CLAIMS:

1. A method in a wireless network component for packet relaying, the method comprising:

receiving, by the wireless network component, an identification (ID) of a target wireless device from a relay station, when the target wireless device is associated with the relay station or when the ID of the target wireless device is changed;

transmitting, by the wireless network component, a first data packet ~~comprising data~~ to athe relay station, wherein the first data packet comprises a data and a first header having a first receiver ID set to that of the relay station, wherein the data is ~~intended~~ destined for athe target wireless device~~,~~ and the data is re-encoded and ~~and wherein data in the first data packet is~~ forwarded ~~using a second data packet~~ by the relay station to the target wireless device using a second data packet, wherein the second data packet comprises a second header having a second receiver ID set to that of the target wireless device;

receiving, by the wireless network component, the second data packet; and

determining, by the wireless network component, whether thea receiver ID in the second header of the second data packet corresponds to ~~the~~ at least a portion of the ID of the target wireless device, wherein the wireless network component considers athe transmission of the first data packet to the relay station successful if the receiver ID in the second header of the second data packet corresponds to ~~the~~ at least a portion of the ID of the target wireless device.

2. A wireless network component configured for packet relaying, the wireless network component comprising:

a processor; and

a computer readable storage medium storing programming for execution by the processor, the programming including instructions to:

receive an identification (ID) of a target wireless device from a relay station when the target wireless device is associated with the relay station or when the identification of the target wireless device is changed;

transmit a first data packet to the relay station, wherein the first data packet ~~comprising~~ comprises a data ~~to a relay station, wherein~~ and a first header having a first receiver ID set to that of the relay station, wherein the ~~first~~ data ~~packet~~ is destined ~~intended~~

for athe target wireless device, and the data is re-encoded and ~~wherein data in the first data packet is~~ forwarded ~~using a second data packet~~ by the relay station to the target wireless device using a second data packet, wherein the second data packet comprises a second header having a second receiver ID set to that of the target wireless device;

receive the second data packet transmitted; and

determine whether thea receiver ID in the second header of the second data packet corresponds to at least a portion of the ID ~~the~~ of the target wireless device, wherein the wireless network component considers athe transmission of the first data packet to the relay station successful if the receiver ID in the second header of the second data packet corresponds to ~~the~~ at least a portion of the ID of the target wireless device.

~~3. The wireless network component of claim 2, wherein the programming further includes instructions to receive an identification of the target wireless device from the relay station before transmitting the first data packet.~~

~~4. The wireless network component of claim 3, wherein the target wireless device is associated with the relay station and the identification of the target wireless device is provided to the wireless network component by the relay station when the target wireless device acting as a station is associated with the relay station or when the identification is changed.~~

~~5~~3. The wireless network component of claim 42, wherein the wireless network component uses the received identification of the target wireless device from the relay station to determine whether a receiver ID of the second data packet corresponds to the target wireless device.

~~6~~4. The wireless network component of claim 2, wherein the receiver ID of the second data packet is determined in accordance with a portion of an association identification (AID) of the target wireless device.

~~7~~5. The wireless network component of claim 2, wherein the receiver ID of the second data packet is determined in accordance with a portion of a basic service set ID (BSSID) of the target wireless device when the target wireless device is an access point (AP).

~~8~~6. The wireless network component of claim 2, wherein determining whether a receiver ID of the second data packet corresponds to the target wireless device further comprises checking whether the receiver ID of the second data packet is identical to an identifier determined in accordance with a portion of an identification of a target wireless device.

~~9~~7. The wireless network component of claim 2, wherein an identification (ID) of the target wireless device is a Basic Service Set Identifier (BSSID) of the target wireless device when the target wireless device is an access point (AP).

