



Optical Communications Systems™

Optical Transport Solutions & WDM

**EMPOWERING
THE OPTICAL EDGE™**

www.mrv.com

Fiber Driver® Optical Transport Access Solution



Fiber Driver® is MRV's optical multi-service product line providing a full range of service demarcation, media conversion, signal repeating, and fiber-optimization solutions, including coarse and dense WDM capabilities. Managed and unmanaged solutions are available, including rack-mount, modular and desktop systems. The Fiber Driver line includes several families of products with a wide range of system options for any type of optical or copper technology, covering virtually every protocol in use in networking today. With a power consumption of 3W-5W per 10Gbps interface, the Fiber Driver optical multiservice platform consumes less power than competing products.

Applications:

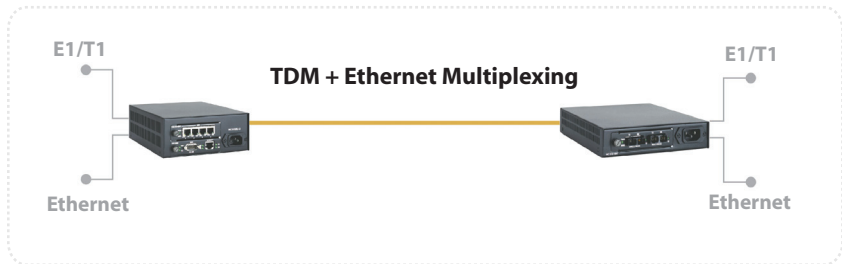
- Physical Layer Ethernet Private Line Service
 - Ethernet termination and TDM over dedicated fiber
 - Optical optimization - WDM for metro access services
 - Campus connectivity & reach extension
 - Ultra-low latency point-to-point transport
 - Full duplex single strand or dual strand media
- HD-SDI High Definition - Digital Video Services

Benefits:

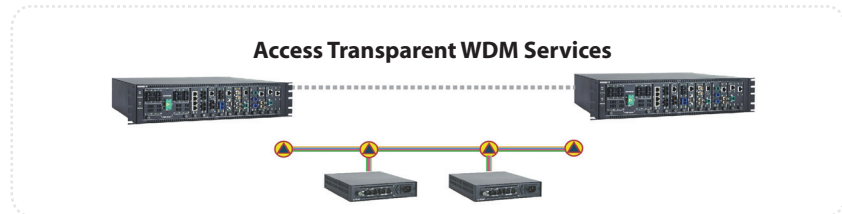
- Converter-based managed service demarcation
- Modular access design with pay-as-you-grow concept
- Low power energy efficient WDM Access solution
- Ultra-low latency solution for mission-critical applications
- Simple to provision and deploy resulting in very low OPEX
- Inherent protection features for optimum SLA



Point-to-point Private Line Services



Point-to-point TDM + Ethernet Private Line Services



Access Add/Drop Private Line Services

Case Studies

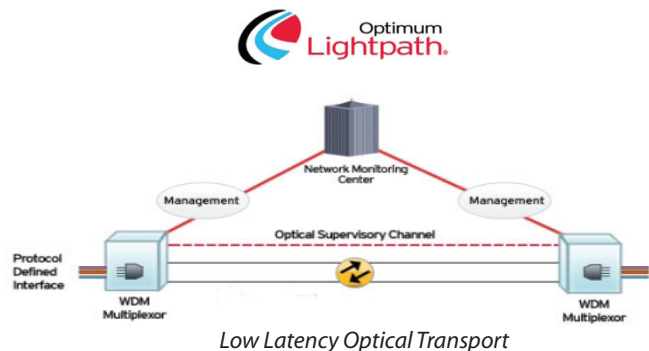
SoftBank

Single strand fiber OC-3 Point-to-Point Transport Services Enabled between Collocated CO's and Mobile Stations



Optimum Lightpath

Optical Interconnect spanning New York and New Jersey: Edge wavelength and bandwidth delivery with focus on low and super-low-latency



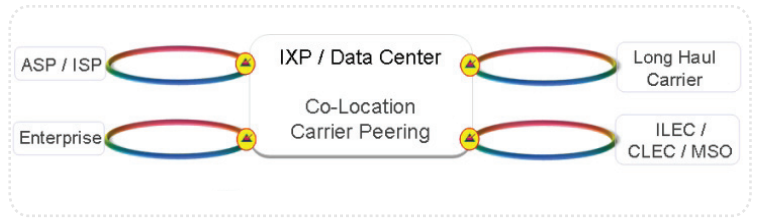
LambdaDriver® Optical WDM Transport Solution



LambdaDriver® is MRV's premiere optical transport system for building high-performance enterprise access, metropolitan carrier and long haul transport networks. The LambdaDriver is a multi-functional, compact, modular WDM system that supports Dense and Coarse wavelength division multiplexing technologies. LambdaDriver also serves as a packet optical transport system by integrating Carrier Ethernet connection oriented services and reconfigurable OADM (ROADM) for automated optical mesh topologies with wavelength-level switching. The LambdaDriver series can support data rates from T1(1.5 Mbps) up to 40 Gbps with seamless future upgrade to 100 Gbps.

