

CLAIMS

What is claimed is:

1. A ~~network node~~computing device comprising:
 - at least one processor;
 - at least one memory communicatively coupled to the at least one processor;
 - at least one network interface communicatively coupled to the at least one processor;wherein the ~~network node~~computing device is configured to be within a plurality of ~~network node~~computing devices communicatively coupled in a peer-to-peer network of ~~network node~~computing devices implementing a distributed ledger;
wherein the ~~network node~~computing device is configured to be communicatively coupled to at least one remotely located computing device through the at least one network interface;
wherein the at least one processor is configured to:
 - determine a split ratio for a new split of security tokens held in at least one address of the distributed ledger; ~~and~~
 - store an indication of the split ratio without updating token balances on the distributed ledger for all of the at least one address in a list of addresses holding at least one of the security tokens
 - determine that a new transfer of a quantity of the security tokens, from a first address of the at least one address to a second address, has been requested;
 - determine a split-updated token balance for at least the first address based on at least the indication of the split ratio; and
 - update token balances on the distributed ledger for at least the first address based on the split-updated token balance for at least the first address as part of the new transfer.
2. ~~The network node of claim 1, wherein the at least one processor is further configured to:~~

determine that a new transfer of a quantity of the security tokens, from a first address to a second address, has been requested;
determine a split updated token balance for each of the first address and the second address based on at least the indication of the split ratio; and
update token balances for the first address and the second address based on the split updated token balance for each of the first address and the second address.

32. The ~~network node~~computing device of claim 21, wherein the at least one processor is further configured to:
store an indication that all splits have been accounted for in the token balances for the first address and the second address.

43. The ~~network node~~computing device of claim 1, wherein the at least one processor is further configured to:
determine a number of the security tokens that will be paid out in response to the new split; and
initiate at least one transaction to compensate each security token holder associated with an address, which will possess a fractional security token following the new split, for their respective fractional security token.

54. The ~~network node~~computing device of claim 43, wherein the at least one processor is further configured to:
update a total number of outstanding security tokens following the new split;
and
remove each of the at least one address, which will possess less than one security token following the new split, from the list of addresses holding at least one of the security tokens.

65. The ~~network node~~computing device of claim 1, wherein the security tokens are cryptographic tokens that each represents an external, tradeable asset.

76. The ~~network node~~computing device of claim 1, wherein the security tokens are implemented using an originating smart contract.

87. The ~~network node~~computing device of claim 21, wherein determining the split-updated token balance for each of the first address and the second address incurs no blockchain-related fees.

98. The ~~network node~~computing device of claim 21, wherein updating token balances for the first address and the second address incurs block-chain related fees.

409. The ~~network node~~computing device of claim 1, wherein the at least one processor is further configured to store split ratios for all historical splits of the security tokens in a multi-object data structure.

410. The ~~network node~~computing device of claim 409, wherein the at least one processor is further configured to maintain an address-specific index to the multi-object data structure for each address holding at least one of the security tokens, wherein each particular address-specific index indicates a particular split ratio that was most recently applied to a token balance associated with a respective address.

411. The ~~network node~~computing device of claim 409, wherein the at least one processor is further configured to maintain a current index to the multi-object data structure indicating a most recent split for the security tokens.

412. A computerized method for ~~transferring a self-enforcing~~splitting security tokens, wherein the computerized method is performed by a ~~network node~~computing device configured to be included within a plurality of ~~network node~~computing devices in a peer-to-peer network of ~~network node~~computing devices implementing a distributed ledger, wherein the ~~network node~~computing device is configured to be communicatively coupled to other ~~network node~~computing devices in the peer-to-peer network, the computerized method comprising:

determining a split ratio for a new split of security tokens held in at least one address of the distributed ledger; and

storing an indication of the split ratio without updating token balances on the distributed ledger for all of the at least one address in a list of addresses holding at least one of the security tokens

determining that a new transfer of a quantity of the security tokens, from a first address of the at least one address, has been requested;

determining a split-updated token balance for at least the first address based on at least the indication of the split ratio; and

updating token balances on the distributed ledger for at least the first address based on the split-updated token balance for at least the first address as part of the new transfer the new transfer.

~~14. The computerized method of claim 13, further comprising:~~

~~determining that a new transfer of a quantity of the security tokens, from a first address to a second address, has been requested;~~

~~determining a split-updated token balance for each of the first address and the second address based on at least the indication of the split ratio; and~~

~~updating token balances for the first address and the second address based on the split-updated token balance for each of the first address and the second address.~~

~~13.~~ The computerized method of claim 12, further comprising:

storing an indication that all splits have been accounted for in the token balances for the first address ~~and the second address.~~

~~14.~~ The computerized method of claim ~~13~~12, further comprising:

determining a number of the security tokens that will be paid out in response to the new split; and

initiating at least one transaction to compensate each security token holder associated with an address, which will possess a fractional security token following the new split, for their respective fractional security token.

~~47~~15. The computerized method of claim ~~46~~14, further comprising:
updating a total number of outstanding security tokens following the new split;
and
removing each of the at least one address, which will possess less than one
security token following the new split, from the list of addresses
holding at least one of the security tokens.

~~48~~16. The computerized method of claim ~~43~~12, wherein the security tokens are
cryptographic tokens that each represents an external, tradeable asset.

~~49~~17. The computerized method of claim ~~43~~12, wherein the security tokens are
implemented using an originating smart contract.

~~20~~18. The computerized method of claim ~~44~~12, wherein determining the split-
updated token balance for ~~each of the first address and the second address~~ incurs no
blockchain-related fees.

~~24~~19. The computerized method of claim ~~44~~12, wherein updating token balances for
the first address ~~and the second address~~ incurs block-chain related fees.

~~22~~20. The computerized method of claim ~~43~~12, ~~wherein the at least one processor is~~
~~further configured to store~~ comprising storing split ratios for all ~~splits in the history~~
historical splits of the security tokens in a multi-object data structure.

~~23~~21. The computerized method of claim ~~22~~20, further comprising maintaining an
address-specific index to the multi-object data structure for each address holding at
least one of the security tokens, wherein each particular address-specific index
indicates a particular split ratio that was most recently applied to a token balance
associated with a respective address.

~~24~~22. The computerized method of claim ~~22~~20, further comprising maintaining a
current index to the multi-object data structure indicating a most recent split for the
security tokens.