IEEE P802.11
Wireless LANs

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| 802.11 TGaq Meeting Minutes – November 2013 (Dallas) |
| Date: 2013-11-11 |
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Abstract

This document comprises the Minutes for the IEEE 802.11 Task Group aq (TGaq) meeting (4 sessions – Monday (PM2), Tuesday (AM2), Thursday (AM2, PM2) held in November 2013 in Dallas, USA.

Chair: Stephen McCann (BlackBerry)
Vice Chair: Yunsong Yang (Huawei Technologies)

Technical Editor: Dan Gal (Alcatel-Lucent)

Secretary: Dapeng Liu (CMCC)

**Monday, November 11th, 2013, 16:00 to 18:00 (PM2)**

**Call to order and agenda**

Meeting called to order on Monday, November 11th, 2013 by TGaq Chair, Stephen McCann, at 16:00 pm.

Chair asked that is there any presentation request for today’s session. There was one presentation from Ping (doc 13/1403r0).

The agenda (doc 13/1266r1) was approved by unanimous consent.

**Approval of previous meeting minutes**

The Nanjing meeting minutes (doc 1247/0) was approved by unanimous consent.

**Re-present closing report from September meeting**

The Chair presented the status of the group’s activities as covered in the September meeting closing report (doc 13/1229r1). There were no comments or discussions.

The chair introduced the instructions for the WG chair and the IEEE Patent policy.

The chair called for potentially essential patents. There were no statements from the group.

**Documentation Recap**

**Terminology Document**

**11-13-0299r3**

Updated by Dan and Yunsong.

**Use Case Document**

**11-13-0125r6**

**Framework Document**

**11-13-0300r1**

**Mid-week plenary 802.11aq tutorial**

Mini tutorial will be presented by chair during the mid-week plenary.

The chair introduced the 802.11aq mini tutorial document (doc 13/1313r0)

Dan (Alcatel-Lucent): Are there any mentor rules for copying document across different groups in 802.11?

Dan (Alcatel-Lucent): slide page 6, suggest adding the reference document number.

Santosh (Cisco): there is no comparing use case for 11aq. Show why pre-association is import in the use case.

Andrew (Cisco): Whether the concept addresses the motivation of this group. Suggest adding a rationale section.

Yunsong (Huawei): Commented pre-association /post-association.

Joe (Interdigital): suggests adding the following points: GAS provides little detail about services information; Current mechanism to sequentially associate to try and try again is time consuming and potentially costly.

Cheol (ETRI): page 10, suggest adding broadcast concept.

Dan (Alcatel-Lucent): page 3, suggest adding disadvantage of pre-association.

Joe (Interdigital): Existing peer to peer discovery mechanisms flood the channels with pre-association traffic.

Ping Fang (Huawei): Page 14, clarify the “Normative text submissions”.

Dan (Alcatel-Lucent): Please change the footer of the document. Clarify the term “study group”.

**Presentations**

**Doc 11-13-1403r0: Service discovery architecture for TGaq (Ping Fang, Huawei)**

Page 3: Background introduction.

Page 4: The overall picture of 11aq. There were three parts of the procedure.

Page 5: 2 options for service indication from AP: new IE in beacon/probe response or new public action frame.

Page 6: There were two parts of service indication IE: protocol indication part and service information part.

Page 7: The general service query design. Two options were proposed: combine with AP/Network discovery or define new public action frame.

Page 8: Compared with the two options.

Page 9: The detailed service query design. Two options were proposed: GAS mechanism and new public action frame.

Page 10: Compared the 2 options.

**Questions and discussions:**

Santosh (Cisco): Page 10, how to indicate what service want to discovery? How to map service name to a single bit?

Answer: define standard service name in WFA.

Santosh (Cisco): Concerns about the feasibility.

Daniel (Apple): Concerns about extensibility. Service hash bitmap is also not extensible. Page 10, similar method to WFA.

 Paul (Marvel): Page 14, concern about the total service number k. One example is that there are more than 1 million services in an Apple store. Should not assume that service number is a

small number.

