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Re:	IEEE 802.16 NetMan Task Group Session #36 Minutes (Atlanta, GA)
Abstract	
Purpose	To record meeting minutes
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IEEE 802.16 NetMan Task Group Session #35 Minutes
Joey Chou
Jose Puthenkulam
Xiaoyu Liu

1. Joint Session with IEEE 802.16g [Minutes from 802.21 Secretary, Xiaoyu Liu]

1.1. Meeting called to order at 3:30PM by Ajay Rajkumar, IEEE 802.21 Chair, and Phillip Barber, IEEE 802.16g (NetMan) Chair

1.1.1. Opening notes by Phillip: Joint discussions between 802.21 and 802.16g about ideas, concepts and solutions would be beneficial to both working groups. Joint sessions would help one group to understand what is going on in the other group. NETMAN was created for BS-BS communications. It may also be a venue of 802.21 practices and implementations. In the joint session, 802.21 may also understand the communications between 802.16 network entities.

1.2. IEEE 802.21 Proposal #1, Joint Harmonized Contribution, (21-05-0240-00-0000-Joint_Harmonized_MIH_Proposal_Draft_Text.doc, Presented by Vivek Gupta, et al)

1.2.1. List of Contributors and harmonization background were presented by Vivek Gupta.

1.2.2. Table of Contents and Overview of Specification were presented by Vivek Gupta.

1.2.3. Section 5.1 and 5.2 were presented by Hong Yon Lach and Stefano Faccin.

1.2.4. Section 5.3 was presented by Yogesh Bhatt.

1.2.5. Section 5.4-5.7 and the rest of the joint contribution were presented by Vivek Gupta.

1.2.6. Q: Figure 8 indicates that MIH may be contained in L2. Is the MIH to upper layer boundary extended into the upper layers? A: Regarding how far MIH is extended, it depends on different devices and overall system architectures. The bottom layer SAPs of MIH are the interfaces to different L2 technologies. MIH may not be a strict L2 entity. The upper boundary of MIH may be implementation dependent and be extended to multiple protocols, e.g., mobile IP, transport layer, applications, etc. Comment: It is a cross-layer design.

1.2.7. Q: Understand very well that Command Services are from higher layers to lower layers and MIH tells lower layers to switch from one link to another. What does it mean "commands from upper layer to MIH"? A: Different upper layers and applications may have different requirements. One example to use command service is to configure the links and provide what upper layers need.

1.2.8. Q: Do you intend that the policy for managing events originates or resides in the MIH? Have you considered if it's better to pass these events raw to the upper layer or not? A: Ideally, the upper layers will specify to the MIH how they want the information (e.g. raw, always, etc.) or under different conditions and which certain filtering. We can define a standard (default) way to provide the information to the upper layer, plus a way for the upper layer to provide conditions during the "event subscription" phase. MIH is basically a helper/facilitator. The implementation depends on the technology.

1.2.9. Discussions on Figure 6, MIH Reference Model for 3GPP

1.2.9.1.   Q: This figure is useful to elaborate the different SAPs to RRC, RLC, etc. Are you using existing SAPs in 3GPP? How does it work? How do you take the SAPs to 3GPP? A: In terms of the SAPs, we should be able to use the existing SAPs, e.g., RRC. We may have to modify some of them.

1.2.9.2.   Comment: We may enhance the GMM in 3GPP. In the future, there might be a window for them to use the information such as the triggers defined here. Comment: RRC in 3GPP terminates measurements. MIH_RRC SAP may have enormously changes to 3GPP. Comment: Modification to RRC is not trivial.

1.2.9.3.   Comment: Where does MIH sit? If MIH sits above RRC, it implies that the same MIH are in the Base Stations because RRC may span across RNCs. Response: This figure is for Mobile Station only. Comment: If it is for MS only, that's correct. The MIH location in the 3GPP network architecture is not clearly specified here.

1.2.10.   Q: Have you considered if specifying direct interfaces to upper-layers will cause confusion? Wouldn't it be better to delegate this upper-layer trigger function to L3? A: SAPs do not mean interfaces or APIs and do not specify any implementation. 802.21 shall not be defining 'direct interfaces' to any of the upper layers anyway. SAP does not equal to any implementation. It is just a representative of the functionality. 802.21 would define all triggers required by the various upper layers. Then, a specific upper-layer can decide to use all these triggers or only those relevant to such upper-layer.

1.2.11.   Comment: MIH functionality should not provided only for Mobile IP. Response: Any information or link layer intelligence 802.21 provides may be used by any higher layer entities. Different upper layers could hopefully use a common set of link layer indications or network information. Response: An example is GMM/SM+ which is a future mobility protocol. GMM can be a user of MIH. You can just use MIH to extend and enhance this mobility protocol.

