CLAIMS

1. A method for processing an access request in a content delivery system, comprising:

obtaining, by an edge node, a file access request;

judging, according to a preset unpopular file judgment policy, whether a file corresponding to the file access request is an unpopular file, and obtaining a first judgment result; wherein the unpopular file judgment policy is: a file with a total number of accesses less than a certain value within a preset period of time is the unpopular file;

~~judging, if~~in response to the first judgment result ~~shows~~ showing that the file is ~~an~~ the unpopular file, ~~and~~ juding, according to bandwidth usage state information of the edge node obtained in advance, whether the bandwidth usage state information conforms to a preset judgment policy for a full use of a bandwidth, and obtaining a second judgment result; ~~and~~

~~triggering, when~~in response to the second judgment result ~~shows~~ showing that the bandwidth usage state information conforms to the preset judgment policy, triggering an unpopular file management node to respond to the file access request, wherein the unpopular file management node stores the file corresponding to the file access request; and

wherein the judging, according to bandwidth usage state information of the edge node obtained in advance, whether the bandwidth usage state information conforms to a preset judgment policy for a full use of a bandwidth, and obtaining a second judgment result comprises:

obtaining a first number of file access requests to which the unpopular file management node has been triggered to respond and a total number of file access requests obtained;

judging, according to the first number and the total number, whether a proportion information of the first number in the total number conforms to a preset judgment policy for an excessive proportion; and

in response to the proportion information not conforming to the judgment

policy for the excessive proportion, determining that the bandwidth usage state information conforms to the judgment policy for the full use of the bandwidth.

2. The method according to claim 1, wherein the judging, according to a preset unpopular file judgment policy, whether a file corresponding to the file access request is an unpopular file, and obtaining a first judgment result comprises:

searching, among locally stored files, a file corresponding to file identification information; and

determining, if the file is not found among the locally stored files, a state of the file according to a judgment policy for a popularity of a file obtained in advance.

~~3. The method according to claim 1, wherein the judging, according to bandwidth usage state information obtained in advance, whether the bandwidth usage state information conforms to a preset judgment policy for a full use of a bandwidth, and obtaining a judgment result comprises:~~

~~obtaining a first number of file access requests to which the unpopular file management node has been triggered to respond and a total number of file access requests obtained;~~

~~judging, according to the first number and the total number, whether a proportion information of the first number in the total number conforms to a preset judgment policy for an excessive proportion; and~~

~~determining, if the proportion information does not conform to the judgment policy for an excessive proportion, that the bandwidth usage state information conforms to the judgment policy for a full use of a bandwidth.~~

43. The method according to claim 1, wherein the triggering an unpopular file management node to respond to the file access request comprises:

obtaining, when there are at least two unpopular file management nodes, region information and/or operator network information used to transmit information for each unpopular file management node;

selecting, according to the region information and/or operator network

information for each unpopular file management node, a target unpopular file management node, the target unpopular file management node conforming to ~~a~~ local region information and/or operator network information; and

controlling the target unpopular file management node to respond to the file access request.

~~5~~4. The method according to claim ~~4~~3, wherein the selecting, according to the region information and/or operator network information for each unpopular file management node, a target unpopular file management node, the target unpopular file management node conforming to a local region information and/or operator network information, comprises:

obtaining domain name resolution information corresponding to the file access request; and

determining, according to the domain name resolution information and the region information and/or operator network information for each unpopular file management node, an unpopular file management node matching the domain name resolution information among the unpopular file management nodes as the target unpopular file management node.

~~6~~5. An apparatus for processing an access request in a content delivery system, applied to an edge node, comprising:

an obtaining module configured to obtain a file access request;

a first judgment module configured to judge, according to a preset unpopular file judgment policy, whether a file corresponding to the file access request is an unpopular file, and obtain a first judgment result; wherein the judgment policy of the unpopular file is: a file with a total number of accesses less than a certain value within a preset period of time is the unpopular file;

a second judgment module configured to ~~judge~~, ~~if~~ in response to the first judgment result ~~shows~~ showing that the file is ~~an~~ the unpopular file, ~~and~~ judge, according to bandwidth usage state information of the edge node obtained in advance, whether the bandwidth usage state information conforms to a preset judgment policy for a full use of a bandwidth, and obtain a second judgment

