CLAIMS

1. A distributed ledger system ~~configured to create, update and maintain at least one blockchain indicative of transactions performed by a network of users of the system, the system~~ comprising:

a network of computing devices including ~~a network~~at least one group of user nodes in communication with one another to participate in transacting and recording transactions ~~and subsequently write the transactions to~~ in an associated blockchain, ~~each~~ at least one user node in the group being initiated and operable via an instance of one or more web-application(s) running in a web-browser executed by one or more associated computing device(s),

the web-application(s) being configured to initiate and operate an associated user node to participate in transacting and recording transactions for at least one blockchain of at least one group of user nodes by:

obtaining a node address for the associated user node for each blockchain that the user node is configured to participate in, the node address including an indication of the associated blockchain;

requesting data indicative of a current iteration of the blockchain from the group of user nodes and storing the current iteration of the blockchain in electronic memory of the computing device(s) associated with the user node,

for at least one ~~processor~~blockchain that the user node is configured to participate in; and

enabling the associated user node to:

communicate with the group of user nodes to participate in transactions with the group of user nodes, for at least one ~~computer-readable medium having recorded thereon instructions to be executed by the processor(s) to~~ blockchain that the user node is configured to participate in, and

carry out one or more blockchain-related tasks ~~for~~including creating, updating and/or maintaining ~~at least one associated~~ the blockchain ~~of the system~~ based on the transactions~~; and~~ between the group of user nodes, for at least one

blockchain that the user node is configured to participate in; and

wherein the network of computing devices ~~is operable to~~ enable at least one ephemeral user node ~~to join the network~~ of ~~computing devices to carry out the blockchain-related tasks in association with~~ at least one group of user nodes to temporarily join and operate within the group of user nodes by initiating a temporary instance of the respective web application(s), the blockchain ~~during an~~(s) associated with the group of user nodes remaining active ~~session~~after the temporary instance of the ~~ephemeral user node.~~ respective web

~~1A~~application(s) is terminated.

2. A system as claimed in claim 1 wherein the network of computing devices is operable to enable the at least one ephemeral user node to ~~repeatedly~~temporarily join and operate within the ~~network~~group of ~~computing devices~~user nodes and to ~~carry out~~rejoin and operate within the ~~blockchain-related tasks in association with at least one blockchain~~group of user nodes during multiple ~~active sessions.~~ independent instances of the respective web application(s).

~~2~~3. A system as claimed in claim 1 or claim ~~1A~~2 wherein ~~each~~the at least one user node in at least one of the group(s) of user nodes is configured to obtain executable code from ~~the~~ associated computer-readible medium to perform the one or more blockchain-related tasks.

~~3~~4. A system as claimed in claim ~~2~~3 wherein the at least one user node in at least one of the group(s) of user nodes is configured to communicate with the network of computing devices to obtain the executable code using an address location within a blockchain of the system.

~~4~~5. A system as claimed in claim ~~3~~4 wherein the at least one user node ~~is configured to access and execute~~ of at least one of the ~~blockchain-related tasks via a web-browser instance operable using the processor~~group(s) ~~associated with the node.~~

~~4A. A system as claimed in claim 4 wherein the node~~of user nodes is configured to access and execute the blockchain-related tasks using a webAssembly container.

~~5~~6. A system as claimed in ~~any one of~~ claim ~~3 to claim 4A wherein the node is an ephemeral node.~~

6. A system as claimed in4 or claim 5 wherein the node joins the networknetworking of computing devices when the node is capable ofincludes a server and a database, and the at least one user node in at least one of the group(s) of user node is configured to access and execute the blockchain related tasks by communicating with the server to access and perform one or more blockchain related tasks. and the database.

7. A system as claimed in any one of the preceding claims wherein all user nodes in at least one of the group(s) of user nodes are ephemeral nodes.

8. A system as claimed in any one of the preceding claims wherein at least one user node in at least one of the group(s) of user nodes is configured to obtain data indicative of athe current iteration of a blockchain from corresponding peer user nodes in the group of user nodes, for enabling the execution of the blockchain-related task(s).

9. A system as claimed in claim 8 wherein at least one node is configured to obtain the data indicative of the current iteration of a blockchain is a most recent block or most recent blocks of a current iteration of a blockchain from the network of computing devices for enabling the execution of the blockchain-related task(s).

