Claims

1~~,~~. A method for automatically spreading resources, comprising:

an original Peer to Peer (P2P) client downloading network resources from a network resource server;

~~an~~ the original ~~Peer to Peer (~~P2P~~)~~ client obtaining information of one or more spreading P2P clients configured from a P2P seed server~~, wherein the original P2P client is a P2P client which downloads network resources from a network resource server, and one or more idle P2P clients directly connected with the original P2P client are determined as the one or more spreading P2P clients of the original P2P client according to connection information of the original P2P client and other P2P clients, as well as resource occupancy states of the other P2P clients, ;~~

~~the original P2P client~~ automatically pushing the network resources to the one or more spreading P2P clients;

after receiving the network resources pushed from the original P2P client, each of the one or more spreading P2P clients obtaining one or more spreading P2P clients at a next lower lever of the spreading P2P client from the P2P seed server, and pushing the network resources to the one or more spreading P2P clients at the next lower lever;

the one or more spreading P2P clients at the next lower lever continuously spreading downwards until all P2P clients in a spreading network of a P2P system receive the network resources;

when there is a new download request from a P2P client in the P2P system after the P2P clients in the spreading network download the network resources, directly obtaining the network resources from the P2P clients;

wherein a second P2P client is a P2P client comprised in the one or more spreading clients, and one or more spreading P2P clients at a next lower lever of the second P2P client at least comprise a third P2P client and a Nth P2P client, one or more spreading P2P clients at a next lower lever of the third P2P client at least comprise the Nth P2P client;

the second P2P client pushing the network resources to the third P2P client and the Nth P2P client, the third P2P client pushing the network resources pushed from the second P2P client to the Nth P2P client, wherein a speed of pushing the network resources from the second P2P client to the third P2P client is more than a speed of pushing the network resources from the second P2P client to the Nth P2P client, and the Nth P2P client is able to determine whether the network resources are repeatedly received.

2~~,~~. The method of claim 1, wherein the original P2P client obtaining the information of the one or more spreading P2P clients configured from the P2P seed server, automatically pushing the network resources to the one or more spreading P2P clients ~~further~~ comprising~~ing~~es:

the original P2P client transmitting a query request to the P2P seed server;

after receiving the query request, the P2P seed server firstly querying one or more P2P clients directly connected with the original P2P client, and querying one or more idle P2P clients from searched out one or more P2P clients directly connected with the original P2P client, taking the one or more idle P2P clients as the one or more spreading P2P clients of the original P2P client;

the original client receiving the one or more spreading P2P clients transmitted from the P2P seed server, and pushing the network resources downloaded from the network resource server to the one or more spreading P2P clients.

3~~,~~. The method of claim 1, wherein the original P2P client obtaining the information of the one or more spreading P2P clients configured from the P2P seed server, and automatically pushing the network resources to the one or more spreading P2P clients ~~further~~ comprising~~ing~~es:

the original P2P client transmitting a query request to the P2P seed server;

after receiving the query request, the P2P seed server firstly querying one or more idle P2P clients, ~~and~~ querying one or more P2P clients directly connected with the original P2P client from the one or more idle P2P clients searched out, taking the one or more P2P clients directly connected with the original P2P client as the one or more spreading P2P clients of the original P2P client;

the original client receiving the one or more spreading P2P clients transmitted from the P2P seed server, and pushing the network resources downloaded from the the network resource server to the one or more spreading P2P clients.

4~~,~~. The method of claim ~~1~~2 or claim 3, after the P2P seed server queries the one or more idle P2P clients, further comprising:

the P2P seed server querying ~~determining~~ one or more non-idle P2P clients~~, directly connected with the original P2P client, and~~ bandwidth occupancy ~~rates~~ of the one or more non-idle P2P clients ~~which is~~being small~~er than a threshold~~ or

~~, as the one or more spreading P2P clients of the original P2P client.~~

~~5, The method of claim 1, further comprising:~~

the P2P seed server ~~searching out one or more idle P2P clients directly connected with the original P2P clients,~~ selecting one or more P2P clients from the one or more idle P2P clients searched out ~~according to information transmission capabilities of the one or more P2P clients searched out, and configuring the selected one or more P2P clients as the one or more spreading P2P clients of the original P2P client~~.

