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| Project | **IEEE 802.21 Media Independent Handover Services****IEEE 802.21c: Single Radio Handover** **<**<http://www.ieee802.org/21/>**>** |
| Title | **21-12-0112-00-0000 Session #51 Minutes** |
| Date Submitted | September 12, 2012 |
| Source(s) | **21-12-0112-00-0000 Session #51 Minutes** |
| Re: | IEEE 802.21 Minutes |
| Authors: | Charles Perkins, Anthony Chan, Steven Chasko |
| Abstract | This contribution collects together the minutes taken for 802.21 during Session #51 |
| Purpose | Task Group Discussion and Acceptance |
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| IEEE 802.21 |
| **Session #51 Minutes** |
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IEEE P802.21 Media Independent Handover Services

Tentative Minutes of the IEEE P802.21 Working Group

Session #51 Meeting, San Diego, CA, USA

Chair: Subir Das

Vice Chair: H Anthony Chan

Editor: David Cypher

Secretary: Charles E. Perkins

# First Day AM2 (10:45AMPM-12:30PM):Edward C ; Monday, July 16, 2012

## 802.21 WG Opening Plenary: Meeting is called to order by Subir Das, Chair of IEEE 802.21WG with opening notes (21-12-0081-01).

## Approval of the May 2012 Meeting Agenda (21-12-0054-03)

### Agenda is amended to the following as in 21-12-0073-02 and is approved with unanimous consent.

## IEEE 802.21 Session #51 Opening Notes

### 30 minute session allocated at beginning of Tuesday PM-1

### Discussion about WG officers

### Relevant discussion in PM-2 meetings from ECSG Smart Grid SG / HetNet

### The information about patent policy and other IPR requirements on

###  slides #1--#4 was presented at the WG plenary meeting as required.

### Policies for IEEE-SA participation and commercialism were presented.

### IEEE owns copyright for all published materials

### Two new members: 02

### Objectives and Status

### Discussion about two parallel WG objectives:

####  Modularizing to provide segments according to industry needs

####  Integrating 802.21(a), 802.21(b), and 802.21(c) together with 802.21 (2008)

### Greg Marchini / Christina Boyce: "Central Desktop Online Collaboration"

### solutions-support@standards.ieee.org

####  Group document administration / Consolidation / Archival / Search

### Task group presentations 802.21c ((21-12-0048-00) and 802.21d ((21-12-0092-00)

### Awards ceremony for service to 802.21

# last Day PM2 (3:30PM-5:30PM):Edward C ; Thursday, July 19 2012

## 802.21 WG Closing Plenary: Meeting is called to order by Subir Das, Chair of IEEE 802.21WG.

## 802.11 report (21-12-0103-01) by Clint Chaplin

### 802.11aa Video Transport Streams is published

### 802.11ac Very High Throughput < 6GHz is resolving comments in First Recirculation

### 802.11ad Very High Throughput 60GHz has completed 3rd recirculation

### 802.11af TV White Space has approved draft 2.0 for approval to start Letter Ballot

### 802.11ah < 1GHz continue work on spec framework

### 802.11ai Fast initial authentication works on failed proposals

### 802.11 ISD SG is changing name to Pre-Association Discovery (PAD), presentations on use cases and requirements. Plan to edit PAR and 5C in September