1.2.12.   Q: In Figure 1, there is no L3 MIH signaling entity at the network side. What is the L3 signaling entity in the network side? A: We have MIH entities talking with each other, but not necessarily using L3 signaling. Comment: L3 transport could be one of the mechanisms used for MIH signaling exchanges.

1.2.13.   Figure 5 was shown. Comments and feedbacks by 802.16g participants:

1.2.13.1. Comment: This is actually an 802.16 model, and is not approved by 802.16g. 802.16g brings the network management into the scope and adds some elements in the stack which do not exist right now.

1.2.13.2. Comment: Not sure of the MIH SAP to CS that is a sublayer function of MAC. 802.16g has primitives and triggers that we are going to generate. Both 802.16g and 802.21 are talking about things of mapping. There is an opportunity for both groups to create a common mapping structure so that the basic information could be treated in the same way. Individual PHY/MACs could be specifically mapped to an abstract layer.

1.2.13.3. Comment: MIH is still part of the functions of Convergence Sublayer, a superset of CS and an enhancement. One of the motivations for 802.16 to use

MIH is to extend 802.16 to service multiple types of interfaces and higher layer protocols. 802.21 solutions also need to map to these different links and upper layers.

1.2.13.4. Q: If you want to send triggers or commands through the CS into the MAC, how does the MAC SAP receive the commands since the MIH MAC SAP is above the CS? Comment: It could be done through the CS. If it is control related, it could be done trough the control plane. If it is management related, it could be done trough the management plane.

1.2.13.5. Q: About the CS in the network side, it is clear because there is a backhaul. What exactly is the CS in a terminal? Comment: Basically its job is to process higher layer protocols to MAC.

1.2.14. Q: About Information Services, what is the IS transport mechanism? How does a terminal get the IS? A: If the functions are made available to L2, we may define the transport over L2, depending on any specific technologies. We may define the L2 transport in 802.11, 802.16, etc. We may also have a common L2 protocol going over the data plane. At the same time, if the functions are made available to the L3, we do see a L3 protocol. Then we may actually work with IETF, defining a new protocol or enhancing existing protocols. Or it could be combination of different mechanisms. Comment: The information exchanged between MIH entities in the terminal somewhere in the network could also be over UDP/TCP. Response: Sure. Where the IS server or MIH entity resides in the network side is out of the scope of this standard.

1.2.15. Q: How does the station know which transport mechanism is used, since it could be L2 or L3? A: Once you get connected, multiple options could be made available. We should provide clear guidelines of what transport mechanism is used. There are so many possibilities and different networks there, so it is hard to specify all the things exactly.

1.2.16. Comment: What we tackle in the standard is from the terminal to the network attachment point at Layer 2. That would be clearly addressed by 802.21. We do not go beyond L3. From the network attachment point to somewhere in the network is out of the scope of 802.21 and implementation specific. Comment: We can not mandate L3 to change. We should make the design flexible.

1.2.17. Comment: One example Command Service is that upper layers tell lower layers to switch from a particular link to another. There may be some remote commands going across the links.

1.2.18. Q: Command == Registration/Deregistration? A: No.

1.3. Recess until tomorrow 8:00AM

1.3.1. *Second day meetings on Tuesday, 8:00AM*

1.3.2. *Joint session with 802.16g at 8:00AM in second day meetings*

2. Joint session between IEEE 802.21 and 802.16g (NETMAN)

2.1. *Meeting called to order at 8:10AM by Ajay Rajkumar, IEEE 802.21 Chair, and Phillip Barber, IEEE 802.16 NetMan TG Chair*

2.1.1. Phillip reminded IEEE 802.16g participants to check attendance in 802.16 website.

2.2. *IEEE 802.21 Proposal #2: Joint Harmonized Contribution, (21-05-0248-01-0000-harmonized_items.ppt, 21-05-0253-01-0000-joint-harmonized-contribution.doc, Presented by Peretz Feder, et al)*

2.2.1. Harmonized points were presented by Peretz Feder (21-05-0248-01-0000-harmonized_items.ppt).

2.2.2. The Document Control Number (DCN) of the proposed draft texts was changed from (DCN: 0241) to (DCN: 0253).

2.2.3. Draft texts (section 1- section 3.2.3) were presented by Alan Carlton.

2.2.4. Section 3.2.4 was presented by Peretz Feder.

2.2.5. MIH capable broadcast mechanism was presented by Jeff Keating.

2.2.6. Section 3.3 Triggers was presented by Ulises Olvera.

2.2.7. Q: Are the Interdigital proposal presented in Jan and some modified elements taken into this harmonized architecture? A: The essence has been absorbed into this harmonized proposal.

