASSET METADATA DATA BASE
~170
WRITE MEDIA CONTENT TO FILE SYSTEM
~172
WRITE USER METADATA TO USER METADATA DATABASE
~174
RETURN

FIG. 5

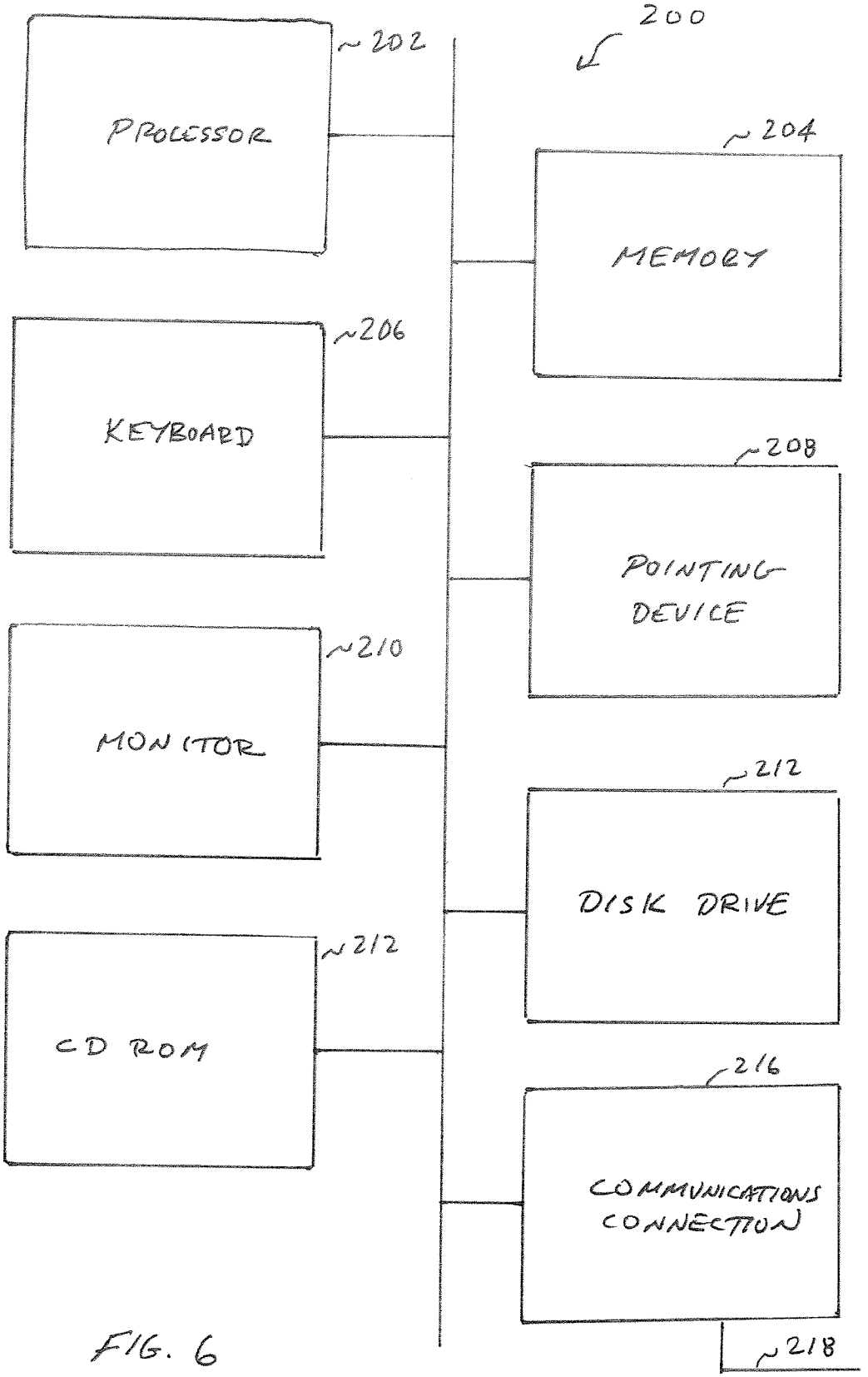

200
PROCESSOR
202
MEMORY
204
KEYBOARD
206
POINTING DEVICE
208
MONITOR
210
DISK DRIVE
212
CD ROM
212
COMMUNICATIONS CONNECTION
216
218

