

BIG 26 – BROADBAND OVER COPPER ELCONNECT®

VDSL2 for ultra-high-speed data transmission
over existing copper lines

EFM BONDING, DSL VECTORING AND PHANTOM MODE
for data rates up to 400 Mbps

DEMARCATIION DEVICE OR BUSINESS ROUTER
for flexible deployment within
many applications



SITUATION

Business customers today need a modern and efficient communication infrastructure. They require extremely versatile and high-performance network systems and terminal equipment's. Special attention is hereby paid by the carriers to meet:

- the business requests for highly available, symmetrical broadband services
- the demands for guaranteed service level agreements (SLA)
- the requirements with respect to bandwidth management and separation of individual voice and data services
- the guaranteed availability of certain services using efficient prioritization algorithms.

Network operators have bundled such requirements under the term "Carrier Ethernet".

"Carrier Ethernet" networks offer standardized services to business subscribers. Such services allow faster and more cost effective adaptations to customer requirements without additional on-site installation or configuration. End-to-end supervision of the transmission quality allows immediate intervention in case of quality degradation or even network failures.

SOLUTION

The Broadband Intelligent Gateway (BIG) 26 series are specially designed for connection of business subscribers with up to 500 employees.

The BIG 26 series is optimized for data applications within the Metro-Ethernet, Internet cloud services like Internet-based storage and applications, the connection of branch offices to the head quarter using virtual networks (VLAN) and prioritized voice and data services.

Comprehensive functions for bandwidth allocation and prioritization of services and interfaces are implemented. Also a wide range of VLAN configuration and manipulation features for company connections are available. MEF compliant services like E-LAN, E-TREE and E-LINE are certainly supported.

The BIG 26 series offers a managed switch and router, thus providing an ideally suited device to meet different customer requirements.

Data transmission to the Ethernet or IP backbone runs over 4 VDSL2 lines, which can provide data rates of up to 400 Mbps. DSL vectoring and the phantom mode allow a further increase in speed at long copper lines. Additionally the device contains one 1000Base-T and/or SFP 1000Base-X interfaces respectively connecting optical fibers.

Moreover, due to the comprehensive implementation of synchronization features, the BIG 26 series can also be used for connecting data centers and mobile base stations (GSM, 3G, LTE eNodeB) requiring network-wide clock and phase synchronization.

Local and remote management is performed through a Web-GUI, CLI and SNMP-protocol which guarantees that the efforts for OAM and integration into existing management software are kept to a minimum.



