

**Claim 8 – U.S. Patent No. 11,589,142**

<p>A digital network communication method comprises:</p>	<p>This is a method claim, and damages for infringement accrue starting from February 21, 2023, the date U.S. patent 11,599,142 patent (“the ‘142 patent”) issued, because Company’s use of the claimed method began before then. Notice of infringement is not required to obtain damages for infringement of method claims.</p> <p>Company, to satisfy critical information security considerations, performs each of the steps of the claimed method as described below using one or more virtually separated private data streams provided to Company or generated by Company. It makes no difference for infringement, either way, because the step of generating private data streams is not claimed.</p>
<p>receiving at a passive optical network (PON) optical line terminal (OLT), at least one private data stream out of a plurality of data streams,</p>	<p>Company uses Passive Optical Networks (PONs).</p> <p>PONs, such as those used by Company, provide today’s (and future) data speeds efficiently and cost effectively. PONs are also much easier and cost effective to deploy, operate and maintain than conventional copper based infrastructure. In addition, PONs are highly sustainable, saving considerable power by eliminating the need for riser closets and associated air conditioning costs. Each PON includes an optical aggregation switch (called an OLT), and one or more passive optical splitters that connect the OLT to several Optical Network Units (ONUs).</p> <p>Company’s PON OLT receive one or more private data streams to provide to one or more end users within Company PON network.</p> <p>As described in the ‘142 patent, data streams that include private data streams carried via uplinks (142 and 144) to an OLT (146), which creates initial feeds (166, 168 and 170), that become distribution feeds (176, 178 and 180).</p>

	<p>The private data stream or data streams, is or are intended for one or more specific end users within the Company’s PON network.</p>
<p>wherein said at least one private data stream has been virtually separated using Virtual Routing and Forwarding (VRF) to form at least one virtually separated private data steam comprised of Internet Protocol (IP) data packages,</p>	<p>The private data stream or data streams received by Company’s PON OLT that are ultimately used in infringement, are those that have been virtually separated using VRF. We will refer to them as L3 IP VPNs and they are comprised of IP data packages. L3 IP VPNs can be created and passed to the PON OLT with or without the accordance of RFC Standards. Company may establish its own L3 IP VPNs scheme and pass the information through its PON.</p> <p>For example, Company may keep the information going to each of its departments separate, so that engineering does not accidentally get sensitive information from finance, etc. All that is required is that Company has VRF or VRF Lite compatible routers. Once such routers are available, Company can proceed to set up the required L3 IP VPNs for each department in them. Once those L3 IP VPNs are created and the IP packets contained within them are passed through the Company’s PON to the departments, infringement of this claim occurs.</p> <p>Although <i>generation</i> of virtually separated data streams using VRF may be done by Company before those signals reach the PON OLT, the step of generating those streams is not claimed. Instead, the claim recites only that the “at least one private data stream” received at an OLT from the PON interface router “has been virtually separated.”</p> <p>[</p>
<p>and wherein said at least one virtually separated private data stream including said IP data packages is intended for at least one of a plurality of ONUs, and wherein said at least one of a plurality of</p>	<p>As shown in the figures of the ‘142 patent, the data streams intended for specific end users, which include virtually separated private data streams, are sent to each of ONUs (330, 332, 334) after passing through splitter 308. Each</p>

<p>ONUs serves at least one private user device of a plurality of user devices;</p>	<p>ONU strips out the frames of the virtually separated data stream that are intended for the specific subscriber associated with that ONU, which makes those frames available to that end user on a dedicated private line (340, 342, 344).</p> <p>This step is performed by Company’s PONs because those PONs send feeds including virtually separated private data streams, each stream intended for at least one specific end user to multiple end users.</p> <p>The term ONU (Optical Network Unit) is the term used in PON ITU Standards. The term ONT (Optical Network Terminal) is the commercial name used by PON vendors to refer to an ONU. This claim uses the term ONU in accordance with PON ITU Standards, which apply to any type ONU of different variants of PON.</p>
<p>aggregating within said PON OLT said plurality of data streams and said at least one virtually separated private data stream into a common data feed;</p>	<p>As shown in the figures of the ‘142 patent, OLT 146 aggregates data streams, including virtually separated private data streams carried by links 142 and 144, and provides aggregated streams in initial feeds 166-170, which are common data feeds sent as distribution common data feeds 174, 176, 178, 180 to ONUs. For example, common data feed 174 is shown supplied through splitter 308 to ONUs 330, 332 and 334.</p> <p>This step is performed by Company’s PON OLTs, which produce a signal that can include at least one virtually separated private data stream intended for specific end users. A PON OLT is the main headend equipment of each different variant of PON. The OLT receives data streams from various services and converges those signals for distribution as a single beam of light delivered via its PON ports. Each OLT can support multiple PON ports depending on the capacity of the chassis. All PON variants, including those used by Company, use PON OLTs.</p>

<p>distributing said common data feed to said plurality of ONUs;</p>	<p>As shown in the figures of the ‘142 patent, initial common data feeds depicted as 166-170 are cross connected via optical distribution patch panel 172 to distribution common data feeds 174, 176, 178 and 180, which are sent to ONUs. For example, distribution data feed 174 is provided to ONUs 330, 332 and 334.</p> <p>This step is performed by Company’s PONs because a common data feed including data streams that can contain virtually separated private data streams intended for specific end users is sent to multiple PON ONUs. Each active PON Port within the OLT sends its single beam of light with the converged IP signal to several ONUs.</p>
<p>wherein said distributing comprises:</p>	
<p>replicating said common data feed using at least one optical splitter connected to said plurality of ONUs;</p>	<p>As shown in the figures of the ‘142 patent, common data feed, such as 174, is replicated by splitter 308 on fiber drop lines 320, 322 and 324.</p> <p>This step is performed by Company’s PONs. Within all PON variants, the converged signal from the PON port is replicated via an optical splitter connected to a group of ONUs. For example, a 1-to-32 optical splitter can be connected to 32 ONUs. Such ONUs receive the same converged beam of light, with the converged IP signal replicated for each ONU.</p>
<p>delivering said common data feed to said plurality of ONUs;</p>	<p>As shown in the figures of the ‘142 patent, common data feed, such as 174, with data streams that can contain virtually separated private data streams, is replicated by splitter 308 on fiber drop lines 320, 322 and 324 and delivered to ONUs 330, 332 and 334.</p> <p>This step is performed by Company’s PONs. Each ONU connected to an optical splitter receives the common signal carried by the converged beam of light provided by a PON port within the OLT.</p>
<p>extracting within said at least one of said plurality of ONUs, said at least one virtually</p>	<p>As shown in the figures of the ‘142 patent, ONUs 330, 332 and 334 respectively extract frames 301, 303 and 305 from the converged,</p>

<p>separated private data stream including said IP data packages from said common data feed;</p>	<p>virtually separated private data stream and send those frames to the end user associated with that ONU on a dedicated private line (340, 342 or 344, respectively).</p> <p>This step is performed by Company's PONs. Each ONU extracts private data stream information to be received by the subscriber associated with that ONU.</p>
<p>sending said at least one virtually separated private data stream including said IP data packages from said at least one of said plurality of ONUs to said at least one private user device of a plurality of user devices.</p>	<p>This step is performed by Company's PONs. Each ONU sends the data streams intended for the private user devices of the end users it serves to such end user. These data streams can include one or more virtually separated data streams . The means by which the private data stream or data streams are ultimately delivered from the ONU to the private user device or devices are not claimed.</p>