

Distance Extension and Conversion Solutions for 100G

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Arista 7500E Series

The 7500E Series support dense 10/40/100GbE with integrated optics

Packetlight Networks

The PL-1000 Series supports

100G LAN Media convertor

100G LAN OTN solution

Pluggable CXP, CFP and CFP2 Modules

SR10, LR10, LR4, ER4 and DWDM interfaces

Distance Extension

Extending 100GbE beyond 400 meters requires media conversion

- Distances up to 100 km and more
- Extend distance cost-- effectively for large campuses, datacenters, and inter-datacenter
- Avoid costly router 100G ports

Media Conversion

Connect between multimode ports to single mode ports

- Connect to single mode 100GbE devices
- Retain 7500E 100GbE density

Cost Effective Distance Extension and Media Conversion Solutions for 100G Connectivity

The Arista 7500E Series modular switches provide dense 100GbE solutions with support for industry standard 100GBASE-SR10 and distances up to 400 meters with OM4 multi-mode fiber. In a number of applications such as campus and inter-datacenter connectivity support for distances in excess of 400 meters or single mode fiber interfaces are required. Arista Networks 7500E Series in combination with PacketLight Networks 100G transport gear provide a simple, cost effective and highly efficient solution for distance extension, fiber media conversion, and for long distance DWDM interconnection.

Arista and Packetlight for 100G Distance Extension and Media Conversion

Arista Networks 7500E Series of switches deliver 100GbE connectivity with industry-leading density of up to 96 ports in a single system that addresses a wide variety of datacenter deployments using embedded short reach optics. Scenarios that call for long distance 100GbE connectivity often require the deployment of costly DWDM transport systems and switch or router ports that support longer reach single mode optics. Existing 100GbE single mode switch optics (CFP or CXP) reduce system density, dramatically increase equipment cost and reduce the scalability of the network.

Arista Networks and PacketLight Networks have jointly developed and tested a set of solutions that leverage Arista's market leading 100GbE port density and the PacketLight Networks PL-1000GM and PL-1000T, the smallest and most integrated 100G transport solution in the industry. These solutions deliver a series of cost effective and scalable distance extension and media conversion solutions.

Deploying the PL-1000GM/PL1000T provides a solution to either interconnect two sites at distances outside the range of embedded multimode optics or to offer a single mode presentation to longer reach infrastructure on a port-by-port basis provides a cheaper alternative to using expensive upstream device ports for media conversion.

Distance Extension and Media Conversion Solutions

Both solutions provided utilize the PacketLight PL-1000GM/PL-1000T, which is a 1RU chassis that has support for two CFP, CXP and CFP2 interfaces. The solution can also provide facility protection for the fiber path between the sites providing higher reliability and protection against fiber cut between sites.

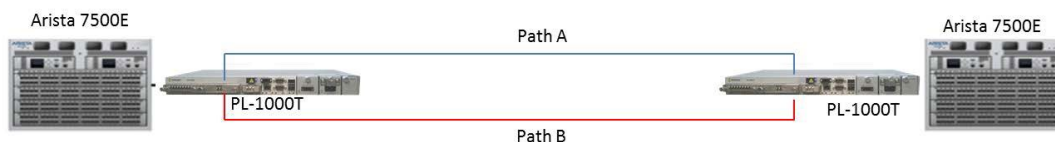


Figure 1: A single PL-1000GM converting SR10 to LR4/LR10 for connecting an Arista 7500E to third party devices

Solution to 100GbE Media Conversion

For deployments that require the Arista switches to provide 100GbE connection interface options besides 100GBASE-SR10, for example, to connect to core routers which only support single mode fiber interfaces, the PL-1000GM can be used for media conversion. A single 100GBASE-SR10 CFP is used to connect from the Arista 7500E to the PL-1000GM while the output port can utilize a range of pluggable 100GbE CFP optics including both LR4 and LR10 to allow for a compact, power and cost efficient 100GbE media conversion to support a wide range of standard connection requirements.



Figure 2: Pair of PL-1000GMs providing distance extension via an LR10 between Arista 7500E's

Solution to 100GbE Distance Extension

In situations where longer distances are required the PacketLight PL-1000GM/PL-1000T can be used to support a range of extension options up to 120Km/34dB link budget within 1RU. A cable from a 100GBASE-SR10 interface on the Arista 7500E switch is connected to a matching 100GBASE-SR10 port on the PacketLight LAN interface using a CFP transceiver. The uplink interface on the PL-1000GM/PL-1000T chassis, in this example a 100GBASELR10, is used to provide transmission at distances up to 10 km. At the remote end a second PL-1000GM with the same configuration ensures termination of the 100GBASE-LR10 link and provides a 100GBASE-SR10 handoff to the far end Arista 7500E switch. This solution provides a low cost alternative to using costly and complex DWDM systems or expensive 100G router ports to provide long distance connectivity. The long distance solution is based on DWDM and standard based OTN layer which includes FEC (Forward Error Correction) for high reliability error free layer-1 transport layer which is fully monitored by the user. This solution leverages the market leading 100GbE port density on the Arista 7500E series with a choice of both short and long haul 100GbE options.

Summary

When there is a need to interconnect sites over single mode fiber or connect through DWDM systems for longer distance connections, Arista Networks' market leading high density 100GbE switches in combination with PacketLight Networks 100G transport solution enables organizations to leverage cost effective and efficient methods to meet a variety of optical interconnect requirements.

The solution is easy to deploy and maintain and will provide high data throughput capacity between the two locations while utilizing the same fiber.

About Packetlight Networks

Established in 2000, PacketLight Networks offers a suite of leading CWDM, DWDM and OTN solutions for transport of data, storage, voice and video applications over dark fiber, WDM and OTN networks. Our products feature high quality and reliability along with performance and functionality at affordable prices. Our solutions are distinguished with low power consumption that is ideal for Customer Located Equipment (CLE) allowing maximum flexibility, as well as, ease of maintenance and operations and providing true Pay-as-you-grow architecture.

About Arista Networks

Arista Networks was founded to deliver software-defined cloud networking solutions for large datacenter and computing environments. The award-winning Arista 10 Gigabit Ethernet switches redefine scalability, robustness, and price-performance. More than one million cloud networking ports are deployed worldwide. The core of the Arista platform is the Extensible Operating System (EOS®), the world's most advanced network operating system. Arista Networks products are available worldwide through distribution partners, systems integrators, and resellers.

Information in this document is provided in connection with Arista Networks products. Additional information and resources can be found at www.arista.com, or contact us at sales@arista.com

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