Transmission of IPv6 Packets over IEEE 802.11 Networks in mode Outside the Context of a Basic Service Set (IPv6-over-80211ocb)

draft-ietf-ipwave-ipv6-over-80211ocb-03.txt

A. Petrescu (speaker),
N. Benamar, J. Härri, C. Huitema, J-H. Lee, T. Ernst, T. Li

IETF 99, Prague, July 20th, 2017

Contents

- Minor textual issues
- Issues from Chicago
- Issue still on the table

Minor textual issues: Slide 3

OLD:

> The IPv6 network layer operates on 802.11 OCB in the same manner as it operates on 802.11 WiFi.

This makes think that, below IPv6, 802.11 OCB works as 802.11 WiFi works. It is not true. As such, the resolution is this.

NEW:

> The IPv6 network layer operates on 802.11 OCB in the same manner as it operates on 802.11 WiFi, with a few particular exceptions.

End issue.

OLD:

> RSU: Road Side Unit. An IP router equipped with, or connected to, at least one interface that is 802.11 and that is an interface that operates in OCB mode.

NEW:

> RSU: Road Side Unit. A computer equipped with at least one IEEE 802.11 interface operated in OCB mode. This definition applies to this document. An RSU may be connected to the Internet, and may be equipped with additional wired or wireless network interfaces running IP. An RSU MAY be an IP Router.

Slide 4

OLD:

> The link 802.11 OCB was specified in IEEE Std 802.11p(TM)-2010 [ieee802.11p-2010] as an amendment to the 802.11 specifications

It was suggested that the "802.11 specifications" are in fact "IEEE Std 802.11-2007". As such the resolution is:

NEW:

> The link 802.11 OCB was specified in IEEE Std 802.11p(TM)-2010 [ieee802.11p-2010] as an amendment to IEEE Std 802.11-2007

OLD:

> The used identifier of BSS (BSSID) has a hexadecimal value always ff:ff:ff:ff:ff:ff (48 '1' bits, or the 'wildcard' BSSID),

It was suggested that the base 16 numerical notation convention is 0xffffffffffff, and not ff:ff:ff:ff:ff:ff. As such the resolution is this new text:

NEW:

> The used identifier of BSS (BSSID) has a hexadecimal value always 0xffffffffffff (48 '1' bits, represented as MAC address ff:ff:ff:ff:ff:ff, or otherwise the 'wildcard' BSSID)

Slide 5

OLD:

> Prohibition of IPv6 on some channels relevant for the PHY of IEEE 802.11-OCB, as opposed to IPv6 not being prohibited on any channel on which 802.11a/b/g/n runs; at the time of writing, this prohibition is explicit in IEEE 1609 documents.

It was suggested that this is not a PHY prohibition, but rather a higher layer protocols providing services to the application.

As such the new text is the following:

NEW:

> - Prohibition of IPv6 on some channels relevant for IEEE 802.11-OCB, as opposed to IPv6 not being prohibited on any channel on which 802.11a/b/g/n runs:
>
>   * Some channels are reserved for safety communications; the IPv6 packets should not be sent on these channels.
>
>   * At the time of writing, the prohibition is explicit at higher layer protocols providing services to the application; these higher layer protocols are specified in IEEE 1609 documents.
>
>   * National or regional specifications and regulations specify the use of different channels; these regulations must be followed.

Slide 6

OLD:

> If IPv6 packets of size larger than 1500 bytes are sent on an 802.11-OCB interface then the IP stack will fragment.

There was a question whether we should substitute "SAP - Service Access Point" for "interface" in the above phrase.

I think the current text is right: it talks about an interface card, not about a SAP between layers.

NEW:

> If IPv6 packets of size larger than 1500 bytes are sent on an 802.11-OCB interface card then the IP stack will fragment.

OLD:

> There are considerations for 2 or more IEEE 802.11-OCB interface cards per vehicle. For each vehicle taking part in road traffic, one IEEE 802.11-OCB interface card MUST be fully allocated for Non IP safety-critical communication. Any other IEEE 802.11-OCB may be used for other type of traffic.

There was a comment stating that while "fully allocated" certaiinly improves performance in many ways, that is not a MUST. As such, the new clarified text is the following.

NEW:

> There are considerations for 2 or more IEEE 802.11-OCB interface cards per vehicle. For each vehicle taking part in road traffic, one IEEE 802.11-OCB interface card could be fully allocated for Non IP safety-critical communication. Any other IEEE 802.11-OCB may be used for other type of traffic.

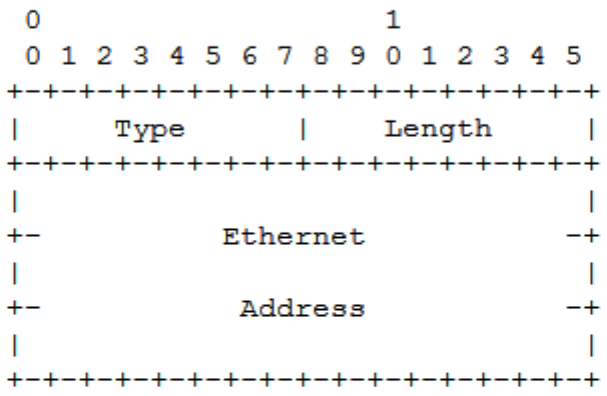
Issues from Chicago: Slide 7

- Keep the previous text on multiple addresses, so remove talk about MIP6, NEMOv6 and MCoA.
- Clarified that a 'Beacon' is an IEEE 802.11 frame Beacon.
- Clarified the figure showing Infrastructure mode and OCB mode side by side.
- Added a reference to the IP Security Architecture RFC.
- Added section "Address Mapping -- Unicast".
- Added the ".11 Trailer" to pictures of 802.11 frames.
- Added text about SNAP carrying the Ethertype.

Slide 8

5.4.1. Address Mapping -- Unicast

The procedure for mapping IPv6 unicast addresses into Ethernet link-layer addresses is described in [RFC4861]. The Source/Target Link-layer Address option has the following form when the link-layer is Ethernet.



Option fields:

Type
1 for Source Link-layer address.
2 for Target Link-layer address.

Length
1 (in units of 8 octets).

Ethernet Address
The 48 bit Ethernet IEEE 802 address, in canonical bit order.

Issue still on the table: Slide 9

Request referencing the most recent IEEE 1609 standards and revise IPwave draft using the 2016 versions of 1609.2, 1609.3, and 1609.4.

Also:

- IEEE Std 802.11TM-2016,
- IEEE Std 1609.2 TM -2016,
- IEEE Std 1609.3 TM -2016,
- IEEE Std 1609.4 TM -2016,
- and IEEE Std 1609.12 TM -2016