FIG. 6

SYSTEM AND METHOD FOR DISTRIBUTING MEDIA CONTENT USING TRANSFER FILE THAT ELIMINATES NEGOTIATI0N BETWEEN SERVER AND CLIENT IN POINT-TO-MULTIPOINT DISTRIBUTION

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This is a divisional of U.S. application Ser. No. 10/090,697 filed Mar. 4, 2002 entitled "Transfer File Format And System And Method For Distributing Media Content," which claims the benefit of priority to U.S. Provisional Appln. No. 60/272,944 filed Mar. 2, 2001 entitled "Asset Transfer File Format And Extractor/Parser/Installer For Video Content Distribution," both of which are incorporated herein by reference in their entirety.

FIELD OF INVENTION

[0002] The present invention relates broadly to system, method, signal, and computer program for delivery of streaming media assets over a computer network having a client server computer architecture. Specifically, the present invention relates to a file format and system that accommodates point-to-point delivery as well as point-to-multipoint delivery of streaming media assets.

BACKGROUND

[0003] Multimedia assets such as video, audio and the other forms of content can be encoded and streamed in many different ways. Generally, streaming media assets are delivered across communication networks such as the Internet according to point-to-point or point-to-multipoint schemes. In a point-to-point distribution model, a server that administers the media assets receives a request from a client for delivery of the media asset, negotiates delivery details such as delivery time, bit rate, and other parameters that specify how delivery is to be performed for a single client. In point-to-multipoint distribution, the server streams the media asset to multiple clients that utilize similar delivery parameters so that all clients receive the media asset in a substantially simultaneous manner. However, the negotiation between the server and each of the multiple clients is still required in the point-to-multipoint distribution model, as each client must be aware of what resources such as bandwidth, processing speed and memory size must be reserved or allocated for the incoming media asset. For instances where the number of clients desiring simultaneous delivery is high, this negotiation overhead is quite high in terms of time. Additionally, there exists no single format for a file containing a media asset. This means that, depending on client demand, multiple servers are required to handle both point-to-point and point-to-multipoint distribution methods. Maintaining multiple, dedicated servers incur substantially higher operating costs and reduced profits for commercial servers.

[0004] Thus, there is a need for a file format that can reduce the amount of negotiation required between clients and server as well as more efficient system for performing delivery of media assets.

SUMMARY

[0005] The present invention overcomes the problems discussed above by providing a file format and system for efficient streaming of media assets from a server to one or more clients. In one aspect, the present invention provides a transfer file format that is suitable for point-to-point or point-to-multipoint distribution of transfer files between a server and one or more clients across a computer network, wherein the transfer file includes a signature indicating the format of the file, a header containing information related to various portions of the transfer file, asset metadata describing media content, media content that is capable of being displayed to a user, and user metadata that describes the media content and is capable of being displayed to the user. The media content may include a video object accompanied by one or more static images such as GIF images, html pages, and the like. By organizing the file format to include the asset metadata that is used by a media player program on the client side, the time consuming negotiation between client and server is eliminated and a more efficient transmission of media content is implemented.

[0006] In another aspect, the present invention provides a server computer system and method that is capable of connection to an asset metadata database containing the asset metadata, a file system containing the media content, and a user metadata database containing the user metadata, wherein the server includes an extractor module that constructs the transfer file by receiving a request for delivery in the form of an asset identifier, writing the asset metadata associated with the asset identifier from the asset metadata database into the transfer file, writing the media content associated with the asset identifier into the transfer file, and writing the user metadata associated with the asset identifier into the transfer file. Once these portions of the file are constructed, the extractor module inserts a header that includes information about the portions into the transfer file and the transfer file is sent across the computer network to one or more clients.

[0007] In another aspect, the present invention provides a client computer system and method for receiving transfer files as described above, wherein the client is capable of connection to a local asset metadata database, a local file system, and a local user metadata database. The client includes a parser module for processing the transfer file and allocating resources as required for the various parts of the transfer file. An installer module is included for installing the asset metadata in the local asset metadata database, the media content in the local file system, and the user metadata in the local user metadata database.

[0008] In another aspect, the invention provides an electronic signal, generally a digital electronic signal, encoding the transfer file or parts thereof, either alone or in addition to media content.

