**Project** | IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>
---|---
**Title** | General Architecture: Shared Radio Resource Management
**Date Submitted** | 2005-03-10
**Source(s)** | Mariana Goldhamer
Alvarion
Tel Aviv, 21 HaBarzel Street
Israel
Voice: +972 3 6456241
Fax: +972 3 645 6204
mailto:marianna.goldhammer@alvarion.com
**Re:** Call for Contributions, IEEE 802.16 License-Exempt Task Group, 2005-02-10, IEEE 802.16h-05/006
**Abstract** | Propose shared distributed system architecture
**Purpose** | Information
**Notice** | This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
**Release** | The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE’s name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE’s sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.
**Patent Policy and Procedures** | The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures <http://ieee802.org/16/ipr/patents/policy.html>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <mailto:chair@wirelessman.org> as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.16 Working Group. The Chair will disclose this notification via the IEEE 802.16 web site <http://ieee802.org/16/ipr/patents/notices>. 
General Architecture: Shared Radio Resource Management
Mariana Goldhamer

Alvarion

Introduction
The scope of the paper is to provide text for the IEEE 802.16h draft, to be inserted inside the Chapter called “Interference detection and prevention – general architecture” – see [1]

Architecture
The architecture for Radio Resource Management in the context of IEEE 802.16h it is a distributed one and allows communication and exchange of parameters between different networks. A network consists from a Base Station and its associated Subscriber Stations.
Every Base Station includes a Distributed Radio Resource Management entity, to apply the 802.16h spectrum sharing policies, and a Data Base to store the shared information regarding the actual usage and the intended usage of the Radio Resource.
A subscriber Station may include an instance of DRRM, adapted to SS functionality in 802.16h context.
The following figure shows the functional diagram of the IEEE 802.16h network architecture:
**Inter-network communication**

The inter-network communication consists in:
- Inter-network messages
  - Base Station to/from Base Station
  - Base Station to/from Subscriber Station to/from foreign Base Station; the subscriber Station is used as relay, if the two Base Stations are hidden one from the other
- Open access to DRRM Data Base:
  - To read the parameters of the hosting Base Station
  - To request change of the hosting Base Station operating parameters.

**Same PHY Profile**

For networks using the same 802.16 PHY Profile, including elements as:
- Channel spacing;
- PHY mode:
  - WirelessMAN-OFDM (256 FFT points)
  - WirelessMAN OFDMA 2k (in future 128, 512, 1k) FFT points
  - WirelessMAN SCa,
the inter-network communication may be done using 802.16 messages over the air, including messages defined by 802.16h amendment.
**Mixed-PHY Profile communication**
In the case of different PHY Profiles the communication will be done at IP Level. Every Base Station should know the IP address of the DRRM of the Base Stations around, by provisioning or/and by a transmitting the IP address over-the-air. The communication shall use a real-time communication protocol – t.b.d.

Every system will broadcast:
- The IP address of its Data Base entity, such that more elaborated inter-system communication may take place using unicast IP messages;
- The basic information related to the parameters of the spectrum usage, in such a way that any other system, which co-exists in the same area, will be aware of the transmitted messages.

Every Base Station will forward to the associated SSs the information related to DRRM.

---

**References**
[1] IEEE 802.16h – 05/002 – Table of Contents for IEEE 802.16h, 2005-01-25