



Get high capacity, high-performance, reliable backhaul for Small Cell networks with Actelis EFM over Copper. Actelis enables quick, flexible, and more cost effective deployment at the optimal locations to enable high QoE wherever it is needed with lower CapEx and operational complexity.

High Performance Cost Effective Backhaul for Small Cells

Actelis' Carrier Ethernet backhaul scales up to 200 Mbps at more attractive cost and faster time to market than fiber, with a simpler deployment model and more stable performance than microwave. Actelis solutions offer greater transmission efficiency, which enables the use of fewer pairs than competing copper solutions.

Backhaul Where You Need It When You Need It - Flexible and Immediate

Flexible Backhaul leveraging Ethernet over Copper enables optimal placement of the small cell to support high performance and maintain a very positive QoE. With Actelis, "street level" small cell deployments within high traffic urban areas can take advantage of the ubiquitous copper infrastructure without the delays and costs associated with buying permits and trenching fiber or acquiring microwave spectrum licenses and ensuring line of site can be maintained over time.

High Bandwidth and Scalability - Cost Effective Backhaul Minimizing CapEx

Actelis' Ethernet over Copper solutions offer Symmetrical and Asymmetrical high speed backhaul links transmitting up to 200 Mbps today with additional scalability on the roadmap. Actelis provides the bandwidth operators need for many small cell applications today and in future.

High Reliability - Support QoE Objectives

Maintaining high QoE for subscribers is a must. Actelis EoC solutions are rugged, reliable and offer the kind of high performance and service availability today's mobile subscribers demand. Actelis' Ethernet over Copper is also unaffected by the changing urban landscape or temporary line of site interference, making it a dependable long-term solution to small cell backhaul requirements.

Cost Effective Backhaul - Minimizing CapEx

Scale Small Cell network deployments with low CapEx and efficient operations to minimize total cost of ownership for backhaul and maximize profitability. Actelis' Ethernet over Copper backhaul utilizes existing and widely available copper infrastructure that operators own or can lease inexpensively, reducing CapEx investment and speeding deployment of backhaul bandwidth when and where it is needed.

MEF Certified, Comprehensive Demarcation - Efficient Delivery of Advanced Services

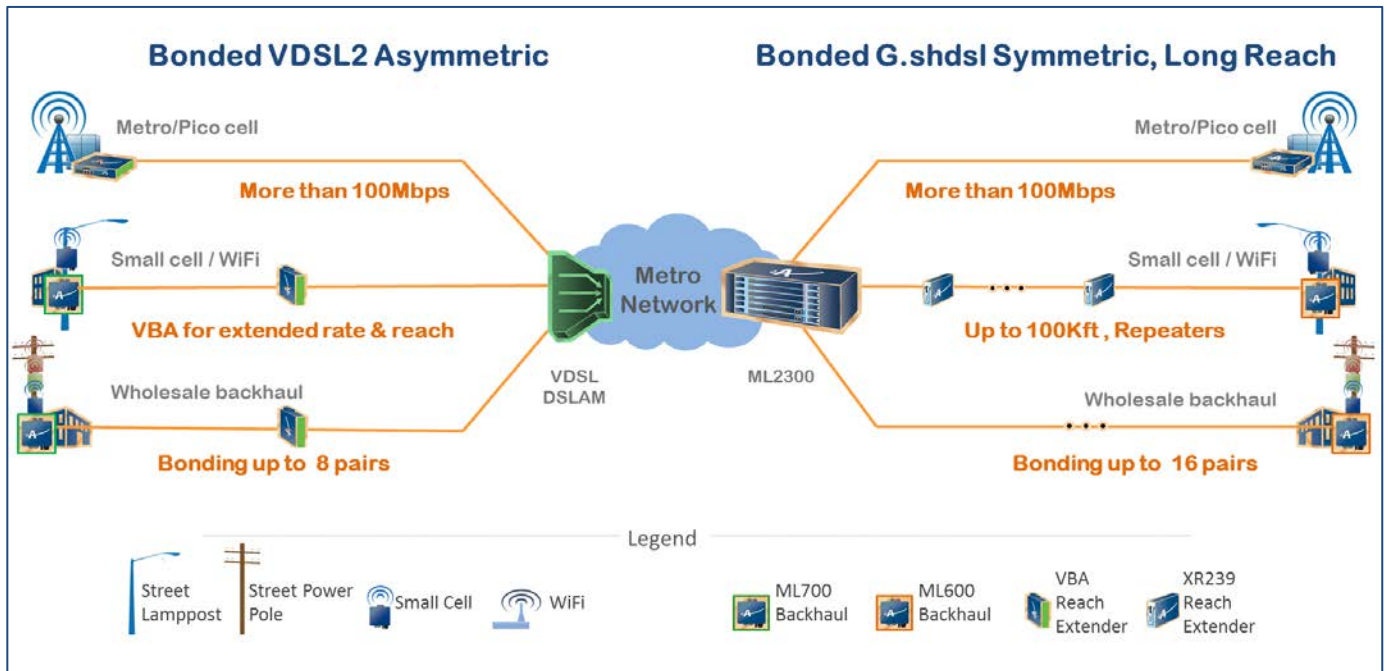
Actelis CE 2.0 certified solutions provide advanced Layer 2 (L2) features to effectively differentiate between customers/services using flexible CoS and traffic management per EVC or port. Advanced demarcation capabilities enable efficient link monitoring and trouble shooting. Actelis supports features like ITU Y.1731 performance monitoring, IEEE 802.1ag CFM, ITU Y.1564 traffic generation and comprehensive loopback capabilities to streamline operations.