 Joe (Interdigital): Page 4, I do not agree with the overall picture. Assume that the AP knows there are many services in the network. Network is dynamic and the AP cannot know what the service running in the network. TGaq should consider how to use existing service discovery mechanism.

 Andrew (Cisco): Concern about service registration and other issues.

 Daniel (Apple): response to Joe’s concern.

 Chair asked whether Daniel want to do a presentation about the up layer mechanism.

 Joe (Interdigital): TGaq should not repeat the discovery mechanism that already defined by existing service discovery protocols.

 **Straw poll:**

 Discussion of the straw poll:

 Dan suggested defining architecture first instead of piece of piece.

 Paul share similar concern.

**Straw Poll-1: add the following sentence to section 5 Frame Formats of TGaq SFD, 11-13-0300r1**

* + TGaq shall define an IE with service hash bitmap for service indication.

 **Straw poll result:**

 **Yes: 2**

 **No: 5**

 **Need for more info: 10**

 **Recess**

 The chair announced that the meeting recessed at 18:00.

**Tuesday, November 12th, 2013, 10:30 to 12:40 (AM2)**

**The chair called to order at 10:30 am.**

**Agenda discussion:**

Choel (ETRI): My presentation is revision 3.

Mike (Blackberry): Add a new proposal (doc 11-13-1384r0).

The agenda (doc: 1266r2) was approved.

**Mini Tutorial (doc: 1313r2) discussion**

Chair introduced the mini tutorial that will be presented on Wednesday mid-plenary.

The group discussed the content of the slides and make improvement.

Andrew (Cisco): Draft LS to WFA for use cases.

Yunsong (Huawei): In the study stage of the group indeed sent LS to WFA and asked for comments.

Dorothy (Aruba): slide 5, 3 comments, First line, is there any public information in WFA to justify this? Second bullet: Change the wording. Delete this bullet and the Last bullet. Where is the public information about overlap between WFA?

Joe (Interdigital): Delete the whole slide.

Mike (Blackberry): Agree with Joe, delete this slide.

Dorothy (Aruba): Perhaps provide a link to PAR and 5C. Liaison sent to WFA to request feedback but nothing back at the moment. Slide 4, ANQP and RLQP, spell the full name for this terms.

Andrew (Cisco): WFA may have interest in this area. There is no public information from WFA.

Dorothy (Aruba): There is an interest in the industry for service discovery. For example, RFC6763 “DNS based service discovery”.

Joe (Interdigital): WBA NGH is another example.

Mike (Blackberry): Slide 6 and slide 5 merge to one.

Andrew (Cisco): Should add that IEEE 802.11 created a new TGaq based on PAR.

The chair modified the slides according to the comments.

**Presentations**

**Doc 11-13-1396r3 Frame Formats for PAM (RYU Cheol, ETRI)**

Page 2: PAM, Pre-association message.

Page 3: Example of PAM frame.

Page 4: Format for service information example.

**Straw poll:**

Page 5: Do you agree that the specification framework shall include frame formats for multicasting or broadcasting frame to announce service information?

**Discussion of the straw poll:**

Jouni (Qualcomm): Does the framework has multicast mechanism?

Andrew (Cisco): should agree on the high level architecture then go to the detail of the text.

Joe (Interdigital): Agree with the straw poll. Frame format is needed.

**Straw poll result:**

**Yes: 9**

**No: 0**

**Abstain: 8**

**Doc 1091r3 Protocol Architecture of 802.11aq (Dapeng Liu, CMCC)**

Jouni (Qualcomm): Length filed is missing. Is it by design intention or not?

Andrew (Cisco): What is the definition of service? If use Bonjour as example, why not just use Bonjour.

Daniel (Apple): Service type length is not enough. Should discovery the indication of availability of service before discover the detailed parameters? Like the idea that there should have an indication for service.

Joe (Interdigital): We should not invent new service discovery protocol.

Dan (Alcatel Lucent): need to define principle before go forward.

Chair asked Dan to prepare a slide of principle and present on Tuesday.

**Doc 0788r2 TGaq Transaction Protocol (Michael, Blackberry)**

**Comments and discussions:**

Andrew (Cisco): Is that a tunnel? Answer: Not necessarily a tunnel.

