CLAIMS

1. A distributed computing system configured to enable a network of users of the system to participate in one more transactions, comprising:

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a distributed ledger system comprising:

a network of computing devices including at least one group of user nodes in communication with one another~~, each~~ to participate in transacting and recording transactions in an associated blockchain, 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 ~~at least one computer readable medium for executing the one or more transactions~~

enabling the associated user node to:

communicate with ~~other user nodes in the network;~~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

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~~a distributed ledger system capable of~~carry out one or more blockchain-related tasks including creating, updating and/or maintaining ~~and updating~~the blockchain based on the transactions between the group of user nodes, for at least one blockchain ~~indicative of the~~ that the user node is configured to participate in:

the network of computing devices enabling at least one ~~or more transactions via~~ ephemeral user node of 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(s) associated with the group of user nodes remaining active after the temporary instance of the respective web application(s) is terminated;

the network of ~~user nodes~~computing devices enabling at least one ephemeral user node of 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(s) associated with the group of user nodes remaining active after the temporary instance of the respective web application(s) is terminated; and

one or more databases accessible by the ~~network of~~at least one node of at least one group of user nodes for recording and reading data relating to ~~the one or more transactions between the user nodes.~~

~~2.~~

~~A distributed computing system as claimed in claim 1 wherein the data relating to the at least one blockchain~~

~~comprises data indicative of the~~ one or more transactions of ~~the associated~~at least one blockchain~~.~~ of the distributed ledger system.

~~3.~~

A distributed computing system as claimed in claim 1 ~~or claim 2 wherein at least one of the databases is a NoSQL database.~~

~~4. A distributed computing system as claimed in any one of the preceding claims wherein each user node is configured to access data relating to transactions associated with the user node.~~

~~5. A distributed computing system as claimed in any one of the preceding claims,~~ wherein at least one blockchain ~~storing one or more transactions using~~of the distributed ledger system is substantially synchronised with ~~associated copies of~~ the at least one ~~or more~~database such that transactions stored in the blockchain are also stored in the at least one database~~.~~

~~6. A distributed computing system as claimed in any one of the preceding claims wherein the non-SQL database stores data indicative of a status of one or more transactions between user nodes.~~

~~7. A distributed computing system as claimed in any one of the preceding claims wherein the non-SQL database is utilised to record blockchain-related transactions between the user nodes.~~

~~8. A distributed computing system as claimed in any one of the preceding claims;~~ wherein each user node of at least one group of user nodes is configured to execute data access layer software for translating blockchain-related transaction data acquired from the at least one database to data suitable for use as a transaction in the distributed ledger system~~.~~

~~9. A distributed computing system as claimed in any one of the preceding claims;~~ wherein each user node of at least one group of user nodes is configured to execute data access layer software for translating blockchain-related transaction data acquired from the distributed ledger system to data suitable for use to store as a transaction in the at least one database~~.~~

~~10. A distributed computing system as claimed in any one of the preceding claims;~~ wherein each user node of at least one group of user nodes is configured to execute database management software for enabling the node to create, read, update and/or delete one or more blockchain related transactions on the at least one database~~.~~

2. ~~11.~~

~~A distributed computing system as claimed in any one of the preceding claims;~~ and wherein each user node of at least one group of user nodes is configured to execute database management software for enabling the node to transmit one or more blockchain related transactions stored in the at least one database to the user node for use in distributed ledger system.

~~12.~~

A distributed computing system as claimed in any one of the preceding claims ~~wherein each user node is configured to execute node software for performing the one or more blockchain related tasks.~~

3. ~~13.~~

~~A distributed computing system as claimed in any one of the preceding claims,~~ wherein each computing device is configured to execute address filtering software for identifying blockchain-related transactions originating from the node software or from the database management software for one or more node addresses related to a particular user node, for one or more ~~user nodes or databases.~~ blockchains.

~~14.~~

A distributed computing system as claimed in any one of the preceding claims ~~wherein at least one user node is an ephemeral node configured to temporarily join the network of user nodes to carry out the blockchain-related tasks in association with at least one blockchain during an active session of the ephemeral user node.~~

4. ~~15.~~

~~A system as claimed in claim 12,~~ wherein the network of user nodes is operable to enable 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).