~~10~~8. A method in a relay station for packet relaying, the method comprising:

transmitting an identification (ID) of a second wireless station to a first wireless station, when the second wireless station is associated with the relay station or when the ID of the second wireless station is changed;

receiving with the relay station a first data packet from thea first wireless station, wherein the first data packet comprises a data and a first header having a first receiver ID set to that of the relay station, wherein the data is destined for athe second wireless station, and the data is re-encoded and forwarded by the relay station to the second wireless station using a second data packet, wherein the second data packet comprises a second header having a second receiver ID set to that ~~wherein the first data packet comprises an identification (ID)~~ of the second wireless station; and

transmitting the ~~data in the first data packet using a~~ second data packet to the second wireless station without sending an acknowledgement back to the first wireless station~~, wherein the second data packet comprises at least a portion of the ID of the second wireless station~~.

~~11~~9. A relay station configured for packet relaying, the relay station comprising:

a processor; and

a computer readable storage medium storing programming for execution by the processor, the programming including instructions to:

transmit an identification (ID) of a second wireless station to a first wireless station, when the second wireless station is associated with the relay station or when the ID of the second wireless station is changed;

receive a first data packet from thea first wireless station, wherein the first data packet comprises a data and a first header having a first receiver ID set to that of the relay station, wherein the data is destined for athe second wireless station, and the data is re-encoded and forwarded by the relay station to the second wireless station using a second data packet, wherein the second data packet comprises a second header having a second receiver ID set to that ~~wherein the first data packet comprises an identification (ID)~~ of the second wireless station; and

transmit the ~~data in the first data packet using a~~ second data packet to the second wireless station without sending an acknowledgement back to the first wireless station and without forwarding to the first wireless station an acknowledgement received from the second wireless station~~, wherein the second data packet comprises at least a portion of the ID~~.

~~12. A method in a first station to wirelessly forward data from a first station to a second station via a relay station, the method comprising:~~

~~transmitting, by the first station, a message protocol data unit (MPDU) associated with the relay station , wherein the MPDU is forwarded by the relay station to the second station that the relay station is associated with within a short inter-frame space (SIFS) time; and~~

~~determining a successful acknowledgement when a valid Physical Layer Conversion Protocol (PLCP) header is received within an ACKTimeout interval and a partial association identifier (PAID) in the received PLCP header corresponding to a destination address (DA) is identical to a PAID corresponding to a Basic Service Set Identifier (BSSID) of the second station or a receiver address (RA) of the second station, thereby permitting a frame sequence to continue or to end without retransmitting.~~

~~13. A first station configured to wirelessly forward data from a first station to a second station via a relay station configured for packet relaying, the first station comprising:~~

~~a processor; and~~

~~a computer readable storage medium storing programming for execution by the processor, the programming including instructions to:~~

transmit a message protocol data unit (MPDU) associated with the relay station, wherein the MPDU is forwarded by the relay station to the second station that the relay station is associated with within a short inter-frame space (SIFS) time; and

determine a successful acknowledgement when a valid Physical Layer Conversion Protocol (PLCP) header is received within an ACKTimeout interval and a partial association identifier (PAID) in the received PLCP header corresponding to a destination address (DA) is identical to a PAID corresponding to a Basic Service Set Identifier (BSSID) of the second station or a receiver address (RA) of the second station, thereby permitting a frame sequence to continue or to end without retransmitting.

14. A method in a relay access point (AP) for implicit acknowledgement of data reception under a transmission opportunity (TXOP) sharing relay operation, the method comprising:

transmitting, by a station (STA) associated with a relay AP under TXOP sharing relay operation, a message protocol data unit (MPDU) to the relay AP, wherein the STA is configured to accept the reception as a successful acknowledgement of the MPDU transmission when a PARTIAL_AID in a PHY-RXSTART.indication primitive that occurs within a PHY-RX-START-delay is identical to a PARTIAL_AID corresponding to a Basic Service Set Identifier (BSSID) of a root AP.

15. A method in a relay access point (AP) for implicit acknowledgement of data reception under a transmission opportunity (TXOP) sharing relay operation, the method comprising:

transmitting, by a root AP under TXOP sharing relay operation, a message protocol data unit (MPDU) to a relay AP, wherein the root AP is configured to accept the reception as a successful acknowledgement of the MPDU transmission when a PARTIAL_AID in a PHY-RXSTART.indication primitive that occurs within a PHY-RX-START-delay is identical to a PARTIAL_AID corresponding to a destination address (DA) of the transmitted MPDU.