Session #39 802.16 MMR SG Meeting Report

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Venue:

IEEE 802.16 Session #39, Taipei, Taiwan

Base Document:

None

Purpose:

SG Meeting organization, SG Meeting Report

Session #39 802.16 MMR SG
SG Meeting Report – 9/14&15/05

Study Group on Mobile Multi-hop Relay in IEEE 802.16

Chair: Mitsuo Nohara

Meeting Schedule:

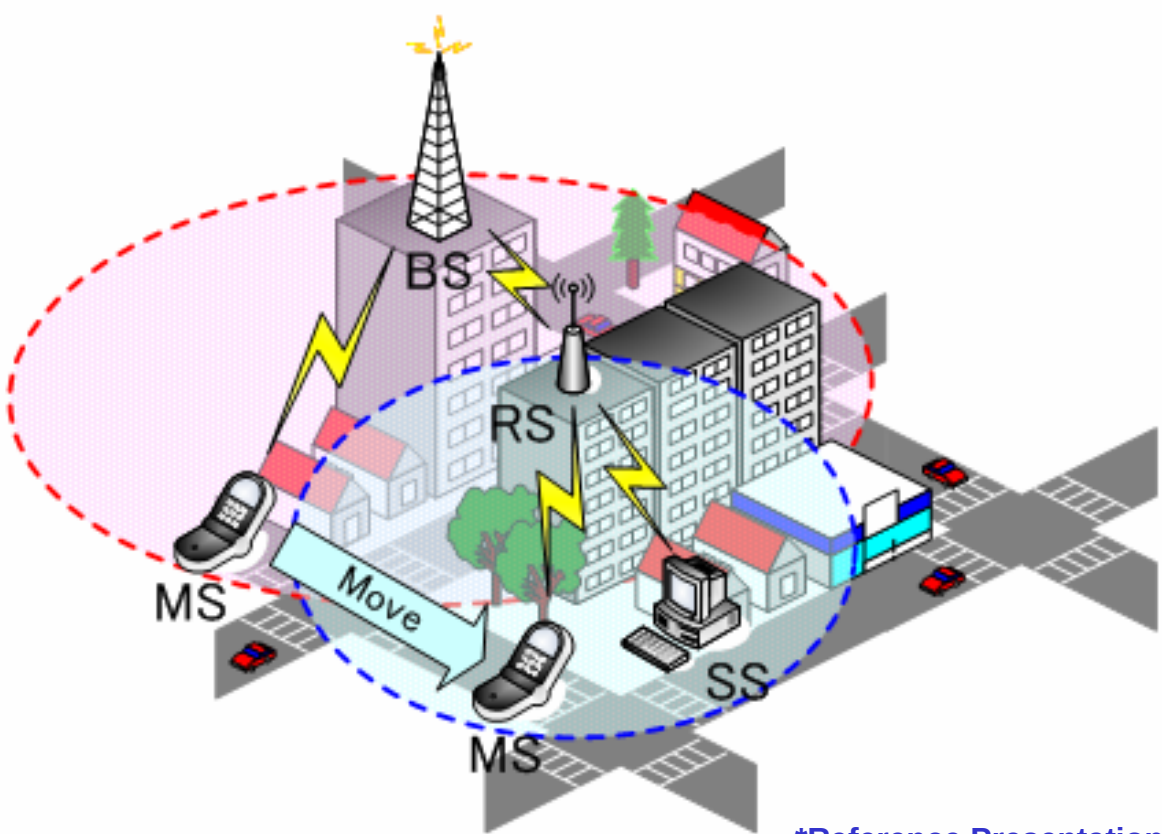
08:00 – 12:00, Wed., Sept. 14, 2005

13:00 – 17:00, Thu., Sept. 15, 2005

Room: Auditorum, The Grand Hotel, Taipei

Scope of Proposed Relay Project

- **Develop Proposed Relay mode for fixed / mobile terminal**
  - **PHY: Enhance normal frame structure**
  - **MAC: Add new protocols for the Relay networking**



*Reference Presentation (C802.16-005/013)

Objectives of this 1st SG Meeting

- To exchange views on Mobile Multi-hop Relay
  - with contributions provided, referring to the call for contributions,
- To have open discussions, and
- To plan future activity and schedule towards the PAR and 5 Criteria preparation.