~~6, The method of claim 1, further comprising:~~

~~each spreading P2P client obtaining information about one or more spreading P2P clients at the next lower lever of the spreading P2P client from the P2P seed server, and pushing the network resources to the one or more spreading P2P clients at the next lower lever.~~

~~7~~5~~,~~. An apparatus ~~system~~ for automatically spreading resources, wherein the ~~system~~ apparatus comprises an original Peer to Peer (P2P) client, ~~a P2P server and~~ one or more spreading P2P clients, and a newly-added P2P client in a P2P system, wherein

the original P2P client is configured to download network resources from a network resource server, obtain information about the one or more spreading P2P clients configured from a P2P seed server, and automatically push the network resources to the one or more spreading P2P clients;

~~the P2P server is configured to configure one or more idle P2P clients directly~~

~~connected with the original P2P client as the one or more spreading P2P clients of the original P2P client, according to connection information of the original P2P client and other P2P clients, as well as resource occupancy states of the other P2P clients; and~~

each spreading P2P client is configured to receive the network resources pushed by the original P2P client;

each spreading P2P client is further configured to after receiving the network resources pushed from the original P2P client, obtain one or more spreading P2P clients at a next lower lever of the spreading P2P client from the P2P seed server, and push the network resources to the one or more spreading P2P clients at the next lower lever so that the one or more spreading P2P clients at the next lower lever continuously spreading downwards until all P2P clients in a spreading network of the P2P system receive the network resources;

the newly-added P2P client in the P2P system is configured to when there is a new download request from a P2P client in the P2P system after the P2P clients in the spreading network download the network resources, directly obtain the network resources from the P2P clients;

wherein a second P2P client is a P2P client comprised in the one or more spreading clients, and one or more spreading P2P clients at a next lower lever of the second P2P client at least comprise a third P2P client and a Nth P2P client, one or more spreading P2P clients at a next lower lever of the third P2P client at least comprise the Nth P2P client;

the second P2P client pushing the network resources to the third P2P client and the Nth P2P client, the third P2P client pushing the network resources pushed from the second P2P client to the Nth P2P client, wherein a speed of pushing the network resources from the second P2P client to the third P2P client is more than a speed of pushing the network resources from the second P2P client to the Nth P2P client, and the Nth P2P client is able to determine whether the network resources are repeatedly received.

~~8~~6~~,~~. The ~~system~~ apparatus of claim ~~7~~5, wherein the original P2P client is configured to transmit a query request to a P2P seed server, receive the one or more

spreading P2P clients transmitted from the P2P seed server, and push the network resources downloaded from the network resource server to the one or more spreading P2P clients~~the P2P seed server to configure one or more P2P clients directly connected with the original P2P client, and bandwidth occupancy rates of which are smaller than a threshold, as the one or more spreading P2P clients of the original P2P client~~.

~~9~~7~~,~~. The ~~system~~ apparatus of claim ~~7~~5, further comprising:

~~wherein the~~a P2P seed server, configured to after receiving the query request, query one or more idle P2P clients directly connected with the original P2P client, ~~select~~ query one or more P2P clients from the one or more P2P clients searched out, ~~according to information transmission capabilities of the one or more P2P clients searched out,~~ and configure the ~~selected~~ searched out one or more idle P2P clients as the one or more spreading P2P clients of the original P2P client.

~~10~~8~~,~~. The ~~system~~ apparatus of claim ~~7~~5, ~~wherein~~ further comprising:

a P2P seed server, configured to after receiving the query request, the P2P seed server firstly querying one or more idle P2P clients, query one or more P2P clients directly connected with the original P2P client from the one or more idle P2P clients searched out, take the searched out one or more P2P clients directly connected with the original P2P client as the one or more spreading P2P clients of the original P2P client~~each spreading P2P client to obtain information about one or more spreading P2P clients at the next lower lever for the spreading P2P client from the P2P seed server, and pushes the network resources to the one or more spreading P2P clients at the next lower lever~~.

9. The apparatus of claim 7 or claim 8, wherein the P2P seed server is further configured to query one or more non-idle P2P clients, bandwidth occupancy of the one or more non-idle P2P clients being small; or select one or more P2P clients from the one or more idle P2P clients searched out.