METHOD FOR DEVICE TO ACCESS NETWORK, ACCESS POINT, NETWORK ACCESS DEVICE, AND SYSTEM

[0001] ~~This application claims priority to Chinese Patent Application No. 201210019763.1, filed with the Chinese Patent Office on January 21, 2012, and entitled "METHOD FOR DEVICE TO ACCESS NETWORK, ACCESS POINT, NETWORK ACCESS DEVICE, AND SYSTEM", which is incorporated herein by reference in its entirety~~.

TECHNICAL FIELD

[0002] The present invention relates to the field of wireless communications, and in particular, to a method for a device to access a network, an access point, a network access device, and a system.

BACKGROUND

[0003] Wireless fidelity (Wireless Fidelity, WiFi) is a technique which enables a personal computer, a hand-held device (such as a PDA or a cell phone), and other terminals to be interconnected in a wireless manner, so as to improve interoperability among wireless network products based on IEEE 802.11 standards.

[0004] The most basic network structure of the WiFi includes an access point (Access Point, AP) and several stations (Station, STA) supporting IEEE 802.11 protocols, and the AP provides the STAs with an access service. A wireless signal is used as an interaction medium between the AP and the STAs. The AP periodically broadcasts a beacon (Beacon) message to surrounding areas, and the message includes a lot of information, such as the name of a network which the AP belongs to, a MAC address of the AP, and a period of the Beacon. A STA may obtain information about the AP and the network of the AP through the Beacon, or may obtain a probe response reply from the AP by broadcasting a probe request message to the AP, so as to obtain information about the AP and the network of the AP. When the STA broadcasts the probe request, the STA may specify a dedicated AP (by specifying a dedicated BSSID) to receive the probe request, or may broadcast the probe request to all APs (by specifying a wildcard BSSID). If the STA specifies a dedicated AP to

~~7. The method according to any one of claims 1 to 6, wherein the broadcast frame is a beacon frame.~~

~~8~~7. A method for a device to access a network, comprising:

receiving, by a first network access device, a broadcast frame broadcast by an access point, wherein the broadcast frame comprises feature information of a network access device; and the feature information is used for indicating a feature of the network access device; and

determining, by the first network access device, whether the first network access device has the feature indicated by the feature information, and if the first network access device has the feature indicated by the feature information, initiating a network access procedure to the access point.

~~9~~8. The method according to claim ~~8~~7, wherein the feature information is valid within an access duration corresponding to the broadcast frame.

~~10~~9. The method according to claim ~~8~~7 or ~~9~~8, wherein the feature information is specifically used for indicating a feature of identity information of the network access device; and

the determining, by the first network access device, whether the first network access device has the feature indicated by the feature information is specifically:

determining, by the first network access device, whether identity information of the first network access device has the feature indicated by the feature information.

~~11~~10. The method according to claim ~~10~~9, wherein the identity information of the network access device is a media access control MAC address of the network access device.

~~12~~11. The method according to claim ~~11~~10, wherein the feature indicated by the feature information is that: a value of one specific bit in the MAC address of the network access device is a value indicated by the feature information, or values of multiple specific bits in the MAC address of the network access device are values indicated by the feature information; and

the determining, by the first network access device, whether the first network access device has the feature indicated by the feature information is specifically:

determining, by the first network access device, whether in a MAC address of the first network access device, a value of one specific bit is a value indicated by the feature information, or values of multiple specific bits are values indicated by the feature information; or

the feature indicated by the feature information is that: a result value obtained by performing a specific operation on a value of one specific bit in the MAC address of the network access device is a value indicated by the feature information, or result values obtained by performing a specific operation on values of multiple specific bits in the MAC address of the network access device are values indicated by the feature information; and

the determining, by the first network access device, whether the first network access device has

the feature indicated by the feature information is specifically:

determining, by the first network access device, whether in the MAC address of the first network access device, after the specific operation is implemented, the result value of the value of the specific bit is the value indicated by the feature information, or the result values of the values of the multiple specific bits are the values indicated by the feature information.

