IEEE P802.11
Wireless LANs

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| TGaq Meeting Minutes – March 2014 (Beijing) |
| Date: 2014-3-21 |
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Abstract

This document comprises the Minutes for the Task Group aq (TGaq) meeting (3 sessions – Monday (PM2), Tuesday (AM2), Thursday (AM2) held in March 2014 in Beijing, China.

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

Technical Editor: Dan Gal (Alcatel-Lucent)

Secretary: Dapeng Liu (CMCC)

**Monday, March 17th, 2014, 16:00 to 18:00 (PM2)**

**Call to order**

Meeting called to order on Monday, March 17th, 2014 by TGaq Chair, Stephen McCann, at 16:00.

**Agenda**

The chair showed the week’s agenda (802.11-14/0216r1).

Presentations in the agenda:

* + Mini-tutorial repeat: [Chair, 11-13-1313r3 ]
	+ Update from teleconference.
	+ Change of Protocol Name [Yunsong, 11-14-0260r1]
	+ Service Update Indicator [McCann, 11-14-0325r0]
	+ Service Transaction Protocol update [McCann, 11-13-0788r5]
	+ Service Transaction Protocol text [McCann, 11-13-1384r3]

The chair asked for comments for the agenda:

* + Santosh Pandey (Cisco Systems): Why representing things that have been discussed before. Waste of time.
	+ Chair: The purpose is to try to give a summary; I shall remove them from the agenda.
	+ Yungsong Yang(Huawei): The presentation number should be: 11-14-0260r1
	+ Ping Fang (Huawei): I have just uploaded a presentation. UPnP [Ping, 11-14-0374r0].
	+ Joe Kwak (InterDigital): There will be an updated paper for Wednesday. [doc: 11-14-0158r1: service transaction protocol for ANDSF]

The chair updated the agenda (11-14-0216r2)

**The agenda 11-14-0216r2 was approved.**

**IEEE patent policy**

The chair reviewed the IEEE patent policy and read thoroughly the call for Potentially Essential Patents. No such claims were made.

**Approval of previous meeting minutes**

The chair requested the approval of the January 2014 Interim meeting minutes [doc: 11-14-0186r1].

The meeting minutes were approved by unanimous consent.

**The Chair presents the January 2014 Closing report.**

Architecture, protocol, example of message flow etc. were discussed in January 2014 meeting.

**Documentation Re-cap**

Use cases (11-13-0125r6) was mentioned

Updated terminology document (11-13-0299r3)

Skeleton framework document (11-13-0300r1)

**Presentation by Yungsong Yang (Huawei) on “TGaq Protocol Name” (**11-14-0260r1)

Yungsong Yang (Huawei) presented the document. He mentioned that this was presented in teleconference and 4 options were discussed: PADP, PAMP, PAQP. Straw poll result shows that PADP has the most votes.

Straw poll: “***Do you support that TGaq members start to use Pre-association Discovery Protocol (PADP) as the TGaq protocol name (and acronym) in their technical proposals and amendment text proposals, to facilitate common understanding in submissions, discussions, and amendment text drafting?***”

SK (apple): Is this project limited to pre-association service discovery? PADP is only for the pre-association part?

Yungsong Yang (huawei): All the use cases have the characteristic that the service discovery is done before association.

Chair: It is the connection manager’s function if you want to use full capability of UPnP.

Joe Kwak(InterDigital): Just call it PAD.

Yungsong Yang(Huawei): Similar as ANQP and “P” stands for protocol.

Joe Kwak(InterDigital): OK.

Chair: Any debate of the text of straw poll?

Straw poll result:

 YES: 9

 NO: 0

 Abstain: 1

**Presentation by Ping Fang (Huawei) on “Message Flow Using UPnP”** (11-14-0374r0)

Ping Fang (Huawei) presented the document. Ping introduced the background: People want to know exactly how UPnP services can be discovered in 11aq. The document discussed the detail work flow of 802.11aq UPnP discovery. There are two modes: transparent mode and opaque mode.

