CLAIMS

1. A method comprising, by a plurality of network functions established using networked computing resources and operatively coupled together:

by a first function, establishing and managing a confederation involving a plurality of network modules, the confederation providing a service via cooperation of the plurality of network modules;

by a plurality of second functions, each integrated into a different respective one of the plurality of network modules, generating a record of actions taken by said respective one of the plurality of network modules; and

by a third function, deploying and communicating with the plurality of second functions, and performing surveillance of actions taken by the plurality of network modules, said surveillance based at least in part on said record of actions.

2. The method of claim 1, further comprising, by the first function, directing a blockchain service to establish a blockchain to support the service, and directing the plurality of modules to utilize the blockchain for providing the service.

3. The method of claim 1, further comprising, by the first function, performing or triggering authentication and/or authorization of each of the plurality of network modules, and admitting each of the plurality of network modules to the confederation only after successful completion of said authentication and/or authorization.

4. The method of claim 1 or 3, further comprising, by the first function:

obtaining information indicative of location of each of multiple network modules and services provided by each of the multiple network modules;

selecting the plurality of network modules from the multiple network modules to form the confederation based on the obtained information.

5. The method of claim 1, wherein the first function provides or is operatively coupled to a registration authority (RA), the method further comprising, by the RA, verifying identify of the plurality of network modules and obtaining and distributing certificates authenticating each of the plurality of network modules, the certificates obtained from a certification authority (CA) operatively coupled to the registration authority, the certification authority operating using a cryptographic certification system.

6. The method of claim 1, wherein the confederation comprises a main group and at least one sub-group, the main group comprising the first function, the plurality of second functions and the third function, each sub-group comprising two or more of the plurality of network modules.

7. The method of claim 1, further comprising, by the first function, establishing one or more contracts to be followed by the plurality of network modules in providing the service, the one or more contracts defining one or more of: rules for performing read or modify operations on status database information; and rules for performing service logic or execution operations.

8. The method of claim 1, further comprising, by the third function, maintaining or managing maintenance of the record of actions taken by said respective one of the plurality of network modules and providing the record of actions to all of the plurality of network modules.

9. The method of claim 1, further comprising maintaining and managing the first function, the third function and the plurality of second functions.

10. The method of claim 1, further comprising receiving and responding to queries from government or regulatory authority agencies, at least in part by providing information obtained by the third function to said government or regulatory authority agencies upon determining that it is lawful to receive and respond to the queries.

11. The method of claim 1, wherein the plurality of network modules and the plurality of network functions all belong to a same first domain of the computer network, method further comprising:

operating a second plurality of network functions all belonging to a second domain of the computer network different from the first domain and including:

a fourth function configured to establish and manage a second confederation involving a second plurality of network modules belonging to the second domain, the second confederation contributing to providing the service via cooperation of the second plurality of network modules;

a plurality of fifth functions, each integrated into a different respective one of the second plurality of network modules and configured to generate a second record of actions taken by said respective one of the second plurality of network modules; and

a sixth function configured to deploy and communicate with a second plurality of fifth functions, and to perform surveillance of actions taken by the second plurality of network modules, said surveillance based at least in part on said second records of actions.

12. The method of claim 1, further comprising, by the first function, maintaining regular communicative contact with each of the second functions to detect abnormal functioning or disconnection thereof.

13. The method of claim 1, further comprising, by the first function, performing at least one of: defining a respective list of actions to be performed by each of the plurality of network modules; determining rules to be followed by the plurality of network modules; defining and implementing a procedure to be followed by the plurality of network modules to join the confederation; defining and implementing a procedure to be followed by the plurality of network modules to leave the confederation; and defining and facilitating interaction between the plurality of network modules and one or more blockchains.

14. The method of claim 1, wherein one of the plurality of network modules is a blockchain network module configured to manage blockchain execution, the method further comprising, by the first function, facilitating interaction between one or more of the plurality of network modules and the blockchain network module.

15. The method of claim 1, further comprising, by the first function, establishing two or more sub-groups each comprising two or more of the plurality of network modules.

16. The method of claim 15, further comprising, by the first function, associating each of the two or more sub-groups with a different respective one of two or more contracts, such that all members of a same one of the sub-groups are associated with a same one of the two or more contracts

17. The method of claim 15 or claim 16, further comprising, by the first function, establishing mappings between each one of the two or more sub-groups and a respective blockchain for said one of the two or more sub-groups.

18. The method of claim 1, wherein each of the network modules provides a different respective role in the service, said role provided as a sub-service, and wherein each of the network module further includes a task control function for managing provision of the sub-service and a plurality of processing functions for provision of the sub-service.

19. A computer program product comprising a non-transitory computer readable medium having statements and instructions stored thereon which, when executed by one or more computer processors, cause the computer processors to perform the method of any one of claims 1 to 18.

20. An apparatus comprising:

one or more processors; and

one or more memories storing instructions which, when executed by the one or more processors, cause the apparatus to perform the method of any one of claims 1 to 18.