10. A system as claimed in claim 9 wherein each ephemeral node is configured to obtain data indicative of a most recent block or most recent blocks of a current iteration of a blockchain when the node joins the network of computing devices for enabling the execution of the blockchain-related task(s). blockchain.

1110. A system as claimed in any one of claim 8 to claim 10the preceding claims wherein at least one ephemeral user node is configured to maintain a full-copy of the blockchain.

11A. A system as claimed in claim 11 wherein multiple ephemeral nodes of the network are configured to maintain a full copy of the blockchain

12. A system as claimed in any one of the preceding claims wherein the network of ephemeral nodes comprises at least one node operating as a full-node, wherein the full-node isnode operable to execute a mining task of the blockchain-related tasks for selecting a node within the

~~network~~associated group of user nodes to write a next validated block to the associated blockchain.

~~13~~11. A system as claimed in claim ~~12~~10 wherein the mining task is operative using a proof-of-stake method.

~~14~~12. A system as claimed in any one of the preceding claims wherein ~~the network of nodes comprises~~ at least one ephemeral node ~~operating as~~is a light node~~, wherein the light node~~ that is not operable to execute a mining task of the blockchain-related tasks.

~~16~~13. A system as claimed in any one of the preceding claims wherein the ~~network of~~user nodes of at least one of group(s) of user nodes are capable of communicating with one another via a peer-to-peer communications protocol.

~~17.~~14. A system as claimed in claim ~~15~~13 wherein the peer-to-peer communication is facilitated by webRTC.

~~18~~15. A system as claimed in any one of the preceding claims wherein the network of computing devices is configured to verify a predetermined user identity associated with a user node prior to the user node establishing communication with the remaining ~~network~~user nodes in a group of user nodes, for the purposes of carrying out one or more blockchain-related tasks.

~~19~~16. A system as claimed in claim ~~18~~15 wherein verifying the predetermined user identity comprises a two-factor authentication process.

~~20~~17. A system as claimed in claim ~~19~~16 wherein the two-factor authentication process includes a biometric identification stage wherein a predetermined biometric characteristic of a user associated with the user node is verified.

~~21~~18. A system as claimed in any one of the preceding claims wherein ~~each node in the network of nodes comprises a node address associated therewith for each blockchain the node is configured to participate in to enable communication with the node, and wherein the node address includes an indication of the associated blockchain.~~

~~22. A system as claimed in claim 21 wherein~~ the node address is temporary for ~~an~~the at least one ephemeral user node.

~~23~~19. A system as claimed in claim ~~22~~2 wherein ~~an~~the at least one ephemeral user node ~~receives~~is configured to obtain a new node address different to a previous node address for an associated blockchain when the node re-joins ~~the network~~a group of user nodes.

~~24~~20. A system as claimed in any one of ~~claim 21 to claim 23~~the preceding claims wherein ~~each~~the at least one user node ~~comprises~~of at least one of the group(s) of user nodes includes a unique node address for each blockchain associated with the node.

~~25~~21. A system as claimed in any one of ~~claim 21 to claim 24~~the preceding claims wherein the network of computing devices is configured to associate a pair of public and private keys to a user of a node address for use in encrypting and decrypting transactions associated with a user of a blockchain upon the ~~associated node joining the network for the purposes of participating in the blockchain.~~

~~26~~associated node joining the network for the purposes of participating in the blockchain.

22. A system as claimed in any one of the preceding claims wherein the network of computing devices are operable to create, update and maintain multiple blockchains.

~~27~~23. A system as claimed in any one of the preceding claims wherein each user node in at least one of the group(s) of user nodes is associated with a user identification or address and wherein the user identification or address is utilised in transactions associated with the user node to ~~identity~~identify the associated user.

~~28~~24. A system as claimed in any one of the preceding claims wherein the ~~one or more~~ transactions between the group of user nodes comprises ~~the~~an exchange of data ~~between at least two computing devices~~ including any combination of one or more of: text data, image data, audio data and/or video data.

~~29~~25. A system as claimed in any one of the preceding claims wherein ~~the network of nodes comprises at least one group of nodes associated with a user identity, and wherein each group of~~

nodes comprises at least one user node associated with a user havingin at least one of the group(s) of user nodes is configured to obtain a parent node address and at least one or moreother user node in the group of user nodes havingis configured to obtain a child usernode address that includes data indicative of the associated node associated with a related parent usernode address.