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APPLICATION

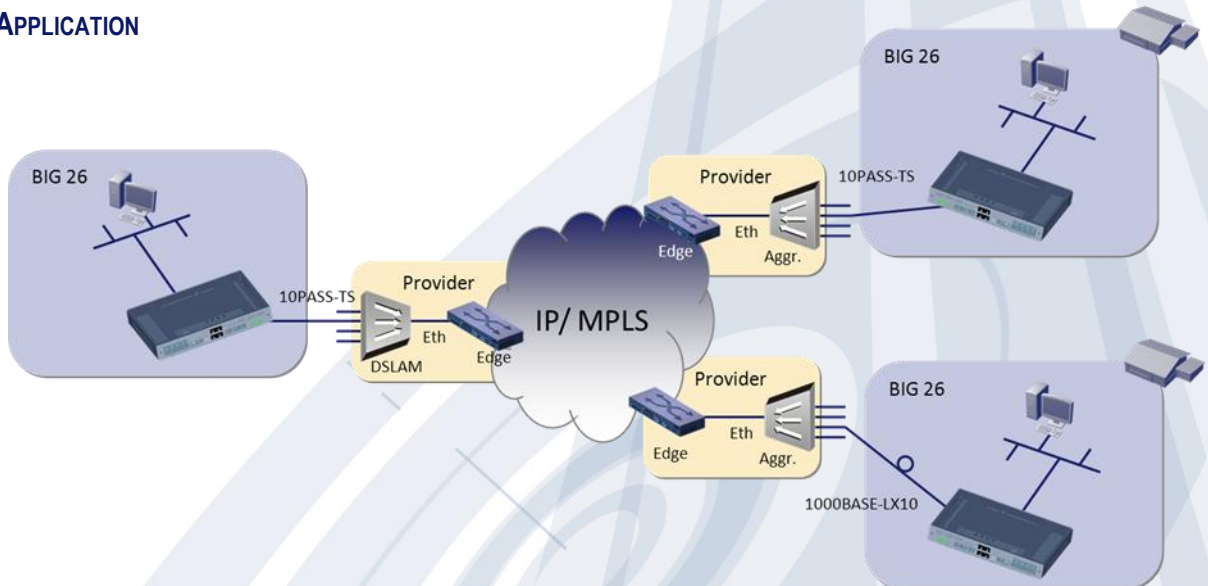


Figure 1: Metro-Ethernet Services

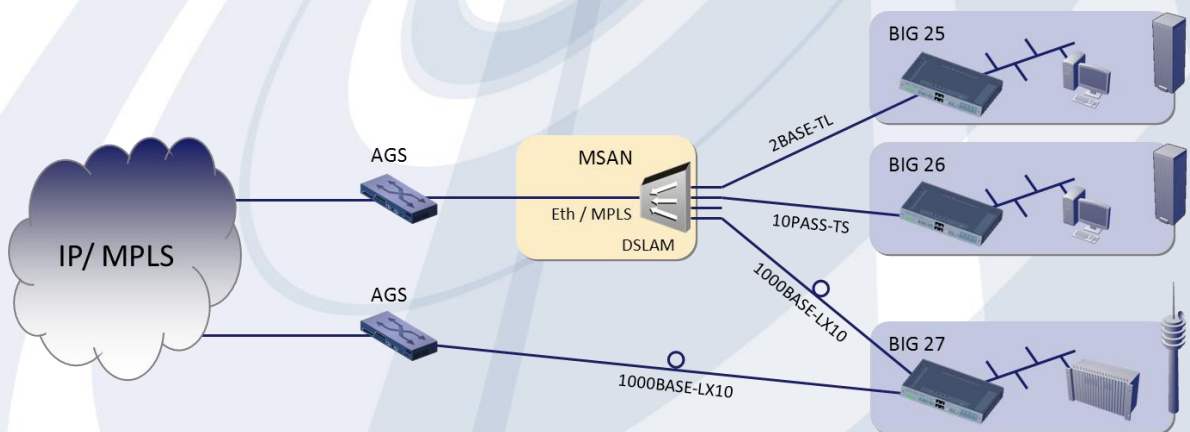


Figure 2: MSAN Access Network and Connection of Mobile Base Stations

TECHNICAL DATA

Network Interface (NNI)

- ITU-T G.993.2 VDSL2
 - 1/2/4 VDSL2 line pairs
 - profiles 8a/b/c/d, 12a/b, 17a, 30a
 - EFM bonding (IEEE 802.3-2005)
 - DSL vectoring (ITU-T G.vector, G.993.5-2010)
 - 1/2 x RJ45
- 1 x SFP 1000Base-X and/or
1 x 10/100/1000Base-T
- IEEE 802.3ad link aggregation
- LACP load balancing / link protection
- fault propagation to LAN interfaces
- frame size (MTU size):
 - up to 9600 Byte (Jumbo frames) for 1000Base-X / 10/100/1000Base-T WAN interfaces
 - up to 2048 Byte for DSL interfaces

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TECHNICAL DATA

Ethernet-LAN (UNI)

- 4 x RJ45 Fast-Ethernet and/or 1/8 x RJ45 Gigabit-Ethernet
- MDI/MDIX-Autosensing
- standard Ethernet protocol IEEE 802.3
- IEEE 802.1q, 802.1d, native multicast
- VLAN support for management and user data
- VLAN double tagging (Q-in-Q) as per 802.1ad (provider bridge)
- DSCP remarking
- fault propagation to remote LAN interfaces

Bridging and VLAN

- VLAN acc. to 802.1Q-2005
- min. 64 VLANs
- VLAN tagging, switching, stacking, swapping, filtering