Yunsong (Huawei): Do you assume one proxy? Does it allow multiple proxies? Answer: It is logically one to one. How does the AP map the information to multiple proxies?

Cheol (ETRI): What is the service protocol?

Dan (Alcatel Lucent): Page 13, the green part is not the part of the AP? Number 4 guidance rule: we do not modify the service implementation.

Andrew (Cisco): Is that a translation proxy?

Michael shows the proposed framework text (doc: 1384r0).

Cheol (ETRI): What is truncate of service ID; why there is different truncate of service ID?

Yunsong (Huawei): Page 5, the 4th line. Need re-wording. Only have service ID, is it enough for multiple proxies case? It may need up-layer service ID information.

Dan (Alcatel Lucent): Is this present in Nanjing meeting? No. Does it include flow chart?

Is the information goes L2. Yes.

Andrew (Cisco): Thanks for the detail text. We need to: tell the STA that there is a proxy. It is difficult to define the function of proxy.

Yunsong (Huawei): Unicast only? Do we allow broadcast? There is no consensus on broadcast.

Cheol (ETRI): Service indication and capability indication is different.

Daniel (Apple): Service update indication is needed. 802.11ai already do similar this.

Cheol (ETRI): STA does not know the STA’s previous state.

Joe (Interdigital): Need informative annex.

**Recess**

The chair announced the meeting recessed at 12:25.

**Thursday, November 14th, 2013, 10:30 to 12:40 (AM2)**

**The chair calls to order at 10:30 am.**

**Agenda discussion:**

Agenda: doc 1266r3

Agenda was approved.

**Presentations**

**Doc 11-13-13 1415r0 Service Discovery with Association (Betty Zhao from Huawei)**

**Comments and discussion:**

Santosh (Cicso): Why AP providing association request to the STA? Peer to Peer discovery already covered by WFA. Answer: Only AP knows the information.

Jin (HTC): Similar comments. Online gaming case is not likely happen.

Gorge (Qualcomm): Do not understand the problem. It is a solved problem. P2P discover cove this. Answer: The STA may do not have direct communication.

Joe (Interdigital): Break it down to 2 cases. First cast, two STA in radio range. Second 2: If not in radio range case. Point to point discovery and communication can work for those cases.

Choel (ETRI): Association frame is for association, it is not for discovery. Answer: Association can also be used for capability notification. Prefer the 3rd option. It is unicast or broadcast? Answer: Unicast.

Mike (ITRI): Two STA is the communication range? Answer: not in the range. It does not exclude peer to peer case. Should also consider the online gaming state.

**Straw Poll:**

Do you support the concept that AP may initiate association with STA for specific service?

**Yes: 2**

**No: 7**

**Abstain: 5**

Chair suggested the author to look at ANQP TDLS within IEEE 802.11-2012. Here the association protocol is between to two STA. Avoid the word association.

**Doc 1435r1 TGaq Essential Requirements (Dan Alcatel-Lucent)**

Propose essential requirement for 802.11aq requirements:

**Requirement: 1. Use only existing, standard, discovery protocols, constrained to operate with STA’s in pre-association mode via L2 messages.**

**Comments and discussions:**

Santosh (Cisco): should be extended to vendor specific.

Yunsong (Huawei): Agree in high level. Most service discovery works above IP. If all carry by L2 that will be lots of traffic. May needs translation mechanism.

Jin (HTC): Agree in general concept. The pre-association mode should allow the STA already association with one AP but still needs to look for another AP. Neighboring AP case.

Joe (Interdigital): Cannot agree with the wording. We have address peer to peer case. For infrastructure service discovery is OK.

Mike (ITRI): Change wording “only” change to “may”.

Santosh (Cisco): Agree with this.

Choel (ETRI): Do not agree. Do not exclude new service discovery protocol.

Joe (Interdigital): Do not understand vendor specific. We never use vendor specific option in standard. Change the wording “use only” to “do not duplicate”.

Qi Wang (Qualcomm): What does “existing discovery protocol” mean? It should be higher layer protocol? Need to clarify the wording.

