

CLAIMS

1. A computer-implemented method for monitoring data usage in an Internet of Things (IoT) network by a plurality of network devices, the computer-implemented method comprising:
 - receiving, by one or more processors, from a network device of the plurality of network devices, a data usage request;
 - obtaining, by one or more processors, from a database, a device profile for the network device;
 - determining, by one or more processors, whether the device profile of the network device has a data usage pattern related to data requested in the data usage request;
 - classifying, by one or more processors, the data usage request based on a device type profile for a network device type of the network device and whether the device profile of the network device has the related data usage pattern;
 - executing, by one or more processors, a security action based on the classification of the data usage request;
 - storing, by one or more processors, the data usage request and the executed security action to the database;and
 - in response to determining the device profile of the network device does not have the related data usage pattern, obtaining, by one or more processors, the device type profile from the database based on the network device type in the device profile, wherein the device type profile includes a type of data that type of device uses, a frequency of use of data that type of device uses, and a general intended use executed with the data used by that type of device, wherein the data usage request is classified into a specific category,
 - the security action disconnects a network access of the network device in response to the data usage request being classified as a block class, and
 - the device profile comprises a network device identifier, the network device type, and a set of data usage patterns.
2. The computer-implemented method of claim 1, wherein the data usage request comprises the network device identifier, a data identifier, and metadata associated with an intended usage of data identified by the data identifier.
3. The computer-implemented method of claim 1, further comprising:
 - comparing, by one or more processors, the data usage request to the set of data usage patterns in the device profile.
4. The computer-implemented method of claim 1, further comprising:
 - in response to determining the device profile of the network device has the related data usage pattern,
 - receiving, by one or more processors, the related data usage pattern from the database.

5. The computer-implemented method of claim 1, wherein classifying the data usage request based on whether the device profile of the network device has the related data usage pattern comprises:

responsive to determining at least one of the data usage request does match the related data usage pattern that allowed an intended use of requested data of the data usage request and the data usage request does match information in the device type profile that allows the intended use, classifying, by one or more processors, the data usage request as normal use.

6. The computer-implemented method of claim 1, wherein classifying the data usage request based on whether the device profile of the network device has the related data usage pattern comprises:

responsive to determining at least one of the data usage request does match the related data usage pattern that blocked an intended use of requested data of the data usage request and the data usage request does match information in the device type profile that blocks the intended use, classifying, by one or more processors, the data usage request as block.

7. The computer-implemented method of claim 1, wherein classifying the data usage request based on whether the device profile of the network device has the related data usage pattern comprises:

responsive to determining at least one of the data usage request does not match the related data usage pattern and the data usage request does not match information in the device type profile, classifying, by one or more processors, the data usage request as request approval.

8. The computer-implemented method of claim 1, further comprising sending an alert to an owner of the network device in response to the security action disconnecting the network access of the network device.

9. The computer-implemented method of claim 8, wherein the data usage request is classified as the block class based on data in a device type profile for the network device.

10. A system comprising means adapted for carrying out all the steps of the method according to any preceding method claim.

11. A computer program comprising instructions for carrying out all the steps of the method according to any preceding method claim, when said computer program is executed on a computer system.