Transparent mode for UPnP PrintBasic service discovery:

* STA generate UPnP service query before IP link setup.
* STA need to be configured with a temp IP address.
* STA transmit service discovery with UPnP syntax in MAC message.
* Proxy encapsulates message from PAD STAs.
* Proxy needs to maintain a table for STA MAC and temp IP map.

Opaque mode for UPnP PrintBasic service discovery.

Proxy broadcast service indication first.

STA send UPnP PrintBasic service GAS message:

* STA uses general service name or service hash in service query.
* STA do not need to handle UPnP syntax for PAD service query.
* Proxy may caches service information and broadcast device indication.
* Proxy generates UPnP message to Service provider.
* Proxy needs to translate UPnP message into GAS for STA.

Transparent approach has fewer requirements on proxy. Opaque approach has more requirements on proxy. Proxy needs to parse the message between service provider and supplicant, generate higher layer service query message from STA’s query and generate MAC message for STA from higher layer service response.

Joe Kwak (InterDigital): Why do you need GAS after association?

Ping Fang (Huawei): For post association, to query service detail.

Joe Kwak (InterDigital): Then it should be device discovery?

SK (Apple): You still advertise service?

Ping Fang(Huawei): Could be broadcast or unicast.

SK (Apple): Device and service discovery. What do you mean by device discovery?

Joe Kwak (InterDigital): Discovery of the service provider.

Joe Kwak (InterDigital): Can you explain service indication of opaque mode?

Ping Fang (Huawei): Service indication information to help the STA reduce message numbers.

Joe Kwak (InterDigital): It is not clear of the benefit of broadcasting. What is the benefit compare with bit map, hash?

Ping Fang (Huawei): Could be bit map or service ID or hash.

Joe Kwak (InterDigital): How to allocate IP address when there are multiple APs? There is no central point.

Ping Fang (Huawei): We need an IP address. Do not know very clearly.

Yungsong Yang (Huawei): IETF has a RFC to allocate local IP address for device itself.

Joe Kwak (InterDigital): Not sure whether it work for a fixed network.

Santosh Pandey (Cisco Systems): Coming from security domain. If the AP is blindly forwarding, no filtering take place. Security assumption from the service and AP is not the same.

Santosh Pandey (Cisco Systems): Second question. What is the point of using GAS after association?

Ping Fang (Huawei): The message is still in pre-association. You can use the upper layer message after association.

Santosh Pandey (Cisco Systems): Still confused. Are there multiple transactions?

Ping Fang (Huawei): First phase is service indication and then do the detail query.

Santosh Pandey (Cisco Systems): Is there any state between the two transactions? Are they completely independent?

Ping Fang (Huawei): Should be independent.

Joe Kwak (InterDigital): Opaque mode has disadvantages. We should facilitate existing protocol. It requires a mapping table. It has to repeat the existing service discovery protocols. We should not do that. Some of the discovery protocol is stateful. The proxy needs to maintain the state. We should not go to the protocol details. The AP should have a time out mechanism. If the AP does not understand and cannot parse, for example, two minutes, to time out. The proxy is the main security provisioning; the opaque will lead more problems than benefit. Transport mode is better.

Ping Fang (Huawei): Can you provide use case step by step?

Joe Kwak (InterDigital): Will give presentation on Wednesday. It should have sequence. There is no way to prevent the implementer do any coding mechanism. We should not allow broadcast, you have 20-30 STAs are connected. The majority of the STA is connected. We should not broadcast for only small number of STA. We should be very careful of broadcast for anything.

Jing-Rong Hsieh (HTC): Slide 4. UPnP discovery part and description part should be placed in the pre-association part. They should not be separated.

Ping Fang (Huawei): Discovery just for discovery the service indication. Description is the service detail. From the first phase, you can decide whether to associate it or not.

