

CLAIMS

1. An apparatus comprising:
a storage configured to store an index structure that comprises an index of keys from a blockchain ledger, where the keys are stored as nodes in the index structure; and
a processor configured to receive a blockchain request for data stored on the blockchain ledger, read a set of keys of a non-critical query included in the blockchain request from the nodes in the index structure, and generate and store a read set for the blockchain request which does not include values for the set of keys of the non-critical query.
2. The apparatus of claim 1, wherein the index structure comprises a binary tree in which the keys are arranged as nodes in a hierarchical manner.
3. The apparatus of claim 1, wherein the processor is further configured to build the index structure based on key values that are added to the blockchain ledger.
4. The apparatus of claim 1, wherein the processor is configured to read the set of keys one-by-one from the nodes in the index structure via a next function.
5. The apparatus of claim 1, wherein the processor is further configured to identify a query of the blockchain request as the non-critical query when the query does not impact a validity of the blockchain request.
6. The apparatus of claim 1, wherein the processor is further configured to validate the blockchain request based on a previous read set for the blockchain request which does not include the values for the set of keys read from the index structure.
7. The apparatus of claim 1, wherein the index structure is implemented within logic of chaincode of a blockchain peer node.
8. The apparatus of claim 1, wherein the keys in the index structure correspond to unique values stored on a blockchain of the blockchain ledger.
9. A method comprising:
storing an index structure that comprises an index of keys from a blockchain ledger, where the keys are stored as nodes in the index structure;
receiving a blockchain request for data stored on the blockchain ledger;

reading a set of keys of a non-critical query included in the blockchain request from the nodes in the index structure; and

generating and storing a read set for the blockchain request which does not include values for the set of keys of the non-critical query.

10. The method of claim 9, wherein the index structure comprises a binary tree in which the keys are arranged as nodes in a hierarchical manner.

11. The method of claim 9, further comprising building the index structure based on key values that are added to the blockchain ledger.

12. The method of claim 9, wherein the reading comprises reading the set of keys one-by-one from the nodes in the index structure via a next function.

13. The method of claim 9, further comprising identifying a query of the blockchain request as the non-critical query when the query does not impact a validity of the blockchain request.

14. The method of claim 9, further comprising validating the blockchain request based on a previous read set for the blockchain request which does not include the values for the set of keys read from the index structure.

15. The method of claim 9, wherein the index structure is implemented within logic of chaincode of a blockchain peer node.

16. The method of claim 9, wherein the keys in the index structure correspond to unique values stored on a blockchain of the blockchain ledger.

17. A non-transitory computer readable medium comprising instructions, that when read by a processor, cause the processor to perform a method comprising:

storing an index structure that comprises an index of keys from a blockchain ledger, where the keys are stored as nodes in the index structure;

receiving a blockchain request for data stored on the blockchain ledger;

reading a set of keys of a non-critical query included in the blockchain request from the nodes in the index structure; and

generating and storing a read set for the blockchain request which does not include values for the set of keys of the non-critical query.

18. The non-transitory computer readable medium of claim 17, wherein the index structure comprises a binary tree in which the keys are arranged as nodes in a hierarchical manner.
19. The non-transitory computer readable medium of claim 17, wherein the method further comprises building the index structure based on key values that are added to the blockchain ledger.
20. The non-transitory computer readable medium of claim 17, wherein the reading comprises reading the set of keys one-by-one from the nodes in the index structure via a next function.