Claims

[Claim 1] A method of performing a handover between a first device and a second device, the method comprising:
transmitting, to the second device, a handover request frame for requesting a handover, the handover request frame including information about a reason for requesting the handover;
receiving, from the second device, a handover response frame including handover request result information indicating whether the handover request is accepted; and
selectively performing the handover with the second device based on the handover response frame.

[Claim 2] The method of claim 1, wherein the first device and the second device both belong to a personal basic service set (PBSS), and the first device is a station, and the second device is a PBSS control point (PCP) in the PBSS.

[Claim 3] The method of claim 2, wherein the reason for requesting the handover is a first reason that the first device has a higher operating capability as a PCP than the second device or a second reason that the first device is to operate as a PCP so as to provide specific services, and the handover request frame is transmitted only when the first device has one of the first reason or the second reason for requesting the handover.

[Claim 4] The method of claim 2, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

[Claim 5] The method of claim 4, wherein the reason for rejecting the handover request is that a remaining amount of power of the first device is less than a predetermined threshold value, that the first device is in a bad communication link state, that a number of stations joined with the second device exceeds a maximum number of stations that can perform association with the first device, that the first device is being affected by interference, that a region of the first device in which communication is available is smaller than a region of the second device in which communication is available and thus the first device is to join with less stations than the second device, that the first device is leaving the PBSS, that the second device is providing specific services, that a number of beacon intervals (BIs) that remain in the second device when

the first device transmits the handover request frame, is less than a threshold value, or that the first device wants to change a currently-used frequency band of a communication link into a different frequency band.

[Claim 6] The method of claim 1, wherein the first device and the second device both belong to a PBSS, and the first device is a PCP in the PBSS, and the second device is a station.

[Claim 7] The method of claim 6, wherein the reason for requesting the handover is that the first device is leaving the PBSS, that the remaining amount of power of the first device is less than a predetermined threshold value, that there is a station having a higher operating capability as a PCP than the first device, that the first device is in a bad communication link state, or that the number of stations to join the first device exceeds a maximum number of stations that can perform association with the first device.

[Claim 8] The method of claim 6, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

[Claim 9] The method of claim 6, wherein the reason for rejecting the handover request is that a remaining amount of power of the second device is low, that the second device is in a bad communication link state, that a number of stations joined with the first device exceeds a maximum number of stations that can perform association with the second device, that the second device is being affected by interference, that the second device is to continuously provide specific services, that a region of the second device in which communication is available is smaller than a region of the first device in which communication is available and thus the second device is to join with less stations than the first device, that the second device is providing services in which a quality of service (QoS) should be guaranteed, that the second device is leaving the PBSS, or that the second device is to change a currently-used frequency band of a communication link into a different frequency band.

[Claim 10] The method of claim 1, wherein the handover request frame further comprises information about a number of beacon intervals (BIs) that remain in the second device, during a period between the time when the handover request frame is transmitted and the time when the handover is performed.

[Claim 11] An apparatus for performing a handover between a first device and a second device, the apparatus comprising:
a transmission unit, which transmits, to the second device, a handover request frame for requesting a handover, the handover request frame includes information about a reason for requesting the handover;
a receiving unit, which receives, from the second device, a handover response frame which includes handover request result information indicating whether the handover request is accepted; and
a handover performing unit which selectively performs the handover with the second device based on the handover response frame.

[Claim 12] The apparatus of claim 11, wherein the first device and the second device both belong to a personal basic service set (PBSS), and the first device is a station, and the second device is a PBSS control point (PCP) in the PBSS.

[Claim 13] The apparatus of claim 12, wherein the reason for requesting the handover is a first reason that the first device has a higher operating capability as a PCP than the second device or a second reason that the first device is to operate as a PCP so as to support specific services, and the handover request frame is transmitted only when the first device has one of the first reason or the second reason for requesting the handover.

[Claim 14] The apparatus of claim 12, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

[Claim 15] The apparatus of claim 14, wherein the reason for rejecting the handover request is that the remaining amount of power of the first device is less than a predetermined threshold value, that the first device is in a bad communication link state, that the number of stations joined with the second device exceeds a maximum number of stations that can perform association with the first device, that the first device is being affected by interference, that a region of the first device in which communication is available is smaller than a region of the second device in which communication is available and thus the first device is to join with less stations than the second device, that the first device is leaving the PBSS, that the second device is providing specific services, that the number of beacon intervals (BIs) that remain in the second device when the first device transmits the handover request frame, is less than a threshold value, or that the first device wants to change a currently-

used frequency band of a communication link into a different frequency band.