SK(Apple): Slide 6. Lot of messages are exchanged. Not efficient, as it will flood the network very easily. Opaque mode maybe is better. Do not understand the service indication and GAS request. What is the information will be carried to help service discovery? If the proxy knows the service, it can go direct to the details. If you think the first two GAS exchanges do not provide enough detail, you could do a light version. Otherwise it would be very heavy weight.

Ping Fang (Huawei): If the proxy gets the information, it can broadcast it out. The first step is optional. We can keep the question open.

SK(Apple): what is the scope of the group?

Chair: Service discovery from infrastructure.

Chair: do you need a sequence for these messages?

Ping Fang (Huawei): If you can get enough information you do not even go to the next step. If you are not so sure, you can go the next steps.

Straw poll:  ***“Do you prefer the transparent mode or opaque mode?”***

Cheol RYU (ETRI): We need more options: both transparent and opaque.

First straw poll: “***Opaque mode or transparent mode, which one do you prefer?”***

Result:

Opaque mode: 3

Transparent mode: 3

Abstain: 4

Second straw poll: “***Do you prefer both opaque and transparent mode?”***

Result:

Both: 3

No: 5

Abstain: 2

The chair asked vice chair Yungsong Yang to temporarily chair the group, while he presented a submission.

**Presentation by Stephen McCann on “Service Update Indicator” (**11-14-0325r0**)**

Stephen McCann presented the document. It reuses 11ai mechanism to cache the information. TGai has defined CAG, common ANQP group which allows an AP to advertise the current configuration of its ANQP information. CAG is renamed to common advertisement group to minimize changes from 11ai. CAG can be re-used as a service update indicator. Add advertisement protocol ID.

Santosh Pandey (Cisco Systems): Are you planning to change 11ai?

Stephen McCann: Yes, I should propose comment to 11ai letter ballot.

Santosh Pandey (Cisco Systems): Why do you want this?

Stephen McCann: If you have two bits, how do you know which one’s information is changed?

Joe Kwak (InterDigital): Assist the STA to know when caching information is not changed. Is that correct? I am not convinced there is a use case for that. If proposing a cache locally, if I know what I am looking for, then query the cache, then done. If not found, I will not monitor the version of the cache.

Stephen McCann: Yes. That is optional. The version number is also in the STA. STA can compare the version number. For single message exchange, there is no benefit. For multiple message exchange, it is benefit.

Yungsong Yang (Huawei): Option 2 in the last slide. You have only one CAG number field.

Stephen McCann: There is individual number assigned to individual protocol.

Yungsong Yang (Huawei): Suggestion for option 1, you can re-use the left bits.

Stephen McCann: We should take the comments to 11ai.

The vice chair Yungsong Yang handed the chair position back to Stephen McCann.

Chair: Tomorrow we will back to the China World Hotel, function room 12. 4:00 PM.

**Recess**

Meeting is recessed at 18:00 until PM2 on Tuesday March 18th, 2014.

**End of recess**

The meeting resumed at 16:00 (PM2) on Tuesday March 18th, 2014.

**Agenda**

An updated agenda 0216r2 was presented. Chair asked whether to go through the normative text of doc 788r5 (1384r3).

Joe Kwak (InterDigital): If we have time, we should go through it.

Chair handle the chair position to vice chair Yungsong Yang.

**Presentation by Stephen McCann on “TGaq Transmission Protocol” (**11-14-0788r5**)**

Stephen McCann (BlackBerry) presented the document. There is a proxy sits in the network. Service transaction protocol is different from ANQP. Not a request/response mechanism. Protocol is divided into two components. Information on service type and upper layer protocols are transmitted using a new element in beacon and probe response frames**.** Service information is obtained using a Service Transaction Protocol request/response exchange. Example of STP request/response frame is presented.

Cheol RYU (ETRI): Which mode is better? The presentation is only for opaque mode. The request frame, a value string field is needed in STP request frame for transparent mode.