2.2.8. Comment: First figure in section 3.1.3 logical Architecture, there is no sign showing the integration of 802.21 into that figure. Response: It is just an overview picture, not for 802.21 specifically. It is the whole logical architecture for all the different entities. We could revisit this picture and to make it more 802.21 applicable. Response: The combination of this figure and the next one in the same section is more 802.21 specific. The second figure which shows MIH functionality could be mapped into the previous figure.

2.2.9. Q: The second figure section 3.1.3, are the Information Services (IS) transported by IP? A: What we are saying here is that the need for the IS transport is more than Ethernet. It shows that if this MIH element is not located one hop away from the base station or RAN, but distributed somewhere in the network, it is difficult to fetch the information through Ethernet, especially in cellular networks. Comment: It depends on what you want to get from the network.

2.2.10. Q: Section 3.2.2, MIH SAP to Policy Function, are there any specific primitives defined here? A: Not yet. We have plans.

2.2.11. Q: Can you imagine how long the handover takes, e.g., WLAN to 3GPP handover? A: That is a performance issue. We try to do make-before-break for multiple interface terminals, i.e. minimum or basically no interruption if we can do so well. The target is seamless and lossless.

2.2.12. Q: Page 9, section 3.1.3 figure, what are the main functions of MIH Server in the WSP home network? A: Please refer to the technical requirement document for the Information Services in the network.

2.2.13. Q: Figure 3.2.2.1, are the Policy Functions in the network side? A: Both the terminal and network side. This is just a terminal side picture. If it is a network initiated implementation of 802.21, the Policy Function is in the network; if it is a station initiated implementation, the Policy Function is then in the terminal side. The key point here is that

policies are outside of MIH functions. We provide an interface to the Policy Function which drives the MIH. Q: There is no interaction between MIH and the Policy Function? I can just see one way that the Policy Function drives the MIH. A: It is implementation specific. Q: Then how much should IEEE802.21 deal with this part? How about the primitives in that SAP? A: We are still thinking about that aspect.

2.2.14.   Q: You talked a lot about home Information Service providers. What is the rational behind to integrate the home service provider into MIH in terms of IEEE802.21 implementations? A: The basic view is that a client needs some provisions of billing, roaming etc. The client needs a home entity to handle these things. Comment: This is a deployment issue.

2.2.15.   Q: The proposal has a specific section describing the beacon. It is only related to the bootstrapping issue, or something more? A: Bootstrapping, as well as roaming to another networks with MIH capabilities. Comment: We have not seen here or other places how to define the roaming or roaming alliance. Response: If IEEE802.21 is deployed, it should provide enough information to distinguish whether a network or terminal is .21 enabled or not. One idea is to use the beacon to send such capability info though this mechanism might probably be costly. This particular mechanism is to let you know the network is IS or MIH enabled. Once you get connected, you would know you could get specific neighborhood information, etc. Comment: This seems to be analogous to the Router Advertisement (RA) in the IP layer. Do you propose similar things in 802.21 that are comparable to the RA? That is, a completely separate beacon from MIH layer or MIH functions. If the capability info is sent thought L2 beacons only, this mechanism is too media specific. L2 beacon is used only in 802.11. Response: It should be a media dependent approach, i.e., modifications to 802.11 beacon, 802.16 neighbor advertisement, etc. to facilitate the process of MIH capability notifications.

2.2.16.   Comment: Wired networks do not have a beacon. We should need a broadcast mechanism in 802.3 to detect MIH capabilities. Comment: Suggestion of handling the bootstrapping issue separately. If we use beacon to handle other issues, there might be some potential problems, e.g., security, etc.

2.2.17.   Comment: Section 3.2.2.1 reference model, there is a dedicated MIH PHY SAP showing PHY triggers to MIH. This makes a nice MIH point, but from the perspective of 802.16, it's better to let 802.16 to map such internal events/primitives.

2.2.18.   Comment: Section 3.2.2.1 reference model, there is also a LLC SAP, a standard LLC SAP. It seems that there are tunnels through MIH. The current model seemingly implies that it interrupts the traffic path. MIH sits on top of the entire stack, so all traffics flow through MIH, even though certain traffic is not related to MIH. Shouldn't there be a path to bypass MIH?

2.2.19.   Comment: Part of the consumers of 802.21 would finally write their triggers/events/primitives to go to these specialized MIH SAPs. It may be helpful to show the entire model, rather than MIH-focused elements only. For example, it may be helpful to show the uninterrupted path as well.

