Yulia Matsenko

V.I. Magro, research supervisior

N.V. Poperechna, language adviser

SHEI «National Mining University», Dnipropetrovsk

Wireless Network Prime Time

Wireless Mesh, also known as the standard IEEE 802.11s is the one of the most promising methods for the expansion of wireless networks WLAN compared with WiFi-networks which have a number of very serious shortcomings, including scalability and low threshold and high latency, and short range.

Mesh topology is based on a decentralized networking scheme, in contrast to the typical networks 802.1 1a/b/g, which are created by a centralized basis. Access points operating in Mesh-networks, not only provide user access, but also act as a router / repeater for other access points on the same network. This makes it possible to create self-aligning and self-healing broadband segment.

General topology of a network based on technology of Wireless Mesh (WiMesh), is composed of:

- terminal access points that have a direct connection to a wired network;
- access points that do not have the access points to the wired network;
- access gateways to the wired network;
- control and monitoring system of the network.

Mesh-networks are built as a set of clusters. Coverage area is divided into cluster areas, the number of which is theoretically unlimited.

Mesh feature is the use of special protocols that allow each access point to create a table of network subscribers controlling the state of the transport channel, and supporting for dynamic routing traffic over the best route between points. In case of failure of any of them traffic is automatically redirected to a different route, which guarantees not just delivering traffic, but delivering in the shortest time.

The technology allows building fail active networks. Thus, in case of failure (for example, as a result of a power failure), transit access point traffic is automatically redirected to the other transit access points. In case of identical routes between access points it is possible to share traffic on various routes, cycling them simultaneously, which increases the bandwidth of the network.

In terms of scope, WiMesh networks are typically used for queuing systems, implying the mainly operator solutions. WiMesh can also be used to organize large coverage in public places (stadiums, parks, campuses), where the need for external access points is essential. In terms of encryption and authentication, modern WiMesh networks support standard security mechanisms such as: authentication (802.1x); encryption to TKIP or AES; hiding the internal organization of the network from the WiMesh subscribers by tunneling using IPSec user traffic.

As a result, it can be claimed that WiMesh networks are an effective method of wireless networks WLAN which are intended for mass use.