Gorge (Qualcomm): 802.11aq shall not define new higher layer protocol.

**Requirement: 2. Have no impact on existing discoverable, service-providing, networked equipment (except new APs and PAD-servers)**

**Comments and discussions:**

Chair: do you mean hardware or software?

Santosh (Cisco): Backward compatibility is essential. It is very hard to say there is no impact. Suggest removing this bullet.

Joe (Interdigital): Change wording “Have no” to “limit”.

Yunsong (Huawei): The impact depends on the solution. Have two parts, allowing existing mechanism. Second part should be limit.

Choel (ETRI): What is “PAD servers”? Change to “11aq server”.

Gorge (Qualcomm): Delete the “expect new APs and PAD-servers”.

**Requirement 3: Provide the STA (the user) – in pre-association state - with just enough service information needed to decide whether or not to associate with the network and obtain the service.**

Daniel: (Apple): Do not agree. We should allow the full detail service change.

Choel (ETRI): Remove “state”.

Yunsong (Huawei): 11aq is about finding service. Should allow to obtain the service not only network discovery.

Rob (Satter): Should allow filtering.

Dan will revise the proposal and upload to the server. Will discuss in PM2.

**Open issues and specification discussion (doc 1182r0)**

**TGaq Open issues (doc 1182r0)**

No comment from the group.

**Recess**

The chair announced recess of the meeting at 12:14.

**Thursday, November 14th, 2013, 16:00 to 18:00 (PM2)**

**The chair calls to order at 16:00 am.**

**Agenda discussion:**

Doc 13/1266r4

The agenda was approved.

**Presentations**

**Doc 1384/02 IEEE P802.11 Transaction Protocols (Mike, Blackberry)**

Update based on comments. Change the capability bit to an element. Revise the diagram.

**Comments and discussion:**

Yunsong (Huawei): Who generate the service token? Answer: probably the proxy.

Service changes frequently in campus case will lead to frequent change of this service token.

Joe (Interdigital): It is not advertising service. We do not want to track all the services. We only advertise pre-association discovery. Which network the proxy is in, which langue the proxy speaks that the information to advertise.

Joe (Interdigital): Proxy can do service filtering. We need an annex to describe the detail.

Ping Fang (Huawei): In the crowd case, do you want to send the query and get a lot of response? General service type query first.

Mike (Blackberry): What is the general service?

Choel (ETRI): Bonjour has two steps. First instance name, second is the detail query. General query means instance name? Printer has a lot of parameters; you need to consider the parameter before service discovery.

Ping Fang (Huawei): Do we want to get lots of response from lots of AP?

Joe (Interdigital): Already build in current service discovery protocol. We do not need to do anything in L2. We do not duplicate it.

Ping Fang (Huawei): You mean general query in a native langue?

Joe (Interdigital) : You provide the container only.

Ping Fang (Huawei): Unicast or broadcast.

Mike (Blackberry): Only in unicast at this stage.

Ping Fang (Huawei): Then there is no much different from existing mechanism.

Joe (Interdigital): We do not want to do the query to all the networks. We already use GAS to advertise network information but not service information. We can extend GAS or define new mechanism.

Mike (Blackberry): Service discovery is separated from network discovery.

Joe (Interdigital): If you do not know what the network offers you cannot select the network to query.

Mike (Blackberry): When you doing network discovery. You configure Wi-Fi on device. You match up the configuration and network. You can have apps running on device can trigger the network discovery. The service discovery is decoupled from network discovery.

Joe (Interdigital): The case is the network is good for me, just look for if there is service. Agree it is separate.

Mike (Blackberry): We want to do pre-association discovery.

Ping Fang (Huawei): Why not combine the network and service discovery together?

Mike (Blackberry): You may do not have credentials.

Joe (Interdigital): You can buy credentials.

Ping Fang (Huawei): Why should I set up credentials to stop the user?

Joe (Interdigital): Discovery does not need credentials.

Chair: Do you want to write a detail example how you discovery one printer?

Ping Fang (Huawei): I will try to do that.

