

**Case Study: Mobile Backhaul and Business Wholesale Services**



**Challenges:**

- Meet FiberLight’s rapidly growing demand for inter-connecting businesses and delivering high-speed IP data in metro areas
- Build a transport network that delivers bandwidth scalable Ethernet services that exceed the mobile operators’ performance criteria
- Sell scalable bandwidth “pipes” with Mbps Ethernet granularity
- Meet the performance metric required to deploy Carrier Ethernet services (i.e. verifying Sonet like performance and ensuring end-to-end SLA measurement)
- Meet the stringent protection requirements

**Solution:**

MRV’s OptiSwitch® Carrier Ethernet Access solution allows Wholesale Mobile Backhaul and Business Ethernet Services to be deployed over FiberLight’s Fiber Optics Carrier Ethernet Network

**Benefits:**

- High-performance, optimized and scalable optical network
- Increases FiberLight’s competitiveness by enhancing LightSource© Business Ethernet Services offering with MRV’s expertise and knowledge as one-stop-optical shop
- Provides MEF-compliant functionality for fully interoperable wholesale and Ethernet business services
- Enables end-to-end Ethernet service visibility, SLA monitoring & measurement tools with accuracy at a nano second level, and Ethernet virtual circuit loopbacks for non-intrusive fault analysis (including Y.1731 Performance Monitoring and RFC2544 built-in traffic generator - turn-up service)
- Enables Optical Ethernet Ring Protection (G.8032) with Sonet like performance
- Ethernet Demarcation device for whole sale & retail services with a crystal-clear responsibility boundaries

**Delivering Optical Wholesale and Business Ethernet Services to Tier 1 Cellular Operator and Multi-sector Customers (Government, Education, Enterprises, etc.) in 20 Metropolitan Areas in the U.S.**

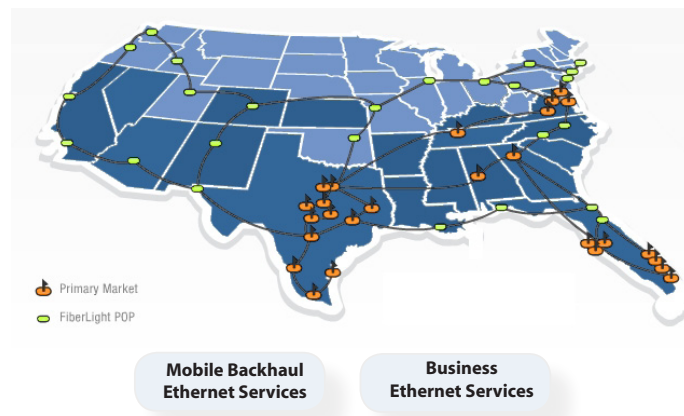
**Market Background**

Transport providers see a large opportunity to generate incremental revenue by focusing on the rapidly Business Ethernet Service Delivery and Mobile Ethernet Backhaul markets. Wholesale services must meet or exceed the performance criteria required to deploy Ethernet Services (e.g. packet loss, delay, jitter, availability, and diagnostic capabilities) as well as support the various 3G, 3.5G and 4G multi-generational Mobile Backhaul including the shift to packet-based technologies (i.e. Ethernet transport).

Key findings from a recent Frost & Sullivan’s U.S. Wholesale Carrier Ethernet Services Market Update (15 April 2010) reveal that the U.S. wholesale carrier Ethernet services market is poised for high growth during the next few years as the demand for Business Ethernet Service Delivery grows. This is further backed-up with findings from a market research conducted by The Insight Research Corp. (22 July 2010) – refer to the “ Market Potential” section of this Case Study.

**FiberLight at a Glance**

Based in Atlanta, FiberLight is known as one of the nation’s leading providers of mission-critical, high-performance fiber optic network solutions. FiberLight operates an extensive fiber optic network in 20 markets for a diverse customer base that includes local and long distance telecommunications carriers, Internet service providers, municipalities, utilities, Fortune 500 enterprises, school systems, as well as local, city, and federal government entities. FiberLight also offers LightSource dark and lit fiber capacity for customers who have unique bandwidth requirements.



**What is the customer saying about MRV solution ?**

**Ben Edmond, FiberLight’s EVP of Sales & Marketing:**

“MRV’s equipment is designed to offer optical transport technology that meets our mission critical, high performance focus, delivering low latency and optimal performance management tools to add value to our clients by enabling a higher level of SLAs and quality of service.”

**Judd Carothers, FiberLight’s EVP of Operations:**

“As companies transport needs continue to rapidly evolve, the Advanced Services the MRV optical elements support allows us to address those needs in real-time.”

**Market Potential:**

**Frost & Sullivan's U.S. Wholesale Carrier Ethernet Services Market Update (15 April 2010):**

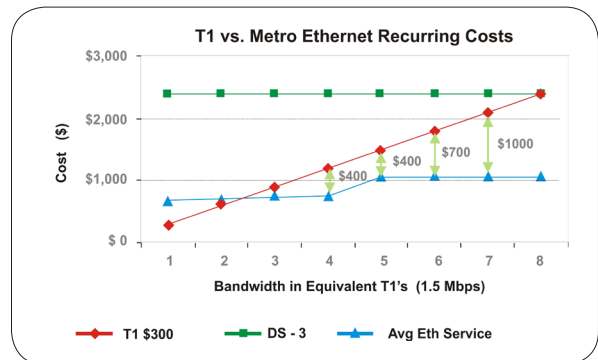
Wireline carriers' competitive local exchange companies/ local exchange companies (CLECs/ILECs) buying Ethernet circuits to expand their network footprint represent the largest revenue share of the wholesale Ethernet market. The revenues are expected to reach \$3.2 Billion in 2014, as carriers are beginning to offer multiple flavors of Ethernet services as wholesale offering.