[0009] Other aspects of the invention will become apparent from reading the following detailed description and related drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** illustrates in block diagram from the client server architecture utilized in embodiments of the present invention.

[0011] FIG. **2** illustrates in block diagram from an embodiment of the file format of the transfer file of the present invention.

[0012] FIG. **3** illustrates in flow chart from an embodiment of the logical sequence of steps executed by the extractor module running on the server to assemble a media asset into a transfer file.

[0013] FIG. **4** illustrates in flow chart from an embodiment the logical sequence of steps executed by the parser module

mining on the client to receive the transfer file and allocate resources for the various parts of the transfer file.

[0014] FIG. **5** illustrates in flow chart from an embodiment of the logical sequence of steps executed by the installer module running on the client to write the various parts of the transfer file to facilities used by the client.

[0015] FIG. **6** illustrates in block diagram from an embodiment of the components included in a computer used by either the clients or the server.

DETAILED DESCRIPTION

[0016] The present invention provides a file format and data structure that can be used for either point-to-point or point-to-multipoint distribution of media assets. Transfer of metadata associated with the media assets is supported. User defined metadata associated with video objects can be transferred using this file format, as well as one or more content and auxiliary files. The file format of the present invention supports transfer of necessary information for network-backed-assets. Because the file format is text-based, the file format allows pluggability of metadata in different formats such as plain text, XML, and the like.

[0017] Directing attention to FIG. **1**, the present invention utilizes a client-server computer architecture **100** communicating over a network, such as a large public computer network such as the Internet. Server **102** is responsible for distributing streaming media assets such as video, audio, static images, graphics, or a combination thereof to clients **104-1**, **104-2**, . . . , **104-*n***, where n is the number of clients requiring streaming media assets, via public computer network **106**. Media assets are streamed by transmitting a sequence of packets from the server **102** to the client **104**. Once the client has the media asset it can later serve the media asset to other media players. These media players may then decrypt, decode, or otherwise process the media asset (or allow the player to process the media asset after receipt) to play or render the media asset on a suitable device using a media player program that decompresses, decodes, and performs any necessary processing on the sequence of packets received from the server **102** to present aural or visual presentation contained in the packets to a user. Examples of streaming media assets include movies, newscasts, music, graphics, animation, slide presentations, and the like, all of which are capable of being presented in a serial fashion to a human user. Server **102** may be a source of the streaming media assets. Optionally, one or more third party content providers such as content provider **108** may be in communication with server **102**, and provide the streaming media assets to the server **102** over network **106**. Media assets are typically stored in files in the memory of the server **102** and distributed to clients on demand or according to a schedule.

[0018] Server **102** includes an extractor module **110** which includes instructions executed to assemble a media asset into a file format that is easily transferred over computer network **106** to clients **104** in a multicast transmission model. In order to assemble the media asset into a transfer file, the extractor module **110** reads data from asset metadata database **112**, user metadata database **114**, and asset file system **116**. Client **104** includes a media player program **117** such as Media Base, available from Kasenna, Inc. of Mountain View, Calif., which is capable of playing out a media asset in a manner which is observable by a user. For example, the media player program **117** can display media assets having an MPEG format on a computer monitor. Client **104** incorporates a parser module **118** which reads the transfer file containing the media asset and associated data and installer module **120** installs various portions of the transfer file into local asset metadata database **122**, user metadata database **123**, and files system **126**.

[0019] FIG. **2** illustrates the structure of an embodiment of the file format of transfer file **130** of the present invention. Transfer file **130** includes a signature **132**, which identifies to a client that the transfer file contains a media asset organized according to file format of transfer file **130**. Header **134** follows signature **132**, and defines such information as the format(s) of the media content **138**, such as MPEG, PGM, RMTP, and the like, the size, duration and bit rate of the media content **138**, the size of the asset metadata **136** and user metadata **140**, and other information. Asset metadata **136** follows header **134**, and may include such information as the name or ID of the source of the media content **138**, the creation time and/or modification time of the media content, which is useful if multiple versions of the media asset exist, keywords such as metatags, number of plays for the media content **138**, fast forward or reverse file size, a unique media asset identifier, and other information. Asset metadata **136** is stored on the server side in asset metadata database **112**. Once the transfer file **130** is received by the client **104**, the asset metadata **136** is stored in asset metadata database **122**. Following the asset metadata **136** is the media content **138**. The media content **138** includes the media asset to be played by the user, as well as any additional or enhanced content, such as alternative views from multiple camera angles used for sporting events and the like. Media content **138** can thus include multiple files, such that for example, an MPEG file is accompanied by JPEG files, GIF images, html pages, and the like. Media content **138** is stored on the server side in asset file system **116**. Once the transfer file **130** is received by the client **104**, the media content **138** is stored in file system **126**. Following the media content **138** is user metadata **140**, which may contain information related to media content **138** that can be displayed to a user. For example, if the media asset is a movie, user metadata **140** can optionally include one or more of a director name, actor names, ratings information, duration of the movie, plot synopsis, and the like. User metadata **140** is stored on the server side in user metadata database **114**. Once the transfer file **130** is received by the client **104**, the user metadata is stored in user metadata database **124**.

