CLAIMS

What is claimed is:

1. A device control method, performed by a server, wherein the method comprises:

receiving a first control command of a control device, wherein the first control command carries a device identifier of a first network device and a first control entity, the first control command instructs the first network device to perform an operation corresponding to the first control entity, the first control entity complies with a standard data format, and the standard data format is described by a standard model corresponding to an upper device type of the first network device;

determining, based on the device identifier of the first network device, a first digital twin model corresponding to the first network device, wherein the first digital twin model describes a data format supported by the first network device, and the first digital twin model records a first correspondence between the standard data format and the data format supported by the first network device using a preset identifier; and

parsing the first digital twin model and converting, based on the first correspondence, the first control entity into a converted first control entity, wherein the converted first control entity indicates the data format supported by the first network device, and sending the converted first control entity to the first network device.

2. The method according to claim 1, wherein the method further comprises:

receiving a second control command of the control device, wherein the second control command carries a device identifier of a second network device and a second control entity, the second control command instructs the second network device to perform an operation corresponding to the second control entity, the second control entity complies with the standard data format, a model number of the first network device is different from a model number of the second network device, and the upper device type of the first network device is the same as an upper device type of the second network device;

determining, based on the device identifier of the second network device, a second digital twin model corresponding to the second network device, wherein the second digital twin model describes a data format supported by the second network device, and the second digital twin model records a second correspondence between the standard data format and the data format supported by the second network device; and

converting, based on the second correspondence, the second control entity into the data format supported by the second network device, and sending a converted second control entity to the second network device.

3. The method according to claim 1, wherein the method further comprises:

receiving status data of the first network device and the device identifier of the first network device, wherein the status data is the data format supported by the first network device; and

converting the status data into the standard data format based on the first correspondence, and sending converted status data to the control device.

4. The method according to claim 1, wherein before the receiving a first control command of a control device, the method further comprises:

receiving a device access request of the first network device, wherein the device access request carries a model number of the first network device and the device identifier of the first network device;

determining, based on the model number of the first network device, a first digital twin model corresponding to the model number of the first network device; and

establishing a third correspondence between the device identifier of the first network device and the first digital twin model.

5. The method according to claim 4, wherein the first correspondence comprises a correspondence between a digital twin metamodel of the first digital twin model and a standard metamodel of the standard model; and

the converting, based on the first correspondence, the first control entity into the data format supported by the first network device comprises:

determining one or more standard metamodels of the upper device type based on the correspondence between a digital twin metamodel of the first digital twin model and a standard metamodel of the standard model; and

converting, based on the first digital twin model and the one or more standard metamodels of the upper device type, the first control entity into the data format supported by the first network device.

6. The method according to any one of claims 1 to 5, wherein the first digital twin model comprises one or more digital twin metamodels, and the digital twin metamodel comprises one or more of the following: a property metamodel, a command metamodel, an event metamodel, a data metamodel, a component metamodel, and a relationship metamodel.

7. A device control apparatus, wherein the apparatus comprises:

a receiving module, configured to receive a first control command of a control device, wherein the first control command carries a device identifier of a first network device and a first control entity, the first control command instructs the first network device to perform an operation corresponding to the first control entity, the first control entity complies with a standard data format, and the standard data format is described by a standard model corresponding to an upper device

type of the first network device;

a determining module, configured to determine, based on the device identifier of the first network device, a first digital twin model corresponding to the first network device, wherein the first digital twin model describes a data format supported by the first network device, and the first digital twin model records a first correspondence between the standard data format and the data format supported by the first network device using a preset identifier; and

a conversion module, configured to: parse the first digital twin model and convert, based on the first correspondence, the first control entity into a converted first control entity, wherein the converted first control entity indicates the data format supported by the first network device, and send the converted first control entity to the first network device.

8. The apparatus according to claim 7, wherein the receiving module is configured to receive a second control command of the control device, wherein the second control command carries a device identifier of a second network device and a second control entity, the second control command instructs the second network device to perform an operation corresponding to the second control entity, the second control entity complies with the standard data format, a model number of the first network device is different from a model number of the second network device, and the upper device type of the first network device is the same as an upper device type of the second network device;

the determining module is configured to determine, based on the device identifier of the second network device, a second digital twin model corresponding to the second network device, wherein the second digital twin model describes a data format supported by the second network device, and the second digital twin model records a second correspondence between the standard data format and the data format supported by the second network device; and

the conversion module is configured to: convert, based on the second correspondence, the second control entity into the data format supported by the second network device, and send a converted second control entity to the second network device.

9. The apparatus according to claim 7, wherein the receiving module is configured to receive status data of the first network device and the device identifier of the first network device, wherein the status data is the data format supported by the first network device; and

the conversion module is configured to: convert the status data into the standard data format based on the first correspondence, and send converted status data to the control device.

10. The apparatus according to claim 7, wherein the receiving module is configured to receive a device access request of the first network device, wherein the device access request carries a model number of the first network device and the device identifier of the first network device;

the determining module is configured to determine, based on the model number of the first

network device, a first digital twin model corresponding to the model number of the first network device; and

the apparatus further comprises an establishing module, configured to establish a third correspondence between the device identifier of the first network device and the first digital twin model.

11. The apparatus according to claim 10, wherein the first correspondence comprises a correspondence between a digital twin metamodel of the first digital twin model and a standard metamodel of the standard model; and

the conversion module is configured to: determine one or more standard metamodels of the upper device type based on the correspondence between a digital twin metamodel of the first digital twin model and a standard metamodel of the standard model; and convert, based on the first digital twin model and the one or more standard metamodels of the upper device type, the first control entity into the data format supported by the first network device.

12. The apparatus according to any one of claims 7 to 11, wherein the first digital twin model comprises one or more digital twin metamodels, and the digital twin metamodel comprises one or more of the following: a property metamodel, a command metamodel, an event metamodel, a data metamodel, a component metamodel, and a relationship metamodel.

13. A server, wherein the server comprises a communication bus, at least one network interface, a memory, and at least one processor, the communication bus is used to perform information transmission between the foregoing components, the at least one network interface is configured to communicate with another device or a communication network, the memory stores program code, and the at least one processor implements the device control method according to any one of claims 1 to 6 by reading and executing the program code stored in the memory.

14. A computer-readable storage medium, wherein when program code in the computer-readable storage medium is executed by a processor of a server, the server is enabled to perform the device control method according to any one of claims 1 to 6.