4 Universal Management Tunnel (UMT) Architecture

4.2 UMT Architecture

A typical PON is deployed with an OLT at the local Central Office (CO) and several ONUs which are connected to the Outside Distribution Network (ODN) comprising at least one fiber ~~spliter~~splitter. The OLT acts as the Management Server responsible for controlling individual connected ONUs, including MPCP / OAM registration, service provisioning, etc., as defined in IEEE Std 1904.1-2013.

4.2.1.Single hop between Management Server and OLT

In this scenario, the Management Server is collocated with the OLT within the CO, and it is has access to all information within the OLT, such as status of individual ONUs, QoS profiles assigned to individual services, device status, etc.. Physically, the Management Sever in this architecture would have a form of a software agent running on the OLT hardware. This arrangement is shown in Figure 4. In this case, the ~~UNT~~ UMT path (highlighted line) is between the Management Server (which runs on a software agent) via the PON infrastructure to the ONU.

Comment [gk1]: During WG discussions, it was suggested that the three architectures should be distinguished not by the location of the Management Server (within OLT, within the CO, in different CO), but rather by the location of the Server-Side End Point (SSEP) of the UMT. The figures and the description need to change.

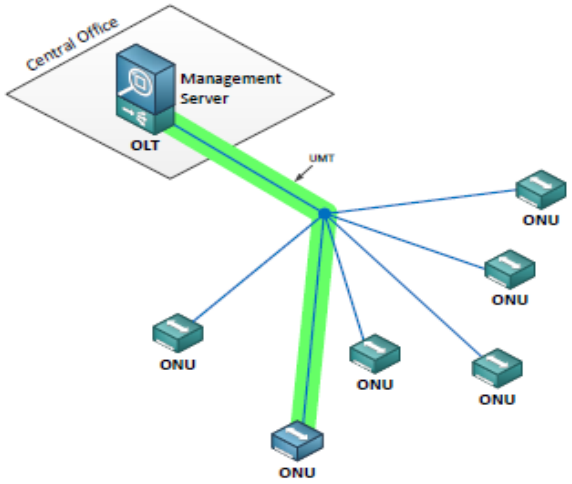

Figure 1 – Single hop between Management Server and OLT

4.2.2 Multiple hops between Management Server and OLT

In that example, the ~~Mangment~~Management Sever does not have a direct access to the OLT, but it shares the same L2 network, providing access to information stored within the OLT via standardized interfaces. The Management Server and the OLT are separated by a number of ~~layer 2~~L2 hops. Physically, the Management Server in this architecture would have the form of a software agent running on either a dedicated or virtual machine, physically separate from the OLT, but otherwise connected to the same LAN. The Management Server in this case can be shared by more than one OLT, provided that all these OLTs are connected to the same LAN. This arrangement is shown in Figure 5. In this case, the UNT path (highlighted line) is between the Management Server (which runs on a software agent) via L2 switch and the PON infrastructure to the ONU.

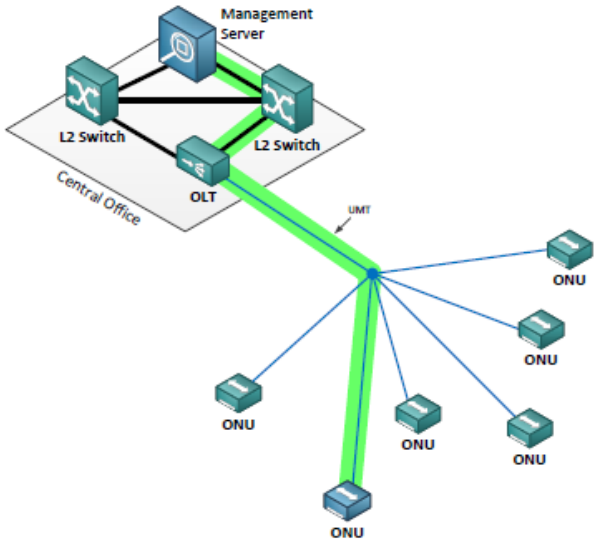

Figure 2 – Multiple hops between Management Server and OLT

4.2.3 Management Server sharing L3 network with EPON OLT

In that example, the ~~Mangment~~Management Server is connected (directly ~~on~~or indirectly) to the core transport network of the operator and manages a number of OLTs connected (directly or indirectly) to the same core transport network. The Management Server is provided access to information stored within the OLT via standardized interfaces. Physically, the Management Server in this architecture would have the form of a software agent running on either a dedicated or virtual machine, physically separate from the OLT, but otherwise reachable via IP level connectivity. The Management Server in this case can be shared by more ~~that~~than one OLT, provided that all these OLTs are connected at the IP level. This arrangement is shown in Figure 6. In this case, the ~~UNT~~ UMT path (highlighted line) is between the Management Server (which runs on a software agent) via several L2 ~~switchs~~switches and the PON infrastructure to the ONU.

Comment [gk2]: L3 network has nothing to do with the UMT. Management server has to share L2 network with the OLTs.

Comment [gk3]: Not sure what it means. IP level has nothing to do with UMT. The next sentence says that the Management Srever and the ONU has to be connected via L2 switches.
If the intention is to say that user data may be traversing L3 and UMT will use L2 connections, this needs to be explained.

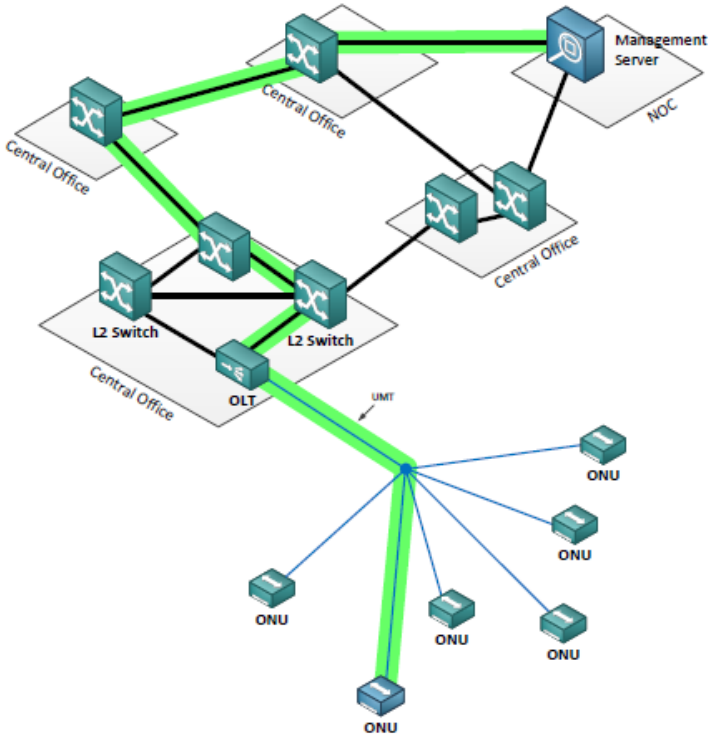

Figure 3 – Management Server sharing L3 network with EPON OLT