[0020] An example of header **134** follows. The header **134** consists of a list of name-value pairs separated by newline characters. The following name-value pairs for the header are exemplary and others may be defined. Note that the value part follows the colon separator. The type of the value field is specified below. A string representation of the value is used in an embodiment. In cases where multiple forward slash ("/")-separated fields are specified, the various fields represent the various possible values for that item. Of course, other field differentiation than ":" or "/" may alternatively be used. The values of these fields are defined in a file, such as in the mbase/lib/mbtransferff/nvpair_defs.h header file in one embodiment. An exemplary embodiment of this file is shown in Table I. An example of the asset metadata **136** is shown in Table II.

TABLE I

Exemplary embodiment of a header file.
*MB_VERSION:int
*MB_ASSET_TYPE:(MB_ASSET_TYPE_SIMPLE/

TABLE I-continued

Exemplary embodiment of a header file.
* MB_ASSET_TYPE_PARALLEL/
* MB_ASSET_TYPE_VIEW/
* MB_ASSET_TYPE_SEQUENTIAL/
* MB_ASSET_TYPE_MULTIFORMAT)
* MB_FORMAT: (MB_FORMAT_MPEG1/
* MB_FORMAT: (MPEG1_AUDIO/
* MB_FORMAT_MPEG2/
* MB_FORMAT_H263/
* MB_FORMAT_QT/
* MB_FORMAT_QT_RTP/
* MB_FORMAT_GSM/
* MB_FORMAT_RMEDIA_V1/
* MB_FORMAT_CONTAINER)
* MB_BITRATE: ull
* MB_DURATION: ull
* MB_METADATA_FORMAT:
(MB_METADATA_FORMAT_NV_PAIRS/
* MB_METADATA_FORMAT_XML)
* MB_METADATA_SIZE: ull
* MB_MAIN_FILESIZE: ull
* MB_FF2N_FILESIZE: ull
* MB_FFREW_FILESIZE: ull
* MB_FFREW_INDEX_FILESIZE: ull
* MB_INDEX_FILESIZE: ull
* MB_N2FF_FILESIZE: ull
* MB_GENERIC_NUM_AUX: ull
* MB_GENERIC_AUX%d_SIZE: ull
* MB_USER_METADATA_SIZE: ull

TABLE II

Exemplary Embodiment of an Asset Metadata
* Common Asset fields
* ----------
*
* MB_COMMENT: string
* MB_SOURCE_HOSTNAME: string
* MB_SOURCE_HANDLENAME: string
* MB_SOURCE_ASSETID: ull
* MB_SOURCE_LAST_MOD_TIME: ull
*
* Simple
* ------
*
* MB_SOURCE_ASSETGROUP: string
* MB_AUXILIARIES: (MB_AUXILIARIES_NONE/
* MB_AUXILIARIES_POSITIONING_ONLY/
* MB_AUXILIARIES_FF_REWIND_SUPPORT)
* MB_BACKINGSTORE: (MB_BACKINGSTORE_NONE/
* MB_BACKINGSTORE_CD/
* MB_BACKINGSTORE_NETWORK)
* MB_MUMBER_OF_PLAYS: uint32
* MB_PLACEMENT: (MB_PLACEMENT_AUTO/
* MB_PLACEMENT_SHARED/
* MB_PLACEMENT_FORCED)
* MB_REALTIME: (MB_TRUE/
* MB_FALSE)
* MB_CONTDESC_TYPE: (MB_CONTDESC_TYPE_GENERIC/
* MB_CONTDESC_TYPE_MPEG1/
* MB_CONTDESC_TYPE_MPEG2/
* MB_CONTDESC_TYPE_H263)
* MB_DATATYPE: (MB_DATATYPE_NULL/
* MB_DATATYPE_ZERO/
* MB_DATATYPE_INDEX/
* MB_DATATYPE_PURE_DATA/
* MB_DATATYPE_SYNC_MARK_DATA/
* MB_DATATYPE_USER_DATA)
* MB_NBA_URL: string
* MB_MAIN_FILESIZE: ull