### 802.11 China MM-Wave SG

### 802.11 WNG: General 802.11 Links - D. Eastlake 3rd

####  11-12-0589-02-0wng-general-802.11-link.pptx

### JTC1/SC6 SC ISO/IEC JTC1/SC6

## IETF liaison report by Yoshihiro Ohba (21-12-0102-00)

### IEEE 802 EC/IESG/IAB joint meeting at July 25, 2012 at Cisco

### Netext, Roll, DMM, MIH

## 802.16 liaison report by Dan Gal (21-12-0104-00)

###  GRIDMAN 802.16n finishing, publishing d4

###  HetNet 802.16q

####  In November, Multi-RAN

###  Metrology : Prepared PAR + 5C

###  Maintenance has disbanded

###  Project Planning Committee

####  Proximity Based Applications and D2D communications, PAR & 5c Doc by September, 2012.

####  Wireless Backhaul for Small Cells

###  ITU-R Liaison Group

## 802.21c closing report by Anthony Chan (21-12-0105-00): Please refer to detailed 802.21c below.

## 802.21d closing report by Yoshihiro Ohba (21-12-0094-02): Please refer to detailed 802.21d below.

## 802.21 Session #51 closing report (DCN 21-12-0101-00)

###  Teleconferences schedule for 802.21, 802.21c and 802.21d

* WG Teleconferences:
	+ 9-11 am EST, August 15, 2012
	+ 9-11 am, EST, August 30, 2012
* 802.21c Teleconferences:
	+ 9-11 pm, EST August 15 , 2012
	+ 9-11 pm, EST , August 29, 2012
	+ 9-11 pm, EST, Sept 12 , 2012
* 802.21d Teleconferences:
	+ 6-7 pm, EST, August 23, 2012
	+ 10-11 am, EST, September, 06, 2012

###  Future Sessions

* **Interim: 16-21 September, 2012, Hyatt Grand Champions, Palm Springs, CA, *USA***
	+ Co-located with 802 wireless groups
* **Plenary: 11-16 Nov 2012, Grand Hyatt, San Antonio, TX**
	+ Co-located with all 802 groups
* **Interim: 16-21 September, 2012, Hyatt Grand Champions, Indian Wells, CA, *USA***
* ***Registration Information:***
* **Early: Before 6pm Pacific Time, Friday, August 3, 2012**
	+ $600 US for attendees staying at the Hyatt Grand Champions ( $900 US for all others)
* **Standard: After Early Registration and before 6pm Pacific Time, September 7, 2012**
	+ $750 US for attendees staying at the Hyatt Grand Champions, ($1050 US for all others)
* **Late/On-site: After 6pm Pacific Time September 7, 2012**
	+ $900 US for attendees staying at the Hyatt Grand Champions, (1200 US for all others)
* ***Hotel Information:***
	+ [***https://resweb.passkey.com/Resweb.do?mode=welcome\_ei\_new&eventID=5815507***](https://resweb.passkey.com/Resweb.do?mode=welcome_ei_new&eventID=5815507)
	+ ***EARLY BIRD GROUP RATE: $129/Night (plus applicable taxes) (By July 23rd, 2012)***
	+ **STANDARD GROUP RATE: $149/Night (plus applicable taxes)\* (By Sept 02, 2012)**

# Attendance

|  |  |
| --- | --- |
| Chan Anthony | Huawei Technologies  |
| Chaplin Clint | Samsung |
| Chen Lily  | NIST |
| Chasko Stephen | Landis+Gyr  |
| Gal Dan  | Alcatel- Lucent  |
| Chen Lidong  | NIST  |
| KAMBAYASHI TORU | Toshiba Corporation  |
| Hanatani Yoshikazu | Toshiba Corporation  |
| Kato Ki  | Anritsu Engineering  |
| Ohba Yoshihiro  | TOSHIBA Corporation |
| Khatibi Farrokh  | Qualcomm Incorporated  |
| Park Hyunho  | Electronics and Telecommunications Research Instititute (ETRI) |
| Perkins Charles  | Futurewei Technologies  |
| Lee Hyeong-Ho  | Electronics and Telecommunications Research Instititute (ETRI) |
| O'Brien Francis  | Alcatel Lucent  |
| Randall Karen  | NSA/IAD |
| Zuniga Juan  | InterDigital Inc |

Minutes of 802.21c Task Group Meeting

Session #51, San Diego, USA

Chair: Anthony Chan

Vice Chair: Dapeng Liu

Technical Editor: Charles Perkins

Secretary: Hyunho Park

# Second Day AM1 (8:21AM-10:30AM): Edward C; Tuesday, July 17, 2012

## Meeting is called to order by Anthony Chan, chair of 802.21c TG, with agenda (DCN# 21-12-0092-00-srho).

## Hyunho Park presented “Missing Gaps and Solutions for MGW (DCN# 21-12-0075-02-srho)”.

Hyunho Park from ETRI presented missing gaps related with the mobility gateway (MGW) and showed solutions with parameters such as MTI (Message Type Indicator) and Interworking protocol types, and control messages for the MGW.