29A26. A system as claimed in claim 29any one of the preceding claims wherein at least one user node of at least one of the group(s) of user nodes is operative to require authorisation of a transaction from one or more other user nodes within the group of nodes prior to broadcasting the transaction for writing intorecording on the associated blockchain.

29B. 27. A system as claimed in claim 29B25 wherein each authorisingthe at least one other user node in the group of user nodes is operative to authorize a parenttransaction from the at least one user node. prior to broadcasting the transaction for recording on the associated blockchain.

30. 28. A system as claimed in any one of the preceding claims wherein the network of computing devices is configured to allocate a static user identify to each networkuser node in at least one of the group(s) of user nodes upon joining the networkgroup of user nodes for the first time.

31. A system as claimed in29. A system as claimed in claim 28 wherein the network of computing devices is configured to allocate a new virtual user identity differing from the static user identify to each of the at least one ephemeral nodes in at least one of the group(s) of user nodes every time the ephemeral user node rejoins the network of computing devices.

30. A system as claimed in claim 29 wherein the new virtual user identify differs from a previously allocated virtual user identity.

31. A system as claimed in any one of claim 29 or claim 30 wherein the network of computing devices is configured to allocate a new virtual user identity differing from the static user identify to each ephemeral node every time the node rejoins the network of computing devices.

32. A system as claimed in claim 31 wherein the network of computing devices is configured to allocate a new virtual user identity to each ephemeral node every time the node rejoins the

network of computing devices, wherein the new virtual user identify differs from a previously allocated virtual user identity.

33. A system as claimed in any one of claim 30 or claim 32 wherein the network of computing devices is configured to allocate a new virtual user identity differing from the static user identity to each user node in at least one of the group(s) of user nodes for every transaction associated with the user node.

34. 32. A system as claimed in any one of the preceding claims wherein the network of computing devices includes at least two groups of user nodes that are configured to operate and maintain a first blockchain and a second blockchain, the first group of user nodes operating to facilitate verification, input, storage, extraction and manipulation of data by the group of user nodes and the second group of user nodes monitoring the operation of the user nodes in the first group of user nodes to determine behavior status of the user nodes in the first group of user nodes and storing data indicative of the behavior status in the second blockchain.

33. A method for maintaining at least one blockchain stored in a distributed ledger system, the method comprising:

enabling communication between a network of computing devices including a networkat least one group of user nodes of the system,in communication with one another to enable execution of one or more participate in transacting and recording the transactions between multiple user nodes and to enable writing of the transaction(s) to in an associated blockchain,

providing an interfaceenabling at least one user node in at least one of the group(s) of user nodes to be initiated and operable via an instance of one or more web-application(s) running in a web-browser executed by one or more associated computing device(s),

the web-application(s) being configured to initiate and operate an associated user node to participate in transacting and recording transactions for the networkat least one blockchain of computing devices to access at least one computer-readable medium having recorded thereon instructionsgroup of user nodes by:

obtaining a node address for the associated user node for each blockchain that the user node is configured to participate in, the node address including an indication of the associated blockchain;

requesting data indicative of a current iteration of the blockchain from the group of user nodes and storing the current iteration of the blockchain in electronic memory of the computing device(s) associated with the user node, for at least one blockchain that the user node is configured to participate in; and

enabling the associated user node to:

communicate with the group of user nodes to participate in transactions with the group of user nodes, for at least one blockchain that the user node is configured to participate in, and carry out one or more blockchain-related tasks ~~for~~including creating, updating and/or maintaining ~~at least one associated~~ the blockchain ~~of the system~~ based on the transactions~~,~~ between the group of user nodes, for at least one blockchain that the user node is configured to participate in; and ~~to allow each computing device~~

enabling at least one ephemeral user node of at least one group of user nodes to ~~execute the~~ temporarily join and operate within the group of user nodes by initiating a temporary instance of the respective web application(s), the blockchain(s) associated with the group of user nodes remaining active after the temporary instance of the respective web application(s) is terminated.

34. A method as claimed in claim 33 wherein further comprising enabling the at least one ephemeral user node to temporarily join and operate within the group of user nodes and to rejoin and operate within the group of user nodes during multiple independent instances of the respective web application(s).

35. A method as claimed in claim 33 or claim 34 wherein further comprising enabling the at least one user node in at least one of the group(s) of user nodes to obtain executable code from associated computer-readible medium to perform the one or more blockchain-related tasks~~; and~~.