Joe Kwak (InterDigital): See the same thing. Miss the container field.

Stephen McCann (BlackBerry): If identifier is zero, it is request container (Page 12).

Joe Kwak (InterDigital): Make it more clearly in the text. Call it a query container. Query request can have multiple?

Cheol RYU (ETRI): Query request is variable.

Joe Kwak (InterDigital): FEC check of the signature? I do not understand the purpose.

Stephen McCann (BlackBerry): Verify the source of the message.

Joe Kwak (InterDigital): Signature is not the proper name. Should be authentication?

Peter (Cisco): 11ai face the same problem. What is the gaining to have it?

Joe Kwak (InterDigital): Slide 8. It is not correct. We are like ANQP; it is an option to use ANQP. The goal is to do proper network selection. How we do it here go beyond ANQP. Example table slide 7. Do we need to bother of the upper layer protocol?

Stephen McCann (BlackBerry): The intention is that you do not need to put everything in the request. In request just send the key.

Joe Kwak (InterDigital): Is it an example table, not require match?

Stephen McCann (InterDigital): Yes.

Joe Kwak (InterDigital): Slide 11. Why do not ULP ID to indicate protocol. Allow the AP to verify the protocol. It is useful to incorporate it in to the identify format.

Yungsong Yang (Huawei): One more reason. If the STA submit a query, if the proxy does not match, we need to give a proper reason code. That is a second reason.

Joe Kwak (InterDigital): Slide 7. Good set of examples. The hashing is flexible and can be used for any upper layer protocol. What does the STA do if there is no match?

Stephen McCann(InterDigital): Only need the information to select the network.

Joe Kwak (InterDigital): How many different ways to hash it for a printer which has 20 parameters?

Stephen McCann (BlackBerry): It is just hint information.

Joe Kwak (InterDigital): If one is asking a Bonjour? Not possible to dump all the response. I do not see it scalable. How to accomplish it.

SK(Apple): There is a different hash if the attribute is different?

Stephen McCann (BlackBerry): Attribute is optional.

SK (Apple): How that is not scalable?

Joe Kwak (InterDigital): Hash is the hash of all the service description.

SK (Apple): You have different understating.

Joe Kwak (InterDigital): What is the hash variable?

Stephen McCann (BlackBerry): Does it matter?

Joe Kwak (InterDigital): Yes.

Stephen McCann (BlackBerry): The service hash is the hash of the service descriptor filed only. For example, support printer, support a black/white printer. You can have more detailed hash. Attribute is the extra information. It is optional.

SK (Apple): Service hash is not only service printer. Could be a black & white printer. Then I think it is difficult to recognize all the service hash.

Stephen McCann (BlackBerry): I have the same concern.

Cheol RYU (ETRI): I have different view. It is depends on protocols. For Bonjour is enough for hash table. Each protocol has its own table. We do not need to define every detail for mapping.

Stephen McCann (BlackBerry): If we can provide signaling of 11. My intent is to make it work at air interface.

Yungsong Yang (Huawei): Slide number 4. Service transaction protocol is on proxy and STA side. Some information does not exist in the STA side. Slide number 6. STA side the box is PADP. Have a peer relationship. Proxy has more than just PADP. Page 12: Only one query for one element?

Stephen McCann (BlackBerry): That is the intent. But we can change. How do you match the queries?

Yungsong Yang (Huawei): Token.

Cheol RYU (ETRI): Broadcast service information. I cannot find any broadcast in this slide. Beacon is not the place to broadcast too much information. Suggest to define a new protocol similar GAS. With a longer period. Not frequent as beacon. STP response frame can be used in broadcast frame.

Stephen McCann (BlackBerry): Public action frame. It is not a beacon. Not happy to broadcast service information for personally view. From group view, we can do that. The question is how long, how frequent?

Cheol RYU (ETRI): We could not broadcast an xml file. We can broadcast service ID.