Most members agreed on need for new control messages for the MGW. Regarding the control messages, some comments were raised as follows. Link\_Action can solve the problem about turning on and off network interfaces. With respect to proactive authentication, there is comment that 802.21a can make tunnel between the MN and the target network MGW.

Hyunho Park promises to update his proposal.

## Charles Perkins presented about moving examples of SRHO to Annex N (DCN# 21-12-0067-02-srho).

Charles Perkins from Futurewei discussed about moving examples of SRHO to Annex N with the other 21c members. Some editorial comments are discussed and 21c members agreed on the issue.

## Motion: To accept to incorporate the texts in the proposal, “21-12-0067-03-srho, 802.21c proposal” into the TGc framework document “21-10-0025-02, 802-21c draft template”.

The motion is moved by: Charles Perkins, seconded by: Subir Das, and passed without any objection.

# Third Day AM1 (8:10AM-10:30 AM): Edward C; Wednesday, July 18

## Meeting is called to order by Anthony Chan, chair of 802.21c TG, with agenda (DCN# 21-12-0092-00-srho).

## Dapeng Liu from China Mobile presented TGc\_Proposal\_Dapeng\_Liu (21-12-0098-00)

Dapeng Liu from China Mobile presented handover between 3GPP and WiFi networks. Charles Perkins commented DHCP IP allocation and Dapeng promised update about it. Moreover, Charles Perkins commented about authenticator and Dapeng answered that access controller can support CAPWAP (Control And Provisioning of Wireless Access Points). Related with impact of 3GPP network, the contribution can impact to the 3GPP network.

## Hyunho Park presented “Missing Gaps and Solutions for MGW (DCN# 21-12-0075-04-srho)”.

Hyunho Park from ETRI updated “Missing Gaps and Solutions for MGW” from DCN# 21-12-0075-02-srho to DCN# 21-12-0075-04-srho. Regarding the updated contribution, there was comment that SRCF (Single Radio handover Control Function) has SFF (Signal Forwarding Function), and thus SFF part should be deleted. Regarding new suggested action parameter, LINK\_TX\_OFF, Subir from ACS recommended that LINK\_TX\_OFF is possible and he suggested changing the name of LINK\_TX\_OFF. Moreover, some comment about existence of IE\_MN\_TIME was raised.

# Fourth Day AM1 (8:30AM-10:30PM): Edward C; Thursday, July 19

## Meeting is called to order by Anthony Chan, chair of 802.21c TG, with agenda (DCN# 21-12-0092-01-srho).

## March meeting minutes (DCN# 21-12-0045-00-srho) was approved with unanimous consent.

## Minutes (DCN# 21-12-0055-00-srho) of teleconference at April 10th was approved with unanimous consent.

## Minutes (DCN# 21-12-0056-00-srho) of teleconference at May 2nd was approved with unanimous consent.

## Minutes (DCN# 21-12-0057-00-srho) of teleconference at May 8th was approved with unanimous consent.

## Anthony Chan reminded interworking protocol type proposal for transporting other protocols, related with contribution DCN#21-12-0075-04.

Charles Perkins from Futurewei suggested new protocol message to supporting other interworking protocols, protocol messages such as MIH\_ANQP\_Transfer can be solution.

Farrokh Khatibi from Qulacomm wanted to see the exemplary case to deliver other interworking protocol.

## Hyunho Park presented “Consideration for MGW discovery (DCN# 21-12-0075-04-srho)”.

Hyunho Park from ETRI issued MGW discovery problem and showed solution using anycast mechanism. The anycast was agreed on as a solution. Related with the problem, Yoshihiro Ohba from Toshiba commented that there were PoS (Point of Service) discovery using DNS and DHCP, and thus recommended to refer PoS discovery.

