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Abstract	Propose shared distributed system architecture	
Purpose	Information	
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General Architecture: Shared Radio Resource Management

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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:

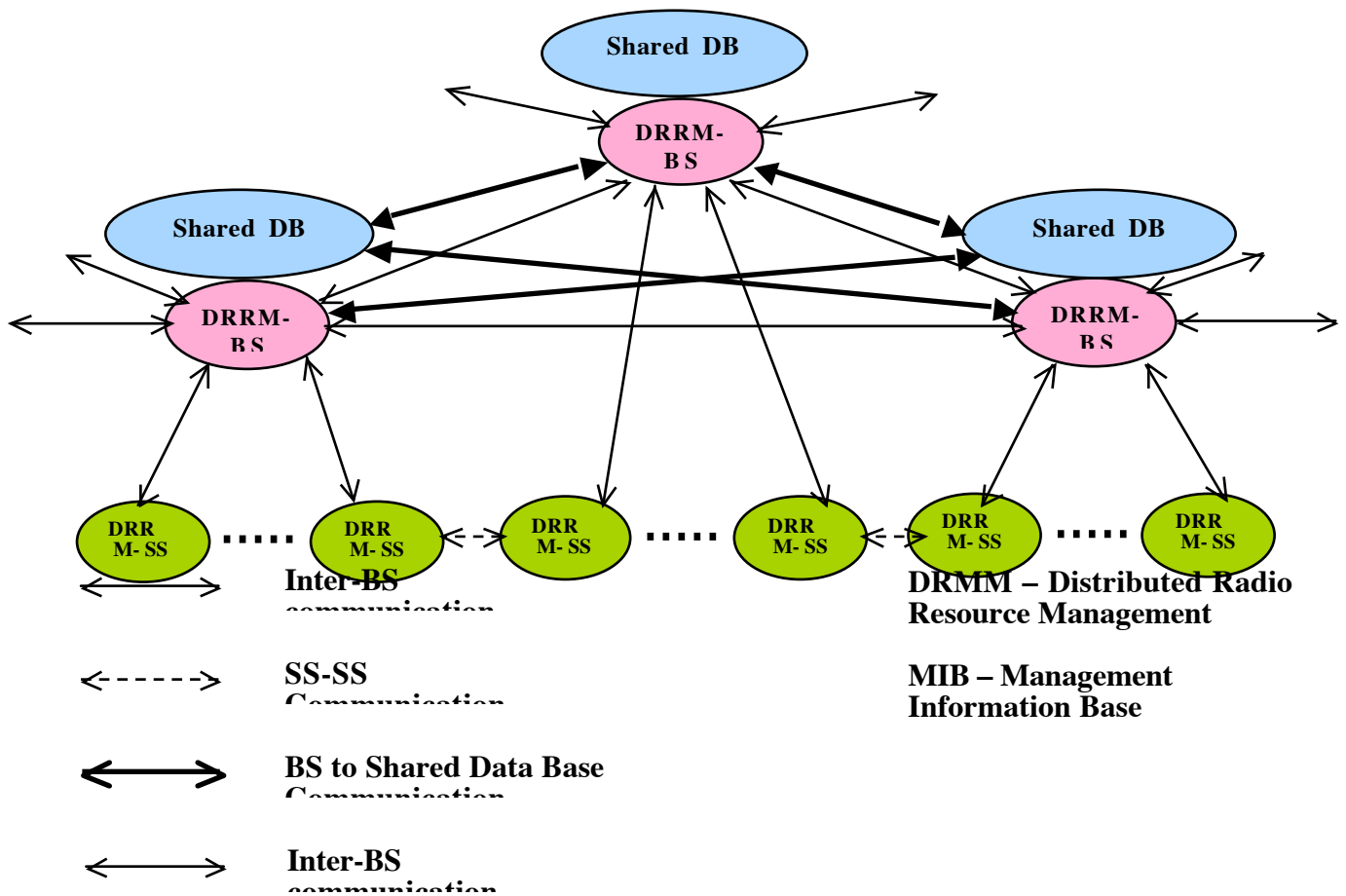


Figure 1 System Architecture

Inter-network communication

The inter-network communication consists in:

- Inter-network messages
 - o Base Station to/from Base Station
 - o 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 DRMM Data Base:
 - o To read the parameters of the hosting Base Station
 - o 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:
 - o WirelessMAN-OFDM (256 FFT points)
 - o WirelessMAN OFDMA 2k (in future 128, 512, 1k) FFT points
 - o 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