

Application Note

5G Lit Services for Wireline Service Providers

Fronthaul transport application maximizes dark fiber revenue potential



Application Benefits

- Open 4G/5G/Ethernet TSN aggregation & transport
- Compact form-factor
- Automated turn-up
- SDN-ready
- Low-latency, offering a 20% reach benefit
- IEEE 802.1CM TSN for fronthaul compliance
- Temperature-hardened

Functional Elements

- flexiHaul™ M6424 TSN switch
- HSN8800 Element Management System
- Virtuora® Network Controller
- Fujitsu Network Integration Services

Introduction and Market Context

Mobile Network Operators (MNOs) are under heavy pressure to roll out 5G services now, to maximize market share as 5G mobile handsets become available. For these operators who lack fiber assets in key markets, leasing dark fiber and building their own transport network is their only option for fronthaul connectivity. However, leasing dark fiber is only part of the solution. Lighting up the fiber with a platform that offers the greatest performance and topology deployment advantages for the fronthaul segment is challenging and time consuming for the MNO.

Wireline service providers with available dark fiber assets have an opportunity to solve the MNOs' critical time-to-market challenge and generate new revenue streams. By offering lit services, wireline service providers enable MNOs to save time, cut costs, reduce project risk, and focus on their core business.

An Ideal Service Delivery Platform for Lit Services

The flexiHaul M6424 is the ideal service delivery platform for wireline service providers to light up their dark fiber assets. The flexiHaul M6424 is a purpose-built switch based on IEEE standard 802.1CM-TSN for fronthaul. It is the industry's first time-sensitive networking (TSN) transport platform that supports 4G CPRI, 5G eCPRI, and Ethernet services.

Lit Services Supported by the M6424:

- 5G eCPRI up to 25 Gbps per channel
- 4G CPRI up to 10 Gbps per channel
- Ethernet data services up to 25 Gbps

Simplified Installation and Provisioning

The M6424 is a compact platform utilizing only 1RU of rack space. The temperature-hardened operation of the M6424 eliminates any additional heating or cooling devices at the cell site. The platform's automated service provisioning capabilities and remote control system use the HSN8800 GUI-based management system and/or Virtuora SDN network controller (or equivalent) and minimize necessary technician skill levels at the cell sites during turn-up. This simplicity and automation expedites service turn-up time while keeping cell site costs low.

Superior Performance with Greater Flexibility

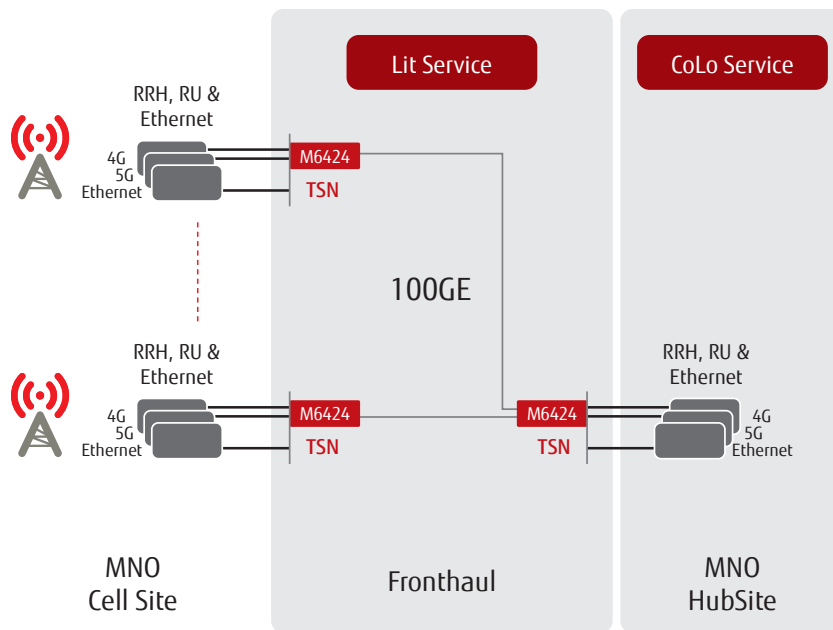
The choice of transport platform is critical to successful delivery of lit services that meet the stringent performance requirements of 5G use cases, particularly in the areas of latency and synchronization.

Already deployed in North American Tier 1 networks, the M6424 platform is industry-proven to deliver superior performance and flexibility when compared to repurposed routers. The M6424 provides open 4G, 5G, and Ethernet transport and aggregation, eliminating vendor lock-in and ensuring compatibility with multiple RAN vendor network architectures. Overall, the M6424 is the optimal choice for delivering lit services to MNOs, adding 5G to existing 4G networks, or deploying standalone 5G networks.

M6424 Performance Highlights as Compared with Repurposed Routers:

- 75× improvement on packet jitter
- More budget for Radio Unit (RU) processing time
- 5× lower switching latency
- 20% flexibility advantage in topology layouts
- 28× fewer clock synchronization errors

Simplicity, Automation, Flexibility and Performance



5G Lit Services, Powered by M6424 TSN Switch

5G-Lit-as-a-Service Option

Wireline service providers facing challenges adding a new technology and/or transport platform to their dark fiber network for lit services can utilize the Fujitsu turnkey white-label service. This subscription-based service includes the M6424 with individual or combined Fujitsu expert services. These industry-proven and certified services include planning, installation, and ongoing maintenance and operations.

Why Fujitsu?

The M6424 TSN switch provides open 4G, 5G and Ethernet transport and aggregation. It eliminates vendor lock-in and ensures compatibility with multiple vendors, while providing superior performance when compared to repurposed routers. By offering lit services, wireline service providers enable MNOs to save time, cut costs and reduce project risk; allowing them to focus on their core business.

Hub Site CoLocation Application

In addition to offering a fronthaul lit service to MSOs, wireline service providers also have an opportunity to offer a colocation service at their central office facilities for the MNO centralized hub sites. Offering a colocation service enables the wireline service provider to consolidate multiple MSOs on the same M6424 and dark fiber from the cell site to their central office, further reducing infrastructure costs.

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