Stephen McCann (BlackBerry): We should be careful about broadcast. When defining ANQP, there is an item, you can also put it a beacon. But can only have three values. If you want a limit number of information you can do it in beacon.

Joe Kwak (InterDigital): Slide number 10. Confused what you are trying to convey here.

Stephen McCann (BlackBerry): Service type mask, indicate service type. Uper layer protocol information.

Joe Kwak (InterDigital): Every network has service protocol in that. Do I need to list very ULP list? How to use one bitmask to indicate multiple things?

Stephen McCann (BlackBerry): You need more bitmask. Agree.

Joe Kwak (InterDigital): keep it short, can include it in the beacon. Do not need to indicate profile. Service transaction proxy service is useful. Service mask is not useful.

SK (Apple): What is the service translocation?

Joe Kwak (InterDigital): Proxy facilitate

Stephen McCann (BlackBerry): Slide 5 is still the old picture. Do you want to see the text?

Cheol RYU (ETRI): Yes.

Stephen McCann (BlackBerry): Encourage all to join to build the text.

**Presentation by Stephen McCann on “Text of TGaq Transmission Protocol” (**11-13-1384r3**)**

Stephen McCann (BlackBerry) presented the document. For the table, not sure it is normative or appendix.

Number 0-275 is reserved to avoid overlap with ANQP and RLQP IDs.

Joe Kwak (InterDigital): Page 5, the table. Why there is no location there?

Stephen McCann (BlackBerry): The location of the service is not on the AP. Could put it in response attribute. Still need more work, it is a starting point. Encourage people to bring normative text. If we can get text before May meeting. We are looking draft1.0 after the meeting. Do you think it is realistic?

Joe Kwak (InterDigital): it is realistic.

Cheol RYU (ETRI): I expect some more message flows. I did not see the message flow.

Stephen McCann (BlackBerry): We have message flows of UPnP as Ping presented.

Joe Kwak (InterDigital): Remind to everyone the purpose of message flow. Message flow is informational annex. To cover enough information to help the reader understand.

Stephen McCann (BlackBerry): I can bring it back to the teleconference.

Chair: Showed the agenda information. It is time to recess for today. We have another meeting tomorrow. Joe will present ANDSF message flow. Do we want to lose one slot?

Joe Kwak (InterDigital): Drop one of them. Could be un-official Ad- hoc discussion.

Chair: Ad-hoc mode is OK.

Chair: Does anyone object to give up PM2 tomorrow (Wednesday PM2)?

There is no objection.

Chair: The chair will upload the new agenda and send email.

**Recess**

Meeting is recessed at 17:34 until AM2 on Thursday March 20th, 2014.

**End of recess**

The meeting resumed at 10:30 (AM2) on Thursday March 20th, 2014.

Chair showed the updated agenda (11-14-0216r4). There are two presentations: Joe’s ANDSF and Chow’s DNSSD.

**Presentation by Joe Kwak (InterDigital) on “TGaq Service Transaction Protocol for ANDSF Discovery Service” (**11-14-0158r1**)**

Joe Kwak (InterDigital) presented the document. The documentshowsexample of how to use TGaq transaction protocol for ANDSF discovery service. It shows how a pre-associated STA may access ANDSF service for WLAN discovery and selection. ANDSF can provide assistance data for access network discovery and selection. The proxy can provide ANDSF information. Facilitate the communication between UE and ANDSF. This example shows the message must be transparent. Slide 13 shows message flow of normal ANDSF. Slide 14 shows pre-association of ANDSF message flow. Provide limited IP connectivity. The UE discover the ANDSF address. UE establish secure communication to ANDSF using HTTPS. Slide 15 shows the detailed message flow. There is sister STP proxy both in UE and AP. UE use HTTPS to establish secure communication to the ANDSF server.

The ANDSF data could be long, may need to be fragmented.

Filip(Ericson): Cannot work at opaque mode. Why not STA connect to the AP and get policy?

