

Special characteristics of P2MP EPON

Antti Pietiläinen

- EPON network is a shared medium network like wireless networks

For an ONU it is easy to listen downstream and jam upstream traffic of others. For an ONU it is difficult to listen upstream and jam downstream traffic of others but, nevertheless, possible in theory.

- EPON network is a wired network as opposed to wireless

-All end points of a network are in known locations. If there is a hacker in the network, the hacker is in one of these locations unless he or she has physically intruded the network somewhere else.

-Telecom network regulations that apply to the first mile require that the network can not be accessed by unauthorized people without considerable effort. Connection points have to be in locked cabinets and outside splices may not be easily accessible.

Special characteristics of P2MP EPON

- EPON ONU's may have a sizeable legacy Ethernet network behind them as opposed to current use of wireless LAN nodes, for example.
 - It is possible that in the same EPON there are ONUs owned by the operator that serve many users, on one hand, and ONUs located in user premises owned by subscribers, on the other hand.
 - Wireless LAN users know that their mobile device is exposed to a shared medium network whereas subscribers of an Ethernet access network may not realize that there is an EPON link somewhere upstream.
 - If an ONU acts as a bridge, the MAC address of the ONU is used only in the autodiscovery phase. Later on the MAC addresses of packets traveling through the link are those of the nodes below the ONU.