~~13. The method according to any one of claims 8 to 12, wherein the broadcast frame is a beacon frame.~~

~~14~~12. An access point, comprising:

a generating module, configured to generate a broadcast frame, wherein the broadcast frame comprises feature information of a network access device; and the feature information is used for indicating a feature of the network access device; and

a broadcasting module, configured to broadcast the broadcast frame, so that a specific network access device initiates a network access procedure to the access point, wherein the specific network access device is a network access device which receives the broadcast frame and has the feature indicated by the feature information.

~~15~~13. The access point according to claim ~~14~~12, wherein the feature information is specifically used for indicating a feature of identity information of the network access device; and

the specific network access device is specifically a network access device which receives the broadcast frame and of which identity information has the feature indicated by the feature information.

~~16~~14. The access point according to claim ~~14~~12 or ~~15~~13, wherein

the broadcasting module is specifically configured to: within a certain period of time, broadcast M broadcast frames which carry N pieces of feature information, wherein each of the M broadcast frames carries one of the N pieces of feature information, N is an integer greater than or equal to 1, and M is an integer greater than or equal to N; and sets of network access devices separately having a feature indicated by the N pieces of feature information constitute a whole set of all network access devices.

~~17~~15. The access point according to claim ~~15~~13, wherein an identity of the network access device is a media access control MAC address of the network access device.

~~18~~16. The access point according to claim ~~16~~14, wherein the feature indicated by the feature information is that: a value of one specific bit in the MAC address of the network access device is a value indicated by the feature information, or values of multiple specific bits in the MAC address of the network access device are values indicated by the feature information; or a result value obtained by performing a specific operation on a value of one specific bit in the MAC address of the network

access device is a value indicated by the feature information, or result values obtained by performing a specific operation on values of multiple specific bits in the MAC address of the network access device are values indicated by the feature information.

~~19. The access point according to any one of claims 14 to 18, wherein the broadcast frame is a beacon frame.~~

~~20~~17. A network access device, comprising:

an obtaining module, configured to receive a broadcast frame broadcast by an access point, wherein the broadcast frame comprises feature information of the network access device; and the feature information is used for indicating a feature of the network access device;

a determining module, configured to determine whether the network ~~terminal~~ access device has the feature indicated by the feature information; and

an accessing module, configured to initiate a network access procedure to the access point, when a determination result of the determining module is yes.

~~21~~18. The network access device according to claim ~~20~~17, wherein the feature information is specifically used for indicating a feature of identity information of the network access device; and

the determining module is specifically configured to determine whether identity information of the network access device has the feature indicated by the feature information.

~~22~~19. The network access device according to claim ~~21~~18, wherein an identity of the network access device is a media access control MAC address of the network access device.

~~23~~20. The method according to claim ~~22~~19, wherein the feature indicated by the feature information is that: a value of one specific bit in the MAC address of the network access device is a value indicated by the feature information, or values of multiple specific bits in the MAC address of the network access device are values indicated by the feature information; and

the determining module is specifically configured to determine whether the value of the specific bit in the MAC address of the network access device is the value indicated by the feature information, or the values of the multiple specific bits in the MAC address of the network access device are the values indicated by the feature information; or

the feature indicated by the feature information is that: a result value obtained by performing a specific operation on a value of one specific bit in the MAC address of the network access device is a value indicated by the feature information, or result values obtained by performing a specific operation on values of multiple specific bits in the MAC address of the network access device are values indicated by the feature information; and

the determining module is specifically configured to determine after the specific operation is implemented, the result value of the value of the specific bit in the MAC address of the network

access device is the value indicated by the feature information, or the result values of the values of the multiple specific bits in the MAC address of the network access device are the values indicated by the feature information.

~~24. The network access device according to any one of claims 20 to 22, wherein the broadcast frame is a beacon frame.~~

~~25~~21. A wireless fidelity network system, comprising: an access point, configured to generate and broadcast a broadcast frame, wherein the broadcast frame comprises feature information of a network access device; and the feature information is used for indicating a feature of the network access device; and

one or more network access devices, configured to receive the broadcast frame broadcast by the access point; determine whether the network access device has the feature indicated by the feature information, and initiate a network access procedure to the access point if the network access device has the feature indicated by the feature information.