

Multi-Service Access Solution

For mobile and fixed applications

Key benefits:

- Ideal in multi-technology and/or multi-vendor mobile and fixed access networks
- Native transport of E1/T1 and Ethernet traffic with up to 4Gb/s capacity on single wavelength
- Layer-1 multiplexing supporting four E1/T1 sync domains and four Synchronous Ethernet flows
- Jitter and wander performance according to toughest standards (Option 2)
- Automatic provisioning of Collector nodes reduces cost for installation & commissioning
- Full management support through Transmode's Network Management system (TNM)
- Low Power Design for Low Total Cost of Ownership

The Multi-Service Access Solution consists of two basic elements; a rack-mounted Multi-Service Access Collector node (MBA/2 or MBA/2e) and a Hub unit (MXP-MBH/1) which is a plug-in unit that can be inserted together with other TM-Series units in a TM-3000 or TM-301 chassis.

Native transport of E1/T1 and Ethernet traffic

The basic configuration is having up to eight Collector nodes connected to a Hub unit. The E1/T1 signals enters the Hub on the network side via four STM-1/OC-3 interfaces, each representing a separate sync group, i.e. all E1/T1's within a STM-1/OC-3 are part of the same sync group.

The E1/T1 signals are cross connected, TDM-multiplexed and transparently transported over the same wavelength together with the Ethernet signals for the particular Collector node. This transport between the Hub and the Collector node uses a TDM multiplexing technique with a patent pending algorithm to provide high quality sync transparency.

The native E1/T1 transport fulfils the quality requirements stipulated in ITU-T G.823, G.824 & G.813 recommendations and the Ethernet transport as specified in G.8262/Y.1362, both according to Option 1 and the tougher Option 2. The line rate between Collector node and Hub unit can be set to either 2.5Gb/s or 4Gb/s enabling a max capacity of 16xE1T1 and 4x GbE towards a Collector node.

The Hub unit has 16 Ethernet ports for 100Mb/s or 1Gb/s Ethernet signals. These can via a XC-function be connected to any of the connected MBA units. Since the transport is transparent, Ethernet signals using "Timing over Packets" standards, such as 1588v2 can also be carried between the Hub node and the Collector node.

Resilience Options

Each Collector node can be connected to the Hub unit via sub 50ms 1+1 Line protection. To further enhance the resilience, the Collector nodes can as an alternative be connected towards two separate Hub units, i.e. dual hub protection.



Collector node in point-to-point configuration

Two Collector nodes can be connected in a point-to-point configuration providing transport of 16 E1/T1 and four Ethernet signals between the two nodes. A sub 50ms 1+1 Line protection can be applied between the two nodes if required to enhance the availability figures.

Low latency for LTE transport

The Multi-Service Access Solution is a pure Layer 1 solution with no L2 aggregation and consequently no L2/L3 provisioning is required. With this very low latency solution L2/L3 OAM measurements are not influenced apart from the delay introduced by passing through the hardware and via the transport over the fiber. This delay is negligible from a systems point of view and well within the specifications of the LTE standard.

Efficient aggregation at Hub unit

The Hub unit (MXP-MBH/1) is a plug-in unit that can be inserted into a TM-3000 or TM-301 chassis where it can be combined with other mobile backhaul units within the TM-Series portfolio or handed off to an existing SDH/SONET and Ethernet network.

The usage of pluggable transceivers enables usage of uncolored, CWDM or DWDM interfaces towards the Collector nodes.

Full management support

Transmode's Network Management system (TNM) provides full management support for the Multi-Service Access Solution. It offers full FCAPS functionality, end-to-end OAM and point-and-click Service Provisioning. The TNM also offers full Next-Generation OSS compliance through its MTOSI 2.0 compliant state machine and complete suite of MTOSI 2.0 interfaces for back-office integration to planning, inventory, provisioning, fault management and customer care systems.

