IEEE P802.11
Wireless LANs

|  |
| --- |
| GAS query optimization including Normative Text |
| Date: 2012-01-13 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Phillip Barber | Huawei Technologies Co., LTD. | 5360 Legacy Dr, Ste 175Plano, Texas 75024 USA |  | pbarber@huawei.com  |
| Zongming Yao | Huawei Technologies Co., LTD. | Bldg C8, Software Park, Road Tianfu 801, Gaoxin District, Chenfdu, Sichuan, China, 610041 |  | yaozongming@huawei.com  |
| Ping Fang | Huawei Technologies Co., LTD. | Bldg 7, Vision Software Park, Road Gaoxin Sourth 9, Nanshan District, Shenzhen, Guangdong, China, 518057 |  | ping.fang@huawei.com  |
| Yunbo Li | Huawei Technologies Co., LTD. | Huawei Bantian Industrial Site, Longgan District, Shenzhen, Guangdong, China, 518129 |  |  |

Abstract

This document provides normative text for a technical proposal for TGai. In this proposal a method for GAS Query optimization is provided to reduce FILS processing time by accelerating the Network Discovery procedure. The proposal defines a short method for STA to request Neighbor information using a single unicast GAS Request.

**Problem:**

As previously discussed in [IEEE 11-11-1499-00-00ai](https://mentor.ieee.org/802.11/dcn/11/11-11-1499-00-00ai-gas-query-optimization.pptx), when performed as a STA unicast event the current GAS Query mechanism may require multiple re-directed attempts before acquiring an appropriate target AP.

STA GAS Query as a broadcast event, as with Probe, has its own drawbacks: potential collisions in the response window; increased non-productive overhead air interface traffic.

The STA may have detected through Beacon or other means the BSSID of two or more AP that the STA has interest/need to discover GAS information. Those AP may share a relationship such that Query to one AP may provide means to acquire the GAS information.

This problem was agreed and a remedy provided as part of 802.11u in the form of the ‘8.4.4.18 Neighbor Report ANQP-element‘. But the element design is relatively combersome and excessive requiring iterations of the elment at a minimum size of 17 octets per AP element iteration in the request. And many subelements make no sense, have no value in the request.

**Remedy:**

Provide a simpler, smaller Neighbor request element to elecit the extended ‘8.4.4.18 Neighbor Report ANQP-element‘ in the response; 6 octets per AP to identify the BSSID should be sufficient.

Adopt the proposed text as:

**8.4 Management frame body components**

**8.4.4 Access Network Query Protocol (ANQP) elements**

[Editor to insert an entry row in Table 8-184—ANQP-element definitions for the new 8.4.4.ai3 GAS/ANQP Configuration Set Identifier and Change Counter]

**8.4.4.ai3 Neighbor Query ANQP-element**

[Add subclause 8.4.4.ai3 as:]

The Neighbor Query ANQP-element provides a compact list of Neighbors in query to elecit a detailed Neighbor Report ANQP-element response as defined in 8.4.4.18. See Figure 8-ai4.



**Figure 8-ai4—** **Neighbor Query ANQP-element format**

The Length field for this element indicates N x six octet BSSID subelements.

The BSSID is the Neighbor BSS for which Neighbor Report ANQP information is being solicited. The BSSID is six octets in length. For BSSID see 8.2.4.3.4.

**References:**

[P802.11REVmb/D12.0](http://www.ieee802.org/11/private/Draft_Standards/11mb/Draft%20P802.11REVmb_D12.0.pdf)