[Claim 16] The apparatus of claim 11, wherein the first device and the second device both belong to a PBSS, and the first device is a PCP in the PBSS, and the second device is a station.

[Claim 17] The apparatus of claim 16, wherein the reason for requesting the handover is that the first device is leaving the PBSS, that the remaining amount of power of the first device is less than a predetermined threshold value, that there is a station having a higher operating capability as a PCP than the first device, that the first device is in a bad communication link state, or that the number of stations to join the first device exceeds a maximum number of stations that can perform association with the first device.

[Claim 18] The apparatus of claim 16, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

[Claim 19] The apparatus of claim 16, wherein the reason for rejecting the handover request is that a remaining amount of power of the second device is low, that the second device is in a bad communication link state, that a number of stations joined with the first device exceeds a maximum number of stations that can perform association with the second device, that the second device is being affected by interference, that the second device is to continuously provide specific services, that a region of the second device in which communication is available is smaller than a region of the first device in which communication is available and thus the second device is to join with less stations than the first device, that the second device is providing services in which a quality of service (QoS) should be guaranteed, that the second device is leaving the PBSS, or that the second device is to change a currently-used frequency band of a communication link into a different frequency band.

[Claim 20] The apparatus of claim 11, wherein the handover request frame further comprises information about a number of beacon intervals (BIs) that remain in the second device during a period between the time when the handover request frame is transmitted and the time when the handover is performed.

[Claim 21] A computer readable recording medium having embodied thereon that,

when executed by a computer, causes the computer to perform a method of performing a handover between a first device and a second device, the method comprising:

transmitting, to the second device, a handover request frame for requesting a handover, the handover request frame including information about a reason for requesting the handover;

receiving, from the second device, a handover response frame including handover request result information indicating whether the handover request is accepted; and

selectively performing the handover with the second device based on the handover response frame.

Claims

1. A method of performing a handover between a first device and a second device, the method comprising:

transmitting, to the second device, a handover request frame for requesting a handover, the handover request frame including information about a reason for requesting the handover;

receiving, from the second device, a handover response frame including handover request result information indicating whether the handover request is accepted;

selectively performing the handover with the second device based on the handover response frame, and

wherein the reason for requesting the handover is a first reason that the first device has a higher operating capability as a personal basic service set (PBSS) control point (PCP) than the second device, or a second reason that the first device is to operate as a PCP to provide specific services.

2. The method of claim 1, wherein the first device and the second device both belong to a personal basic service set (PBSS), and the first device is a station, and the second device is a PBSS control point (PCP) in the PBSS.

3. The method of claim 2, wherein the handover request frame is transmitted only when the first device has one of the first reason or the second reason for requesting the handover.

4. The method of claim 2, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

5. The method of claim 4, wherein the reason for rejecting the handover request is that a remaining amount of power of the first device is less than a predetermined threshold value, that the first device is in a bad communication link state, that a number of stations joined with the second device exceeds a maximum number of stations that can perform association with the first device, that the first device is being affected by interference, that a region of the first device in which communication is available is smaller than a region of the second device in which communication is available and thus the first device is to join with less stations than the second device, that the first device is leaving the PBSS, that the second device is providing specific services, that a number of beacon intervals (BIs) that remain in the second device when the first device transmits the handover request frame, is less than a threshold value, or that the first device wants to change a currently-used frequency band of a communication link into a different frequency band.

6. The method of claim 1, wherein the first device and the second device both belong to a PBSS, and the first device is a PCP in the PBSS, and the second device is a station.

7. The method of claim 6, wherein the reason for requesting the handover is that the first device is leaving the PBSS, that the remaining amount of power of the first device is less than a predetermined threshold value, that there is a station having a higher operating capability as a PCP than the first device, that the first device is in a bad communication link state, or that the number of stations to join the first device exceeds a maximum number of stations that can perform association with the first device.

