IEEE P802.11
Wireless LANs

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| Active Scanning related requirements for Specification Frame Work Document  |
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Abstract

The document contains minimal set of requirements to achieve faster, more precise and less overhead creating active scanning mechanism. More requirements will be added later.

The requirements are grouped according to enhancement. The need for each requirement is explained with motivation clause, then the concept is explained and finally a strawpoll questions 802.11ai opinion.

The submissions that are covered with these requirements are based on:

11-1414r4 Probe Request and Response in TGai

11-1521r2 AP and Network Discovery Enhancements

11-1523r6 Access Delay Reduction for FILS

11-1619r3 Active Scanning

12-50r0 Broadcast Probe Response including Normative Text

12-56r0 FILS enabled active scanning

12-59r0 Selection of the AP for Scanning

12-60r0 Text for Selection of the AP for scanning

12-61r0 Probe Response frame transmission interval

12-62r0 Text for Probe Response frame transmission interval

12-67r0 Active Scanning Time Notification

12-124r0 Text for access delay reduction for FILS

Normative text to implement the choices is provided in 11-1619r3.

# MLME

**Motivation**

The current MLME-SCAN.confirm reports the status of the discovery at the very end of the discovery operation. The immediate reporting of the discovered networks is close to current implementations and speed up information passing from the MAC-layer.

**Concept**

The MLME-SCAN.confirm primitive shall be invoked to report every found BSS during the scan procedure.

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

# FILS capability indication

**Motivation**

The current STAs are not FILS capable. The FILS capable STAs cannot detect other FILS capable STAs. The detection of the FILS capable STAs enables scanning STAs to use FILS specific scanning logic.

**Concept**

If applicable, Probe Request, Probe Response and Beacon should indicate FILS capability.

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

# Probe Request

**Motivation**

The requesting STA may have information of the STAs from which it is not interested to receive Probe Request. The previous knowledge may be obtained during the time when the STA was looking for TXOP to transmit the Probe Request, or from previous Probe Request.

**Concept**

The probe request may restrict responses by indicating APs that should or should not respond

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

**Motivation**

Without knowledge of the time when the Probe Request transmitter is available to receive Probe Responses, the indivoidually addressed Probe Responses may be unnecessarily retransmitted.

In congested BSS, it may be difficult and power consuming for the requesting STA to transmit a frame to indicate that it is no longer available to receive Probe Responses.

**Concept**

The transmitter of the Probe Request frame may indicate the time when it is available to receive Probe Response frames.

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

# Canceling Probe Responses transmission

**Motivation**

In general knowledge when the STA is available to receive at the channel reduces unnecessary Probe Response transmissions.

The requesting STA may indicate to be available to receive Probe Responses for a certain time period. If the channel is idle, the device may need unnecessarily use its battery to be available at the channel.

**Concept**

Responses to Probe Request may be cancelled by requesting STA

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

# Probe Response

**Motivation**

The broadcast addressed Probe Response may be received by many STAs. The broadcast addressed Probe Responses are not acknowledged and need not be retransmitted which reduces traffic load in congested situations.

**Concept**

The Probe Response frame may be transmitted to an individual or broadcast address.

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

**Motivation**

The BSS information on other channels helps to select the next scanned channel.

**Concept**

The Probe Response may contain information of other than responding AP (Comprehensive response).

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

# Probe Response collision avoidance

**Motivation**

The amount of unnecessary copies of the Probe Response frames should be minimized. The smaller amount of transmitted frames reduces traffic load and speeds up the discovery operation.

**Concept**

AP may respond to multiple Probe Requests with a single response frame

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

**Motivation**

The amount of unnecessary copies of the Probe Response frames should be minimized. The smaller amount of transmitted frames reduces traffic load and speeds up the discovery operation.

**Concept**

AP may transmit a Beacon frame instead of Probe Response frame if the TBTT occurs within short time interval

**Strawpoll**

Do you agree on above mentioned concept?

Yes: No: Abstain:

# References:

11-1414r4 Probe Request and Response in TGai

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