result; ~~and~~

a processing module configured to ~~trigger~~, ~~when~~ in response to the second judgment result ~~shows~~ showing that the bandwidth usage state information conforms to the preset judgment policy, trigger an unpopular file management node to respond to the file access request, wherein the unpopular file management node stores the file corresponding to the file access request; and

wherein the second judgment module comprises:

a first obtaining unit configured to obtain a first number of file access requests to which the unpopular file management node has been triggered to respond and a total number of file access requests obtained;

a judgment unit configured to judge, according to the first number and the total number, whether a proportion information of the first number in the total number conforms to a preset judgment policy for an excessive proportion; and

a determination unit configured to, in response to the proportion information not conforming to the judgment policy for the excessive proportion, determine that the bandwidth usage state information conforms to the judgment policy for the full use of the bandwidth.

~~7~~6. The apparatus according to claim ~~6~~5, wherein the first judgment module comprises:

a searching unit configured to search, among locally stored files, a file corresponding to file identification information; and

a first obtaining unit configured to determine, if the file is not found among the locally stored files, a state of the file according to a judgment policy for a popularity of a file obtained in advance.

~~8. The apparatus according to claim 6, wherein the second judgment module comprises:~~

~~a first obtaining unit configured to obtain a first number of file access requests to which the unpopular file management node has been triggered to respond and a total number of file access requests obtained;~~

~~a judgment unit configured to judge, according to the first number and the total number, whether a proportion information of the first number in the total number conforms to a preset judgment policy for an excessive proportion; and~~

~~a determination unit configured to determine, if the proportion information does not conform to the judgment policy for an excessive proportion, that the bandwidth usage state information conforms to the judgment policy for a full use of a bandwidth.~~

~~9~~7. The apparatus according to claim ~~6~~5, wherein the processing module comprises:

a second obtaining unit configured to obtain, when there are at least two unpopular file management nodes, region information and/or operator network information used to transmit information for each unpopular file management node;

a selection unit configured to select, according to the region information and/or operator network information for each unpopular file management node, a target unpopular file management node, the target unpopular file management node conforming to ~~a~~ local region information and/or operator network information; and

a control unit configured to control the target unpopular file management node to respond to the file access request.

~~10~~8. The apparatus according to claim ~~9~~7, wherein the selection unit comprises:

an obtaining sub-module configured to obtain domain name resolution information corresponding to the file access request; and

a determination sub-module configured to determine, according to the domain name resolution information and the region information and/or operator network information for each unpopular file management node, an unpopular file management node matching the domain name resolution information among the unpopular file management nodes as the target unpopular file management node.

~~11~~9. A content delivery system, comprising:

an edge node, comprising the apparatus according to any one of claims ~~6~~ 5 to ~~10~~8;

an unpopular file management node configured to respond to a file access request.

~~12~~10. The system according to claim ~~11~~9, further comprising:

a decision-making center configured to obtain file access information in a file access request that occurs within a preset period of time and/or network bandwidth usage information corresponding to the file access request, and according to the file access information and/or network bandwidth usage information, determine a judgment policy for a popularity of a file, and then send the judgment policy for ~~a~~ the popularity of ~~a~~ the file to the edge node.

~~13~~11. The system according to claim ~~11~~9, wherein,

the unpopular file management node is configured to respond a file access request with a corresponding file in a local storage space if the file corresponding to the file access request is found locally, and request the file corresponding to the file access request from an upstream node if the file corresponding to the file access request is not found locally;

wherein, the system further comprises:

an upstream node configured to obtain a corresponding file from a local storage space upon receiving a request for a file from an unpopular file management node, and send the corresponding file to the unpopular file management node.

~~14~~12. The system according to claim ~~11~~9, wherein,

the unpopular file management node is configured to obtain proportion information of file access requests to which the unpopular file management node is triggered to respond by the edge node and all file access requests obtained, and determine a capacity of a storage pool of the unpopular file management node according to the proportion information and ~~a~~ the capacity of ~~a~~ the storage pool of the edge node.

~~15~~13. A computer-readable storage medium having a computer program stored thereon, the computer program, when executed, implements the method according to any one of claims 1 to ~~5~~4.

~~16~~14. A computer device, comprising a processor, a memory, and a computer program stored on the memory, the computer program, when executed by the processor, implements the method according to any one of claims 1 to ~~5~~4.