Joe Kwak (InterDigital): In a train, moving, do not have cell coverage. Need to know which WLAN in this area. It is up to the entity beyond this group. If we define properly, it should work for ANDSF.

Filip(Erricon): It is corner case. Not sure if work in the reality. How to prevent STA use Internet? Proxy server has relationship with AP. It is self need to be authenticated. It is stateful exchange. Need to be some kind of verification/authentication in the proxy.

Filip(Ericson): Need to change the ANDSF specification to do that.

Santosh Pandey (Cisco Systems): Similar concerns. For discovery services, it needs to go handshake. Is it too much?

Joe Kwak (InterDigital): It is the only way ANDSF works.

Filip(Ericson): How about changing a MAC address of the STA?

Joe Kwak (InterDigital): It is a general security problem.

Santosh Pandey (Cisco Systems): Step two, DSN response. But in most cases, for example, in this hotel, the DNS responded address is not IP address of ANDSF but the portal address of the hotel.

Joe Kwak (InterDigital): Additional transaction will be needed.

Santosh Pandey (Cisco Systems): Simple at UE side. Too much complexity at the network side. Publish a standard doe’s not mean adoption, need to investigate more.

Santosh Pandey (Cisco Systems): What is trying protecting?

Joe Kwak (InterDigital): Not protection. Show a proxy example to facilitate ASDSF discovery.

Santosh Pandey (Cisco Systems): Why do TLS at pre-association?

Joe Kwak (InterDigital): It is the required by the standard.

Santosh Pandey (Cisco Systems): Why not the STA connect to the ANDSF Server? STA has an IP address? Are you setting up two TLS session?

Joe Kwak (InterDigital): No. Pure proxy.

Ping Fang (Huawei): Pre-association discovery want to reduce the chance the STA cannot get a proper service after association. Do we really want discover service with such a complexity compared to associate state. How to show the efficiency improvement? How to solve the security issue?

Joe Kwak (InterDigital): Yes. It is an example to show even ANDSF can work in 11aq; to facilitate correct WLAN selection.

Yungsong Yang (Huawei): Slide 15. The first step is probe requests?

Joe Kwak (InterDigital): Could be probe request or broadcast.

Dapeng Liu (CMCC): How does the proxy distinguish the packet is to different AP?

Joe Kwak (InterDigital): Need a mapping mechanism.

Yungsong Yang (Huawei): That is not in scope. Where to put?

Joe Kwak (InterDigital): In Annex as example.

Chair: you can provide some informative text?

Joe Kwak (InterDigital): Yes.

**Presentation by Cheol RYU (ETRI) on “DNSSD Activities of IETF” (**11-14-0446r0**)**

Cheol RYU(ETRI) presented the document. DNSSD in IETF is DNS-SD/mDNS extension. It is related to 11aq. Two work items, requirement and proposed extension. In proposed extension, there is a DNS-SD proxy. We can utilize this proxy. Maybe related to PAD proxy. We need to consider the work in IETF.

Chair: Do you attend IETF?

Cheol RYU(ETRI): Yes.

Chair: What is relationship to slide 6: RFC6763?

Cheol RYU(ETRI): Extension to that.

Chair: We should monitor this work. If it is interested, we can liaison to that.

**Timeline update**

We updated this in Nov 2013. Nov this year is the WG letter ballot? Any comments?

Joe Kwak (InterDigital): Very optimistic. We can change it later this year.

**Teleconference schedule**

Chair: Teleconference. Do we want teleconference between now and May? Typically we have one. Let use schedule one. If nothing to discuss, we can cancel it. Time: 28 April at 10am ET.

Chair updated the agenda to 11-14-0216r5.

**May 2014 meeting plan**

Chair: May 2014 meeting plan.4 slots, room size is for 30 people. Main work for May is to review and approve technical proposals. Get some sort of draft at the end of May meeting. Dan will be the editor.

**Adjourn**

Meeting was adjourned at 11:42 on Thursday.