# Fourth Day PM1 (1:30PM-3:30PM): Edward C; Thursday, July 19

## Meeting is called to order by Anthony Chan, chair of 802.21c TG, with agenda (DCN# 21-12-0092-01-srho).

## Hyunho Park presented “Missing Gaps and Solutions for MGW (DCN# 21-12-0075-07-srho)”.

Hyunho Park from ETRI updated “Missing Gaps and Solutions for MGW” from DCN# 21-12-0075-04-srho to DCN# 21-12-0075-07-srho. Hyunho Park summarized functions of the MGW to SRCF and other interworking functions. For supporting other interworking functions, Hyunho Park showed new service identifier (SID) as Interworking Protocol with SID#5.Charles Perkins from Futurewei agreed on the new SID. Subir Das from ACS recommended using the existing SID to support Interworking Protocol.

## Motion: To accept to incorporate the texts in the proposal, “21-12-0067-06-srho, 802.21c Proposal” into the TGc framework document “21-10-0025-02, 802.21c draft template”.

Motion is moved by Charles Perkins, seconded by Hyunho Park, and passed with unanimous consent.

Section 9.2.2 on draft 802.21c was fixed and was agreed on the modifications by 21c members.

## Motion: Authorize the TG ad hoc to discuss and approve the contributions presented during the teleconferences (from July 21 to September 15 2012 timeframe) and incorporate the relevant text into TGc framework document.

Motion is moved by Charles Perkins, seconded by Hyunho Park, and passed with unanimous consent.

## Meeting of IEEE 802.21 TGc adjourned at 3:30 PM

IEEE P802.21 Media Independent Handover Services

Tentative Minutes of the IEEE P802.21d Group Management Task Group

Chair: Yoshihiro Ohba

Editor: TBD

# First Day PM1 Meeting: Edward C; Monday, July 16,

## Meeting called to order by Chair at 1:30PM

Minutes are taken by Steve Chasko.

## Meeting Agenda (21-12-0048-00) is presented by Chair

The agenda is approved by unanimous consent.

## Approval of Teleconference Minutes

The following teleconference meeting minutes were approved.

* DCN 72-00 (June 1 teleconference minutes)
* DCN 78-00 (June 14 teleconference minutes)
* DCN 79-00 (June 28 teleconference minutes)

## Opening Notes (meeting notes 21-12-0087-00)

An overview of the PAR was provided - http://www.ieee802.org/21/802\_21d\_PAR.pdf

There was a patent policy reminder and the call for potentially essential patents

The group is currently in the use case requirements phase of the standards development. We will start the call for proposals during the meeting in September. In July 2013 we expect to propose a working group letter ballot.

Reviewed the topics for the week – discuss use cases / hybrid multicast technology / encryption and key management issues.

## Use case and requirements document discussion

Antonio de la Oliva, Daniel Corujo and Carlos Guimaraes have prepared presentations:

Antonio stepped the group through the Media Independent Handover Services Use Case Reference for TGd (Document DCN 21-12-0090-00-Mu-use-case-reference-for-tgd )

Action Item: Antonio and Daniel will work on reordering the use cases to provide the use cases before providing the technical requirement characteristics. (possibly chapter 3 goes after chapter 4)

Action Item: Antonio to update the cryptographic characteristics to user terms such as confidentiality instead of ciphering, integrity instead of tamper detection and to possibly remove the authentication of the source characteristic.

Action Item: Proposal to update the characteristics to use terms such as integrity, confidentiality. The team (Steve, etc.) to provide sources for the accepted definitions; preferably from NIST.

FIPS 186-3 has a definition of non-repudiation that is useful

Non-repudiation – “A service that is used to provide assurance of the integrity and origin of data in such a way that the integrity and origin can be verified and validated by a third party as having originated from a specific entity in possession of the private key (i.e., the signatory).

FIPS 199 has a definition of confidentiality that is useful

Confidentiality – Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information. [44 U.S.C., SEC 3542]

FIPS 199 has a definition of integrity that is useful

Integrity – Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity. [44 U.S.C., SEC 3542]

Daniel warned that OMA M to M protocols have covered these types of mechanisms and should be considered.

There was an open question as to whether a URL should be sent to the devices or whether the broadcast packages should be sent to the devices.

