[0006] There is thus a need for communication apparatuses and methods that can solve the above mentioned issue. Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

SUMMARY

[0007] A ~~N~~non-limiting example~~and exemplary embodiments~~ facilitates providing communication apparatuses and communication methods for EHT virtualization for MLD devices.

[0008] According to an aspect of the present disclosure, there is provided an Access Point (AP) included in a plurality of APs affiliated with an AP Multi-link Device (MLD), wherein each of the plurality of APs advertises a Basic Service Set Identifier (BSSID) and provides a link identified by a Link Identifier (ID), the AP comprising: circuitry, which in operation, generates a frame carrying a multi-link element containing information about the AP MLD and the plurality of APs; and a transmitter, which in operation, transmits the frame on a link, the Multi-link element indicating a Link ID of the link on which the frame is transmitted.

[0009] According to another aspect of the present disclosure, there is provided a non-AP Station (STA) included in a plurality of non-AP STAs affiliated with a non-AP MLD, the non-AP STA comprising: circuitry, which in operation, generates a Probe Request frame carrying a Multi-link element containing a MLD MAC Address of an AP MLD and one or more Link IDs of links affiliated with the AP MLD; and a transmitter, which in operation, transmits the Probe Request frame to request information about the AP MLD and the one or more links of the AP MLD.

[0010] According to another aspect of the present disclosure, there is provided a communication method comprising: generating a frame at an AP included in a plurality of APs affiliated with an AP MLD, wherein each of the plurality of APs advertises a BSSID and provides a link identified by a Link ID, the frame carrying a multi-link element containing information about the AP MLD and the plurality of APs; and transmitting the frame on a link, the Multi-link element indicating a Link ID of the link on which the frame is transmitted.

[0011] It should be noted that general or specific ~~embodiments~~examples may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof. Additional benefits and advantages of the ~~disclosed embodiments~~examples in the disclosure will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various ~~embodiments~~examples and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The accompanying figures where like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to illustrate various embodiments and to explain various principles and advantages in accordance with present embodiments.

[0013] FIG. 1 illustrates an implementation of VLANs according to an example.

[0014] FIG. 2 illustrates an implementation of a network according to an example.

[0015] FIG. 3 depicts an illustration of an AP MLD having a Tier 1 virtualization in accordance with various embodiments.