

FORM 2

THE PATENTS ACT, 1970
(39 of 1970)
AND
THE PATENTS RULES, 2003

**COMPLETE
SPECIFICATION**

(See Section 10; rule 13)

TITLE OF THE INVENTION

“VIRTUAL ACCESS POINT USING SINGLE SERVICE SET IDENTIFIERS”

APPLICANT

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The following specification particularly describes
the invention and the manner in which
it is to be performed

What is claimed is:

1. An Access Point (AP) apparatus, comprising:
 - one or more processors containing program code configured to:
 - cause the AP to broadcast a beacon containing a single SSID identifying the AP;
 - cause the AP to receive from an STA an Internet Protocol (IP) Address Type Availability Query for at least one network operator accessible through the AP; and
 - cause the AP to send to the STA, for the at least one network operator, an IP address type availability information element, in response to the IP Address Type Availability Query.
2. The AP apparatus according to Claim 1, wherein the one or more processors contains program code configured to:
 - cause the AP to receive from the STA, for at least one network operator, a Wide Area Network (WAN) Metrics Query; and
 - cause the AP to send to the STA, for the at least one network operator, a WAN Metrics Information element, in response to the WAN Metrics Query.
3. The AP apparatus according to Claim 1, wherein the one or more processors contain program code configured to:
 - cause the AP to receive from the STA, for at least one network operator, a Connection Capability Query; and
 - cause the AP to send to the STA, for the at least one network operator, a connection capability information element, in response to the Connection Capability Query.

4. The AP apparatus according to Claim 1, wherein the one or more processors contains program code configured to communicate with the STA using IEEE 802.11 Access Network Query Protocol (ANQP).

5. The AP apparatus according to Claim 1, wherein the one or more processors contains program code configured to cause the AP to send the single SSID in a IEEE 802.11 beacon.

6. The AP apparatus according to Claim 1, wherein the one or more processors contains program code configured to cause the AP to associate with the STA.

7. The AP apparatus according to Claim 1, wherein the AP comprises a Wi-Fi AP.

8. A mobile station (STA) apparatus, comprising:

one or more processors containing program code configured to:

cause the STA to receive from an Access Point (AP) a beacon containing a single SSID indentifying the AP;

cause the STA to send to the AP an Internet Protocol (IP) Address Type Availability Query for at least one network operator accessible through the AP; and

cause the STA to receive from the AP, for the at least one network operator, an IP address type availability information element, in response to the IP Address Type Availability Query.

9. The STA apparatus according to Claim 8, wherein the one or more processors contains program code configured to:

cause the STA to send to the AP, for at least one network operator, a Wide Area Network (WAN) Metrics Query; and

cause STA to receive from the AP, for the at least one network operator, a WAN Metrics Information element, in response to the WAN Metrics Query.

10. The STA apparatus according to Claim 8, wherein the one or more processors contains program code configured to:

cause the STA to send to the AP a Connection Capability Query regarding at least one network operator; and

cause the STA to receive from the AP a connection capability information element regarding the at least one network operator, in response to the Connection Capability Query.

11. The STA apparatus according to Claim 8, wherein the one or more processors contains program code configured to communicate with the AP using IEEE 802.11 Access Network Query Protocol (ANQP).

12. The STA apparatus according to Claim 8, wherein the one or more processors contains program code configured to receive from the AP the single SSID in a IEEE 802.11 beacon.

13. The STA apparatus according to Claim 8, wherein the one or more processors contains program code configured to cause the STA to associate with the AP.

14. A computer implemented method for indicating network capabilities at an Access Point (AP), the method comprising the steps of:

broadcasting a beacon containing a single SSID indentifying the AP;
receiving from an STA an Internet Protocol (IP) Address Type Availability Query for at least one network operator accessible through the AP; and

sending to the STA, for the at least one network operator, an IP address type availability information element, in response to the IP Address Type Availability Query.

15. The method of Claim 14, further comprising the steps of:

receiving from the STA, for at least one network operator, a Wide Area Network (WAN) Metrics Query; and

sending to the STA, for the at least one network operator, a WAN Metrics Information element, in response to the WAN Metrics Query.

16. The method of Claim 14, further comprising the steps of:

receiving from the STA, for at least one network operator, a Connection Capability Query; and

sending to the STA, for the at least one network operator, a connection capability information element, in response to the Connection Capability Query.

17. The method of Claim 14, wherein communicating between the AP and the STA is facilitated using IEEE 802.11 Access Network Query Protocol (ANQP).

18. A computer-implemented method for indicating network capabilities at a receiving station (STA), the method comprising the steps of:

receiving from an Access Point (AP) a beacon containing a single SSID identifying the AP;

sending to the AP an Internet Protocol (IP) Address Type Availability Query for at least one network operator accessible through the AP; and

receiving from the AP, for the at least one network operator, an IP address type availability information element, in response to the IP Address Type Availability Query.

19. The method of Claim 18, further comprising the steps of:

sending to the AP, for at least one network operator, a Wide Area Network (WAN) Metrics Query; and

receiving from the AP, for the at least one network operator, a WAN Metrics Information element, in response to the WAN Metrics Query.

20. The method of Claim 18, further comprising the steps of:

sending to the AP a Connection Capability Query regarding at least one network operator; and

receiving from the AP a connection capability information element regarding the at least one network operator, in response to the Connection Capability Query.

21. The method of Claim 18, wherein communicating between the AP and the STA is facilitated using IEEE 802.11 Access Network Query Protocol (ANQP).

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