The line signal between the Hub and the Collector node provide embedded management channels for remote management access, signaling and download of software and firmware upgrades/updates.

Performance monitoring is extracted per E1/T1 and Ethernet connection and presented according to G.826 in 15min/24h intervals. A utilization value (%) of each Ethernet connection is also provided.

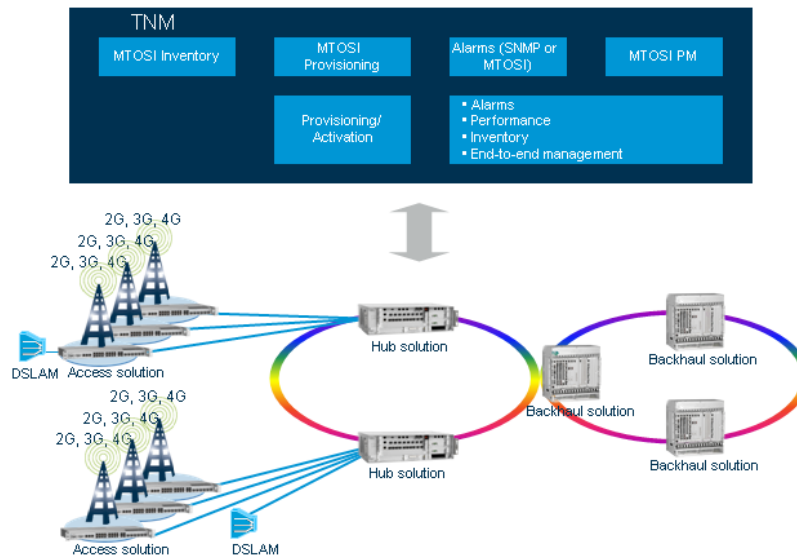


Fig.1 Transmode Network Management system manages the Multi-Service Access Solution including Backhaul.

Technical specifications, MBA/2 and MBA/2e:

| | |
|--------------------------|--|
| Client interfaces | 16xE1/T1 (RJ48C) + 4xFE/GbE optical (SFP) or electrical (RJ45) |
| Line interfaces | 2,5Gb/ or 4Gb/s (SFP) |
| Protection | In Hub-Collector node config: 1+1 Line protection or dual hub protection In Collector ptp-config: 1+ Line protection |
| Synchronization | In Hub - Collector node config: E1/T1 ITU-T G.823, G.824 & G.813 Option 1 and Option 2. Sync-E G.8262/Y.1362 Option 1 and Option 2 In Collector ptp-config: E1/T1 ITU-T G.823, G.824 & G.813 Option 1 |
| Power | Dual DC interface -48V and -60V primary power |
| Power consumption | MBA/2): Max 20W MBA/2e: Max 30W |
| Cooling | MBA/2: Passive cooling MBA/2e: Active cooling |
| Temperature | MBA/2: Range: -5 to +55°C / 23 to 131°F MBA/2e: -40 to +65°C / -40 to +149°F |
| Mounting | 1U chassis, ETSI (300mm) depth compliant 19", ETSI and 23" mounting |

Technical specifications, MXP-MBH/1:

| | |
|--------------------------|--|
| Client interfaces | 4xSTM-1/OC-3 (SFP) 16xFE/GbE optical/electrical via SFP |
| Line interfaces | 8 x 2,5G/4G (towards MBA/2 & MBA/2e) via SFP |
| Protection | In Hub-Collector node config: 1+1 Line protection or dual hub protection |
| Synchronization | ITU-T G.823, G.824 & G.813 Option 1 & Option 2 Sync-E G.8262/Y.1362 Option 1 & Option 2 |
| Power | Dual DC interface -48V and -60V primary power |
| Mounting | 2-slot plug-in unit in TM-3000 or TM-301 chassis |

The specifications and information within this document are subject to change without further notice. All statements, information and recommendations are believed to be accurate but are presented without warranty of any kind. Contact Transmode for more details.