IEEE P802.11  
Wireless LANs

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| Liaison to ISO/IEC JTC1/SC6/WG7 in relation to PWI proposal for “WLAN Virtual AP” | | | | |
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Abstract

ISO/IEC JTC1/SC6 decided in resolution 6.7.8 to distribute SC6 document N15913 (“WLAN Virtual Network”) for study and comment, with a closing date of 30 April 2014.

This document contains a liaison from the IEEE 802.11 Working Group to ISO/IEC JTC1/SC6/WG7 in response to this request.

### Liaison from IEEE 802.11 Working Group to ISO/IEC JTC1/SC6/WG7

ISO/IEC JTC1/SC6 decided in resolution 6.7.8 to distribute SC6 document 6N15913 (“WLAN Virtual Network”) for study and comment, with a closing date of 30 April 2014.

The IEEE 802.11 WG thanks ISO/IEC JTC1/SC6/WG7 for the opportunity to comment on the “WLAN Virtual Network” document. The material that follows represents the comments and conclusions of the IEEE 802.11 Working Group.

The IEEE 802.11 WG’s conclusion is that a PWI to address the problem described in “WLAN Virtual Network” is not required because solutions to this problem are already widely deployed based on the use of existing ISO/IEC 8802-11 and other standards.

### A PWI to address the problem described in “WLAN Virtual Network” is not required

A proposal has been made by the China NB in WG7 for “Virtual WLAN Networks” (6N15913) to share the same WLAN network among multiple service providers.

Solutions to this problem are possible based on the use of existing ISO/IEC 8802-11 and other standards with:

* Multiple service providers using multiple SSIDs
* Multiple service providers using a single SSID

Therefore, there is no need to approve a PWI to study the problem, or to develop a standard to solve the problem, because widely deployed standards based solutions already exist.

### Multiple service providers can already share an AP with multiple SSIDs

A single AP can be provisioned to support multiple AAA servers and multiple VLANs from multiple service providers, with each AAA server associated with a different SSID. The AP is configured to beacon multiple RSN-supported SSIDs.

When a client associates to an SSID, an EAP/Identity-Request is sent to the client. The client’s EAP/Identity-Response is forwarded to the AAA server associated with the SSID to which the client associated.

The AAA server selects the appropriate EAP method for the client, authenticates it, and, when successful, forwards authorization information, including VLAN information, specific to the authenticated client to the AP. The AP assigns the client to the VLAN and tags all packets from the client for the VLAN to which it has been assigned.

If another client associates to a different SSID, the same process is undertaken for the AAA server associated with the different SSID, with the new client’s packets being tagged for a VLAN according to the authorization information from the AAA server.

### Multiple service providers can already share an AP with a single SSID

A single AP can be provisioned to support multiple AAA severs and multiple VLANs from multiple service providers, with all AAA servers associated with the same SSID. The AP is configured to beacon a single RSN-supported SSID.

When a client associates to the SSID, an EAP/Identity-Request is sent to the client. The client’s EAP/Identity-Response is parsed by the AP to determine the client’s NAI. Information in the NAI (for instance, domain information) is used to route the client’s EAP/Identity-Response to the appropriate AAA server.

The AAA server selects the appropriate EAP method for the client, authenticates it, and, when successful, forwards authorization information, including VLAN information specific to the authenticated client to the AP. The AP assigns the client to the VLAN and tags all packets from the client for the VLAN to which it has been assigned.

If another client associates to the SSID, the same process is undertaken. The client’s NAI may indicate that a different AAA server should be used. Once authenticated the client’s packets will be tagged for the VLAN assigned to the client by the AAA server’s authorization information.

This is the technique used by the Wi-Fi Alliance in its HotSpot 2.0 specification (based on IEEE 802.11u, which is included in ISO/IEC 8802-11) and also by eduRoam, which is a mechanism defined by an international consortium of research groups and universities.