

**CLAIMS**

1. A computer-implemented method for blockchain-based notification, comprising:
  - obtaining, from a computing device, a notification message indicating that a current state of a workflow is one of one or more states of the workflow, wherein a blockchain contract deployed in a blockchain is executable to update the current state among the one or more states of the workflow;
  - executing a function associated with the one state in response to the notification message; and
  - in response to completion of the execution of the function, transmitting, to the computing device, a reply message indicating completion of the execution of the function associated with the one state.
2. The method of claim 1, wherein obtaining, from the computing device, the notification message indicating that the current state of the workflow is the one state of the workflow comprises:
  - connecting to a message queue to which the computing device placed the notification message; and
  - obtaining the notification message from the message queue.
3. The method of any of claims 1-2, wherein:
  - the function is configurable by a subscriber to the one state.
4. The method of any of claims 1-3, wherein the computing device is configured to:
  - obtain information in one or more blocks of the blockchain to determine the current state;
  - update a locally-maintained state machine based on the determined current state;
  - determine if the updated state machine corresponds to the one state; and
  - in response to determining that the updated state machine corresponds to the one state, generate the notification message for one or more subscribers subscribing to the one state.
5. The method of claim 4, wherein:
  - the locally-maintained state machine comprises one or more local states respectively mapped to the one or more states; and

the one or more states are registered in the blockchain.

6. The method of claim 5, wherein:

the one or more local states are configured in a cyclic trigger flow; and

the cyclic trigger flow starts with a starting local state of the one or more local states, passes through each of the one or more local states once in one direction till an ending local state, and returns to the starting local state.

7. The method of claim 6, wherein:

the one or more states are configured in another cyclic trigger flow;

the another cyclic trigger flow starts with a starting state of the one or more states, passes through each of the one or more states once in one direction till an ending state, and returns to the starting state;

each of the one or more states is triggered by completion of a preceding state in the another cyclic trigger flow; and

the starting local state is mapped to the starting state.

8. The method of claim 7, wherein:

the one state is configurable to be shortcut from the another cyclic trigger flow in response to deactivating notification of the one state; and

a local state mapped to the one state is configurable to be shortcut from the cyclic trigger flow in response to deactivating notification of the one state.

9. The method of claim 8, wherein:

the one state is configurable to be restored in the another cyclic trigger flow in response to reactivating notification of the one state; and

the local state mapped to the one state is configurable to be restored in the cyclic trigger flow in response to reactivating notification of the one state.

10. The method of any of claims 1-9, wherein:

each of the one or more states is configurable by a subscriber of one or more sub-states to comprise the one or more sub-states; and

the method further comprises: establishing an association between the subscriber and the one or more sub-states for transmitting notifications associated with the one or more sub-states to the subscriber.

11. The method of claim 10, wherein:

the one or more sub-states form a cyclic trigger flow;

the one or more states are public to the one or more subscribers; and

the one or more sub-states are private to the subscriber of the one or more sub-states.

12. The method of any of claims 1-11, wherein transmitting, to the computing device, the reply message indicating completion of the execution of the function associated with the one state comprises:

transmitting to the computing device an update of the one state for the computing device to commence obtaining information from the blockchain to re-determine the current state.

13. The method of any of claims 1-12, wherein transmitting, to the computing device, the reply message indicating completion of the execution of the function associated with the one state comprises:

transmitting the reply message to the computing device for the computing device to generate a blockchain transaction for updating the one state, and to transmit the blockchain transaction to one or more blockchain nodes to add to the blockchain, causing the current state of the workflow to update to a state subsequent to the one state.

14. A system for blockchain-based notification, 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 method of any of claims 1 to 13.

15. An apparatus for blockchain-based notification, comprising a plurality of modules for performing the method of any of claims 1 to 13.

16. A non-transitory computer-readable medium having stored therein instructions that, when executed by a processor of a device, cause the device to perform the method of any of claims 1 to 13.