Claims

1. A node (I1, 1200) to propagate transactions in a network (300) of nodes, each node having one or more connections to other nodes (S1, S2, I2),~~,~~ the node comprising:

a processor (1202);~~;~~

memory (1206);~~;~~

a network interface (1204);~~;~~ and

an application (1208) containing processor-executable instructions that, when executed by the processor, cause the processor to

receive a plurality of incoming transactions over a time period;

combine the plurality of incoming transactions using network coding to generate a composite message;

send the composite message to one or more nodes (I2) in the network; and

determine an adjusted time period based on a~~an equilibrium~~ constant parameter divided by~~and~~ a count of transactions in the plurality of incoming transactions received over the time period.

2. The node claimed in claim 1, wherein the instructions, when executed, are to further cause the processor to iteratively repeat the receiving, combining and sending operations using the adjusted time period and to determine a further adjusted time period after each iteration for use in the subsequent iteration.

~~3.~~ The node claimed in claim 1 or claim 2, ~~wherein the instructions, when executed, are to cause the processor to determine the adjusted time period by determining the adjusted time period based on the equilibrium constant parameter divided by the count of transactions.~~

~~4.~~3. ~~The node claimed in claim 3,~~ wherein the determining the adjusted time period is subject to a minimum time period that the adjusted time period cannot be below and a maximum time period that the adjusted time period cannot be above.

5. The node claimed in any one of claim 1 to 3~~4~~, wherein the instructions, when executed, are to further cause the processor to determine an average time period based on a plurality of adjusted time periods and to store the average time period in the memory, and optionally~~.~~

6.4. ~~The node claimed in claim 5,~~ wherein the instructions, when executed, are to further cause the processor to send the average time period to one or more neighbouring nodes in the network of nodes.

7.5. The node claimed in any one of claims 1 to 4~~6~~, wherein the instructions, when executed, are to further cause the processor to initialize the ~~equilibrium~~ constant parameter based on one or more throughput estimates for one of more links to said one of the nodes.

8.6. The node claimed in any one of claims 1 to 4~~6~~, wherein the instructions, when executed, are to further cause the processor to initialize the ~~equilibrium~~ constant parameter based on an estimated initial time period and an estimated initial count of transactions.

9.7. The node claimed in any one of claim 1 to 6~~8~~, wherein the instructions, when executed, are to further cause the processor to determine that the count of transactions received in the time period exceeds a minimum count to use network coding, and wherein the combining and sending are conditional on that determination.

10.8. A computer-implemented method (800) of propagating transactions in a network (300) of nodes, each node having one or more connections to other nodes, the method, implemented at one of the nodes (I1),~~,~~ including:

Receiving (802)~~receiving~~ a plurality of incoming transactions over a time period;

Combining (812)~~combining~~ the plurality of incoming transactions using network coding to generate a composite message;

Sending (814)~~sending~~ the composite message to one or more nodes (I2) in the network; and

determining (1012) an adjusted time period based on an ~~equilibrium~~ constant parameter divided by ~~and~~ a count of transactions in the plurality of incoming transactions received over the time period.

~~11.~~9. The method claimed in claim 8~~10~~, further comprising iteratively repeating the receiving, combining and sending operations using the adjusted time period and determining (1012) a further adjusted time period after each iteration for use in the subsequent iteration.

~~12.~~ The method claimed in claim 8, wherein~~10, wherein determining the adjusted time period comprises determining the adjusted time period based on the equilibrium constant parameter divided by the count of transactions.~~

~~13.~~10. ~~The method claimed in claim 12, wherein the~~ determining the adjusted time period is subject to a minimum time period that the adjusted time period cannot be below and a maximum time period that the adjusted time period cannot be above.

~~14.~~ The method claimed in claim 8~~10~~, further comprising determining an average time period based on a plurality of adjusted time periods and storing the average time period in memory at said one of the nodes, and optionally~~.~~

~~15.~~11. ~~The method claimed in claim 14,~~ further comprising sending the average time period to one or more neighbouring nodes in the network of nodes.

~~16.~~12. The method claimed in claim 8~~10~~, further comprising initializing (1002) the ~~equilibrium~~ constant parameter based on one or more throughput estimates for one of more links to said one of the nodes.

~~17.~~13. The method claimed in claim 8~~10~~, further comprising initializing the ~~equilibrium~~ constant parameter based on an estimated initial time period and an estimated initial count of transactions.

~~18.~~14. The method claimed in claim 8~~10~~, further comprising determining (1108) that the count of transactions received in the time period exceeds a minimum count to use

network coding, and wherein the combining and sending are conditional on that determination.

~~19.~~15. A non-transitory processor-readable medium storing processor-executable instructions to participate in a transaction among a plurality of participating nodes, wherein the processor-executable instructions, when executed by a processor in one of the participating nodes, cause the processor to carry out the method claimed in any one of claims 8~~10~~ to 14~~18~~.