

CLAIMS

1. A method comprising:
 - monitoring, in a peer-to-peer computer network, a plurality of agents and a plurality of files by tracking an availability of each agent and tracking a status of each file respectively;
 - evaluating each agent, based at least partially on respective past performance and qualitative factors;
 - encoding each file into portions, wherein the encoding further comprises encoding redundancy and forward error correction (FEC) into raw data;
 - matching the portions into agents to yield a specified distribution of loads among the agents based at least partially on their respective evaluation, each agent storing portions of each file;
 - calculating for each one of the plurality of files an availability function for each one of the plurality of agents, wherein the availability function comprises a summation, over time, of a plurality of time-dependent availability weighing functions;
 - calculating, for each one of the plurality of files, a function of a cost for distributing each one of the plurality files, wherein the cost function comprises a summation over each of the availability functions for each one of the plurality of agents, and
 - wherein at least one of the monitoring, the evaluating, the encoding and the matching is executed by at least one processor.
2. The method according to claim 1, further comprising monitoring sent portions and adjusting file statuses and agents availability and evaluation accordingly.
3. The method according to claim 2, further comprising resending portions in respect to the monitoring and specified network availability rules.

4. The method according to claim 1, wherein the matching is applied repeatedly such that portion from a specified file are transferred to a selected agent based on the evaluation.
5. The method according to claim 1, wherein the specified distribution is such that it is substantially temporal uniform.
6. The method according to claim 1, further comprising applying the cost function by each selected agent to parameters of the agents connected to the selected agent, wherein the connected agents that minimize the cost function are selected for further portion transfer.
7. The method according to claim 1, further comprising proactively adding to a queue portions and files having an availability below a specified level, wherein the matching is applied to the queue.
8. A system comprising:
 - a seeding manager; and
 - a plurality of agents in communication over a computer network with the seeding manager,wherein the seeding manager is configured to:
 - monitor, the plurality of agents and a plurality of files by tracking an availability of each agent and tracking a status of each file respectively;
 - evaluate each agent based at least partially on respective past performance and qualitative factors;
 - encode, each file into portions, wherein the encoding further comprises encoding redundancy and forward error correction (FEC) into raw data;
 - match the portions into agents to yield a specified distribution of loads among the agents being an amount of portions sent to agents based at least partially on their respective evaluation, each agent storing portions of each file;
 - calculate, for each one of the plurality of files, an availability function for each one of the plurality of agents, wherein the availability function comprises a

summation, over time, of a plurality of time-dependent availability weighing functions;

calculate, for each one of the plurality of files, a function of a cost for distributing each one of the plurality files, wherein the cost function comprises a summation over each of the availability functions for each one of the plurality of agents.

9. The system according to claim [98](#), wherein the seeding manager is further configured to monitor sent portions and adjusting file statuses and agents availability and evaluation accordingly.

10. The system according to claim [109](#), wherein the seeding manager is further configured resend portions in respect to the monitoring and specified network availability rules.

11. The system according to claim [98](#), wherein the seeding manager is further configured to repeatedly match such that portions from a specified file are transferred to a selected agent based on the evaluation.

12. The system according to claim [98](#), wherein the specified distribution is such that it is substantially temporal uniform.

13. The system according to claim [98](#), wherein agents selected by the seeding manager are configured to apply the cost function to parameters of the agents connected to the selected agent, wherein the connected agents that minimize the cost function are selected for further portion transfer.

14. The system according to claim [98](#), wherein the seeding manager is further configured to proactively add to a queue portions and files having an availability below a specified level, wherein the matching is applied to the queue.

15. A computer program product, the computer program product comprising:

a computer readable storage medium having computer readable program embodied therewith, the computer readable program comprising:

computer readable program configured to monitor a plurality of agents and a plurality of files by tracking an availability of each agent and tracking a status of each file respectively;

computer readable program configured to evaluate each agent based at least partially on respective past performance and qualitative factors;

computer readable program configured to encode, , each file into portions, wherein the encoding further comprises encoding redundancy and forward error correction (FEC) into raw data; and

computer readable program configured to match the portions into agents to yield a specified distribution of loads among the agents being an amount of portions sent to agents based at least partially on their respective evaluation, each agent storing portions of each file

computer readable program configured to calculate, for each one of the plurality of files, an availability function for each one of the plurality of agents, wherein the availability function comprises a summation, over time, of a plurality of time-dependent availability weighing functions;

computer readable program configured to calculate, for each one of the plurality of files, a function of a cost for distributing each one of the plurality files, wherein the cost function comprises a summation over each of the availability functions for each one of the plurality of agents.

16. The computer program product according to claim [4615](#), further comprising computer readable program configured to monitor sent portions and adjusting file statuses and agents availability and evaluation accordingly.

17. The computer program product according to claim [4716](#), further comprising computer readable program configured to resend portions in respect to the monitoring and specified network availability rules.

18. The computer program product according to claim [4615](#), wherein the specified distribution is such that it is substantially temporal uniform.
19. The computer program product according to claim [4615](#), further comprising computer readable program configured to apply the cost function to parameters of the agents connected to the selected agent, wherein the connected agents that minimize the cost function are selected for further portion transfer.
20. The computer program product according to claim 15, further comprising computer readable program configured to proactively add to a queue portions and files having availability below a specified level, wherein the matching is applied to the queue.