Agenda

1. Session #38 San Francisco

   Ad-hoc Meeting Summary
2. Contribution Presentations
   - Contribution Presentations
   - Open Discussions
   - Each presentation consists of 10-minutes presentation and 5-minutes Discussions.
3. Future Activity and Schedule

1. Session #38 San Francisco Ad-hoc Meeting Summary

Scope of Proposed Relay Project

- **Develop Proposed Relay mode for fixed / mobile terminal**
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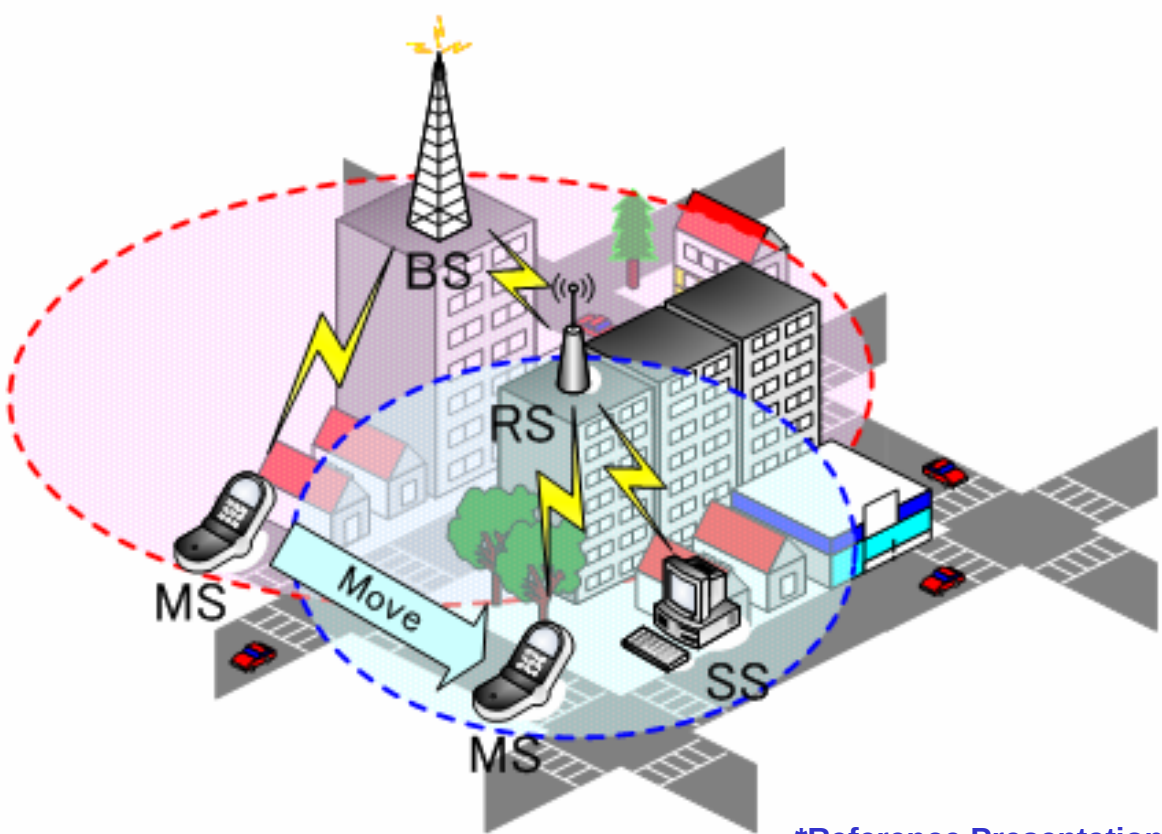

*Reference Presentation (C802.16-005/013)

Main Features

- **Main features**
  - **Tree structure: one of the end of relayed data path should be at BS**
  - **Efficiently provide Relay connection to SS/MS (with small number of hops)**
  - **Support OFDMA as well as OFDM PHY mode**
  - **Backward compatible to PMP mode**
  - **PMP & Relay modes : share a same band, or use different but adjacent bands**
- **Considered RS types**
  - **Fixed Infra RS, Nomadic Infra/Client RS, Mobile Infra. RS**

❖ **dot16 “forum” website: http://dot16.org/forum/**

*Reference Presentation (C802.16-005/013)

New Study Group Proposal

- **We, as listed on the supporter list attached on page 15, support the creation of a new study group on mobile multi-hop relay networking, which is:**
  - **referring to C802.16-05/013 as its discussion base,**
  - **with the notes attached to the reference as shown on page 14,**
  - **aiming at preparing a new PAR and 5 criteria,**
  - **to start from next #39 meeting and**
  - **to be chaired by Mitsuo Nohara.**

Motion

- **To create a new 802.16 WG study group on Mobile Multi-hop Relay.**

Motion Passed: For: 77, Against: 0, Abstain: 1

Notes to Reference

Reference: C802.16-05/013

Notes:

- **Relay mode may include multiple connectivity,**
- **Spectral Scenario will be studied at new SG,**
- **Interference coexistence and other relating things to be studied working with License-Exempt Task Group,**
- **Need activity watch on 802.1 bridge,**
- **Issues of Interest:**
  - **Hand over,**
  - **Technical Performance, and**
  - **Backward compatibility.**

New Study Group Supporter List

as of 21 July, 2005

Mitsuo Nohara
Kenji Saito
JaeWeon Cho
JungJe Son
PanYuh Joo
HyeonWoo Lee
Nat Natarajan
Masahito Asa
Jose P. Puthenkulam
Ofer Kelman
Guo Qiang
Geunhwi Lim
Naftali Chayat
KyungJoo Suh
Shyamal Ramachandran
Aik Chindapol
Maximilian Riegel
Aeran Youn
Avinash Joshi
Robin Zheng

Wu Xuyong
Chang-Lung Hsiao
Arther Wang
Matthew Sherman
Youngho Kim
JunHyung Kim
Mike Hart
Sunil Vadgama
Charlie Zhang
Gang Shen
Roland Muenzner
Eckard Bogenfeld
N.K. Shankaranarayanan
Yousuf Saifullah
Chenxi Zhu
Byoung-Jo "J" Kim
Kevin Baum
Roger Peterson
Meng Zhao
Paul Piggin

Hujun Yin
Mark Thomas
David Mc'Ginniss
Jorjeta Jetcheva
Yoko Kurosawa
Kazuki Tani
Wen Tong
Mo-han Fong
Bahareh Sadeghi*
Sumeet Sandhu*

*not listed under .16 attendance list

*This list contains the names of participants who showed their interests by signing their names on site/after the meeting and reference authors participating to the meeting. Their names have been confirmed referring to the participant-registration list.

2. Contributions

Call for Contributions

Areas of activities:

- Assess feasibility of Multi-hop Relay for fixed / mobile terminal including PHY/MAC modifications;
- Study the impact on PHY with enhancement of normal frame structure and backward compatibility with 802.16 TGe PMP mode;
- Study the impact on MAC protocols to be newly added for the relay networking including handover cases;
- Study spectral scenario including frequency reuse and interference among the links between Base station (BS) and Relay station (RS), and ones between RS and Mobile/Subscriber station (MS/SS);
- Study the security between BS and Mobile Subscriber station (MS) via RS;

Call for Contributions

Contribution Provisions:

- Ideas for usage and application scenario: Network topology and capability of RS,
- Principle requirements on PHY/MAC protocols in IEEE802.16 to provide multi-hop connection,
- Ideas for spectral scenario and security issues, and
- References of the technology such as IEEE802.1 Bridging.

List of Contributions

- Jaeweon Cho, Jungje Son, Panyuh Joo and Hyeonwoo Lee
- Kenji Saito, Mitsuo Nohara and Keizo Sugiyama
- Panos I. Dallas, Ana M. Gallardo and A. Valkanas
- Deng Shinquiang and John Lee
- Gamini Senarath, Wen Tong, Peiying Zhu, Mo-Han Fong, Hang Zhang, Jianglei Ma, G.Q. Wang and Dave Paranchych
- Wen Tong, Peiying Zhu, Mo-Han Fong, Gamini Senarath, Hang Zhang, Jianglei Ma, G.Q. Wang and Dave Paranchych
- Amir Rubin, Yigal Eliaspur
- Yu-Ching Hsu
- Ray-Guang Cheng
- Shou-Sheu Lin and Wern-Ho Sheen
- Fang-Ching Ren, Chang-Lung Hsiao, Yu-Ching Hsu and Wern-Ho Sheen
- Masahito Asa, Nat Natarajan, Roger Peterson, Shyamal Ramachandran, David Chen
- Shyamal Ramachandran
- Mike Hart, Sunil Vadgamal
- I-Kang Fu, Wern-Ho Sheen, Ren-Jr Chen, Chang-Lung Hsiao and Shou-Sheu Lin
- Naftali Chayat, Ran Yaniv* *: On-site Contributions
- Above listed along with the document-submission order
- Each presentation consists of 10-minutes presentation and 5-minutes Discussions.

Presentation Program

16 Contributions*,

each categorized into:

- Requirements/Technical
  - Updated from previous meeting
  - Others
- Reference

then divided into two meeting groups.

