

<b>Invention Title:</b>	Method for Detection of Configuration Protocol
<b>Invention Summary:</b>	An emerging trend in access network termination devices (particularly ONUs) is an ONU may support one of multiple methods for configuration and management. This invention proposes a method for determining the supported configuration protocol.
<b>Invention Description:</b>	<p>An emerging trend in access network termination devices (particularly ONUs) is an ONU may support one of multiple possible methods for configuration and management. For example, in the near future a GPON ONU may support either of two protocols for configuration:</p> <ul style="list-style-type: none"> <li>• ONU Configuration and Management Interface (OMCI) – standardized by ITU</li> <li>• Extended Operations, Administration, and Maintenance (eOAM) – standardized by IEEE 802.3 and extended by CableLabs DPoE/DPoG specifications</li> </ul> <p>Operators will likely deploy ONUs with only one of the configuration protocols in use; they will be responsible for insuring the correct ONU is deployed in their networks.</p> <p>OLT system vendors are likely to develop support for the two configuration methods into a single software package. But the challenge is determining which method is supported by a connected ONU.</p> <p>The OLT will be responsible for discovering which method is supported by the ONU. One method could be that a small snippet of each protocol is implemented in the ONU, enough to provide a response to any of the protocols that could be used. The OLT then queries the ONU with a request for which protocol is supported. However, it is unlikely the ONU will support both protocols, and it is problematic to require the ONU to support a small subset of each method just to answer a query by the OLT. Additionally, OLT vendors need to robustly determine protocol support when an ONU does not support the minimal snippet of each protocol.</p> <p>This invention proposes the OLT use of one or more “probes” to determine the configuration protocol supported on an ONU. One embodiment of a probe is in the form of a message from each configuration protocol which, when transmitted to the ONU, results in a response from the ONU only if the ONU supports the protocol indicated by the probe. In this way, the burden of configuration protocol discovery is on the OLT, thus relieving any discovery burden from the ONU.</p> <p>A flow diagram for the specific case of an OLT determining whether to use OMCI or eOAM is shown in the figure below. This particular example represents only one embodiment; there could be others.</p>

	<pre> graph TD     A[ONU Registration] --&gt; B[Send eOAM Probe]     B --&gt; C{Receive response?}     C -- Yes --&gt; D[Use eOAM]     C -- No --&gt; E[Send OMCI Probe]     E --&gt; F{Receive Response?}     F -- Yes --&gt; G[Use OMCI]     F -- No --&gt; H[Send Error to NMS]     H --&gt; I[Deregister ONU]     D --&gt; J[Configure ONU]     G --&gt; J   </pre>
<b>Invention Commercial Value/Customers:</b>	<p>Commercial value is somewhat limited, but it represents a method which could be used by OLTs as DPoG specification adoption grows. This is probably more a defensive patent than a patent with commercial value.</p>
<b>Invention Differences:</b>	<p>This concept of multiple configuration protocols is relatively new due to the DPoG specifications.</p>