CLAIMS

1. Quantum-enabled server (S) comprising an enclave (S_E), a qubit source (S_S), and quantum-computing means (S_M), said enclave comprising means for

- receiving classical information from a remote client through a secured communication channel;
- a classical secured enclave (S_{SE}) comprising a trusted execution environment, a memory comprising an operating system and adapted to host an application code, the classical secured enclave configured to process the classical information from the remote client and configured to execute said application for determining digital transformation data from said classical information, wherein the classical information is selected from a group consisting of: application code configured for execution within the classical secured enclave, parameters for an application hosted within the classical secured enclave, an identifier for an application hosted within the classical secured enclave, and transformation data;
- a digital-to-analog converter (S_{DAC}) for converting said digital transformation data into analog transformation data ($\bar{\theta}$);
- means for transforming a degree of freedom of at least one qubit received from said qubit source, according to the analog transformation data to produce at least one transformed qubit; and
- means for providing the at least one transformed qubits to said quantum-computing means.

2. Quantum-enabled server according to the previous claim, wherein said transformation data are contained in said information and adapted to transform said at least one qubit.

3. Quantum-enabled server according to claim 1, wherein said information represents application code configured for being executing within said enclave and for generating said transformation data.

4. Quantum-enabled server according to any of the previous claims, wherein said transformation data are modulation data, and said enclave comprises means for modulating at least one qubit received from said qubit source, according to modulation data.

5. Quantum-enabled server according to claim 1, wherein the digital-to-analog convertor is encapsulated into a cage preventing any electromagnetic signals been read from outside of said enclave.

6. Quantum-enabled server according to any of the previous claims, wherein said information is ciphered and deciphered at said enclave at receipt.

7. Quantum-enabled server according to claim 1, wherein said enclave sends an attestation back to said client to if said Trusted Execution Environment successfully runs said classical enclave.

8. Quantum-enabled server according to any of the previous claims, wherein said enclave is configured to

- determine test qubits among said at least one qubit;
- transform said test qubits according to an unknown transformation;
- instruct said quantum-computing means to measure the transformed test qubits according to a given base;
- verify if the result of the measurements is compatible with said unknown transformation; and
- trigger an error if a number of failed verification is above a given threshold.

9. Quantum-enabled server according to any of the previous claims, configured to retrieve a public key from said information, encrypt said transformation data with said public key, and transmit the encrypted transformation data to said client.

10. A method for delegating quantum computing to a quantum-enabled server, said quantum-enabled server comprising an enclave (S_E), a qubit source (S_S), and quantum-computing means (S_M), said method comprising:

- receiving classical information from a remote client by the enclave inside said quantum-enabled server through a secured communication channel, wherein the classical information is selected from a group consisting of: application code configured for execution within a classical secured enclave of said enclave, said classical secured enclave comprising a trusted execution environment, a memory comprising an operating system and adapted to host an application code, parameters for an application hosted within the classical secured enclave, an identifier for an application hosted within the classical secured enclave, and transformation data;

- determining, by the classical secured enclave executing said application code at said enclave, transformation data from said information;
- converting, by a digital-to-analog converter of said enclave, said transformation data into analog transformation data;
- transforming, by transformation means of said enclave, a degree of freedom of at least one qubit received from said qubit source, according to said transformation data to produce at least one transformed qubit;
- providing the at least one transformed qubits to said quantum-computing means.