GigAccess™ OFDM 700 RSU System Overview

GigAccess™ OFDM is a wireless point-to-point and point-to-multipoint broadband communication system. The basic subsystem is composed of a single sector, which consists of an Access Unit (AU) and up to 250 Subscriber Units (SU). Each sector is a stand-alone communication network operating on a star topology with a gateway to the WAN, which allows two-way communication between the SUs and the WAN via the AU. A Sector may be extended by sub sectors, which are consecutive to the SUs within the sector.

GigAccess™ include a Base Controller (BC). The BC is a PC running GigAccess™ Network Management System (NMS) application that monitors and controls the AUs and their corresponding SUs. The NMS provides SNMP integration, thus connecting with already existing NMS that service providers might have. Its main purpose is to configure the AUs and SUs with SLA (Service Level Agreement). Once the AU is configured, the configuration is stored in the AU and the sector can run autonomously without the need of a BC (stand alone configuration).
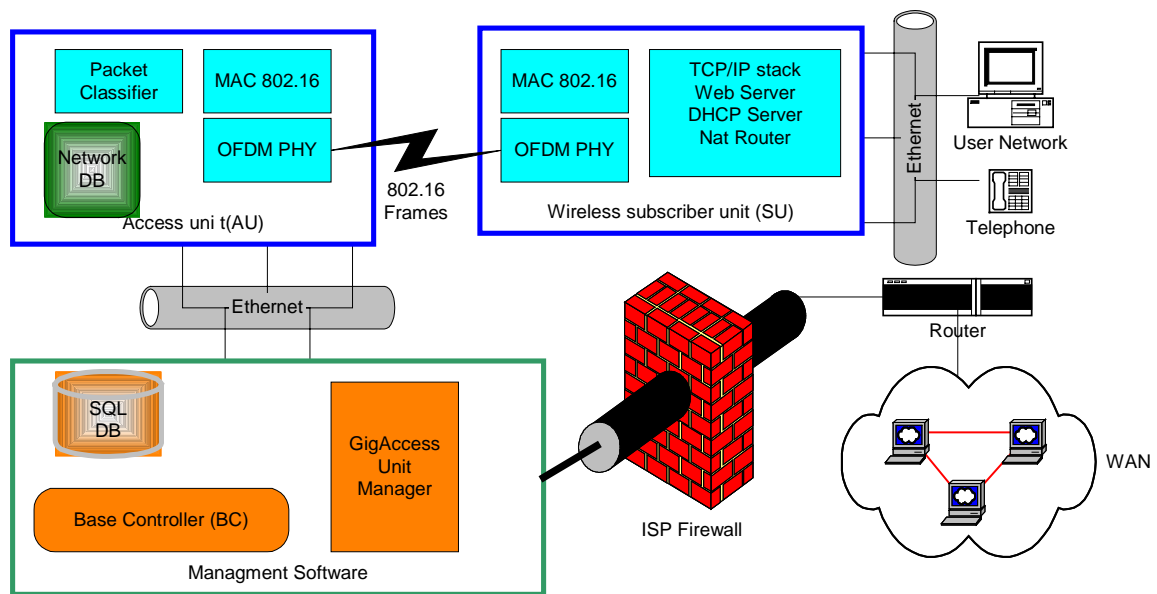
Figure 1: GigAccess™ OFDM functional blocks

The following figure depicts a general description of a typical sector in the GigAccess™ OFDM system.
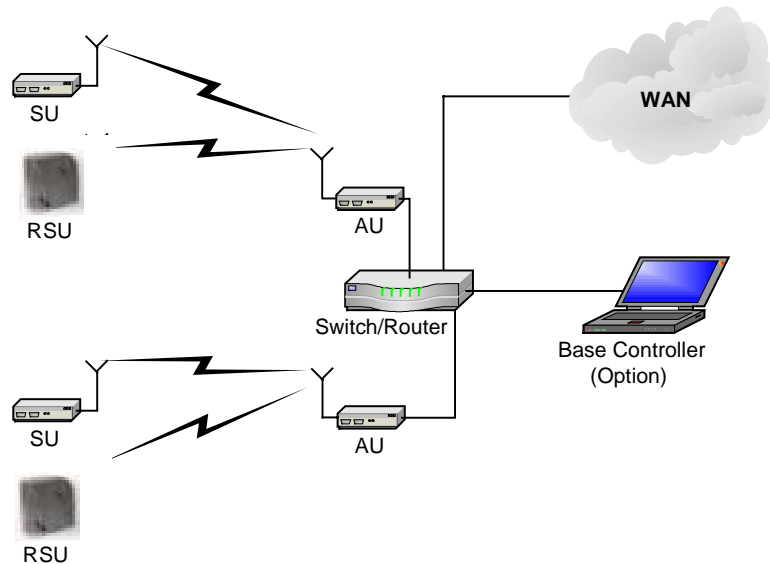

Figure 2: Typical sector in GigAccess™ OFDM System

The sector uses a single radio channel frequency with a 5 MHz bandwidth, which carries up to 9 Mbps data throughput. The system is a frame-based system, meaning the time dimension is divided into small periods called frames. Each frame is divided into two parts: downstream part (traffic passing from the AU to the SUs) and upstream part (traffic passing from the SUs to the AU). The Time Domain Duplex (TDD) technique is utilized to divide the bandwidth periodically based on the frame size. The portion of the frame, which is allocated to the upstream traffic, is divided between the SUs in the time domain using TDMA (Time Division Multiplex Access) technique.

All the divisions are done dynamically thus allowing the SUs to share the channel capacity in a very efficient way.

GigAccess™ OFDM MAC layer is based on IEEE 802.16 MAC standard and enables routing and QoS queuing of traffic based on classification of packets using information in layers 2, 3 & 4-7. In certain instances, QoS queuing can be done using packet information (priority defined by the management).

GigAccess™ OFDM leverages Orthogonal Frequency Division Multiplexing (OFDM) technology to deliver high data rates and high spectral efficiency.

GigAccess™ OFDM ensures always-on connectivity to full range of IP-based services, including fast Internet, High Quality VoIP and Video.

The RSU is a revolutionary radio modem that has no installation and no client software. It's a self-install pure plug and play device that eliminates truck roles, technician fees and lot of installation time.

Figure 3: GigAccess™ RSU