~~enabling at least one ephemeral user node to join the network of computing devices and to access the at least on computer-readable medium to execute the blockchain-related tasks in association with at least one blockchain during an active session of the ephemeral user node.~~

~~35. A method as claimed in claim 34 further comprising enabling at least one ephemeral user node to repeatedly join the network of computing devices during different active sessions.~~

36. A method as claimed in claim ~~34 or claim~~ 35 wherein further comprising enabling the ~~interface is accessible via a web browser instance executed by the respective computing device.~~

~~36A. A method as claimed~~ at least one user node in ~~any one of claim 34 to claim 35 wherein~~ at least one ~~node is configured~~of the group(s) of user nodes to communicate with the network of computing devices to obtain the executable code using an address location within a blockchain of the system.

37. A method as claimed in claim 36 ~~or claim 36A wherein the node is an ephemeral node.~~

~~38. A method as claimed in any one of the claim 34 to claim 37 wherein all user nodes are ephemeral nodes.~~

~~39. A method as claimed in any one of claim 34 to claim 38~~ further comprising ~~providing~~enabling the at least one ~~node with data indicative~~user node of at least one of the group(s) of ~~an instance of a blockchain from the network of computing devices for enabling the execution of~~user nodes to access and execute the blockchain-related ~~task(s).~~ tasks using a webAssembly container.

~~40~~38. A method as claimed in claim ~~39~~36 or claim 37 further comprising ~~providing~~enabling the at least one user node in at least one of the group(s) of user nodes to access and execute the blockchain related tasks by communicating with a server and a database.

39. A method as claimed in any one of claim 33 to claim 38 wherein all user nodes in at least one of the group(s) of user nodes are ephemeral nodes.

40. A method as claimed in any one of claim 33 to claim 39 wherein at least one user node in at least one of the group(s) of user nodes is configured to obtain data indicative of ~~a most recent~~

~~block or most recent blocks of an instance~~the current iteration of a blockchain from corresponding peer user nodes in the ~~network~~group of ~~computing devices~~user nodes, for enabling the execution of the blockchain-related task(s).

41. A method as claimed in claim 40 ~~further comprising providing each ephemeral node with a~~ wherein the data indicative of ~~an instance~~the current iteration of ~~the~~a blockchain ~~when the node joins the network of computing devices for enabling the execution~~is a most recent block or most recent blocks of the blockchain~~ related task(s).~~ .

42. A method as claimed in any one of claim ~~39~~33 to claim 41 wherein at least one ephemeral ~~node is configured to maintain a full copy of an instance of the blockchain.~~

~~42A. A method as claimed in claim 42 wherein multiple ephemeral nodes of the network are configured to maintain a full copy of an instance of the blockchain~~

~~43. A method as claimed in any one of claim 34 to claim 42A further comprising enabling at least one ephemeral node to operate as~~ user node is a full-node operable to execute a mining task of the blockchain-related tasks for selecting a node within the ~~network~~associated group of user nodes to write a next validated block to the associated blockchain.

~~44~~43. A method as claimed in claim ~~43~~42 wherein the mining task is operative using a proof-of-stake method.

~~45~~44. A method as claimed in any one of claim ~~34~~33 to claim ~~44 further comprising enabling~~43 wherein at least one ephemeral node ~~to operate as~~is a light node~~, wherein the light node~~ that is not operable to execute a mining task of the blockchain-related tasks.

~~46~~45. A method as claimed in any one of claim ~~34~~33 to claim ~~45~~44 further comprising enabling the ~~network~~user nodes of at least one of group(s) of user nodes to communicate with one another via a peer-to-peer communications protocol.

~~47~~46. A method as claimed in claim ~~46~~45 wherein the peer-to-peer communication is facilitated by webRTC.

~~48~~47. A method as claimed in any one of claim ~~34~~33 to claim ~~47~~45 further comprising ~~performing~~verifying a predetermined user ~~verification prior to providing~~ identity associated with a user node ~~with access~~prior to the user node establishing communication with the remaining user nodes in a group of user nodes, for the purposes of carrying out one or more blockchain-related tasks.

~~49~~48. A method as claimed in claim ~~48~~47 wherein verifying the predetermined user ~~verification~~identity comprises a two-factor authentication process.