* Including one on-site contribution

*Presentation Program as shown next:

Presentation Program

Session #1 08:00 - 12:00 Wed., 14 Sept. 2005

No.	Ref.	Presentation	Affiliation	Title
1	Cmmr-05_001	Kenji Saito	KDDI R&D Labs.	Study of IEEE802.16 Mobile Multi-hop Relay
2	Cmmr-05_002	JaeWeon Cho	Samsung Electronics	Classification of RS Type in Mobile Multi-hop Relay System
3	Smmr-05_015	Yigal Eliaspur	Intel	Method for integration of cooperative relaying into the 802.16 standard
4	Cmmr-05_013	Masahito Asa	Motorola	Scope Considerations for Mobile Multihop Relay
5	Cmmr-05_004	John Lee	Huawei	Recommendation on Design 802.16 TGe PMP mode backward compatible Frame Structure
6	Cmmr-05_003	Yu-Ching Hsu	CCL/ITRI	Mobility Management for Mobile Multi-hop Relay Networks
7	Cmmr-05_007	*Mitsuo Nohara	INTRACOM	Flexible Relay Wireless OFDM-based networks
8	Cmmr-05_012	Ray-Guang Cheng	National Taiwan Univ. of Science and Tech.	Introduction to Opportunity Driven Multiple Access (ODMA)
9	Cmmr-05_014	Shyamal Ramachandran	Motorola	IEEE802.11 TGs: An Introduction

Session #2, 13:00 - 17:00 Thu., 15 Sept. 2005

10	Cmmr-05_010	Peiying Zhu	Nortel	Preliminary Performance Benefit of Single-Hop OFDMA Relay in IEEE802.16
11	Cmmr-05_011	Peiying Zhu	Nortel	Duplex and Multiplex Configurations for OFDMA In-Band Relay
12	Cmmr-05_006	Shou-Sheu Lin	CCL/ITRI	FSO-based relaying/backhauling architecture
13	Cmmr-05_005	Fang-Ching Ren	CCL/ITRI	A Recommendation on PMP Mode Compatible Frame Structure
14	Cmmr-05_017	Mike Hart	Fujitsu LAB Europe	Factors that affect performance of a mobile multihop relay system
15	**Cmmr-05_008**	**I-Kang Fu**	**ITRI, NCTU**	**Throughput improvement with Relay-augmented cellular architecture**
16	**Smmr-05_019**	**Naftali Chayat**	**Alvarion**	**PHY aspects in MMR-enabled networks**

Discussions

- On each presentation:
- In General:
- For future PAR and 5 Criteria preparation:

  PAR:

  Proposed Project Scope, Purpose, Reason, Existence of Similar Project, etc.,

  5 Criteria:

  Broad Market Potential, Compatibility, Distinct Identity, Technical Feasibility and Economic Feasibility

3. Future Activity and Schedule

Current Schedule

- **Study Group / Task Group**

Year	Month	802.16 session	Actions
2005	July	#38 Plenary	Propose to form SG – Approved
	Sept.	#39 Interim	SG: the 1st meeting
	Nov.	#40 Plenary	SG: the 2nd meeting
2006	Jan.	#41 Interim	SG: the 3rd meeting – Complete a PAR
	Mar.	#42 Plenary	802 EC endorses PAR approval
	May	#43 Interim	TG: the 1st meeting
	July	#44 Plenary	TG: the 2nd meeting
	Sept.	#45 Interim	TG: the 3rd meeting
	Nov.	#46 Plenary	TG: the 4th meeting

To Do List

- **At This Meeting**
  - **Contributions/Discussions Summary**
- **After This Meeting towards Next #40 Meeting**
  - **Comments and Discussions @ dot16.org**
- **At the Next #40 Meeting**
  - **Contributions and Discussions, (to be cont.)**
  - **PAR and 5 Criteria Preparation (Scope, Purpose, Reason, etc.,)**

- **SG Mailing List/Reflector Update @dot16.org**

Summary

1. Session #38 San Francisco

   Ad-hoc Meeting Summary Reported
2. Contribution Presentations
   - 16 Contribution Presented

     *including one on-site contribution
   - Open Discussions
     - Discussions covered
3. Future Activity and Schedule

Output of the meeting

- Exchanged the concepts for Mobile Multihop Relay
- Discussed and agreed as follows :
  - Need for clarification/revision of the concept table.
  - Need for Common Terminology
  - Call for Contributions to be issued :
    - PAR and 5 Criteria
    - Scope of MMR task including evaluation criteria, backward compatibility.

Motion to SG

- Motion : To empower study group chair to prepare new call for contributions and also prepare report for the session.
  - Motion : Naftali Chayat, Second : Jaewon Cho
  - Unanimous voice consent