

# 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

### MRV Optical Transport Series

100Gbps converter modules

100Gbps transponder modules

### Distance Extension

Extending 100GbE beyond 400 meters requires media conversion

- Distances up to 10 km and more
- Extend distance cost-- effectively for large campuses, datacenters, and inter-datacenter

### 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

Existing 100GbE solutions on Arista Networks switches include 100GBASE-SR10 standards that support distances up to 400 meters with OM4 multi-mode fiber. Certain applications such as campus and inter-datacenter connectivity require support for distances in excess of 400 meters or single mode fiber interfaces. Arista Networks switches in combination with MRV's Optical Transport series provide a cost effective and efficient solution for distance extension, media conversion, and DWDM interconnection for 100GbE ports.

## Arista and MRV Solutions for 100G Distance Extension and Media Conversion

Arista Networks 7500E series of switches deliver 100GbE connectivity with industry-leading density for various datacenter deployments using onboard short reach optics. Situations that necessitate long distance 100GbE connectivity often require the deployment of costly DWDM transport systems and switch or router ports that support longer reach optics.

Arista Networks and MRV have jointly developed and tested a set of solutions that leverages Arista switches' market leading 100GbE port density and MRV's market leading Optical Transport series to deliver cost effective and efficient distance extension and media conversion solutions. Interoperability testing was performed with a MRV LambdaDriver 400L.

Utilizing the LambdaDriver to provide a way to either interconnect two sites at distances outside the range of onboard optics or to offer a single mode hand off 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

The distance extension solution uses the MRV LD 400L, which comes in a 2RU chassis and supports multiple slots for a choice of CFP interfaces. In order to provide distance extension, an MTP fiber cable from a 100GBASESR10 interface on an Arista 7500E switch is connected to a matching MPO port on the MRV LD 100GBASE-SR10 CFP interface. The output CFP port on the LD chassis, in this example a 100GBASE-LR10 CFP, is used to provide transmission distances of up to 10 km. At the receiving end, an exact replication of this setup ensures termination of the LR10 link and provides an SR10 MTP handoff to the far end Arista switch. This solution provides a low cost alternative to using DWDM systems or expensive router ports to provide long distance connectivity while at the same time leveraging the market leading 100GbE port density on the Arista 7500E series.

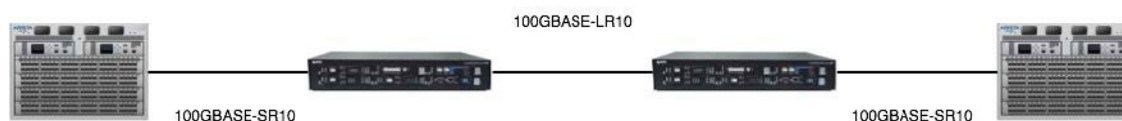


Figure 1: Pair of LambdaDriver 400Ls providing distance extension via an LR10 between 7500E's

### Media Conversion

For deployments that require something other than 100GBASE-SR10 connectivity from the Arista switches (such as a device with built-in single mode fiber interfaces) the MRV LambdaDriver can be used for media conversion. A 100GBASE-SR10 CFP is used to accept the connection from the Arista 7500E while the output port on the LambdaDriver can be available metro or coherent optics to allow efficient media conversion to support any requirements. In this application, a single LD card and shelf is required for conversion.



Figure 2: LD 400L converting SR10 to LR4 for interconnecting to other devices as required.

### Summary

Whether there is a need to interconnect two sites over fiber or connect through an existing DWDM system for longer distance connections, Arista Networks' market leading high density 100GbE switches in combination with MRV's advanced optical solutions enables organizations to leverage cost effective and efficient methods to meet a variety of optical interconnect requirements.

### About MRV

MRV Communications is a global leader in converged packet and optical solutions that empower the optical edge. For more than two decades, the most demanding service providers, Fortune 1000 companies and governments worldwide have trusted MRV to provide best-in-class solutions and services for their mission-critical networks. We help our customers overcome the challenge of orchestrating the ever-increasing need for capacity while improving service delivery and lowering network costs for critical applications such as cloud connectivity, high-capacity business services, mobile backhaul and datacenter connectivity.

Additional information about MRV can be found at [www.mrv.com](http://www.mrv.com).

### 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](http://www.arista.com), or contact us at [sales@arista.com](mailto:sales@arista.com)

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