

CLAIMS

1. A method of facilitating concurrent blockchain transactions for a plurality of users in a transaction system having respective user blockchain accounts each having a token balance, the method comprising:
 - 5 providing, at a blockchain network, an aggregator account having a token balance;
 - generating a plurality of child accounts of the aggregator account, wherein the plurality of child accounts and the aggregator account are system accounts, and the system accounts are different from the user blockchain accounts;
 - 10 periodically initiating, at the blockchain network, a plurality of top-up transactions to transfer tokens from the aggregator account to the plurality of child accounts;
 - 15 receiving a plurality of user top-up requests from the user blockchain accounts corresponding to the plurality of users; and
 - concurrently incrementing the respective token balances for the plurality of users by initiating, at the blockchain network, a plurality of user top-up transactions to transfer tokens from the plurality of child accounts to the user blockchain accounts, wherein the plurality of child accounts of the system accounts is configured to perform the plurality of user top-up transactions with the user blockchain accounts corresponding to the plurality of users, in parallel,
 - 20 wherein the generating the plurality of child accounts of the aggregator account comprises:
 - 25 checking a number of concurrent transactions occurring on the transaction system within a given time window;
 - determining, based on the number of concurrent transactions occurring on the transaction system within the given time window, whether one or more additional child accounts are required; and
 - 30 generating, based on the determination that the one or more additional child-accounts are required, the one or more additional child-accounts.

2. A method according to claim 1, wherein said number of concurrent transaction occurring on the transaction system corresponds to a load on the transaction system.

5 3. A method according to claim 1 or claim 2, comprising selecting child accounts for said user top-up transactions in accordance with one or more selection criteria.

4. A method according to claim 3, wherein the one or more selection criteria
10 include a round-robin selection criterion, selecting a child account that is the least recently used child account, or selecting a child account having the highest balance.

5. A method according to any one of the preceding claims, wherein the
15 method is executed at least partly at a transaction management device that stores user account data for the users separately from a key vault that stores private keys for signing transactions initiated by respective ones of the users.

6. A transaction management device for facilitating concurrent blockchain
20 transactions for a plurality of users in a transaction system having respective user blockchain accounts each having a token balance, the transaction management device comprising at least one processor and computer-readable storage in communication with the at least one processor, the computer-readable storage having stored thereon instructions for causing the at least one
25 processor to:

generate, at a blockchain network, an aggregator account having a token balance;

generate a plurality of child accounts of the aggregator account, wherein the plurality of child accounts and the aggregator account are system
30 accounts, and the system accounts are different from the user blockchain accounts;

periodically initiate, at the blockchain network, a plurality of top-up transactions to transfer tokens from the aggregator account to the plurality of child accounts;

- receive a plurality of user top-up requests from the user blockchain accounts corresponding to the plurality of users; and concurrently increment the respective token balances for the plurality of users by initiating, at the blockchain network, a plurality of user top-up transactions to transfer tokens from the plurality of child accounts to the user blockchain accounts, wherein the plurality of child accounts of the system accounts is configured to perform the plurality of user top-up transactions with the user blockchain accounts corresponding to the plurality of users, in parallel,
- wherein the generating the plurality of child accounts of the aggregator account comprises:
- checking a number of concurrent transactions occurring on the transaction system within a given time window;
 - determining, based on the number of concurrent transactions occurring on the transaction system within the given time window, whether one or more additional child accounts are required; and
 - generating, based on the determination that the one or more additional child-accounts are required, the one or more additional child-accounts.
7. A transaction management device according to claim 6, wherein said number of concurrent transactions occurring on the transaction system corresponds to a load on the transaction system.
8. A transaction management device according to claim 6 or claim 7, wherein said instructions further cause the at least one processor to select child accounts for said user top-up transactions in accordance with one or more selection criteria.
9. A transaction management device according to claim 8, wherein the one or more selection criteria include a round-robin selection criterion, selecting a child account that is the least recently used child account, or selecting a child account having the highest balance.

10. A transaction management device according to any one of claims 6 to 9,
further comprising a user database that stores user account data for the users,
and a key vault that stores private keys for signing transactions initiated by
respective ones of the users, wherein the user database is isolated from the key
5 vault.

11. One or more non-transitory computer-readable media having stored
thereon computer-readable instructions that, when executed by at least one
processor, cause the at least one processor to perform a method according to
10 any one of claims 1 to 5.