~~16. A system as claimed in any one of the preceding claims wherein the node is configured to access and execute the blockchain-related tasks via a web browser instance operable using the processor(s) associated with the node.~~

~~17. A system as claimed in claim 14 wherein the node is configured to access and execute the blockchain-related tasks using a webAssembly container.~~

~~18. A~~

5. A distributed computing system as claimed in any one of the preceding claims, wherein at least one database of the one or more databases is associated with at least one user node of at least one group of user nodes and wherein for each of the at least one user node, the transactions of each blockchain of at least one blockchain associated with the user node are stored in the corresponding databases(s) and accessible by the user node; wherein the at least one user node in at least one of the group(s) of user nodes is configured to obtain executable code from associated computer-readable medium, including from a blockchain, to perform the one or more blockchain-related tasks, or to facilitate creation or launching of an instance of a distributed computing application; more wherein the network of computing devices includes 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 and the database.

A distributed computing system as claimed in any one of the preceding claims ~~wherein all nodes are ephemeral nodes.~~

6. ~~19.~~

~~A system as claimed in any one of the preceding claims,~~ wherein at least one ~~node is an ephemeral~~user node ~~and the ephemeral node~~in at least one of the group(s) of user nodes is configured to ~~maintain a full-~~

~~copy~~obtain data indicative of the current iteration of a blockchain from corresponding peer user nodes in the group of user nodes, for enabling the execution of the blockchain~~ or an ephoch of the blockchain.~~ related task(s).

~~20. A~~

7. A distributed computing system as claimed in any one of the preceding claims, wherein ~~the network of nodes comprises~~ at least one ephemeral user node ~~operating as~~is a full-node, wherein the full-node is operable to execute a mining task of the blockchain-related tasks for selecting a node within the network to write a next validated block to the ~~blockchain~~associated blockchain; wherein the mining task is operative using a proof-of-stake method.

~~21.~~

~~A system as claimed in claim 18 wherein the mining task is operative using a proof-of-stake method.~~

~~22. A~~distributed computing system as claimed in any one of the preceding claims ~~wherein the network of nodes are capable of communicating with one another via a peer-to-peer communications protocol.~~

~~23. A system as claimed in claim 20 wherein the peer-to-peer communication is facilitated by webRTC.~~

8. ~~24.~~

~~A system as claimed in any one of the preceding claims,~~ wherein one or more transactions executed and stored via the distributed ledger system and/or via the database have associated therewith any one or more of the following identifiers: user identifier, blockchain identifier, hierarchy level identifiers associated with a hierarchy system for a group of the user nodes, and/or an entity identifier associated with a user node.

~~25~~

9. A distributed computing 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 at least one user nodes in a group of user nodes, for the purposes of carrying out one or more blockchain-related tasks; wherein verifying the predetermined user identity comprises a two-factor authentication process.

10. A distributed computing system as claimed in claim 9, wherein the two-factor authentication process includes a biometric identification stage where a predetermined biometric characteristic of a user associated with the user node is verified .

11. A distributed computing system as claimed in any one of the preceding claims 1-9, wherein at least one user node of at least one group of user nodes is configured to access and maintain in an associated computing device, a database containing only transactions associated with at least one node address related to the user node.

12. A system as claimed in any one of the preceding claims wherein each user node of at least one group of user nodes is configured to access data stored in the database(s) relating to transactions associated with the user node.

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

enabling ~~a network of users to~~ communication between a network of computing devices including at least one group of user nodes in communication with one another to participate in ~~one more~~ transacting and recording the transactions~~, comprising the steps of:~~ in an associated blockchain,

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enabling ~~a network~~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 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 blockchain that the user node is configured to participate in; and

enabling the associated user node to:

communicate with ~~one another and~~the group of user nodes to participate in ~~one or more~~ transactions ~~amongst two or more nodes, each~~with the group of user nodes, for at least one blockchain that the user node ~~being associated with~~ is configured to participate in, and

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

enabling at least one ~~computer readable medium for executing the transaction~~ephemeral user node of 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(s) associated with the group of user nodes remaining active after the temporary instance of the respective web application(s) is terminated; and

utilising one or more databases accessible by the network of nodes for creating, maintaining and updating the one or more transactions ~~between~~of at least one blockchain maintained by at least one of the group(s) of user nodes~~; and~~.