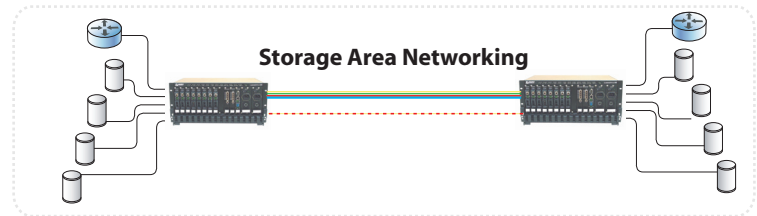
Applications:

- Data center Business Continuity & Disaster recovery
- Large campus connectivity
- Multi-service transport for SONET/SDH
- Optical transport for proprietary protocols
- Ultra-low latency transport for finance apps
- Metro access, regional, and long-haul



Benefits:

- Scalable C/DWDM solution with pay-as-you-grow concept
- Mixing CWDM & DWDM in the same platform and on the same fiber path
- Strong Lambda optimization via OTN, TDM, ect.
- Flexible and multi-degree ROADM architecture
- OTN-based multiple service aggregation
- Mix multiple applications in common modules for lower TCO
- Ultra-low latency solution for mission-critical applications
- Low power energy efficient WDM solution
- Easy to set up and configure -very low OPEX
- Best rack space efficiency
- Excellent price/performance ratio



Case Studies

Luxembourg Telecom

MRV enables Country's First WDM-Based, Cost-Effective, High-Speed, and Low Latency Datacenter Network



AMS-IX

One of the Largest Internet Exchanges in the World, Selects MRV's DWDM Solution to enable its growth in inter-switch infrastructure



Key Technology Ingredients:

- ✓ T1 (1.5 Mbps) up to 40 Gbps with future upgrade to 100 Gbps
- ✓ Ultra-low latency transmission
- ✓ Data Encryption => SecureLambda™
- ✓ Multiple services aggregation over OTN
- ✓ Long Haul Line Amplification – RAMAN & EDFA
- ✓ Fixed and tunable DCM (Dispersion Compensation Modules)
- ✓ TDM multiplexing
- ✓ Integrated Optical Services and Performance Monitoring
- ✓ Flexible and multi-degree ROADM architecture with GMPLS Control
- ✓ P-OTS (Packet-Optical Transport System)

What others are saying about MRV's WDM & Optical Transport solution?**Bastiaan Spandaw, Network Architect at LeaseWeb****(an international Internet hosting provider, one of the top 20 hosting providers worldwide):**

"LeaseWeb has experienced so much growth over the past few years that when it came time for us to build this new data center network, we built it for performance, growth and scalability. The performance and flexibility that we get from our LambdaDriver® based network has allowed our business to continue to grow and provides us with a foundation that we can build on for the future."

Sanjay Patel, Vice President of Technology for Broadview Networks**(USA-based, nationwide and network-based Business Communications Provider):**

"With the Fiber Driver® system in place, we now have the foundation to grow with our customers in a simple, cost-effective way.

MRV's extensive knowledge and experience in transport optics, coupled with its ability to focus on our specific needs, provided a very smooth transition, and we look forward to working with MRV as we continue to evolve our transport network to meet the changing needs of our customers."

Vincent Nicolay, Sales Director at Luxembourg Telecom:

"MRV's leadership in this market gave us the confidence that our fiber ring would have the flexibility and reliability that our customers demand. We're pleased to be working with MRV and look forward to collaborating with the company on future implementations."

Technology Innovation

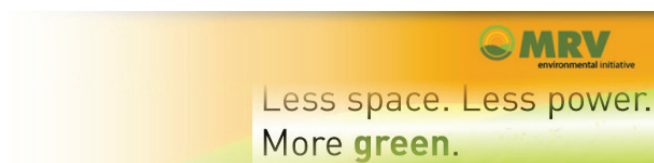
An engineering pioneer for over 20 years, MRV has been at the forefront of emerging demarcation, aggregation and optical transport development. MRV continues to make significant resource investments to maintain active memberships in standards organizations and industry forums to further diversify inhouse technology development including operating system for converged optical packet access networks.

Technology and Business Partners**Interoperability with leading SAN Vendors**

Brocade, Cisco, EMC, Hitachi Data Systems, IBM, and NetApp

Green WDM & Optical Transport Solutions

Verizon TEEER (Telecommunications Equipment Energy Efficiency Rating) Compliant

**About MRV**

MRV Communications, Inc. is a leading global provider of carrier Ethernet, WDM optical transport, infrastructure management equipment and solutions, as well as network integration and managed services. MRV's solutions enable the delivery and provisioning of next-generation optical transport and carrier Ethernet services over any fiber infrastructure. MRV provides equipment and services worldwide to telecommunications service providers, enterprises, and governments, enabling network evolution and increasing efficiency, while reducing complexity and costs. Through its subsidiaries, MRV operates R&D centers in North America and Europe, along with support centers and sales offices around the world.

For additional information on our **WDM & Optical Transport Solutions** and other MRV's solutions and products please visit our website at www.mrv.com or email us at info@mrv.com

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