~~50~~49. A method as claimed in claim 48 wherein the two-factor authentication process includes a biometric identification stage wherein a predetermined biometric characteristic of a user associated with the user node is verified.

~~51~~50. A method as claimed in any one of claim ~~34~~33 to claim 50 ~~further comprising allocating each node in the network with a node address for each blockchain the node is configured to participate in.~~

~~52. A method as claimed in claim 51~~ wherein the node address is temporary for ~~an~~ the at least one ephemeral user node.

~~53~~51. A method as claimed in claim ~~52~~34 further comprising ~~allocating~~enabling the at least one ephemeral user node to obtain a new node address different to a previous node address for an associated blockchain when ~~an ephemeral~~the node re-joins ~~the network~~a group of user nodes.

~~54~~52. A method as claimed in any one of claim ~~51~~33 to claim ~~53 further comprising allocating each~~51 wherein the at least one user node ~~with~~of at least one of the group(s) of user nodes includes a unique node address for each blockchain associated with the node.

~~55~~53. A method as claimed in any one of claim ~~51~~33 to claim ~~54~~52 further comprising ~~allocating~~associating a pair of public and private keys ~~associated with the~~to a user ~~addresses associated with each~~of a node address for use in encrypting and decrypting transactions ~~upon a~~ associated with a user of a blockchain upon the associated node joining the network~~.~~

56. A method as claimed in any one of the preceding claims wherein the blockchain-related tasks are executable by for the purposes of participating in the blockchain.

54. A method as claimed in any one of claim 33 to claim 53 further comprising enabling the network of computing devices to create, update and maintain multiple blockchains.

57.55. A method as claimed in any one of claim 3433 to claim 56 further comprising allocating54 wherein each user node in at least one of the group(s) of user nodes is associated with a user identification or address for a user associated with a user node to beand wherein the user identification or address is utilised in transactions associated with the user node. to identify the associated user.

58.56. A method as claimed in any one of claim 3433 to claim 5755 wherein the one or more transactions between the group of user nodes comprises thean exchange of data between at least two computing devices including any combination of one or more of: text data, image data, audio data and/or video data.

59.57. A method as claimed in any one of claim 3433 to claim 5856 further comprising enabling a group of network nodes to join the network of nodes, and wherein the group of network nodes comprises at least one parentuser node havingin at least one of the group(s) of user nodes to obtain a parent node address and at least one or more childother user node in the group of user nodes havingto obtain a child node address that includes data indicative of the associated parent node address.

59A.58. A method as claimed in any one claim 5933 to claim 57 further comprising operating authorising a transaction of at least one user node of at least one of the group of nodes to require authorisation of a transaction from(s) of user by one or more other user nodes within the group of nodes prior to broadcasting the transaction for writing intorecording on the associated blockchain.

59B.59. A method as claimed in claim 59A58 wherein each authorisingthe at least one other user node in the group of user nodes is authorises a parenttransaction from the at least one user node. prior to broadcasting the transaction for recording on the associated blockchain.

60. A method as claimed in any one of claim ~~34~~33 to claim ~~59B~~59 further comprising ~~enabling the allocation of~~ allocating a static user identify to each ~~network~~user node in at least one of the group(s) of user nodes upon joining the ~~network~~group of user nodes for the first time.

61. A method as claimed in claim 60 further comprising ~~enabling the allocation of~~allocating a new virtual user identity differing from the static user identify to each of the at least one ephemeral ~~node~~nodes in at least one of the group(s) of user nodes every time the ephemeral user node rejoins the network of computing devices.

62. A method as claimed in claim 61 ~~further comprising enabling the allocation of a new virtual user identity to each ephemeral node every time the node rejoins the network of computing devices,~~ wherein the new virtual user identify differs from a previously allocated virtual user identity.

63. A method as claimed in any one of claim ~~60~~61 or claim 62 further comprising ~~enabling the allocation of~~ allocating a new virtual user identity differing from the static user identity to each user node in at least one of the group(s) of user nodes for every transaction associated with the user node.

64. A method as claimed in any one of claim 33 to claim 63 further comprising enabling at least two groups of user nodes to operate and maintain a first blockchain and a second blockchain, the first group of user nodes operating to facilitate verification, input, storage, extraction and manipulation of data by the group of user nodes and the second group of user nodes monitoring the operation of the user nodes in the first group of user nodes to determine behavior status of the user nodes in the first group of user nodes and storing data indicative of the behavior status in the second blockchain.