Router Functions

- TCP/IP v4/v6
- NAT/NATP
 - virtual server
 - port mapping
 - virtual DMZ
- DHCP client/server/relay
- PPPoE
- static IP
- firewall
- DynDNS
- static routes
- MPLS

Ethernet Services acc. to MEF6-1

- Ethernet Private Line (EPL)
- Ethernet Virtual Private Line (EVPL)
- Ethernet Private LAN (EP-LAN)
- Ethernet Virtual Private LAN (EVP-LAN)
- Ethernet Private Tree (EP-Tree)
- Ethernet Virtual Private Tree (EVP-Tree)

Quality of Service

- 8 queues per port
- strict priority (SPQ) & weighted fair queuing (WFQ)
- definition of service classes (CoS)
 - Port-based
 - 802-1p
 - DSCP
 - application based
 - Ethertype
- shaping, policing and queuing per port, VLAN, CoS
- policing (CIR / CBS / EIR / EBS) with two-rate, three-color marking

OAM

- IEEE 802.3 clause 57
 - dying gasp
 - passive mode
 - active mode
 - discovery
 - remote link down / loopback
 - remote status indication
- ITU-T Y.1731
 - Ethernet Continuity Check
 - Ethernet Loopback
 - Ethernet Link Trace
 - Ethernet Alarm Indication Signal
 - Ethernet Remote Defect Indication
 - Ethernet Locked Signal
 - Ethernet Test Signal
 - Ethernet Automatic Protection Switching
 - Frame Loss Measurement
 - Frame Delay Measurement
- NTP/SNTP
- statistical transmission data and history (15 min / 24 h)
 - per Port, CoS, VLAN and EVC

Clock Support

- clock source selection from NNI
- clock output T4 (T12/E12)
- SyncE at all LAN ports for clock distribution acc. to ITU-T G.8261/ G.8262/ G.8264/ G.823/ G.825
- phase synchronization acc. to IEEE1588v2
- Ordinary Slave Clock (OC), transparent Clock (TC) or Boundary Clock (BC) functions, configurable
- Stratum 3 clock
- 1pps output
- Time of Day (ToD)

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TECHNICAL DATA

Management and Configuration

- LCT Port 10/100Base-T
- local configuration via Web-GUI
- CLI (via LCT/tftp/ssh)
- DHCP / TFTP auto configuration
- remote configuration and -management
- SNMP v2- / v3-Support
- syslog client
- alarm- and event history
- remote /locale SW upgrade
- firmware update
- password protection
- device temperature control

Mechanics

- desktop / wall mounting
- rack mounting with 19" rack brackets

Power Supply

- internal power supply
input: -36 V ... -72 V DC
- external power supply, EU plug
input: 100 V ... 253 V AC, 50 Hz ... 60 Hz
output: -48 V DC / 0.4 A
- max. power consumption: 19 W

Dimensions

- dimensions (W × D × H):
 - 300 mm × 193.5 mm × 45 mm (height excl. feet's)
 - 300 mm × 193.5 mm × 53 mm (height incl. feet's)
- weight: 1.9 kg

Environmental Conditions

- operation: 0 °C ... +45 °C
- option: -25 °C ... +55 °C
- storage: -40 °C ... +70 °C

Conformance

- CE-marking
- EN 60950, EN 300386, EN 55022, EN 61000

Note: All rights reserved. Subject to modifications due to technical progress. Errors and printing mistakes may occur.

PURCHASE ORDER INFORMATION

Product Designation*	Order Number
BIG 2611 (4 x VDSL2, 1 x SFP WAN, 1 x GETH WAN, 4 x FETH LAN, 1 x GETH LAN, E-OAM)	t.b.d.
BIG 2612 (4 x VDSL2, 1 x SFP WAN, 1 x GETH WAN, 4 x FETH LAN, 1 x GETH LAN, E-OAM, T4, 1pps, ToD, ext. temperature range)	t.b.d.
BIG 2621 (4 x VDSL2, 1 x SFP WAN, 1 x GETH WAN, 4 x FETH LAN, 1 x GETH LAN, Routing)	t.b.d.

* Individual product features are subject to a detailed specification. Please refer to your local sales representative for more information.