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Project	IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>
Title	Action Items from Session #47: Discussion material on inter system communications and system architecture
Date Submitted	2007-03-01
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Re:	Working Group Letter Ballot #24a for IEEE P80216h/D2
Abstract	This contribution brings together the inter-system communications issues and system architecture issues. The contribution provides some material for discussing the relevance of both backhaul and over the air inter systems communications in the light of the current (or revised) system architecture.
Purpose	Discuss backhaul based, over the air based inter system communications vs. system architecture
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Action Item from Session # 47: Discussion material on inter- system communications and system architecture

David Grandblaise
Motorola

Overview

Inter-system communications issues and system architecture issues are highly dependent in P802.16h/D2 [1]. The level of dependency is also related to the approach followed (backhaul or over the air based) for the inter-system communications. The inter-system communications rely on some system architecture elements currently proposed in [1]. During session #47, concerns about these two items ("CXP messages over the air forwarding for inter-system communications" and "role and content of the centralized database in the system architecture") were respectively addressed [2] in comments 530, 1008, 1127 & comments 409, 410, 1029.

This contribution brings these two items together in a more general way by providing some material for discussing the relevance of both backhaul and over the air inter systems communications in the light of the current (or revised) system architecture. Hopefully, this contribution aims at helping the group to state on which inter system communications approaches (backhaul, over the air, or both) should be followed and wrt which elements of the current system architecture should remain or be removed. Progress on this point will help in the clean up and refinement of the text in D2.

Analysis

TBD

Specific editorial changes

This section provides a list of changes to the draft document.

Blue text represents specific editorial additions.

~~Red strikethrough~~ text is to be deleted.

Black text is text already in the draft.

Bold italic text is editorial instructions to the editor.

Text remedy proposal for section x

Instructions

References

[1] IEEE 802.16h/D2: Part 16: Air Interface for Fixed Broadband Wireless Access Systems Amendment for Improved Coexistence Mechanisms for License-Exempt Operation; 2007-01-30
[2] IEEE 80216h-06_068r5: *Letter Ballot #24 Commentary file with resolutions from Session #47.*

Annex

This annex contains the comment from [2] to be resolved via these action items covered by the contribution.

Comment 530:
(Phillip Barber)

Page: 999
Line:
Subclause:

Comment:
Many of the 'detection' methods at BS power-up and channel selection require detection of SS UL transmissions to an adjacent co-channel or adjacent channel BS. What if the boundary SS does not have UL transmission requirements/makes no UL transmissions during the BS detection interval? This seems very likely to me. Also, the BS powering-up will only here the SS transmission in the UL subframe. How can the powering-up BS interpret the entire frame structure of the other BS transmissions? What about synchronizing in time? How can the powering-up BS know the transmission offset of the affected SS UL transmissions to the other BS such that the powering-up BS can correctly know the other BS absolute transmission timing? What if there are five affected SS, each differently affected and with different offsets?

Suggested Remedy:
No text provided

Resolution:
To be addressed by adhoc for inter-system communication consolidation chaired by David. (from the resolution of comment 1008 1127 within 80216-06_068r3)

Comment 1008:
(Mariana Goldhamer)

Page: 37
Line: P42
Subclause: 15

Comment:
It was indicated the need for faster inter-system (802.16 systems) communication.
1. that communication and the associated messages needs to be identified (see contribution 802.16h/07)
2. It is needed to identify a communication profile or max two profiles (OFDM,OFDMA) including parameters as channel width, PHY characteristics, etc.

Suggested Remedy:
See as a start the contribution IEEE C802.16h-07/d006, which is also a solution to the comment 86 and the corresponding Ad-Hoc.

Resolution:
Ad hoc for forwarding the CXP message over the air. Chair -David.

Comment 1127:
(John Sydor)

Page: 10
Line: P34
Subclause: 6.3.2.3.63

Comment:
Section 6.3.2.3.63 needs updates, more information on antenna radiation patterns, Some material needs to be moved to section 15 .

Suggested Remedy:
See contribution IEEE c802.16h-07/014

Resolution:
accept the contribution 014 with discussion goes into David adhoc AI for consideration on the inter-system communication.

Comment 409:
David Grandblaise

Comment:
The information table for the centralized database is empty. The centralized database is not described in the overall architecture depicted in subclause 15.1.6. Only the distributed database is depicted. Currently, only the distributed database is involved in the CXP.
Compared to the distributed database, the role of the centralised database has to be defined before the information table is filled. The centralised database could be the country database. This centralised database could be an instantiation of the distributed database at a given time and in a given region for a given set of information (not confidential). With respect to this, the centralised architecture could be operator specific containing the confidential operator data, and only the non confidential content of centralised database could be stored and be accessed in the distributed database. Then, the CXP would rely on the information stored in the distributed database.
Additionally, the centralised database information could play as data information backup for the distributed database. Information refreshment in the centralised database would be less frequent than the distributed database, and the centralised database content would be regularly updated by the distributed database on a sollicited or unsollicited fashion.
Also, the RAIS ("Radio Application Identification Server" defined in subclause 15.5.2.53 page 143) could be used jointly with the centralised database. The RAIS could provide some information to the centralised database and the centralised database could propagate this information as appropriate to the distributed database to meet local regional requirements.

Suggested Remedy:
Define the role of the architecture and provide the corresponding message

Resolution:
AI taken by Mariana and David on centralized server content for regulatory purposes.

Comment 410:
3

Xuyong Wu

Comment:

Define the information table contained in the centralized database. Or deleted the whole section.

Suggested Remedy:
None

Resolution:

AI taken by Mariana and David on centralized server content for regulatory purposes.

Comment 1029:
Kenneth Stanwood

Comment:

We already need to handle the case where a centralized database doesn't exist and the BSs build the info via messages over the backhaul. Also, there is no way to control the content and accuracy of a centralized database. If one exists, the BS is free to use it, but it's outside the scope of the standard.

Suggested Remedy:
Delete section 15.3.3.2

Resolution:

by AI taken by Mariana to define the centralized database.