**The Insight Research Corp Market Research (22 July 2010):**

U.S. enterprises and consumers are expected to spend more than \$37 Billion over the next five years on Carrier Ethernet services. With metro-area and wide-area Ethernet services readily available from virtually all major data service providers, the market is expected to grow at a compounded rate of almost 25 percent, increasing from \$3.1 Billion in 2010 to reach nearly \$9.7 Billion by 2015.

**Carrier Ethernet for Fast ROI**

MRV's Carrier Ethernet Access unique value proposition allows FiberLight and its customers to reduce CapEx and OpEx while quickly recognizing the ROI.



*Ethernet price competitiveness is very much logarithmic*

**MRV's Solution:**

Optical Ethernet Transport Enabling Wholesale Ethernet Services for Mobile Ethernet Backhaul and Multi-sector Customers  
 1. Mobile Backhaul (data offloading) for a Tier-1 Cellular Operator implemented with:

**Cell Site:**

OptiSwitch 906 Carrier Ethernet Demarcation Service device



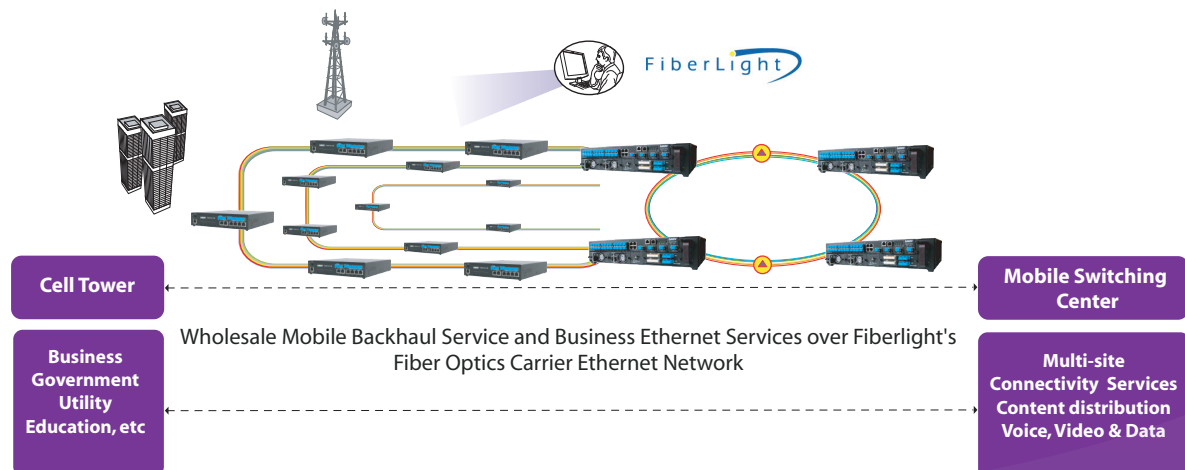
**Aggregation Site:**

OS9124-410G Metro Ethernet Aggregation Service device

- Layer 2 Ethernet Transport with E-Line (1:1) service with MEF compliant EVC
- Multi-ring complex topology based on ITU-T G.8032 (ERPS) and dual-homing connectivity
- Offers common devices for all scenarios up to 10GE
- Long range optical amplification for 10GE rings



2. Simplified operation by implementing the same design to offer Business Ethernet Services



### OptiSwitch® Carrier Ethernet Access Benefits

- Enables FiberLight to provide transmission and data services over wholesale nationwide backhaul network with reduced operational expenses and cost-effective scalable design
- A complete family of intelligent demarcation/aggregation devices to address FiberLight's Carrier Ethernet transport deployments
  - Same software and hardware architecture for operational efficiency
  - Unified solution for both Mobile Ethernet Backhaul and Business Ethernet Services Delivery
- Ethernet Demarcation device for wholesale & retail services with crystal-clear responsibility boundaries
- Enables rich strain of MEF compliant Carrier Ethernet business services
  - Metro Ethernet Forum MEF-9 and MEF-14 certified
  - Comply with MEF-22 (Mobile Backhaul Implementation Agreement)
- End-to-end service OAM with SLA measurements
  - Offers the widest and the most useful OAM tools in the industry
  - Enables end-to-end service quality monitoring and SLA conformance
  - Simplified operation by implementing a turn-up services without external test equipment thus reducing CapEx
  - Full circuit performance monitoring capability
- Efficiency in size and power
  - 1U Cell Site multi-functional demarcation and 2U Carrier Ethernet aggregation with power supply redundancy

### About OptiSwitch

MRV's OptiSwitch® family is an award-winning line of compact carrier Ethernet switching platforms that range from the OptiSwitch 9000 metro Ethernet aggregation products to the OS900 demarcation series.

OptiSwitch products offer service providers a full suite of carrier-grade Ethernet services along with high-availability, enhanced quality of service, security, TDM circuit emulation and Ethernet operation, administration and maintenance (OAM) support. This full suite of OAM tools creates flexible service awareness and rigid SLAs. OptiSwitch products meet IEEE, ITU, IETF standards and MEF specifications, offering complete control to simplify deployment and management while maintaining full interoperability and visibility into customer and provider networks.

### About MRV

MRV Communications, Inc. is a leading global provider of Carrier Ethernet Access, Optical Transport & WDM, 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 MRV's solutions and products please visit our website at [www.mrv.com](http://www.mrv.com) or email us at [info@mrv.com](mailto:info@mrv.com)