2.2.20.   Comment: Basically, the overall architectures of both 802.21 proposals show consistency in the concept of the reference model. It may work well in 802.16.

2.2.21.   Q: Do you think probe/response of 802.21 capabilities in 802.11 beacons is the job of 802.11, or that of 802.21? A: That should be a media dependent change.

2.2.22.   Comment: Did not see MLME in the 3.2.2.1 figure.

2.2.23.   Comment: The language in the box of 3.2.2.1 terminal side model, "Compile triggers and determine if handover shall be requested", indicates that MIH is a policy manager. It is misleading because the rest of the document does not show that fact.

2.2.24.   Comment: From the 802.11 point of view, any modification to .11 can be written down as requirements, and passed formally to 802.11 and 802.16 as well. Response: There might be 802.21 annexes to 802.11/16, etc.

2.2.25.   Ajay: Once there would be a single harmonized proposal and the single view in .21 is available, we would talk to .11/.16 to see how exactly to proceed. Those would be done in conjunctions with these media groups.

2.2.26.   Comment: Two modes to get the MIH capability: probe/response; beacon/advertising.

2.2.27.   Comment: Two consumers of MIH: 1. policy manager which uses the information to make decisions; 2. PHY/MAC layers which feed or request information to/from MIH.

2.2.28.   Q: Section 3.2.3, State Machine, in this proposal, how does MIH decide when to power on a particular radio to do scanning or other tasks, e.g., state transition from Steady State to Network Discovery/Update? A: An example, handover functions prepare the power on and scan when a threshold of one interface is passed.

2.2.29.   Comment: About the communication between MIH entities, in the network side, it is not clear. Do not think we can define PPP/IP/L2 transports for MIH signaling in 3GPP/PP2.

2.3.   *Closing Notes by Phillip Barber*

2.3.1. In the joint sessions, 802.16g participants understand both proposals in 802.21 WG.

2.3.2. Remind 802.16g participants to check attendance in IEEE802.16 server.

2.3.3. Encourage 802.16g participants to attend 802.21 meetings.

2.4.   *Joint session was recessed at 11:30AM*

2.5.   *Next joint session between 802.21 and 802.16g on Wednesday, 10:30AM*

Wednesday March 16, 2005

Morning Session:

Meeting was called to order at 8:15 AM by Phillip Barber, NetMan chair.

General NetMan introduction and administration was presented by NetMan chair:

The agenda contribution IEEE 802.16NetMan-05/004was presented by the chair.

Janice Wunch moved to approve the Minute of 35th session IEEE 802.16NetMan-05/003,
Second – Greg Schumacher,
Approved by unanimous voice consent

Liaison Activities:

3GPP2 TSG-S – A response (IEEE L802.16-05/012) to IEEE 802.16 NetMan 1/27/2005 liaison was received from 3GPP2. Regarding our concern on reusing the copyright text, 3GPP2 indicated that 3GPP2 referenced 3GPP document, but in some rare occasion, 3GPP2 had copied 3GPP matrial into 3GPP2 specification through special request and permission. Scott Migaldi, 3GPP2 liaison, reported that 3GPP2 is also meeting this week, so no official response to our copyright and intellectual property agreement concerns can be sent before the end of the meeting. But, he indicated that copy by reference is OK. If copying text is necessary, 3GPP2 has a form to be used for such request.

802.21
There will be a joint session at this Session 36 Atlanta plenary meeting with 802.21.

802. SEC Architecture Standing Committee
DJ and Phillip had met with 802 SEC Architecture Standing committee at the Atlanta meeting, and were told that NetMan got recognized for doing the right thing by defining the primitives to interface to applications above layer 2. While other 802 WGs had focused on the definition of layer 1 and layer 2 standards, without paying attention to the primitives to interface to applications above layer 2.

IETF
A conference call was held on 9 March, which included Roger Marks, Brian Kiernan, Phil Barber, and David Johnston from 802.16 and Bernard Aboba, Jari Arkko, and Dorothy Stanley from IETF, to address EAP and 802.16f MIB issues. That meeting led to the suggestion that draft IEEE 802 MIBs be reviewed by a "MIB Doctor" in IETF. Phil Barber will forward the draft MIB, in machine-readable format, to Mr. Wijnen. The IETF MIB Doctor has already conducted an initial evaluation and found syntax errors for future correction. Phillip Barber will submit comments into the anticipated Sponsor Ballot recirculations on behalf of the MIB Doctor.