Next, Antonio stepped the group through the Media Independent Handover Services Use Requirements document for TGd (Document DCN 21-12-0091-00-MuGM-requirements-document )

Language was provided for Section 2.1.3:

Shall provide mechanisms for the MIHF to transport information in a multicast way.

Section 2.1.5 should be “security requirements”

## Recess at 3:30PM

# Second Day PM1 Meeting: Edward C; Tuesday, July 17

## Meeting called to order by Char at 1:30PM

Minutes are taken by Lily Chen.

## Survey on Hybrid Multicast

Yoshihiro OhbaPresented 21-12-0093-00-MuGM.

Comment 1: Regarding application vs. application layer, we need to consider the scope of 21.

Comment 2: It seems that DHT algorithm must be defined.

Comment 3: How to apply to 21d case? In 21d, it moves to a neighborhood group. DHT is for a large number of nodes. That is, it is for a more spread case.

Comment 4: This may not be the same as in 21d. MNs would not exchange messages. Multicast shall be from a PoS to multiple MNs.

Response: If there are many PoSs, multicast can be from one PoS to multiple PoSs. We need to take a look of 21 interface chart.

Question: What is the hash value? Is it the identifier for MIHF? Why do you need to hash them?

Answer: To make them to the same length. (MIHF identifiers can have different lengths).

(The 802.21 interface chart is displayed)

Comment 5: It can be a hierarchical multicast. A non-PoS MIHF multicasts multiple PoSs and one PoS multicasts to multiple PoSs.

Comment 6: If an MN is shared by multiple PoSs, will it receive multiple copies? We need to have MN to ignore multiple messages.

Response: At a specific time, an MN is associated with one PoS.

Question: Do we consider one MN multicasts to multiple MNs?

Answer: Probably not.

Question: Can we support multicast in network side?

Answer: Need to be discussed.

Comment 7: We should focus on multicast from PoS to MNs, but not exclude broadcast to PoSs.

Comment 8: Remove application multicast from the document.

## Encryption and Key Management Issue

Hanatani Yoshikazu presented 21-12-0095-00-MuGM: Group management by MKB.

Comment 1: We need to have a mechanism to deliver the initial device keys.

This is a solution for a general situation: it must be able to multicast to any subset. Do we need to handle such a general case? We probably need to find some tradeoff to reduce the number of keys for each device.

Comment 2: We need to handle initial distribution of the device keys. If some device keys are compromised, we need to estimate the cost to update the keys.

Comment 3: We need to consider hierarchy situation. One node multicasts to multiple PoSs. Each PoS multicasts to multiple MNs. Do we need to consider one PoS muticasting to multiple PoSs?

(Looked at 802.21-2009)

The figure shows one PoS can have interface with multiple PoSs.

Comment 4: Contribution #93 has concept that one PoS multicasts to multiple MNs. One MN, in a specific period, there is only one serving PoS for the MN while the MN may register with multiple PoSes.

Comment 5: Multicast can be handled in any layer. The security protection can be applied at any layer as well.

## Recess at 3:05PM

# Third Day AM2 Meeting: Edward c; Wednesday, July 18

## Meeting called to order by Chair at 10:30AM

Minutes are taken by Lily Chen.

## Discussion on Multicast Features

Yoshihiro Ohbapresented 21-12-0096-00-mugm

The discussion is to determine each of the features is mandatory(M), optional(O), or not supported(N).

* PoS to MN multicast (M)
* PoS (or Non MIH PoS) to PoS multicast (O)

Discussion: We need to have use case to support our decision. We already have PoS to PoS unicast. Add more features will make it more complicated. If we can re-use the same technique, it should not be too complicated. We can catch as source point and end point, no matter whether the end point is an MN or a PoS. Can we use the same techniques? Multicast management may need PoS to PoS. We can do L2 and L3 peer to peer. We will not provide new transport technique. PoS to PoS is good to have. Depending on how we define communication. It is always PoS which manages multicast. We have a centralized model. We should consider the centralized model. PoS is not the same as MNs. An MN may move. We do not have control. We probably should not make those restrictions. We do not have a concept of domain. If we do, a PoS always belongs to one single domain. From communication point of view, we only consider source and destination. But an MN is not allowed to be source. Add the next item.