TABLE II-continued

Exemplary Embodiment of an Asset Metadata
* MB_FF2N_FILESIZE: ull
* MB_FFREW_FILESIZE: ull
* MB_FFREW_INDEX_FILESIZE: ull
* MB_INDEX_FILESIZE: ull
* MB_N2FF_FILESIZE: ull
* MB_GENERIC_NUM_AUX: ull
* MB_GENERIC_AUX%d_SIZE: ull
* MB_PLAYMODE: uint32
* MB_IMAGEWIDTH: uint32
* MB_IMAGEHEIGHT: uint32
* MB_MINLOADSIZE: ull
* MB_MEDIAINFO: octetlist
* MB_FFRATEMULTIPLE: float
* MB_ASPECTRATIO: float
* MB_PACKHEADER: octetlist
* MB_SYSTEMHEADER: octetlist
* MB_VIDEOHEADER: octetlist
* MB_AUDIOHEADER: uint32
* MB_VSHEADER: octetlist
* MB_TRANSPORTHEADER: octetlist
* MB_PESHEADER: octetlist
* MB_PIDS: uint32
* MB_PSITABLES: octetlist
*
* View
* ----
* MB_UNDERLYING_ASSET_GUID: string
(source_hostname##source_asset_id)
* MB_START_OFFSET_TIME: ull
* MB_END_OFFSET_TIME: ull
*
*
* Sequence
* -------
* MB_COMPONENTLIST_SIZE: uint32
* MB_COMPONENT_ASSET%d_GUID: siring
(source_hostname##source_asset_id)
* MB_COMPONENT_ASSET%d_GUID: string
(source_hostname##source_asset_id)
* ...
*
*
* Multiformat
* ----------
* MB_ASSETENTRYLIST_SIZE: uint32
* MB_ASSETENTRY%d: string
(format##source_hostname##source_asset_id)
* MB_ASSETENTRY%d: string
(format##source_hostname##source_asset_id)
* ...

[0021] FIG. **3** illustrates in flowchart form an embodiment of the logical sequence of steps executed by the extractor module **110**. Beginning at step **150**, the extractor module **110** is passed a media asset identifier, a numeric value that uniquely identifies a media asset stored in asset file system **116**. At step **152**, the extractor module **110** reads the asset metadata associated with the received media asset identifier from asset metadata database **112** and places it in transfer file **130**. At step **154**, the extractor module **110** reads the media asset associated with the media asset identifier from the asset file system **116** and places it in the transfer file **130**. At step **156**, the extractor module **110** reads the user metadata associated with the media asset identifier from the user metadata database **114** and places it in transfer file **130**. At step **158**, the extractor module places a signature at the top of transfer file **130**.

[0022] When the transfer file **130** is created as illustrated in FIG. **3**, the server **102** can send the transfer file **130** across the

network **106** to any number of clients **104**. Clients **104** incorporate a parser module **118** which contains instructions for reading the transfer file **130** and processing its various elements **132-140**.

[0023] FIG. **4** illustrates the logical sequence of steps executed by the parser module **118**. Beginning at step **160**, the parser module **118** reads the signature **132** at the beginning of transfer file **130**. By reading the signature **132**, the parser **118** recognizes the transfer file **130**'s format and is able to accurately identify the remaining portions of the transfer file **130**. At step **162**, the parser reads the header **134** and obtains the sizes of the asset metadata **136**, media content **138**, and user metadata **140**. With the size information obtained in step **162**, the parser module **118** at step **164** allocates resources on the client **104** as well as the asset metadata database **122**, user metadata database, and file system **126**. At step **166**, the parser module **118** invokes the installer module **120**.