~~creating, maintaining and updating at least one blockchain indicative of the one or more transactions in a distributed ledger system via the network of user nodes.~~

~~26. A computing platform for enabling the development of a distributed computing system application running on a user's computing device, the platform comprising:~~

~~one or more application interfaces for enabling the generation of a user node application executable on a user's computing device, the user node application having the functionality of:~~

~~communicating with other user node application(s) in a network of user nodes to perform one or more transactions with the other user node application(s),~~

~~performing one or more blockchain-related tasks to create, maintain and/or update at least one blockchain indicative of the one or more transactions; and~~

~~access and update one or more databases for recording and reading data relating to the one or more transactions between the user node and the other nodes.~~

~~27.~~

14. A method for enabling the development of a distributed computing system ~~application running on a user's computing device~~as claimed in any one of claim 1 to claim 13, the method comprising~~:~~

providing access to one or more application interfaces for enabling the generation of ~~a user node application executable on a user's computing device, the user node application having the functionality of:~~

~~communicating with other user node application(s) in a network of user nodes to perform one or more transactions with the other user node application(s),~~

~~performing or more blockchain-related tasks to create, maintain and/or update at least one blockchain indicative of the one or more transactions; and~~

~~accessing and updating one or more databases for recording and reading data relating to the one or more transactions between the user node and the other nodes.~~

~~28. A distributed computing platform, providing general purpose computing coupled with a ledger comprising:~~

~~A software construct or platform to process code and create and compile and deliver an application designed to run in a web browser, said application having a distributed ledger or blockchain and for each user a corresponding indexed database dedicated the user.~~

~~29.~~

~~A computing platform as claimed in claim 28 wherein the indexed Database is capable of communicating database transactions to other software applications which translates or manipulates each database transaction into a form suitable to be received and processed as a blockchain or distributed ledger transaction~~ web-application(s) executable by ~~said blockchain node.~~the one or more computing device(s).

30.15. A computing platform as claimed in any one of claim 28 to claim 29 wherein each application created on the platform software to has a unique ledger identifier GUID and is part of the Platform's ecosystem, for enabling communication between ledgers.

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31. A computing platform as claimed in any on one of claim 28 to claim 30 wherein applications created on or by the platform may also run on large scale devices or Servers or cloud-provided scalable computing or traditionally in existing datacentres.

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32. A computing platform as claimed in any one of claim 28 to claim 31 wherein some applications created on or by the platform may run using headless chrome instead of a web browser.

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33. A computing platform as claimed in any one of claim 28 to claim 32 wherein the platform enables the development of a software application running in a web-browser in a user device to distribute database transactions to a corresponding node in said application in a form suitable for creation of a blockchain transaction and transmit said transactions securely across a peer-to-peer network as corresponding blockchain or distributed ledger transactions.

34. A computing platform as claimed in any one of claim 28 to claim 33 wherein each application instance runs a node and the local database only holds transaction data that are relevant to the computing system, application or user.

35.

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 as claimed in any one of claim 1 to 13, the platform comprising:

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a network of computing devices including a network of user nodes in communication with one another to participate in transactions and subsequently write the transactions to an associated blockchain, each node being associated with at least one processor and at least one computer-readable medium having recorded thereon instructions to be executed by the processor(s) to carry out one or more blockchain-related tasksapplication interfaces for creating, updating and/or maintaining at least one associated blockchain of the system based on the transactions; 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 blockchain during an active session of the ephemeral user node.

36.

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

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enabling communication between a network of computing devices including a network of user nodes of the system, to enable execution of the generation of web-application(s) executable by the one or more transactions between multiple user nodes and to enable writing of the transactioncomputing device(s) to an associated blockchain,).

providing an interface for the network of computing devices to access at least one computer-readable medium having recorded thereon instructions to carry out one or more blockchain-related tasks for creating, updating and/or maintaining at least one associated blockchain of the system based on the transactions, and to allow each computing device to execute the 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.