Performance needed for Sync Protocols

Low delay and Jitter to support advanced synchronization protocols requirements over bonded copper transmission. Synchronization interfaces including E1/T1 (ML650) and SYNCE (ML650) as well as transparency to 1588 protocol are supported

Actelis Small Cell Backhaul Solutions

Actelis EoC portfolio significantly reduces the complexity and cost associated with 'Small Cell' backhaul.

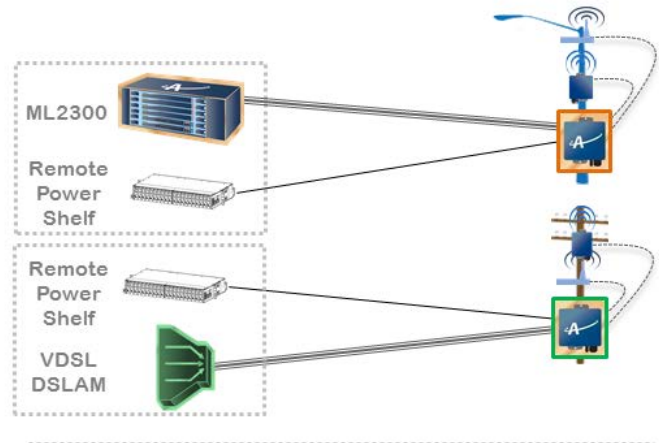


Highlights

- Bonding of up to 16 copper pairs
- More than 200 Mbps per link
- Reach of up to 10 kft/3km and up to 100 kft/30 km with Actelis' reach and rate extenders
- Symmetrical as well as asymmetrical transport solutions in point-to-point and point-to-multipoint scenarios
- High reliability and resiliency
- Advanced Demarcation capabilities, MEF CE 1.0 and CE 2.0 certified services
- Lower installation complexity with remote powering options and flexible installation enclosures
- Synchronization capabilities and low latency

Actelis Flexible Enclosures

- No Local powering requirements
- Lowering site complexity
- Faster time to install
- Lowering monthly recurring site cost
- High Speed Backhauling
- Powering the Actelis unit and the Small Cell/WiFi



Actelis Flexible Enclosure for high speed backhaul and remote powering



The Portfolio

Actelis offers a wide portfolio offering a flexible selection of NTUs and Aggregation to fit various deployment scenarios.

- Most rugged and reliable backhaul links and EFM over Copper equipment on the market
- Highest rate and reach with Actelis' EFMplus™ and Dynamic Rate Boost (DRB) advanced technologies
- Purpose-built design scales for efficient mass deployment of small cell networks
- Supports multiple services/operators sharing the same backhaul link with Advanced Demaraction and Advanced QoS features
- Flexible deployment anywhere there is copper is faster and easier than fiber or microwave
- Provides more bandwidth over greater distance with fewer pairs than competing copper-based solutions

Small Cell and WiFi Backhaul **VDSL2 based solutions**

The NTU - ML740

- Compact and Hardened
- Ethernet over copper utilizing VDSL2 technology. Supports vectoring.
- Bonding up to 8 pairs
- MEF based services



The Aggregation Platform - VDSL DSLAM *

- Any 3RD party DSLAM with bonding capabilities
- Shorten ROI via higher DSLAM utilization
- DSLAM can be located in cabinets or COs



Rate and Reach Amplifier - VDSL2 Broadband Amplifier (VBA)

- 2 ports, 4 ports, multiport
- Installed in splicing or cross box
- Any DSLAM
- Transparent to Bonding, Vectoring, MLT
- POTS Line powering



Enclosures Flexible Installation and Powering

- Compact for outdoor installation
- Option for remote powering, local AC or DC



Small Cell and WiFi Backhaul **G.SHDSL based solutions**

The NTU - ML640

- Compact and Hardened
- Ethernet over copper utilizing G.shdsl technology
- Bonding up to 16 pairs
- MEF based Services



The Aggregation Platform - ML2300/ML230

- High density, flexible size to cost effectively fit various scenarios
- Hardened chassis, pluggable cards
- Aggregating up to 256 pairs per 4U



Reach and Rate Repeaters - XR239

- Rate and Reach extended, up to 9 hops
- 2 pair in , 2 pair out
- Remotely powered
- Advanced management, troubleshooting



Enclosures Flexible Installation and Powering

- Compact for outdoor installation
- Option for remote powering, local AC or DC



*Actelis aggregation platforms currently support G.shdsl and would support bonded VDSL2 as part of future release