* MN-sourced multicast (N)
* Multicast Sub-group (N)

Discussion: What is the meaning? No hierarchical subgroup. We will delete this one. Set a multicast to only a subset of the MNs which associated with one PoS. There is a use case, we can elaborate. We have multicast group. We can have subgroup of multicast group. One PoS can have several subgroups with different attributes. We may add an attribute subgroup concept.

The subgroup is meaningful only when the scheme presented in # yesterday is used. Basically, with this scheme, only the assigned sub-group can decrypt the message.

Do we need to consider attribute sub-group? In smart grid, some subset of the sensors may form a attribute subgroup. This adds more complexity. However, it is possible that only a subset of MNs will receive the firmware. In any case, it is quite difficult to define such a subgroup. It depends on how to define multicast group. If it is defined by a task, a delivery, or defined as a large group regardless the content of the multicast.

* Multiple multicast domains (N)

It is not clear what we mean by multiple multicast domains. Steve will send a use case to address.

* Handling of duplicate multicast MIH data (M)

It is expected that MN and PoS have a once-to-one relationship. This will not happen. With different services, it may happen that one MN is associated with multiple PoSs, but not for the same service.

But if an MN moves back and forth between two PoSs, it is possible that an MN receives the data twice. In this case, the MN just ignores one of them. If they have different data, now it is not called duplicate. But it can happen. It is not difficult to handle. But we have to handle.

* Data integrity (M)
* Authentication (M)
* Confidentiality (O)

(See NIST IR 7298 for definition.)

* Availability (M)

DoS is hard to handle. Multicast can be used to as a tool for DoS attack. We probably should not make this mandatory. Availability is hard to measure. Let’s table it. Steve will lead a discussion.

* Key management (M)

## Second discussion on use case and requirements

Antonio de la Oliva presented the updated #90 based on Monday discussion.

We are still waiting the new use case from Steve. We will continue the discussion in teleconference.

Antonio de la Oliva presented the updated #91 based on Monday discussion.

Change redistribution to a third requirement as key management for multicast.

## Recess at 12:30PM

# Third Day PM1 Meeting: Edward c; Wednesday, July 18

## Meeting called to order by Chair at 1:30PM

Minutes are taken by Stephen Chasko.

## Discussion on CFP and Selection Procedure

Reviewed request for proposals that will be sent out (21-12-0099-00-MuGM)

Deadline for proposals is November 4th, 2012.

Proposal presentations are in November, January and March.

The final presentation will be In May 2013 and the first draft of the standard will be prepared.

Please review the proposal and provide edits. The vote to send out the CFP will be in the September meeting.

## Open Discussion

When we do the protection mechanism, we do it together with the transport. So if we use IP layer multicast, we can utilize its protection mechanism. The question is if we use the layer 3 multicast do we need to add further security mechanisms?

The conclusion was that we should have protection at the MIH layer and that it is specified. But it should be optional for the cases where the Layer 3 or other protections are deemed sufficient.

It was agree that the 2.1.5 security requirements covered this well.

Action Item:

To review the requirements section 2.1.5.2 to change the term optionally to shall and to consider removing the language regarding key redistribution mechanism. The purpose of the discussion is that even though confidentiality will be optional it should still be provided as an available mechanism. The proposal is to merge 2.1.5.1 and 2.1.5.2 such that the term confidentiality is incorporated into 2.1.5.1 and the key redistribution text is replaced with key management mechanisms.

We then had a discussion regarding the use of the term mobile node (MN). The question was to its applicability for a smart grid node that is often an asset at a fixed location.

## Closing Note

Reviewed the progress for the team.

Next steps are to finalize the use cases, requirements document and the CFP document

The next teleconferences are scheduled for:

August 23rd (Thu) 6-7pm Eastern

September 6th (Thu) 10-11am Eastern

## Adjourn at 3:29PM

Next face-to-face meeting is in September 2012 plenary.