WiMAX
IEEE L802.16-05/17 liaison was received from WiMAX Forum that expressed the interest to establish a technical liaison with the 802.16 WG (initially and in particular NETMAN - 802.16g). The WiMAX Forum plans to nominate Dr. Bala Rajagopalan of Intel Corporation as primary technical liaison to IEEE. Phillip Barber had been tasked from the WG Chair, Roger Marks, to create appropriate liaison language to respond to a section of the WiMAX letter. Phillip Barber to send language to Ken Stanwood who Roger Marks assigned to create a draft response.

802.16f
In Sanya, there was an oversight from WG that no sponsor ballot pool was created. However, 802.16f can not be ready for sponsor ballot at session #36 anyway due to 6 weeks window between sessions that are not enough to cover Working Group Recirculation #16b (15 days) and Sponsor Ballot (30 days). Therefore, 802.16f has no meeting at session #36. It is expected that EC will approve P802.16f/D3 for Sponsor Ballot around 3/18/05.

wmanIfMib has been sent to IETF MIB doctor for review. The comments that were mostly syntax errors have been received from MIB doctor. NetMan chair will submit these comments to Sponsor Ballot.

The meeting was adjourned at 09:15AM.

Joint Session with 802.21 and Netman – 802.16g project

Ajay chair of 802.21 and Phil Barber chair of 802.16 Netman Task group jointly opened the meeting at 10:15 AM.

The Netman chair then provided an update to the group about the activities within the 802.16g project.

Comment resolution based on 80216g-05_003 commentary database was started. There were 5 comments and some associated contributions that were received on time. The chair also decided to accept all the late contributions also by adding appropriate comments as there was adequate time to address them.

Discussion on the 802.16g-010r1 and 802.16g-015 was initiated. The initial decision was to discuss the protocol stack model (Figure 1 in IEEE Standard 802.16-2004).

Next the contribution 802.16g-010r1 was presented.

A comment#6 was added to the database for contribution C80216-05_015r2. The task group unanimously agreed to adopt the comment #6.

The meeting recessed for lunch at 12:17 pm, to reconvene at 1:30pm.

Afternoon Session:

The joint 802.21 and 802.16 NetMan Task Group session was called to order by the chairs at 1:30pm.

Comment resolution was resumed.

Discussion was resumed on C80216g-05_010r1 and the proposal was made to accept the related comment #2 with the modifications proposed. The task group unanimously approved the proposal.

The contribution C80216g-013 was discussed and reviewed. Even though there was no comment associated with it, and as there was no specific proposed text changes to the baseline document associated with it, so no comment was inserted into the database for it.

Discussion was initiated on contribution C80216g-05_014r1 part of comment #1. The task group proposed some modifications and a revised contribution C80216g-05_014r2 was created. Then the task group unanimously approved the comment #1.

Discussion on contribution C80216g-05_008 was presented by the author. This was associated with comment #7. Based on comments a revised version C80216g-05_008r1 was created. The task group unanimously approved the revised contribution.

Discussion was then initiated on contribution C80216g-05_016.

The meeting was adjourned at 3:45pm.

The Netman session reconvened at 4:30 pm

Contribution 12 was presented and the authors were thanked by the excellent work they put in for defining the protocol procedures based on the legacy messages. However the chair suggested that they redraft the submission to match with the decisions based earlier in the day on the SAPs.

So all the Comments 3,4,5 and associated Contributions 9,11,12 were deferred till Thursday session to allow for redrafting based on decisions made on earlier contributions.

The contribution C80216g-05_016 was deferred till Thursday to allow the authors to revise it to address some comments during the discussions.

Thursday March 17, 2005

Morning Session:

The chair opened the meeting at 8:30AM.

As the authors of contributions C80216g-05_009,C80216g-05_010, C80216g-05_012 informed the chair that they did not have enough time to redraft their submissions. The comments 3,4,5 associated with these and contributions were withdrawn.

The contribution C80216g-05_016 was also withdrawn as the authors wished to make more revisions based on comments received and time was not sufficient for it.

The task group discussed the output the legacy messages adhoc. The chair decided not to renew the adhoc, as no members of the adhoc were present. The chair also discussed the activities and suggested that he may reconsider renewing if needed at a later date.

Motion made by Chris Hansen: To authorize the editor to revise P802.16g-04/03r1, in accordance with the comment resolutions in 802.16g-05/003r1 and reissue the document as 802.16g-04/03r2.

Second: Janice Wunsch

No discussion.

Vote: For :11; Against :0

Motion to adjourn by Janice Wunsch

Second: Chris Hansen

Unanimous Voice vote.

The chair adjourned the session at 9:05 AM.