CLAIMS

1. A computer-implemented method for implementing a blockchain-based web service, the computer-implemented method comprising:

receiving, at a blockchain network node of a blockchain network and from a client device, a web service request for web data, wherein the web service request is sent by the client device to the blockchain network node using a web interface, wherein each of the blockchain network nodes is configured to deploy one or more smart contracts for providing web services independently of another intermediate or external node, wherein the one or more smart contracts are configured to execute web service request and logics for web services;

storing, by the blockchain network node, the web service request in the blockchain network node;

forwarding, by the blockchain network node, the web service request to a smart contract deployed in a software container on the blockchain network node for providing a web service, wherein the software container comprises a standalone, executable package of software for executing the smart contract in the software container on the blockchain network node, wherein the smart contract requests and receives the web data from a network server based on the web service request;

obtaining, by the blockchain network node and from the smart contract, an execution result in response to the web service request; and

sending, by the blockchain network node, the execution result to the client device using the web interface.

2. The computer-implemented method of any preceding claim, wherein the web service request comprises a HyperText Transfer Protocol (HTTP) request, wherein the HTTP request comprises an HTTP address for the web data.

3. The computer-implemented method of any preceding claim, wherein the web interface comprises HTTP-based application programming interface (API).

4. The computer-implemented method of any preceding claim, wherein the web service comprises a web service written in Java, Go, or C/C++ computer programming language, and the software container comprises at least one of a JAVA server, a GO server, or a C/C++ server, respectively.

5. The computer-implemented method of any preceding claim, wherein the software container comprises a DOCKER container.

6. The computer-implemented method of any preceding claim, further comprising:

determining, by the blockchain network node, whether the client device is authorized to access the web data; and

wherein forwarding, by the blockchain network node, the web service request to the smart contract comprises forwarding the web service request to the smart contract in response to determining that the client device is authorized to access the web data.

7. The computer-implemented method of any preceding claim, further comprising:

storing, by the blockchain network node, information related to the smart contract in the blockchain network node, the information related to the smart contract comprising at least one of an identifier of the smart contract, a version number of the smart contract, or data that is called by the smart contract to generate the execution result.

8. The computer-implemented method of any preceding claim, wherein:

the web service request comprises a request for static web data, and the static web data is stored in the blockchain network node, and

the execution result in response to the web service request comprises the static web data retrieved by the smart contract.

9. The computer-implemented method of any one of claims 1 to 7, wherein:

the web service request comprises a request for static web data, and the static web data is stored in a distributed network server external to the blockchain network, and

the execution result in response to the web service request comprises the static web data retrieved by the smart contract from the distributed network server.

10. The computer-implemented method of any preceding claim, wherein the web service request comprises a request for modifying web data stored in the blockchain network node, the method further comprising:

broadcasting the request for modifying web data to a plurality of consensus nodes of the blockchain network;

in response to a consensus procedure performed by the plurality of the consensus nodes, modifying, by the smart contract, the web data stored in the blockchain network node; and

generating, by the smart contract, the execution result indicating the modifying of the web data stored in the blockchain network node.

11. The computer-implemented method of any preceding claim, wherein the blockchain network node comprises a second smart contract deployed in a second software container on the blockchain network node for providing a second web service, wherein the second software container comprises a second standalone, executable package of software for executing the second smart contract in the second software container on the blockchain network node.

12. An apparatus for implementing a blockchain-based web service, the apparatus comprising a plurality of modules for performing the computer-implemented method of any one of claims 1 to 11.

13. A system for implementing a blockchain-based web service, comprising:

one or more processors; and

one or more computer-readable memories coupled to the one or more processors and having instructions stored thereon that are executable by the one or more processors to perform the computer-implemented method of any one of claims 1 to 11.