[0024] FIG. **5** illustrates the logical sequence of steps executed by the installer module **120**. Beginning at step **170**, the installer module **120** writes the asset metadata **136** into an area of the asset metadata database **122** that was allocated by the parser module **118** in step **164**. At step **172**, the installer module **120** writes the media content **138** to an area of the file system **126** that was allocated by the parser module **118** at step **164**. At step **174**, the installer module **120** writes the user metadata **140** to an area of the user metadata database **124** that was allocated by the parser module **118** in step **164**. Once the transfer file **130** is read and the various portions **136**, **138**, and **140** are written to written to the asset metadata database **122**, file system **126**, and user metadata database **124**, respectively, the asset is ready for playout by the media player program **117** when the user is ready to observe the media content **138**.

[0025] FIG. **6** illustrates in block diagram form the major components included in a computer embodying either server **102** or client **104**. Computer **200** incorporates a processor **202** such as a central processing unit (CPU) and supporting integrated circuitry. In the preferred embodiment, work stations such as Sun Ultra computers available from Sun Microsystems can be used as server **102**. Personal computers such as available from Dell Corporation may be used for client computers **104**. However, in general any type of computer may be used for a server and any type of computer or even various information appliances may be used for the client. Memory **204** may include one or more of RAM and NVRAM such as flash memory, to facilitate storage of software modules executed by processor **202**, and file systems administering media assets. As referred to herein, a file system refers to any administrative entity implemented by computer **200** to organize and administer media assets. File systems can include conventional file systems, direct attached storage, network attached storage, storage area networks, both block based and file based, raw storage, and the like. Also included in computer **200** are keyboard **206** or other input device, pointing device **208**, and monitor **210**, which allow a user to interact with computer **200** during execution of software programs. Mass storage devices such as disk drive **212** and CD ROM **214** may also be in computer **200** to provide storage for computer programs, associated files, and media assets. In one embodiment, database products available from Oracle Corp. may be utilized in connection with file systems as a database and database server.

[0026] Computer **200** communicates with other computers via communication connection **216** and communication line **218** to allow the computer **200** to be operated remotely, or utilize files stored at different locations, such as content provider **108**. Communication connection **206** can be a modem, network interface card, or other device that enables a computer to communicate with other computers. Communication line **218** can be a telephone line or cable, or any medium or channel capable of transferring data between computers. In alternative embodiments, communication connection **221** can be a wireless communication medium, thus eliminating the need for communication line **218**. The components described above may be operatively connected by a communications bus **170**.

[0027] Having disclosed exemplary embodiments and the best mode, modifications and variations may be made to the disclosed embodiments while remaining within the scope of the present invention. All patents, patent applications, or other references made herein are hereby incorporated by reference.

What is claimed is:

1. A server computer system for distributing media content to clients over a computer network, the server adapted for connection to an asset metadata database containing metadata describing the media content, and a file system containing the media content, the server comprising:

an extractor module that assembles a transfer file containing the media content and metadata; and

a network connection adapted for transmitting the transfer file to at least one client over the computer network.

2. The server computer of claim **1**, wherein the media content is transmitted

to the clients in a point-to-multipoint manner.

3. (canceled)

4. The server computer system of claim **1**, wherein the asset metadata is used by a media player program on the client to process the media content and display the media content to a user.

5. The server computer system of claim **1**, wherein:

the server is adapted for connecting to a user metadata database containing user metadata that is associated with the media content and is further adapted for being displayed to a user; and

the extractor module copies the user metadata into the transfer file.

6. (canceled)

7. The server computer system of claim **1**, wherein the transfer file comprises a header that includes an index file size information.

8. The server computer system of claim **1**, wherein said asset metadata includes a source host name, a source asset identifier, and a value indicating a number of plays that the media asset can be played out on the client computer to reduce negotiation between the server computer and the client computer and to facilitate a point-to-point or point-to-multipoint distribution of media content.

