

802.11s mesh powersaving for linux

Scope

- Implement non-realtime powersaving features of 802.11s draft:
 - powersaving level indication;
 - traffic buffering for sleeping peers;
 - TIM/DTIM in beacons;
 - peer service period;
- Provide powersaving level control on MSTA/peer link basis;
- Provide peer link control;

Approach

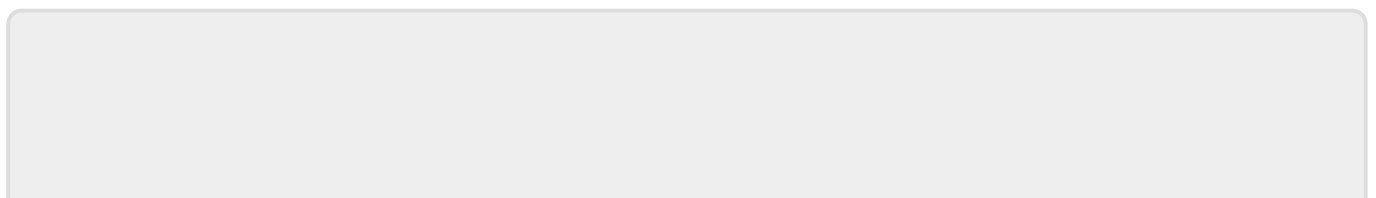
Enhance current in-kernel 802.11s implementation:

- powersaving scheme proposed by 802.11s draft closely resemble AP-based scheme (traffic buffering/TIM/DTIM), so this code may be reused;
- powersaving level indication (both peer and non-peer)/mesh awake window attributes need to be added;
- wakeup for peer beacon reception may be implemented later, now it's enough to stay awake continuously and just calculate whether station would actually hear the frames that it receives;
- peer service period logic need to be added, it's a simple state machine;

Testing may be carried out with mac80211_hwsim driver.

What's to be done

- MSTA power mode tracking (11C.13.3);
- each peering power mode tracking (11C.13.4);
- TIM/DTIM in beacons (11C.13.5-6) - `ieee80211_beacon_get_tim`;
- mesh awake window (11C.13.7);
- wake-up scheduling for peer beacons (optional);
- ps-poll requests and responses (?);
- service period tracking (11C.13.10);
- frame buffering for doze peers - `ieee80211_tx_h_multicast_ps_buf`, `ieee80211_tx_h_unicast_ps_buf`;
- user interface controls - like `nl80211_set_power_save`;



From:

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<http://wiki.osll.ru/doku.php/etc:users:jcmvbkbc:mesh-power?rev=1268775524>



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