Choel (ETRI): Will work with Ping. I am not sure Bonjour is the only protocol. We need to consider other protocols.

Chair: You can take Bonjour as an example to help the discussion.

Mike (Blackberry): Security mechanism should be considered.

Chair: Do you want to do a straw poll?

Mike: leave the proxy. Provide some text as the next step.

Chair: Show hands to see how many people support this work?

Almost all support.

Joe (Interdigital): Will help Mike.

Dan (Alcatel Lucent): Do not think you can leave the proxy function.

Yunsong (Huawei): Do you want to do multicast?

Mike (Blackberry): Need help on how multicast work. Will discuss with Yunsong.

Dan (Alcatel Lucent): If the existing protocol is unicast. Do we allow the proxy to create broadcast?

Mike (Blackberry): GAS had multicast mode in 2006.

Joe (Interdigital): Public action frame can do the same thing.

Ping Fang (Huawei): New public action frame is a good option.

**Doc 1435r2 design essential requirement (Dan, Alcatel-Lucent)**

Updated based on AM meeting comments.

There are three requirements.

**Number 1: Shall not define new higher-layer discovery protocols and shall employ existing, standard, including vendor-specific, higher-layer discovery protocols, constrained (via some proxy) to operate with STA’s in pre-association mode (via L2 messages).**

Joe (Interdigital): You do not incorporate with my comments. Peer to peer should in the scope.

Andrew (Cisco): Allowing vender specific conflict with this requirement.

Yunsong (Huawei): The wording “shall” needs refine.

Paul (Marvell): Do not agree with the wording. Exclude the contribution of compression.

Dan (Alcatel Lucent): Proxy should be allowed. The STA can only see the proxy.

Mike (Blackberry): Multicast is preferred. Multicast of GAS does not exist now. The wording cannot allow us to bring the GAS multicast back.

Mike (Blackberry): There is no constraining for GAS.

Andrew (Cisco): The first option: tunnel. Second: mapping to containers. Third: define our L2 service discovery protocol.

Joe (Interdigital): It is a good idea. Filtering is also should be considered.

Mike (Blackberry): The output of proxy is L2.

Chair: Do you get good feedback?

Dan (Alcatel Lucent): How to improve the text? Suggest the text.

Mike (ITRI): Remove “shall”.

Andrew (Cisco): Need to expend the sentence.

Paul (Marvell): Need to split up. Do not agree wording “based on”.

Chair: Split number one to three.

Choel (ETRI): Remove the “mode”.

Mike (Blackberry): Confuse if remove mode.

Chair: We can do this offline by email.

Dan (Alcatel Lucent): Send comments to me.

**Number 2: Limit the impact of existing discoverable, service providing networked devices.**

**Discussion and comments:**

Paul (Marvell): Do not agree wording “impact”. Scope too limited.

Andrew (Cisco): Service providing STA should also pre-associate?

Yunsong (Huawei): The printer needs to be associated. Service providing STA do not need pre-associate.

Chair: Dan can send out email, continue work on email.

**Number 3: Limit the information sent to the STA to the level of detail it requests. Up to the full level provided by the service discovery protocol.**

Choel (ETRI): We need to limit the traffic caused by 11aq. We need to transport the whole information. We could not fulfill this requirement. We do not need to limit the possibility of transport the whole information.

Chair: Take this to the email discussion. Try the motion in January.

Dan (Interdigital): Is this fit your thinking, Mike?

Mike (Blackberry): Yes. Everyone have different interpretation.

Joe (Interdigital): Guideline only useful in the very early stage. Use annex to show how the example. Providing text is the right thing. We should work with Mike.

Dan (Alcatel Lucent): Some group comes up with big mistake architecture.

**Time line discussion**

Chair: Any want to change the time line?

No.

**Teleconference discussion**

Chair: Have one teleconference on Tuesday early December. 10 am ET.

Joe (Interdigital): How about January 7th?

Chair: Agree.

Chair: Note, hopefully the IEEE-SA can provide the Webex bridge for this call.

**Prepare for January meeting.**

Call for proposals.

**The meeting adjourned at 17:26**