9. A server computer system as in claim **1**, wherein the transfer file assembled by the extractor module provides a file format for efficient streaming of the media content from the server computer to a plurality of clients that is adapted for point-to-point and point-to-multipoint distribution and the transfer file further includes:

a signature indicating the format of the transfer file;

a header section including information related to various portions of the transfer file, said header section including media asset type information, bit rate information describing a bit rate at which a media asset plays out on the plurality of clients, information indicating the time

duration of the media content, and size information for various portions of the transfer file including an index file size information;

an asset metadata section describing media content, said asset metadata section including a source host name, a source asset identifier, and a value indicating a number of plays that the media asset can be played out on the client to reduce negotiation between the server computer and the client and to facilitate a point-to-point or point-to-multipoint distribution of media content;

media content that is capable of being displayed to a user at the at least one client; and

user metadata that describes the media content and is capable of being displayed to the user;

the transfer file format being organized to include the asset metadata section describing media asset content that is usable by a media player program on the client to eliminate time consuming negotiation between client and server and provide a more efficient transmission of media content from the server to the client, the transfer file informing each client of what client resources, including network connection bandwidth, client processing speed, and memory size that must be reserved or allocated for the incoming transfer file media asset.

10. A transfer file as in claim **9**, wherein the transfer file is parsable by each of the plurality of client computers so that the client computers can identify resources required for the various parts of the transfer file without a negotiation with the server computer and allocate client computer resources required for the various parts of the transfer file.

11. A transfer file as in claim **10**, wherein the signature identifies the transfer file format and permits identification by each client computer of the remaining portions of the transfer file including the header section.

12. A transfer file as in claim **11**, wherein the header section identifies client computer resources including the sizes of the asset metadata, media content, and user metadata.

13. A transfer file as in claim **12**, wherein transfer file header section identification of client computer resources including the sizes of the asset metadata, media content, and user metadata permits allocation of resources on each client computer as well as in an asset metadata database, in a user metadata database, and in a user file system.

14-16. (canceled)

17. A client computer system for displaying media content to a user, the client

computer comprising:

a media player program for decoding and displaying media content received over a computer network to a user;

a parser module for processing a transfer file received from a server computer, the transfer file including media content and related metadata, the parser module allocating resources on the client computer system in response to processing the received transfer file;

an installer module for storing various portions of the received transfer file on the client computer system; and

a network connection for receiving the transfer file over a computer network.

18. The client computer system of claim **17**, further comprising an asset metadata database, wherein the installer module stores the related metadata in the asset metadata database.

19. The client computer system of claim **17**, further comprising a file system,

wherein the installer module stores the media content in the file system.

20. The client computer system of claim **17**, wherein the transfer file includes:

a signature indicating the format of the transfer file;

a header section including information related to various portions of the transfer file, said header section including media asset type information, bit rate information describing a bit rate at which a media asset plays out on the plurality of clients, information indicating the time duration of the media content, and size information for various portions of the transfer file including an index file size information;

an asset metadata section describing media content, said asset metadata section including a source host name, a source asset identifier, and a value indicating a number of plays that the media asset can be played out on the client to reduce negotiation between the server computer and the client and to facilitate a point-to-point or point-to-multipoint distribution of media content;

media content that is capable of being displayed to a user at the at least one client; and

user metadata that describes the media content and is capable of being displayed to the user;

the transfer file format being organized to include the asset metadata section describing media asset content that is usable by a media player program on the client to eliminate time consuming negotiation between client and server and provide a more efficient transmission of media content from the server to the client, the transfer file informing each client of what client resources, including network connection bandwidth client processing speed, and memory size that must be reserved or allocated for the incoming transfer file media asset.

21. The client computer system of claim **17**, wherein the transfer file is parsable by each of the client so that the client can identify resources required for the various parts of the transfer file without a negotiation with the server and allocate client resources required for the various parts of the transfer file.

22. The client computer system of claim **21**, wherein the signature identifies the transfer file format and permits identification by each client computer of the remaining portions of the transfer file including the header section.

23. The client computer system of claim **22**, wherein the header section identifies client computer resources including the sizes of the asset metadata, media content, and user metadata.

24. The client computer system of claim **23**, wherein the transfer file header section identification of client computer resources including the sizes of the asset metadata, media content, and user metadata permits allocation of resources on each client computer as well as in an asset metadata database, in a user metadata database, and in a user file system.

25. (canceled)

26. A method of performing content distribution between a server computer and a client computer communicating with each other across a computer network, wherein the client computer is adapted for connection to a file system for storing media content and an asset metadata database for storing asset metadata describing the media content, the method comprising:

receiving a transfer file including a header that describes portions of the transfer file, media content and metadata describing the media content;

reading the header to determining sizes of portions of the transfer file;

allocating resources for the portions of the transfer file;

installing the metadata in the metadata database; and

installing the media content in the file system.

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