8. The method of claim 6, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

9. The method of claim 6, wherein the reason for rejecting the handover request is that a remaining amount of power of the second device is low, that the second device is in a bad communication link state, that a number of stations joined with the first device exceeds a maximum number of stations that can perform association with the second device, that the second device is being affected by interference, that the second device is to continuously provide specific services, that a region of the second device in which communication is available is smaller than a region of the first device in which communication is available and thus the second device is to join with less stations than the first device, that the second device is providing services in which a quality of service (QoS) should be guaranteed, that the second device is leaving the PBSS, or that the second device is to change a currently-used frequency band of a communication link into a different frequency band.

10. The method of claim 1, wherein the handover request frame further comprises information about a number of beacon intervals (BIs) that remain in the second device, during a period between the time when the handover request frame is transmitted and the time when the handover is performed.

11. An apparatus for performing a handover between a first device and a second device, the apparatus comprising:

a transmitter, which transmits, to the second device, a handover request frame for requesting a handover, the handover request frame includes information about a reason for requesting the handover;

a receiver, which receives, from the second device, a handover response frame which includes handover request result information indicating whether the handover request is accepted; and

a handover performing device which selectively performs the handover with the second device based on the handover response frame,

wherein the reason for requesting the handover is a first reason that the first device

has a higher operating capability as a personal basic service set (PBSS) control point (PCP) than the second device, or a second reason that the first device is to operate as a PCP to provide specific services.

12. The apparatus of claim 11, wherein the first device and the second device both belong to a personal basic service set (PBSS), and the first device is a station, and the second device is a PBSS control point (PCP) in the PBSS.

13. The apparatus of claim 12, wherein the handover request frame is transmitted only when the first device has one of the first reason or the second reason for requesting the handover.

14. The apparatus of claim 12, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

15. The apparatus of claim 14, wherein the reason for rejecting the handover request is that the remaining amount of power of the first device is less than a predetermined threshold value, that the first device is in a bad communication link state, that the number of stations joined with the second device exceeds a maximum number of stations that can perform association with the first device, that the first device is being affected by interference, that a region of the first device in which communication is available is smaller than a region of the second device in which communication is available and thus the first device is to join with less stations than the second device, that the first device is leaving the PBSS, that the second device is providing specific services, that the number of beacon intervals (BIs) that remain in the second device when the first device transmits the handover request frame, is less than a threshold value, or that the first device wants to change a currently-used frequency band of a communication link into a different frequency band.

16. The apparatus of claim 11, wherein the first device and the second device both belong to a PBSS, and the first device is a PCP in the PBSS, and the second device is a station.

17. The apparatus of claim 16, wherein the reason for requesting the handover is that the first device is leaving the PBSS, that the remaining amount of power of the first device is less than a predetermined threshold value, that there is a station having a higher operating capability as a PCP than the first device, that the first device is in a bad communication link state, or that the number of stations to join the first device exceeds a maximum number of stations that can perform association with the first device.

18. The apparatus of claim 16, wherein the handover response frame further comprises information about a reason for rejecting the handover request when the handover request result information indicates rejection of the handover request.

19. The apparatus of claim 16, wherein the reason for rejecting the handover request is that a remaining amount of power of the second device is low, that the second device is in a bad communication link state, that a number of stations joined with the first device exceeds a maximum number of stations that can perform association with the second device, that the second device is being affected by interference, that the second device is to continuously provide specific services, that a region of the second device in which communication is available is smaller than a region of the first device in which communication is available and thus the second device is to join with less stations than the first device, that the second device is providing services in which a quality of service (QoS) should be guaranteed, that the second device is leaving the PBSS, or that the second device is to change a currently-used frequency band of a communication link into a different frequency band.

20. The apparatus of claim 11, wherein the handover request frame further comprises information about a number of beacon intervals (BIs) that remain in the second device during a period between the time when the handover request frame is transmitted and the time when the handover is performed.

21. A non-transitory computer readable recording medium having embodied thereon that, when executed by a computer, causes the computer to perform a method of performing a handover between a first device and a second device, the method comprising:

transmitting, to the second device, a handover request frame for requesting a handover, the handover request frame including information about a reason for requesting the handover;

receiving, from the second device, a handover response frame including handover request result information indicating whether the handover request is accepted; and

selectively performing the handover with the second device based on the handover response frame,

wherein the reason for requesting the handover is a first reason that the first device has a higher operating capability as a personal basic service set (PBSS) control point (PCP) than the second device, or a second reason that the first device is to operate as a PCP to provide specific services.