Optimized Small Cell Backhaul for the Ultimate User Experience

Fibrolan’s Falcon series offers a unique Small Cell Backhaul solution, which effectively provides a spectrum of advanced mobile services and applications to business, commercial and residential buildings with high mobile user density. With its unique Multi-Layered Hardware architecture, the Falcon Solution covers all aspects of the small cell backhaul environment, including content and DNS caching for enhanced user experience, Power over Ethernet for powering small cells, robust 1G/10G aggregation and more.
MARKET CHALLENGES

Mobile users today have come to expect a high level of service and fluent experience – any application or content, anywhere, anytime. Service providers must unfalteringly tackle demands for extremely high capacity, reliability and quality of service. The rapidly growing adoption of LTE has made things even more difficult. More bandwidth is now available over the air, overloading the backhaul network.

Small cells, as a fundamental building block of HetNets, are a haven that service providers have turned to in order to meet these requirements in dense environments.

When providing services to high risers populated with numerous mobile users, these challenges are heightened. Moreover, mobile operators need to offer support for all components of this intricate and complex puzzle, from backhaul and aggregation to content delivery, SLA & traffic management, synchronization, availability and power supply. All these aspects must be handled in an optimized manner, while reducing operating costs.

FIBROLAN’S FALCON-M:

The integrated solution covering all aspects of small cells backhaul, from PoE to content caching.
APPLICATIONS

4G mobile services delivery for dense business, residential and commercial indoor environments.

Multi-building mobile services delivery, with shared caching grid and Sync resources.

Small cells aggregation to a central macrocell site.

HIGHLIGHTS

Aggregation
Versatile port configuration offers simple aggregation topologies (daisy-chained, ring or star), connecting all small cells to the network.

Content & DNS Caching for Optimized User Experience
Content of all types is delivered faster, while optimized bandwidth utilization (up to 50%) yields OPEX savings and overcomes insufficient connections and bottlenecks.

Independent, Reliable and Secured Synchronization
The building is autonomously synchronized by an integrated GPS receiver, SyncE, 1588 master and Transparent Clocks, independent of backhaul network traffic conditions and performance.

Power Delivery
PoE+ provides small cell power independent of the existing electricity wiring, enabling easy deployment.

Advanced QoS & SLA Management
Sophisticated, flexible traffic management, including multiple measurement & monitoring tools, integrated with the embedded EchoAgent and the EchoVault platform.

Resiliency & High Availability
Several resiliency features are supported, including an in-building protected ring (G.8032v2), backhaul link protection and redundancy of power supply, GPS and 1588 master.

Compact Footprint
All solution building blocks occupy minimal space, including uFalcon-S, sized half 19”/1RU and Falcon-M and Falcon-X, with a 19”/1RU form factor.

Scalability
The solution scales to support a caching cluster for multiple buildings over 1GE/10GE, saving on bandwidth and improving QoE.

Quick & Easy Deployment
Integrated synchronization capability utilizes only a single GPS receiver per building; integrated PoE replaces the need for power supply; and a single Falcon unit connects up to four small cells using flexible topology configuration options.
Fibrolan’s Falcon solution comprises the compact μFalcon-S, Falcon-M and Falcon-X units as described below.

### SPECIFICATIONS

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<th>μFalcon-S</th>
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| **Architecture** | • Unique flexible architecture [Dual Hybrid Core]  
• Data plane upgradable | • Multi-layered HW architecture [extended DHC]  
• Data plane upgradable | • Unique flexible architecture [Dual Hybrid Core]  
• Data plane upgradable |
| **Performance**  | • Wire speed performance  
• 20Gbps total bandwidth  
• Low latency, jumbo packets | • Wire speed performance  
• 128Gbps total bandwidth  
• Low latency, jumbo packets | • Wire speed performance  
• 128Gbps total bandwidth  
• Low latency, jumbo packets |
| **Interfaces**   | 4 x 10/100/1000Base-T  
6 x 100/1000BaseX (SFP) | 4 x 10GE (SFP+)  
24 x 100/1000BaseX (SFP) |  |
| **Application & content awareness** | Application & content processing expansion module for caching, acceleration, etc. | | |
| **Synchronization** | • High accuracy 1588 support, with Transparent Clock on all models.  
• SyncE option | • Extensive, high accuracy 1588 implementation.  
• Integrated GPS receiver  
• SyncE  
• Sync inputs/outputs | • High accuracy 1588 support  
• SyncE  
• Sync inputs/outputs |
| **Power**        | • Low power consumption  
• Integrated power supply (AC/DC) | • Low power consumption  
• PoE+ source  
• Redundant, hot swappable power supplies (AC/DC) | • Low power consumption  
• Redundant, hot swappable power supplies (AC/DC) |
| **MPLS**         | MPLS-TP LSR and LER functionality* | | |
| **QoS**          | Comprehensive QoS including service level traffic management | | |
| **SLA Management** | Advanced tools including Micro Burst Detection, EchoAgent and EchoVault platform | | |
| **OAM**          | Complete OAM suit with Y.1731, 802.1ag, 802.3ah, RFC2544 and Y.1564 | | |

* Future software release